Five-Year Review Report

Second Five-Year Review Report
for
Standard Steel & Metal Salvage Yard (USDOT)

Anchorage, Alaska

March 2008

FINAL

PREPARED BY:

U.S. Army Corps of Engineers, Alaska District
Elmendorf AFB, AK

FOR:

U.S. Environmental Protection Agency, Region 10
Seattle, WA

Approved by: Date: 4/11/2008

Daniel D. Opalski, Director
Environmental Cleanup Office
U.S. Environmental Protection Agency, Region 10

[This page intentionally left blank]

Table of Contents

List of Acronyms ..... **v**
Executive Summary **1**
Five-Year Review Summary Form **3**
I. Introduction **5**
II. Site Chronology **6**
III. Background **7**
Physical Characteristics 7
Land Use & History of Contamination 7
Initial Response 8
Basis for Taking Action 8
IV. Remedial Actions **8**
Remedy Selection 8
Remedy Implementation 10
Operations and Maintenance (O&M) 11
Institutional Controls 12
V. Progress Since the Last Review **14**
VI. Five-Year Review Process **14**
Administrative Components 14
Community Notification and Involvement 15
Document Review 15
Data Review 15
Site Inspection 17
VII. Technical Assessment **19**
Question A: Is the remedy functioning as intended by the decision documents? 19
Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of remedy selection still valid? 19
Question C: Has any other information come to light that could call into question the protectiveness of the remedy? 21
Technical Assessment Summary 21
VIII. Issues **21**
IX. Recommendations and Follow-Up Actions **22**
X. Protectiveness Statement(s) **23**
XI. Next Review **23**

TABLES

Table 1 Chronology of Site Events
Table 2 Annual Operations & Maintenance Costs
Table 3 Summary of Groundwater Monitoring Data 1999-2006
Table 4 Recommendations and Follow-Up Actions

FIGURES

Figure 1 Site Location and Vicinity Map
Figure 2 Aerial View of Standard Steel & Metals Salvage Yard
Figure 3 Monitoring Well Locations
Figure 4 Land Use Status Standard Steel & Metals Salvage Yard

PHOTOS

Photos Documenting Site Conditions

ATTACHMENTS

ATTACHMENT 1 List of Documents Reviewed
ATTACHMENT 2 List of Interested Parties
ATTACHMENT 3 List of Potential Interviewees
ATTACHMENT 4 Blank Interview Questionnaire
ATTACHMENT 5 Completed Interview Questionnaires and Records
ATTACHMENT 6 Mailing List
ATTACHMENT 7 Site Visit Reports
ATTACHMENT 8 ADEC Contaminated Sites Database Report
ATTACHMENT 9 Title Search Report
ATTACHMENT 10 Groundwater Monitoring Report July 2004
ATTACHMENT 11 Groundwater Monitoring Report September 2006
ATTACHMENT 12 Ground Lease and Special Land Use Permit
ATTACHMENT 13 Municipality of Anchorage Public Parcel Inquiry Report
ATTACHMENT 14 Operations & Maintenance Plan (Revised) July 2000
ATTACHMENT 15 Public Notice of 5 Year Review
ATTACHMENT 16 O&M Checklists
ATTACHMENT 17 Record of Decision (1996)
ATTACHMENT 18 CERCLA Consent Decree RD/RA (1998)
ATTACHMENT 19 Explanation of Significant Differences (1998)
ATTACHMENT 20 Declaration of Restrictive Covenants and Notice of Remedial Action

List of Acronyms

ADEC	Alaska Department of Environmental Conservation
ARAR	Applicable or Relevant and Appropriate Requirement
ARLIS	Alaska Resource Library and Information Services
ARRC	Alaska Railroad Corporation
CD	Consent Decree
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
EPA	United States Environmental Protection Agency
ESD	Explanation of Significant Difference
FRA	Federal Railroad Administration
HVOC	Halogenated Volatile Organic Compounds
IC	Institutional Controls
MCL	Maximum Contaminant Level
mg/kg	Milligrams per kilogram
MW	Monitoring Well
NCP	National Contingency Plan
ND	non-detect
NPL	National Priorities List
O&M	Operation and Maintenance
PAH	Polyaromatic Hydrocarbon
PCB	Polychlorinated Biphenyl
ppb	parts per billion
PQL	Practical Quantitation Limit
PRP	Potentially Responsible Party
RA	Remedial Action
RA-C	Remedial Action - Construction
RAO	Remedial Action Objective
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RD/RA	Remedial Design/Remedial Action

RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
SDWA	Safe Drinking Water Act
TSCA	Toxic Substances Control Act
ug/L	Micrograms per Liter
USDOT	US Department of Transportation
VOC	Volatile Organic Compound

Executive Summary

The remedy selected for the Standard Steel & Metals Salvage Yard Superfund Site in Anchorage, Alaska includes: removal and offsite disposal of regulated material stockpiled onsite; offsite disposal of scrap metal and debris; excavation, stabilization and capping of contaminated soils on site; maintenance of the cap and erosion control structures on Ship Creek; institutional controls; and groundwater monitoring. The site consists of one Operable Unit; therefore this five year review covers sitewide conditions. The site achieved Construction Completion with the signing of the Final Close Out Report on June 26, 2002. The site was deleted from the National Priorities List on September 30, 2002. An initial five-year review was triggered by the actual start of construction on April 23, 1998. This second five-year review was triggered by the completion date of the first five-year review, April 23, 2003.

The remedy at Standard Steel is protective of human health and the environment, and exposure pathways that could result in unacceptable risks are being controlled. The remedy is functioning as intended in accordance with the Record of Decision signed on July 16, 1996. The immediate threats have been addressed and the remedy is expected to remain protective of human health and the environment.

The Superfund Program tracks progress at cleanup sites using several indicators, to comply with mandates of the Government Performance and Results Act (GPRA). The sitewide human exposure environmental indicator is designed to document long-term human health protection on a sitewide basis by measuring the incremental progress achieved in controlling unacceptable human exposures at a Superfund site. The ground water environmental indicator demonstrates that all information on known and reasonably expected ground water contamination has been reviewed and that the migration of contaminated ground water is stabilized and there is no unacceptable discharge to surface water. The Sitewide Ready for Anticipated Use (RAU) measure reports that all cleanup goals in the Record of Decision have been achieved for media that may affect current and reasonably anticipated future land uses of the site, so that there are no unacceptable risks; and all institutional or other controls required in the Record of Decision have been put in place.

As of March 31, 2008 for the Standard Steel Site:

- The Human Health Environmental Indicator Status is Long Term Human Health Protected.
- The Ground Water Environmental Indicator Status is Under Control.
- The Cross Program Measure Status is Ready for Anticipated Use (11.12 acres).

As of March 2008, nine years of groundwater monitoring has been completed and demonstrates that onsite groundwater is not adversely impacted by the stabilized material and no offsite migration is occurring that could affect Ship Creek. After the Fall

2008 groundwater monitoring event is completed, further evaluation of continued groundwater monitoring should be conducted. A recommendation to discontinue groundwater monitoring after the 2008 event should be considered.

Five-Year Review Summary Form

SITE IDENTIFICATION		
Site name *(from WasteLAN)*: Standard Steel & Metal Salvage Yard (USDOT)		
EPA ID *(from WasteLAN)*: AKD980978787		
Region: 10	**State: AK**	**City/County: Anchorage**

SITE STATUS	
NPL status: Final **X** Deleted Other (specify)	
Remediation status (choose all that apply): Under Construction Operating **X** Complete	
Multiple OUs?* YES **X** NO	**Construction completion date:** 06/ 26 / 2002
Has site been put into reuse? **X** YES NO	

REVIEW STATUS	
Lead agency: **X** EPA State Tribe Other Federal Agency _____	
Author name: Lisa Geist	
Author title: Environmental Scientist	**Author affiliation:** US Army Corps of Engineers, Alaska District
Review period:** 09 / 26 / 2007 to 04 / 23 / 2008	
Date(s) of site inspection: 09 / 26 / 2007	
Type of review: **X** Post-SARA Pre-SARA NPL-Removal only Non-NPL Remedial Action Site NPL State/Tribe-lead Regional Discretion	
Review number: 1 (first) **X** 2 (second) 3 (third) Other (specify) _____	
Triggering action: Actual RA Onsite Construction at OU #____ G Actual RA Start at OU#____ Construction Completion **X** Previous Five-Year Review Report Other (specify)	
Triggering action date *(from WasteLAN)*: 04 / 23 / 2003	
Due date *(five years after triggering action date)*: 04 / 23 / 2008	

* ["OU" refers to operable unit.]
** [Review period should correspond to the actual start and end dates of the Five-Year Review in WasteLAN.]

Five-Year Review Summary Form, cont'd.

Issues:

The ADEC reported that new information obtained during a 2007 investigation by the Alaska Railroad shows PCBs were detected in surface soil samples collected from a former drainage ditch adjacent to southwest corner of the Standard Steel site. The ADEC requested additional sampling be conducted to characterize the drainage ditch. Two of the 5 drainage ditch samples exceeded the soil cleanup level specified by the ROD for flood plain soils of 1 mg/kg PCBs. The concentrations ranged from 0.05 to 2.13 mg/kg. The Alaska Railroad conducted the investigation under a separate Administrative Order on Consent with the US EPA. The current EPA project manager is Jacques Gusmano in the Alaska Operations Office. A draft Feasibility Study completed by the ARRC indicates they intend to remove the PCBs above 1 mg/kg in the ditch and treat the soil by incineration. The sampled area is not an active drainage pathway for the landfill cell, site land use is still industrial, thus the remedy remains protective. The data does not suggest the remedy is failing.

Recommendations and Follow-up Actions:

Continue annual operation and maintenance activities to ensure the integrity of the solidified material and cap. Continue yearly site inspections for the landfill consolidation cell, cap, and drainage system. As of March 2008, nine years of groundwater monitoring has been completed and demonstrates that onsite groundwater is not adversely impacted by the stabilized material and no offsite migration is occurring that could affect Ship Creek. After the Fall 2008 groundwater monitoring event is completed, further evaluation of continued groundwater monitoring should be conducted. A recommendation to discontinue groundwater monitoring after the 2008 event should be considered. Next 5 year review should verify that PCBs detected in former drainage ditch adjacent to the landfill containment cell were addressed under separate regulatory action between US EPA and the Alaska Railroad.

Protectiveness Statement(s):

Because the remedial actions are protective, the site is protective of human health and the environment.

Other Comments:

None.

Five-Year Review Report

I. Introduction

The purpose of this second five-year review is to determine whether the remedy at the Standard Steel & Metal Salvage Yard (USDOT) is protective of human health and the environment. The methods, findings, and conclusions of Five Year Reviews are documented in the Five Year Review Reports. The five year review report identifies issues found during the review, if any, and identifies recommendations to address them.

This five year review report is being prepared pursuant to the authority in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 121 and the National Contingency Plan (NCP). CERCLA Section 121 states:

> *If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often that each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgment of the President that action is appropriate at such site in accordance with section 104 of 106, the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such reviews.*

The NCP, at 40 Code of Federal Regulations (CFR) Section 300.340(f)(4)(ii) states:

> *If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.*

The United States Environmental Protection Agency (EPA), Region 10, is the lead Agency for the Standard Steel & Metal Salvage Yard Superfund site (Standard Steel). This is the second five year review for the site. The triggering action for this review is the date of the first five year review, as shown in EPA's WasteLAN database: April 28, 2003. A first five year review was conducted between February and April 2003, after construction of an onsite containment cell for hazardous substances. The site consists of only one operable unit (OU), therefore this review covers sitewide conditions. Although the Standard Steel Superfund site was deleted from the National Priorities List (NPL) in September 2002, periodic five year reviews must continue because contaminants remain capped onsite and land use is restricted to industrial use.

At the request of the EPA, the U.S. Army Corps of Engineers prepared the second five year review of the remedy implemented at the site in Anchorage, Alaska. This review was conducted by staff from the Alaska District office on Elmendorf Air Force Base in Anchorage, Alaska, during September 2007 – March 2008. This report documents the results of the review.

II. Site Chronology

Table 1: Chronology of Site Events

Event	Date
Metals recycling and salvaging operations	1955 - 1993
Standard Steel & Metals leases the site	1982
Alaska Railroad Corporation purchases site from Federal Railroad Administration	1985
Initial discovery of problem or contamination	October 28, 1985
Pre-NPL Removal Actions	June 2, 1986 – June 29, 1988
NPL listing	August 30, 1990
Administrative Order on Consent to Conduct Remedial Investigation/Feasibility Study	September 23, 1992
Remedial Investigation/Feasibility Study complete	January 30, 1996
ROD signature	July 16, 1996
Partial Consent Decree for Recovery of Removal Costs	December 11, 1996
CERCLA Remedial Design/Remedial Action (RD/RA) Consent Decree	January 26, 1998
Remedial Design Start	October 4, 1996
Remedial Design Complete	April 23, 1998
Actual Remedial Action Start	April 23, 1998
Explanation of Significant Differences	November 18, 1998
Construction Finish	August 1, 1999
Final Inspection	August 27, 2001
Construction Completion Date	June 26, 2002
Final Close-out Report	June 26, 2002
Deletion from NPL	September 30, 2002
First Five Year Review	April 23, 2003
Second Five Year Review Start	September 27, 2007

III. Background

Physical Characteristics

The Standard Steel & Metals Salvage Yard site was an 11 acre metal salvage yard in Anchorage, Alaska. The site is located north of downtown Anchorage near the intersection of Railroad Avenue and Yakutat Street, adjacent to Ship Creek. See Figure 1 for a site location and vicinity map. The site is zoned I-2, which denotes a heavy industrial district, by the Municipality of Anchorage. The property is owned by the Alaska Railroad Corporation (ARRC). The site is located within the Municipality of Anchorage. Anchorage is the largest metropolitan area in the state, with a population of over 260,000 persons. A residential area is located one half mile southeast of the site, across Ship Creek. Elmendorf Air Force Base is located one third mile northeast of the site. Ship Creek is a designated anadramous fish stream by the Alaska Department of Fish and Game.

Land Use & History of Contamination

The Federal Railroad Administration (FRA), part of the U.S. Department of Transportation (USDOT), acquired the land in the 1920s. Metal recycling and salvage businesses operated on the site beginning in 1955 and until 1993. Site activities included reclamation of copper from electrical transformers containing polychlorinated biphenyls (PCBs), salvaging of assorted batteries, and processing of various types of equipment and drums from nearby military bases. Releases of hazardous substances occurred from these activities and the inappropriate handling of transformer oils. In 1982, the land was leased to Standard Steel & Metals. The site contained transformers, bulk tanks, an incinerator, a metal crusher, drums and other containers, and additional items associated with salvage operations. FRA owned and leased the property until 1985, when it was purchased by the State of Alaska and managed by the Alaska Railroad Corporation. The Alaska Railroad Corporation (ARRC) is an independent corporation owned by the State of Alaska. The entire site is within the ARRC's Post Road Industrial Lease Lots. The ARRC currently leases the majority of the site (Lots 53-57) to K&T Enterprises, who subleases it for warehouse, truck maintenance, and storage operations. The remainder of the site (Lot 58A) is utilized for storage of trailers and piles of steel by R.J.H. (doing business as (dba) STEELFAB) under a special land use permit with the ARRC. The site is adjacent to Ship Creek, a stream used for sport fishing. Recent improvements to the Ship Creek corridor include extension of a recreational trail along the southern bank of the creek. The potential removal of dams to allow fish passage upstream is also under consideration. The future land use of the site is expected to remain the same, there are no known changes anticipated at this time. A recent aerial view of the Standard Steel site is shown in Figure 2.

Initial Response

The EPA conducted a series of removal actions from 1986 through 1988 to address site contamination. EPA removed all polychlorinated biphenyls (PCBs)-contaminated liquids, eighty-two 55 gallon drums of Resource Conservation and Recovery Act (RCRA) hazardous waste, 10,450 gallons of waste oil, 185 electrical transformers contaminated with PCBs, and 781,000 pounds of lead-acid batteries. Contaminated soils were stockpiled, and a security fence and erosion-control wall were built. EPA proposed adding the site to the National Priorities List (NPL) of Superfund Sites on July 14, 1989. The Standard Steel site was listed on the NPL on August 30, 1990.

Basis for Taking Action

A Remedial Investigation/Feasibility Study (RI/FS) was completed in January 1996. The study identified PCBs and lead as the primary contaminants of concern at the site. The site posed potential threats to human health and the environment through ingestion, dermal contact, and inhalation of contaminated soils. Offsite groundwater was not impacted. Sampling results from the Feasibility Study detected a maximum of 24,000 mg/kg lead and 2,700 mg/kg PCBs. The excess cancer risks for a long-term worker exceeded the 1E-4 target risk range at the site and the hazard index exceeded a level of exposure which may result in adverse health effects. The risks associated with either residential or industrial exposure to elevated concentrations of lead in site soil were determined to present significant risks to human health.

The ecological risk assessment determined that the most sensitive ecological habitat in the site vicinity was found in Ship Creek. It further concluded the data indicated that conditions within Ship Creek, within the study area, were not significantly impacted by contamination from the site. The ecological risk assessment observed that the highest contamination concentrations were measured in the area where former site operations were concentrated and because of the gravely fill material and shotcrete cap, little ecological habitat was present in this area. Based on the information presented in the ecological risk assessment, the risk to ecological receptors appeared small, due to the poor habitat of the site. Concentrations of PCBs outside the existing fence and adjacent to Ship Creek posed a risk to ecological receptors.

IV. Remedial Actions

Remedy Selection

Based on the results of the RI/FS and information contained in the Administrative Record, the Regional Administrator for EPA Region 10 signed a Record of Decision (ROD) on July 16, 1996 selecting remedial actions for the Standard Steel site
The remedial action objectives (RAOs) identified for the site are:

- Prevent exposure by inhalation, ingestion, and dermal contact with contaminated soils that would result in an excess lifetime carcinogenic risk above 1E-4 for industrial use, and off-site non-industrial use;

- Prevent exposure by inhalation, ingestion, and dermal contact with contaminated soils that would result in noncarcinogenic health effect as indicated by an HI greater than 1.0;

- Prevent off-site migration of contaminants caused by mechanical transport, surface water runoff, flood events, and wind erosion;

- Prevent leaching or migration of soil contaminants into groundwater that would result in groundwater contamination in excess of regulatory standards.

According to the 1996 ROD, the key components of the selected remedy include:

- Removal of regulated material stockpiled on-site and investigation derived wastes with subsequent disposal in a RCRA Subtitle C or D landfill, or recycling of materials;

- Off-site disposal of remaining scrap debris by recycling or disposal in a RCRA Subtitle D landfill or, if the debris is a characteristic hazardous waste or contains greater than 50 mg/kg PCBs or 10 ug/100cm^2 by standard wipe tests, treatment and disposal in a RCRA Subtitle C or TSCA landfill;

- Excavation and consolidation of all soils exceeding cleanup levels (10 mg/kg PCBs or 1,000 mg/kg lead);

- Treatment of all soils at or greater than 1,000 mg/kg lead or 50 mg/kg PCB by stabilization/solidification;

- On-site disposal of stabilized/solidified soils and excavated soils between 10 mg/kg and 50 mg/kg PCBs in TSCA landfill;

- Excavation of soils impacted above 1 mg/kg PCBs and 500 mg/kg lead from the flood plain and consolidation of these soils elsewhere on the site;

- Maintenance and repair of erosion control structure on bank of Ship Creek;

- Maintenance of solidified/stabilized soils and the landfill;

- Institutional controls to limit land uses of the site and, if appropriate, access;

- Monitoring of groundwater at the site to ensure the effectiveness of the remedial action.

Remedy Implementation

On January 26, 1998, the United States District Court for the District of Alaska approved a Remedial Design and Remedial Action Consent Decree for performance of the remedy at the Standard Steel Site. The Consent Decree was entered into by the United States, on behalf of the EPA, and Chugach Electric Association, Inc., Montgomery Ward and Company, J.C. Penney Company, Inc., Bridgestone/Firestone, Inc., Sears Roebuck and Company, and Westinghouse Electric Corporation (Settling Defendants or PRP Group) and the Alaska Railroad Corporation (ARRC) as the Owner Settling Defendant. The ARRC signed the Consent Decree exclusively for the purpose of agreeing to provide access and implement institutional controls. The Settling Defendants/PRP Group agreed to perform the remedial design/remedial actions selected in the ROD and other Work required by the Consent Decree.

The remedial design work was conducted in accordance with the approved ROD and statement of work for the Consent Decree. The remedial action was formally initiated in April 1998. The contractor conducted the remedial actions pursuant to the approved remedial design/remedial action work plans. Potential unexploded ordnance was encountered during the implementation of the remedy. However, the work plans anticipated this possibility and the remedial actions proceeded with some changes. All suspected ordnance and explosives, and unexploded ordnance was removed and treated by the U.S. Army's military explosives ordnance detachment from Fort Richardson, Alaska.

A Toxic Substances Control Act (TSCA) disposal cell is located on 2.5 acres along the northeast boundary of the site. The waste consolidation cell measures approximately 320 by 340 feet and extends to a depth of about 15 feet below finished grade. The cell holds approximately 55,000 tons of contaminated material, of which 22,272 tons were stabilized. The contaminated soils are covered with closed cell foam insulation, a 40 mil geomembrane cover, geocomposite drainage layer, and three feet of clean soil. The cell is designed to be utilized for vehicle/equipment storage or a future building area. The cell is surrounded on three sides by a 14,000 ton rip rap barrier wall designed to protect against a 500 year (minimum) flood event. Figure 3 depicts the consolidation cell and drainage ditches.

The selected remedy was enhanced by the following approved design changes, which were implemented in 1998 and 1999:

- Excavating all upland surface soils outside the limits of the TSCA landfill which exceeded 1 mg/kg PCBs or 250 mg/kg lead to a depth of three feet; and disposal in the onsite TSCA landfill (note that per the draft Site Closeout Report, stricter cleanup levels were selected by the PRP group).
- Including a geomembrane cover system consisting of a four-inch foam insulation layer, 40 mil liner, geonet drainage layer, lifter fabric, and three feet of clean soil

over the landfill.

- Creation of a flood protection barrier on three sides of the landfill.
- Replacement of the rip rap erosion control wall adjacent to Ship Creek with an Alaska Department of Fish and Game requested natural erosion protection system. This system incorporated native vegetation and artificial logs to secure the stream bank and provide habitat.

Based on these changes, an Explanation of Significant Differences (ESD) was signed on November 18, 1998 which waived the requirement of 40 CFR 761.75(B)(9)(i) for a fence around the TSCA landfill.

A Remedial Action Report was signed on August 1, 1999 and a Final Closeout Report was signed on June 26, 2002 which documented that all work at the site has been completed and all cleanup levels established in the ROD have been achieved through the remedial actions.

Operations and Maintenance (O&M)

Pursuant to the Consent Decree, Chugach Electric Association, Inc., J.C. Penney Company, Inc., Bridgestone/Firestone, Inc., Sears Roebuck and Company, and Westinghouse Electric Corporation (CBS Corporation is its successor) are responsible for operation and maintenance procedures. The remedy requires maintenance of the landfill to ensure it retains its structural integrity and prevents the release of PCBs and lead through erosion, leaching or excavation. The Operations and Maintenance Plan (revised) (ALTA Geosciences, July 2000) contains the detailed requirements for ongoing O&M activities, as well as recommended operating limitations for site activities or future building construction. O&M activities include verification that the construction components of the remedy are intact and operating properly, groundwater monitoring, and periodic maintenance of the landfill cap and surface drainage systems.

The O&M Plan (Revised) required site inspections of the consolidation landfill cell twice per year for the first 3 years after implementation (1998-2001); site inspections have been conducted since that time at the same rate. Inspections should also be made following major flood events, earthquakes, or other events with the potential to damage the landfill cell. The O&M Plan (Revised) states groundwater monitoring will continue for a minimum of 5 years following implementation of the remedy. Groundwater monitoring occurred twice yearly (semiannual) for the first 2 years after construction completion (1999, 2000), once yearly (annual) during 2001-2002, and was reduced to once every 2 years (biennial) beginning in 2004, with the approval of the EPA.

The ROD required twice yearly groundwater monitoring for PCBs and lead during the first two years of operation of the remedy. The ROD states that after ten years an assessment of the groundwater data will be conducted to determine whether

groundwater monitoring is still required or whether the frequency will be altered. The groundwater standards to be achieved are 0.5 micrograms per liter (ug/L) for PCBs and 15 ug/L for lead. The federal and state drinking water standards for PCBs and lead have not changed since the ROD was signed. The groundwater monitoring requirements include analysis for pH, specific conductance, and chlorinated organics to ensure the landfill is not contributing to contamination of groundwater, nor altering groundwater conditions. The Groundwater Monitoring Plan (ALTA Geosciences, 1998) specified sampling and analysis of groundwater from one upgradient (MW22) and four downgradient wells (MW13, MW14, MW15, and MW24). See Figure 3 for monitoring well locations.

Operation and maintenance activities have been occurring as required. During the July 2004 groundwater monitoring event, one monitoring well (MW14 located west of the southwest corner of the landfill cell) was discovered damaged. The well head was rebuilt by replacing a portion of the PVC pipe and installing a new outer protective casing. All monitoring wells were found to be well maintained during the September 2006 sampling event.

Site inspections occur twice per year, according to the PRP group's consultant, ALTA Geosciences. The ARRC also performs random observations and inspections of the site when it deems appropriate. No significant events or other unusual incidents have been reported which may affect the site remedy. Occasional trash dumping has occurred. There have been no unexpected issues or additional costs in the past five years, besides minimal maintenance.

Institutional Controls

The objectives and restrictions on use required by the ROD are:

- Ensure that site use continues to be industrial or commercial and prevent use of the site for commercial developments that involve potential chronic exposures of children to soil (e.g., use of the site for a day care center).
- Restrict activities at the site that could potentially impair the integrity of the TSCA landfill.
- Prevent movement of soil containing greater that 1,000 mg/kg lead or 10 mg/kg PCBs to the surface or within the top foot of soil where chronic long-term worker exposure could occur.
- Groundwater use restrictions which prevent the installation of groundwater supply wells at the site and restrict use of groundwater underlying the site for any purpose. Property owner will provide written notification of restrictions and site conditions to local, regional, and state agencies, departments, and utilities.

Institutional Controls required by the ROD have been implemented at the Standard Steel Site. As stated above, the ARRC agreed in the Consent Decree to implement required access and land use restrictions. The Consent Decree set forth specifically what the access and use restrictions would be. The ARRC executed and filed equitable servitudes on the title of the property comprising the Superfund site restricting uses of the property. The equitable servitudes are titled "Declaration of Restrictive Covenants and Notice of Remedial Action" and were filed with the local land recording district office in Anchorage, per the requirements of the Consent Decree so as to run with the land and be enforceable against future landowners, lessees, or other interest holders. EPA is designated as third-party beneficiary in the Declaration. Likewise, the Consent Decree requires that the ARRC require any user of the site or transferee of any interest in the site, including lessees, to comply with the access and use restrictions.

The ARRC has leased a portion of the property to K&T Enterprises for a 30-year term for commercial purposes. The ground lease between ARRC and K&T Enterprises contains the required access and land use restrictions and also includes the requirement that K&T Enterprise impose all such restrictions on any subtenant or assignee. The ground lease also stipulates that K &T Enterprises must provide the ARRC advance notice of any sublease or assignment and review copy of the sublease before execution, which is another safety net by which the ARRC can assure current users of the site comply with the required restrictions. K&T Enterprises subleases the property to Bob Benson Trucking. The sublease is currently being renewed and the lease language EPA has reviewed includes the required restrictions.

The special land use permit issued to R.J.H. (dba STEELFAB) effective February 1, 2002 also includes the required notifications per paragraph 14(e) Special Provision which states the Permittee acknowledges and agrees that the Permit Area is subject to certain restrictions of record…as set forth in the Declaration of Restrictive Covenants and Notice of Remedial Action, of which a copy of said Declaration is an attachment to the Permit. The special land use permit expired on January 31, 2005, but according to Paragraph 4 Term, "any continued use of the Permit Area by Permittee after the expiration of the original term, absent prior approval by ARRC, shall be under the same terms and conditions as the original permit".

A notice of the remedy and Declaration of Restrictive Covenants was also provided to applicable state and local government agencies and all local utility companies.

The long-term Institutional Controls required by the ROD are being implemented through commitments made in the RD/RA Consent Decree, the recording of the Declaration of Restrictive Covenants which runs with the land, and through contractual requirements imposed by leases or assignments. The Institutional Controls cover the entire site.

Table 2 below shows the estimated annual O&M costs for the Standard Steel site. These costs reflect maintenance and monitoring expenses after the completion of the onsite remedial action construction in August 1999. The reported cost of the onsite remedial action construction, according to the August 1999 Completion Report is $5.25 million.

Table 2. Annual Operations & Maintenance Costs

Dates	Total Costs (rounded)	Description
YEAR 1 1999	$12,000	Two GW monitoring events
YEAR 2 2000	$12,000	Two GW monitoring events, MW22 replaced with flush mounting
YEAR 3 2001	$12,000	One GW monitoring event
YEAR 4 2002	$10,000	One GW monitoring event
YEAR 5 2003	$3,000	Site inspection, no GW monitoring
YEAR 6 2004	$10,000	One GW monitoring event, repaired MW14
YEAR 7 2005	$2,000	Site inspection, no GW monitoring
YEAR 8 2006	$8,000	One GW monitoring event
YEAR 9 2007	$5,000	Site inspection, brush removal from ditches and riprap, no GW monitoring
YEAR 10 2008	$8,000	One GW monitoring event (planned)

V. Progress Since the Last Review

The initial five-year review for the Standard Steel Site was completed in April 2003. The first five-year review concluded the remedy was functioning as intended and protective of human health and the environment. No issues were identified from the First Five-Year Review (2003). Since the first five-year review was completed, groundwater monitoring was reduced from annually to once every two years (biennial) beginning in 2004, with the approval of the EPA.

VI. Five-Year Review Process

Administrative Components

Members of the Standard Steel and Metals Salvage Yard Potentially Responsible Party (PRP) Group, project managers from the Alaska Department of Environmental Conservation (ADEC), natural resource trustees, and other interested parties or individuals were notified of the initiation of the second five year review in December 2007. The five year review team was led by Christopher Cora of the EPA Region 10. Louis Howard of the ADEC assisted in the review as the representative of the support

agency. Alex Tula of ALTA Geosciences representing the PRP Group assisted in the review to ensure technical accuracy. Lisa Geist of the US Army Corps of Engineers, Alaska District coordinated and prepared the review documentation.

Community Notification and Involvement

The EPA published notification of the second five year review in the Anchorage Daily News on December 19 and 22, 2007 (see Attachment 15). In addition, approximately seventy seven letters were mailed on December 14, 2007 to inform interested parties (see Attachments 2 and 6) of the second five year review. EPA sent interview questionnaires via electronic mail to key officials (see Attachment 3) from December 20-26, 2007 and requested the forms be returned by January 11, 2008. Completed interview questionnaires are in Attachment 5. EPA received no responses from the general public or other local stakeholders. Input received from regulatory agencies and the PRP group or site owners was positive. The US Fish & Wildlife Service, one of the natural resources trustees, had no comments on the site.

EPA will issue a public notice and fact sheet to announce the availability of the second five year review. The results of the review will be made available to the public at the Alaska Resources Library and Information Services (ARLIS) located at the University of Alaska Anchorage Consortium Library, 3211 Providence Drive, Anchorage, Alaska, and at the EPA Region 10 website at http://www.epa.gov/region10.

Document Review

This five year review consisted of a review of relevant documents including the ROD (July 1996), Consent Decrees (December 1996, January 1998), Explanation of Significant Differences (November 1998), O&M Plan (Revised) (July 2000), July 2004 Bi-Annual Groundwater Monitoring Report, September 2006 Biennial Groundwater Monitoring Report, Title Search (September 2007), ARRC Lease Agreements, Municipality of Anchorage land use status, and Interview Questionnaire responses. A complete list of documents that were reviewed is provided in Attachment 1.

Data Review

Groundwater monitoring has been conducted at the Standard Steel site since the 1980's. During the remedial investigation (1993), three sets of groundwater data were obtained from twenty wells over approximately a one year period. Sampling was conducted at high and low groundwater events. Data from Rounds 2 and 3 were used for evaluating metals and PCBs.

Lead was detected at 3 of 9 downgradient groundwater monitoring locations in Round 2 at concentrations of 0.0016 to 0.0031 mg/L. Lead was not detected at any of 8 downgradient locations in Round 3. Lead concentrations in Rounds 2 and 3 were low relative to the EPA promulgated action level of 0.015 mg/L. PCBs were detected in

none of 12 well locations during Round 2. During Round 3, PCBs were detected at 2 of 9 well locations ranging from 0.000023 mg/L to 0.000032 mg/L. The concentrations were about 20 times lower than the maximum contaminant level (MCL) of 0.0005 mg/L.

Considering the low frequency of detection and the low concentrations detected relative to action levels, the ROD did not retain any contaminants of concern for groundwater. However, the ROD did require groundwater monitoring to assess the effectiveness of the remedy for protecting groundwater, as well as ensuring the landfill is not contributing contamination to groundwater, nor altering groundwater conditions. The ROD required monitoring for lead, PCBs, chlorinated organics, pH, and specific conductance.

Groundwater monitoring was required for a minimum of 10 years following implementation of the remedy (1998). One upgradient and four downgradient wells were designated for sampling and analysis in the Groundwater Monitoring Plan (November 1998). See Figure 3 for monitoring well locations. Groundwater monitoring occurred twice yearly (semiannual) for the first 2 years (1999, 2000) after construction completion, once yearly (annual) during 2001 and 2002, and was reduced to once every 2 years (biennial) beginning in 2004, with the approval of the EPA. After ten years, an assessment of the groundwater data will be conducted to determine whether groundwater monitoring is still required or whether the frequency will be altered. The groundwater standards to be achieved are 0.5 micrograms per liter (ug/L) for PCBs and 15 ug/L for lead. The federal and state drinking water standards for PCBs and lead have not changed since the ROD was signed.

Post-ROD groundwater monitoring results indicate no adverse impacts from lead, PCBs, or halogenated VOCs. The most recent groundwater monitoring event reports (July 2004 and September 2006) are found in Attachments 10 and 11. A summary of the results by year is presented in Table 3.

Table 3. Summary of Groundwater Monitoring Data 1999-2006

Contaminant	Action Levels [a] ug/L (ppb)	Concentration in ug/L (ppb)							
		MAY 1999	OCT 1999	MAY 2000	SEP 2000	AUG 2001	AUG 2002	JUN 2004	SEP 2006
PCBs	0.5	ND (0.1)	ND (0.1)	ND (0.5)	ND (0.5)	ND (0.099)	ND (0.1)	ND (0.1)	ND (0.1)
Lead	15	ND (5.6)	0.88 – 1.1	ND (5.6)	ND (13.9-14.2)	ND (2)	2.28	ND (2)	ND (1)
VOCs	Varies	ND (1-8)	ND [b]	ND (1)	ND [c] (1)	ND [d]	ND [e]	ND (0.5-1)	ND [f] (0.5-5)

Maximum detected concentration shown from the 5 monitoring wells.
[a] PCBs and lead action levels are the Maximum Contaminant Levels for drinking water, as specified in the ROD.
[b] Methylene chloride detected in one MW at a concentration of 2.6 ppb, but below screening levels.
[c] Two VOCs (chloromethane and methylene chloride) were detected at 1.2 to 1.5 ppb, but considered lab contaminants.
[d] Tetrachloroethane was detected in one MW at an estimated concentration of 0.37 ppb.

[e] Several VOCs (naphthalene, tetrachloroethane, tetrachloroethylene, trichlorobenzene, 1,2,3-trichlorobenzene, 1,2,4-trichlorobenzene, and trichloroflouromethane) also detected in either MW14, MW15 or MW24 at estimated concentrations, ranging from 0.33 to 1.29 ppb, but below screening levels.
[f] Chloroform also detected in MW22 at a concentration of 2.31 ppb, but considered anomalous because also detected in the equipment blank at 2.33 ppb. Toluene also detected in MW14 at 7.9 ppb, but well below screening levels.
ND not detected (practical quantitation level); ppb parts per billion; ug/L micrograms per Liter; VOCs volatile organic compounds

Site Inspection

Site visits were conducted by the US Army Corps of Engineers on September 27, 2007 and December 12, 2007. A representative of the US EPA was present during the September site visit. A representative of the ARRC was present during both site visits. The purpose of the site inspection was to assess the protectiveness of the remedy, including the integrity of the onsite landfill cell, the condition of the cover, runoff and drainage systems. Photos of site conditions are included at the end of this report. Attachment 7 also contains the Site Visit Reports.

No significant issues were identified during the site visits. The condition of the landfill cover appears satisfactory, the drainage ditches and runoff systems were clear of debris and functioning well. At the time of both inspections there was little snow cover or ice on the ground at the facility.

The institutional controls that are in place include prohibitions on: residential use or activities, commercial uses that would involve exposure of children to the soil, impairing the integrity of the landfill cover, disturbing or excavating other soils onsite, and groundwater use. No activities were observed that would have violated the institutional controls. The cap and the surrounding area were undisturbed. No new groundwater monitoring wells were observed. Vehicle storage is allowed. Various trucks, trailers, and other equipment were observed parked on the capped area. No cracks, sloughing, erosion, or other impacts to the cap were noted during the inspection.

Institutional controls were further evaluated by reviewing zoning maps of the Municipality of Anchorage and a title search for the property dated August 2007. There are no municipal ordinances (http://www.muni.org/assembly2/resolutions_ordinances.cfm) which affect the site. The property is zoned I-2, heavy industrial use district. The Municipality of Anchorage Code, Chapter 21.40.210, (http://www.municode.com/resources/gateway.asp?pid=12717&sid=2) defines prohibited uses and structures for I-2 heavy industrial use zones as the following: dwellings; hotels, motels, roominghouses, mobile home parks; camper parks; correctional institutions; child care centers; hospitals and nursing facilities; adult care facilities; and residential care facilities. Any change to site zoning requires approval by the Planning and Zoning Commission, as well as the Anchorage Assembly. Zoning variance requests are heard by the Zoning Board of Examiners and Appeals. The Anchorage Municipal Code also requires land use permits, right-of-way permits (utility and driveway construction), building permits, and land clearing and grading permits. The Project Management and Engineering department must approve final design plans for any work in a municipal

right-of-way. Any work within flood plains, as identified by the Federal Emergency Management Agency (FEMA) maps, requires project review and approval to ensure potential impacts on floodways are adequately considered. A small area of floodplain soils is present at the south and southwest portions of the site, adjacent to Ship Creek. The onsite landfill is constructed entirely outside the limits of the 100-year floodplain.

The Municipality of Anchorage regulates the installation of private water wells for domestic purposes and requires a permit prior to any drilling. Anchorage Municipal Code Chapter 15.55.010 ensures that sources utilized for potable water within the Municipality of Anchorage are constructed and maintained in such a manner as to provide a safe supply of water for domestic use. This chapter applies to all sources of potable water used by single family residences within the municipality that are not licensed and/or regulated by the State of Alaska.

The Alaska Department of Natural Resources, Division of Mining, Land and Water, controls water rights in the state. A water right is a legal right to use surface or ground water under the Alaska Water Use Act (AS 46.15). A water right allows a specific amount of water from a specific water source to be diverted, impounded, or withdrawn for a specific use. An online review of Current Water Rights & Reservations of Water (http://www.dnr.state.ak.us/mlw/mapguide/water/wr_start_tok.cfm) indicates the Municipality of Anchorage Water and Wastewater Utility has a permit for surface water rights in the vicinity of the site.

The Alaska Department of Environmental Conservation maintains an online database of contaminated sites (http://www.dec.state.ak.us/spar/csp/db_search.htm), including conditional closure details for sites with ongoing restrictions. The database indicates the Standard Steel site is subject to a deed notice, industrial land use restriction, maintenance of inspection/engineering controls, groundwater restrictions, and excavation/soil movement restrictions. See Attachment 8.

The Ground Lease (amended and restated, dated January 30, 2003) between the Alaska Railroad Corporation and K&T Enterprises, Contract No. 7085 was reviewed. The lease is effective for a period of 30 years, beginning in January 1996. The lease conditions include provisions for environmental restrictions related to the Standard Steel Superfund Site (Article 1, Section 1.07). As described above, the lease complies with ARRC's commitments in the Consent Decree. The Special Use Permit (supplement dated March 22, 2004) issued to R.J.H. was also reviewed. The permit conditions include notification of the environmental restrictions contained in the Declaration of Restrictive Covenants and Notice of Remedial Action. See Attachment 12

To review and evaluate the effectiveness of the Declaration of Restrictive Covenants, EPA requested the ARRC to conduct a title search on the property comprising the Superfund site in order to: (1) confirm the Declaration of Restrictive Covenants was properly recorded; (2) see that the Declaration appeared in a commercially-prepared

title search; and (3) determine if there were any prior recorded interests that were not subject to the restrictions. The ARRC provided a title search, dated August 29, 2007, conducted for the Standard Steel PRP Group and the Alaska Railroad by Fidelity Title Agency, Anchorage, AK. The report confirms the Declaration of Restrictive Covenants is properly recorded on the title. See Attachment 9. The report reflects that there are no prior recorded interests that may eliminate the Declaration in the future.

The ARRC represents that they inform prospective tenants of the limitations on use and other impacts of the Consent Decree whenever inquires are made to lease the site. The ARRC has a comprehensive Lease Application Packet and Long-Term Lease Policy which is available on their website (http://www.akrr.com/arrc100.html) and contains detailed information regarding lease procedures.

VII. Technical Assessment

Question A: Is the remedy functioning as intended by the decision documents?

The review of the Consent Decrees, O&M Plan, Groundwater Monitoring Plan, O&M reports, Groundwater Monitoring reports, site inspections, and interview questionnaires, etc. indicates that the remedy is functioning as intended by the ROD and modified by the ESD. The stabilization and capping of contaminated soils in a TSCA landfill cell has achieved the remedial action objectives to minimize the migration of contaminants to groundwater, and to prevent exposure of onsite workers to contaminants in soils. Institutional Control requirements have been implemented and maintained, are functioning as intended, and are effectively meeting remedial objectives.

Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of remedy selection still valid?

Yes. The remedy selection was based on an industrial use scenario and evaluation of risks for short-term workers, long-term workers, and future adult residents. The industrial exposure assumptions are considered to be conservative and reasonable in evaluating risk and developing risk-based cleanup levels. No change to these assumptions, or the cleanup levels developed from them is warranted. There has been no change to the standardized risk assessment methodology that could affect the protectiveness of the remedy.

Toxicity data has not changed for the primary contaminants of concern, PCBs and lead. After completion of the Baseline Risk Assessment, EPA lowered the screening level for lead to 400 mg/kg in soils (residential use). This change does not affect the conclusions of the risk assessment at the Standard Steel site. The TSCA landfill requirements are unchanged. The remedial action objectives to be achieved through groundwater monitoring are 0.5 micrograms per liter (ug/L) for PCBs and 15 ug/L for lead. The federal and state drinking water standards for PCBs and lead have not changed since the ROD was signed.

The ROD specified a range of soil cleanup levels for the site.

- No action was required for soils with PCBs < 1 mg/kg and lead < 500 mg/kg.
- Excavation and consolidation of soils elsewhere onsite was required for flood plain soils only with PCBs between 1 and 9.9 mg/kg and lead between 500 and 999 mg/kg.
- Excavation and consolidation of soils containing between 10 and 49 mg/kg PCBs in the onsite landfill.
- Excavation of soils containing 50 mg/kg or greater PCBs and 1,000 mg/kg or greater lead; treat by solidification/ stabilization and dispose in onsite landfill.

The implemented remedy actually achieved a stricter cleanup level and all soils (upland and floodplain) across the site that exceeded 1 mg/kg PCBs or 250 mg/kg lead were excavated and consolidated in the onsite TSCA landfill cell. The onsite landfill was constructed entirely outside the limits of the 100-year floodplain.

Since the remedy was implemented, the residential cleanup level for unrestricted access to soil has been modified to 400 mg/kg lead. The industrial cleanup level for sites remains 1,000 mg/kg lead. Thus, the 250 mg/kg lead level is still protective of the designated land use at the site. The soil cleanup level of 1 mg/kg PCBs for unrestricted land use under TSCA has not changed since remedy completion.

After the ROD was signed, as documented in the ESD (1998), the approved design was enhanced by excavating and consolidating all upland surface soils outside the limits of the TSCA landfill which exceed 1 mg/Kg PCBs or 500 mg/Kg lead and adding a Geomembrane cover system, consisting of a four inch foam layer, 40-mil Geomembrane impermeable liner, geonet drainage layer, geonet filter fabric and three feet of clean soil. The addition of the Geomembrane cover system and three feet of soil exceeds the design requirements of the ROD and satisfies the intent of 40 CFR 761.75(b)(9)(i).

Institutional Controls contained in the ROD and agreed to by the Alaska Railroad Corporation in the Consent Decree provided notice of the TSCA landfill, land and water use restrictions to the state of Alaska, the Municipality of Anchorage, local utilities, and all lessees, and will prevent excavation, construction, or other incompatible uses at the Site. A title search for the property, effective August 27, 2007, confirmed the Declaration of Restrictive Covenants and Notice of Remedial Action appears in the property records and land use restrictions are still in place to prevent exposure to the consolidated landfill cell contents. A search of Municipality of Anchorage Code, confirmed that Chapter 15.55 Water Wells (as amended effective Jan 1, 2006 by Anchorage Ordinance AO No. 2005-130 and No. 2005-172) prohibits the installation of unpermitted water wells for domestic purposes, and requires a minimum non-perforated casing length of 40 feet in unconsolidated materials and bedrock. The Municipality of

Anchorage code Title 21 Land Use Planning requires approval by ordinance of the Assembly for any zoning map amendments for a property. The Municipality of Anchorage also requires acquiring permits for building construction, excavations, and other related activities.

There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy.

Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

No extreme flood events or other weather conditions have affected the protectiveness of the remedy. There is no other new information that calls into question the protectiveness of the remedy.

Technical Assessment Summary

According to the site inspection, documents, and data reviewed, the remedy is functioning as intended by the ROD. The achievement of more stringent soil cleanup levels beyond the flood plain soils to include all upland soils enhances the protectiveness of the remedy. Institutional controls remain effective for the Standard Steel Superfund site. The site operators are aware of activity restrictions and the PRP Group continues to conduct site inspections and periodic groundwater monitoring. Land use remains industrial and no changes are anticipated which could affect site operations.

VIII. Issues

The ADEC reported that new information obtained during a 2007 investigation by the Alaska Railroad shows PCBs were detected in surface soil samples collected from a former drainage ditch adjacent to southwest corner of the Standard Steel site. The ADEC requested additional sampling be conducted to characterize the drainage ditch. Two of the 5 drainage ditch samples exceeded the soil cleanup level specified by the ROD for flood plain soils of 1 mg/kg PCBs. The concentrations ranged from 0.05 to 2.13 mg/kg. The Alaska Railroad conducted the investigation under a separate Administrative Order on Consent with the US EPA. The current EPA project manager is Jacques Gusmano in the Alaska Operations Office. A draft Feasibility Study completed by the ARRC indicates they intend to remove the PCBs above 1 mg/kg in the ditch and treat the soil by incineration. The sampled area is not an active drainage pathway for the landfill cell, site land use is still industrial, thus the remedy remains protective. The data does not suggest the remedy is failing.

IX. Recommendations and Follow-Up Actions

The ROD requires a minimum of ten years of groundwater monitoring to ensure there are no adverse impacts to site groundwater or offsite migration of contaminants. The groundwater monitoring program to date has demonstrated the effectiveness of the landfill containment cell; no significant detections of contaminants of concern have been observed. As of March 2008, nine years of groundwater monitoring data has been collected.

Biennial groundwater monitoring should be continued through the upcoming Fall 2008 monitoring event. After the 2008 groundwater monitoring event is completed, further evaluation of continued monitoring should be conducted. A recommendation to discontinue groundwater monitoring after the 2008 event should be considered if the groundwater data continues to demonstrate no adverse impacts.

Yearly site inspections of the landfill cap, drainage swales, and runoff systems should be continued to ensure site activities, tenant operations, and extreme weather or other unusual events do not result in adverse impacts to the cap integrity.

The next 5 year review should also verify that the PCBs detected above 1 mg/kg in a former drainage ditch adjacent to and southwest of the landfill consolidation cell were addressed through a separate action between the Alaska Railroad and the US EPA.

Table 4. Recommendations and Follow-Up Actions

Issue	Recommendations/ Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness? (Y/N)	
					Current	Future
Continue groundwater monitoring	Conduct Fall 2008 groundwater monitoring event, evaluate data to determine future requirements	PRP Group	US EPA	12/2008	N	N
Soil sampling results from adjacent ditch show PCBs > 1 mg/kg	Address remedial actions under separate enforcement agreement between ARRC and US EPA. Verify actions completed during next 5 year review.	ARRC Owner Settling Defendant	US EPA	4/23/2013	N	N

X. Protectiveness Statement(s)

Because the remedial actions completed at the Standard Steel & Metals Salvage Yard site are protective, the site is protective of human health and the environment.

All exposure pathways that could result in unacceptable risks are being controlled. All threats at the site have been addressed through stabilization and capping of contaminated soils, and the implementation of institutional controls. All monitoring data indicates the landfill containment cell is functioning as required to prevent exposure to the contaminated materials, and prevent offsite migration of contaminants.

XI. Next Review

The next five year review for the Standard Steel & Metals Salvage Yard site is required by April 2013, five years from the date of this review. The integrity of the landfill cap and institutional controls should be reviewed to ensure the land use and groundwater restrictions are still in place.

The next 5 year review should also verify that the PCBs detected above 1 mg/kg in a former drainage ditch adjacent to and southwest of the landfill consolidation cell were addressed through a separate action between the Alaska Railroad and the US EPA.

FIGURES

[This page intentionally left blank]

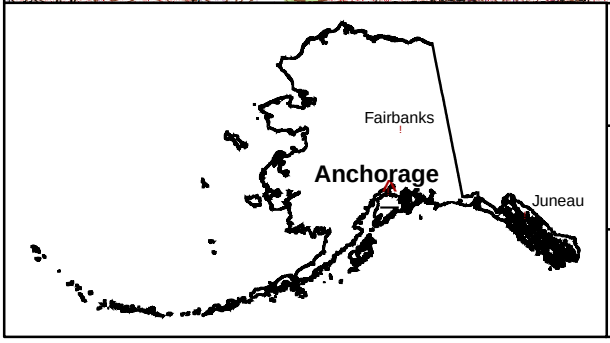


FIGURE 1

LOCATION AND VICINITY MAPS
Standard Steel & Metals Salvage Yard
Anchorage, Alaska

US Army
Corps of Engineers
Alaska District

0 0.25 0.5
Miles

Drawn: LKG
Date: 02/2008
Source: USGS Quads
Anchorage A-8 NW and NE

Legend

Standard Steel Site

Landfill Containment Cell

N
W E
S

Source: Aerial photography from Elmendorf Air Force Base (2006)

FIGURE 2

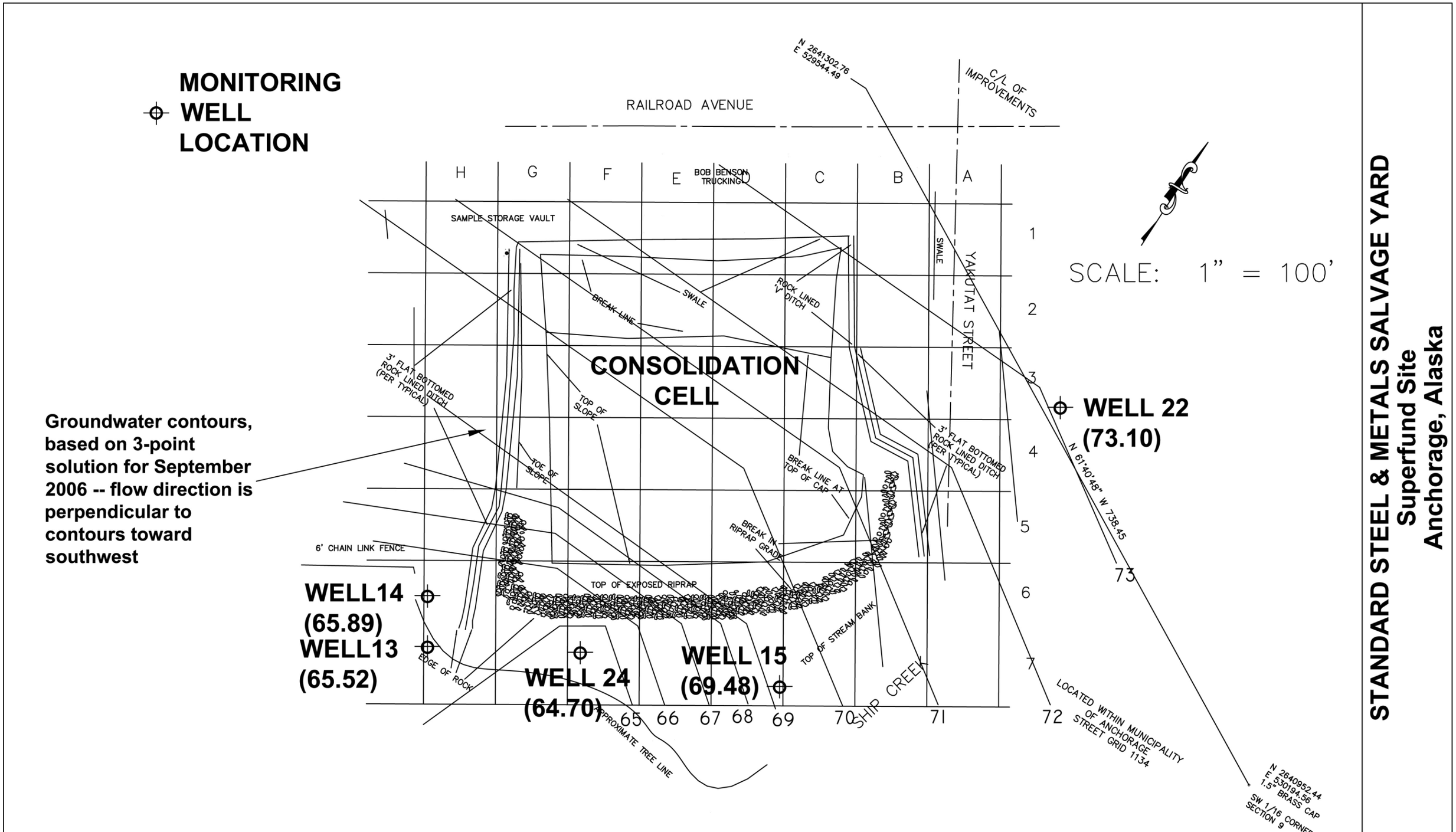
AERIAL VIEW
Standard Steel & Metals Salvage Yard
Anchorage, Alaska

US Army
Corps of Engineers
Alaska District

0 50 100 150 200 250
Feet

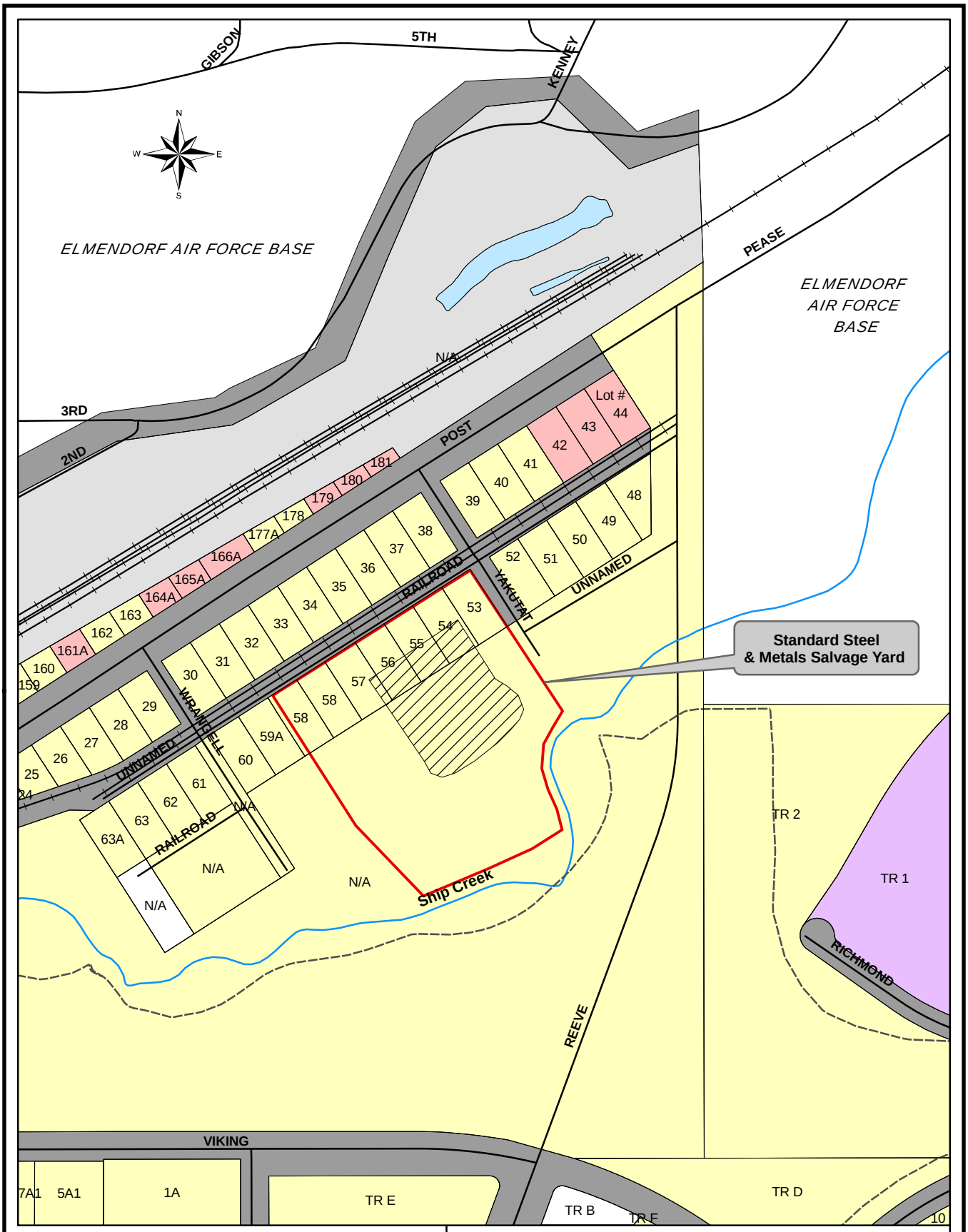
1 inch equals 250 feet

Drawn: LKG
Date: 03/2008



STANDARD STEEL & METALS SALVAGE YARD
Superfund Site
Anchorage, Alaska

ALTA GEOSCIENCES, INC. **Bothell, Washington**	**GROUNDWATER MONITORING REPORT September 2006**	**MONITORING WELL LOCATIONS**	**FIGURE 3**



Legend

- COMMERCIAL
- INDUSTRIAL
- INSTITUTIONAL
- RR/ROW
- TRANSPORTATION
- VACANT
- WATER
- PARK
- Trails
- Streams
- Streets
- Railroad
- Standard Steel Site
- Landfill Containment Cell

source: Municipality of Anchorage, GIS Web Server
https://munimaps.muni.org (December 2007)

FIGURE 4

LAND USE STATUS
Standard Steel & Metals Salvage Yard

US Army
Corps of Engineers
Alaska District

0 100 200 400 Feet

1 inch equals 400 feet

Drawn: LKG
Date: 3/2008

PHOTOS

[This page intentionally left blank]

Photos of Site Conditions – Standard Steel & Metal Salvage Yard Site

Photo 1. Composite picture from N corner of site looking SW (26 Sep 2007)

Photo 2 Composite picture from SE corner of site looking NE (26 Sep 2007)

Photos of Site Conditions – Standard Steel & Metal Salvage Yard Site

Photo 3. View from N corner looking SE along ditch (26 Sep 2007)

Photo 4. View from N corner looking S-SE along ditch (3 Dec 2007)

Photos of Site Conditions – Standard Steel & Metal Salvage Yard Site

Photo 5. View at SE corner of site, culvert at end of drainage ditch, looking SE towards Ship Creek (26 Sep 2007)

Photo 6. Ship Creek S of site (consolidation cell visible through trees at right center) (26 Sep 2007)

Photos of Site Conditions – Standard Steel & Metal Salvage Yard Site

Photo 7. View from top of landfill cell, view S towards Ship Creek (3 Dec 2007)

Photo 8. Below top of consolidation cell looking S toward Ship Creek, large boulders (energy dissipation) in foreground and monitoring well at mid-picture (26 Sep 2007)

Photos of Site Conditions – Standard Steel & Metal Salvage Yard Site

Photo 9. At S corner of site, looking N toward consolidation cell (26 Sep 2007)

Photo 10. View from SE of site, below toe of consolidation cell, looking NW (left) and N (right) (26 Sep 2007)

Photos of Site Conditions – Standard Steel & Metal Salvage Yard Site

Photo 11. Top of consolidation cell near SE side, looking SNW Railroad Avenue (behind building) (26 Sep 2007)

Photo 12. Top of consolidation cell, near SW side, view N towards Railroad Ave (3 Dec 2007)

Photos of Site Conditions – Standard Steel & Metal Salvage Yard Site

Photo 13. Top of consolidation cell, near W corner, looking NE (26 Sep 2007)

Photo 14. Top of consolidation cell, near NW corner (3 Dec 2007)

Photos of Site Conditions – Standard Steel & Metal Salvage Yard Site

Photo 15. At S corner of site below toe of consolidation cell, looking SW (26 Sep 2007)

Photo 16. View from SW corner of consolidation cell, view NW showing drainage ditch (3 Dec 2007)

Five-Year Review Report

Second Five-Year Review Report
for
Standard Steel & Metal Salvage Yard (USDOT)

Anchorage, Alaska

March 2008

Attachments (provided on CD-ROM)

ATTACHMENT 1	List of Documents Reviewed
ATTACHMENT 2	List of Interested Parties
ATTACHMENT 3	List of Potential Interviewees
ATTACHMENT 4	Blank Interview Questionnaire
ATTACHMENT 5	Completed Interview Questionnaires and Records
ATTACHMENT 6	Mailing List
ATTACHMENT 7	Site Visit Reports, Site Inspection Checklist
ATTACHMENT 8	ADEC Contaminated Sites Database Report
ATTACHMENT 9	Title Search Report
ATTACHMENT 10	Groundwater Monitoring Report July 2004
ATTACHMENT 11	Groundwater Monitoring Report September 2006
ATTACHMENT 12	Ground Lease and Special Use Permit
ATTACHMENT 13	Municipality of Anchorage Public Parcel Inquiry Report
ATTACHMENT 14	Operations & Maintenance Plan (Revised) July 2000
ATTACHMENT 15	Public Notice of 5 Year Review
ATTACHMENT 16	O&M Checklists
ATTACHMENT 17	Record of Decision (1996)
ATTACHMENT 18	CERCLA Consent Decree RD/RA (1998)
ATTACHMENT 19	Explanation of Significant Differences (1998)
ATTACHMENT 20	Declaration of Restrictive Covenants and Notice of Remedial Action

ATTACHMENT 1

List of Documents Reviewed

[This page intentionally left blank]

Standard Steel & Metals Salvage Yard

List of Documents Reviewed

Alaska Department of Environmental Conservation. 2007. Contaminated Sites Database. Standard Steel and Metals, Reckey No. 1982210922501. http://www.dec.state.ak.us/spar/csp/search/results.asp

Alaska Department of Natural Resources. 2008. Division of Mining, Land, and Water. Current Water Rights & Reservations of Water. http://www.dnr.state.ak.us/mlw/mapguide/water/wr_start_tok.cfm

Alaska Railroad Corporation. 2003. Ground Lease between Alaska Railroad Corporation and K&T Enterprises. Contract No. 7085 (Amends and restates contract no. 7085 dated 1/04/96). January 30, 2003.

Alaska Railroad Corporation. 2004. Lease Handbook. http://www.akrr.com/realestate September 23, 2004

ALTA Geosciences. 2000. Operations and Maintenance Plan (Revised), Remedial Design/Remedial Action, Standard Steel and Metals Salvage Yard Superfund Site, prepared for Standard Steel RD/RA PRP Group, July 2000.

ALTA Geosciences, Inc. 2004. Bi-Annual Groundwater Monitoring Report (July 2004 Event), Standard Steel and Metals Salvage Yard Superfund Site. August 2004.

ALTA Geosciences, Inc. 2007. Biennial Groundwater Monitoring Report (September 2006 Event), Standard Steel and Metals Salvage Yard Superfund Site. June 2007.

Fidelity Title Agency. 2007. Owner's Consultation Report. Order F-14222, Standard Steel Site, Anchorage, AK, Amendment 1. Amended Commitment for Title Insurance. Effective August 29, 2007.

Municipality of Anchorage. 2007. Geographic Information Systems webpage. Advanced Mapper application. http://munimaps.muni.org/moagis/index.htm

Municipality of Anchorage. 2008. Departments, Assembly webpage, Municipal Code. http://www.muni.org/homepage/cityhall.cfm http://www.muni.org/assembly2/resolutions_ordinances.cfm http://www.municode.com/resources/gateway.asp?pid=12717&sid=2

United States Environmental Protection Agency (USEPA). 1996. Record of Decision, Standard Steel and Metals Salvage Yard Superfund Site, EPA ID: AKD980978787, July 16, 1996.

USEPA. 1998. CERCLA Remedial Design/Remedial Action Consent Decree. Filed January 26, 1998.

USEPA. 1998. Explanation of Significant Differences: Standard Steel & Metal Salvage Yard (USDOT), November 18, 1998.

USEPA. 2003. Five Year Review Report, First Five-Year Review Report for Standard Steel Superfund Site, Anchorage, Alaska, April 2003.

USEPA. 2007. Site Summary Reports, Online at:
http://yosemite.epa.gov/r10/cleanup.nsf/
http://yosemite.epa.gov/r10/nplpad.nsf/

ATTACHMENT 2

List of Interested Parties

[This page intentionally left blank]

Standard Steel 5-Year Review -- Interested Parties

Government Agencies

Mr. Christopher Cora, EPA Remedial Project Manager
U.S. Environmental Protection Agency
1200 6th Ave, ECL-115
Seattle, WA 98101
206-553-1478
Fax: 206-553-0124
cora.christopher@epa.gov

Mr. Jacques Gusmano
US EPA Region 10 - Alaska Operations Office
Federal Building Room 537
222 West 7th Avenue #19 (AOO/A)
Anchorage, AK 99513-7588
907-271-1271
gusmano.jacques@epa.gov

Mr. Greg Mellema, PE
US Army Corps of Engineers, HTRW-CX
12565 W. Center Road
Omaha, NE 68144
402-697-2658
Gregory.J.Mellema@usace.army.mil

Mr. Louis Howard, RPM
Alaska Department of Environmental Conservation
555 Cordova Street
Anchorage, AK 99501-2617
907-696-7192
Louis.Howard@alaska.gov

Ms. Jennifer Roberts, Federal Facility/CERCLA section manager
Alaska Department of Environmental Conservation
555 Cordova Street
Anchorage, AK 99501
907-269-7553
Jennifer.Roberts@alaska.gov

Natural Resource Trustees

Ms. Kim Trust, Environmental Contaminants Program
US Fish & Wildlife Service, Regional Office
1011 E Tudor Rd, Anchorage, AK 99503
907-786-3398
kim_trust@fws.gov

Alaska Department of Fish and Game

Standard Steel and Metals Recycling Yard Site PRP Group

Ms. Phyllis Johnson, Vice President and General Counsel
Alaska Railroad Corporation (ARRC)
327 W Ship Creek Ave
Anchorage, AK 99501
907-265-2300
johnsonp@akrr.com

Ms. Susan Schrader, Environmental Engineer
Alaska Railroad Corporation (ARRC)
327 W Ship Creek Ave
Anchorage, AK 99501
907-265-2300
shraders@akrr.com

Mr. R. Paul Beveridge, Esq.,
Counsel, Chugach Electric Association, Inc.
Heller, Ehrman, White & Mcauliffe
701 5th Avenue, 6100 Bank of America Tower
Seattle, WA 98104
206-389-6122
pbeveridge@hewm.com

Richard K. Smith
Vice President - Environmental Remediation
CBS Corporation (successor to Westinghouse Electric Corporation)
11 Stanwix Street
Pittsburgh, PA 15222
412-642-3285
Fax: 412-642-3957
richard.smith@cbs.com

Bruce Bookman
Perkins/COIE
Montgomery Ward and Company
1029 W 3rd Ave, Suite 300
Anchorage, AK 99501

James W. Koehler, Jr
Bridgestone/Firestone, Inc.
1200 Firestone Parkway
Akron, OH 44317

J.C. Penny Company, Inc.
Sears Roebuck and Company

Other Parties

Mr. Alex Tula, Project Coordinator
ALTA Geosciences, Inc.
22833 Bothell Everett Hwy., Ste 110, #1168
Bothell, WA 98021
Phone: 425 485-1053
Fax: 425 984-0114
atula@altageo.com

K&T Enterprises, leaseholder with ARRC
S. Turner
1817 Parkside Dr.
Anchorage, AK 99501-5751
scturner@mtaonline.net

Bob Benson Trucking, sublease of K&T
2400 Railroad Ave
Anchorage, AK 99501
907-272-8785
bobbenson@gci.net

ATTACHMENT 3

List of Potential Interviewees

[This page intentionally left blank]

Standard Steel & Metals - List of Potential Interviewees

Name	Affiliation	Email	Phone
Alex Tula	ALTA Geosciences	atula@altageo.com	425-485-1053
Louis Howard	Alaska Dept. of Environmental Conservation	Louis.Howard@alaska.gov	907-269-7552
Jennifer Roberts	Alaska Dept. of Environmental Conservation	Jennifer.Roberts@alaska.gov	907-269-7553
Kim Trust	US Fish & Wildlife Service	kim_trust@fws.gov	907-271-2783
Susan Schrader	Alaska Railroad Corp.	schraders@akrr.com	907-265-2429
Phyllis Johnson	Alaska Railroad Corp.	johnsonp@akrr.com	907-265-2461
David Duvall	PRP group representative	drduvall@lx.netcom.com	812-334-2620
Don Crandall, President	Mountain View Community Council	dhc@ak.net	907-441-6810
Hugh Wade, Vice President	Mountain View Community Council	hughwade@hotmail.com	907-332-4844
Randy Virgin, Executive Director	Alaska Center for the Environment	ace@akcenter.org	907-274-3621
Holly Kent, Executive Director	Anchorage Waterways Council	Holly@anchoragecreeks.org	907-272-7335
Kaleb Benson	Bob Benson Trucking	bobbenson@gci.net	907-272-8785
S. Turner	K&T Enterprises	scturner@mtaonline.net	

ATTACHMENT 4

Blank Interview Questionnaire

[This page intentionally left blank]

STANDARD STEEL & METALS SALVAGE YARD
SECOND FIVE-YEAR REVIEW
INTERVIEW QUESTIONNAIRE

INTERVIEW RECORD	
Name:	
Title:	
Organization:	
Street Address:	
City, State, Zip:	
Telephone No.:	
E-Mail Address:	
Interview Date:	
Interview Type: **(Phone / Visit / Email)**	
Interviewed By:	

The following general questions were adapted from the EPA's *Comprehensive Five-Year Review Guidance and Supplement for Evaluation of Institutional Controls.*

INTERVIEW QUESTIONS

1. What is your overall impression of the functioning of the remedy (containment cell) constructed at the site?

2. From your perspective, what effects have the remedies implemented at the site had on the surrounding community?

3. Are you aware of concerns from the local community regarding the site, operation and administration, implementation, overall protectiveness of the ROD remedies?

4. Are you aware of any events, incidents, or activities at the site such as vandalism, trespassing, or emergency responses from local authorities?

5. Is there a regular on-site inspection and operation, maintenance and monitoring presence at the Site? What is the frequency of Operations & Maintenance (O&M) site inspections and activities?

6. ***Have there been unexpected O&M difficulties or costs at the site in the last five years?***

7. ***Have there been any significant changes in the O&M requirements, maintenance schedules, or sampling routines during the last five years? If so, do they affect the protectiveness or effectiveness of the remedy?***

8. ***Have there been opportunities to optimize the operation, maintenance, or sampling efforts? Please describe changes, cost savings, and/or improved efficiency.***

9. ***Are you aware of any problems with the existing Institutional Controls? Enforceability, etc.?***

10. ***Is information reaching the potential site users or other groups?***

11. ***Is the property being used in a manner consistent with the land, groundwater, and other media restrictions? Are you aware of any breaches of the use restrictions/institutional controls ?***

12. ***Has the surrounding land use, access, or other site conditions changed since implementation of the remedy? Are you aware of any current or impending land and/or resource use changes or development plans that you feel may impact the protectiveness of the site remedy?***

13. Have any complaints been filed or unusual activities been noted at the site? If so, how were they addressed?

14. What type of monitoring is currently being implemented to determine compliance with the institutional controls?

15. Where is information about Institutional Controls (IC) kept? Do you have an IC tracking system or other applicable database system?

16. Are there any general or specific ordinances that might be considered Institutional Controls for the site?

17. Do you feel any additional Institutional Controls are needed?

18. Do site circumstances warrant further coordination or periodic communication with the State or Municipality of Anchorage or other agencies?

19. Do you have any additional comments, suggestions, or recommendations regarding the site's management or operation?

ATTACHMENT 5

Completed Interview Questionnaires

[This page intentionally left blank]

STANDARD STEEL & METALS SALVAGE YARD
SECOND FIVE-YEAR REVIEW
INTERVIEW QUESTIONNAIRE

INTERVIEW RECORD	
Name:	Alex Tula
Title:	Principal Consultant
Organization:	Alta Geosciences, Inc.
Street Address:	22833 Bothell Everett Hwy #110-1168
City, State, Zip:	Bothell, WA 98021
Telephone No.:	425-485-1053
E-Mail Address:	atula@altageo.com
Interview Date:	12/20/2007
Interview Type: **(Phone / Visit / Email)**	Email
Interviewed By:	

The following general questions were adapted from the EPA's *Comprehensive Five-Year Review Guidance and Supplement for Evaluation of Institutional Controls.*

INTERVIEW QUESTIONS

1. What is your overall impression of the functioning of the remedy (containment cell) constructed at the site?

The remedy appears to be functioning as designed with minimal maintenance requirements

2. From your perspective, what effects have the remedies implemented at the site had on the surrounding community?

The site has been restored to beneficial use and the creekside environment has been substantially enhanced.

3. Are you aware of concerns from the local community regarding the site, operation and administration, implementation, overall protectiveness of the ROD remedies?

No.

4. Are you aware of any events, incidents, or activities at the site such as vandalism, trespassing, or emergency responses from local authorities?

Nothing significant. Occasional trash dumping is about it.

5. Is there a regular on-site inspection and operation, maintenance and monitoring presence at the Site? What is the frequency of Operations & Maintenance (O&M) site inspections and activities?

Yes. Twice annually.

6. Have there been unexpected O&M difficulties or costs at the site in the last five years?

No.

7. Have there been any significant changes in the O&M requirements, maintenance schedules, or sampling routines during the last five years? If so, do they affect the protectiveness or effectiveness of the remedy?

No.

8. Have there been opportunities to optimize the operation, maintenance, or sampling efforts? Please describe changes, cost savings, and/or improved efficiency.

No.

9. Are you aware of any problems with the existing Institutional Controls? Enforceability, etc.?

No.

10. Is information reaching the potential site users or other groups?

I have no direct knowledge of this.

11. Is the property being used in a manner consistent with the land, groundwater, and other media restrictions? Are you aware of any breaches of the use restrictions/institutional controls ?

Yes(use is consistent). There have been no breaches I am aware of.

12. Has the surrounding land use, access, or other site conditions changed since implementation of the remedy? Are you aware of any current or impending land and/or resource use changes or development plans that you feel may impact the protectiveness of the site remedy?

No.

13. Have any complaints been filed or unusual activities been noted at the site? If so, how were they addressed?

None that I am aware of.

14. What type of monitoring is currently being implemented to determine compliance with the institutional controls?

Site inspections.

15. Where is information about Institutional Controls (IC) kept? Do you have an IC tracking system or other applicable database system?

The site owner, Alaska Railroad Corporation, is responsible for maintaining the ICs.

16. Are there any general or specific ordinances that might be considered Institutional Controls for the site?

Zoning. Municipality of Anchorage ordinances prohibit installation of unpermitted water wells, and further prohibits installation of water wells screened less than 20 feet below ground surface.

17. Do you feel any additional Institutional Controls are needed?

No.

18. Do site circumstances warrant further coordination or periodic communication with the State or Municipality of Anchorage or other agencies?

No.

19. Do you have any additional comments, suggestions, or recommendations regarding the site's management or operation?

No.

STANDARD STEEL & METALS SALVAGE YARD
SECOND FIVE-YEAR REVIEW
INTERVIEW QUESTIONNAIRE

INTERVIEW RECORD	
Name:	**Phyllis Johnson & Susan Schrader**
Title:	**Vice President & General Counsel; Environmental Engineer**
Organization:	**Alaska Railroad Corporation**
Street Address:	**327 West Ship Creek Avenue**
City, State, Zip:	**Anchorage, AK 99501**
Telephone No.:	**907-265-2461**
E-Mail Address:	**johnsonp@akrr.com; schraders@akrr.com**
Interview Date:	**1-8-08**
Interview Type: (Phone / Visit / Email)	**Email response**
Interviewed By:	

The following general questions were adapted from the EPA's *Comprehensive Five-Year Review Guidance and Supplement for Evaluation of Institutional Controls.*

INTERVIEW QUESTIONS

1. What is your overall impression of the functioning of the remedy (containment cell) constructed at the site?

Based on groundwater monitoring data and site observations, the containment cell appears to achieve the intended purpose, e. g., to contain the contaminants solidified within it.

2. From your perspective, what effects have the remedies implemented at the site had on the surrounding community?

The surrounding community is commercial/industrial. The containment cell has had no known effects.

3. Are you aware of concerns from the local community regarding the site, operation and administration, implementation, overall protectiveness of the ROD remedies?

We are not aware of any concerns about the containment cell.

4. Are you aware of any events, incidents, or activities at the site such as vandalism, trespassing, or emergency responses from local authorities?

We know of no such incidents. The current tenant, with its continuous presence on the site, would likely be able to answer this question better than ARRC.

5. Is there a regular on-site inspection and operation, maintenance and monitoring presence at the Site? What is the frequency of Operations & Maintenance (O&M) site inspections and activities?

Through 2001, the site was inspected twice per year. Since then, one inspection is performed each year in the spring concurrently with groundwater monitoring. Maintenance activities are required on an as-needed basis. All this work is, however, performed under the auspices of the Standard Steel Superfund Site PRP Group and ARRC is not directly involved in these activities.

6. Have there been unexpected O&M difficulties or costs at the site in the last five years?

Not to ARRC's knowledge.

7. Have there been any significant changes in the O&M requirements, maintenance schedules, or sampling routines during the last five years? If so, do they affect the protectiveness or effectiveness of the remedy?

No. The last revisions to the plan were in 2000. The PRP Group representative would have more direct information about any changes in sampling routines, etc.

8. Have there been opportunities to optimize the operation, maintenance, or sampling efforts? Please describe changes, cost savings, and/or improved efficiency.

Not to our knowledge.

9. Are you aware of any problems with the existing Institutional Controls? Enforceability, etc.?

No.

10. Is information reaching the potential site users or other groups?

Yes, to the extent applicable. The bulk of the site has been leased to the same ground tenant since before the remediation phase was complete. ARRC has provided this tenant with notice of EPA inquiries and reminders of site conditions from time to time. Whenever inquiries are made to lease the remaining portions of the site, ARRC informs prospective tenants of the limitations on use and other impacts of the Consent Decree.

11. Is the property being used in a manner consistent with the land, groundwater, and other media restrictions? Are you aware of any breaches of the use restrictions/institutional controls ?

1) Yes. 2) No.

12. Has the surrounding land use, access, or other site conditions changed since implementation of the remedy? Are you aware of any current or impending land and/or resource use changes or development plans that you feel may impact the protectiveness of the site remedy?

1) No. 2) No.

13. Have any complaints been filed or unusual activities been noted at the site? If so, how were they addressed?

No.

14. What type of monitoring is currently being implemented to determine compliance with the institutional controls?

Annual inspections by PRP Group representative. ARRC also performs random observations and inspections of the current lease (a subset of the overall site) and the rest of the site when it deems appropriate.

15. Where does the Agency keep information about Institutional Controls (IC)? Do you have an IC tracking system or other applicable database system?

A file has been established to answer inquiries regarding institutional controls at the site. An e-data base is planned, but is not completed for ICs on all ARRC leased property.

16. Are there any general or specific ordinances that might be considered Institutional Controls for the site?

The area is zoned Heavy Industrial (I-2) which would preclude many of the uses that are restricted under the ICs; i.e. day care, residential, etc.

17. Do you feel any additional Institutional Controls are needed?

Existing restrictions appear to be sufficient at this time.

18. Do site circumstances warrant further coordination or periodic communication with the State or Municipality of Anchorage or other agencies?

No.

19. Do you have any additional comments, suggestions, or recommendations regarding the site's management or operation?

No.

STANDARD STEEL & METALS SALVAGE YARD
SECOND FIVE-YEAR REVIEW
INTERVIEW QUESTIONNAIRE

INTERVIEW RECORD	
Name:	Louis Howard
Title:	Project Manager
Organization:	ADEC SPAR CS Program
Street Address:	555 Cordova Street
City, State, Zip:	Anchorage AK 99501
Telephone No.:	907-269-7552
E-Mail Address:	louis.howard@alaska.gov
Interview Date:	12/28/2007
Interview Type: **(Phone / Visit / Email)**	email
Interviewed By:	

The following general questions were adapted from the EPA's *Comprehensive Five-Year Review Guidance and Supplement for Evaluation of Institutional Controls.*

INTERVIEW QUESTIONS

1. What is your overall impression of the functioning of the remedy (containment cell) constructed at the site?

It is working as designed.

2. From your perspective, what effects have the remedies implemented at the site had on the surrounding community?

None.

3. Are you aware of concerns from the local community regarding the site, operation and administration, implementation, overall protectiveness of the ROD remedies?

None.

4. Are you aware of any events, incidents, or activities at the site such as vandalism, trespassing, or emergency responses from local authorities?

None.

5. Is there a regular on-site inspection and operation, maintenance and monitoring presence at the Site? What is the frequency of Operations & Maintenance (O&M) site inspections and activities?

Yes. See Administrative Record for further information on these inspections and activities.

6. Have there been unexpected O&M difficulties or costs at the site in the last five years?

No.

7. Have there been any significant changes in the O&M requirements, maintenance schedules, or sampling routines during the last five years? If so, do they affect the protectiveness or effectiveness of the remedy?

No.

8. Have there been opportunities to optimize the operation, maintenance, or sampling efforts? Please describe changes, cost savings, and/or improved efficiency.

Yes, but none that I am aware of.

9. Are you aware of any problems with the existing Institutional Controls? Enforceability, etc.?

None.

10. Is information reaching the potential site users or other groups?

Yes.

11. Is the property being used in a manner consistent with the land, groundwater, and other media restrictions? Are you aware of any breaches of the use restrictions/institutional controls ?

Yes. No breaches of use restrictions or institutional controls.

12. Has the surrounding land use, access, or other site conditions changed since implementation of the remedy? Are you aware of any current or impending land and/or resource use changes or development plans that you feel may impact the protectiveness of the site remedy?

New site condition change: New information from the June 21, 2007 Alaska Railroad Corporation investigation shows PCB soil samples taken from a drainage ditch adjacent to Standard Steel site. The levels vary from 0.14 mg/kg to 2.13 mg/kg (Sample CS-E-01) from the soil surface (0-1 ft. interval). Request additional sampling be conducted to see if there are higher levels of PCBs in the drainage ditch. No impending land and/or resource use changes or development plans that I am aware of.

13. Have any complaints been filed or unusual activities been noted at the site? If so, how were they addressed?

None.

14. What type of monitoring is currently being implemented to determine compliance with the institutional controls?

See administrative record for further information.

15. Where does the Agency keep information about Institutional Controls (IC)? Do you have an IC tracking system or other applicable database system?

See administrative record. ADEC has an internal IC tracking database.

16. Are there any general or specific ordinances that might be considered Institutional Controls for the site?

See administrative record.

17. Do you feel any additional Institutional Controls are needed?

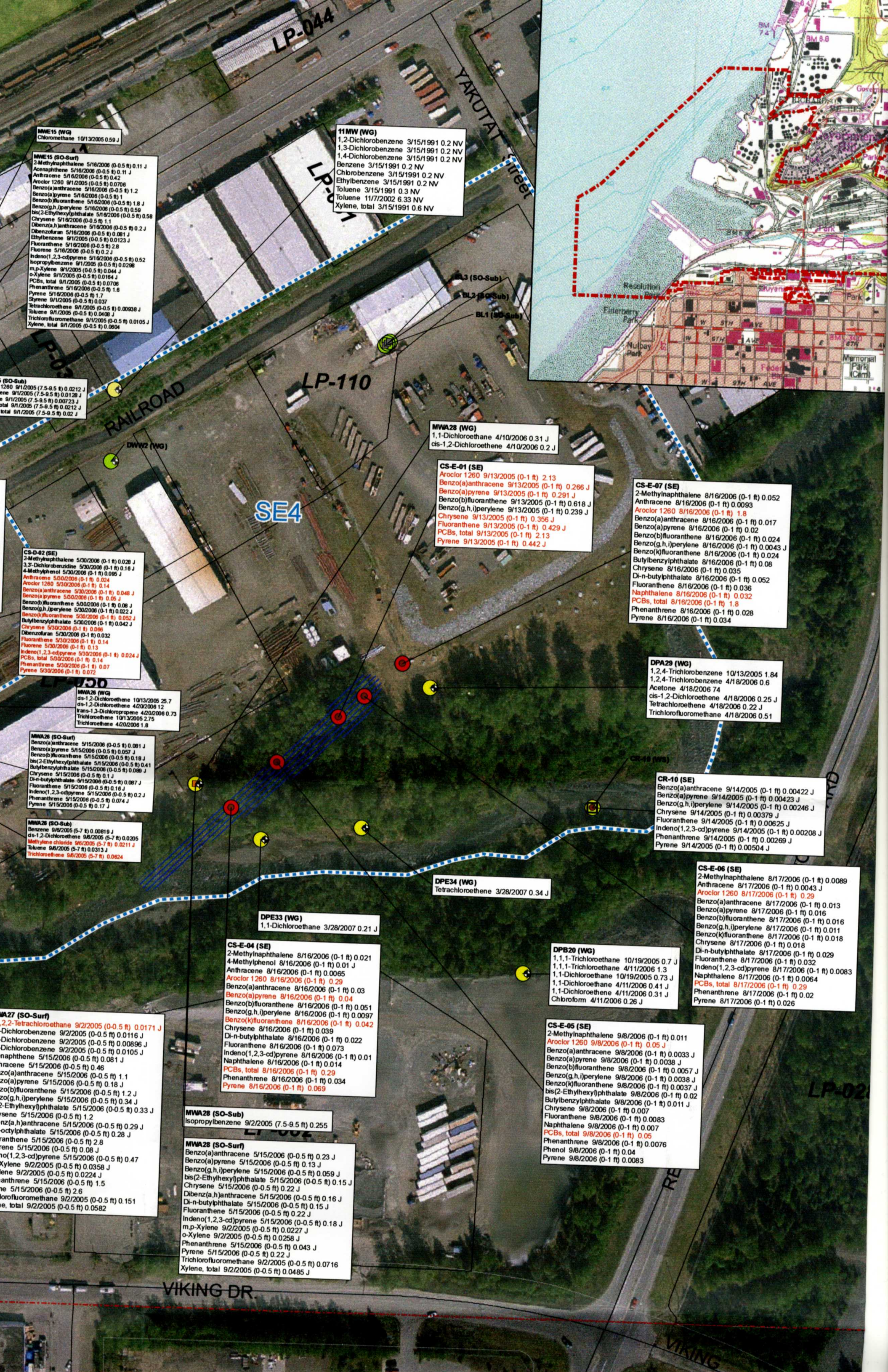
Not at this time.

18. Do site circumstances warrant further coordination or periodic communication with the State or Municipality of Anchorage or other agencies?

Not that I am aware of.

19. Do you have any additional comments, suggestions, or recommendations regarding the site's management or operation?

Not at this time.


LP-044
YAKUTAT Street
LP-110
RAILROAD
SE4
VIKING DR.
VIKING
Resolution Park
Elderberry Park
Nutbay Park
Memorial Park (Cem)
MWE15 (WG)
Chloromethane 10/13/2005 0.59 J
MWE15 (SO-Surf)
2-Methylnaphthalene 5/16/2006 (0-0.5 ft) 0.11 J
Acenaphthene 5/16/2006 (0-0.5 ft) 0.11 J
Anthracene 5/16/2006 (0-0.5 ft) 0.42
Aroclor 1260 9/1/2005 (0-0.5 ft) 0.0706
Benzo(a)anthracene 5/16/2006 (0-0.5 ft) 1.2
Benzo(a)pyrene 5/16/2006 (0-0.5 ft) 1
Benzo(b)fluoranthene 5/16/2006 (0-0.5 ft) 1.8 J
Benzo(g,h,i)perylene 5/16/2006 (0-0.5 ft) 0.59
bis(2-Ethylhexyl)phthalate 5/16/2006 (0-0.5 ft) 0.58
Chrysene 5/16/2006 (0-0.5 ft) 1.1
Dibenz(a,h)anthracene 5/16/2006 (0-0.5 ft) 0.2 J
Dibenzofuran 5/16/2006 (0-0.5 ft) 0.081 J
Ethylbenzene 9/1/2005 (0-0.5 ft) 0.0123 J
Fluoranthene 5/16/2006 (0-0.5 ft) 2.8
Fluorene 5/16/2006 (0-0.5 ft) 0.2 J
Indeno(1,2,3-cd)pyrene 5/16/2006 (0-0.5 ft) 0.52
Isopropylbenzene 9/1/2005 (0-0.5 ft) 0.0298
m,p-Xylene 9/1/2005 (0-0.5 ft) 0.044 J
o-Xylene 9/1/2005 (0-0.5 ft) 0.0164 J
PCBs, total 9/1/2005 (0-0.5 ft) 0.0706
Phenanthrene 5/16/2006 (0-0.5 ft) 1.6
Pyrene 5/16/2006 (0-0.5 ft) 1.7
Styrene 9/1/2005 (0-0.5 ft) 0.037
Tetrachloroethene 9/1/2005 (0-0.5 ft) 0.00938 J
Toluene 9/1/2005 (0-0.5 ft) 0.0408 J
Trichlorofluoromethane 9/1/2005 (0-0.5 ft) 0.0105 J
Xylene, total 9/1/2005 (0-0.5 ft) 0.0604
11MW (WG)
1,2-Dichlorobenzene 3/15/1991 0.2 NV
1,3-Dichlorobenzene 3/15/1991 0.2 NV
1,4-Dichlorobenzene 3/15/1991 0.2 NV
Benzene 3/15/1991 0.2 NV
Chlorobenzene 3/15/1991 0.2 NV
Ethylbenzene 3/15/1991 0.2 NV
Toluene 3/15/1991 0.3 NV
Toluene 11/7/2002 6.33 NV
Xylene, total 3/15/1991 0.6 NV
BL3 (SO-Sub)
BL2 (SO-Sub)
BL1 (SO-Sub)
(SO-Sub)
1260 9/1/2005 (7.5-9.5 ft) 0.0212 J
ene 9/1/2005 (7.5-9.5 ft) 0.0128 J
e 9/1/2005 (7.5-9.5 ft) 0.00723 J
otal 9/1/2005 (7.5-9.5 ft) 0.0212 J
total 9/1/2005 (7.5-9.5 ft) 0.02 J
DWW2 (WG)
MWA28 (WG)
1,1-Dichloroethane 4/10/2006 0.31 J
cis-1,2-Dichloroethene 4/10/2006 0.2 J
CS-E-01 (SE)
Aroclor 1260 9/13/2005 (0-1 ft) 2.13
Benzo(a)anthracene 9/13/2005 (0-1 ft) 0.266 J
Benzo(a)pyrene 9/13/2005 (0-1 ft) 0.291 J
Benzo(b)fluoranthene 9/13/2005 (0-1 ft) 0.618 J
Benzo(g,h,i)perylene 9/13/2005 (0-1 ft) 0.239 J
Chrysene 9/13/2005 (0-1 ft) 0.356 J
Fluoranthene 9/13/2005 (0-1 ft) 0.429 J
PCBs, total 9/13/2005 (0-1 ft) 2.13
Pyrene 9/13/2005 (0-1 ft) 0.442 J
CS-E-07 (SE)
2-Methylnaphthalene 8/16/2006 (0-1 ft) 0.052
Anthracene 8/16/2006 (0-1 ft) 0.0093
Aroclor 1260 8/16/2006 (0-1 ft) 1.8
Benzo(a)anthracene 8/16/2006 (0-1 ft) 0.017
Benzo(a)pyrene 8/16/2006 (0-1 ft) 0.02
Benzo(b)fluoranthene 8/16/2006 (0-1 ft) 0.024
Benzo(g,h,i)perylene 8/16/2006 (0-1 ft) 0.0043 J
Benzo(k)fluoranthene 8/16/2006 (0-1 ft) 0.024
Butylbenzylphthalate 8/16/2006 (0-1 ft) 0.08
Chrysene 8/16/2006 (0-1 ft) 0.035
Di-n-butylphthalate 8/16/2006 (0-1 ft) 0.052
Fluoranthene 8/16/2006 (0-1 ft) 0.036
Naphthalene 8/16/2006 (0-1 ft) 0.032
PCBs, total 8/16/2006 (0-1 ft) 1.8
Phenanthrene 8/16/2006 (0-1 ft) 0.028
Pyrene 8/16/2006 (0-1 ft) 0.034
CS-D-02 (SE)
2-Methylnaphthalene 5/30/2006 (0-1 ft) 0.028 J
3,3'-Dichlorobenzidine 5/30/2006 (0-1 ft) 0.16 J
4-Methylphenol 5/30/2006 (0-1 ft) 0.095 J
Anthracene 5/30/2006 (0-1 ft) 0.024
Aroclor 1260 5/30/2006 (0-1 ft) 0.14
Benzo(a)anthracene 5/30/2006 (0-1 ft) 0.048 J
Benzo(a)pyrene 5/30/2006 (0-1 ft) 0.05 J
Benzo(b)fluoranthene 5/30/2006 (0-1 ft) 0.08 J
Benzo(g,h,i)perylene 5/30/2006 (0-1 ft) 0.022 J
Benzo(k)fluoranthene 5/30/2006 (0-1 ft) 0.052 J
Butylbenzylphthalate 5/30/2006 (0-1 ft) 0.042 J
Chrysene 5/30/2006 (0-1 ft) 0.066
Dibenzofuran 5/30/2006 (0-1 ft) 0.032
Fluoranthene 5/30/2006 (0-1 ft) 0.14
Fluorene 5/30/2006 (0-1 ft) 0.13
Indeno(1,2,3-cd)pyrene 5/30/2006 (0-1 ft) 0.024 J
PCBs, total 5/30/2006 (0-1 ft) 0.14
Phenanthrene 5/30/2006 (0-1 ft) 0.07
Pyrene 5/30/2006 (0-1 ft) 0.072
DPA29 (WG)
1,2,4-Trichlorobenzene 10/13/2005 1.84
1,2,4-Trichlorobenzene 4/18/2006 0.6
Acetone 4/18/2006 74
cis-1,2-Dichloroethene 4/18/2006 0.25 J
Tetrachloroethene 4/18/2006 0.22 J
Trichlorofluoromethane 4/18/2006 0.51
MWA26 (WG)
cis-1,2-Dichloroethene 10/13/2005 25.7
cis-1,2-Dichloroethene 4/20/2006 12
trans-1,3-Dichloropropene 4/20/2006 0.73
Trichloroethene 10/13/2005 2.75
Trichloroethene 4/20/2006 1.8
MWA26 (SO-Surf)
Benzo(a)anthracene 5/15/2006 (0-0.5 ft) 0.081 J
Benzo(a)pyrene 5/15/2006 (0-0.5 ft) 0.057 J
Benzo(b)fluoranthene 5/15/2006 (0-0.5 ft) 0.18 J
bis(2-Ethylhexyl)phthalate 5/15/2006 (0-0.5 ft) 0.41
Butylbenzylphthalate 5/15/2006 (0-0.5 ft) 0.089 J
Chrysene 5/15/2006 (0-0.5 ft) 0.1 J
Di-n-butylphthalate 5/15/2006 (0-0.5 ft) 0.087 J
Fluoranthene 5/15/2006 (0-0.5 ft) 0.16 J
Indeno(1,2,3-cd)pyrene 5/15/2006 (0-0.5 ft) 0.2 J
Phenanthrene 5/15/2006 (0-0.5 ft) 0.074 J
Pyrene 5/15/2006 (0-0.5 ft) 0.17 J
MWA26 (SO-Sub)
Benzene 9/6/2005 (5-7 ft) 0.00819 J
cis-1,2-Dichloroethene 9/6/2005 (5-7 ft) 0.0205
Methylene chloride 9/6/2005 (5-7 ft) 0.0211 J
Toluene 9/6/2005 (5-7 ft) 0.0313 J
Trichloroethene 9/6/2005 (5-7 ft) 0.0624
CR-10 (SE)
Benzo(a)anthracene 9/14/2005 (0-1 ft) 0.00422 J
Benzo(a)pyrene 9/14/2005 (0-1 ft) 0.00423 J
Benzo(g,h,i)perylene 9/14/2005 (0-1 ft) 0.00246 J
Chrysene 9/14/2005 (0-1 ft) 0.00379 J
Fluoranthene 9/14/2005 (0-1 ft) 0.00625 J
Indeno(1,2,3-cd)pyrene 9/14/2005 (0-1 ft) 0.00208 J
Phenanthrene 9/14/2005 (0-1 ft) 0.00269 J
Pyrene 9/14/2005 (0-1 ft) 0.00504 J
DPE34 (WG)
Tetrachloroethene 3/28/2007 0.34 J
CS-E-06 (SE)
2-Methylnaphthalene 8/17/2006 (0-1 ft) 0.0089
Anthracene 8/17/2006 (0-1 ft) 0.0043 J
Aroclor 1260 8/17/2006 (0-1 ft) 0.29
Benzo(a)anthracene 8/17/2006 (0-1 ft) 0.013
Benzo(a)pyrene 8/17/2006 (0-1 ft) 0.016
Benzo(b)fluoranthene 8/17/2006 (0-1 ft) 0.016
Benzo(g,h,i)perylene 8/17/2006 (0-1 ft) 0.011
Benzo(k)fluoranthene 8/17/2006 (0-1 ft) 0.018
Chrysene 8/17/2006 (0-1 ft) 0.018
Di-n-butylphthalate 8/17/2006 (0-1 ft) 0.029
Fluoranthene 8/17/2006 (0-1 ft) 0.032
Indeno(1,2,3-cd)pyrene 8/17/2006 (0-1 ft) 0.0083
Naphthalene 8/17/2006 (0-1 ft) 0.0064
PCBs, total 8/17/2006 (0-1 ft) 0.29
Phenanthrene 8/17/2006 (0-1 ft) 0.02
Pyrene 8/17/2006 (0-1 ft) 0.026
DPE33 (WG)
1,1-Dichloroethane 3/28/2007 0.21 J
CS-E-04 (SE)
2-Methylnaphthalene 8/16/2006 (0-1 ft) 0.021
4-Methylphenol 8/16/2006 (0-1 ft) 0.01 J
Anthracene 8/16/2006 (0-1 ft) 0.0065
Aroclor 1260 8/16/2006 (0-1 ft) 0.29
Benzo(a)anthracene 8/16/2006 (0-1 ft) 0.03
Benzo(a)pyrene 8/16/2006 (0-1 ft) 0.04
Benzo(b)fluoranthene 8/16/2006 (0-1 ft) 0.051
Benzo(g,h,i)perylene 8/16/2006 (0-1 ft) 0.0097
Benzo(k)fluoranthene 8/16/2006 (0-1 ft) 0.042
Chrysene 8/16/2006 (0-1 ft) 0.039
Di-n-butylphthalate 8/16/2006 (0-1 ft) 0.022
Fluoranthene 8/16/2006 (0-1 ft) 0.073
Indeno(1,2,3-cd)pyrene 8/16/2006 (0-1 ft) 0.01
Naphthalene 8/16/2006 (0-1 ft) 0.014
PCBs, total 8/16/2006 (0-1 ft) 0.29
Phenanthrene 8/16/2006 (0-1 ft) 0.034
Pyrene 8/16/2006 (0-1 ft) 0.069
DPB20 (WG)
1,1,1-Trichloroethane 10/19/2005 0.7 J
1,1,1-Trichloroethane 4/11/2006 1.3
1,1-Dichloroethane 10/19/2005 0.73 J
1,1-Dichloroethane 4/11/2006 0.41 J
1,1-Dichloroethene 4/11/2006 0.31 J
Chloroform 4/11/2006 0.26 J
WA27 (SO-Surf)
,2,2-Tetrachloroethane 9/2/2005 (0-0.5 ft) 0.0171 J
-Dichlorobenzene 9/2/2005 (0-0.5 ft) 0.0116 J
-Dichlorobenzene 9/2/2005 (0-0.5 ft) 0.00896 J
-Dichlorobenzene 9/2/2005 (0-0.5 ft) 0.0105 J
naphthene 5/15/2006 (0-0.5 ft) 0.081 J
racene 5/15/2006 (0-0.5 ft) 0.46
zo(a)anthracene 5/15/2006 (0-0.5 ft) 1.1
zo(a)pyrene 5/15/2006 (0-0.5 ft) 0.18 J
zo(b)fluoranthene 5/15/2006 (0-0.5 ft) 1.2 J
zo(g,h,i)perylene 5/15/2006 (0-0.5 ft) 0.34 J
2-Ethylhexyl)phthalate 5/15/2006 (0-0.5 ft) 0.33 J
rsene 5/15/2006 (0-0.5 ft) 1.2
nz(a,h)anthracene 5/15/2006 (0-0.5 ft) 0.29 J
-octylphthalate 5/15/2006 (0-0.5 ft) 0.28 J
ranthene 5/15/2006 (0-0.5 ft) 2.8
rene 5/15/2006 (0-0.5 ft) 0.08 J
no(1,2,3-cd)pyrene 5/15/2006 (0-0.5 ft) 0.47
Xylene 9/2/2005 (0-0.5 ft) 0.0358 J
lene 9/2/2005 (0-0.5 ft) 0.0224 J
anthrene 5/15/2006 (0-0.5 ft) 1.5
ne 5/15/2006 (0-0.5 ft) 2.6
lorofluoromethane 9/2/2005 (0-0.5 ft) 0.151
e, total 9/2/2005 (0-0.5 ft) 0.0582
MWA28 (SO-Sub)
Isopropylbenzene 9/2/2005 (7.5-9.5 ft) 0.255
MWA28 (SO-Surf)
Benzo(a)anthracene 5/15/2006 (0-0.5 ft) 0.23 J
Benzo(a)pyrene 5/15/2006 (0-0.5 ft) 0.13 J
Benzo(g,h,i)perylene 5/15/2006 (0-0.5 ft) 0.059 J
bis(2-Ethylhexyl)phthalate 5/15/2006 (0-0.5 ft) 0.15 J
Chrysene 5/15/2006 (0-0.5 ft) 0.22 J
Dibenz(a,h)anthracene 5/15/2006 (0-0.5 ft) 0.16 J
Di-n-butylphthalate 5/15/2006 (0-0.5 ft) 0.15 J
Fluoranthene 5/15/2006 (0-0.5 ft) 0.22 J
Indeno(1,2,3-cd)pyrene 5/15/2006 (0-0.5 ft) 0.18 J
m,p-Xylene 9/2/2005 (0-0.5 ft) 0.0227 J
o-Xylene 9/2/2005 (0-0.5 ft) 0.0258 J
Phenanthrene 5/15/2006 (0-0.5 ft) 0.043 J
Pyrene 5/15/2006 (0-0.5 ft) 0.22 J
Trichlorofluoromethane 9/2/2005 (0-0.5 ft) 0.0716
Xylene, total 9/2/2005 (0-0.5 ft) 0.0485 J
CS-E-05 (SE)
2-Methylnaphthalene 9/8/2006 (0-1 ft) 0.011
Aroclor 1260 9/8/2006 (0-1 ft) 0.05 J
Benzo(a)anthracene 9/8/2006 (0-1 ft) 0.0033 J
Benzo(a)pyrene 9/8/2006 (0-1 ft) 0.0038 J
Benzo(b)fluoranthene 9/8/2006 (0-1 ft) 0.0057 J
Benzo(g,h,i)perylene 9/8/2006 (0-1 ft) 0.0038 J
Benzo(k)fluoranthene 9/8/2006 (0-1 ft) 0.0037 J
bis(2-Ethylhexyl)phthalate 9/8/2006 (0-1 ft) 0.02
Butylbenzylphthalate 9/8/2006 (0-1 ft) 0.011 J
Chrysene 9/8/2006 (0-1 ft) 0.007
Fluoranthene 9/8/2006 (0-1 ft) 0.0083
Naphthalene 9/8/2006 (0-1 ft) 0.007
PCBs, total 9/8/2006 (0-1 ft) 0.05
Phenanthrene 9/8/2006 (0-1 ft) 0.0076
Phenol 9/8/2006 (0-1 ft) 0.04
Pyrene 9/8/2006 (0-1 ft) 0.0083

STANDARD STEEL & METALS SALVAGE YARD
SECOND FIVE-YEAR REVIEW
INTERVIEW QUESTIONNAIRE

INTERVIEW RECORD	
Name:	Kaleb Benson
Title:	OWNER
Organization:	Bob Benson Trucking
Street Address:	2400 Railroad Ave
City, State, Zip:	Anch. AK 99501
Telephone No.:	907-272-8785
E-Mail Address:	bobbenson@gci.net
Interview Date:	
Interview Type: (Phone / Visit / Email)	email
Interviewed By:	

The following general questions were adapted from the EPA's *Comprehensive Five-Year Review Guidance and Supplement for Evaluation of Institutional Controls.*

INTERVIEW QUESTIONS

1. ***What is your overall impression of the functioning of the remedy (containment cell) constructed at the site?***

   The containment cell and the erosion control wall to protect the creek are working well

2. ***From your perspective, what effects have the remedies implemented at the site had on the surrounding community?***

   it is keepping Ship Creek Safe from erosion

3. ***Are you aware of concerns from the local community regarding the site, operation and administration, implementation, overall protectiveness of the ROD remedies?***

   No we are not aware of any from the Puplic.

4. ***Are you aware of any events, incidents, or activities at the site such as vandalism, trespassing, or emergency responses from local authorities?***

   No none Known

5. ***Is there a regular on-site inspection and operation, maintenance and monitoring presence at the Site? What is the frequency of Operations & Maintenance (O&M) site inspections and activities?***

   Daily thing are monitored by us on all of the Equipment

STANDARD STEEL & METALS SALVAGE YARD
SECOND FIVE-YEAR REVIEW
INTERVIEW QUESTIONNAIRE

6. ***Have there been unexpected O&M difficulties or costs at the site in the last five years?*** Not Know By US

7. ***Have there been any significant changes in the O&M requirements, maintenance schedules, or sampling routines during the last five years? If so, do they affect the protectiveness or effectiveness of the remedy?***
Not Known

8. ***Have there been opportunities to optimize the operation, maintenance, or sampling efforts? Please describe changes, cost savings, and/or improved efficiency.*** Not Known

9. ***Are you aware of any problems with the existing Institutional Controls? Enforceability, etc.?*** Not Known

10. ***Is information reaching the potential site users or other groups?***
Not Known

11. ***Is the property being used in a manner consistent with the land, groundwater, and other media restrictions? Are you aware of any breaches of the use restrictions/institutional controls ?***
No Breaches, land is being used Consistent with Restrictions

12. ***Has the surrounding land use, access, or other site conditions changed since implementation of the remedy? Are you aware of any current or impending land and/or resource use changes or development plans that you feel may impact the protectiveness of the site remedy?***
No / Not Known

STANDARD STEEL & METALS SALVAGE YARD
SECOND FIVE-YEAR REVIEW
INTERVIEW QUESTIONNAIRE

13. ***Have any complaints been filed or unusual activities been noted at the site? If so, how were they addressed?***

    Not Known

14. ***What type of monitoring is currently being implemented to determine compliance with the institutional controls?***

    Not Known

15. ***Where does the Agency keep information about Institutional Controls (IC)? Do you have an IC tracking system or other applicable database system?***

    Not Known

16. ***Are there any general or specific ordinances that might be considered Institutional Controls for the site?***

    Not Known

17. ***Do you feel any additional Institutional Controls are needed?***

    No

18. ***Do site circumstances warrant further coordination or periodic communication with the State or Municipality of Anchorage or other agencies?*** No

19. ***Do you have any additional comments, suggestions, or recommendations regarding the site's management or operation?***

    NO

STANDARD STEEL & METALS SALVAGE YARD
SECOND FIVE-YEAR REVIEW
INTERVIEW QUESTIONNAIRE

INTERVIEW RECORD	
Name:	Richard K. Smith
Title:	Vice President – Environmental Remediation
Organization:	CBS Corporation (successor to Viacom Inc. and Westinghouse Electric Corporation)
Street Address:	11 Stanwix Street
City, State, Zip:	Pittsburgh, PA 15222
Telephone No.:	412-642-3285
E-Mail Address:	richard.smith@cbs.com
Interview Date:	2/21/2008
Interview Type: **(Phone / Visit / Email)**	email
Interviewed By:	

The following general questions were adapted from the EPA's *Comprehensive Five-Year Review Guidance and Supplement for Evaluation of Institutional Controls.*

INTERVIEW QUESTIONS

1. What is your overall impression of the functioning of the remedy (containment cell) constructed at the site?

The remedy seems to be functioning as designed and constructed.

2. From your perspective, what effects have the remedies implemented at the site had on the surrounding community?

The remedy has been beneficial and the site is being productively utilized.

3. Are you aware of concerns from the local community regarding the site, operation and administration, implementation, overall protectiveness of the ROD remedies?

No.

4. Are you aware of any events, incidents, or activities at the site such as vandalism, trespassing, or emergency responses from local authorities?

Nothing significant.

5. Is there a regular on-site inspection and operation, maintenance and monitoring presence at the Site? What is the frequency of Operations & Maintenance (O&M) site inspections and activities?

Yes, the PRP Group's consultant inspects the site twice annually.

6. Have there been unexpected O&M difficulties or costs at the site in the last five years?

No.

7. Have there been any significant changes in the O&M requirements, maintenance schedules, or sampling routines during the last five years? If so, do they affect the protectiveness or effectiveness of the remedy?

No.

8. Have there been opportunities to optimize the operation, maintenance, or sampling efforts? Please describe changes, cost savings, and/or improved efficiency.

No.

9. Are you aware of any problems with the existing Institutional Controls? Enforceability, etc.?

No.

10. Is information reaching the potential site users or other groups?

Unknown.

11. Is the property being used in a manner consistent with the land, groundwater, and other media restrictions? Are you aware of any breaches of the use restrictions/institutional controls ?

The current use is consistent. I am aware of no breaches.

12. Has the surrounding land use, access, or other site conditions changed since implementation of the remedy? Are you aware of any current or impending land and/or resource use changes or development plans that you feel may impact the protectiveness of the site remedy?

No.

13. Have any complaints been filed or unusual activities been noted at the site? If so, how were they addressed?

I'm not aware of any.

14. What type of monitoring is currently being implemented to determine compliance with the institutional controls?

Site inspections are conducted twice per year.

15. Where does the Agency keep information about Institutional Controls (IC)? Do you have an IC tracking system or other applicable database system?

The site owner, Alaska Railroad Corporation, is responsible for maintaining the ICs.

16. Are there any general or specific ordinances that might be considered Institutional Controls for the site?

Reportedly, the Municipality of Anchorage has ordinances regarding zoning and controlling the installation of water wells.

17. Do you feel any additional Institutional Controls are needed?

No.

18. Do site circumstances warrant further coordination or periodic communication with the State or Municipality of Anchorage or other agencies?

No.

19. Do you have any additional comments, suggestions, or recommendations regarding the site's management or operation?

My knowledge of site conditions is based entirely on the inspection reports provided by the PRP Group's consultant (Alta Geosciences, Inc.).

INTERVIEW RECORD

Site Name:	**Standard Steel & Metal Salvage Yard (USDOT)**	**EPA ID No.:**	**AKD980978787**
Subject:	**Second Five Year Review**		
Interview Type:	Phone	**Date:**	1/7/2008
Visit Location:	N/A	**Time:**	10:30 am

Contact Made By:

Name:	Lisa Geist	**Organization:**	US Army Corps of Engineers
Title:	Environmental Scientist		

Individual Contacted:

Name:	Jacques Gusmano	**Organization:**	US EPA, Region 10, Anchorage Office
Title:	Project Manager	**Phone:**	907-271-1271
Address:	Federal Building Room 537 222 West 7th Avenue #19 (AOO/A)	**Fax:**	
City:	Anchorage	**State, Zip:**	AK 99513-7588
Email:	gusmano.jacques@epa.gov		

Summary Of Conversation

Contacted Jacques Gusmano to follow up on concern raised by Louis Howard, ADEC regarding PCBs detected in samples from a drainage ditch adjacent to Standard Steel site during 2007. Jacques indicated the soil sampling was part of a Remedial Investigation/Feasibility Study the Alaska Railroad is conducting under an Administrative Order on Consent with the US EPA. Jacques is the US EPA Project Manager for this action. 5 samples were collected from what used to be a drainage ditch to the southwest of the current landfill containment cell at the Standard Steel site. Two samples exceeded the state of Alaska's default cleanup standard of 1 mg/kg. The results ranged from 0.05 to 2.13 mg/kg. Jacques indicated the EPA believes the area has been pretty well defined. The surface topography has been recontoured such that this 'drainage' no longer diverts flow from the landfill containment cell. The draft Feasibility Study conducted by the Alaska Railroad indicates the identified locations with PCBs > 1 mg/kg will be excavated and treated by incineration. A removal action or ROD is planned to address the PCBs. Jacques indicated since the landowner is dealing with the contamination, the only implication for the current Standard Steel 5 year review is to conduct a follow up action during the next 5 year review to be sure the planned removal action was implemented.

INTERVIEW RECORD

Site Name:	**Standard Steel & Metal Salvage Yard (USDOT)**	**EPA ID No.:**	**AKD980978787**
Subject:	**Second Five Year Review**		
Interview Type:	Email	**Date:**	1/7/2008
Visit Location:	N/A	**Time:**	8:00 am

Contact Made By:

Name:	Chris Cora	**Organization:**	US EPA
Title:	RPM		

Individual Contacted:

Name:	David Duvall	**Organization:**	Viacom, Inc.
Title:		**Phone:**	812-334-2620
Address:	5005 E State Rd. 46	**Fax:**	
City:	Bloomington	**State, Zip:**	IN 47401
Email:	drduvall@ix.netcom.com		

Summary Of Conversation

Chris,

I no longer serve as a representative of Westinghouse/CBS/Viacom/CBS and so should not answer this request on their behalf. I would suggest you forward this inquiry to Rick Smith at richard.smith@cbs.com. Thanks,

Dave Duvall

INTERVIEW RECORD

Site Name:	**Standard Steel & Metal Salvage Yard (USDOT)**	**EPA ID No.:**	**AKD980978787**
Subject:	**Second Five Year Review**		
Interview Type:	Phone	**Date:**	1/14/2008
Visit Location:	N/A	**Time:**	1:00 pm

Contact Made By:

Name:	Lisa Geist	**Organization:**	US Army Corps of Engineers
Title:	Environmental Scientist		

Individual Contacted:

Name:	Kim Trust	**Organization:**	US Fish & Wildlife Service Regional Office
Title:	Environmental Contaminants Program	**Phone:**	907-786-3398
Address:	1011 E Tudor Rd	**Fax:**	
City:	Anchorage	**State, Zip:**	AK 99503
Email:	kim_trust@fws.gov		

Summary Of Conversation

Kim Trust returned my phone call following up on the email surveys that were sent. Lisa updated Kim with the status of the review, no problems have been identified, the remedy is functioning as intended. The site consists of a landfill or consolidation cell and is used as a parking area for trucks. Kim indicated the US FWS did not have any comments on the Standard Steel site.

ATTACHMENT 6

Mailing List

[This page intentionally left blank]

Marcia Combes
U.S. Environmental Protection Agency
222 West 7th Ave. #19, AOO/A
Anchorage, AK 99513-7588

Lori Cora
U.S. Environmental Protection Agency
1200 Sixth Avenue, ORC-158
Seattle, WA 98101

Louis Howard
Alaska Department of Environmental Conservation
555 Cordova Street
Anchorage, AK 99501-2617

Jennifer Roberts
Alaska Department of Environmental Conservation
555 Cordova Street
Anchorage, AK 99501-2617

Alaska Resources Library & Information Serivces (ARLIS)
3211 Providence Drive
Room 111, Library Building,
Anchorage, AK 99508

Susan Schrader
Alaska Railroad Corporation
327 W. Ship Creek Ave.
Anchorage, AK 99501

Phyllis Johnson
Alaska Railroad Corporation
327 W. Ship Creek Ave.
Anchorage, AK 99501

Richard Smith
Vice President - Environmental Remediation
CBS Corporation
11 Stanwix Street
Pittsburgh, PA 15222

Carol Johnson
Chugach Electric Association
P.O. Box 196300
Anchorage, AK 99519-6300

Bruce Bookman - Perkins/COIE
Montgomery Ward
1029 W 3RD Ave, Suite 300
Anchorage, AK 99501

James Koehler, Jr.
Bridgestone/Firestone, Inc.
1200 Firestone Parkway
Akron, OH 44317

Atty Steve Wardzinski
Westinghouse Electric Corp.
Westinghouse Bldg - Gateway Center
Pittsburgh, PA 15222

Paul Beveridge
Heller, Erhman
701 5th Ave, Bank of America Tower, #6100
Seattle, WA 98104

Alex Tula
ALTA Geosciences, Inc.
22833 Bothel Everett Hwy., Suite 1168
Bothell, WA 98021-9365

Rejina Belt
USDOJ
801 B St, Suite 504
Anchorage, AK 99501-3657

Laurie Butler
Aircraft Service International Group
6000 Dehavilland Dr.
Anchorage, AK 99502

Honorable Mark Begich
Mayor of Anchorage
632 W. 6th Ave.
Anchorage, AK 99501

Lee Browning
Anchorage Department of Health & Human Services
P.O. Box 196650
Anchorage, AK 99519-6650

Federation of Community Councils
3350 Commercial Drive, Suite 230
Anchorage, AK 99501

President Don Crandall
Mountain View Community Council
700 N. Pine Street
Anchorage, AK 99508

Katherine Fuselier
Sierra Club Alaska Chapter
333 W. 4th Ave, Suite 307
Anchorage, AK 99501

Don Stonburger
Keystone Distribution, Inc.
2320 Post Rd.
Anchorage, AK 99501

Tony Cozzetti
AAA Guaranteed Maintenance
P.O. Box 90792
Anchorage, AK 99509

Mark Little
Anchorage Department of Health & Human Services
P.O. Box 196650
Anchorage, AK 99519

Jim Pfeiffer
Anchorage Municipal Light & Power
1200 E First Ave
Anchorage, AK 99501

Vice President Hugh Wade
Mountain View Community Council
733 N. Flower Street
Anchorage, AK 99508

Randy Virgin
Alaska Center for the Environment
807 G Street, Suite 100
Anchorage, AK 99501

Pamela Miller
Alaska Community Action on Toxics
505 Northern Lights Blvd, Suite 205
Anchorage, AK 99503

Executive Director Holly Kent
Anchorage Waterways Council
P.O. Box 241774
Anchorage, AK 99524-1774

Cathy Gleason
Anchorage Waterways Council
4211 Bridle Circle
Anchorage, AK 99517-1410

Sara Marabito
Alaska Public Radio Network
3877 University Dr
Anchorage, AK 99508

Kim Fararo
Anchorage Daily News
1001 Northway Dr.
Anchorage, AK 99516

Steve Rinehart
Anchorage Daily News
P.O. Box 149001
Anchorage, AK 99514-9001

Alaska Public TV
2700 E Tudor Rd
Anchorage, AK 99507

Ingrid Parish
KTUU CHANNEL 2
701 E Tudor Rd., Suite 220
Anchorage, AK 99503-7445

Tricia Hackel
KTVA-TV, Channel 11
1007 W 32nd Ave
Anchorage, AK 99508

Arne Mason
KIMO CHANNEL 13
2700 E Tudor Rd
Anchorage, AK 99507

Attn: Joseph King
Federal Railroad Assoc. U.S. DOT
400 7TH ST SW
Washington, DC 20590

Norman Bloom
Williams Environmental Services
2075 W Park Place
Stone Mountain, GA 30087

Attn: Judy Malmquist
DRMS (Defense Reutilization and Marketing Service)
74 N Washington
Battle Creek, MI 49017-3092

Kim Trust
Environmental Contaminants Program
US FWS Regional Office
1011 E Tudor Rd
Anchorage, AK 99503

Phillip Johnson
US FWS Regional office
1011 E Tudor Rd
Anchorage, AK 99503

Honorable Don Young
U.S. Congressman
510 L Street, #580
Anchorage, AK 99501-1954

Rep Don Young
AK US Rep. attn: Mike Andersen
2111 Rayburn House Office Bldg
Washington, DC 20515-0201

Senator Ted Stevens
AK US Senate Attn: Jim Egan
222 W 7TH Ave, #2
Anchorage, AK 99513-7569

Senator Ted Stevens
AK US Senate Attn: Kate Williams
522 Senate-Hart Office Bldg
Washington, DC 20510-6025

Senator Lisa Murkowski
AK US Senate Attn: Bill Woolf
709 Senate-Hart Office Bldg
Washington, DC 20510

Senator Lisa Murkowski
AK US Senate Attn: Mary Hughes
510 L Street, Suite 550
Anchorage, AK 99501-1956

Honorable Sara Palin
Governor of Alaska, Anchorage Office
550 West 7th Avenue, Suite 1700
Anchorage, AK 99501

S. Turner
K & T ENTERPRISES
1817 Parkside Dr
Anchorage, AK 99501-5751

Kaleb Benson
Bob Benson Trucking
2400 Railroad Ave
Anchorage, AK 99501

Fran Bennis
P.O. Box 101145
Anchorage, AK 99510

Mike Brodie
833 W 22ND
Anchorage, AK 99503

Lawrence Hartig
717 K Street
Anchorage, AK 99501

Barb Dreyer
717 K Street
Anchorage, AK 99501

Mary Grisco
P.O. Box 202045
Anchorage, AK 99520

Ralph Hanson
127 E Potter Dr.
Anchorage, AK 99518

Carol Harmon
5601 Min Dr.
Anchorage, AK 99519

Robin Cole
6135 Staedem Dr
Anchorage, AK 99504

Jim Patras
19216 B Monasoort Dr
Eagle River , AK 99577

Paul Wharton
717 K Street
Anchorage, AK 99501

Leonard Tragness
1817 Parkside Dr
Anchorage, AK 99501

Howard Thomas
2611 Britany Dr
Anchorage, AK 99504

Mr & Mrs Bob French
685 Birch Street
Anchorage, AK 99501

Dr. Julius Rockwell
4548 Reka Dr.
Anchorage, AK 99508-3684

Joseph Reece
520 Tree Circle
Anchorage, AK 99503

Craig James
P.O. Box 80521
College, AK 99708

Ray Krug
201 Barrow, #1
Anchorage, AK 99501

Mike Lindquist
3605 Arctic Blvd, #2540
Anchorage, AK 99503

Charles Moser
P.O. Box 200201
Anchorage, AK 99520

Paul Lavery
224 E Manor Ave
Anchorage, AK 99501-1150

Karl Kotas
910 East Aloha St., #A
Seattle, WA 98102

ATTACHMENT 7

Site Visit Reports
CERCLA Site Visit Report September 2007
Site Visit Report December 2007
Site Inspection Checklist

[This page intentionally left blank]

United States Army
Corps of Engineers

Alaska District
PO Box 6898
Elmendorf AFB, AK
99506-6898

CERCLA Site Visit

Standard Steel and Metals Salvage Yard
2400 Railroad Avenue
Anchorage, Alaska

EPA ID: AKD980978787

5 October 2007

Blank Page

TABLE OF CONTENTS

1 SUMMARY OF SITE CONDITIONS 1

1.1 SITE LOCATION AND DESCRIPTION 1
1.2 HISTORY 1

2 PURPOSE OF SITE VISIT 1

3 FIELD ACTIVITIES 1

4 REFERENCES 2

LIST OF FIGURES

FIGURE 1 - LOCATION MAP 3
FIGURE 2 – USGS TOPO ANCHORAGE A-8 NW 4
FIGURE 3 – CONSOLIDATION CELL AND SURROUNDING AREA (ALTA GEOSCIENCES, 5-YEAR REVIEW, FIGURE 2-1) 5

LIST OF PICTURES

PICTURE 1 – VIEW FROM THE NORTHWEST OF THE TOP OF THE CONTAINMENT CELL (SEP 2007) 6
PICTURE 2 – VIEW FROM THE SOUTHEAST NEAR SHIP CREEK OF THE RIPRAP ON THE STABILIZATION CELL (SEP 2007). 6
PICTURE 3 – VIEW FROM THE SOUTHWEST OF THE RIPRAP ON THE STABILIZATION CELL (SEP 2007) 7

The pictures listed above, and additional pictures from the site visit, are available at full resolution at ftp://ftp.usace.army.mil/pub/poa/Standard%20Steel/. These pictures will be available at this ftp server until the end of January 2008. After January 2008, they will be available at the Alaska District, Corps of Engineers office.

Blank Page

1 Summary of Site Conditions

1.1 Site Location and Description

The Standard Steel and Metal Salvage Yard (the site) was a 6.2-acre metal salvage yard in Anchorage, Alaska. The site is located near the intersection of Railroad Avenue and Yakutat Street, adjacent to Ship Creek. The site is zoned I-2, denoting a heavy industrial district, by the Municipality of Anchorage. The property is in the possession and control of the Alaska Railroad Corporation (ARRC). The site is located within the City of Anchorage. A residential area is located a half mile southeast of the site on the east side of Ship Creek, and Elmendorf Air Force Base is a third of a mile to the north. Coordinates of the site are 61°13'40.00"N, 149°50'7.00"W (Google Earth).

1.2 History

From 1986 through 1988, EPA conducted a series of removal actions to address contamination at the site. EPA removed 1000 gallons of polychlorinated biphenyls (PCBs) contaminated oil, eighty-two 55-gallon drums of Resource Conservation and Recovery Act (RCRA) hazardous waste, 10,450 gallons of waste oil, 185 PCB-contaminated transformers, and 781,000 pounds of lead acid batteries. EPA proposed the site to the National Priorities List (NPL) of Superfund sites on July 14, 1989. The site was finalized on the NPL on August 30, 1990.

The remedial design was conducted in conformance with the approved ROD and statement of work for the consent decree. The remedial action design included removal of contaminated materials, contaminated soil stabilization, construction of a consolidation cell, and institutional controls. The remedial action was formally initiated in April 1998. A Remedial Action Report was signed on August 1, 1999 and a Final Closeout Report was signed on June 26, 2002 which documents that all work at the site has been completed and all cleanup levels established in the ROD have been achieved through the remedial actions.

Operation and Maintenance has been occurring annually and included groundwater monitoring and inspection of the consolidation cell. The first 5-Year Review was completed in 2003.

2 Purpose of Site Visit

The second 5-Year Review is due in April 2008. This site visit was to familiarize USACE (who will be writing the review for the EPA) with the site.

3 Field Activities

On 26 September 2007, the following individuals met at the site at approximately 2:15 PM.

- Mr. Jacques Gusmano, USEPA, GUSMANO.JACQUES@epa.gov
- Ms. Susan Schrader, ARRC, Schrader@akrr.com
- Ms. Marilyn A. Plitnik, USACE, marilyn.a.plitnik@usace.army.mil

- Mr. Robert Haviland, USACE, robert.a.haviland@us.army.mil

The site visit party met at the north corner of the property and walked the circumference of the top of the consolidation cell in a clockwise direction. Mr. Haviland also walked the circumference from the toe of the slope to include the edge of Ship Creek and the drainage ditch and culvert on the east side of the containment cell. A bald eagle flying low over Ship Creek and fresh moose droppings near the toe of the consolidation cell slope were observed during the visit. No sloughing, bulging, cracking, erosion, or other damage to the containment slope was observed. The operations observed (vehicle, equipment and general storage) appeared consistent with the selected remedy.

The temperature was approximately 47°F under cloudy skies. The wind was from the south at about 7 mph.

Discussions were held on the operations and maintenance of the property, records location, and the second 5-year review schedule. The primary contact for the ARRC is Ms. Phyllis Johnson. Mr. Alex Tula of ALTA Geosciences is the consultant conducting inspections and groundwater sampling. The ARRC leases to K&T. K&T is the primary leaseholder and they sublease.

4 References

EPA 2003, U.S. Environmental Protection Agency, "Five Year Review Report, First Five-Year Review Report for Standard Steel Superfund Site, Anchorage, Alaska," April 2003.

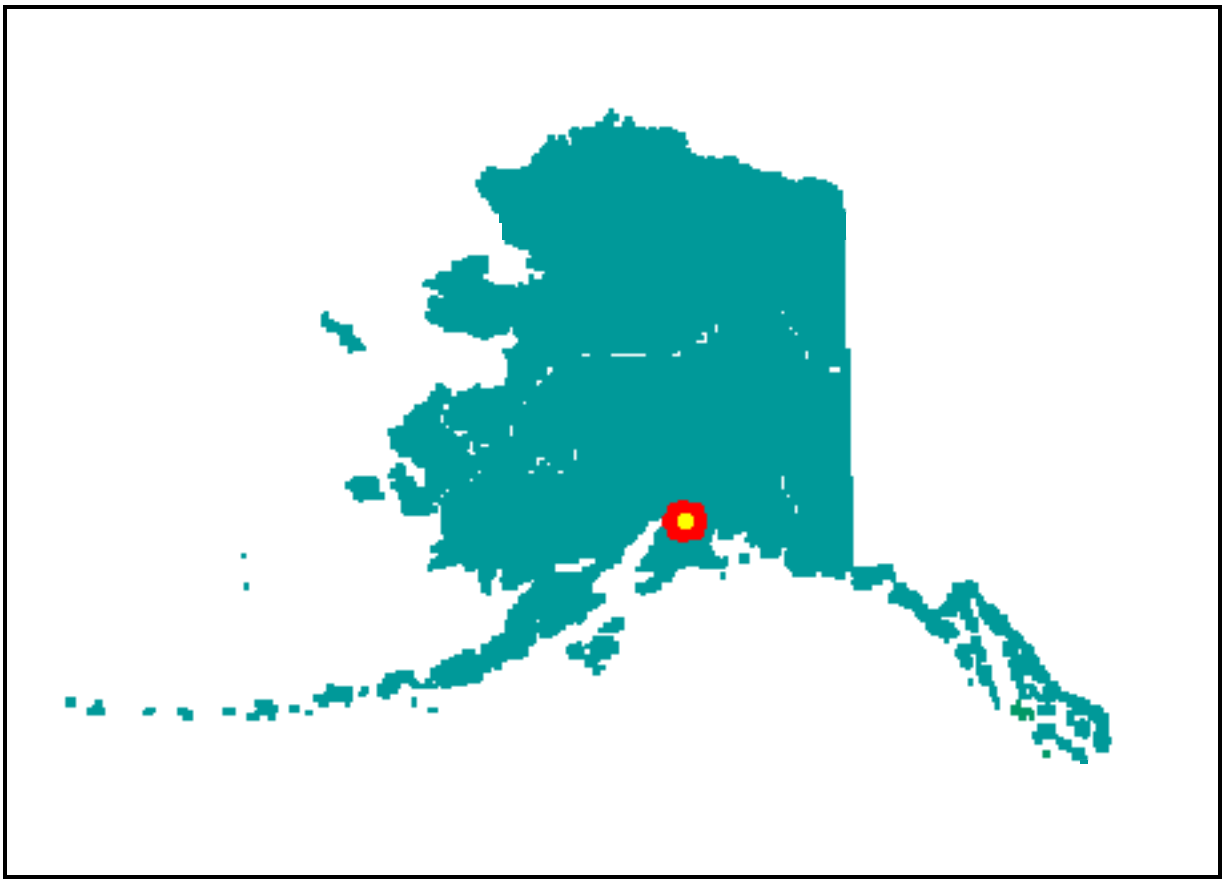


Figure 1 - Location Map

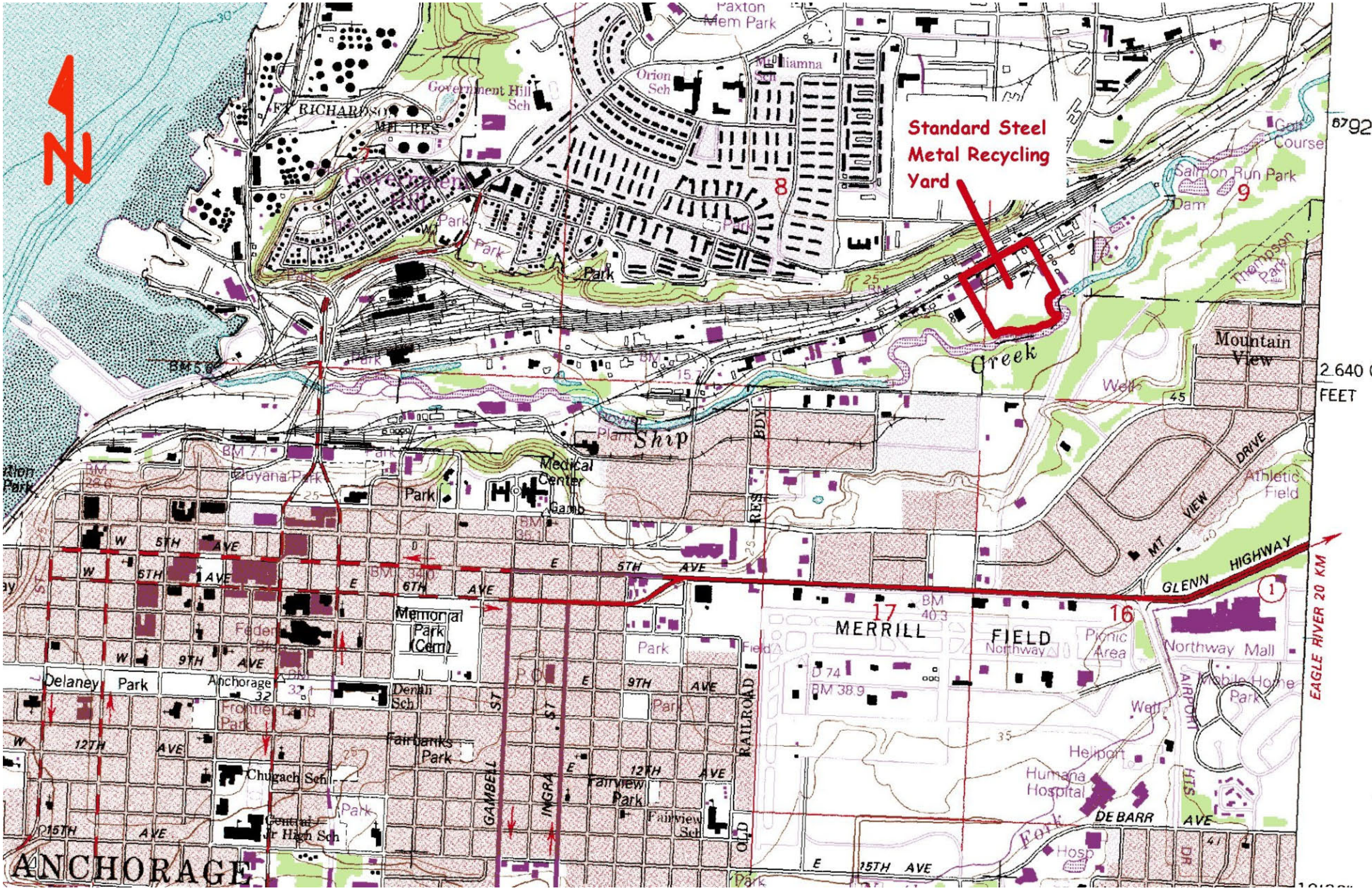


Figure 2 – USGS Topo Anchorage A-8 NW

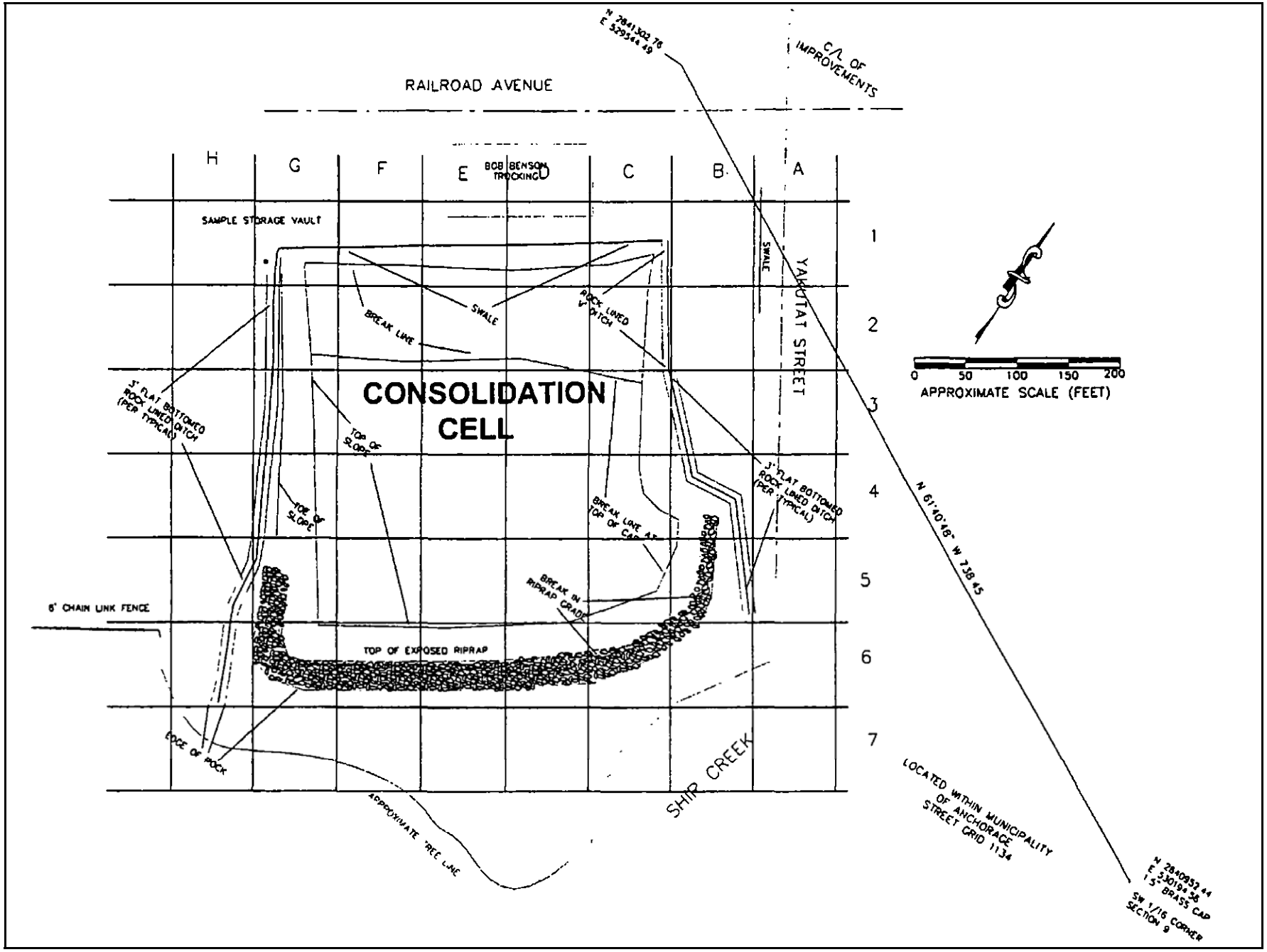


Figure 3 – Consolidation Cell and Surrounding Area (ALTA Geosciences, 5-Year Review, Figure 2-1)

Picture 1 – View from the northwest of the top of the containment cell (SEP 2007).

Picture 2 – View from the southeast near Ship Creek of the riprap on the stabilization cell (SEP 2007).

Picture 3 – View from the southwest of the riprap on the stabilization cell (SEP 2007).

United States Army
Corps of Engineers

Alaska District
PO Box 6898
Elmendorf AFB, AK
99506-6898

Site Visit

Standard Steel and Metals Salvage Yard
2400 Railroad Avenue
Anchorage, Alaska

EPA ID: AKD980978787

December 2007

Blank Page

TABLE OF CONTENTS

1 SUMMARY OF SITE CONDITIONS 1

2 PURPOSE OF SITE VISIT 1

3 FIELD ACTIVITIES 1

4 REFERENCES 2

LIST OF FIGURES

FIGURE 1 - LOCATION MAP 3
FIGURE 2 – GOOGLE MAP SATELLITE VIEW OF 2400 RAILRAOAD AVE 4
FIGURE 3 – LAND USE STATUS 5

LIST OF PHOTOS

PHOTO 1. VIEW SOUTHEAST FROM NORTHWEST CORNER OF SITE. 6
PHOTO 2. EASTERN DRAINAGE SWALE OF LANDFILL CELL, VIEW NORTH TOWARDS RAILROAD AVENUE. 6
PHOTO 3. EASTERN DRAINAGE SWALE OF LANDFILL CELL, VIEW SOUTH TOWARDS SHIP CREEK. ADJACENT PROPERTY VISIBLE ON LEFT OF PHOTOGRAPH. 7
PHOTO 4. EASTERN DRAINAGE SWALE OF LANDFILL CELL. 7
PHOTO 5. SOUTHEAST CORNER OF LANDFILL CELL, VIEW FROM TOP SOUTH TOWARDS SHIP CREEK. 8
PHOTO 6. SOUTHERN EDGE OF LANDFILL CELL, IN CENTER, VIEW SOUTH TOWARDS SHIP CREEK. 8
PHOTO 7. VIEW WEST ALONG SOUTHERN EDGE OF LANDFILL CELL. 9
PHOTO 8. VIEW NORTH OVER LENGTH OF LANDFILL CELL, TOWARDS BUILDING AND RAILROAD AVENUE. 9
PHOTO 9. WESTERN DRAINAGE SWALE, VIEW SOUTH TOWARDS SHIP CREEK. RIP-RAP VISIBLE IN DISTANCE ON EDGE OF LANDFILL CELL. 10
PHOTO 10. WESTERN DRAINAGE SWALE, VIEW NORTH TOWARDS RAILROAD AVENUE. 10
PHOTO 11. VIEW NORTH ON WESTERN PORTION OF LANDFILL CELL. PARKING/STORAGE AREA. 11
PHOTO 12. VIEW NORTHEAST FROM NORTHWEST EDGE OF LANDFILL CELL, TOWARDS RAILROAD AVENUE. 11

Blank Page

1 Summary of Site Conditions

1.1 Site Location and Description

The Standard Steel and Metal Salvage Yard (the site) was a 6.2-acre metal salvage yard in Anchorage, Alaska. The site is located at 2400 Railroad Avenue near the intersection of Railroad Avenue and Yakutat Street, adjacent to Ship Creek. The site is zoned I-2, denoting a heavy industrial district, by the Municipality of Anchorage. The property is in the possession and control of the Alaska Railroad Corporation (ARRC). The site is located within the City of Anchorage.

1.2 History

From 1986 through 1988, the U.S. Environmental Protection Agency (EPA) conducted a series of removal actions to address contamination at the site. EPA proposed the site to the National Priorities List (NPL) of Superfund sites on July 14, 1989. The site was finalized on the NPL on August 30, 1990.

Site cleanup activities were initiated in April 1998 and consisted of removal of contaminated materials, stabilization of contaminated soils, construction of an onsite consolidation cell, and institutional controls to monitor the stability of the remedy. All site work was completed by August 1999 and a Final Closeout Report was released on June 26, 2002 which documented that all work was completed and all cleanup levels had been achieved through the remedial actions. Operation and maintenance has been occurring annually and includes groundwater monitoring and inspection of the consolidation cell. The first 5-Year Review was completed in 2003.

2 Purpose of Site Visit

The second 5-Year Review is due in April 2008. An initial site visit was conducted in September 2007 to familiarize USACE personnel with the site. A supplemental site visit was conducted in December 2007 due to new personnel assigned to complete the second 5 year review.

3 Field Activities

On 3 December 2007, the following individuals met at the site at approximately 10 AM.

- Ms. Susan Schrader, ARRC, Schrader@akrr.com
- Mr. Robert Haviland, USACE, robert.a.haviland@usace.army.mil
- Ms. Lisa Geist, USACE, lisa.k.geist@usace.army.mil

The site visit party met at the northeast corner of the property and walked the perimeter of the top of the consolidation cell in a clockwise direction. No sloughing, bulging, cracking, erosion, or other damage to the containment slope was observed. The site activities observed (vehicle, equipment and general storage) appeared consistent with the selected remedy.

The temperature was approximately 14°F under partly cloudy skies. The wind was from the north-northeast at about 13 mph. There was very little snow cover due to the unusually mild winter in Anchorage.

Ms. Schrader indicated the primary leaseholder, K&T, subleased the property to the current occupant, Benny Benson Trucking. Renewal of the lease agreement is ongoing with the railroad and their tenant.

After the site visit, a review of current Municipality of Anchorage zoning and land use status was performed. The site and surrounding property is zoned I-2 industrial. No significant changes in land use have occurred since the previous 5 year review was completed. Anchorage Ordinance No. AO 2006-46(S) is the only ordinance associated with this area. However, the ordinance concerned only a portion of the Alaska Railroad Reservation located in the Lower Ship Creek, including ARR Terminal Reserve, Lot 103, Whitney Road Industrial Lease Lot, and Ship Creek Crossing, Lot 3 and Lot 4, generally located at the lower west end of Ship Creek south of the Railroad Mainline to Second Avenue and West Gambell Street. This ordinance adopted a new Planned Community zoning and New Ship Creek Master Plan for the aforementioned portions of the ARR Reservation. In general, zoning was updated to be either I-1 Light Industrial or I-2 heavy Industrial. Figure 3 depicts the land use status around the site.

4 References

EPA 2003, U.S. Environmental Protection Agency, “Five Year Review Report, First Five-Year Review Report for Standard Steel Superfund Site, Anchorage, Alaska,” April 2003.

USACE 2007, U.S. Army Corps of Engineers, “CERCLA Site Visit Report”, October 2007.

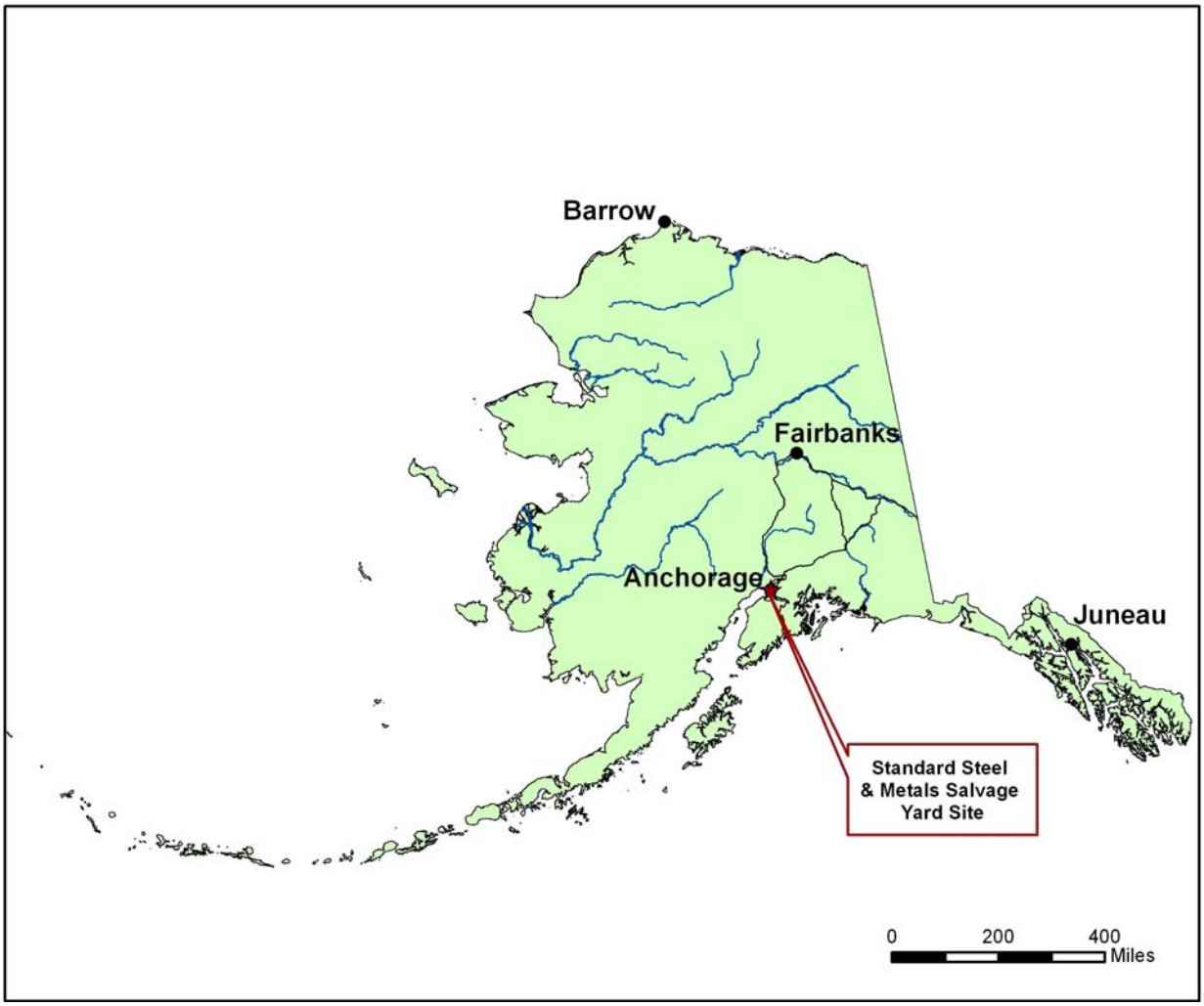
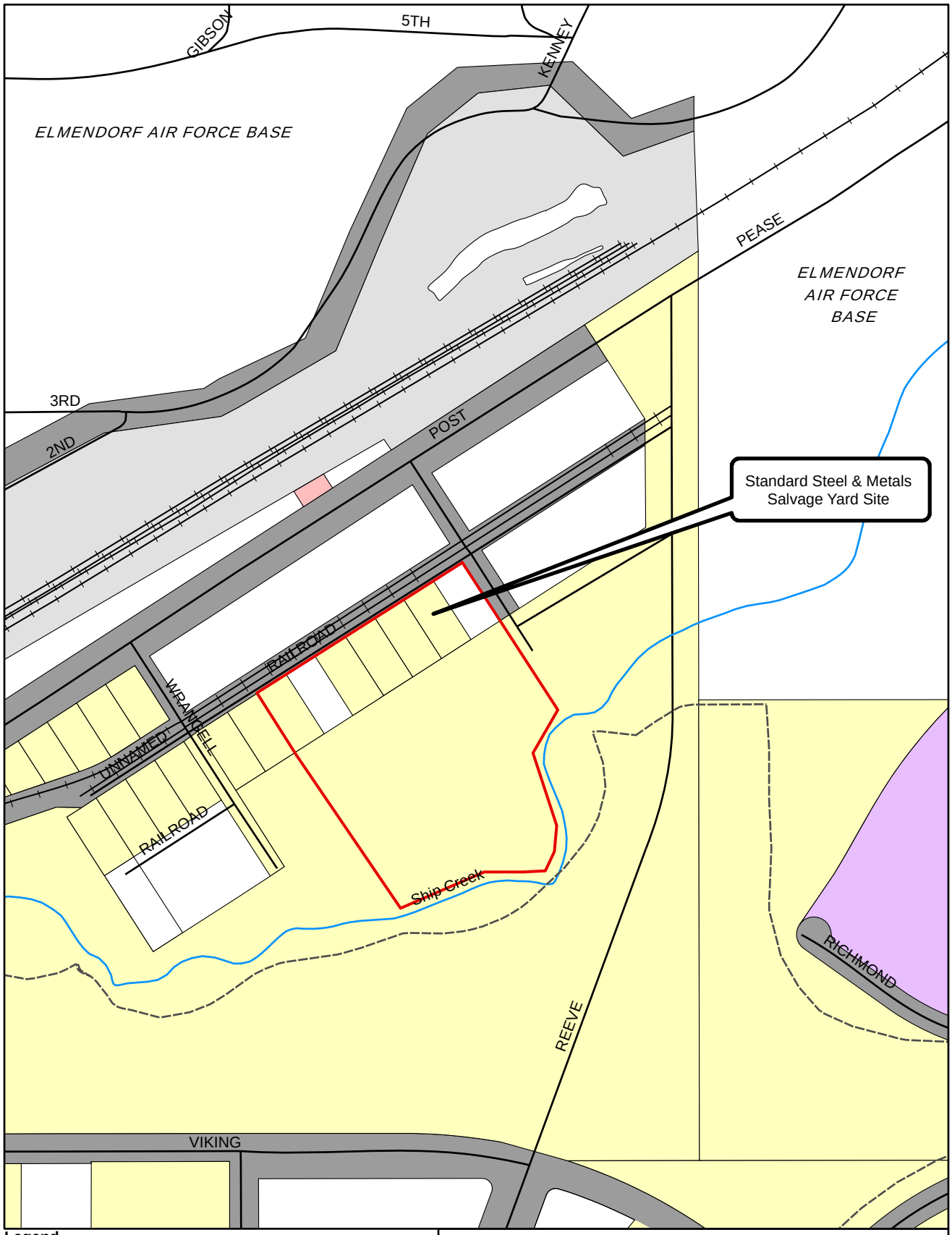


Figure 1 - Location Map

Figure 2 – Google Maps satellite view of 2400 Railroad Ave



Legend

COMMERCIAL	TRANSPORTATION	Trails
INDUSTRIAL	VACANT	Streams
INSTITUTIONAL	WATER	Streets
RR/ROW	PARK	Railroad
		Standard Steel Site

source: Municipality of Anchorage, GIS Web Server
https://munimaps.muni.org (December 2007)

FIGURE 3

Standard Steel & Metals Salvage Yard
Land Use Status

US Army
Corps of Engineers
Alaska District

0 100 200 400 Feet

1 inch equals 400 feet

Site: Standard Steel
Drawn: LKG
Date: 12/2007

Photo 1. View southeast from northwest corner of site.

Photo 2. Eastern drainage swale of landfill cell, view north towards Railroad Avenue.

Photo 3. Eastern drainage swale of landfill cell, view south towards Ship Creek. Adjacent property visible on left of photograph.

Photo 4. Eastern drainage swale of landfill cell.

Photo 5. Southeast corner of landfill cell, view from top south towards Ship Creek.

Photo 6. Southern edge of landfill cell, in center, view south towards Ship Creek.

Photo 7. View west along southern edge of landfill cell.

Photo 8. View north over length of landfill cell, towards building and Railroad Avenue.

Photo 9. Western drainage swale, view south towards Ship Creek. Rip-rap visible in distance on edge of landfill cell.

Photo 10. Western drainage swale, view north towards Railroad Avenue.

Photo 11. View north on western portion of landfill cell. Parking/storage area.

Photo 12. View northeast from northwest edge of landfill cell, towards Railroad Avenue.

Site Inspection Checklist

I. SITE INFORMATION	
Site name: Standard Steel & Metal Salvage Yard (USDOT)	**Date of inspection: September 26 and December 3, 2007**
Location and Region: Anchorage, AK, Region 10	**EPA ID: AKD980978787**
Agency, office, or company leading the five-year review: US Army Corps of Engineers	**Weather/temperature: Cloudy, 47 °F**

Remedy Includes: (Check all that apply)

X Landfill cover/containment
Access controls
X Institutional controls
Groundwater pump and treatment
Surface water collection and treatment
Other_____
_____

Monitored natural attenuation
Groundwater containment
Vertical barrier walls

Attachments: X Inspection team roster attached X Site map attached

See Site Inspection Reports

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** Alex Tula, R.G., ATLA Geosciences, Principal Consultant
Name Title Date
Interviewed at site at office by phone **X** by email
Problems, suggestions; Report attached
None. See Completed Interview Questionnaire.
_____

2. **O&M staff** _____ _____ _____
Name Title Date
Interviewed at site at office by phone Phone no. _____
Problems, suggestions; Report attached _____
_____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency Alaska Department of Environmental Conservation
Contact Louis Howard, Project Manager
Name Title Date Phone no.
Problems; suggestions; Report attached _____
See Completed Interview Questionnaire
_____

Agency U.S. Environmental Protection Agency
Contact Chris Cora, Remedial Project Manager
Name Title Date Phone no.
Problems; suggestions; Report attached _____
None._____

Agency U.S. Environmental Protection Agency
Contact Jacques Gusmano, Project Manager
Name Title Date Phone no.
Problems; suggestions; Report attached _____
None. _____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; Report attached _____
_____

4. **Other interviews** (optional) Report attached.

Phyllis Johnson and Susan Schrader, Alaska Railroad, see completed Interview Questionnaire.

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. **O&M Documents**

O&M manual	Readily available	X Up to date	N/A
As-built drawings	Readily available	X Up to date	N/A
Maintenance logs	Readily available	X Up to date	N/A

Remarks_____
_____

2. **Site-Specific Health and Safety Plan** Readily available Up to date X N/A
Contingency plan/emergency response plan Readily available Up to date X N/A
Remarks_____
_____

3. **O&M and OSHA Training Records** Readily available Up to date X N/A
Remarks_____
_____

4. **Permits and Service Agreements**

Air discharge permit	Readily available	Up to date	X N/A
Effluent discharge	Readily available	Up to date	X N/A
Waste disposal, POTW	Readily available	Up to date	X N/A
Other permits_____	Readily available	Up to date	X N/A

Remarks_____
_____

5. **Gas Generation Records** Readily available Up to date X N/A
Remarks_____
_____

6. **Settlement Monument Records** Readily available Up to date X N/A
Remarks No observed settlement
_____

7.	**Groundwater Monitoring Records**	Readily available	X Up to date	N/A
	Remarks_____			
8.	**Leachate Extraction Records**	Readily available	Up to date	X N/A
	Remarks_____			
9.	**Discharge Compliance Records**			
	Air	Readily available	Up to date	X N/A
	Water (effluent)	Readily available	Up to date	X N/A
	Remarks_____			
10.	**Daily Access/Security Logs**	Readily available	Up to date	X N/A
	Remarks_____			

IV. O&M COSTS

1. **O&M Organization**

State in-house — Contractor for State
PRP in-house — X Contractor for PRP
Federal Facility in-house — Contractor for Federal Facility
Other_____

2. **O&M Cost Records**

X Readily available — Up to date
Funding mechanism/agreement in place
Original O&M cost estimate__$12,000/year_____ Breakdown attached

Total annual cost by year for review period if available

From	Jan 2004	To	Dec 2004	$10,000	Breakdown attached
	Date		Date	Total cost	
From	Jan 2005	To	Dec 2005	$2,000	Breakdown attached
	Date		Date	Total cost	
From	Jan 2006	To	Dec 2006	$8,000	Breakdown attached
	Date		Date	Total cost	
From	Jan 2007	To	Dec 2007	$5,000	Breakdown attached
	Date		Date	Total cost	
From	Jan 2008	To	Dec 2008	$8,000	Breakdown attached
	Date		Date	Total cost	

3. **Unanticipated or Unusually High O&M Costs During Review Period**

Describe costs and reasons: _____

V. ACCESS AND INSTITUTIONAL CONTROLS X Applicable N/A

A. Fencing

1. **Fencing damaged** Location shown on site map Gates secured X N/A
Remarks_____

B. Other Access Restrictions

1. **Signs and other security measures** Location shown on site map X N/A
Remarks_____

C. Institutional Controls (ICs)

1. **Implementation and enforcement**
Site conditions imply ICs not properly implemented Yes X No N/A
Site conditions imply ICs not being fully enforced Yes X No N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _X_Visual inspection
Frequency _X_Twice per Year
Responsible party/agency _X_ PRP Group
Contact ___Alex Tula, R.G., ALTA Geosciences
Name Title Date Phone no.

Reporting is up-to-date X Yes No N/A
Reports are verified by the lead agency X Yes No N/A

Specific requirements in deed or decision documents have been met X Yes No N/A
Violations have been reported Yes No X N/A
Other problems or suggestions: Report attached
None_____

2. **Adequacy** X ICs are adequate ICs are inadequate N/A
Remarks_____

D. General

1. **Vandalism/trespassing** Location shown on site map X No vandalism evident
Remarks_____

2. **Land use changes on site** X N/A
Remarks_____

3. **Land use changes off site** N/A
Remarks__Recreational path/bike trail extended on north side of Ship Creek

VI. GENERAL SITE CONDITIONS

A. Roads X Applicable ■ N/A

1. **Roads damaged** Location shown on site map X Roads adequate N/A
   Remarks_____

B. Other Site Conditions

Remarks _____

VII. LANDFILL COVERS X Applicable N/A

A. Landfill Surface

1. **Settlement** (Low spots) Location shown on site map X Settlement not evident
   Areal extent_____ Depth_____
   Remarks_____

2. **Cracks** Location shown on site map X Cracking not evident
   Lengths_____ Widths_____ Depths_____
   Remarks_____

3. **Erosion** Location shown on site map X Erosion not evident
   Areal extent_____ Depth_____
   Remarks_____

4. **Holes** Location shown on site map X Holes not evident
   Areal extent_____ Depth_____
   Remarks_____

5. **Vegetative Cover** Grass Cover properly established No signs of stress
   Trees/Shrubs (indicate size and locations on a diagram)
   Remarks__N/A_____

6. **Alternative Cover (armored rock, concrete, etc.)** N/A
   Remarks__Rip/Rap sidewalls in good condition _____

7. **Bulges** Location shown on site map X Bulges not evident
   Areal extent_____ Height_____
   Remarks_____

8. **Wet Areas/Water Damage** **X** Wet areas/water damage not evident
   Wet areas Location shown on site map Areal extent_____
   Ponding Location shown on site map Areal extent_____
   Seeps Location shown on site map Areal extent_____
   Soft subgrade Location shown on site map Areal extent_____
   Remarks_____

9. **Slope Instability** Slides Location shown on site map X No evidence of slope instability
Areal extent_____
Remarks_____
_____

B. Benches Applicable X N/A
(Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)

1. **Flows Bypass Bench** Location shown on site map X N/A or okay
Remarks_____
_____

2. **Bench Breached** Location shown on site map X N/A or okay
Remarks_____
_____

3. **Bench Overtopped** Location shown on site map X N/A or okay
Remarks_____
_____

C. Letdown Channels Applicable X N/A
(Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)

1. **Settlement** Location shown on site map X No evidence of settlement
Areal extent_____ Depth_____
Remarks_____
_____

2. **Material Degradation** Location shown on site map X No evidence of degradation
Material type_____ Areal extent_____
Remarks_____
_____

3. **Erosion** Location shown on site map X No evidence of erosion
Areal extent_____ Depth_____
Remarks_____
_____

4. **Undercutting** Location shown on site map X No evidence of undercutting
Areal extent_____ Depth_____
Remarks_____
_____

5. **Obstructions** Type_____ X No obstructions
Location shown on site map Areal extent_____
Size_____
Remarks_____
_____

6. **Excessive Vegetative Growth** Type_____
No evidence of excessive growth
Vegetation in channels does not obstruct flow
Location shown on site map Areal extent_____
Remarks__N/A_____
_____

D. Cover Penetrations ■ Applicable X N/A

1. **Gas Vents** Active Passive
   Properly secured/locked Functioning Routinely sampled Good condition
   Evidence of leakage at penetration Needs Maintenance
   X N/A
   Remarks_____

2. **Gas Monitoring Probes**
   Properly secured/locked Functioning Routinely sampled Good condition
   Evidence of leakage at penetration Needs Maintenance X N/A
   Remarks_____

3. **Monitoring Wells** (within surface area of landfill)
   Properly secured/locked Functioning Routinely sampled Good condition
   Evidence of leakage at penetration Needs Maintenance X N/A
   Remarks_____

4. **Leachate Extraction Wells**
   Properly secured/locked Functioning Routinely sampled Good condition
   Evidence of leakage at penetration Needs Maintenance X N/A
   Remarks_____

5. **Settlement Monuments** Located Routinely surveyed X N/A
   Remarks_____

E. Gas Collection and Treatment Applicable X N/A

1. **Gas Treatment Facilities**
   Flaring Thermal destruction Collection for reuse
   Good condition Needs Maintenance
   Remarks_____

2. **Gas Collection Wells, Manifolds and Piping**
   Good condition Needs Maintenance
   Remarks_____

3. **Gas Monitoring Facilities** (*e.g.*, gas monitoring of adjacent homes or buildings)
   Good condition Needs Maintenance N/A
   Remarks_____

F. Cover Drainage Layer X Applicable N/A

1. **Outlet Pipes Inspected** X Functioning N/A
   Remarks_____

2. **Outlet Rock Inspected** X Functioning N/A
   Remarks_____

G. Detention/Sedimentation Ponds Applicable X N/A

1. **Siltation** Areal extent_____ Depth_____ X N/A
   Siltation not evident
   Remarks_____
   _____

2. **Erosion** Areal extent_____ Depth_____
   X Erosion not evident
   Remarks_____
   _____

3. **Outlet Works** Functioning X N/A
   Remarks_____
   _____

4. **Dam** Functioning X N/A
   Remarks_____
   _____

H. Retaining Walls X Applicable N/A

1. **Deformations** Location shown on site map X Deformation not evident
   Horizontal displacement_____ Vertical displacement_____
   Rotational displacement_____
   Remarks_____
   _____

2. **Degradation** Location shown on site map X Degradation not evident
   Remarks_____
   _____

I. Perimeter Ditches/Off-Site Discharge X Applicable N/A

1. **Siltation** Location shown on site map X Siltation not evident
   Areal extent_____ Depth_____
   Remarks_____
   _____

2. **Vegetative Growth** Location shown on site map N/A
   X Vegetation does not impede flow
   Areal extent_____ Type_____
   Remarks_____
   _____

3. **Erosion** Location shown on site map X Erosion not evident
   Areal extent_____ Depth_____
   Remarks_____
   _____

4. **Discharge Structure** X Functioning N/A
   Remarks_____
   _____

VIII. VERTICAL BARRIER WALLS Applicable X N/A

1. **Settlement** Location shown on site map X Settlement not evident
   Areal extent_____ Depth_____
   Remarks_____
   _____

2. **Performance Monitoring** Type of monitoring_____
Performance not monitored
Frequency_____ Evidence of breaching
Head differential_____
Remarks_____
_____

C. Treatment System Applicable X N/A

1. **Treatment Train** (Check components that apply)
Metals removal Oil/water separation Bioremediation
Air stripping Carbon adsorbers
Filters_____
Additive (*e.g.*, chelation agent, flocculent)_____
Others_____
Good condition Needs Maintenance
Sampling ports properly marked and functional
Sampling/maintenance log displayed and up to date
Equipment properly identified
Quantity of groundwater treated annually_____
Quantity of surface water treated annually_____
Remarks_____
_____

2. **Electrical Enclosures and Panels** (properly rated and functional)
N/A Good condition Needs Maintenance
Remarks_____
_____

3. **Tanks, Vaults, Storage Vessels**
N/A Good condition Proper secondary containment Needs Maintenance
Remarks_____
_____

4. **Discharge Structure and Appurtenances**
N/A Good condition Needs Maintenance
Remarks_____
_____

5. **Treatment Building(s)**
N/A Good condition (esp. roof and doorways) Needs repair
Chemicals and equipment properly stored
Remarks_____
_____

6. **Monitoring Wells** (pump and treatment remedy)
Properly secured/locked Functioning Routinely sampled Good condition
All required wells located Needs Maintenance N/A
Remarks_____
_____

D. Monitoring Data

1. Monitoring Data
X Is routinely submitted on time X Is of acceptable quality

2. Monitoring data suggests:
X Groundwater plume is effectively contained ■ Contaminant concentrations are declining

D. Monitored Natural Attenuation

1. **Monitoring Wells** (natural attenuation remedy)

Properly secured/locked	Functioning	Routinely sampled	Good condition
All required wells located	Needs Maintenance		N/A

Remarks_____

_____

X. OTHER REMEDIES

If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction. N/A

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

Contaminants contained by solidification/stabilization in on-site landfill/cell. Cover and sidewalls protected, drainage system functioning.

_____

_____

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

Yearly site inspections to monitor integrity of landfill cap is adequate. Biennial groundwater monitoring to ensure no offsite migration of contaminants has demonstrated no adverse impacts.

_____

_____

C. Early Indicators of Potential Remedy Problems

Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future.

None.

_____

_____

D. Opportunities for Optimization

Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.

None.

_____

_____

ATTACHMENT 8

ADEC Contaminated Sites Database Report for Standard Steel & Metals Salvage Yard

[This page intentionally left blank]

Alaska Department of Environmental Conservation

Contaminated Sites Database

Conditional Closure Information for Standard Steel & Metals Co.

Site Name	Standard Steel & Metals Co.	**Staff**	Howard, Louis
Address	2400 Railroad Avenue Anchorage, AK 99501	**Staff Phone**	9072697552
		Staff Email	louis.howard@alaska.gov
File Number	2100.38.457		

Section I: Contaminant Information

Name	Level Description	Media
PCBs - Total	18 AAC 75 Method 2 Migration to Groundwater	Soil
Lead - Total	18 AAC 75 Method 2 Migration to Groundwater	Soil

Section II: Control Type

Type	Details
Notice of Environmental Contamination (Deed Notice)	The AK Railroad Corp. (ARRC) executed and filed the Declaration of Restrictive Covenants per the Consent Decree Requirements with the local land recording district office in Anchorage. ARRC's lease agreements for the property notify the lessee of the institutional controls which must be complied with to meet the conditions of the Record of Decision.

Section III: Control Details

Description	Details	Reporting Requirements
Restricted to Industrial / Commercial Land Use	July 16, 1996 EPA Record of Decision signed which required institutional controls to limit land uses of the site to industrial or commercial use and prevent use of the site for commercial developments that involve potential chronic exposures of children to soil (e.g. use of the site for a day care center).	Five year review (next one in 2008).
Maintenance / Inspection Of Engineering Controls	ARRC executed and filed the Declaration of Restrictive Covenants per the Consent Decree Requirements with the local land recording district office in Anchorage. The ICs include restrictions on activities at the site that could potentially impair the integrity of the TSCA Landfill. Maintenance of rip rap erosion control wall along Ship Creek and maintenance of the landfill to ensure it retains its structure and prevents release of PCBs and lead.	Five year review due in 2008.
	ARRC executed and filed the Declaration of Restrictive Covenants per the Consent Decree Requirements with the local land recording district office in Anchorage. ICs include	

Groundwater Use Restrictions	groundwater use restriction recorded with local, regional and State agencies, departments and utilities. These restrictions prevent the installation of groundwater supply wells at the site or use of groundwater underlying the site for any purpose.	Five year review due in 2008.
Excavation / Soil Movement Restrictions	ARRC executed and filed the Declaration of Restrictive Covenants per the Consent Decree Requirements with the local land recording district office in Anchorage. ARRC's lease agreements for the property notify the lessee of the institutional controls which must be complied with to meet the conditions of the Record of Decision. ICs include preventing movement of soil containing greater than 1000 mg/kg lead or 10 mg/kg PCBs to the surface or within the top foot of soil where chronic long-term work	Five year review in 2008.

Section IV: Miscellaneous Information

Is there a potential future use of the groundwater for drinking purposes?

Yes

Is there a current use of the groundwater for drinking purposes?

No

Is offsite contamination impacting soil on neighboring properties?

No

Is contaminated groundwater impacting offsite properties?

No

Section V: Site Related Documents

	Document Title
View	Record of Decision

ATTACHMENT 9

Title Search Report
Standard Steel & Metals Superfund Site
Fidelity Title Agency, Anchorage, AK
Effective August 29, 2007

[This page intentionally left blank]

Fidelity Title Agency

of Alaska

1400 West Benson Blvd., Suite 525
Anchorage, Alaska 99503
Phone: (907) 277-6601 Fax: (907) 277-6613

A Non-Affiliated
Independent & Locally Owned Company
Where Experience Counts

Owner's Consultation Report

ORDER NO: **F-14222** **AMENDMENT NO. 1**
PROPERTY: **Standard Steel Site, Anchorage, AK**

Standard Steel PRP Group
22833 Bothel Everett Hwy., Ste. 102
Bothel, WA 98021
Attn: Alex Tula
Phone: (425) 485-1053
Fax: (425) 984-0114
Email: atula@altageo.com

Alaska Railroad Corporation
327 W. Ship Creek Avenue
Anchorage AK 99501
Attn: Phyllis Johnson
Phone: (907) 265-2461
Fax: (907) 265-2443
Email: johnsonp@akrr.com

Enclosed, please find our Amended Commitment for Title Insurance dated September 17, 2007, with an Effective Date of **August 29, 2007** This Amended Commitment is being furnished to reflect the following change(s);

To Amend Legal Description
To Add Exception No. 3
To Add Note to Exception No. 4

Questions regarding this Report should be directed to:
J.D. Blake at (907) 277-6635 or jeffb@fidelityak.com

Fidelity Title Agency
of Alaska
1400 West Benson Blvd., Suite 525
Anchorage, Alaska 99503
Phone: (907) 277-6601 Fax: (907) 277-6613

OWNER'S CONSULTATION REPORT

Order No.: F-14222 **Fee: $400.00**

AMENDMENT NO. 1

Prepared September 17, 2007 for the sole use and benefit of the addressee:

Standard Steel PRP Group
22833 Bothel Everett Hwy., Ste. 102
Bothel, WA 98021
Attn: Alex Tula
Phone: (425) 485-1053
Fax: (425) 984-0114
Email: atula@altageo.com

Alaska Railroad Corporation
327 W. Ship Creek Avenue
Anchorage AK 99501
Attn: Phyllis Johnson
Phone: (907) 265-2461
Fax: (907) 265-2443
Email: johnsonp@akrr.com

This report is issued for the use of the addressee set out above, this report sets out ownership of (vesting) and liens, voluntary and involuntary, affecting the following described property, such items being only those items recorded in the records of the recording district where the property is located and which impart constructive notice:

1. Estate or interest researched:

   Fee simple

2. Vested owner:

   Alaska Railroad Corporation

3. Legal description

   A parcel of land located within the Alaska Railroad Anchorage Terminal Reserve, situated in the Anchorage Recording District, Third Judicial District, State of Alaska, including Lots 53 through 58-A of the Alaska Railroad Corporation Post Road Industrial Lease Lots and more particularly described as follows:
   Beginning at the northwesterly corner of Lot 53; thence South 32° 30' 30" E a distance of 510.00 feet; thence along Ship Creek Meanders as follows:
   S 41° 15' 25" W, 54.09'; S 19° 09' 22" W, 57.22 feet; S 4° 01' 53" E, 96.37 feet; S 45° 50' 52" E, 32.76 feet; S 4° 05' 54" W, 34.49 feet; S 23° 05' 08" W, 85.10 feet; S 49° 36' 47" W, 246.17'; S 71° 18' 37" W, 203.76';
   thence N 34° 46' 19" W a distance of 277.99 feet; thence N 32° 32' 30" W a distance of 459.88 feet; thence N 57° 27' 30" E a distance of 678.95 feet to the True Point of Beginning.

A search of the public records in the office of the recorder for the Anchorage Recording District, Third Judicial District, State of Alaska, discloses the following matters affecting the title to the property set out herein:

The search and this report are effective only through: **August 29, 2007** at 8:00 am

Exceptions:

1. **Reservations and exceptions** as contained in United States Exclusive License and/or Acts of Congress authorizing the issuance thereof, as recorded January 8, 1985 in Book 1212 at Page 297.

2. **Taxes and/or assessments**, if any, due the Municipality of Anchorage.

3. **Declaration of Restrictive Covenants and Notice of Remedial Action**, including the terms, conditions and provisions therein, as contained in instrument set out below, to the record of which reference is hereby made:
   Executed by: Alaska Railroad Corporation
   Dated: April 23, 1998
   Recorded: April 24, 1998
   Book: 3235 Page: 547
   Affects: That portion of said property as described therein

4. **Unrecorded lease**, including terms and provisions thereof, as disclosed by memorandum recorded February 6, 2003 under Reception Number: 2003-011552-0.
   Lessor: Alaska Railroad Corporation (Lease 7085)
   Lessee: K & T Enterprises, an Alaska general partnership
   Term: Thirty years beginning December 1, 2000 and ending November 30, 2030
   Dated: January 30, 2003
   Affects: A portion of said property as set out therein.

   NOTE: The sketch provided with the memorandum shows the property as described herein, the metes and bounds description does not close since the last three courses apparently mistakenly reversed the bearings and thus only describes a series of straight lines.
   The memorandum and the lease should possibly be corrected to reflect the proper description.

   The following affect the lessee's interest under said lease:

   a) Financing Statement, pursuant to the Uniform Commercial Code:
   Debtor: K & T Enterprises
   Secured Party: Alaska Railroad Corporation
   Covering: collateral as set out and described therein as it affects said premises
   Recorded: February 6, 2004
   Reception Number: 2004-011553-0

   NOTE: Said instrument references ARRC Contract No. (Lease) 7085, but the metes and bounds description was in error since it contained the erroneous references to bearing the last three courses. By instrument recorded December 20, 2004 under Reception No. 2004-093891-0 said instrument was subordinated of record to the lien of First National Bank Alaska.

Exception No. 4 Continued...

b) Deed of Trust, including terms and provisions thereof, securing the amount shown to the record of which reference is hereby made:
Trustor: K & T Enterprises, an Alaska general partnership
Trustee: First American Title of Alaska
Beneficiary: First National Bank Alaska
Loan/MERS No.: 0118345702
Amount: $1,413,000.00 together with any other amounts due thereunder
Dated: December 17, 2004
Recorded: December 20, 2004
Reception Number: 2004-093883-0

NOTE: Said instrument references ARRC Contract No. (Lease) 7085, and the recording data for the lease set out above, but the metes and bounds description was in error since it contained the erroneous references to the bearings on the last three courses.

c) Financing Statement, pursuant to the Uniform Commercial Code:
Debtor: K & T Enterprises, an Alaska general partnership
Secured Party: First National Bank Alaska
Covering: collateral as set out and described therein as it affects said premises
Recorded: December 20, 2004
Reception Number: 2004-093884-0
Affects: Two properties leased by the debtor

NOTE: Said instrument references ARRC Contract No. (Lease) 7085, and the recording data for the lease set out above, but the metes and bounds description was in error since it contained the erroneous references to the bearings on the last three courses.

d) Assignment of Rents for security purposes, including terms and provisions thereof, to the record of which reference is hereby made:
Assignor: K & T Enterprises, an Alaska general partnership
Assignee: First National Bank Alaska
Amount: $1,413,000.00, together with any other amounts due thereunder
Dated: December 15, 2004
Recorded: December 20, 2004
Reception Number: 2004-093886-0

e) Unrecorded Sublease, including terms and provisions thereof, as disclosed by instrument recorded December 20, 2004 under Reception Number: 2004-093888-0.
Sublessor: K & T Enterprises (landlord)
Sublessee: DiTomaso, Inc. (tenant)
Term: Not disclosed
Dated: November 1, 1999
Affects: The portion of property described in lease 7085 set out above.

NOTE: Said instrument recites the legal description in lease 7085, but the metes and bounds description was in error since it contained the erroneous references to the bearings on the last three courses.
By said instrument recorded December 20, 2004 under Reception No. 2004-093888-0, said sublease was subordinated to the security interest of First National Bank Alaska.

Exception No. 4Continued...

f) Unrecorded Sublease, including terms and provisions thereof, as disclosed by instrument recorded December 20, 2004 under Reception Number: 2004-093889-0.
Sublessor: K & T Enterprises (landlord)
Sublessee: Bob Benson dba Bob Benson Trucking Co. (tenant)
Term: Not disclosed
Dated: February 8, 2001
Affects: A portion of the property described in lease 7085 set out above.

NOTE: Said instrument recites the legal description in lease 7085, but the metes and bounds description was in error since it contained the erroneous references to the bearings on the last three courses.
By said instrument recorded December 20, 2004 under Reception No. 2004-093889-0, said sublease was subordinated to the security interest of First National Bank Alaska.

g) Consent to Limited Assignment for security purposes, including terms and provisions thereof, to the record of which reference is hereby made:
Executed by and between: The Alaska Railroad Corporation, K & T Enterprises and First National Bank Alaska
Dated: March 2, 2004
Recorded: December 20, 2004
Reception Number: 2004-093890-0

NOTE: Said instrument references ARRC Contract No. (Lease) 7085, and the recording data for the lease set out above, but the metes and bounds description was in error since it contained the erroneous references to the bearings on the last three courses.

h) Assignment of Lease for security purposes, including terms and provisions thereof, to the record of which reference is hereby made:
Assignor: K & T Enterprises, an Alaska general partnership
Assignee: First National Bank Alaska
Amount: $1,413,000.00, together with any other amounts due thereunder
Dated: December 15, 2004
Recorded: December 20, 2004
Reception Number: 2004-093892-0
Affects: Two leasehold parcels held by the assignor

NOTE: Said instrument references ARRC Contract No. (Lease) 7085, and the recording data for the lease set out above, but the metes and bounds description was in error since it contained the erroneous references to the bearings on the last three courses.

This report is limited to the benefit of the addressee solely for the researching the condition of title as of the effective date set out above and cannot be used as a basis for the completion or closing of any transaction involving this property.

The liability of Fidelity Title of Agency of Alaska, LLC under this report for any error or omission, including any negligence on the part of Fidelity Title Agency of Alaska, LLC is limited to $400.00 which is the amount of the fees received. Further, by state regulation, the fees paid will not be applicable to any title insurance policies subsequently issued involving this property.

This report is <u>not</u> a title insurance commitment , policy or guaranty.

Effective Date **August 29, 2007** at 8:00 am

Prepared by:

Fidelity Title Agency Of Alaska, LLC

J.D. Blake, Title Officer

Enclosures:
- Invoice
- Vesting Deed
- Liens (voluntary or involuntary)
- Recorded Plat

Fidelity Title Agency
of Alaska
1400 West Benson Blvd., Suite 525
Anchorage, Alaska 99503
Phone: (907) 277-6601 Fax: (907) 277-6613

Privacy Policy

We recognize and respect the privacy expectations of today's consumers and the requirements of applicable federal and state privacy laws. We believe that making you aware of how we use your non-public personal information ("Personal Information"), and to whom it is disclosed, will form the basis for a relationship of trust between us and the public that we serve. This Privacy Statement provides that explanation. We reserve the right to change this Privacy Statement from time consistent with applicable privacy laws.

In the course of our business, we may collect Personal Information about you from the following sources:

- From applications or other forms we receive from you or your authorized representative;
- From your transactions with, or from the services being performed by, us, our affiliates, or others;
- From our internet web sites;
- From the public records maintained by governmental entities that we either obtain directly from those entities, or from our affiliates or others; and
- From consumer or other reporting agencies.

Our Policies Regarding the Protection of the Confidentiality and Security of Your Personal Information
We maintain physical, electronic and procedural safeguards to protect your Personal Information from unauthorized access or intrusion. We limit access to the Personal Information only to those employees who need such access in connection with providing products or services to you or for other legitimate business purposes.

Our Policies and Practices Regarding the Sharing of Your Personal Information
We may share your Personal Information with our affiliates, such as insurance companies, agents, and other real estate settlement service providers. We also may disclose your Personal Information:

- to agents, brokers or representatives to provide you with services you have requested;
- to third-party contractors or service providers who provide services or perform marketing or other functions on our behalf; and
- to others with whom we enter into joint marketing agreements for products or services that we believe you may find of interest.

In addition, we will disclose your Personal Information when you direct or give us permission, when we are required by law to do so, or when we suspect fraudulent or criminal activities. We also may disclose your personal Information when otherwise permitted by applicable privacy laws such as, for example, when disclosure is needed to enforce our right arising out of any agreement, transaction or relationship with you. One of the important responsibilities of some of our affiliated companies is to record documents in the public domain. Such documents may contain your Personal Information.

Right to Access Your Personal Information and Ability to Correct Errors or Request Changes or Deletion
Certain states afford you the right to access your Personal Information and, under certain circumstances, to find out to whom your Personal Information has been disclosed. Also, certain states afford you the right to request correction, amendment or deletion of your Personal Information. We reserve the right, where permitted by law, to charge a reasonable fee to cover the costs incurred in responding to such requests. All requests must be made in writing to the above address.

DECLARATION OF RESTRICTIVE COVENANTS AND NOTICE OF REMEDIAL ACTION

This Declaration of Restrictive Covenants and Notice of Remedial Action ("Deed Restrictions") is made this 23rd day of April, 1998 pursuant to, and in consideration for, the terms of the prior consent agreements and the Record of Decision ("ROD") pertaining to the Standard Steel Superfund Site ("Site") issued by the U.S. Environmental Protection Agency ("EPA") on July 16, 1996.

1. Grantor. These Deed Restrictions are granted by the Alaska Railroad Corporation and are binding upon its successors and assigns (collectively "Grantor") with respect to a parcel of land located in Anchorage, Alaska, more particularly described on Attachment "A" attached to and for all purposes made a part of these Deed Restrictions (the "Property").

2. Purpose. It is the purpose of these Deed Restrictions to implement the Institutional Controls required by the ROD to notify all successors-in-interest or other persons of the land and water use and access restrictions that apply to the Property to assure the Property will be used only for purposes which are compatible with the Remedial Action and the RD/RA Consent Decree entered into by Grantor, the United States, and other parties, and entered by the U.S. District Court of the District of Alaska on January 26, 1998, in the matter of U.S. v. Alaska Railroad Corporation, et al., A91-0589-CV (JWS), and to ensure that the Property will not be used in a manner that will pose a threat to human health or the environment.

3. Servitude in Perpetuity. The covenants, terms, conditions and restrictions of these Deed Restrictions shall be binding upon and inure to the benefit of the Alaska Railroad Corporation, its successors and assigns, any grantee, and their successors and assigns, and shall continue as a legal and equitable servitude running in perpetuity with the Property.

4. **Notice of Remedial Action. THIS PROPERTY IS PART OF THE STANDARD STEEL AND METALS SALVAGE YARD SUPERFUND SITE, WHICH THE EPA, PURSUANT TO SECTION 105 OF THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT ("CERCLA"), 42 U.S.C. §9605, PLACED ON THE NATIONAL PRIORITIES LIST, SET FORTH AT 40 C.F.R. PART 300, APPENDIX B, BY PUBLICATION IN THE FEDERAL REGISTER ON AUGUST 30, 1990. 55 FED. REG. 35502. IN THE RECORD OF DECISION FOR THE SITE DATED JULY 16, 1996, THE EPA REGION 10 REGIONAL ADMINISTRATOR SELECTED A "REMEDIAL ACTION" FOR THE SITE, WHICH PROVIDES, IN PART, FOR IMPLEMENTATION OF INSTITUTIONAL CONTROLS LIMITING FUTURE LAND USES OF THE SITE, PREVENTING GROUNDWATER USE AND LIMITING SITE ACCESS. ANY INTEREST IN THE PROPERTY CONVEYED OR ACQUIRED IS SUBJECT TO THE RESTRICTIVE COVENANTS CONTAINED IN THIS DECLARATION.**

5. Restriction on Use. The following restrictions apply to the use of the Property, run with the land and are binding upon any grantee.

(i) no residential use or activity shall be permitted on the Property, and no commercial use or activity shall be permitted if it involves potential chronic exposures of children to soil (e.g., use of the Property for a day care center);

(ii) no use or activity on the Property shall be permitted that will disturb any of the remedial measures that have been implemented pursuant to the Consent Decree referred to in Paragraph 2 above or that could potentially impair the integrity of the landfill in which contaminated soils and solidified soils have been disposed; and

(iii) except as necessary to perform the Remedial Action, no use or activity on the Property shall disturb the surface or subsurface of the land by filling, drilling, excavation, or removal of topsoil, rock or minerals which could move soil containing greater than 1,000 mg/kg lead or 10 mg/kg polychlorinated biphenyl ("PCB") to the surface or within the top foot of soil where chronic long-term worker exposures could occur;

(iv) groundwater underlying the Property shall not be consumed or used in any way except for the limited purpose of monitoring groundwater contamination levels. Groundwater wells and facilities installed for such purpose shall only be installed pursuant to a plan approved by EPA;

(v) access to the Toxics Substances Control Act landfill by the general public shall be prohibited, and access by long- or short-term workers shall be restricted in compliance with 40 C.F.R. §761.75(b)(9)(i), through maintenance of a six-foot woven mesh fence, wall, or similar device. If the solidified soil mass is capped or designed and used as a building foundation or parking lot, EPA may waive this requirement upon a written request which shall include long-term maintenance of such cap, building foundation or parking lot in accordance with the approved O & M Plan. Unrestricted access by the general public to those areas of the Site where surface contamination of 1 mg/kg PCB or greater remains after all excavation, treatment,

and disposal is complete shall be prohibited through maintenance of a six-foot fence, cap, parking lot or similar structure approved by EPA; and

(vi) during remedial design and construction of the remedial action, the public, including long- and short-term workers, other than authorized representatives of EPA, the State, and Settling Defendants and Owner Settling Defendant, shall only have access to areas in or around the Site that are not affected by soil contamination.

6. Reservation When Conveying an Interest. Any instrument conveying an interest in any portion of the Property, including but not limited to deeds, leases and mortgages, must include language that is in substantially the same form as Appendices F or G of the above-referenced RD/RA Consent Decree. Within thirty (30) days of the date any such instrument of conveyance is executed, the grantor of such instrument must provide grantee with a certified true copy of said instrument and its recording reference.

7. Administrative Jurisdiction. The federal agency having administrative jurisdiction over the instrument on behalf of the United States is the EPA. The Regional Administrator of EPA Region 10 shall exercise the rights granted to the United States herein. If the United States assigns its rights created by this Declaration, unless it provides otherwise in any such assignment document, the rights referred to in this paragraph shall also be assigned.

8. Enforcement. The grantor shall be entitled to enforce the terms of these Deed Restrictions by resort to specific performance or legal process. All remedies available hereunder shall be in addition to any and all other remedies at law or in equity.

9. Third Party Beneficiary. Any grantor and grantee of an interest in the Property must agree that the EPA and the Settling Defendants in the above-referenced RD/RA Consent Decree shall be third party beneficiaries of all the benefits and rights reserved and retained by the Grantor in this Declaration and as contained in Appendices F and G of said RD/RA Consent Decree.

10. No Forfeiture. Nothing contained herein will result in a forfeiture or revision of Grantor's title in any respect.

11. Defined Terms. Words or terms used in this Declaration with the first letter capitalized are defined either in this document or in the RD/RA Consent Decree described in Paragraph 2.

ALASKA RAILROAD CORPORATION

By: _____
William J. Sheffield
President and Chief Executive Officer

STATE OF ALASKA)
) ss.
THIRD JUDICIAL DISTRICT)

The foregoing instrument was acknowledged before me this 23rd day of April, 1998, by William J. Sheffield, President and Chief Executive Officer, of the Alaska Railroad Corporation, a public corporation created by Alaska Statute 42.40, on behalf of the corporation.

_____
Notary Public in and for Alaska
My Commission Expires: 11/28/99

PLEASE RETURN TO:

Alaska Railroad Corporation
Legal Department
P.O. Box 107500
Anchorage, Alaska 99501-7500

ATTACHMENT "A"

LEGAL DESCRIPTION

STANDARD STEEL SITE

A parcel of land located within the Alaska Railroad Anchorage Terminal Reserve, situated in the Anchorage Recording District, Third Judicial District, State of Alaska, including Lots 53 through 58-A of the Alaska Railroad Corporation Post Road Industrial Lease Lots and more particularly described as follows:

Beginning at the northwesterly corner of Lot 53; thence S 32° 30' 30" E a distance of 510.00 feet; thence along Ship Creek Meanders as follows:

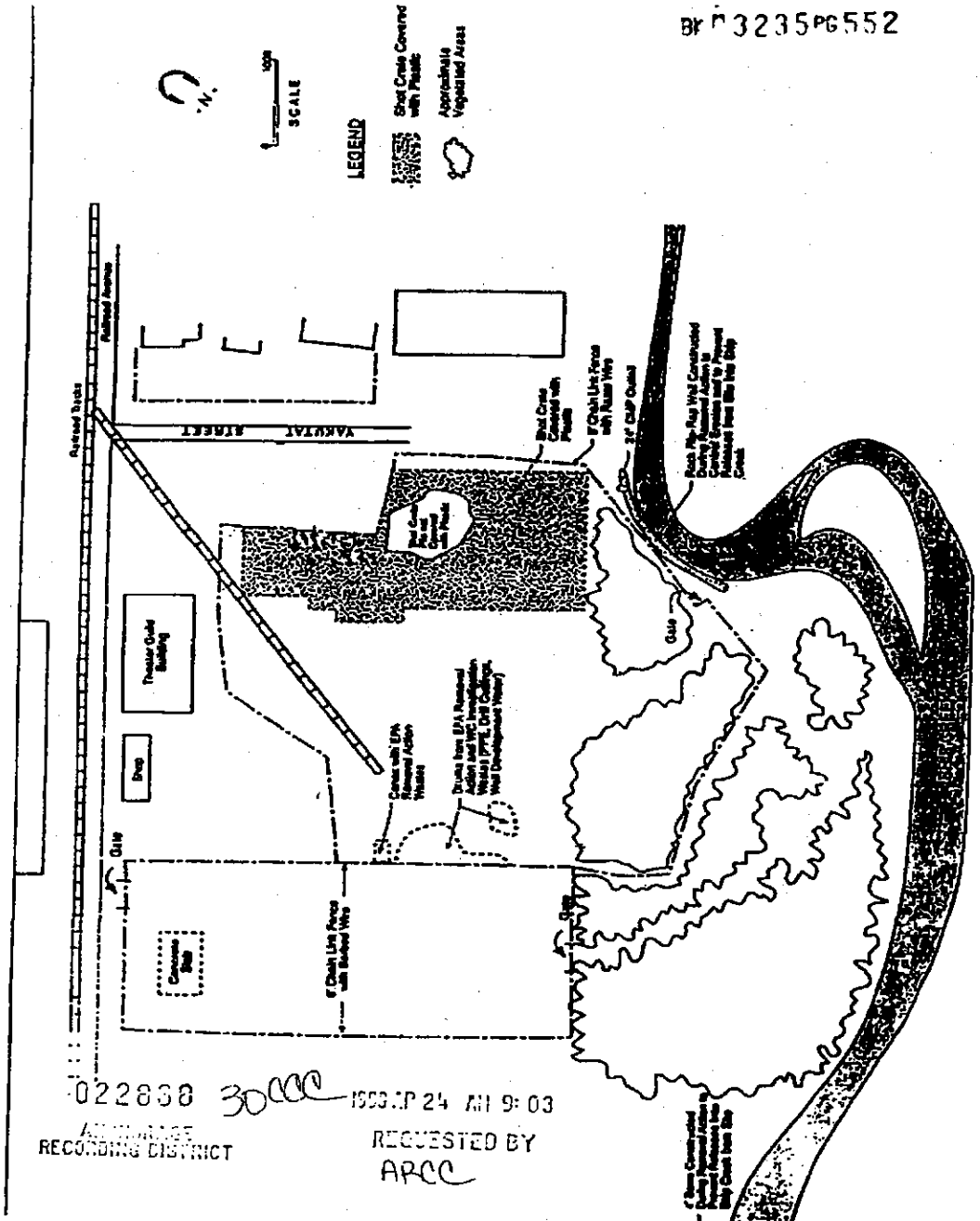
> S 41° 15' 25" W, 54.09'; S 19° 09' 22" W, 57.22 feet; S 4° 01' 53" E, 96.37 feet; S 45° 50' 52" E, 32.76 feet; S 4° 05' 54" W, 34.49 feet, S 23° 05' 08" W, 85.10 feet; S 49° 36' 47" W, 246.17'; S 71° 18' 37" W, 203.76';

thence N 34° 46' 19" W a distance of 277.99 feet; thence N 32° 32' 30" W a distance of 459.88 feet, thence N 57° 27' 30" E a distance of 678.95 feet to the point of beginning.

Containing an area of 484,428 square feet or 11.12 acres more or less, as shown on the attached drawing. In the event of any inconsistency between the attached drawing and the foregoing legal description, the latter shall govern for purposes of this Declaration of Restrictive Covenants and Notice of Remedial Action.

arrchu/legal/ss.des

BK 3235 PG 552



022868 30CC 1999 SEP 24 AM 9:03

ANCHORAGE
RECORDING DISTRICT

REQUESTED BY
ARCC

ATTACHMENT "A" to DECLARATION OF RESTRICTIVE COVENANTS AND NOTICE OF REMEDIAL ACTION
Page 2 of 2

2003-011552-0

Recording Dist: 301 - Anchorage

2/6/2003 9:07 AM Pages: 1 of 5

A L A S K A

cc

THIS INSTRUMENT IS BEING RECORDED BY FIRST AMERICAN TITLE CO. OF AK. AS AN ACCOMODATION ONLY. IT HAS NOT BEEN EXAMINED AS TO ITS EFFECT, IF ANY, ON THE TITLE OF THE ESTATE HEREIN.

C030039

THIS COVER PAGE HAS BEEN ADDED TO THIS DOCUMENT BY *FIRST AMERICAN TITLE OF ALASKA* TO PROVIDE SPACE FOR RECORDING DATA. THIS COVER PAGE APPEARS AS THE 1ST PAGE OF THE DOCUMENT IN THE OFFICIAL PUBLIC RECORD.

DO NOT DETACH

K & T Enterprises
Lease Contract No. 7085

MEMORANDUM OF LEASE

PLEASE TAKE NOTICE that the **ALASKA RAILROAD CORPORATION** (herein called "Lessor"), a public corporation created pursuant to AS 42.40, whose mailing address is P.O. Box 107500, Anchorage, Alaska 99510-7500, and **K & T ENTERPRISES**, an Alaska general partnership (herein called "Lessee"), whose mailing address is 1817 Parkside Drive, Anchorage, Alaska 99501-5751 (which succeeds that certain lease, Contract No. 7085 dated January 4, 1996 between the parties or their predecessor(s) in interest, which such lease shall be of no further force and effect upon execution of this Memorandum of Lease). The lease affects that property known as:

A parcel of land located within the Alaska Railroad Anchorage Reserve situated in the Anchorage Recording District, Third Judicial District, State of Alaska and more specifically described on Schedule 1 attached to and for all purposes made a part of this Memorandum of Lease.

The term of the lease is thirty (30) years commencing as of December 1, 2000 and ending on November 30, 2030. There is no right to extend or renew the lease or right to purchase the real property provided in the lease. The complete terms and conditions of the lease agreement are contained in documents which are in the possession of the parties at the above addresses.

The lease also grants a security interest to Lessor in all improvements and fixtures owned by Lessee (including buildings) and in any way affixed or attached, whether now or later, to the Leased Premises for the payment of rent and other obligations of the Lease.

IN WITNESS WHEREOF, Lessor and Lessee have duly executed and acknowledged this Memorandum of Lease.

ALASKA RAILROAD CORPORATION

Dated: 1/30/03

By: _____
James W. Kubitz
Vice President, Real Estate

K & T ENTERPRISES

Dated: Jan 11-2003

By: _____
Leonard Kragness
Partner

Dated: 1-11-03

By: _____
Samuel Turner
Partner

2 of 5
2003-011552-0

STATE OF ALASKA)
)ss.
THIRD JUDICIAL DISTRICT)

The foregoing instrument was acknowledged before me this 30th day of January ~~2002~~, 2003 by James W. Kubitz, Vice President, Real Estate of the Alaska Railroad Corporation, a public corporation created by Alaska Statute 42.40, on behalf of the corporation.

Kathleen A. Lewis
Notary Public in and for Alaska
My Commission expires: 12-11-2004

KATHLEEN A. LEWIS NOTARY PUBLIC STATE OF ALASKA

STATE OF ALASKA)
)ss.
THIRD JUDICIAL DISTRICT)

The foregoing instrument was acknowledged before me this 17th day of January, 2003 by Leonard Kragness, partner, on behalf of K & T Enterprises, an Alaska general partnership, on behalf of the partnership.

MARY WALSH NOTARY PUBLIC STATE OF ALASKA

Mary Walsh
Notary Public in and for Alaska
My Commission expires: Feb 6, 2006

STATE OF ALASKA)
)ss.
THIRD JUDICIAL DISTRICT)

The foregoing instrument was acknowledged before me this 17th day of January, 2003 by Samuel Turner, partner, on behalf of K & T Enterprises, an Alaska general partnership, on behalf of the partnership.

MARY WALSH NOTARY PUBLIC STATE OF ALASKA

Mary Walsh
Notary Public in and for Alaska
My Commission expires: Feb 6, 2006

K & T Enterprises
Lease Contract No.7085

SCHEDULE 1

LEGAL DESCRIPTION

A parcel of land located within the Alaska Railroad Anchorage Reserve situated in the Anchorage Recording District, Third Judicial District, State of Alaska and further described as follows:

A portion of Lots 53-57 of the ARRC Post Road Industrial Lease Lots beginning at the northeast corner of Lot 53; thence S 57° 27' 30 " W, a distance of 482 feet to the northwest corner of Lot 57; thence S 32° 30' 30" E, a distance of 550 feet; thence S 57° 27' 30" W, a distance of 392 feet; thence S 12° 28' 30" W, a distance of 127.32 feet; thence S 32° 30' 30" E, a distance of 460 feet to the True Point of Beginning, containing an area of 261,050 square feet, more or less, as shown on the attached drawing.

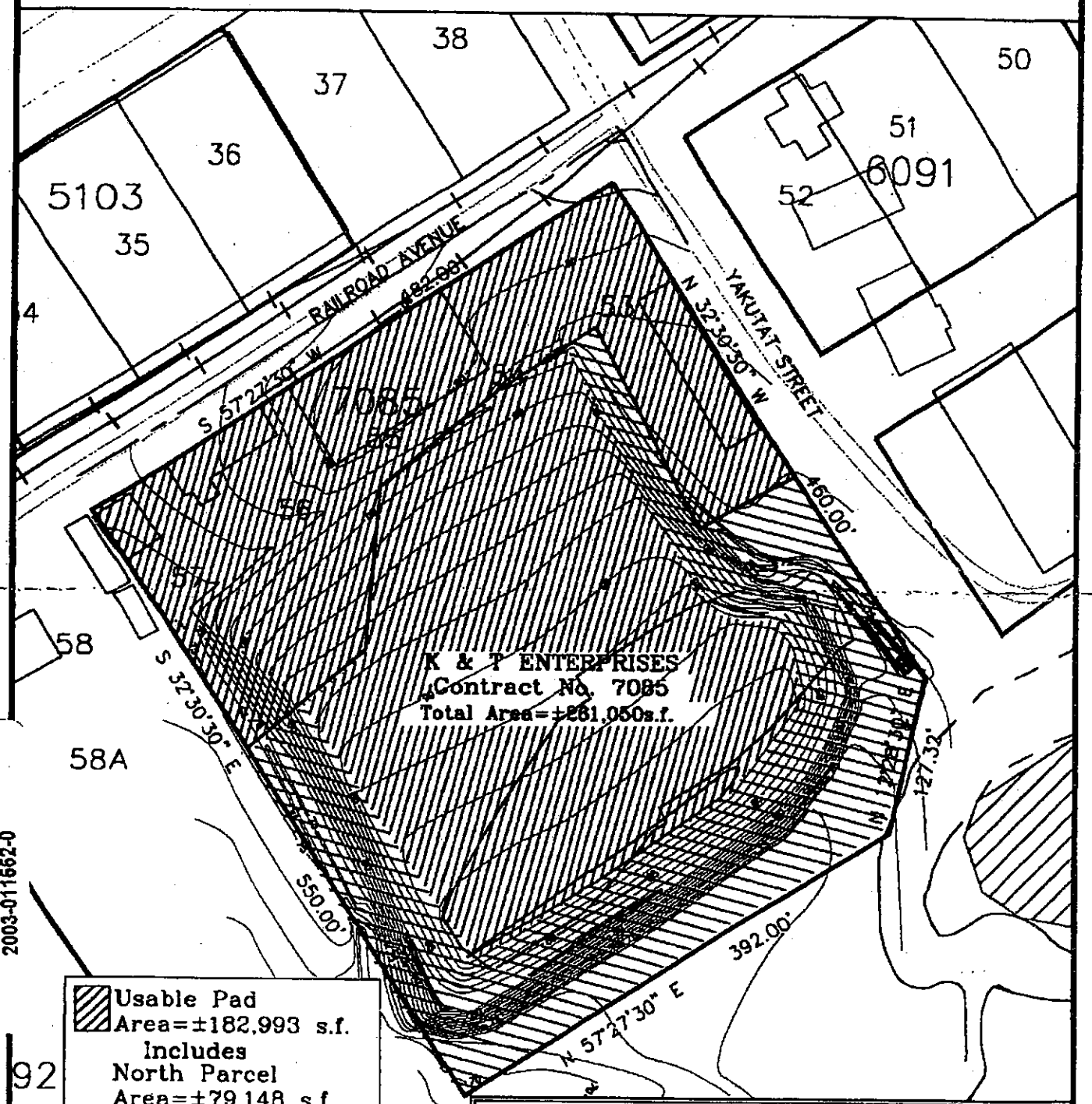
In the event of any inconsistency between the attached drawing and the foregoing legal description, the latter shall govern for purposes of this Lease.

RECORDERS OFFICE RETURN TO:
ALASKA RAILROAD CORPORATION
ATTN: REAL ESTATE
P.O. BOX 107500
ANCHORAGE, AK 99510-7500

K & T Enterprises

Contract No. 7085

Total Area = Approx. 261,050s.f.



Usable Pad
Area=±182,993 s.f.
Includes
North Parcel
Area=±79,148 s.f.

Unusable
Area=±78,057 s.f.

Total Area=
±261,050s.f.

Alaska Railroad Corporation

K&T Enterprises

Contract No. 7085

Anchorage Reserve

Date: 10/30/01	Scale: 1"=100'
Dwg. By: mdg	Filename: r:\...\leases\7085-2-L

5 of 5
2003-011552-0

2003-011553-0
Recording Dist: 301 - Anchorage
2/6/2003 9:08 AM Pages: 1 of 2

A L A S K A

UCC FINANCING STATEMENT

FOLLOW INSTRUCTIONS (front and back) CAREFULLY

A. NAME & PHONE OF CONTACT AT FILER [optional]

B. SEND ACKNOWLEDGMENT TO: (Name and Address)

ALASKA RAILROAD CORPORATION
ATTN: REAL ESTATE DEPT.
P.O. BOX 107500
ANCHORAGE, AK 99510-7500

C030039

CC

THE ABOVE SPACE IS FOR FILING OFFICE USE ONLY

1. DEBTOR'S EXACT FULL LEGAL NAME - insert only one debtor name (1a or 1b) - do not abbreviate or combine names

1a. ORGANIZATION'S NAME: K & T ENTERPRISES

OR

1b. INDIVIDUAL'S LAST NAME | FIRST NAME | MIDDLE NAME | SUFFIX

1c. MAILING ADDRESS: P.O. BOX 13409 | CITY: TRAPPER CREEK | STATE: AK | POSTAL CODE: 99683 | COUNTRY: US

1d. SEE INSTRUCTIONS | ADD'L INFO RE ORGANIZATION DEBTOR | 1e. TYPE OF ORGANIZATION: PARTNERSHIP | 1f. JURISDICTION OF ORGANIZATION: ALASKA | 1g. ORGANIZATIONAL ID #, if any: AK103594 | NONE

2. ADDITIONAL DEBTOR'S EXACT FULL LEGAL NAME - insert only one debtor name (2a or 2b) - do not abbreviate or combine names

2a. ORGANIZATION'S NAME

OR

2b. INDIVIDUAL'S LAST NAME | FIRST NAME | MIDDLE NAME | SUFFIX

2c. MAILING ADDRESS | CITY | STATE | POSTAL CODE | COUNTRY

2d. SEE INSTRUCTIONS | ADD'L INFO RE ORGANIZATION DEBTOR | 2e. TYPE OF ORGANIZATION | 2f. JURISDICTION OF ORGANIZATION | 2g. ORGANIZATIONAL ID #, if any | NONE

3. SECURED PARTY'S NAME (or NAME of TOTAL ASSIGNEE of ASSIGNOR S/P) - insert only one secured party name (3a or 3b)

3a. ORGANIZATION'S NAME: ALASKA RAILROAD CORPORATION

OR

3b. INDIVIDUAL'S LAST NAME | FIRST NAME | MIDDLE NAME | SUFFIX

3c. MAILING ADDRESS: P.O. BOX 107500 | CITY: ANCHORAGE | STATE: AK | POSTAL CODE: 99510-7500 | COUNTRY: US

4. This FINANCING STATEMENT covers the following collateral:

All improvements and fixtures owned by Lessee (including buildings) and in any way affixed or attached, whether now or later to the leased premises for the payment of rent now or hereafter located on the real property belonging to the Alaska Railroad Corporation (ARRC), described in the attached Schedule "1" from ARRC Contract No. 7085.

THIS INSTRUMENT IS BEING RECORDED BY FIRST AMERICAN TITLE CO. OF AK. AS AN ACCOMODATION ONLY. IT HAS NOT BEEN EXAMINED AS TO ITS EFFECT, IF ANY, ON THE TITLE OF THE ESTATE HEREIN.

FIXTURE STATEMENT

5. ALTERNATIVE DESIGNATION [if applicable]: ☑ LESSEE/LESSOR | ☐ CONSIGNEE/CONSIGNOR | ☐ BAILEE/BAILOR | ☐ SELLER/BUYER | ☐ AG. LIEN | ☐ NON-UCC FILING

6. ☐ This FINANCING STATEMENT is to be filed [for record] (or recorded) in the REAL ESTATE RECORDS. Attach Addendum [if applicable]

7. Check to REQUEST SEARCH REPORT(S) on Debtor(s) [ADDITIONAL FEE] [optional] ☐ All Debtors ☐ Debtor 1 ☐ Debtor 2

8. OPTIONAL FILER REFERENCE DATA

ARRC CONTRACT NO. 7085

FILING OFFICE COPY — UCC FINANCING STATEMENT (FORM UCC1) (REV. 05/22/02)

Silverhorse to Fol B.

K & T Enterprises
Lease Contract No.7085

SCHEDULE 1

LEGAL DESCRIPTION

A parcel of land located within the Alaska Railroad Anchorage Reserve situated in the Anchorage Recording District, Third Judicial District, State of Alaska and further described as follows:

A portion of Lots 53-57 of the ARRC Post Road Industrial Lease Lots beginning at the northeast corner of Lot 53; thence S 57° 27' 30 " W, a distance of 482 feet to the northwest corner of Lot 57; thence S 32° 30' 30" E, a distance of 550 feet; thence S 57° 27' 30" W, a distance of 392 feet; thence S 12° 28' 30" W, a distance of 127.32 feet; thence S 32° 30' 30" E, a distance of 460 feet to the True Point of Beginning, containing an area of 261,050 square feet, more or less.

RECORDERS OFFICE RETURN TO:
ALASKA RAILROAD CORPORATION
ATTN: REAL ESTATE
P.O. BOX 107500
ANCHORAGE, AK 99510-7500

2004-093891-0
Recording Dist: 301 - Anchorage
12/20/2004 1:32 PM Pages: 1 of 3

A L A S K A

C C C

Supplement No. 3 to
ARRC Contract No. 7085

04-00745 BB

SUBORDINATION AGREEMENT

First National Bank Alaska, a National Banking association with its main office at Anchorage, Alaska (hereafter "Bank") has loaned or will in the future loan money in various amounts to K & T Enterprises of Anchorage, Alaska, (hereafter "Borrower"): and to secure the indebtedness created thereby and in connection therewith will obtain a security interest in all the property of the Borrower, including but not limited to All improvements and fixtures owned by K & T Enterprises, Borrower (including buildings) and in any way affixed or attached, whether now or later to the real property belonging to the Alaska Railroad Corporation (ARRC), described in the attached Schedule "1" from the ARRC Contract No. 7085; including property identified in a UCC financing fixtures statement #2003-011553-0 dated February 6 2003 filed in the Anchorage Recording District, State of Alaska, attached hereto and made a part hereof (hereafter "Bank Collateral").

The undersigned Alaska Railroad Corporation, of Anchorage, AK (hereafter "Secured Party") has a security interest in some of the above Bank Collateral.

To induce Bank to make loans and provide other financial accommodation to Borrower, Secured Party has consented to subordinate its security interest in the above mentioned Bank Collateral now existing and hereafter acquired to the security interest of Bank or to be obtained by Bank in such property of Borrower.

Therefore, Secured Party, pursuant to its agreement, and for other valuable consideration, does for itself, and for its successors and assigns, hereby agree with Bank, and its successors and assigns, that Secured Party's security interest above mentioned in Bank Collateral now existing and hereafter acquired is, and shall continue to be, subject and subordinate to the security interest of Bank either now existing or hereafter obtained in such Bank Collateral. Furthermore, Secured Party hereby agrees with Bank that Bank will have no obligation whatever to Secured Party respecting Borrower's use of the proceeds of Bank's loan(s). The superiority of Bank's interest in Bank Collateral is not conditioned upon Borrower's use of the proceeds of Bank loans in any way or upon Borrower's acquisition of Bank Collateral with the proceeds of any Bank loan: and the superiority of Bank's interest in

Bank Collateral will not be affected by the manner in which or the purposes for which, Borrower uses such loan proceeds.

Dated: December 15th, 2004

ALASKA RAILROAD CORPORATION

James Kubitz, Vice President, Real Estate

STATE OF ALASKA)

THIRD JUDICIAL DISTRICT)

The foregoing instrument was acknowledged before me this 15th day of December, 2004, by James Kubitz, Vice President, Real Estate, of the Alaska Railroad Corporation, a public corporation created by Alaska Statute 42.40, on behalf of the corporation.

Notary Public in and for Alaska
My commission Expires: 12-11-2008

KATHLEEN A. LEWIS NOTARY PUBLIC STATE OF ALASKA

K & T Enterprises
Lease Contract No. 7085

SCHEDULE 1

LEGAL DESCRIPTION

A parcel of land located within the Alaska Railroad Anchorage Reserve situated in the Anchorage Recording District, Third Judicial District, State of Alaska and further described as follows:

A portion on Lots 53-57 of the ARRC Post Road Industrial Lease Lots beginning at the northeast corner of Lot 53; thence S 57 degrees 27' 30" W a distance of 482 feet to the northwest corner of Lot 57; thence S 32 degrees 30'30"E a distance of 550 feet; thence S 57 degrees 27' 30" W a distance of 392 feet; thence S 12 degrees 28' 30" W a distance of 127.32 feet; thence S 32 degrees 30' 30" E a distance of 460 feet to the True Point of Beginning, containing an area of 261,050 square feet, more or less.

RECORDERS OFFICE RETURN TO:
ALASKA RAILROAD CORPORATION
ATTN: REAL ESTATE
P.O. BOX 107500
ANCHORAGE, AK 99510-7500

2004-093883-0
Recording Dist: 301 - Anchorage
12/20/2004 1:26 PM Pages: 1 of 14

A L A S K A

RECORDATION
REQUESTED BY:
First National Bank
Alaska
Dimond Branch
8725 Old Seward
Hwy.
PO Box 200588
Anchorage, AK
99520-0588

WHEN RECORDED MAIL
TO:
First National Bank
Alaska
Dimond Branch
8725 Old Seward
Hwy.
PO Box 200588
Anchorage, AK
99520-0588

CCC

04-00745 BB

FOR RECORDER'S USE ONLY

DEED OF TRUST

THIS DEED OF TRUST is dated December 17, 2004, among K & T ENTERPRISES, AN ALASKA PARTNERSHIP, whose address is 1817 PARKSIDE DRIVE, ANCHORAGE, AK 99501 ("Grantor"); First National Bank Alaska, whose address is Dimond Branch, 8725 Old Seward Hwy., PO Box 200588, Anchorage, AK 99520-0588 (referred to below sometimes as "Lender" and sometimes as "Beneficiary"); and First American Title of Alaska, whose address is 3035 C Street, Anchorage, AK 99503 (referred to below as "Trustee").

CONVEYANCE AND GRANT. For valuable consideration, Grantor conveys to Trustee in trust, with power of sale, for the benefit of Lender as Beneficiary, all of Grantor's right, title, and interest in, to and under the Lease described below of the following described real property, together with all existing or subsequently erected or affixed buildings, improvements and fixtures; all easements, rights of way, and appurtenances; all water, water rights and ditch rights (including stock in utilities with ditch or irrigation rights); and all other rights, royalties, and profits relating to the real property, including without limitation any rights Grantor later acquires in the fee simple title to the land, subject to the Lease, and all minerals, oil, gas, geothermal and similar matters, (the "Real Property") located in the Anchorage Recording District, Third Judicial District, the State of Alaska:

A parcel of land located within the Alaska Railroad Anchorage Reserve situated in the Anchorage Recording District, Third Judicial District, State of Alaska and further described as follows:

A portion on Lots 53-57 of the ARRC Post Road Industrial Lease Lots beginning at the northeast corner of Lot 53; thence S 57 degrees 27' 30" W a distance of 482 feet to the northwest corner of Lot 57; thence S 32 degrees 30'30"E a distance of 550 feet; thence S 57 degrees 27' 30" W a distance of 392 feet; thence S 12 degrees 28' 30" W a distance of 127.32 feet; thence S 32 degrees 30' 30" E a distance of 460 feet to the True Point of Beginning.

The Real Property or its address is commonly known as 2400 RAILROAD AVE, ANCHORAGE, AK 99501.

CROSS-COLLATERALIZATION. In addition to the Note, this Deed of Trust secures all obligations, debts and liabilities, plus interest thereon, of Grantor to Lender, or any one or more of them, as well as all claims by Lender against Grantor or any one or more of them, whether now existing or hereafter arising, whether related or unrelated to the purpose of the Note, whether voluntary or otherwise, whether due or not due, direct or indirect, determined or undetermined, absolute or contingent, liquidated or unliquidated whether Grantor may be liable individually or jointly with others, whether obligated as guarantor, surety, accommodation party or otherwise, and whether recovery upon such amounts may be or hereafter may become barred by any statute of limitations, and whether the obligation to repay such amounts may be or hereafter may become otherwise unenforceable.

Grantor presently assigns to Lender (also known as Beneficiary in this Deed of Trust) all of Grantor's right, title, and interest in and to all present and future leases of the Property and all Rents from the Property as security for the Indebtedness. In addition to this assignment under common law, Grantor grants to Lender a Uniform Commercial Code security interest in the Personal Property and Rents.

THIS DEED OF TRUST, INCLUDING THE ASSIGNMENT OF RENTS AND THE SECURITY INTEREST IN THE RENTS AND PERSONAL PROPERTY, IS GIVEN TO SECURE (A) PAYMENT OF THE INDEBTEDNESS AND (B) PERFORMANCE OF ANY AND ALL OBLIGATIONS UNDER THE NOTE, THE RELATED DOCUMENTS, AND THIS DEED OF TRUST. THIS DEED OF TRUST IS GIVEN AND ACCEPTED ON THE FOLLOWING TERMS:

PAYMENT AND PERFORMANCE. Except as otherwise provided in this Deed of Trust, Grantor shall pay to Lender all amounts secured by this Deed of Trust as they become due, and shall strictly and in a timely manner perform all of Grantor's obligations under the Note, this Deed of Trust, and the Related Documents.

POSSESSION AND MAINTENANCE OF THE PROPERTY. Grantor agrees that Grantor's possession and use of the Property shall be governed by the following provisions:

Possession and Use. Until the occurrence of an Event of Default, Grantor may (1) remain in possession and control of the Property; (2) use, operate or manage the Property; and (3) collect the Rents from the Property (this privilege is a license from Lender to Grantor automatically revoked upon default).

Duty to Maintain. Grantor shall maintain the Property in tenantable condition and promptly perform all repairs, replacements, and maintenance necessary to preserve its value.

Compliance With Environmental Laws. Grantor represents and warrants to Lender that: (1) During the period of Grantor's leasehold interest in the Property, there has been no use, generation, manufacture, storage, treatment, disposal, release or threatened release of any Hazardous Substance by any person on, under, about or from the Property; (2) Grantor has no knowledge of, or reason to believe that there has been, except as previously disclosed to and acknowledged by Lender in writing, (a) any breach or violation of any Environmental Laws, (b) any use, generation, manufacture, storage, treatment, disposal, release or threatened release of any Hazardous Substance on, under, about or from the Property by any prior owners or occupants of the Property, or (c) any actual or threatened litigation or claims of any kind by any person relating to such matters; and (3) Except as previously disclosed to and acknowledged by Lender in writing, (a) neither Grantor nor any tenant, contractor, agent or other authorized user of the Property shall use, generate, manufacture, store, treat, dispose of or release any Hazardous Substance on, under, about or from the Property; and (b) any such activity shall be conducted in compliance with all applicable federal, state, and local laws, regulations and ordinances, including without limitation all Environmental Laws. Grantor authorizes Lender and its agents to enter upon the Property to make such inspections and tests, at Grantor's expense, as Lender may deem appropriate to determine compliance of the Property with this section of the Deed of Trust. Any inspections or tests made by Lender shall be for Lender's purposes only and shall not be construed to create any responsibility or liability on the part of Lender to Grantor or to any other person. The representations and warranties contained herein are based on Grantor's due diligence in investigating the Property for Hazardous Substances. Grantor hereby (1) releases and waives any future claims against Lender for indemnity or contribution in the event Grantor becomes liable for cleanup or other costs under any such laws; and (2) agrees to indemnify and hold harmless Lender against any and all claims, losses, liabilities, damages, penalties, and expenses which Lender may directly or indirectly sustain or suffer resulting from a breach of this section of the Deed of Trust or as a consequence of any use, generation, manufacture, storage, disposal, release or threatened release occurring prior to Grantor's ownership or interest in the Property, whether or not

the same was or should have been known to Grantor. The provisions of this section of the Deed of Trust, including the obligation to indemnify, shall survive the payment of the indebtedness and the satisfaction and reconveyance of the lien of this Deed of Trust and shall not be affected by Lender's acquisition of any interest in the Property, whether by foreclosure or otherwise.

Nuisance, Waste. Grantor shall not cause, conduct or permit any nuisance nor commit, permit, or suffer any stripping of or waste on or to the Property or any portion of the Property. Without limiting the generality of the foregoing, Grantor will not remove, or grant to any other party the right to remove, any timber, minerals (including oil and gas), coal, clay, scoria, soil, gravel or rock products without Lender's prior written consent.

Removal of Improvements. Grantor shall not demolish or remove any Improvements from the Real Property without Lender's prior written consent. As a condition to the removal of any Improvements, Lender may require Grantor to make arrangements satisfactory to Lender to replace such Improvements with Improvements of at least equal value.

Lender's Right to Enter. Lender and Lender's agents and representatives may enter upon the Real Property at all reasonable times to attend to Lender's interests and to inspect the Real Property for purposes of Grantor's compliance with the terms and conditions of this Deed of Trust.

Compliance with Governmental Requirements. Grantor shall promptly comply with all laws, ordinances, and regulations, now or hereafter in effect, of all governmental authorities applicable to the use or occupancy of the Property, including without limitation, the Americans With Disabilities Act. Grantor may contest in good faith any such law, ordinance, or regulation and withhold compliance during any proceeding, including appropriate appeals, so long as Grantor has notified Lender in writing prior to doing so and so long as, in Lender's sole opinion, Lender's interests in the Property are not jeopardized. Lender may require Grantor to post adequate security or a surety bond, reasonably satisfactory to Lender, to protect Lender's interest.

Duty to Protect. Grantor agrees neither to abandon or leave unattended the Property. Grantor shall do all other acts, in addition to those acts set forth above in this section, which from the character and use of the Property are reasonably necessary to protect and preserve the Property.

Compliance with Lease. Grantor will pay all rents and will strictly observe and perform on a timely basis all other terms, covenants, and conditions of the Lease. Grantor will indemnify and hold Lender harmless against all losses, liabilities, actions, suits, proceedings, costs including reasonable attorneys' fees claims, demands, and damages whatsoever which may be incurred by reason of Grantor's failure to pay rents or strictly observe or perform under the Lease.

Other Agreements Relating to the Lease. Grantor further agrees (1) not to surrender, terminate, or cancel the Lease, and (2) not to modify, change, supplement, alter, or amend the Lease, either orally or in writing, without Lender's prior written consent. Any attempt by Grantor to do any of the foregoing without Lender's prior written consent will be void and of no force and effect. At Lender's option, Grantor will deposit with Lender as further security all original documents relating to the Lease and the leasehold interest in the Property. Unless Grantor is in breach or default of any of the terms contained in this Deed of Trust, Lender will have no right to cancel, modify, change, supplement, alter or amend the leasehold interest. No estate in the Property, whether fee title to the leasehold premises, the leasehold estate, or any subleasehold estate, will merge without Lender express written consent; rather these estates will remain separate and distinct, even if there is a union of these estates in the landlord, Grantor, or a third party who purchases or otherwise acquires the estates. Grantor further agrees that if Grantor acquires all or a portion of the fee simple title, or any other leasehold or subleasehold title to the Property, that title will, at Lender's option, immediately become subject to the terms of this Deed of Trust, and Grantor will execute, deliver and record all documents necessary or appropriate to assure that such title is secured by this Deed of Trust.

Notices Relating to the Lease. Grantor will promptly notify Lender in writing:

(1) if Grantor is in default in the performance or observance of any of the terms, covenants, or conditions which Grantor is to perform or observe under the Lease;

(2) if any event occurs which would constitute a default under the Lease;

(3) if any notice of default is given to Grantor by the landlord under the Lease;

(4) if, pursuant to the Lease, any proceeds received for the Property are deposited with someone other than Lender, whether received from any insurance on the Property or from the taking of any or all of the Property by eminent domain; and

(5) if any arbitration or appraisal proceedings are requested or instituted pursuant to the Lease.

Grantor agrees to provide Lender promptly with a copy of all written materials relating to any of the above and to provide Lender with such other information as Lender may reasonably request. Grantor agrees that promptly after the execution and delivery of this Deed of Trust, Grantor will notify the landlord under the Lease in writing of the execution and delivery of this Deed of Trust and of the name and address of Lender and will deliver a copy of this Deed of Trust to the landlord.

Option to Cure Lease Default. Upon Lender's receipt of any written notice of Grantor's default under the Lease, Lender may, at Lender's option, cure such default, even though Grantor, or any party on behalf of Grantor, questions or denies the existence of such default or the nature of the default. Grantor expressly grants to Lender the absolute and immediate right to enter upon the Property to such extent and as often as Lender in it sole discretion deems necessary or desirable in order to prevent or cure any such default by Grantor.

DUE ON SALE - CONSENT BY LENDER. Lender may, at Lender's option, declare immediately due and payable all sums secured by this Deed of Trust upon the sale or transfer, without Lender's prior written consent, of all or any part of the Real Property, or any interest in the Real Property. A "sale or transfer" means the conveyance of Real Property or any right, title or interest in the Real Property; whether legal, beneficial or equitable; whether voluntary or involuntary; whether by outright sale, deed, installment sale contract, land contract, contract for deed, community property agreement or community property trust or other trust, leasehold interest with a term greater than three (3) years, lease-option contract, or by sale, assignment, or transfer of any beneficial interest in or to any land trust holding title to the Real Property, or by any other method of conveyance of an interest in the Real Property. If any Grantor is a corporation, partnership or limited liability company, transfer also includes any change in ownership of more than twenty-five percent (25%) of the voting stock, partnership interests or limited liability company interests, as the case may be, of such Grantor. However, this option shall not be exercised by Lender if such exercise is prohibited by federal law or by Alaska law.

TAXES AND LIENS. The following provisions relating to the taxes and liens on the Property are part of this Deed of Trust:

Payment. Grantor shall pay when due (and in all events prior to delinquency) all taxes, special taxes, assessments, charges (including water and sewer), fines and impositions levied against or on account of the Property, and shall pay when due all claims for work done on or for services rendered or material furnished to the Property. Grantor shall maintain the Property free of all liens having priority over or equal to the interest of Lender under this Deed of Trust, except for the lien of taxes and assessments not due and except as otherwise provided in this Deed of Trust.

Right to Contest. Grantor may withhold payment of any tax, assessment, or claim in connection with a good faith dispute over the obligation to pay, so long as Lender's interest in the Property is not jeopardized. If a lien arises or is filed as a result of nonpayment, Grantor shall within fifteen (15) days after the lien arises or, if a lien is filed, within fifteen (15) days after Grantor has notice of the filing, secure the discharge of the lien, or if requested by Lender, deposit with Lender cash or a sufficient corporate surety bond or other security satisfactory to Lender in an amount sufficient to discharge the lien plus any costs and reasonable attorneys' fees, or other charges that could accrue as a result of a foreclosure or sale under the lien. In any contest, Grantor shall defend itself and Lender and shall satisfy any adverse judgment before enforcement against the Property. Grantor shall name Lender as an additional obligee under any surety bond furnished in the contest proceedings.

Evidence of Payment. Grantor shall upon demand furnish to Lender satisfactory evidence of payment of the taxes or assessments and shall authorize the appropriate governmental official to deliver to Lender at any time a written statement of the taxes and assessments against the Property.

Notice of Construction. Grantor shall notify Lender at least fifteen (15) days before any work is commenced, any services are furnished, or any materials are supplied to the Property, if any mechanic's lien, materialmen's lien, or other lien could be asserted on account of the work, services, or materials. Grantor will upon request of Lender furnish to

Lender advance assurances satisfactory to Lender that Grantor can and will pay the cost of such improvements.

PROPERTY DAMAGE INSURANCE. The following provisions relating to insuring the Property are a part of this Deed of Trust.

Maintenance of Insurance. Grantor shall procure and maintain policies of fire insurance with standard extended coverage endorsements on a cash basis for the full insurable value covering all Improvements on the Real Property in an amount sufficient to avoid application of any coinsurance clause, and with a standard mortgagee clause in favor of Lender. Grantor shall also procure and maintain comprehensive general liability insurance in such coverage amounts as Lender may request with Trustee and Lender being named as additional insureds in such liability insurance policies. Additionally, Grantor shall maintain such other insurance, including but not limited to hazard, business interruption, and boiler insurance, as Lender may reasonably require. Policies shall be written in form, amounts, coverages and basis reasonably acceptable to Lender and issued by a company or companies reasonably acceptable to Lender. Grantor, upon request of Lender, will deliver to Lender from time to time the policies or certificates of insurance in form satisfactory to Lender, including stipulations that coverages will not be cancelled or diminished without at least thirty (30) days prior written notice to Lender. Each insurance policy also shall include an endorsement providing that coverage in favor of Lender will not be impaired in any way by any act, omission or default of Grantor or any other person. Should the Real Property be located in an area designated by the Director of the Federal Emergency Management Agency as a special flood hazard area, Grantor agrees to obtain and maintain Federal Flood Insurance, if available, within 45 days after notice is given by Lender that the Property is located in a special flood hazard area, for the full unpaid principal balance of the loan and any prior liens on the property securing the loan, up to the maximum policy limits set under the National Flood Insurance Program, or as otherwise required by Lender, and to maintain such insurance for the term of the loan.

Application of Proceeds. Grantor shall promptly notify Lender of any loss or damage to the Property. Lender may make proof of loss if Grantor fails to do so within fifteen (15) days of the casualty. Whether or not Lender's security is impaired, Lender may, at Lender's election, receive and retain the proceeds of any insurance and apply the proceeds to the reduction of the Indebtedness, payment of any lien affecting the Property, or the restoration and repair of the Property. If Lender elects to apply the proceeds to restoration and repair, Grantor shall repair or replace the damaged or destroyed Improvements in a manner satisfactory to Lender. Lender shall, upon satisfactory proof of such expenditure, pay or reimburse Grantor from the proceeds for the reasonable cost of repair or restoration if Grantor is not in default under this Deed of Trust. Any proceeds which have not been disbursed within 180 days after their receipt and which Lender has not committed to the repair or restoration of the Property shall be used first to pay any amount owing to Lender under this Deed of Trust, then to pay accrued interest, and the remainder, if any, shall be applied to the principal balance of the Indebtedness. If Lender holds any proceeds after payment in full of the Indebtedness, such proceeds shall be paid to Grantor as Grantor's interests may appear.

Grantor's Report on Insurance. Upon request of Lender, however not more than once a year, Grantor shall furnish to Lender a report on each existing policy of insurance showing: (1) the name of the insurer; (2) the risks insured; (3) the amount of the policy; (4) the property insured, the then current replacement value of such property, and the manner of determining that value; and (5) the expiration date of the policy. Grantor shall, upon request of Lender, have an independent appraiser satisfactory to Lender determine the cash value replacement cost of the Property.

LENDER'S EXPENDITURES. If any action or proceeding is commenced that would materially affect Lender's interest in the Property or if Grantor fails to comply with any provision of this Deed of Trust or any Related Documents, including but not limited to Grantor's failure to discharge or pay when due any amounts Grantor is required to discharge or pay under this Deed of Trust or any Related Documents, Lender on Grantor's behalf may (but shall not be obligated to) take any action that Lender deems appropriate, including but not limited to discharging or paying all taxes, liens, security interests, encumbrances and other claims, at any time levied or placed on the Property and paying all costs for insuring, maintaining and preserving the Property. All such expenditures incurred or paid by Lender for such purposes will then bear interest at the rate charged under the Note unless payment of interest at that rate would be contrary to applicable law, in which event such expenses shall bear interest at the highest rate permitted by applicable law from the date incurred or paid by Lender to the date of repayment

by Grantor. All such expenses will become a part of the Indebtedness and, at Lender's option, will (A) be payable on demand; (B) be added to the balance of the Note and be apportioned among and be payable with any installment payments to become due during either (1) the term of any applicable insurance policy; or (2) the remaining term of the Note; or (C) be treated as a balloon payment which will be due and payable at the Note's maturity. The Deed of Trust also will secure payment of these amounts. Such right shall be in addition to all other rights and remedies to which Lender may be entitled upon Default.

WARRANTY; DEFENSE OF TITLE. The following provisions relating to ownership of the Property are a part of this Deed of Trust:

Title. Grantor warrants that: (a) Grantor holds good and marketable title of record to the leasehold interest in the Property pursuant to the Lease, free and clear of all liens and encumbrances other than those set forth in the Real Property description or in any title insurance policy, title report, or final title opinion issued in favor of, and accepted by, Lender in connection with this Deed of Trust, and (b) Grantor has the full right, power, and authority to execute and deliver this Deed of Trust to Lender.

Defense of Title. Subject to the exception in the paragraph above, Grantor warrants and will forever defend the title to the Property against the lawful claims of all persons. In the event any action or proceeding is commenced that questions Grantor's title or the interest of Trustee or Lender under this Deed of Trust, Grantor shall defend the action at Grantor's expense. Grantor may be the nominal party in such proceeding, but Lender shall be entitled to participate in the proceeding and to be represented in the proceeding by counsel of Lender's own choice, and Grantor will deliver, or cause to be delivered, to Lender such instruments as Lender may request from time to time to permit such participation.

Compliance With Laws. Grantor warrants that the Property and Grantor's use of the Property complies with all existing applicable laws, ordinances, and regulations of governmental authorities.

Survival of Representations and Warranties. All representations, warranties, and agreements made by Grantor in this Deed of Trust shall survive the execution and delivery of this Deed of Trust, shall be continuing in nature, and shall remain in full force and effect until such time as Grantor's Indebtedness shall be paid in full.

CONDEMNATION. The following provisions relating to condemnation proceedings are a part of this Deed of Trust:

Proceedings. If any proceeding in condemnation is filed, Grantor shall promptly notify Lender in writing, and Grantor shall promptly take such steps as may be necessary to defend the action and obtain the award. Grantor may be the nominal party in such proceeding, but Lender shall be entitled to participate in the proceeding and to be represented in the proceeding by counsel of its own choice all at Grantor's expense, and Grantor will deliver or cause to be delivered to Lender such instruments and documentation as may be requested by Lender from time to time to permit such participation.

Application of Net Proceeds. If all or any part of the Property is condemned by eminent domain proceedings or by any proceeding or purchase in lieu of condemnation, Lender may at its election require that all or any portion of the net proceeds of the award be applied to the Indebtedness or the repair or restoration of the Property. The net proceeds of the award shall mean the award after payment of all reasonable costs, expenses, and attorneys' fees incurred by Trustee or Lender in connection with the condemnation.

IMPOSITION OF TAXES, FEES AND CHARGES BY GOVERNMENTAL AUTHORITIES. The following provisions relating to governmental taxes, fees and charges are a part of this Deed of Trust:

Current Taxes, Fees and Charges. Upon request by Lender, Grantor shall execute such documents in addition to this Deed of Trust and take whatever other action is requested by Lender to perfect and continue Lender's lien on the Real Property. Grantor shall reimburse Lender for all taxes, as described below, together with all expenses incurred in recording, perfecting or continuing this Deed of Trust, including without limitation all taxes, fees, documentary stamps, and other charges for recording or registering this Deed of Trust.

Taxes. The following shall constitute taxes to which this section applies: (1) a specific tax upon this type of Deed of Trust or upon all or any part of the Indebtedness secured by this Deed of Trust; (2) a specific tax on Grantor which Grantor is authorized or required to deduct from payments on the Indebtedness secured by this type of Deed of Trust; (3) a tax on this type of Deed of Trust chargeable against the Lender or the holder of the Note;

and (4) a specific tax on all or any portion of the Indebtedness or on payments of principal and interest made by Grantor.

Subsequent Taxes. If any tax to which this section applies is enacted subsequent to the date of this Deed of Trust, this event shall have the same effect as an Event of Default, and Lender may exercise any or all of its available remedies for an Event of Default as provided below unless Grantor either (1) pays the tax before it becomes delinquent, or (2) contests the tax as provided above in the Taxes and Liens section and deposits with Lender cash or a sufficient corporate surety bond or other security satisfactory to Lender.

SECURITY AGREEMENT; FINANCING STATEMENTS. The following provisions relating to this Deed of Trust as a security agreement are a part of this Deed of Trust:

Security Agreement. This instrument shall constitute a Security Agreement to the extent any of the Property constitutes fixtures, and Lender shall have all of the rights of a secured party under the Uniform Commercial Code as amended from time to time.

Security Interest. Upon request by Lender, Grantor shall take whatever action is requested by Lender to perfect and continue Lender's security interest in the Rents and Personal Property. In addition to recording this Deed of Trust in the real property records, Lender may, at any time and without further authorization from Grantor, file executed counterparts, copies or reproductions of this Deed of Trust as a financing statement. Grantor shall reimburse Lender for all expenses incurred in perfecting or continuing this security interest. Upon default, Grantor shall not remove, sever or detach the Personal Property from the Property. Upon default, Grantor shall assemble any Personal Property not affixed to the Property in a manner and at a place reasonably convenient to Grantor and Lender and make it available to Lender within three (3) days after receipt of written demand from Lender to the extent permitted by applicable law.

Addresses. The mailing addresses of Grantor (debtor) and Lender (secured party) from which information concerning the security interest granted by this Deed of Trust may be obtained (each as required by the Uniform Commercial Code) are as stated on the first page of this Deed of Trust.

FURTHER ASSURANCES; ATTORNEY-IN-FACT. The following provisions relating to further assurances and attorney-in-fact are a part of this Deed of Trust:

Further Assurances. At any time, and from time to time, upon request of Lender, Grantor will make, execute and deliver, or will cause to be made, executed or delivered, to Lender or to Lender's designee, and when requested by Lender, cause to be filed, recorded, refiled, or rerecorded, as the case may be, at such times and in such offices and places as Lender may deem appropriate, any and all such mortgages, deeds of trust, security deeds, security agreements, financing statements, continuation statements, instruments of further assurance, certificates, and other documents as may, in the sole opinion of Lender, be necessary or desirable in order to effectuate, complete, perfect, continue, or preserve (1) Grantor's obligations under the Note, this Deed of Trust, and the Related Documents, and (2) the liens and security interests created by this Deed of Trust as first and prior liens on the Property, whether now owned or hereafter acquired by Grantor. Unless prohibited by law or Lender agrees to the contrary in writing, Grantor shall reimburse Lender for all costs and expenses incurred in connection with the matters referred to in this paragraph.

Attorney-in-Fact. If Grantor fails to do any of the things referred to in the preceding paragraph, Lender may do so for and in the name of Grantor and at Grantor's expense. For such purposes, Grantor hereby irrevocably appoints Lender as Grantor's attorney-in-fact for the purpose of making, executing, delivering, filing, recording, and doing all other things as may be necessary or desirable, in Lender's sole opinion, to accomplish the matters referred to in the preceding paragraph.

FULL PERFORMANCE. If Grantor pays all the Indebtedness when due, and otherwise performs all the obligations imposed upon Grantor under this Deed of Trust, Lender shall execute and deliver to Trustee a request for full reconveyance and shall execute and deliver to Grantor suitable statements of termination of any financing statement on file evidencing Lender's security interest in the Rents and the Personal Property. Any reconveyance fee required by law shall be paid by Grantor, if permitted by applicable law.

EVENTS OF DEFAULT. Each of the following, at Lender's option, shall constitute an Event of Default under this Deed of Trust:

Payment Default. Grantor fails to make any payment when due under the Indebtedness.

Other Defaults. Grantor fails to comply with or to perform any other term, obligation,

covenant or condition contained in this Deed of Trust or in any of the Related Documents or to comply with or to perform any term, obligation, covenant or condition contained in any other agreement between Lender and Grantor.

Compliance Default. Failure to comply with any other term, obligation, covenant or condition contained in this Deed of Trust, the Note or in any of the Related Documents.

Default on Other Payments. Failure of Grantor within the time required by this Deed of Trust to make any payment for taxes or insurance, or any other payment necessary to prevent filing of or to effect discharge of any lien.

False Statements. Any warranty, representation or statement made or furnished to Lender by Grantor or on Grantor's behalf under this Deed of Trust or the Related Documents is false or misleading in any material respect, either now or at the time made or furnished or becomes false or misleading at any time thereafter.

Defective Collateralization. This Deed of Trust or any of the Related Documents ceases to be in full force and effect (including failure of any collateral document to create a valid and perfected security interest or lien) at any time and for any reason.

Death or Insolvency. The dissolution or termination of Grantor's existence as a going business or the death of any partner, the insolvency of Grantor, the appointment of a receiver for any part of Grantor's property, any assignment for the benefit of creditors, any type of creditor workout, or the commencement of any proceeding under any bankruptcy or insolvency laws by or against Grantor.

Creditor or Forfeiture Proceedings. Commencement of foreclosure or forfeiture proceedings, whether by judicial proceeding, self-help, repossession or any other method, by any creditor of Grantor or by any governmental agency against any property securing the Indebtedness. This includes a garnishment of any of Grantor's accounts, including deposit accounts, with Lender. However, this Event of Default shall not apply if there is a good faith dispute by Grantor as to the validity or reasonableness of the claim which is the basis of the creditor or forfeiture proceeding and if Grantor gives Lender written notice of the creditor or forfeiture proceeding and deposits with Lender monies or a surety bond for the creditor or forfeiture proceeding, in an amount determined by Lender, in its sole discretion, as being an adequate reserve or bond for the dispute.

Lease Default. Grantor defaults under the terms of the Lease, or any other event (whether or not Grantor's fault) results in the termination or cancellation of Grantor's leasehold rights.

Breach of Other Agreement. Any breach by Grantor under the terms of any other agreement between Grantor and Lender that is not remedied within any grace period provided therein, including without limitation any agreement concerning any indebtedness or other obligation of Grantor to Lender, whether existing now or later.

Events Affecting Guarantor. Any of the preceding events occurs with respect to any Guarantor of any of the Indebtedness or any Guarantor dies or becomes incompetent, or revokes or disputes the validity of, or liability under, any Guaranty of the Indebtedness. In the event of a death, Lender, at its option, may, but shall not be required to, permit the Guarantor's estate to assume unconditionally the obligations arising under the guaranty in a manner satisfactory to Lender, and, in doing so, cure any Event of Default.

Adverse Change. A material adverse change occurs in Grantor's financial condition, or Lender believes the prospect of payment or performance of the Indebtedness is impaired.

Insecurity. Lender in good faith believes itself insecure.

Right to Cure. If any default, other than a default in payment is curable and if Grantor has not been given a notice of a breach of the same provision of this Deed of Trust within the preceding twelve (12) months, it may be cured if Grantor, after receiving written notice from Lender demanding cure of such default: (1) cures the default within fifteen (15) days; or (2) if the cure requires more than fifteen (15) days, immediately initiates steps which Lender deems in Lender's sole discretion to be sufficient to cure the default and thereafter continues and completes all reasonable and necessary steps sufficient to produce compliance as soon as reasonably practical.

RIGHTS AND REMEDIES ON DEFAULT. If an Event of Default occurs under this Deed of Trust, at any time thereafter, Trustee or Lender may exercise any one or more of the following rights and remedies:

Election of Remedies. Election by Lender to pursue any remedy shall not exclude pursuit of any other remedy, and an election to make expenditures or to take action to perform an

obligation of Grantor under this Deed of Trust, after Grantor's failure to perform, shall not affect Lender's right to declare a default and exercise its remedies.

Accelerate Indebtedness. Lender shall have the right at its option without notice to Grantor to declare the entire Indebtedness immediately due and payable, including any prepayment penalty which Grantor would be required to pay.

Foreclosure. With respect to all or any part of the Property, Trustee shall have the right to sell the Property pursuant to a non-judicial foreclosure sale and Trustee or Lender shall have the right to sell the Property upon judicial foreclosure, in either case in accordance with and to the full extent provided by applicable law. If the power of sale is invoked, Trustee shall execute a written notice of the occurrence of an Event of Default and of the election to cause the Property to be sold and shall record such notice in each Recording District in which the Property or some part of the Property is located. Trustee shall mail copies of the notice of default, in the manner provided by the laws of Alaska, to Grantor and to such other persons as the laws of Alaska prescribe. Trustee shall give notice of sale and shall sell the Property according to the laws of Alaska. After the lapse of time required by law following the recordation of the notice of default, Trustee, without demand on Grantor, may sell the Property at the time and place and under the terms designated in the notice of sale, in one or more parcels and in such order as Trustee may determine. Trustee may postpone sale of all or any parcel of the Property by public announcement at the time and place of any previously scheduled sale. Lender's or Lender's designee may purchase the Property at any sale.

Trustee shall deliver to the purchaser Trustee's deed conveying the property so sold without any covenant or warranty, expressed or implied. The recitals in the Trustee's deed shall be prima facie evidence of the truth of the statements made in the Trustee's deed. Trustee shall apply the proceeds of the sale in the following order: (a) to all costs and expenses of the sale, including, but not limited to, reasonable Trustee's and attorneys' fees, and cost of title evidence; (b) to all sums secured by this Deed of Trust in such order as Lender, in Lender's sole discretion, directs; and (c) the excess, if any, to the person or persons legally entitled to the excess proceeds.

UCC Remedies. With respect to all or any part of the Personal Property, Lender shall have all the rights and remedies of a secured party under the Uniform Commercial Code.

Collect Rents. Lender shall have the right, without notice to Grantor to take possession of and manage the Property and collect the Rents, including amounts past due and unpaid, and apply the net proceeds, over and above Lender's costs, against the Indebtedness. In furtherance of this right, Lender may require any tenant or other user of the Property to make payments of rent or use fees directly to Lender. If the Rents are collected by Lender, then Grantor irrevocably designates Lender as Grantor's attorney-in-fact to endorse instruments received in payment thereof in the name of Grantor and to negotiate the same and collect the proceeds. Payments by tenants or other users to Lender in response to Lender's demand shall satisfy the obligations for which the payments are made, whether or not any proper grounds for the demand existed. Lender may exercise its rights under this subparagraph either in person, by agent, or through a receiver.

Appoint Receiver. Lender shall have the right to have a receiver appointed to take possession of all or any part of the Property, with the power to protect and preserve the Property, to operate the Property preceding foreclosure or sale, and to collect the Rents from the Property and apply the proceeds, over and above the cost of the receivership, against the Indebtedness. The receiver may serve without bond if permitted by law. Lender's right to the appointment of a receiver shall exist whether or not the apparent value of the Property exceeds the Indebtedness by a substantial amount. Employment by Lender shall not disqualify a person from serving as a receiver.

Tenancy at Sufferance. If Grantor remains in possession of the Property after the Property is sold as provided above or Lender otherwise becomes entitled to possession of the Property upon default of Grantor, Grantor shall become a tenant at sufferance of Lender or the purchaser of the Property and shall, at Lender's option, either (1) pay a reasonable rental for the use of the Property, or (2) vacate the Property immediately upon the demand of Lender.

Other Remedies. Trustee or Lender shall have any other right or remedy provided in this Deed of Trust or the Note or by law.

Notice of Sale. Lender shall give Grantor reasonable notice of the time and place of any public sale of the Personal Property or of the time after which any private sale or other

intended disposition of the Personal Property is to be made. Reasonable notice shall mean notice given at least ten (10) days before the time of the sale or disposition. Any sale of the Personal Property may be made in conjunction with any sale of the Real Property.

Sale of the Property. To the extent permitted by applicable law, Grantor hereby waives any and all rights to have the Property marshalled. In exercising its rights and remedies, the Trustee or Lender shall be free to sell all or any part of the Property together or separately, in one sale or by separate sales. Lender shall be entitled to bid at any public sale on all or any portion of the Property.

Attorneys' Fees; Expenses. If Lender institutes any suit or action to enforce any of the terms of this Deed of Trust, Lender shall be entitled to recover such sum as the court may adjudge reasonable as attorneys' fees at trial and upon any appeal. Whether or not any court action is involved or pending, and to the extent not prohibited by law, all reasonable expenses Lender incurs that in Lender's opinion are necessary at any time for the protection of its interest or the enforcement of its rights shall become a part of the Indebtedness payable on demand and shall bear interest at the Note rate unless payment of interest at that rate would be contrary to applicable law, in which event such expenses shall bear interest at the highest rate permitted by applicable law from the date of the expenditure until repaid. Expenses covered by this paragraph include, without limitation, however subject to any limits under applicable law, Lender's reasonable attorneys' fees and Lender's legal expenses whether or not there is a lawsuit, including reasonable attorneys' fees and expenses for bankruptcy proceedings (including efforts to modify or vacate any automatic stay or injunction), appeals, and any anticipated post-judgment collection services, the cost of searching records, obtaining title reports (including foreclosure reports), surveyors' reports, and appraisal fees, title insurance, and fees for the Trustee, to the extent permitted by applicable law. Grantor also will pay any court costs, in addition to all other sums provided by law.

Rights of Trustee. Trustee shall have all of the rights and duties of Lender as set forth in this section.

POWERS AND OBLIGATIONS OF TRUSTEE. The following provisions relating to the powers and obligations of Trustee (pursuant to Lender's instructions) are part of this Deed of Trust:

Powers of Trustee. In addition to all powers of Trustee arising as a matter of law, Trustee shall have the power to take the following actions with respect to the Property upon the written request of Lender and Grantor: (a) join in preparing and filing a map or plat of the Real Property, including the dedication of streets or other rights to the public; (b) join in granting any easement or creating any restriction on the Real Property; and (c) join in any subordination or other agreement affecting this Deed of Trust or the interest of Lender under this Deed of Trust.

Trustee. Trustee shall meet all qualifications required for Trustee under applicable law. In addition to the rights and remedies set forth above, with respect to all or any part of the Property, the Trustee shall, upon default, have the right to sell the Property by notice and non-judicial sale, and Trustee or Lender shall have the right to sell the Property by judicial action and foreclosure sale, in either case in accordance with and to the full extent provided by applicable law.

Successor Trustee. Lender, at Lender's option, may from time to time appoint a successor Trustee to any Trustee appointed under this Deed of Trust by an instrument executed and acknowledged by Lender and recorded in the office for the Anchorage Recording District, Third Judicial District, State of Alaska. The instrument shall be executed and acknowledged by Lender or Lender's successor in interest, and shall contain, in addition to all other matters required by state law, the date this Deed of Trust was executed, the names of the original Lender, Trustee, and Grantor, the book and page where this Deed of Trust is recorded, the name and address of the successor trustee, and either an acknowledgement signed and acknowledged by the Trustee named in this Deed of Trust of a receipt of a copy of the instrument or an affidavit of service of a copy of the instrument on the Trustee. The successor trustee, without conveyance of the Property, shall succeed to all the title, power, and duties conferred upon the Trustee in this Deed of Trust and by applicable law. This procedure for substitution of Trustee shall govern to the exclusion of all other provisions for substitution.

NOTICES. Unless otherwise provided by applicable law, any notice required to be given under this Deed of Trust, including without limitation any notice of default and any notice of sale shall be given in writing, and shall be effective when actually delivered, when actually received by telefacsimile (unless otherwise required by law), when deposited with a nationally recognized

overnight courier, or, if mailed, when deposited in the United States mail, as first class, certified or registered mail postage prepaid, directed to the addresses shown near the beginning of this Deed of Trust. All copies of notices of foreclosure from the holder of any lien which has priority over this Deed of Trust shall be sent to Lender's address, as shown near the beginning of this Deed of Trust. Any party may change its address for notices under this Deed of Trust by giving formal written notice to the other parties, specifying that the purpose of the notice is to change the party's address. For notice purposes, Grantor agrees to keep Lender informed at all times of Grantor's current address. Unless otherwise provided or required by law, if there is more than one Grantor, any notice given by Lender to any Grantor is deemed to be notice given to all Grantors.

FORCE PLACED INSURANCE. I agree that if I fail to provide any required insurance or fail to continue such insurance in force, Lender may do so at my expense. In the event Lender initiates the process of obtaining such insurance I agree to pay Lender, in addition to the expense associated with the force placed insurance, a processing fee of $50.00. Such fee is fully earned whenever Lender initiates such process regardless of whether the insurance is actually obtained by Lender. The cost of any such insurance and processing fee, at the option of the Lender shall be added to the indebtedness.

MISCELLANEOUS PROVISIONS. The following miscellaneous provisions are a part of this Deed of Trust:

Amendments. This Deed of Trust, together with any Related Documents, constitutes the entire understanding and agreement of the parties as to the matters set forth in this Deed of Trust. No alteration of or amendment to this Deed of Trust shall be effective unless given in writing and signed by the party or parties sought to be charged or bound by the alteration or amendment.

Annual Reports. If the Property is used for purposes other than Grantor's residence, Grantor shall furnish to Lender, upon request, a certified statement of net operating income received from the Property during Grantor's previous fiscal year in such form and detail as Lender shall require. "Net operating income" shall mean all cash receipts from the Property less all cash expenditures made in connection with the operation of the Property.

Caption Headings. Caption headings in this Deed of Trust are for convenience purposes only and are not to be used to interpret or define the provisions of this Deed of Trust.

Merger. There shall be no merger of the interest or estate created by this Deed of Trust with any other interest or estate in the Property at any time held by or for the benefit of Lender in any capacity, without the written consent of Lender.

Governing Law. This Deed of Trust will be governed by federal law applicable to Lender and, to the extent not preempted by federal law, the laws of the State of Alaska without regard to its conflicts of law provisions. This Deed of Trust has been accepted by Lender in the State of Alaska.

No Waiver by Lender. Lender shall not be deemed to have waived any rights under this Deed of Trust unless such waiver is given in writing and signed by Lender. No delay or omission on the part of Lender in exercising any right shall operate as a waiver of such right or any other right. A waiver by Lender of a provision of this Deed of Trust shall not prejudice or constitute a waiver of Lender's right otherwise to demand strict compliance with that provision or any other provision of this Deed of Trust. No prior waiver by Lender, nor any course of dealing between Lender and Grantor, shall constitute a waiver of any of Lender's rights or of any of Grantor's obligations as to any future transactions. Whenever the consent of Lender is required under this Deed of Trust, the granting of such consent by Lender in any instance shall not constitute continuing consent to subsequent instances where such consent is required and in all cases such consent may be granted or withheld in the sole discretion of Lender.

Severability. If a court of competent jurisdiction finds any provision of this Deed of Trust to be illegal, invalid, or unenforceable as to any circumstance, that finding shall not make the offending provision illegal, invalid, or unenforceable as to any other circumstance. If feasible, the offending provision shall be considered modified so that it becomes legal, valid and enforceable. If the offending provision cannot be so modified, it shall be considered deleted from this Deed of Trust. Unless otherwise required by law, the illegality, invalidity, or unenforceability of any provision of this Deed of Trust shall not affect the legality, validity or enforceability of any other provision of this Deed of Trust.

Successors and Assigns. Subject to any limitations stated in this Deed of Trust on transfer of Grantor's interest, this Deed of Trust shall be binding upon and inure to the benefit of the

parties, their successors and assigns. If ownership of the Property becomes vested in a person other than Grantor, Lender, without notice to Grantor, may deal with Grantor's successors with reference to this Deed of Trust and the Indebtedness by way of forbearance or extension without releasing Grantor from the obligations of this Deed of Trust or liability under the Indebtedness.

Time is of the Essence. Time is of the essence in the performance of this Deed of Trust.

Waiver of Homestead Exemption. Grantor hereby releases and waives all rights and benefits of the homestead exemption laws of the State of Alaska as to all Indebtedness secured by this Deed of Trust.

DEFINITIONS. The following capitalized words and terms shall have the following meanings when used in this Deed of Trust. Unless specifically stated to the contrary, all references to dollar amounts shall mean amounts in lawful money of the United States of America. Words and terms used in the singular shall include the plural, and the plural shall include the singular, as the context may require. Words and terms not otherwise defined in this Deed of Trust shall have the meanings attributed to such terms in the Uniform Commercial Code:

Beneficiary. The word "Beneficiary" means First National Bank Alaska, and its successors and assigns.

Borrower. The word "Borrower" means K & T ENTERPRISES and includes all co-signers and co-makers signing the Note.

Deed of Trust. The words "Deed of Trust" mean this Deed of Trust among Grantor, Lender, and Trustee, and includes without limitation all assignment and security interest provisions relating to the Personal Property and Rents.

Default. The word "Default" means the Default set forth in this Deed of Trust in the section titled "Default".

Environmental Laws. The words "Environmental Laws" mean any and all state, federal and local statutes, regulations and ordinances relating to the protection of human health or the environment, including without limitation the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. Section 9601, et seq. ("CERCLA"), the Superfund Amendments and Reauthorization Act of 1986, Pub. L. No. 99-499 ("SARA"), the Hazardous Materials Transportation Act, 49 U.S.C. Section 1801, et seq., the Resource Conservation and Recovery Act, 42 U.S.C. Section 6901, et seq., or other applicable state or federal laws, rules, or regulations adopted pursuant thereto.

Event of Default. The words "Event of Default" mean any of the events of default set forth in this Deed of Trust in the events of default section of this Deed of Trust.

Grantor. The word "Grantor" means K & T ENTERPRISES.

Guarantor. The word "Guarantor" means any guarantor, surety, or accommodation party of any or all of the Indebtedness.

Guaranty. The word "Guaranty" means the guaranty from Guarantor to Lender, including without limitation a guaranty of all or part of the Note.

Hazardous Substances. The words "Hazardous Substances" mean materials that, because of their quantity, concentration or physical, chemical or infectious characteristics, may cause or pose a present or potential hazard to human health or the environment when improperly used, treated, stored, disposed of, generated, manufactured, transported or otherwise handled. The words "Hazardous Substances" are used in their very broadest sense and include without limitation any and all hazardous or toxic substances, materials or waste as defined by or listed under the Environmental Laws. The term "Hazardous Substances" also includes, without limitation, petroleum and petroleum by-products or any fraction thereof and asbestos.

Improvements. The word "Improvements" means all existing and future improvements, buildings, structures, mobile homes affixed on the Real Property, facilities, additions, replacements and other construction on the Real Property.

Indebtedness. The word "Indebtedness" means all principal, interest, and other amounts, costs and expenses payable under the Note or Related Documents, together with all renewals of, extensions of, modifications of, consolidations of and substitutions for the Note or Related Documents and any amounts expended or advanced by Lender to discharge Grantor's obligations or expenses incurred by Trustee or Lender to enforce Grantor's obligations under this Deed of Trust, together with interest on such amounts as provided in

this Deed of Trust. Specifically, without limitation, Indebtedness includes all amounts that may be indirectly secured by the Cross-Collateralization provision of this Deed of Trust.

Lease. The word "Lease" means the lease of the Property dated January 4, 1996, between ALASKA RAILROAD CORPORATION, Landlord and Grantor, which was recorded as follows: MEMORANDUM RECORDED IN THE ANCHORAGE RECORDING OFFICE FEBRUARY 6, 2003 AT SERIAL NUMBER 2003-011552-0.

Lender. The word "Lender" means First National Bank Alaska, its successors and assigns.

Note. The word "Note" means the promissory note dated December 17, 2004, **in the original principal amount of** $1,413,000.00 from Grantor to Lender, together with all renewals of, extensions of, modifications of, refinancings of, consolidations of, and substitutions for the promissory note or agreement. The maturity date of this Deed of Trust is January 1, 2020. **NOTICE TO GRANTOR: THE NOTE CONTAINS A VARIABLE INTEREST RATE.**

Personal Property. The words "Personal Property" mean all equipment, fixtures, and other articles of personal property now or hereafter owned by Grantor, and now or hereafter attached or affixed to the Real Property; together with all accessions, parts, and additions to, all replacements of, and all substitutions for, any of such property; and together with all issues and profits thereon and proceeds (including without limitation all insurance proceeds and refunds of premiums) from any sale or other disposition of the Property.

Property. The word "Property" means collectively the Real Property and the Personal Property.

Real Property. The words "Real Property" mean the real property, interests and rights, as further described in this Deed of Trust.

Related Documents. The words "Related Documents" mean all promissory notes, credit agreements, loan agreements, environmental agreements, guaranties, security agreements, mortgages, deeds of trust, security deeds, collateral mortgages, and all other instruments, agreements and documents, whether now or hereafter existing, executed in connection with the Indebtedness.

Rents. The word "Rents" means all present and future rents, revenues, income, issues, royalties, profits, and other benefits derived from the Property.

Trustee. The word "Trustee" means First American Title of Alaska, whose address is 3035 C Street, Anchorage, AK 99503 and any substitute or successor trustees.

GRANTOR ACKNOWLEDGES HAVING READ ALL THE PROVISIONS OF THIS DEED OF TRUST, AND GRANTOR AGREES TO ITS TERMS.

GRANTOR:

K & T ENTERPRISES

By: Leonard W Kragness
LEONARD W KRAGNESS, Partner of K & T ENTERPRISES

By: Samuel C Turner
SAMUEL C TURNER, Partner of K & T ENTERPRISES

PARTNERSHIP ACKNOWLEDGMENT

STATE OF Alaska)
) SS
Third JUDICIAL DISTRICT)

On this 17th day of December, 20 04, before me, the undersigned Notary Public, personally appeared **LEONARD W KRAGNESS, SAMUEL C TURNER of K & T ENTERPRISES,** and known to me to be partners or designated agents of the partnership that executed the Deed of Trust and acknowledged the Deed of Trust to be the free and voluntary act and deed of the partnership, by authority of statute or its Partnership Agreement, for the uses and purposes therein mentioned, and on oath stated that they are authorized to execute this Deed of Trust and in fact executed the Deed of Trust on behalf of the partnership.

By _____ Residing at Mcharage

Notary Public in and for the State of Alaska My commission expires 10-105

OFFICIAL SEAL
State of Alaska
BERNICE BAKER
NOTARY PUBLIC

REQUEST FOR FULL RECONVEYANCE

(To be used only when obligations have been paid in full)

To: _____, Trustee

The undersigned is the legal owner and holder of all indebtedness secured by this Deed of Trust. All sums secured by this Deed of Trust have been fully paid and satisfied. You are hereby directed, upon payment to you of any sums owing to you under the terms of this Deed of Trust or pursuant to any applicable statute, to cancel the Note secured by this Deed of Trust (which is delivered to you together with this Deed of Trust), and to reconvey, without warranty, to the parties designated by the terms of this Deed of Trust, the estate now held by you under this Deed of Trust. Please mail the reconveyance and Related Documents to:

_____.

Date: _____ Beneficiary: _____

By: _____

Its: _____

LASER PRO Lending, Ver. 5.26.00.003 Copr. Harland Financial Solutions, Inc. 1997, 2004. All Rights Reserved. - AK c:\laser\CFI\LPL\G01.FC TR-41311 PR-93

[redacted]

ALASKA

2004-093884-0
Recording Dist: 301 - Anchorage
12/20/2004 1:27 PM Pages: 1 of 3

UCC FINANCING STATEMENT

FOLLOW INSTRUCTIONS (front and back) CAREFULLY

A. NAME & PHONE OF CONTACT AT FILER [optional]
BETH BERRY 777-3504

B. SEND ACKNOWLEDGEMENT TO: (Name and Address)

First National Bank Alaska
P.O. Box 100720
Anchorage, AK 99510-0720

04-00745 BO

THE ABOVE SPACE IS FOR FILING OFFICE USE ONLY

1. DEBTOR'S EXACT FULL LEGAL NAME - insert only one debtor name (1a or 1b) - do not abbreviate or combine names

1a. ORGANIZATION'S NAME: K & T ENTERPRISES

OR

1b. INDIVIDUAL'S LAST NAME | FIRST NAME | MIDDLE NAME | SUFFIX

1c. MAILING ADDRESS: PO BOX 13409 | CITY: TRAPPER CREEK | STATE: AK | POSTAL CODE: 99683 | COUNTRY: USA

1d. TAX ID #: SSN OR EIN | ADD'L INFO RE ORGANIZATION DEBTOR | 1e. TYPE OF ORGANIZATION: Partnership | 1f. JURISDICTION OF ORGANIZATION: AK | 1g. ORGANIZATIONAL ID #, if any: [X] NONE

2. ADDITIONAL DEBTOR'S EXACT FULL LEGAL NAME - insert only one debtor name (2a or 2b) - do not abbreviate or combine names

2a. ORGANIZATION'S NAME

OR

2b. INDIVIDUAL'S LAST NAME | FIRST NAME | MIDDLE NAME | SUFFIX

2c. MAILING ADDRESS | CITY | STATE | POSTAL CODE | COUNTRY

2d. TAX ID #: SSN OR EIN | ADD'L INFO RE ORGANIZATION DEBTOR | 2e. TYPE OF ORGANIZATION | 2f. JURISDICTION OF ORGANIZATION | 2g. ORGANIZATIONAL ID #, if any: [ ] NONE

3. SECURED PARTY'S NAME (or NAME of TOTAL ASSIGNEE of ASSIGNOR S/P) - insert only one secured party name (3a or 3b)

3a. ORGANIZATION'S NAME: First National Bank Alaska

OR

3b. INDIVIDUAL'S LAST NAME | FIRST NAME | MIDDLE NAME | SUFFIX

3c. MAILING ADDRESS: 8725 Old Seward Hwy., PO Box 200588 | CITY: Anchorage | STATE: AK | POSTAL CODE: 99520-0588 | COUNTRY: USA

4. This FINANCING STATEMENT covers the following collateral:

All Fixtures; whether any of the foregoing is owned now or acquired later; all accessions, additions, replacements, and substitutions relating to any of the foregoing; all records of any kind relating to any of the foregoing; all proceeds relating to any of the foregoing; excluding the Banana Ripening Rooms (including insurance, general intangibles and accounts proceeds).

5. ALTERNATIVE DESIGNATION [if applicable]: [X] LESSEE/LESSOR [ ] CONSIGNEE/CONSIGNOR [ ] BAILEE/BAILOR [ ] SELLER/BUYER [ ] AG. LIEN [ ] NON-UCC FILING

6. [X] This FINANCING STATEMENT is to be filed [for record] (or recorded) in the REAL ESTATE RECORDS. Attach Addendum [if applicable] | 7. Check to REQUEST SEARCH REPORT(S) on Debtor(s) [ADDITIONAL FEE] [optional] [ ] All Debtors [ ] Debtor 1 [ ] Debtor 2

8. OPTIONAL FILER REFERENCE DATA
PORT 557470 LOAN 118345702

FILING OFFICE COPY — NATIONAL UCC FINANCING STATEMENT (FORM UCC1) (REV. 07/29/98)

Harland Financial Solutions
400 S.W. 6th Avenue, Portland, Oregon 97204

3

UCC FINANCING STATEMENT ADDENDUM

FOLLOW INSTRUCTIONS (front and back) CAREFULLY

9. NAME OF FIRST DEBTOR (1a or 1b) ON RELATED FINANCING STATEMENT

9a. ORGANIZATION'S NAME

OR

K & T ENTERPRISES

9b. INDIVIDUAL'S LAST NAME	FIRST NAME	MIDDLE NAME,SUFFIX

10. MISCELLANEOUS:

THE ABOVE SPACE IS FOR FILING OFFICE USE ONLY

11. ADDITIONAL DEBTOR'S EXACT FULL LEGAL NAME - insert only one name (11a or 11b) - do not abbreviate or combine names

11a. ORGANIZATION'S NAME

OR

11b. INDIVIDUAL'S LAST NAME	FIRST NAME	MIDDLE NAME	SUFFIX

11c. MAILING ADDRESS	CITY	STATE	POSTAL CODE	COUNTRY

11d. SEE INSTRUCTIONS	ADD'L INFO RE ORGANIZATION DEBTOR	11e. TYPE OF ORGANIZATION	11f. JURISDICTION OF ORGANIZATION	11g. ORGANIZATIONAL ID #, if any
				☐ NONE

12. ☐ ADDITIONAL SECURED PARTY'S or ☐ ASSIGNOR S/P'S NAME - insert only one name (12a or 12b)

12a. ORGANIZATION'S NAME

OR

12b. INDIVIDUAL'S LAST NAME	FIRST NAME	MIDDLE NAME	SUFFIX

12c. MAILING ADDRESS	CITY	STATE	POSTAL CODE	COUNTRY

13. This FINANCING STATEMENT covers ☐ timber to be cut or ☐ as-extracted collateral, or is filed as a ☑ fixture filing.

14. Description of real estate:

SEE EXHIBIT A

15. Name and address of a RECORD OWNER of above-described real estate (if Debtor does not have a record interest):

16. Additional collateral description:

17. Check only if applicable and check only one box.

Debtor is a ☐ Trust or ☐ Trustee acting with respect to property held in trust or ☐ Decedent's Estate

18. Check only if applicable and check only one box.

☐ Debtor is a TRANSMITTING UTILITY

☐ Filed in connection with a Manufactured-Home Transaction — effective 30 years

☐ Filed in connection with a Public-Finance Transaction — effective 30 years

EXHIBIT A

PARCEL NO. 1:
A parcel of land lying within the Alaska Railroad Terminal Reserve in the Anchorage Recording District, Third Judicial District, State of Alaska, described as follows:

Beginning at a City of Anchorage brass cap monument at the intersection of Yakutat Street and North Post Road; from which another City of Anchorage brass cap monument at the intersection of North Post Road and the east boundary of the Alaska Railroad Terminal Reserve bears N 57 degrees 30'E a distance of 971.81 feet; thence S 32 degrees 30'E along the centerline of Yakutat Street, a distance of 290.00 feet to the centerline of Railroad Avenue; thence continuing S 32 degrees 30'E a distance of 280.43 feet; thence N 57 degrees 30' E a distance of 33.00 feet to the southwesterly corner of this lease and the True Point of Beginning; thence N 57 degrees 30'E a distance of 398.00 feet; thence S 0 degrees 01'45"E along said westerly line a distance of 212.75 feet; thence S 53 degrees 30'W a distance of 284.83 feet; thence N 32 degrees 30'W a distance of 199.57 feet to the true point of beginning, all situated in the Southwest one-quarter (SW 1/4), in Section 9, Township 13 North, Range 3 West, Seward Meridian.

PARCEL NO. 2:
A parcel of land located within the Alaska Railroad Anchorage Reserve situated in the Anchorage Recording District, Third Judicial District, State of Alaska and further described as follows:

A portion on Lots 53-57 of the ARRC Post Road Industrial Lease Lots beginning at the northeast corner of Lot 53; thence S 57 degrees 27' 30" W a distance of 482 feet to the northwest corner of Lot 57; thence S 32 degrees 30'30"E a distance of 550 feet; thence S 57 degrees 27' 30" W a distance of 392 feet; thence S 12 degrees 28' 30" W a distance of 127.32 feet; thence S 32 degrees 30' 30" E a distance of 460 feet to the True Point of Beginning.

2004-093886-0
Recording Dist: 301 - Anchorage
12/20/2004 1:28 PM Pages: 1 of 9
ALASKA

RECORDATION
REQUESTED BY:
First National Bank
Alaska
Dimond Branch
8725 Old Seward
Hwy.
PO Box 200588
Anchorage, AK
99520-0588

CCC

WHEN RECORDED MAIL
TO:
First National Bank
Alaska
Dimond Branch
8725 Old Seward
Hwy.
PO Box 200588
Anchorage, AK
99520-0588

04-0074513B

FOR RECORDER'S USE ONLY

ASSIGNMENT OF RENTS

THIS ASSIGNMENT OF RENTS dated December 15, 2004, is made and executed between K & T ENTERPRISES, AN ALASKA PARTNERSHIP, whose address is 1817 PARKSIDE DRIVE, ANCHORAGE, AK 99501 (referred to below as "Grantor") and First National Bank Alaska, whose address is 8725 Old Seward Hwy., PO Box 200588, Anchorage, AK 99520-0588 (referred to below as "Lender").

ASSIGNMENT. For valuable consideration, Grantor hereby assigns, grants a continuing security interest in, and conveys to Lender all of Grantor's right, title, and interest in and to the Rents from the following described Property located in the Anchorage Recording District, Third Judicial District, the State of Alaska:

A parcel of land located within the Alaska Railroad Anchorage Reserve situated in the Anchorage Recording District, Third Judicial District, State of Alaska and further described as follows:

A portion on Lots 53-57 of the ARRC Post Road Industrial Lease Lots beginning at the northeast corner of Lot 53; thence S 57 degrees 27' 30" W a distance of 482 feet to the northwest corner of Lot 57; thence S 32 degrees 30'30"E a distance of 550 feet; thence S 57 degrees 27' 30" W a distance of 392 feet; thence S 12 degrees 28' 30" W a distance of 127.32 feet; thence S 32 degrees 30' 30" E a distance of 460 feet to the True Point of Beginning.

The Property or its address is commonly known as 2400 RAILROAD AVE, ANCHORAGE, AK 99501. Grantor's interest in the Property is a leasehold interest as set forth in the Lease described below.

CROSS-COLLATERALIZATION. In addition to the Note, this Assignment secures all obligations, debts and liabilities, plus interest thereon, of Grantor to Lender, or any one or more of them, as well as all claims by Lender against Grantor or any one or more of them, whether now existing or hereafter arising, whether related or unrelated to the purpose of the Note, whether voluntary

Lean 7085

or otherwise, whether due or not due, direct or indirect, determined or undetermined, absolute or contingent, liquidated or unliquidated whether Grantor may be liable individually or jointly with others, whether obligated as guarantor, surety, accommodation party or otherwise, and whether recovery upon such amounts may be or hereafter may become barred by any statute of limitations, and whether the obligation to repay such amounts may be or hereafter may become otherwise unenforceable.

COLLATERAL DESCRIPTION. The word "Rents" as used in this Assignment means all of Grantor's present and future rights, title and interest in, to and under the following described specific Lease of all or a portion of the property described in the "Assignment" section herein.

The following is a general description of the specific lease:

LEASE TYPE:	Month to Month
Lease Date:	November 1, 1999
Start Date:	November 1, 1999
End Date:	
Lessee(s):	DITOMASO, INC.; 601 YAKUTAT ST; ANCHORAGE, AK 99501
Description of the Premises:	000 YAKUTAT ST, ANCHORAGE
Rental Amount:	
Deposit Amount:	
Lease Terms:	MONTH TO MONTH LEASE NOT TO EXTEND LONGER THAN LESEE'S AKRR LEASE OF 35 YEARS
Recording Date:	UNRECORDED

THIS ASSIGNMENT IS GIVEN TO SECURE (1) PAYMENT OF THE INDEBTEDNESS AND (2) PERFORMANCE OF ANY AND ALL OBLIGATIONS OF GRANTOR UNDER THE NOTE, THIS ASSIGNMENT, AND THE RELATED DOCUMENTS. THIS ASSIGNMENT IS GIVEN AND ACCEPTED ON THE FOLLOWING TERMS:

PAYMENT AND PERFORMANCE. Except as otherwise provided in this Assignment or any Related Documents, Grantor shall pay to Lender all amounts secured by this Assignment as they become due, and shall strictly perform all of Grantor's obligations under this Assignment. Unless and until Lender exercises its right to collect the Rents as provided below and so long as there is no default under this Assignment, Grantor may remain in possession and control of and operate and manage the Property and collect the Rents, provided that the granting of the right to collect the Rents shall not constitute Lender's consent to the use of cash collateral in a bankruptcy proceeding.

GRANTOR'S REPRESENTATIONS AND WARRANTIES. Grantor warrants that:

Ownership. Grantor is entitled to receive the Rents free and clear of all rights, loans, liens, encumbrances, and claims except as disclosed to and accepted by Lender in writing.

Right to Assign. Grantor has the full right, power and authority to enter into this Assignment and to assign and convey the Rents to Lender.

No Prior Assignment. Grantor has not previously assigned or conveyed the Rents to any other person by any instrument now in force.

No Further Transfer. Grantor will not sell, assign, encumber, or otherwise dispose of any of Grantor's rights in the Rents except as provided in this Assignment.

LENDER'S RIGHT TO RECEIVE AND COLLECT RENTS. Lender shall have the right at any time, and even though no default shall have occurred under this Assignment, to collect and receive the Rents. For this purpose, Lender is hereby given and granted the following rights, powers and authority:

Notice to Tenants. Lender may send notices to any and all tenants of the Property advising them of this Assignment and directing all Rents to be paid directly to Lender or Lender's agent.

Enter the Property. Lender may enter upon and take possession of the Property; demand, collect and receive from the tenants or from any other persons liable therefor, all of the Rents; institute and carry on all legal proceedings necessary for the protection of the Property, including such proceedings as may be necessary to recover possession of the Property; collect the Rents and remove any tenant or tenants or other persons from the Property.

Maintain the Property. Lender may enter upon the Property to maintain the Property and keep the same in repair; to pay the costs thereof and of all services of all employees,

including their equipment, and of all continuing costs and expenses of maintaining the Property in proper repair and condition, and also to pay all taxes, assessments and water utilities, and the premiums on fire and other insurance effected by Lender on the Property.

Compliance with Laws. Lender may do any and all things to execute and comply with the laws of the State of Alaska and also all other laws, rules, orders, ordinances and requirements of all other governmental agencies affecting the Property.

Lease the Property. Lender may rent or lease the whole or any part of the Property for such term or terms and on such conditions as Lender may deem appropriate.

Employ Agents. Lender may engage such agent or agents as Lender may deem appropriate, either in Lender's name or in Grantor's name, to rent and manage the Property, including the collection and application of Rents.

Other Acts. Lender may do all such other things and acts with respect to the Property as Lender may deem appropriate and may act exclusively and solely in the place and stead of Grantor and to have all of the powers of Grantor for the purposes stated above.

No Requirement to Act. Lender shall not be required to do any of the foregoing acts or things, and the fact that Lender shall have performed one or more of the foregoing acts or things shall not require Lender to do any other specific act or thing.

APPLICATION OF RENTS. All costs and expenses incurred by Lender in connection with the Property shall be for Grantor's account and Lender may pay such costs and expenses from the Rents. Lender, in its sole discretion, shall determine the application of any and all Rents received by it; however, any such Rents received by Lender which are not applied to such costs and expenses shall be applied to the Indebtedness. All expenditures made by Lender under this Assignment and not reimbursed from the Rents shall become a part of the Indebtedness secured by this Assignment, and shall be payable on demand, with interest at the Note rate unless payment of interest at that rate would be contrary to applicable law, in which event such expenses shall bear interest at the highest rate permitted by applicable law from date of expenditure until paid.

FULL PERFORMANCE. If Grantor pays all of the Indebtedness when due and otherwise performs all the obligations imposed upon Grantor under this Assignment, the Note, and the Related Documents, Lender shall execute and deliver to Grantor a suitable satisfaction of this Assignment and suitable statements of termination of any financing statement on file evidencing Lender's security interest in the Rents and the Property. Any termination fee required by law shall be paid by Grantor, if permitted by applicable law.

LENDER'S EXPENDITURES. If any action or proceeding is commenced that would materially affect Lender's interest in the Property or if Grantor fails to comply with any provision of this Assignment or any Related Documents, including but not limited to Grantor's failure to discharge or pay when due any amounts Grantor is required to discharge or pay under this Assignment or any Related Documents, Lender on Grantor's behalf may (but shall not be obligated to) take any action that Lender deems appropriate, including but not limited to discharging or paying all taxes, liens, security interests, encumbrances and other claims, at any time levied or placed on the Rents or the Property and paying all costs for insuring, maintaining and preserving the Property. All such expenditures incurred or paid by Lender for such purposes will then bear interest at the rate charged under the Note unless payment of interest at that rate would be contrary to applicable law, in which event such expenses shall bear interest at the highest rate permitted by applicable law from the date incurred or paid by Lender to the date of repayment by Grantor. All such expenses will become a part of the Indebtedness and, at Lender's option, will (A) be payable on demand; (B) be added to the balance of the Note and be apportioned among and be payable with any installment payments to become due during either (1) the term of any applicable insurance policy; or (2) the remaining term of the Note; or (C) be treated as a balloon payment which will be due and payable at the Note's maturity. The Assignment also will secure payment of these amounts. Such right shall be in addition to all other rights and remedies to which Lender may be entitled upon Default.

DEFAULT. Each of the following, at Lender's option, shall constitute an Event of Default under this Assignment:

Payment Default. Grantor fails to make any payment when due under the Indebtedness.

Other Defaults. Grantor fails to comply with or to perform any other term, obligation, covenant or condition contained in this Assignment or in any of the Related Documents or to comply with or to perform any term, obligation, covenant or condition contained in any other agreement between Lender and Grantor.

Default on Other Payments. Failure of Grantor within the time required by this Assignment to make any payment for taxes or insurance, or any other payment necessary to prevent filing of or to effect discharge of any lien.

False Statements. Any warranty, representation or statement made or furnished to Lender by Grantor or on Grantor's behalf under this Assignment or the Related Documents is false or misleading in any material respect, either now or at the time made or furnished or becomes false or misleading at any time thereafter.

Defective Collateralization. This Assignment or any of the Related Documents ceases to be in full force and effect (including failure of any collateral document to create a valid and perfected security interest or lien) at any time and for any reason.

Death or Insolvency. The dissolution or termination of Grantor's existence as a going business or the death of any partner, the insolvency of Grantor, the appointment of a receiver for any part of Grantor's property, any assignment for the benefit of creditors, any type of creditor workout, or the commencement of any proceeding under any bankruptcy or insolvency laws by or against Grantor.

Creditor or Forfeiture Proceedings. Commencement of foreclosure or forfeiture proceedings, whether by judicial proceeding, self-help, repossession or any other method, by any creditor of Grantor or by any governmental agency against the Rents or any property securing the Indebtedness. This includes a garnishment of any of Grantor's accounts, including deposit accounts, with Lender. However, this Event of Default shall not apply if there is a good faith dispute by Grantor as to the validity or reasonableness of the claim which is the basis of the creditor or forfeiture proceeding and if Grantor gives Lender written notice of the creditor or forfeiture proceeding and deposits with Lender monies or a surety bond for the creditor or forfeiture proceeding, in an amount determined by Lender, in its sole discretion, as being an adequate reserve or bond for the dispute.

Property Damage or Loss. The Property is lost, stolen, substantially damaged, sold, or borrowed against.

Events Affecting Guarantor. Any of the preceding events occurs with respect to any Guarantor of any of the Indebtedness or any Guarantor dies or becomes incompetent, or revokes or disputes the validity of, or liability under, any Guaranty of the Indebtedness. In the event of a death, Lender, at its option, may, but shall not be required to, permit the Guarantor's estate to assume unconditionally the obligations arising under the guaranty in a manner satisfactory to Lender, and, in doing so, cure any Event of Default.

Adverse Change. A material adverse change occurs in Grantor's financial condition, or Lender believes the prospect of payment or performance of the Indebtedness is impaired.

Insecurity. Lender in good faith believes itself insecure.

Cure Provisions. If any default, other than a default in payment is curable and if Grantor has not been given a notice of a breach of the same provision of this Assignment within the preceding twelve (12) months, it may be cured if Grantor, after receiving written notice from Lender demanding cure of such default: (1) cures the default within fifteen (15) days; or (2) if the cure requires more than fifteen (15) days, immediately initiates steps which Lender deems in Lender's sole discretion to be sufficient to cure the default and thereafter continues and completes all reasonable and necessary steps sufficient to produce compliance as soon as reasonably practical.

RIGHTS AND REMEDIES ON DEFAULT. Upon the occurrence of any Event of Default and at any time thereafter, Lender may exercise any one or more of the following rights and remedies, in addition to any other rights or remedies provided by law:

Accelerate Indebtedness. Lender shall have the right at its option without notice to Grantor to declare the entire Indebtedness immediately due and payable, including any prepayment penalty which Grantor would be required to pay.

Collect Rents. Lender shall have the right, without notice to Grantor, to take possession of the Property and collect the Rents, including amounts past due and unpaid, and apply the net proceeds, over and above Lender's costs, against the Indebtedness. In furtherance of this right, Lender shall have all the rights provided for in the Lender's Right to Receive and Collect Rents Section, above. If the Rents are collected by Lender, then Grantor irrevocably designates Lender as Grantor's attorney-in-fact to endorse instruments received in payment thereof in the name of Grantor and to negotiate the same and collect the proceeds. Payments by tenants or other users to Lender in response to Lender's demand shall satisfy the obligations for which the payments are made, whether or not any proper grounds for

the demand existed. Lender may exercise its rights under this subparagraph either in person, by agent, or through a receiver.

Appoint Receiver. Lender shall have the right to have a receiver appointed to take possession of all or any part of the Property, with the power to protect and preserve the Property, to operate the Property preceding foreclosure or sale, and to collect the Rents from the Property and apply the proceeds, over and above the cost of the receivership, against the Indebtedness. The receiver may serve without bond if permitted by law. Lender's right to the appointment of a receiver shall exist whether or not the apparent value of the Property exceeds the Indebtedness by a substantial amount. Employment by Lender shall not disqualify a person from serving as a receiver.

Other Remedies. Lender shall have all other rights and remedies provided in this Assignment or the Note or by law.

Election of Remedies. Election by Lender to pursue any remedy shall not exclude pursuit of any other remedy, and an election to make expenditures or to take action to perform an obligation of Grantor under this Assignment, after Grantor's failure to perform, shall not affect Lender's right to declare a default and exercise its remedies.

Attorneys' Fees; Expenses. If Lender institutes any suit or action to enforce any of the terms of this Assignment, Lender shall be entitled to recover such sum as the court may adjudge reasonable as attorneys' fees at trial and upon any appeal. Whether or not any court action is involved or pending, and to the extent not prohibited by law, all reasonable expenses Lender incurs that in Lender's opinion are necessary at any time for the protection of its interest or the enforcement of its rights shall become a part of the Indebtedness payable on demand and shall bear interest at the Note rate unless payment of interest at that rate would be contrary to applicable law, in which event such expenses shall bear interest at the highest rate permitted by applicable law from the date of the expenditure until repaid. Expenses covered by this paragraph include, without limitation, however subject to any limits under applicable law, Lender's reasonable attorneys' fees and Lender's legal expenses whether or not there is a lawsuit, including reasonable attorneys' fees and expenses for bankruptcy proceedings (including efforts to modify or vacate any automatic stay or injunction), appeals, and any anticipated post-judgment collection services, the cost of searching records, obtaining title reports (including foreclosure reports), surveyors' reports, and appraisal fees, title insurance, and fees for the Trustee, to the extent permitted by applicable law. Grantor also will pay any court costs, in addition to all other sums provided by law.

MISCELLANEOUS PROVISIONS. The following miscellaneous provisions are a part of this Assignment:

Amendments. This Assignment, together with any Related Documents, constitutes the entire understanding and agreement of the parties as to the matters set forth in this Assignment. No alteration of or amendment to this Assignment shall be effective unless given in writing and signed by the party or parties sought to be charged or bound by the alteration or amendment.

Caption Headings. Caption headings in this Assignment are for convenience purposes only and are not to be used to interpret or define the provisions of this Assignment.

Governing Law. This Assignment will be governed by federal law applicable to Lender and, to the extent not preempted by federal law, the laws of the State of Alaska without regard to its conflicts of law provisions. This Assignment has been accepted by Lender in the State of Alaska.

Merger. There shall be no merger of the interest or estate created by this assignment with any other interest or estate in the Property at any time held by or for the benefit of Lender in any capacity, without the written consent of Lender.

Interpretation. (1) In all cases where there is more than one Borrower or Grantor, then all words used in this Assignment in the singular shall be deemed to have been used in the plural where the context and construction so require. (2) If more than one person signs this Assignment as "Grantor," the obligations of each Grantor are joint and several. This means that if Lender brings a lawsuit, Lender may sue any one or more of the Grantors. If Borrower and Grantor are not the same person, Lender need not sue Borrower first, and that Borrower need not be joined in any lawsuit. (3) The names given to paragraphs or sections in this Assignment are for convenience purposes only. They are not to be used to interpret or define the provisions of this Assignment.

No Waiver by Lender. Lender shall not be deemed to have waived any rights under this Assignment unless such waiver is given in writing and signed by Lender. No delay or omission on the part of Lender in exercising any right shall operate as a waiver of such right or any other right. A waiver by Lender of a provision of this Assignment shall not prejudice or constitute a waiver of Lender's right otherwise to demand strict compliance with that provision or any other provision of this Assignment. No prior waiver by Lender, nor any course of dealing between Lender and Grantor, shall constitute a waiver of any of Lender's rights or of any of Grantor's obligations as to any future transactions. Whenever the consent of Lender is required under this Assignment, the granting of such consent by Lender in any instance shall not constitute continuing consent to subsequent instances where such consent is required and in all cases such consent may be granted or withheld in the sole discretion of Lender.

Notices. Unless otherwise provided by applicable law, any notice required to be given under this Assignment shall be given in writing, and shall be effective when actually delivered, when actually received by telefacsimile (unless otherwise required by law), when deposited with a nationally recognized overnight courier, or, if mailed, when deposited in the United States mail, as first class, certified or registered mail postage prepaid, directed to the addresses shown near the beginning of this Assignment. Any party may change its address for notices under this Assignment by giving formal written notice to the other parties, specifying that the purpose of the notice is to change the party's address. For notice purposes, Grantor agrees to keep Lender informed at all times of Grantor's current address. Unless otherwise provided or required by law, if there is more than one Grantor, any notice given by Lender to any Grantor is deemed to be notice given to all Grantors.

Powers of Attorney. The various agencies and powers of attorney conveyed on Lender under this Assignment are granted for purposes of security and may not be revoked by Grantor until such time as the same are renounced by Lender.

Severability. If a court of competent jurisdiction finds any provision of this Assignment to be illegal, invalid, or unenforceable as to any circumstance, that finding shall not make the offending provision illegal, invalid, or unenforceable as to any other circumstance. If feasible, the offending provision shall be considered modified so that it becomes legal, valid and enforceable. If the offending provision cannot be so modified, it shall be considered deleted from this Assignment. Unless otherwise required by law, the illegality, invalidity, or unenforceability of any provision of this Assignment shall not affect the legality, validity or enforceability of any other provision of this Assignment.

Successors and Assigns. Subject to any limitations stated in this Assignment on transfer of Grantor's interest, this Assignment shall be binding upon and inure to the benefit of the parties, their successors and assigns. If ownership of the Property becomes vested in a person other than Grantor, Lender, without notice to Grantor, may deal with Grantor's successors with reference to this Assignment and the Indebtedness by way of forbearance or extension without releasing Grantor from the obligations of this Assignment or liability under the Indebtedness.

Time is of the Essence. Time is of the essence in the performance of this Assignment.

WAIVER OF HOMESTEAD EXEMPTION. Grantor hereby releases and waives all rights and benefits of the homestead exemption laws of the State of Alaska as to all Indebtedness secured by this Assignment.

WAIVER OF RIGHT OF REDEMPTION. NOTWITHSTANDING ANY OF THE PROVISIONS TO THE CONTRARY CONTAINED IN THIS ASSIGNMENT, GRANTOR HEREBY WAIVES ANY AND ALL RIGHTS OF REDEMPTION FROM SALE UNDER ANY ORDER OR JUDGMENT OF FORECLOSURE ON GRANTOR'S BEHALF AND ON BEHALF OF EACH AND EVERY PERSON, EXCEPT JUDGMENT CREDITORS OF GRANTOR, ACQUIRING ANY INTEREST IN OR TITLE TO THE PROPERTY SUBSEQUENT TO THE DATE OF THIS ASSIGNMENT.

DEFINITIONS. The following capitalized words and terms shall have the following meanings when used in this Assignment. Unless specifically stated to the contrary, all references to dollar amounts shall mean amounts in lawful money of the United States of America. Words and terms used in the singular shall include the plural, and the plural shall include the singular, as the context may require. Words and terms not otherwise defined in this Assignment shall have the meanings attributed to such terms in the Uniform Commercial Code:

Assignment. The word "Assignment" means this ASSIGNMENT OF RENTS, as this ASSIGNMENT OF RENTS may be amended or modified from time to time, together with all exhibits and schedules attached to this ASSIGNMENT OF RENTS from time to time. The

maturity date of this ASSIGNMENT OF RENTS is January 1, 2020.

Borrower. The word "Borrower" means K & T ENTERPRISES.

Default. The word "Default" means the Default set forth in this Assignment in the section titled "Default".

Event of Default. The words "Event of Default" mean any of the events of default set forth in this Assignment in the default section of this Assignment.

Grantor. The word "Grantor" means K & T ENTERPRISES.

Guarantor. The word "Guarantor" means any guarantor, surety, or accommodation party of any or all of the Indebtedness.

Guaranty. The word "Guaranty" means the guaranty from Guarantor to Lender, including without limitation a guaranty of all or part of the Note.

Indebtedness. The word "Indebtedness" means all principal, interest, and other amounts, costs and expenses payable under the Note or Related Documents, together with all renewals of, extensions of, modifications of, consolidations of and substitutions for the Note or Related Documents and any amounts expended or advanced by Lender to discharge Grantor's obligations or expenses incurred by Lender to enforce Grantor's obligations under this Assignment, together with interest on such amounts as provided in this Assignment. Specifically, without limitation, Indebtedness includes all amounts that may be indirectly secured by the Cross-Collateralization provision of this Assignment.

Lease. The word "Lease" means the lease of the Property dated November 1, 1999, between Landlord, as defined in Related Documents, and Grantor, which was recorded as follows: UNRECORDED.

Lender. The word "Lender" means First National Bank Alaska, its successors and assigns.

Note. The word "Note" means the promissory note dated December 17, 2004, in the **original principal amount of $1,413,000.00** from Grantor to Lender, together with all renewals of, extensions of, modifications of, refinancings of, consolidations of, and substitutions for the promissory note or agreement.

Property. The word "Property" means all of Grantor's right, title and interest in and to all the Property as described in the "Assignment" section of this Assignment.

Related Documents. The words "Related Documents" mean all promissory notes, credit agreements, loan agreements, environmental agreements, guaranties, security agreements, mortgages, deeds of trust, security deeds, collateral mortgages, and all other instruments, agreements and documents, whether now or hereafter existing, executed in connection with the Indebtedness.

Rents. The word "Rents" means all of Grantor's present and future rights, title and interest in, to and under any and all present and future leases, including, without limitation, all rents, revenue, income, issues, royalties, bonuses, accounts receivable, cash or security deposits, advance rentals, profits and proceeds from the Property, and other payments and benefits derived or to be derived from such leases of every kind and nature, whether due now or later, including without limitation Grantor's right to enforce such leases and to receive and collect payment and proceeds thereunder.

THE UNDERSIGNED ACKNOWLEDGES HAVING READ ALL THE PROVISIONS OF THIS ASSIGNMENT, AND NOT PERSONALLY BUT AS AN AUTHORIZED SIGNER, HAS CAUSED THIS ASSIGNMENT TO BE SIGNED AND EXECUTED ON BEHALF OF GRANTOR ON DECEMBER 15, 2004.

GRANTOR:

K & T ENTERPRISES

By: Leonard W Kragness
LEONARD W KRAGNESS, Partner of K & T ENTERPRISES

By: Samuel C Turner
SAMUEL C TURNER, Partner of K & T ENTERPRISES

LESSEE ACKNOWLEDGEMENT

DiTomaso, Inc.

By: _____

Its: See Page

PARTNERSHIP ACKNOWLEDGMENT

STATE OF Alaska

Third JUDICIAL DISTRICT

OFFICIAL SEAL
State of Alaska
SS ERNICE BAKER
NOTARY PUBLIC

On this 17th day of December, 2004, before me, the undersigned Notary Public, personally appeared LEONARD W KRAGNESS; SAMUEL C TURNER of K & T ENTERPRISES, and known to me to be partners or designated agents of the partnership that executed the ASSIGNMENT OF RENTS and acknowledged the Assignment to be the free and voluntary act and deed of the partnership, by authority of statute or its Partnership Agreement, for the uses and purposes therein mentioned, and on oath stated that they are authorized to execute this Assignment and in fact executed the Assignment on behalf of the partnership.

By: _____ Residing at Anchorage

Notary Public in and for the State of Alaska My commission expires 6-1-05

STATE OF ALASKA)

THIRD JUDICIAL DISTRICT)

THIS IS TO CERTIFY that on this 16th day of December, 2004, before me, the undersigned, a Notary Public in and for the State of Alaska, duly commissioned and sworn, personally appeared Jeff Keim, known to me and to me known to be the Sec Treasurer of DiTomaso, Inc., and he/she executed the same as his or her voluntary act and deed, for the uses and purposes therein mentioned.

WITNESS my hand and official seal the day and year in this certificate first written above.

JOHN D. SAN ROMAN NOTARY PUBLIC STATE OF ALASKA

Notary Public in and for: State of Alaska

My commission Expires: 12/9/2006

2004-093890-0
Recording Dist: 301 - Anchorage
12/20/2004 1:31 PM Pages: 1 of 7

A L A S K A

CCC

Supplement No. 6 to
ARRC Contract No. 7053
and
Supplement No. 2 to
ARRC Contract No. 7085

CONSENT TO LIMITED ASSIGNMENT
04-00745 BB **FOR SECURITY PURPOSES**

The ALASKA RAILROAD CORPORATION ("Lessor"), a public corporation created pursuant to AS 42.40, whose mailing address is P. O. Box 107500, Anchorage, Alaska 99510-7500, under those certain leases (the "Leases") dated February 3, 1997, and January 30, 2003, respectively, with **K&T ENTERPRISES** ("Assignor"), whose mailing address is P. O. Box 13409, Trapper Creek, Alaska 99683, of the real property described on the attached Exhibit A, hereby consents to the assignment of Leases by Assignor to **FIRST NATIONAL BANK ALASKA** ("Assignee"), whose mailing address is P. O. Box 100420, Anchorage, Alaska 99510-0420.

The purpose of this consent is to allow Assignor to secure a loan, the total proceeds of which are to be used for leasehold development and/or operations on the property described above.

1. Possession of Assignee. Assignee may take possession of the leased premises and vest in the interest of Assignor in the Leases upon the performance of the following conditions:

a. The payment to Lessor of any and all sums due to Lessor under the Leases, including but not limited to accrued unpaid rent.

b. The sending of a written notice to Lessor and Assignor of Assignee's intent to take possession of the premises and assume the Leases.

c. The curing of all defaults not remediable by the payment of money within an additional thirty (30) days of the date upon which such default was required to be cured by the Lessee under the terms of the Leases.

2. No Liability of Assignee Without Possession. Assignee shall have no liability or obligation under the Leases pursuant to this Consent unless and until it sends to Lessor the written notice described in paragraph 1(b) above. Nothing in this Consent nor in the taking of possession of the leased premises and assumption of the Leases by Assignee or a subsequent assignee shall relieve Assignor of any duty or liability to Lessor under the Leases.

3. Notice of Default and Opportunity to Cure. Upon any default of any of the terms of the Leases by Assignor, Lessor, in addition to notifying Assignor (the lessee) pursuant to the terms of the Leases, shall also notify Assignee of such default. Upon receipt of a written notice

of default, Assignee and/or Assignor shall have thirty (30) days, or the length of time as set forth in the Leases, whichever is longer, to cure the default. If the event of default cannot be cured by the payment of money to Lessor or a third party, the Leases will not be terminated if, Assignee and/or Assignor have promptly and diligently commenced to cure and complete the cure within sixty (60) days of notice.

4. Notice. For purposes of the notice set forth in paragraph 3, the address for Assignee is: P. O. Box 100420, Anchorage, Alaska 99510-0420 (ATTN: Joseph A. Gelione), unless Lessor is subsequently advised in writing of a more current address.

5. Insurance. Assignee may be named as additional insured as its interest shall appear on any and all insurance policies covering the Premises, or any improvements thereon, and as mortgagee or loss payee in any standard mortgagee endorsement or other loss payee endorsement thereto.

6. No Other Change. Except as otherwise expressly stated herein, nothing in this Consent to Assignment is intended to amend or alter any of the terms and conditions of the Leases or any amendments thereto previously executed by Lessor and Assignor, or any predecessor in interest to either of them, all of which terms and conditions remain in full force and effect. In the event of any conflict among any provisions of this Consent, the Leases, as amended, and any provisions of any security agreements, including assignments of lease and deeds of trust, the provisions of this Consent and the Leases, as amended, shall govern the rights of Lessor.

7. No Future Consent. Nothing is this Consent is to be construed as a consent by Lessor to any subsequent assignment.

LESSOR:

ALASKA RAILROAD CORPORATION

3/2/04
Date

By: _____
James W. Kubitz
Vice President, Real Estate

ASSIGNEE:

FIRST NATIONAL BANK ALASKA

3/3/04
Date

By: _____
Joseph A. Gelione, Vice President

ASSIGNOR:

K&T ENTERPRISES

03-16-04
Date

By: Leonard Kragness
Leonard Kragness, General Partner

3/16-/04
Date

By: _____
Samuel Turner, General Partner

STATE OF ALASKA)
) ss:
THIRD JUDICIAL DISTRICT)

THIS IS TO CERTIFY that on the 2nd day of March, 2004, before me, the undersigned, a Notary Public in and for the State of Alaska, duly commissioned and sworn, personally appeared JAMES W. KUBITZ, to me known to be the individual described in and who executed the within and foregoing CONSENT TO LIMITED ASSIGNMENT FOR SECURITY PURPOSES, and he acknowledged to me that he signed the same as VICE PRESIDENT, REAL ESTATE of **ALASKA RAILROAD CORPORATION**, in the name of and for and on behalf of said corporation, freely and voluntarily and by authority of its Board of Directors, for the uses and purposes therein mentioned.

GIVEN UNDER MY HAND and official seal the day and year last above written.

Kathleen A. Lewis
Notary Public in and for Alaska
My commission expires: 12-11-2004

KATHLEEN A. LEWIS NOTARY PUBLIC STATE OF ALASKA

STATE OF ALASKA)
) ss:
THIRD JUDICIAL DISTRICT)

THIS IS TO CERTIFY that on the 3rd day of March, 2004, before me, the undersigned, a Notary Public in and for the State of Alaska, duly commissioned and sworn, personally appeared JOSEPH A. GELIONE, to me known to be the individual described in and who executed the within and foregoing CONSENT TO LIMITED ASSIGNMENT FOR SECURITY PURPOSES, and he acknowledged to me that he signed the same as Vice President of **FIRST NATIONAL BANK ALASKA**, in the name of and for and on behalf of said corporation, freely and voluntarily and by authority of its Board of Directors, for the uses and purposes therein mentioned.

GIVEN UNDER MY HAND and official seal the day and year last above written.

JORGE MACPACO NOTARY PUBLIC STATE OF ALASKA

Notary Public in and for Alaska
My commission expires: 11-10-2006

STATE OF ALASKA)
) ss:
THIRD JUDICIAL DISTRICT)

THIS IS TO CERTIFY that on the 16th day of March, 2004, before me, the undersigned, a Notary Public in and for the State of Alaska, duly commissioned and sworn, personally appeared LEONARD KRAGNESS and SAMUEL TURNER, to me known to be the General Partners of K&T ENTERPRISES, the partnership described in and who executed the within and foregoing CONSENT TO LIMITED ASSIGNMENT FOR SECURITY PURPOSES, and they acknowledged to me that they signed the same, freely and voluntarily, for the uses and purposes therein mentioned.

GIVEN UNDER MY HAND and official seal the day and year last above written.

JORGE PACPACO NOTARY PUBLIC STATE OF ALASKA

Notary Public in and for Alaska
My commission expires: 11-10-2006

EXHIBIT "A"

LEGAL DESCRIPTION OF LEASED PROPERTY

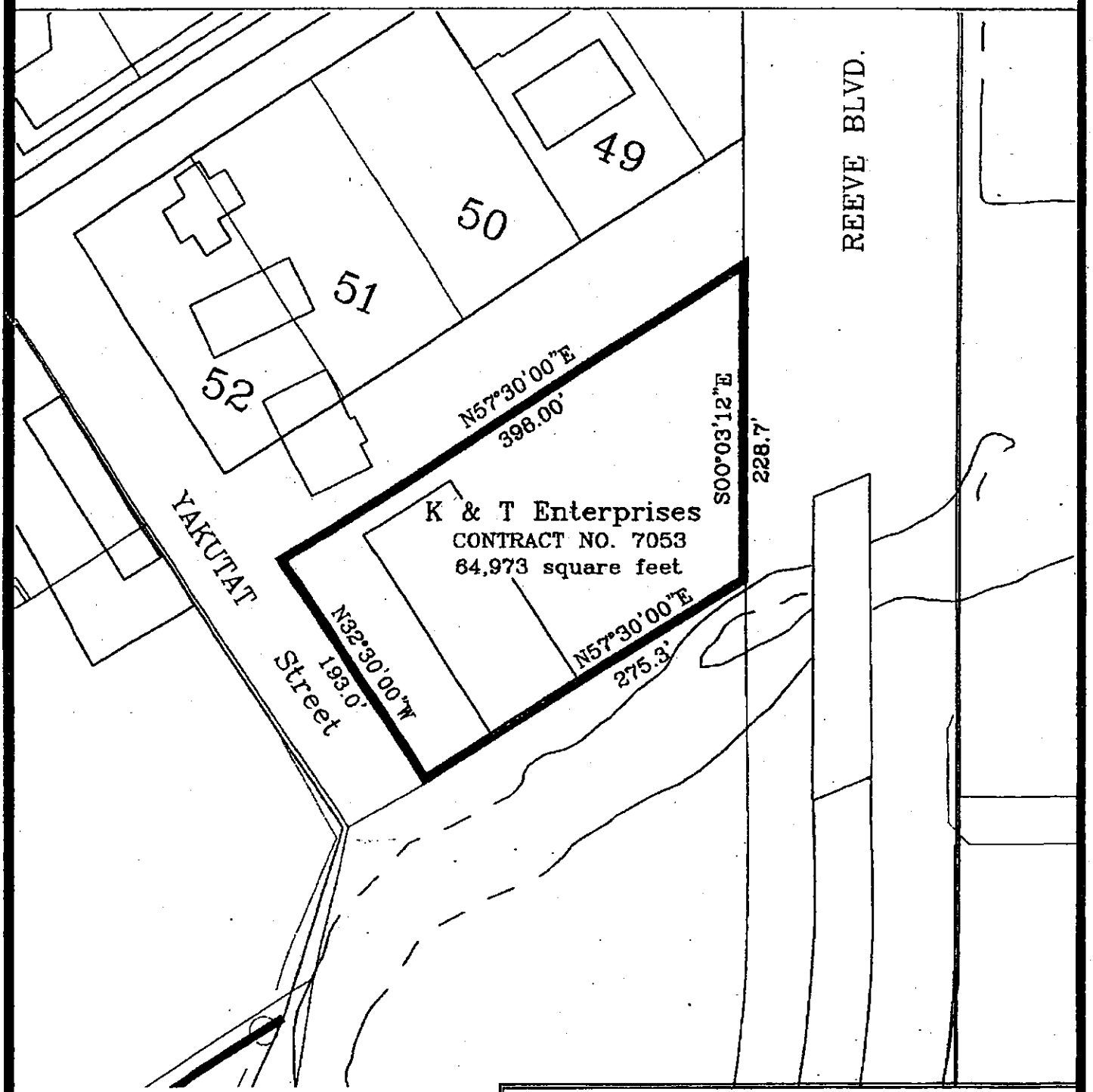
PARCEL NO. 1 (ARRC Contract No. 7053)
A parcel of land lying within the Alaska Railroad Terminal Reserve in the Anchorage Recording District, Third Judicial District, State of Alaska, described as follows:

Beginning at a City of Anchorage Brass Cap Monument at the intersection of Yakutat Street and North Post Road; from which another City of Anchorage Brass Cap Monument at the intersection of North Post Road and the East Boundary of the Alaska Railroad Anchorage Reserve bears N 57° 30' E, a distance of 971.81 feet; thence S 32° 30' E along the centerline of Yakutat Street a distance of 290.00 feet to the centerline of Railroad Avenue; thence continuing S 32° 30' E, a distance of 280.43 feet; thence N 57° 30' E, a distance of 33.00 feet to the Northwesterly corner of this Lease and the True Point of Beginning. Thence N 57° 30' 00" E, a distance of 398.00 feet; thence S 00° 03' 12" E, a distance of 228.7 feet; thence S 57° 30' 00" W, a distance of 275.3 feet; thence N 32° 30' 00" W, a distance of 193.0 feet to the True Point of Beginning. Said parcel contains 64,973 square feet, more or less, as shown on the attached drawing; all situated within the southwest one quarter (SW 1/4); Section 9, Township 13 North, Range 3 West, Seward Meridian.

PARCEL NO. 2 (ARRC Contract No. 7085)
A parcel of land located within the Alaska Railroad Anchorage Reserve situated in the Anchorage Recording District, Third Judicial District, State of Alaska and further described as follows:

A portion of Lots 53-57 of the ARRC Post Road Industrial Lease Lots beginning at the northeast corner of Lot 53; thence S 57° 27' 30" W a distance of 482 feet to the northwest corner of Lot 57; thence S 32° 30' 30" E a distance of 550 feet; thence S 57° 27' 30" W a distance of 392 feet; thence S 12° 28' 30" W a distance of 127.32 feet; thence S 32° 30' 30" E a distance of 460 feet to the True Point of Beginning.

K & T Enterprises
Contract No. 7053



Alaska Railroad Corporation

K & T Enterprises
Contract No. 7053
Anchorage

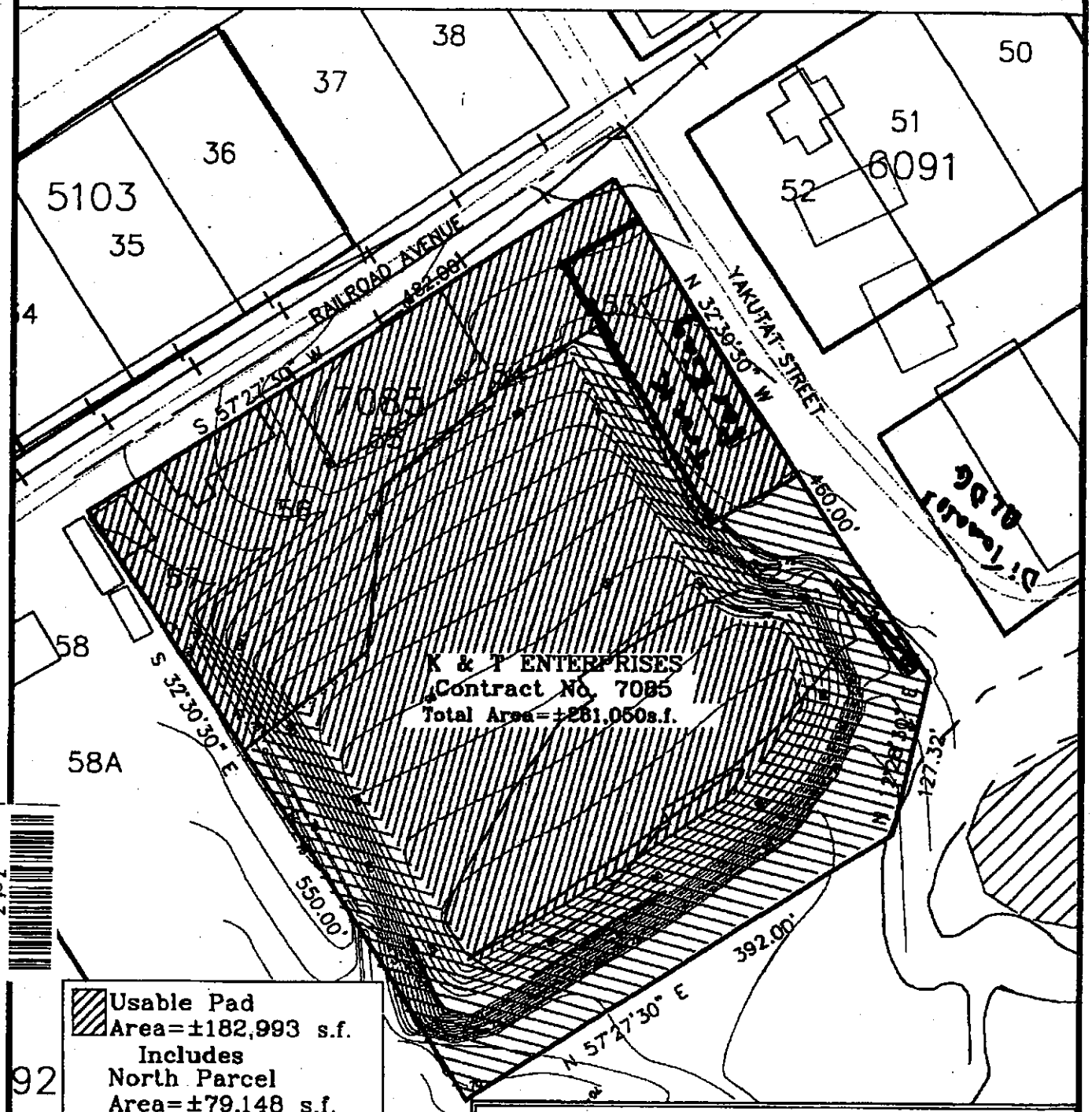
Date: 5/4/98	Scale: 1"=100'
Dwg. By: JMF	Filename: 7053.dwg

6 of 7
2004-093890-0

K & T Enterprises

Contract No. 7085

Total Area = Approx. 261,050s.f.



Usable Pad
Area=±182,993 s.f.
Includes
North Parcel
Area=±79,148 s.f.

Unusable
Area=±78,057 s.f.

Total Area=
±261,050s.f.

Alaska Railroad Corporation

K&T Enterprises

Contract No. 7085

Anchorage Reserve

Date: 10/30/01	Scale: 1"=100'
Dwg. By: mdg	Filename: r:\:..\leases\7085-2-L

2004-093890-0
7 of 7

2004-093892-0
Recording Dist: 301 - Anchorage
12/20/2004 1:32 PM Pages: 1 of 2
ALASKA

CCC

ASSIGNMENT OF LEASE FOR SECURITY PURPOSES

04-00745 B8

(Lesee's Interest)

K & T Enterprises, herein after called "Assignor", assigns and transfers to First National Bank Alaska, a national banking association, hereinafter called "Assignee", all of its right, title and interest under the lease agreements dated February 3, 1997 for contract No. 7053 and January 30, 2003 for contract No. 7085, between The Alaska Railroad Corporation as Lessor and K & T Enterprises as Lessee, which covers the following described real property situated in the Anchorage Recording District, Third Judicial District, State of Alaska.

Contract No. 7053:
A parcel of land lying within the Alaska Railroad Terminal Reserve in the Anchorage Recording District, Third Judicial District, State of Alaska, described as follows:

Beginning at a City of Anchorage brass cap monument at the intersection of Yakutat Street and North Post Road; from which another City of Anchorage brass cap monument at the intersection of North Post Road and the east boundary of the Alaska Railroad Terminal Reserve bears N 57 degrees 30'E a distance of 971.81 feet; thence S 32 degrees 30'E along the centerline of Yakutat Street, a distance of 290.00 feet to the centerline of Railroad Avenue; thence continuing S 32 degrees 30'E a distance of 280.43 feet; thence N 57 degrees 30' E a distance of 33.00 feet to the southwesterly corner of this lease and the True Point of Beginning; thence N 57 degrees 30'E a distance of 398.00 feet; thence S 0 degrees 01'45"E along said westerly line a distance of 212.75 feet; thence S 53 degrees 30'W a distance of 284.83 feet; thence N 32 degrees 30'W a distance of 199.57 feet to the true point of beginning, all situated in the Southwest one-quarter (SW 1/4), in Section 9, Township 13 North, Range 3 West, Seward Meridian.

Contract No. 7085:
A parcel of land located within the Alaska Railroad Anchorage Reserve situated in the Anchorage Recording District, Third Judicial District, State of Alaska and further described as follows:

A portion on Lots 53-57 of the ARRC Post Road Industrial Lease Lots beginning at the northeast corner of Lot 53; thence S 57 degrees 27' 30" W a distance of 482 feet to the northwest corner of Lot 57; thence S 32 degrees 30'30"E a distance of 550 feet; thence S 57 degrees 27' 30" W a distance of 392 feet; thence S 12 degrees 28' 30" W a distance of 127.32 feet; thence S 32 degrees 30' 30" E a distance of 460 feet to the True Point of Beginning.

This Assignment is executed as security for repayment of $1,413,000.00 plus interest evidenced by a promissory note in said amount of even date herewith executed by Assignor in favor of Assignee. Assignor agrees to execute any further documents necessary or appropriate to effectuate the purposes of this Assignment.

DATED: December 17, 2004

ASSIGNOR: K & T Enterprises

BY: Leonard W Kragness
Leonard W Kragness

TITLE: Partner of K & T Enterprises

BY: Samuel C Turner
Samuel C Turner

TITLE: Partner of K & T Enterprises

STATE OF Alaska)

Third JUDICIAL DISTRICT)

THIS IS TO CERTIFY that on this 17th day of December, 2004, before me, the undersigned, a Notary Public in and for the State of Alaska, duly commissioned and sworn, personally appeared Leonard W Kragness and Samuel C Turner, known to me and to me known to be the Partners of K & T Enterprises, and he/she executed the same as his or her voluntary act and deed, for the uses and purposes therein mentioned.

WITNESS my hand and official seal the day and year in this certificate first written above.

OFFICIAL SEAL
State of Alaska
BERNICE BAKER
NOTARY PUBLIC

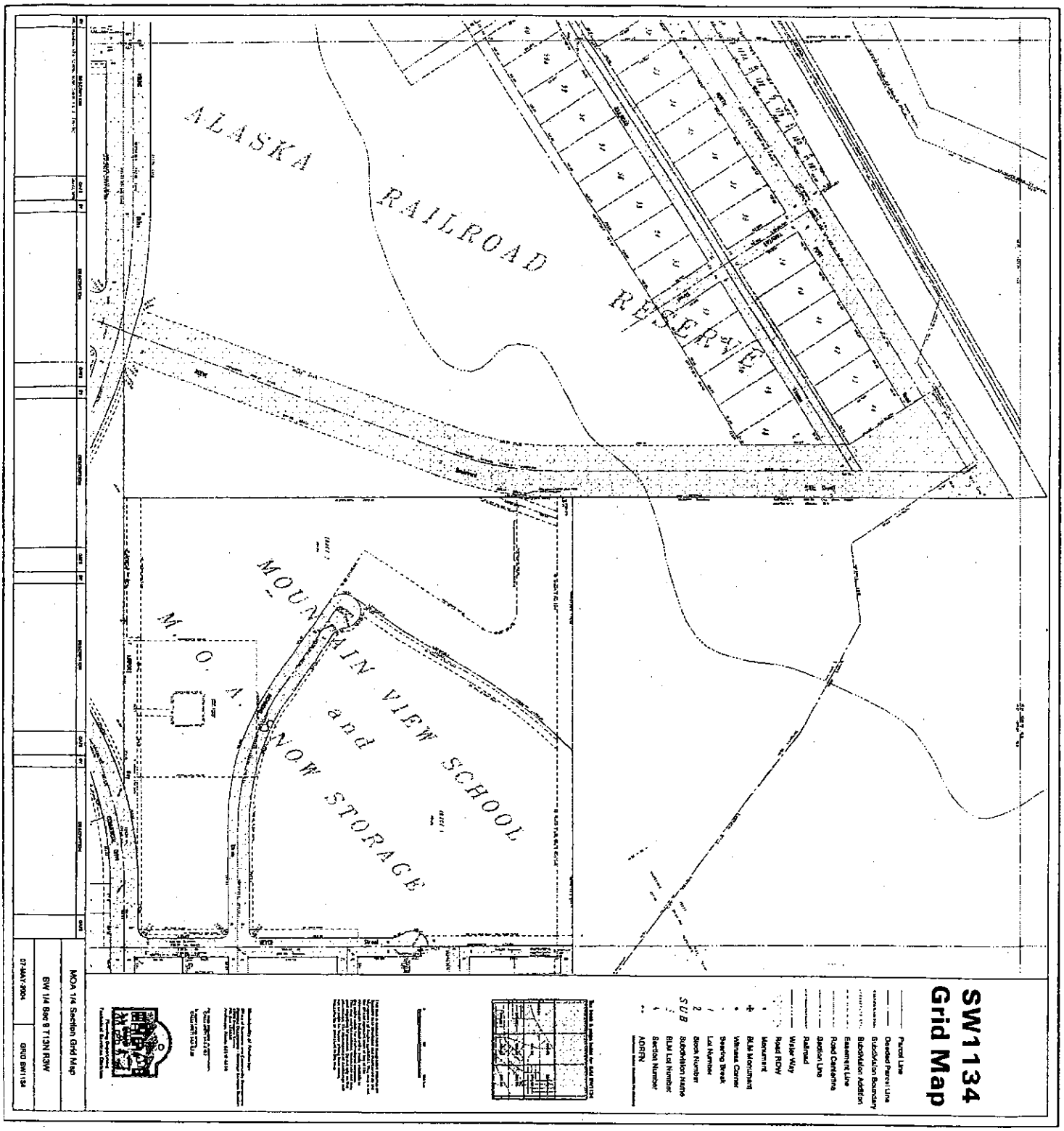
Notary Public in and for: alaska

My commission Expires: 6-1-05

Return To:
First National Bank
101 W 36th Ave.
Anchorage, AK 99503

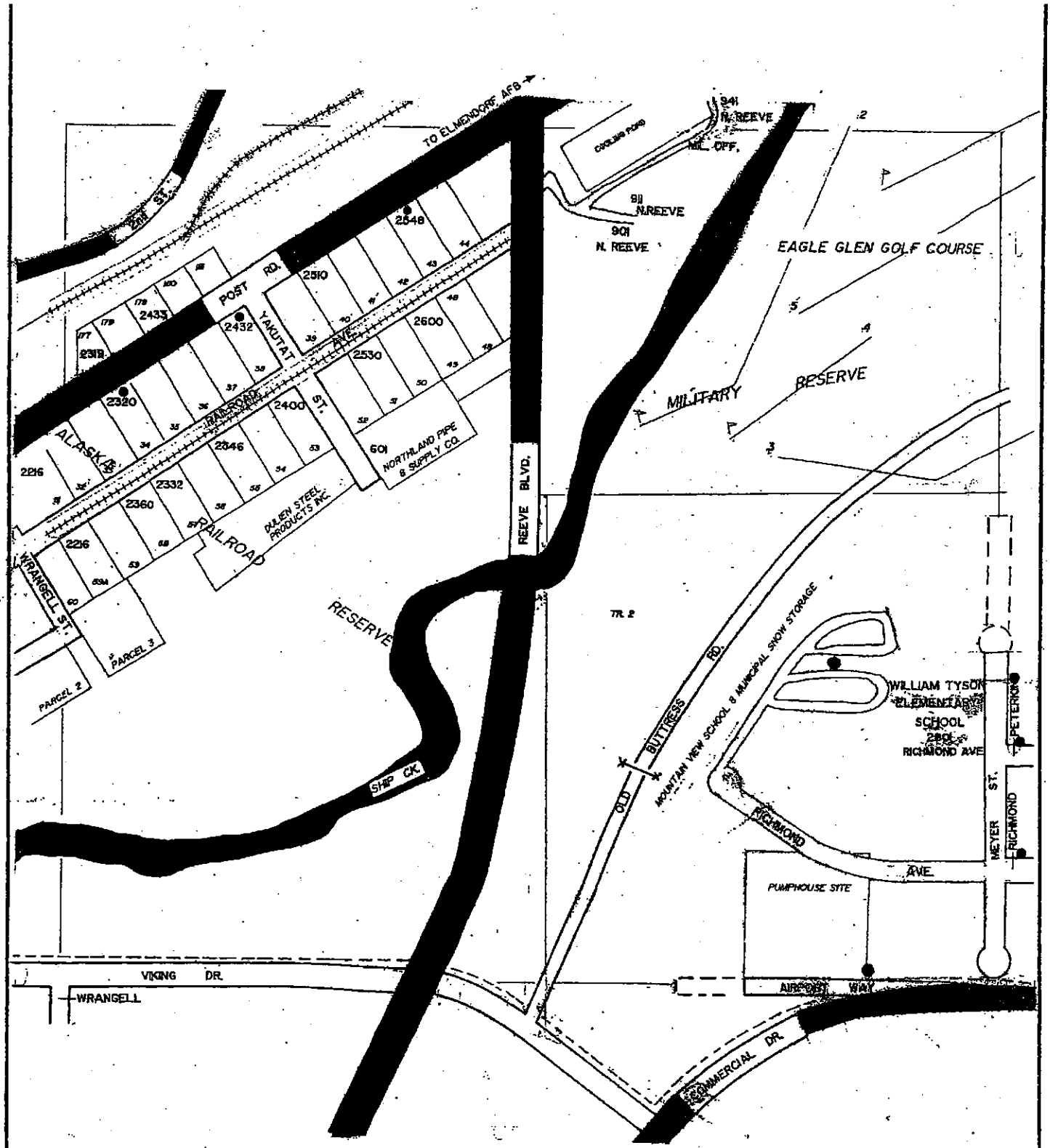
asgleas.doc (REV 1/99)

2 of 2
2004-093892-0



COMPLIMENTS OF FIDELITY TITLE

This plat is given to assist in locating the premises only and the company assumes no liability for variation, if any, in dimensions and location.



COMPLIMENTS OF FIDELITY TITLE

This plat is given to assist in locating the premises only and the company assumes no liability for variation, if any, in dimensions and location.

GR. 1134

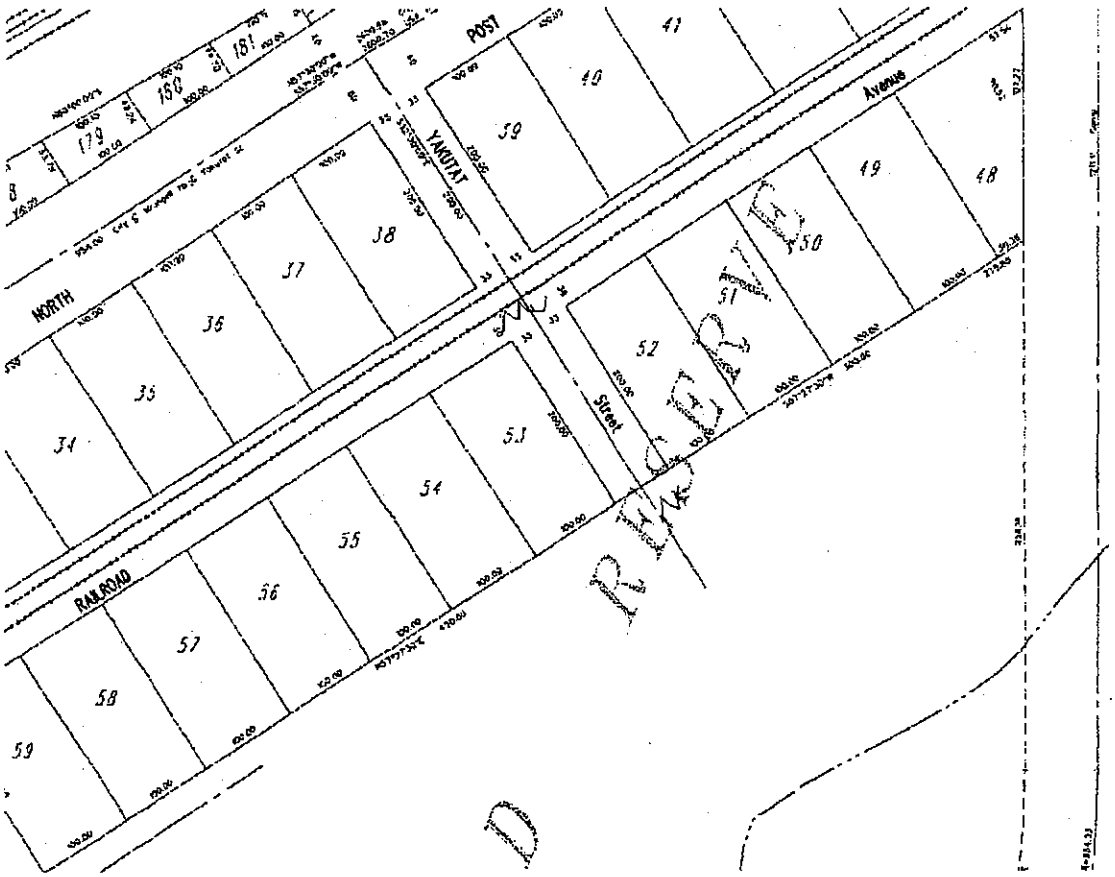
SW 1/4 SEC. 9, T13N R3W

SEE OVERVIEW MAP "B"

43
52 54
67

53

COPYRIGHT 2001 JMR



Municipality of Anchorage Grid Map SW1134

COMPLIMENTS OF FIDELITY TITLE

This plat is given to assist in locating the premises only and the company assumes no liability for variation, if any, in dimensions and location.

2004-093888-0
Recording Dist: 301 - Anchorage
12/20/2004 1:30 PM Pages: 1 of 2

A L A S K A

84-00745BB

SUBORDINATION AGREEMENT

CCC

This SUBORDINATION AGREEMENT (this "Agreement") dated the 15th day of December, 2004 between First National Bank Alaska whose address is PO Box 100720, Anchorage, AK 99503 ("Lender"), and DiTomaso, Inc. ("Tenant").

RECITALS:

A. Tenant has entered into a Lease Agreement effective November 1, 1999 (the "Lease") with K & T Enterprises ("Landlord"), covering certain premises more fully described in the Lease (the "Premises"), which Premises are a part of that the real property located in 000 Yakutat St, Anchorage,AK (the "Property");

Those certain premises located to the West of Yakutat Street, South of Railroad Avenue, and North of Ship Creek consisting of a certain portion of the lot located on the West Side of Yakutat Street. Said Premises are containing approximately 30,000 square feet more or less of Parking Space. The premises is all the land east of the Rock Drainage Ditch and West of Yakutat Street (located between Yakutat Street and the rock drainage ditch between Railroad Avenue and Ship Creek), in the Anchorage Recording District, Third Judicial District, State of Alaska; described further as:

A parcel of land located within the Alaska Railroad Anchorage Reserve situated in the Anchorage Recording District, Third Judicial District, State of Alaska and further described as follows:

A portion on Lots 53-57 of the ARRC Post Road Industrial Lease Lots beginning at the northeast corner of Lot 53; thence S 57 degrees 27' 30" W a distance of 482 feet to the northwest corner of Lot 57; thence S 32 degrees 30'30"E a distance of 550 feet; thence S 57 degrees 27' 30" W a distance of 392 feet; thence S 12 degrees 28' 30" W a distance of 127.32 feet; thence S 32 degrees 30'30" E a distance of 460 feet to the True Point of Beginning.

B. Lender has made a loan to Landlord in the sum of $ 1,413,000.00 secured by a Deed of Trust recorded 12/20/04 at Serial Number 2004-093883-0, Assignment of Rents recorded 12/20/04 at Serial Number 2004-093886-0 and Security Agreement on the Landlord's interest in the Property (the "Security Instrument"), recorded inthe official records of Anchorage Recording District (the "Public Records"); and

C. Tenant has agreed to the subordination of the Lease to the Security Instrument.

NOW, THEREFORE, in consideration of the mutual promises, covenants and agreements herein contained, the parties hereto, intending to be legally bound hereby, promise, covenant and agree as follows:

1. The Lease and all estates, rights, options, liens and charges therein contained or created under the Lease are and shall be subject and subordinate to the lien and effect of the Security Instrument insofar as it affects the real and personal property of which the Premises form a part, and to all renewals, modifications, consolidations, replacements and extensions thereof, and to all advances made or to be made thereunder, to the full extent of amounts secured thereby and interest thereon.

2. This Agreement shall inure to the benefit of and be binding upon the parties hereto and their successors and assigns.

3. This Agreement shall be governed by and construed in accordance with the laws of the jurisdiction in which the Property is located.

4. If, the Security Instrument is a deed of trust, then, this Agreement is entered into by one or more trustees of Lender in his or her capacity as Trustee and not individually. Tenant agrees that:

(a) neither the trustees, nor the officers, employees, agents or shareholders of the Lender shall be personally liable hereunder; and

(b) Tenant and all others shall look solely to the interest of the Lender in the Property for the payment of any claim hereunder or for the performance of any obligation, agreement, contribution or term to be performed or observed by it hereunder or under the Security Instrument of any other agreement or document securing or collateral to the Security Instrument.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement by their duly

authorized officers as of the date and year first above written.

TENANT: DiTomaso, Inc.

By:

Name: Jeffrey Keim

Title: Sec/Treas.

ROSEMARY SANCHEZ NOTARY PUBLIC STATE OF ALASKA

STATE OF ALASKA)

THIRD JUDICIAL DISTRICT)

THIS IS TO CERTIFY that on this 15th day of December, 2004, before me, the undersigned, a Notary Public in and for the State of Alaska, duly commissioned and sworn, personally appeared Jeffrey Keim known to me and to me known to be the Sec/Treasurer of DiTomaso, Inc. and he/she executed the same as his or her voluntary act and deed, for the uses and purposes therein mentioned.

WITNESS my hand and official seal the day and year in this certificate first written above.

Rosemary Sanchez

Notary Public in and for: Alaska

My commission expires: 10/27/05

Return To:
First National Bank Alaska
P.O. Box 200588
Anchorage, AK 99520

LENDER: First National Bank Alaska

By:

Name: Joseph Gelione

Title: Vice President

STATE OF ALASKA)

THIRD JUDICIAL DISTRICT)

THIS IS TO CERTIFY that on this 15TH day of DECEMBER, 2004, before me, the undersigned, a Notary Public in and for the State of Alaska, duly commissioned and sworn, personally appeared JOSEPH GELIONE known to me and to me known to be the VICE PRESIDENT of First National Bank Alaska and he/she executed the same as his or her voluntary act and deed, for the uses and purposes therein mentioned.

WITNESS my hand and official seal the day and year in this certificate first written above.

Frances E Sumulong

Notary Public in and for: ALASKA

My commission expires: 05-17-08

FRANCES E. SUMULONG NOTARY PUBLIC My Commission Expires May 17, 2008 STATE OF ALASKA

2004-093889-0
Recording Dist: 301 - Anchorage
12/20/2004 1:31 PM Pages: 1 of 2

A L A S K A

04-00745BB

SUBORDINATION AGREEMENT

C CC

This SUBORDINATION AGREEMENT (this "Agreement") dated the 15th day of December, 2004 between First National Bank Alaska whose address is PO Box 100720, Anchorage, AK 99503 ("Lender"), and Bob Benson, dba Bob Benson Trucking Co. ("Tenant").

RECITALS:

A. Tenant has entered into a Lease Agreement effective February 8, 2001 (the "Lease") with K & T Enterprises ("Landlord"), covering certain premises more fully described in the Lease (the "Premises"), which Premises are a part of that the real property located in 2400 Railroad Avenue, Anchorage, AK (the "Property");

Those certain premises located at 2400 Railroad Avenue consisting of an improved lot containing 77,034 square feet of land, (minus a strip of land containing approximately 15,000 square feed of the subject lots located directly East of the elevated pad and West of Yakutat Street) with a steel warehouse/office building containing approximately 10,000 square feet located on the lot, and as improved lot containing 103,000 square feet, containing some use restrictions as described in Super Fund Site Management publication applying to this lot, (ARRC Lease No. 7776), also located at 2400 Railroad Avenue contiguous to the 77,035 square foot lot, all situated in the City of Anchorage, State of Alaska; described further as:

A parcel of land located within the Alaska Railroad Anchorage Reserve situated in the Anchorage Recording District, Third Judicial District, State of Alaska and further described as follows:

A portion on Lots 53-57 of the ARRC Post Road Industrial Lease Lots beginning at the northeast corner of Lot 53; thence S 57 degrees 27' 30" W a distance of 482 feet to the northwest corner of Lot 57; thence S 32 degrees 30'30"E a distance of 550 feet; thence S 57 degrees 27' 30" W a distance of 392 feet; thence S 12 degrees 28' 30" W a distance of 127.32 feet; thence S 32 degrees 30' 30" E a distance of 460 feet to the True Point of Beginning.

B. Lender has made a loan to Landlord in the sum of $ 1,413,000.00 secured by a Deed of Trust recorded 12/20/04 at Serial Number 2004-093883-0, Assignment of Rents recorded 12/20/04 at Serial Number 2004-093886-0 and Security Agreement on the Landlord's interest in the Property (the "Security Instrument"), recorded in the official records of Anchorage Recording District (the "Public Records"); and

C. Tenant has agreed to the subordination of the Lease to the Security Instrument.

NOW, THEREFORE, in consideration of the mutual promises, covenants and agreements herein contained, the parties hereto, intending to be legallybound hereby, promise, covenant and agree as follows:

1. The Lease and all estates, rights, options, liens and charges therein contained or created under the Lease are and shall be subject and subordinate to the lien and effect of the Security Instrument insofar as it affects the real and personal property of which the Premises form a part, and to all renewals, modifications, consolidations, replacements and extensions thereof, and to all advances made or to be made thereunder, to the full extent of amounts secured thereby and interest thereon.

2. This Agreement shall inure to the benefit of and be binding upon the parties hereto and their successors and assigns.

3. This Agreement shall be governed by and construed in accordance with the laws of the jurisdiction in which the Property is located.

4. If, the Security Instrument is a deed of trust, then, this Agreement is entered into by one or more trustees of Lender in his or her capacity as Trustee and not individually. Tenant agrees that:

(a) neither the trustees, nor the officers, employees, agents or shareholders of the Lender shall be personally liable hereunder; and

(b) Tenant and all others shall look solely to the interest of the Lender in the Property for the payment of any claim hereunder or for the performance of any obligation, agreement, contribution or term to be performed or observed by it hereunder or under the Security Instrument of any other agreement or document securing or collateral to the Security Instrument.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement by their duly authorized officers as of the date and year first above written.

ROSEMARY SANCHEZ NOTARY PUBLIC STATE OF ALASKA

TENANT: Bob Benson, dba Bob Benson Trucking Co.

By: _____

Name: Bob Benson
Title: Sole Proprietor

STATE OF ALASKA)

THIRD JUDICIAL DISTRICT)

THIS IS TO CERTIFY that on this 15th day of December, 2004, before me, the undersigned, a Notary Public in and for the State of Alaska, duly commissioned and sworn, personally appeared Bob Benson known to me and to me known to be the Sole Proprietor of BobBenson Trucking Co. and he/she executed the same as his or her voluntary act and deed, for the uses and purposes therein mentioned.

WITNESS my hand and official seal the day and year in this certificate first written above.

Rosemary Sanchez

Notary Public in and for: Alaska

My commission expires: 10/27/05

Return To:
First National Bank Alaska
P.O. Box 200588
Anchorage AK 99520

LENDER: First National Bank Alaska

By: _____

Name: Joseph Beliore
Title: Vice President

STATE OF ALASKA)

THIRD JUDICIAL DISTRICT)

THIS IS TO CERTIFY that on this 15TH day of DECEMBER, 2004, before me, the undersigned, a Notary Public in and for the State of Alaska, duly commissioned and sworn, personally appeared JOSEPH BELIONE known to me and to me known to be the VICE PRESIDENT of First National Bank Alaska and he/she executed the same as his or her voluntary act and deed, for the uses and purposes therein mentioned.

WITNESS my hand and official seal the day and year in this certificate first written above.

Frances E. Sumulong

Notary Public in and for: ALASKA

My commission expires: 05-17-08

FRANCES E. SUMULONG NOTARY PUBLIC STATE OF ALASKA My Commission Expires May 17, 2008

ATTACHMENT 10

Groundwater Monitoring Report July 2004

(provided electronically on CDROM)

[This page intentionally left blank]

26.5

ALTA GEOSCIENCES, Inc.

Environmental & Geotechnical Solutions

September 9, 2004

Mr. Kevin Oates
US Environmental Protection Agency-Region 10
Alaska Operations Office
Room 537, Federal Building
222 W. 7th Ave., #19
Anchorage, AK 99513-7588

Re: Bi-Annual Groundwater Monitoring Report (July 2004 Sampling Event)
Standard Steel and Metals Salvage Yard Superfund Site
Anchorage, Alaska

Dear Mr. Cora:

Attached is the Bi-Annual Groundwater Monitoring Report (July 2004 Sampling Event) for the Standard Steel and Metals Salvage Yard Superfund Site in Anchorage, Alaska. This is submitted on behalf of the Standard Steel RD/RA PRP Group, consisting of (listed alphabetically): Chugach Electric Association, Inc.; J.C. Penny Company, Inc.; Montgomery Ward and Co.; Sears, Roebuck and Co., Inc; and Viacom Inc. (successor to Westinghouse Electric Corporation); This report is submitted in accordance with the Consent Decree for Remedial Design/Remedial Action at this Site.

If you have any questions, please call at your earliest convenience.

Sincerely,
***ALTA* Geosciences Inc.**

Alex Tula, R.G.
Project Coordinator

Enclosure: Annual Groundwater Monitoring Report (August 2002)

Cc (electronic version only via email):
Mr. David Duvall; Viacom, Inc.
Mr. Rick Smith; Viacom, Inc.
Paul Beveridge, Esq.; Heller, Ehrman, White & Mcauliffe
Mary Schulz, Esq.; Sears, Roebuck and Co.
George R. Lyle, Esq.; Guess & Rudd
Joseph Reece, Esq.; Davis Wright Tremaine
Mr. Louis Howard, Alaska Department of Environmental Conservation

USEPA SF
1249060

22833 Bothell-Everett Hwy. Suite 102 #1168
Bothell, Washington 98021-9365
Phone (425) 485-1053
Fax (425) 984-0114

GWTransLtr090904.doc

ALTA GEOSCIENCES, Inc.
Environmental & Geotechnical Solutions

BI-ANNUAL GROUNDWATER MONITORING REPORT (JULY 2004 EVENT)

Standard Steel and Metals Salvage Yard
Superfund Site
Anchorage, Alaska

AUGUST 2004

22833 Bothell-Everett Hwy. Suite 102-1168
Bothell, Washington 98021-9365
Phone (425) 485-1053
Fax (425) 984-0114

ALTA GEOSCIENCES, Inc.

Environmental & Geotechnical Solutions

BI-ANNUAL GROUNDWATER MONITORING REPORT (JULY 2004 EVENT)

Standard Steel and Metals Salvage Yard
Superfund Site
Anchorage, Alaska

AUGUST 2004

22833 Bothell-Everett Hwy. Suite 102-1168 Phone (425) 485-1053
Bothell, Washington 98021-9365 Fax (425) 984-0114

TABLE OF CONTENTS

Section		Page
1.0	INTRODUCTION	1-1
1.1	Purpose And Scope	1-1
1.2	Organization Of The Report	1-1
2.0	SITE BACKGROUND AND PHYSICAL SETTING	2-1
2.1	Site Location And Description	2-1
2.2	Background	2-1
3.0	JULY 2004 GROUNDWATER SAMPLING AND ANALYSIS	3-1
3.1	Groundwater Monitoring Levels	3-1
3.2	Sampling Procedures	3-1
3.3	Analytical Procedures	3-2
3.4	Analytical Results	3-2
3.5	Quality Assurance/Quality Control	3-3
4.0	CONCLUSIONS	4-1
5.0	REFERENCES	5-1

LIST OF TABLES

Table 3-1 Selected Groundwater Levels
Table 3-2 Groundwater Field Parameters
Table 3-3 July 2004 VOC Testing Results

LIST OF FIGURES

Figure 2-1 Site Location Map
Figure 3-1 Monitoring Well Locations and Site Topography

Appendices

APPENDIX A DATA QUALITY ASSURANCE REVIEW
APPENDIX B LABORATORY ANALYSIS CERTIFICATES

1.0 INTRODUCTION

1.1 PURPOSE AND SCOPE

This report presents the results of the July 2004 groundwater monitoring event for the Standard Steel & Metals Salvage Yard Superfund Site (Site) in Anchorage, Alaska. It has been prepared by ALTA Geosciences, Inc. of Bothell, WA. for the Standard Steel RD/RA PRP Group, consisting of (listed alphabetically): Chugach Electric Association, Inc.; J.C. Penny Company, Inc.; Montgomery Ward and Co.; and Sears, Roebuck and Co., Inc., and Viacom, Inc., (formerly Westinghouse Electric Corporation and CBS Corp.)

The purpose of this document is to describe the activities associated with groundwater sampling and analysis performed at the Site in July 2004. This round of groundwater sampling and analysis is the fifth to occur following completion of the Remedial Action (RA) Construction in 1999 and is required by the Record of Decision (ROD) for the Site.

Supporting documents to this Report include the November 1998 Work Plan, Field Sampling Plan, the Quality Assurance Project Plan, and the Health and Safety Plan (ALTA, 1999). Previous groundwater monitoring work was completed by Woodward Clyde Consultants in April 1993 and ALTA Geosciences in 1998 to the present. The results of the Woodward Clyde Consultants work were summarized in the November 1998 Work Plan and the ALTA monitoring work has been summarized in individual Groundwater Monitoring Reports submitted to EPA following each event.

Staff from ALTA Geosciences, Inc. performed field work for this event on July 13th through 15th, 2004. Groundwater elevations and samples were taken in five wells. Analytical testing was performed on these samples for PCBs, Lead, and volatile organic compounds by SGS/CT&E Environmental Services of Anchorage, Alaska. Field Sampling, data analysis, and production of this report were under the direct supervision of an ALTA Geosciences, Inc. Civil Engineer and Engineering Geologist.

1.2 ORGANIZATION OF REPORT

This report presents Site information and background data in sufficient detail to identify the project and place the monitoring work in perspective. Groundwater elevation data and analytical data for PCBs from prior work has been retained in summary tables in this report, and updated with the July 2004 data developed by ALTA Geosciences, Inc. The Appendices present copies of field and analytical data, as well as a quality control analysis of the analytical data.

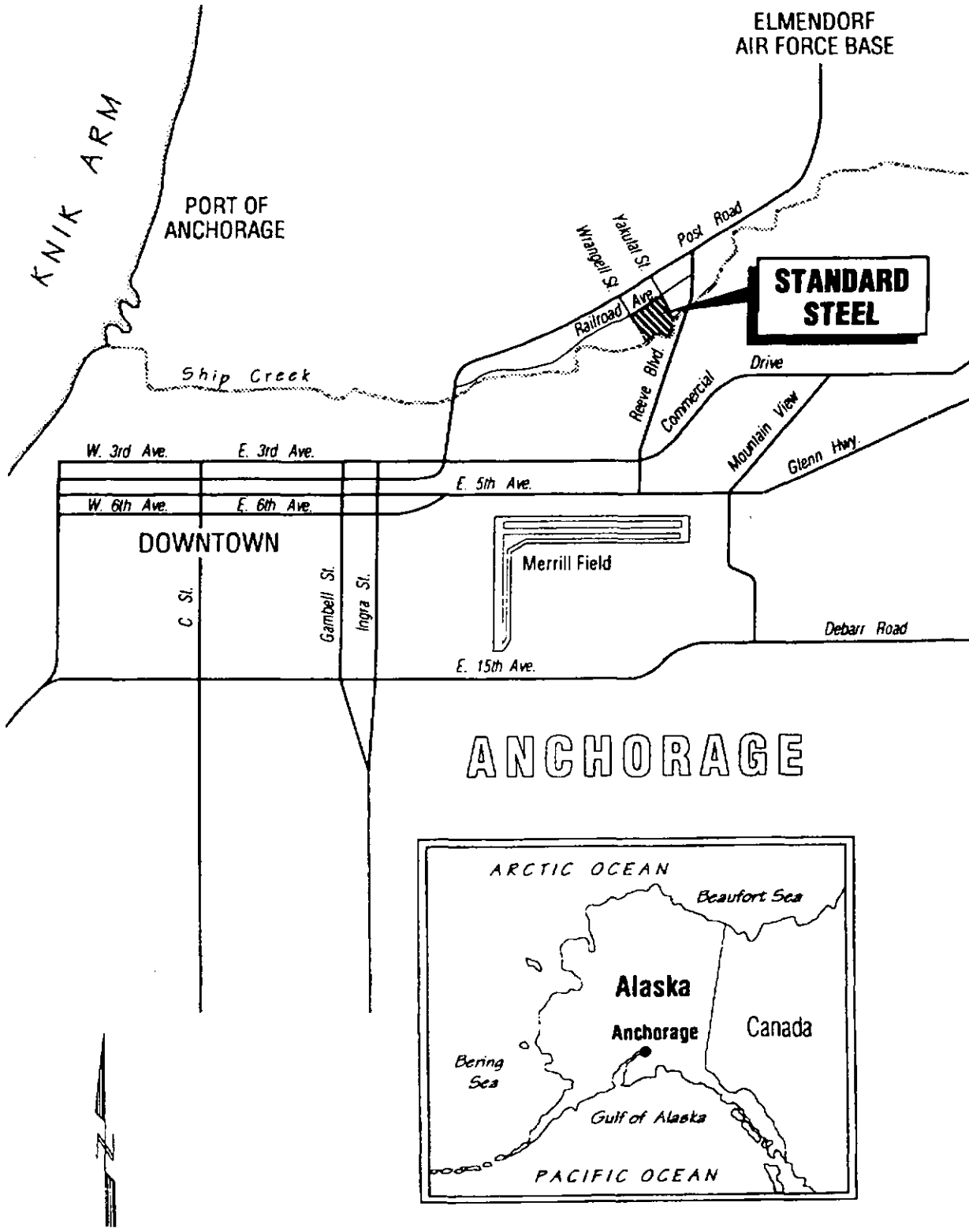
2.0
SITE BACKGROUND AND PHYSICAL SETTING

2.1 SITE LOCATION AND DESCRIPTION

The Standard Steel and Metals Salvage Yard (Site) is approximately 6.2 acres in size, and is located in the northern portion of Anchorage, Alaska, near the intersections of Railroad Avenue and Yakutat Street (see Figure 2-1, Site Location Map). Surrounding land use is primarily industrial. A warehouse is located on the north side of the Site, on the east there are warehouses, and light industrial facilities. To the west there is a steel fabrication facility. Ship Creek bounds the south side of the Site. During previous Superfund activities (see Work Plan, Section 2.3) the Site was cleared of most scrap metal and debris formerly present, and as of 2004 it was primarily covered with gravel and soil fill. Native cottonwood trees and small brush are present along Ship Creek in the southern portion of the Site. A steel fabrication contractor has sub-leased the southwest portion of the Site and is currently storing equipment in that area. His operations blocked access to one well and damaged another well (see discussion in the conclusions section).

2.2 BACKGROUND

Site regulatory history, geology, and groundwater chemistry have been summarized in the Groundwater Monitoring Plan (ALTA 1998).



Standard Steel & Metals Salvage Yard Superfund Site
Groundwater Monitoring Report

SITE LOCATION MAP

FIGURE 2 -1

ALTA Geosciences, Inc.

3.0
JULY 2004 GROUNDWATER SAMPLING AND ANALYSIS

The approved Work Plan calls for sampling and analysis of wells MW13, MW14, MW15, MW22, and MW24. For the present monitoring event, all these wells were sampled for PCBs, Lead, and volatile organic compounds.

3.1 GROUNDWATER MONITORING LEVELS – JULY 2004

Groundwater level measurements were made in each monitoring well, MW13, MW14, MW15, MW22, and MW24. A well sounder was used to determine water depth to the nearest 0.01 foot relative to the top of the well casings. Inspection of the tape after use at each well did not reveal the presence of floating oil. The July 14, 2004 water depths and elevations (MSL) are shown in Table 3-1, along with selected, representative historic data from 1993,1998, 1999, 2000, 2001, and 2002. The July 2004 measurements are generally within the range of values observed in earlier monitoring, and very close to the levels measured in August 2002. The top of casing elevation for MW-22 and MW-14 will have to be re-surveyed in the future; at present this new elevation is estimated.

3.2 SAMPLING PROCEDURES

Groundwater samples were collected from 5 Site monitoring wells on July 14, 2004 for analytical laboratory testing. To obtain a sample representative of the surrounding formation, each well was purged and sampled using a low-flow technique to reduce interference's associated with turbidity.

Sampling

Sampling equipment consisted of a portable 12 Volt submersible pump (ES-40), discharging through Teflon-lined Tygon tubing to the surface. The tubing at the surface was connected to a flow meter to regulate flow at 1 to 3 L/min. Water analyses during sampling were made using an YSI-55 Dissolved Oxygen meter, Oakton pH5, pH meter, Orbeco-Hellige Model 966 Turbidimeter, ORP Testr, and Oakton WD-35607 conductivity and temperature meter. All meters were calibrated the day of use.

Wells were purged at a rate of 1 to 3 liters per minute with the submersible pump set above the screened interval and samples were collected at a flow of approximately 1 liter per minute. Prior to groundwater sampling, each well was purged until pH, conductivity and temperature readings stabilized within 10 percent, with a low turbidity, where possible. The samples were dispensed directly into laboratory provided containers. Each sample was appropriately labeled and stored on ice at approximately 4°C from the time of collection through the time of delivery to the laboratory, and chain of custody procedures were followed to ensure sample integrity.

Decontamination Procedures

All sampling equipment was decontaminated between each monitoring well location to avoid cross-contamination. The entire pump and hose assembly was immersed in an alconox detergent solution and allowed to circulate for at least 2 minutes. The assembly was then immersed in fresh tap water and run for another 2 minutes.

Purge Water Storage

All purge water was stored in 55 gallon open-top drums at the site. The drums were closed with sealed lids, bolted, and have been stored in a locked cargo container on the project site, pending testing results and approval to dispose of the water.

Documentation

Record keeping documentation for the samples included the use of the following:

- Fluid level measurement form; to record depth to fluid in each well.
- Groundwater sampling form; to record method of collection, purge volume, parameters pH, cond, temp., turbidity and general observations.
- Labels to identify individual samples; with well #, project name, date, time, samplers name and type of preservation (if any).
- Chain-of-custody record sheets; to document possession and transfer of samples and specify analysis requested.
- Field report form; Describing general site conditions, well integrity and condition of the asphalt cap.

Field records are included in Table 3-2 below.

Table 3-2
GROUNDWATER FIELD PARAMETERS

Field Parameters	MW13	MW14	MW15	MW22	MW24
Temperature (°C)	6.6	7.9	7.5	8.3	7.3
pH	8.18	8.95	8.83	7.35	8.26
Conductivity (uS)	98.9	170.3	446	116.8	128.3
Turbidity (NTU)	<5	<5	<5	<5	<5
Dissolved O_2 (mg/L)	0.31	N/M	0.39	0.41	1.18
ORP	17	15	44	-12	70

3.3 ANALYTICAL PROCEDURES

Five environmental samples were collected from the five wells, plus one duplicate and one field rinsate blank. Additional sample volume was collected from one of the wells so that matrix spike (MS) and matrix spike duplicate (MSD) analyses could be run on site samples. All nine samples were analyzed by SGS/CT&E Environmental Services, Inc. of Anchorage, Alaska. All samples were analyzed by EPA Method 8082 for PCBs, Method 6020 for Lead, and Method 8260B for Volatile Organic Compounds. Results for PCBs were reported for seven Aroclors.

3.4 ANALYTICAL RESULTS

Laboratory analysis certificates are contained in Appendix B. Testing results indicate no detectable values for all PCB aroclors (PQL of 0.1 ug/L). Lead testing results were non-detect for all samples (PQL of 2.0 ug/L). These results are well below the minimum reporting level for Lead (5.0 ug/L) and PCBs (0.5 ug/L) required by the project QAPP.

All samples showed non-detect for all 8260B volatile organic compounds. The PQL varied by compound, but in general was 0.5 to 1.0 ug/L or lower.

Table 2-3
JULY 2004 VOC TESTING RESULTS

PROJECT AREA	SAMPLE ID	ANALYTE	RESULT (ug/L)	COMMENTS
Western End	MW-13	ALL COMPOUNDS ANALYZED	ND	
Western End	MW-14	ALL COMPOUNDS ANALYZED	ND	
South Center	MW-15	ALL COMPOUNDS ANALYZED	ND	
East Side, Outside	MW-22	ALL COMPOUNDS ANALYZED	ND	
Southwest Side	MW-24	ALL COMPOUNDS ANALYZED	ND	
	MW-26	ALL COMPOUNDS ANALYZED	ND	Duplicate MW-24
	RINSATE	ALL COMPOUNDS ANALYZED	ND	
	TRIP BLANK	ALL COMPOUNDS ANALYZED	ND	

3.5 QUALITY ASSURANCE/QUALITY CONTROL

Appendix A contains a Data Quality Assurance Review of the laboratory reports. This review may be summarized as follows:

- Holding Times -- all acceptable
- Method Blanks – one analyzed, acceptable for all compounds
- Surrogate Recovery -- %R acceptable for Decachlorobiphenyl
- Matrix Spike Recovery – %R is acceptable
- Blank Spike Recovery -- %R is acceptable
- Precision -- RPD is acceptable
- Completeness -- completeness is acceptable

See Appendix A for discussion of these parameters.

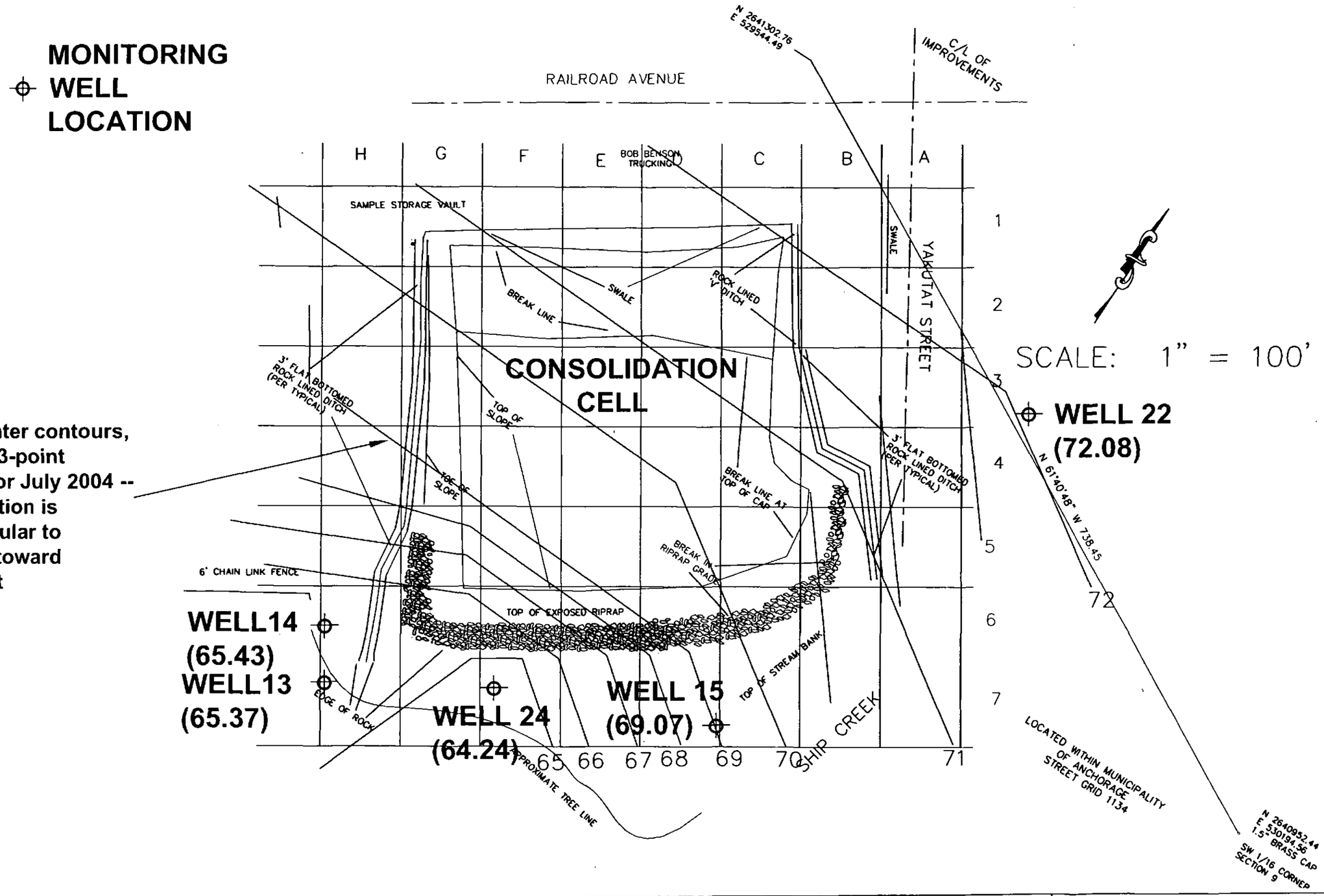
The sample identified as MW-26 was a field duplicate of MW-24. The samples both showed non-detect for all constituents analyzed. A trip blank was analyzed for VOCs and no compounds were reported. An equipment rinsate blank was analyzed for HVOCs, PCBs, and Lead with no detections. The CCV recovery for acetone did not meet laboratory QC criteria (biased low) in all samples. The result for this analyte was estimated in all sample reports. Acetone is not a contaminate of concern at the Site.

All results are considered acceptable for the use intended.

Table 3-1
Selected Groundwater Levels

WELL NUMBER	DATE OF MEASUREMENT	TOC ELEVATION (Feet, MSL)	DEPTH TO WATER (Feet)	WATER ELEVATION (Feet, MSL)
Well 13	1/6/93	71.06	5.61	65.45
	4/1/93	71.06	5.20	65.86
	7/22/93	71.06	5.10	65.96
	11/30/93	71.06	5.82	65.24
	5/8/98	71.06	6.46	64.60
	5/23/99	71.06	4.80	66.26
	10/2/99	71.06	4.44	66.62
	5/18/00	71.06	4.93	66.13
	9/29/00	71.06	4.70	66.36
	8/24/01	71.06	5.58	65.48
	8/18/02	71.06	5.50	65.56
	6/14/04	71.06	5.69	65.37
Well 14	1/6/93	72.26	6.65	65.61
	4/1/93	72.26	6.34	65.92
	7/22/93	72.26	6.17	66.09
	11/30/93	72.26	6.15	66.11
	5/8/98	72.26	6.46	65.80
	5/23/99	72.26	6.50	65.76
	10/2/99	72.26	5.87	66.39
	5/18/00	72.26	6.20	66.06
	9/29/00	72.26	5.88	66.38
	8/24/01	72.26	6.53	65.73
	8/18/02	72.26	6.56	65.70
	6/14/04	72.26	6.83	65.43
MW-14 Wellhead Rebuilt		71.75 (Approx.)		
Well 15	1/6/93	75.18	6.27	68.91
	4/1/93	75.18	6.00	69.18
	7/22/93	75.18	5.79	69.39
	11/30/93	75.18	6.13	69.05
	5/7/98	75.18	6.00	69.18
	5/23/99	75.18	5.85	69.33
	10/2/99	75.18	5.48	69.70
	5/18/00	75.18	5.62	69.56
	9/28/00	75.18	5.40	69.78
	8/24/01	75.18	6.12	69.06
	8/18/02	75.18	6.14	69.04
	6/14/04	75.18	6.11	69.07
Well 22	1/6/93	80.61	8.95	71.66
	4/1/93	80.61	8.31	72.30
	7/22/93	80.61	8.92	71.69
	11/30/93	80.61	8.89	71.72
	5/7/98	80.61	8.40	72.21
	5/23/99	80.61	8.71	71.90
	10/2/99	80.61	8.59	72.02
	5/18/00	80.61	8.85	71.76
(Head Re-installed)	8/24/01	78.60 (Approx.)	6.75	71.85
	8/18/02	78.60 (Approx.)	6.52	72.08
	6/14/04	78.60 (Approx.)	6.52	72.08
Well 24	10/2/99	70.56	5.29	65.27

	5/18/00	70.56	5.52	65.04
	9/29/00	70.56	5.43	65.13
	8/24/01	70.56	6.13	64.43
	8/18/02	70.56	6.14	64.42
	6/14/04	70.56	6.32	64.24



Groundwater contours, based on 3-point solution for July 2004 -- flow direction is perpendicular to contours toward southwest

STANDARD STEEL & METALS SALVAGE YARD
Superfund Site
Anchorage, Alaska

ALTA GEOSCIENCES, INC. **Bothell, Washington**	**GROUNDWATER MONITORING REPORT JULY 2004**	**MONITORING WELL LOCATIONS**	**FIGURE 3-1**

4.0
CONCLUSIONS

Groundwater sampling was completed on July 14th, 2004 at the Standard Steel Site, in accordance with the Groundwater Sampling And Analysis Plan (ALTA Geosciences, Inc., November 1998). Monitoring wells MW-13, -14, -15, -22, and -24 were sampled. Sounding depths for water in all wells were consistent with historical water depths and show no significant variations.

Well MW-14, located at the west end of the Site had been run over by tenants using the property. This well had to be dug out to a depth of 3 feet, the pvc pipe cut off, and a new pipe re-installed. The outer protective casing was then re-installed also. The reference point on the top of casing was reduced by approximately 6 inches.

Constituents being monitored included PCBs, Lead, and Volatile Organics. There were no detections of these compounds in the samples at levels above the PQL levels set by the Quality Assurance Project Plan.

The Remedial Action Construction for the Site was completed in 1999. Near-surface Lead and PCB contaminated soil was excavated from areas throughout the Site and placed in a capped consolidation cell. More highly impacted soils were treated by solidification/stabilization prior to consolidation. An extensive zone of PCB contamination containing free transformer oil product was excavated, treated, and consolidated with other highly impacted soils. After soil was placed in this cell, the potential for leaching of Lead and PCBs to groundwater was greatly reduced through stabilization and hydraulic isolation. This should have a favorable long-term impact on groundwater resources within and surrounding the Site.

Given the remediation of the most significant known sources of potential groundwater contamination at the Site, in the long term, the outlook is favorable for having no detectable impacts from the contaminants of concern.

5.0
REFERENCES

ALTA Geosciences, Inc. (ALTA), November 1998. Final Groundwater Monitoring Plan, Standard Steel and Metals Salvage Yard Superfund Site, Anchorage, Alaska.

ALTA, June 1999. 1998 Groundwater Monitoring Report, Standard Steel and Metals Salvage Yard Superfund Site, Anchorage, Alaska.

U.S. Environmental Protection Agency (EPA), 1986. Test Methods for Evaluation of Solid Waste, Vol II: Field Manual Physical/Chemical Methods (SW-846). Office of Solid Waste and Emergency Response, U.S. Environmental Protection Agency, Washington, D.C. November 1986.

Woodward Clyde Consultants (WCC), 1996. Feasibility Study Report, Standard Steel and Metals Salvage Yard Superfund Site, Anchorage, AK.

Woodward Clyde Consultants (WCC), 1994, Remedial Investigation Report, Standard Steel and Metals Salvage Yard Superfund Site, Anchorage, AK.

ATTACHMENT 10

Groundwater Monitoring Report July 2004

GROUNDWATER SAMPLES: POLYCHLORINATED BIPHENYLS (PCBs) DATA QUALITY ASSURANCE REVIEW (CT&E Reference Numbers 1044213-001 Through –10)

Upon receipt from SGS/CT&E Environmental Services (CT&E) laboratory, all PCB analytical results underwent a Quality Assurance (QA) review of laboratory handling procedures. In addition to sample results, the laboratory data reports included Quality Control (QC) data for blank, laboratory control sample (i.e., blank spike), surrogate, matrix spike, and matrix spike duplicate results.

SAMPLE ANALYSIS

CT&E performed PCB analyses using EPA Test Method 8082B as promulgated in *Test Methods for Evaluating Solid Waste.*

HOLDING TIMES

Holding times for groundwater samples were assessed relative to the following SW846 holding times:

- A sample must be extracted within seven days from the date and time of sample collection
- A sample must be analyzed within 40 days from the date of extraction
- All samples must be shipped in an iced chest to the laboratory and stored at 4°C until they are extracted

Eight groundwater samples plus a rinsate were collected July 14, 2004. CT&E received the samples the same day. All samples were placed in an iced chest after collection and were stored at 4°C until extraction. CT&E extracted and analyzed the samples on July 21th. All holding times are acceptable.

BLANK ANALYSIS

Method blank analysis is performed to determine the extent of laboratory contamination of samples. Method blank criteria require that no PCBs be detected in the blank.

One method blank was analyzed. PCBs were not detected in the blank.

ACCURACY

Accuracy was assessed by evaluating surrogates, blank spikes, and matrix spike recoveries. Each sample and QC sample is spiked with a surrogate compound. Each matrix spike (MS) and matrix spike duplicate (MSD) is prepared by spiking a groundwater (environmental) sample with a known concentration of Aroclor 1260 (A1260). A blank spike (BS) is prepared by spiking a laboratory-prepared aqueous sample with a known concentration of A1260.

Surrogate Recovery

Groundwater samples were spiked with the surrogate compound Decachlorobiphenyl. The project QC limits for percent surrogate recovery (%R) are 44% to 133%. Decachlorobiphenyl %Rs ranged from 95.3% to 101%. All %Rs were acceptable.

Matrix Spike Recovery

The laboratory prepared an MS sample and duplicate for Aroclor 1260. The MS/MSD limits were 45-109 for %R. The reported %R values were 86.6 and 87.8. The MS %R is acceptable.

PRECISION

Precision is expressed as the relative percent difference (RPD) between the MS and the MSD. Acceptable RPD limits are 0-25%. The RPD was reported by the laboratory as 1.38% for Aroclor 1260. The RPD is acceptable.

COMPOUND IDENTIFICATION

PCBs were detected using a gas chromatograph equipped with an electron capture detector (ECD). The identity of a detected compound was determined by comparison of a standard's retention times and its chromatographic trace with that of the sample detected compound. The required detection limits for all aroclors was 0.10 µg/L. This was attained for all Aroclors. The detection limits are acceptable.

COMPLETENESS

Completeness is a measure of the amount of valid sample data obtained from the measurement system compared to the amount of sample data that were analyzed. Valid results are those results which meet or exceed quality control criteria and satisfy quality assurance objectives. The percent completeness is compared to a goal of 80%. Completeness for the data set was 100%. The completeness is acceptable.

GROUNDWATER SAMPLES: LEAD
DATA QUALITY ASSURANCE REVIEW
(CT&E Reference Numbers 1044213-001 Through –010)

Upon receipt from CT&E Environmental Services (CT&E) laboratory, all Lead analytical results underwent a Quality Assurance (QA) review of laboratory handling procedures. In addition to sample results, the laboratory data reports included Quality Control (QC) data for blank, laboratory control sample (i.e., blank spike), matrix spike, and matrix spike duplicate results.

SAMPLE ANALYSIS

CT&E performed Lead analyses using EPA Test Method 6020 as promulgated in *Test Methods for Evaluating Solid Waste, USEPA SW846.*

HOLDING TIMES

Holding times for groundwater samples were assessed relative to the following SW846 holding times:

- A sample must be preserved with HNO_3 to pH<2
- A sample must be analyzed within 6 months from the date of collection
- All samples must be shipped in an iced chest to the laboratory and stored at 4^oC until they are extracted

Eight groundwater samples plus a rinsate were collected July 14, 2004. CT&E received the samples on the same day. All samples were placed in an iced chest after collection and were stored at 4^oC until extraction. CT&E extracted the samples on July 19th and analyzed them on July 22nd. All holding times are acceptable.

BLANK ANALYSIS

Method blank analysis is performed to determine the extent of laboratory contamination of samples. Method blank criteria require that no Lead be detected in the blank. One method blank was analyzed. Lead was not detected in the blank.

ACCURACY

Accuracy was assessed by evaluating blank spikes (Laboratory Check Standard, LCS), and matrix spike recoveries. Each matrix spike (MS) and matrix spike duplicate (MSD) is prepared by spiking a groundwater sample with a known concentration of Lead. A blank spike (LCS) is prepared by spiking a laboratory-prepared aqueous sample with a known concentration.

LCS Recovery
A laboratory check sample was spiked with a known concentration of a laboratory standard. The project QC limits for percent LCS recovery (%R) are 85% to 115%. The %R was 98.8%. The %R is acceptable.

Matrix Spike Recovery
The laboratory prepared one MS and one MSD with the data set (i.e., project sample Well 24). The project required MS %R QC limit for Lead is 85% to 115%. The %R for the MS was reported by the laboratory as 101%. The %R for the MSD was reported by the laboratory as 96.6%. The %R is acceptable.

PRECISION

Precision is expressed as the relative percent difference (RPD) between the MS and the MSD. The project required MS/MSD RPD control limit for Lead is 0-25%. The RPD was 4.07% for this analysis. The RPD is acceptable.

COMPOUND IDENTIFICATION

Lead was analyzed under EPA Method 6020. The required detection limits for Lead was 0.005 mg/L. This was attained for all samples. The detection limits are acceptable.

COMPLETENESS

Completeness is a measure of the amount of valid sample data obtained from the measurement system compared to the amount of sample data that were analyzed. Valid results are those results which meet or exceed quality control criteria and satisfy quality assurance objectives. The percent completeness is compared to a goal of 80%. Completeness for the data set was 100%. The completeness is acceptable.

GROUNDWATER SAMPLES: VOLATILE ORGANICS (VOC) DATA QUALITY ASSURANCE REVIEW (CT&E Reference Numbers 1044213-001 Through –010)

Upon receipt from CT&E Environmental Services (CT&E) laboratory, all HVOC analytical results underwent a Quality Assurance (QA) review of laboratory handling procedures. In addition to sample results, the laboratory data reports included Quality Control (QC) data for blank, laboratory control sample (i.e., blank spike), matrix spike, and matrix spike duplicate results.

SAMPLE ANALYSIS

CT&E performed PCB analyses using EPA Test 8260B, as promulgated in *Test Methods for Evaluating Solid Waste, USEPA SW846.*

HOLDING TIMES

Holding times for groundwater samples were assessed relative to the following SW846 holding times:

- A sample must be analyzed within 14 days from the date and time of sample collection
- A VOC sample must be preserved with HCl to pH <2
- All samples must be shipped in an iced chest to the laboratory and stored at 4°C until they are extracted

Eight groundwater samples plus a rinsate sample were collected on July 14, 2004. CT&E received the same day. All samples were placed in an iced chest after collection and were stored at 4°C until testing. CT&E extracted and analyzed the samples on July 21st. All holding times are acceptable.

BLANK ANALYSIS

Method blank analysis is performed to determine the extent of laboratory contamination of samples. Method blank criteria require that no VOCs be detected in the blank. One method blank was analyzed.

ACCURACY

Accuracy was assessed by evaluating blank spike (a.k.a. LCS), and matrix spike recoveries. Each sample and a blank QC sample is spiked with a known quantity of the EPA 8260 compounds.

Matrix Spike Recovery
The laboratory prepared one MS and one MSD (i.e., project sample Well 14). The project required MS %R QC limits vary by compound. The %R for the MS and MSD reported by the lab were all within acceptable limits.

Laboratory Check Standard Recovery
The laboratory prepared an LCS (blank) sample and duplicate for EPA 8260 compounds. The LCS/LCSD acceptable limits for %R vary by compound. The reported %R were all within the acceptable limits. The LCS %R is acceptable.

PRECISION

Precision is expressed as the relative percent difference (RPD) between the MS and the MSD. The project required MS/MSD RPD control limit is 0-25%. The RPD values reported by the laboratory varied from were all within acceptable limits. The RPD acceptable limits for LCS/LCSD samples are 0-25% and the reported RPD values all within acceptable limits.

COMPOUND IDENTIFICATION

VOCs were detected using a GC/MS. The identity of a detected compound was determined by comparison of a standard's retention times and its chromatographic trace with that of the sample detected compound.

The required detection limits for all compounds was 0.001 mg/L, except for Methyl Chloride, which is 0.010 mg/L. Overall, the detection limits are acceptable.

COMPLETENESS

Completeness is a measure of the amount of valid sample data obtained from the measurement system compared to the amount of sample data that were analyzed. Valid results are those results which meet or exceed quality control criteria and satisfy quality assurance objectives. The percent completeness is compared to a goal of 80%. Completeness for the data set was 100%. The completeness is acceptable.

APPENDIX B
LABORATORY ANALYSIS CERTIFICATES

Laboratory Analysis Report

200 W. Potter Drive
Anchorage, AK 99518-1605
Tel: (907) 562-2343
Fax: (907) 561-5301
Web: http://www.sgsenvironmental.com

Alex Tula
ALTA Geosciences, Inc.
22833 Bothell-Everett Hwy
Ste 102-1168
Bothell, WA 980219365

Work Order:	1044213
	Standard Steel
Client:	ALTA Geosciences, INC
Report Date:	July 30, 2004

Enclosed are the analytical results associated with the above workorder.

As required by the state of Alaska and the USEPA, a formal Quality Assurance/Quality Control Program is maintained by SGS. A copy of our Quality Control Manual that outlines this program is available at your request. The laboratory ADEC certification numbers are AK08-03 (DW), UST-005 (CS) and AK00971 (Micro).

Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS Quality Assurance Program Plan and the National Environmental Laboratory Accreditation Conference.

If you have any questions regarding this report or if we can be of any other assistance, please call your SGS Project Manager at (907) 562-2343.

The following descriptors may be found on your report which will serve to further qualify the data.

PQL	Practical Quantitation Limit (reporting limit).
U	Indicates the analyte was analyzed for but not detected.
F	Indicates an estimated value that falls below PQL, but is greater than the MDL.
J	The quantitation is an estimation.
B	Indicates the analyte is found in a blank associated with the sample.
*	The analyte has exceeded allowable regulatory or control limits.
GT	Greater Than
D	The analyte concentration is the result of a dilution.
LT	Less Than
!	Surrogate out of control limits.
Q	QC parameter out of acceptance range.
M	A matrix effect was present.
JL	The analyte was positively identified, but the quantitation is a low estimation.
E	The analyte result is high outside of calibrated range.

Note: Soil samples are reported on a dry weight basis unless otherwise specified.

SGS

SGS Ref.#	1044213001	**All Dates/Times are Alaska Standard Time**	
Client Name	ALTA Geosciences, INC	**Printed Date/Time**	07/30/2004 11:59
Project Name/#	Standard Steel	**Collected Date/Time**	07/14/2004 6:00
Client Sample ID	MW-22	**Received Date/Time**	07/14/2004 16:44
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**

Released By Heather Hale

Sample Remarks:

8260 - CCV recovery for acetone does not meet laboratory QC criteria (biased low). The result for this analyte is estimated in this sample.

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
Metals by ICP/MS									
Lead	2.00 U	2.00	ug/L	SW6020	D		07/19/04	07/27/04	SCL
Polychlorinated Biphenyls									
Aroclor-1016	0.100 U	0.100	ug/L	SW8082	E		07/16/04	07/19/04	SPM
Aroclor-1221	0.100 U	0.100	ug/L	SW8082	E		07/16/04	07/19/04	SPM
Aroclor-1232	0.100 U	0.100	ug/L	SW8082	E		07/16/04	07/19/04	SPM
Aroclor-1242	0.100 U	0.100	ug/L	SW8082	E		07/16/04	07/19/04	SPM
Aroclor-1248	0.100 U	0.100	ug/L	SW8082	E		07/16/04	07/19/04	SPM
Aroclor-1254	0.100 U	0.100	ug/L	SW8082	E		07/16/04	07/19/04	SPM
Aroclor-1260	0.100 U	0.100	ug/L	SW8082	E		07/16/04	07/19/04	SPM
Surrogates									
Decachlorobiphenyl <surr>	96.2		%	SW8082	E	42-133	07/16/04	07/19/04	SPM
Volatile Gas Chromatography/Mass Spectroscopy									
Dichlorodifluoromethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Chloromethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Vinyl chloride	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Bromomethane	0.00300 U	0.00300	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Chloroethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Trichlorofluoromethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,1-Dichloroethene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Methylene chloride	0.00500 U	0.00500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Carbon disulfide	0.00200 U	0.00200	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Acetone	0.0100 U	0.0100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
trans-1,2-Dichloroethene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,1-Dichloroethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
2,2-Dichloropropane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS

SGS

SGS Ref.#	1044213001	**All Dates/Times are Alaska Standard Time**	
Client Name	ALTA Geosciences, INC	**Printed Date/Time**	07/30/2004 11:59
Project Name/#	Standard Steel	**Collected Date/Time**	07/14/2004 6:00
Client Sample ID	MW-22	**Received Date/Time**	07/14/2004 16:44
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
Volatile Gas Chromatography/Mass Spectroscopy									
cis-1,2-Dichloroethene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
2-Butanone (MEK)	0.0100 U	0.0100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Bromochloromethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Chloroform	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,1,1-Trichloroethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Carbon tetrachloride	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,1-Dichloropropene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Benzene	0.000400 U	0.000400	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Trichloroethene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2-Dichloropropane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Dibromomethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Bromodichloromethane	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
2-Chloroethyl Vinyl Ether	0.0100 U	0.0100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
cis-1,3-Dichloropropene	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Toluene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
trans-1,3-Dichloropropene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,1,2-Trichloroethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Tetrachloroethene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,3-Dichloropropane	0.000400 U	0.000400	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Dibromochloromethane	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2-Dibromoethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Chlorobenzene	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,1,1,2-Tetrachloroethane	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Ethylbenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
o-Xylene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Styrene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Bromoform	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
P & M -Xylene	0.00200 U	0.00200	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Isopropylbenzene (Cumene)	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Bromobenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,1,2,2-Tetrachloroethane	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2,3-Trichloropropane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
n-Propylbenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
2-Chlorotoluene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS

SGS

SGS Ref.#	1044213001	**All Dates/Times are Alaska Standard Time**	
Client Name	ALTA Geosciences, INC	**Printed Date/Time**	07/30/2004 11:59
Project Name/#	Standard Steel	**Collected Date/Time**	07/14/2004 6:00
Client Sample ID	MW-22	**Received Date/Time**	07/14/2004 16:44
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
Volatile Gas Chromatography/Mass Spectroscopy									
4-Chlorotoluene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,3,5-Trimethylbenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
tert-Butylbenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2,4-Trimethylbenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
sec-Butylbenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
4-Isopropyltoluene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,4-Dichlorobenzene	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2-Dichlorobenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,3-Dichlorobenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
n-Butylbenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2-Dibromo-3-chloropropane	0.00200 U	0.00200	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2,4-Trichlorobenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Hexachlorobutadiene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Naphthalene	0.00200 U	0.00200	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2,3-Trichlorobenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
4-Methyl-2-pentanone (MIBK)	0.0100 U	0.0100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
2-Hexanone	0.0100 U	0.0100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Methyl-t-butyl ether	0.00500 U	0.00500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1-Chlorohexane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Acrylonitrile	0.0100 U	0.0100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2-Dichloroethane	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
trans 1,4-Dichloro-2-Butene	0.00200 U	0.00200	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Vinyl acetate	0.0100 U	0.0100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Methyl iodide	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Surrogates									
Dibromofluoromethane <surr>	101		%	SW8260B	A	85-115	07/21/04	07/21/04	VS
1,2-Dichloroethane-D4 <surr>	100		%	SW8260B	A	72-119	07/21/04	07/21/04	VS
Toluene-d8 <surr>	101		%	SW8260B	A	84-113	07/21/04	07/21/04	VS
4-Bromofluorobenzene <surr>	107		%	SW8260B	A	78-124	07/21/04	07/21/04	VS

SGS

SGS Ref.#	1044213002	**All Dates/Times are Alaska Standard Time**	
Client Name	ALTA Geosciences, INC	**Printed Date/Time**	07/30/2004 11:59
Project Name/#	Standard Steel	**Collected Date/Time**	07/14/2004 7:00
Client Sample ID	MW-15	**Received Date/Time**	07/14/2004 16:44
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**
		Released By	Heather Steele

Sample Remarks:

8260 - CCV recovery for acetone does not meet laboratory QC criteria (biased low). The result for this analyte is estimated in this sample.

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
Metals by ICP/MS									
Lead	2.00 U	2.00	ug/L	SW6020	D		07/19/04	07/27/04	SCL
Polychlorinated Biphenyls									
Aroclor-1016	0.100 U	0.100	ug/L	SW8082	E		07/16/04	07/19/04	SPM
Aroclor-1221	0.100 U	0.100	ug/L	SW8082	E		07/16/04	07/19/04	SPM
Aroclor-1232	0.100 U	0.100	ug/L	SW8082	E		07/16/04	07/19/04	SPM
Aroclor-1242	0.100 U	0.100	ug/L	SW8082	E		07/16/04	07/19/04	SPM
Aroclor-1248	0.100 U	0.100	ug/L	SW8082	E		07/16/04	07/19/04	SPM
Aroclor-1254	0.100 U	0.100	ug/L	SW8082	E		07/16/04	07/19/04	SPM
Aroclor-1260	0.100 U	0.100	ug/L	SW8082	E		07/16/04	07/19/04	SPM
Surrogates									
Decachlorobiphenyl <surr>	97.8		%	SW8082	E	42-133	07/16/04	07/19/04	SPM
Volatile Gas Chromatography/Mass Spectroscopy									
Dichlorodifluoromethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Chloromethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Vinyl chloride	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Bromomethane	0.00300 U	0.00300	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Chloroethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Trichlorofluoromethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,1-Dichloroethene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Methylene chloride	0.00500 U	0.00500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Carbon disulfide	0.00200 U	0.00200	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Acetone	0.0100 U	0.0100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
trans-1,2-Dichloroethene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,1-Dichloroethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
2,2-Dichloropropane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS

SGS

SGS Ref.#	1044213002	**All Dates/Times are Alaska Standard Time**	
Client Name	ALTA Geosciences, INC	**Printed Date/Time**	07/30/2004 11:59
Project Name/#	Standard Steel	**Collected Date/Time**	07/14/2004 7:00
Client Sample ID	MW-15	**Received Date/Time**	07/14/2004 16:44
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
Volatile Gas Chromatography/Mass Spectroscopy									
cis-1,2-Dichloroethene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
2-Butanone (MEK)	0.0100 U	0.0100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Bromochloromethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Chloroform	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,1,1-Trichloroethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Carbon tetrachloride	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,1-Dichloropropene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Benzene	0.000400 U	0.000400	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Trichloroethene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2-Dichloropropane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Dibromomethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Bromodichloromethane	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
2-Chloroethyl Vinyl Ether	0.0100 U	0.0100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
cis-1,3-Dichloropropene	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Toluene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
trans-1,3-Dichloropropene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,1,2-Trichloroethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Tetrachloroethene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,3-Dichloropropane	0.000400 U	0.000400	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Dibromochloromethane	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2-Dibromoethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Chlorobenzene	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,1,1,2-Tetrachloroethane	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Ethylbenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
o-Xylene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Styrene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Bromoform	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
P & M -Xylene	0.00200 U	0.00200	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Isopropylbenzene (Cumene)	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Bromobenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,1,2,2-Tetrachloroethane	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2,3-Trichloropropane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
n-Propylbenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
2-Chlorotoluene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS

SGS

SGS Ref.#	1044213002	**All Dates/Times are Alaska Standard Time**	
Client Name	ALTA Geosciences, INC	**Printed Date/Time**	07/30/2004 11:59
Project Name/#	Standard Steel	**Collected Date/Time**	07/14/2004 7:00
Client Sample ID	MW-15	**Received Date/Time**	07/14/2004 16:44
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
Volatile Gas Chromatography/Mass Spectroscopy									
4-Chlorotoluene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,3,5-Trimethylbenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
tert-Butylbenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2,4-Trimethylbenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
sec-Butylbenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
4-Isopropyltoluene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,4-Dichlorobenzene	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2-Dichlorobenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,3-Dichlorobenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
n-Butylbenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2-Dibromo-3-chloropropane	0.00200 U	0.00200	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2,4-Trichlorobenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Hexachlorobutadiene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Naphthalene	0.00200 U	0.00200	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2,3-Trichlorobenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
4-Methyl-2-pentanone (MIBK)	0.0100 U	0.0100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
2-Hexanone	0.0100 U	0.0100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Methyl-t-butyl ether	0.00500 U	0.00500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1-Chlorohexane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Acrylonitrile	0.0100 U	0.0100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2-Dichloroethane	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
trans 1,4-Dichloro-2-Butene	0.00200 U	0.00200	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Vinyl acetate	0.0100 U	0.0100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Methyl iodide	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Surrogates									
Dibromofluoromethane <surr>	102		%	SW8260B	A	85-115	07/21/04	07/21/04	VS
1,2-Dichloroethane-D4 <surr>	98.4		%	SW8260B	A	72-119	07/21/04	07/21/04	VS
Toluene-d8 <surr>	98.5		%	SW8260B	A	84-113	07/21/04	07/21/04	VS
4-Bromofluorobenzene <surr>	105		%	SW8260B	A	78-124	07/21/04	07/21/04	VS

SGS

SGS Ref.#	1044213003	**All Dates/Times are Alaska Standard Time**	
Client Name	ALTA Geosciences, INC	**Printed Date/Time**	07/30/2004 11:59
Project Name/#	Standard Steel	**Collected Date/Time**	07/14/2004 8:00
Client Sample ID	MW-24	**Received Date/Time**	07/14/2004 16:44
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**
		Released By	Heather Hale

Sample Remarks:

8260 - CCV recovery for acetone does not meet laboratory QC criteria (biased low). The result for this analyte is estimated in this sample.

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
Metals by ICP/MS									
Lead	2.00 U	2.00	ug/L	SW6020	D		07/19/04	07/27/04	SCL
Polychlorinated Biphenyls									
Aroclor-1016	0.100 U	0.100	ug/L	SW8082	E		07/16/04	07/19/04	SPM
Aroclor-1221	0.100 U	0.100	ug/L	SW8082	E		07/16/04	07/19/04	SPM
Aroclor-1232	0.100 U	0.100	ug/L	SW8082	E		07/16/04	07/19/04	SPM
Aroclor-1242	0.100 U	0.100	ug/L	SW8082	E		07/16/04	07/19/04	SPM
Aroclor-1248	0.100 U	0.100	ug/L	SW8082	E		07/16/04	07/19/04	SPM
Aroclor-1254	0.100 U	0.100	ug/L	SW8082	E		07/16/04	07/19/04	SPM
Aroclor-1260	0.100 U	0.100	ug/L	SW8082	E		07/16/04	07/19/04	SPM
Surrogates									
Decachlorobiphenyl <surr>	96.9		%	SW8082	E	42-133	07/16/04	07/19/04	SPM
Volatile Gas Chromatography/Mass Spectroscopy									
Dichlorodifluoromethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Chloromethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Vinyl chloride	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Bromomethane	0.00300 U	0.00300	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Chloroethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Trichlorofluoromethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,1-Dichloroethene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Methylene chloride	0.00500 U	0.00500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Carbon disulfide	0.00200 U	0.00200	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Acetone	0.0100 U	0.0100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
trans-1,2-Dichloroethene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,1-Dichloroethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
2,2-Dichloropropane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS

SGS

SGS Ref.#	1044213003	**All Dates/Times are Alaska Standard Time**	
Client Name	ALTA Geosciences, INC	**Printed Date/Time**	07/30/2004 11:59
Project Name/#	Standard Steel	**Collected Date/Time**	07/14/2004 8:00
Client Sample ID	MW-24	**Received Date/Time**	07/14/2004 16:44
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
Volatile Gas Chromatography/Mass Spectroscopy									
cis-1,2-Dichloroethene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
2-Butanone (MEK)	0.0100 U	0.0100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Bromochloromethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Chloroform	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,1,1-Trichloroethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Carbon tetrachloride	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,1-Dichloropropene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Benzene	0.000400 U	0.000400	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Trichloroethene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2-Dichloropropane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Dibromomethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Bromodichloromethane	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
2-Chloroethyl Vinyl Ether	0.0100 U	0.0100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
cis-1,3-Dichloropropene	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Toluene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
trans-1,3-Dichloropropene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,1,2-Trichloroethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Tetrachloroethene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,3-Dichloropropane	0.000400 U	0.000400	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Dibromochloromethane	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2-Dibromoethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Chlorobenzene	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,1,1,2-Tetrachloroethane	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Ethylbenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
o-Xylene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Styrene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Bromoform	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
P & M -Xylene	0.00200 U	0.00200	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Isopropylbenzene (Cumene)	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Bromobenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,1,2,2-Tetrachloroethane	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2,3-Trichloropropane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
n-Propylbenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
2-Chlorotoluene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS

SGS

SGS Ref.#	1044213003	**All Dates/Times are Alaska Standard Time**	
Client Name	ALTA Geosciences, INC	**Printed Date/Time**	07/30/2004 11:59
Project Name/#	Standard Steel	**Collected Date/Time**	07/14/2004 8:00
Client Sample ID	MW-24	**Received Date/Time**	07/14/2004 16:44
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
Volatile Gas Chromatography/Mass Spectroscopy									
4-Chlorotoluene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,3,5-Trimethylbenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
tert-Butylbenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2,4-Trimethylbenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
sec-Butylbenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
4-Isopropyltoluene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,4-Dichlorobenzene	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2-Dichlorobenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,3-Dichlorobenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
n-Butylbenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2-Dibromo-3-chloropropane	0.00200 U	0.00200	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2,4-Trichlorobenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Hexachlorobutadiene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Naphthalene	0.00200 U	0.00200	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2,3-Trichlorobenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
4-Methyl-2-pentanone (MIBK)	0.0100 U	0.0100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
2-Hexanone	0.0100 U	0.0100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Methyl-t-butyl ether	0.00500 U	0.00500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1-Chlorohexane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Acrylonitrile	0.0100 U	0.0100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2-Dichloroethane	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
trans 1,4-Dichloro-2-Butene	0.00200 U	0.00200	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Vinyl acetate	0.0100 U	0.0100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Methyl iodide	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Surrogates									
Dibromofluoromethane <surr>	101		%	SW8260B	A	85-115	07/21/04	07/21/04	VS
1,2-Dichloroethane-D4 <surr>	98.8		%	SW8260B	A	72-119	07/21/04	07/21/04	VS
Toluene-d8 <surr>	100		%	SW8260B	A	84-113	07/21/04	07/21/04	VS
4-Bromofluorobenzene <surr>	108		%	SW8260B	A	78-124	07/21/04	07/21/04	VS

SGS

SGS Ref.#	1044213004	**All Dates/Times are Alaska Standard Time**	
Client Name	ALTA Geosciences, INC	**Printed Date/Time**	07/30/2004 11:59
Project Name/#	Standard Steel	**Collected Date/Time**	07/14/2004 9:00
Client Sample ID	MW-26	**Received Date/Time**	07/14/2004 16:44
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	Stephen C. Ede
		Released By	Heather Steele

Sample Remarks:

8260 - CCV recovery for acetone does not meet laboratory QC criteria (biased low). The result for this analyte is estimated in this sample.

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
Metals by ICP/MS									
Lead	2.00 U	2.00	ug/L	SW6020	D		07/19/04	07/27/04	SCL
Polychlorinated Biphenyls									
Aroclor-1016	0.100 U	0.100	ug/L	SW8082	E		07/16/04	07/19/04	SPM
Aroclor-1221	0.100 U	0.100	ug/L	SW8082	E		07/16/04	07/19/04	SPM
Aroclor-1232	0.100 U	0.100	ug/L	SW8082	E		07/16/04	07/19/04	SPM
Aroclor-1242	0.100 U	0.100	ug/L	SW8082	E		07/16/04	07/19/04	SPM
Aroclor-1248	0.100 U	0.100	ug/L	SW8082	E		07/16/04	07/19/04	SPM
Aroclor-1254	0.100 U	0.100	ug/L	SW8082	E		07/16/04	07/19/04	SPM
Aroclor-1260	0.100 U	0.100	ug/L	SW8082	E		07/16/04	07/19/04	SPM
Surrogates									
Decachlorobiphenyl <surr>	95.3		%	SW8082	E	42-133	07/16/04	07/19/04	SPM
Volatile Gas Chromatography/Mass Spectroscopy									
Dichlorodifluoromethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Chloromethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Vinyl chloride	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Bromomethane	0.00300 U	0.00300	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Chloroethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Trichlorofluoromethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,1-Dichloroethene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Methylene chloride	0.00500 U	0.00500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Carbon disulfide	0.00200 U	0.00200	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Acetone	0.0100 U	0.0100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
trans-1,2-Dichloroethene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,1-Dichloroethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
2,2-Dichloropropane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS

SGS

SGS Ref.#	1044213004	**All Dates/Times are Alaska Standard Time**	
Client Name	ALTA Geosciences, INC	**Printed Date/Time**	07/30/2004 11:59
Project Name/#	Standard Steel	**Collected Date/Time**	07/14/2004 9:00
Client Sample ID	MW-26	**Received Date/Time**	07/14/2004 16:44
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
Volatile Gas Chromatography/Mass Spectroscopy									
cis-1,2-Dichloroethene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
2-Butanone (MEK)	0.0100 U	0.0100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Bromochloromethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Chloroform	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,1,1-Trichloroethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Carbon tetrachloride	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,1-Dichloropropene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Benzene	0.000400 U	0.000400	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Trichloroethene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2-Dichloropropane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Dibromomethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Bromodichloromethane	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
2-Chloroethyl Vinyl Ether	0.0100 U	0.0100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
cis-1,3-Dichloropropene	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Toluene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
trans-1,3-Dichloropropene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,1,2-Trichloroethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Tetrachloroethene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,3-Dichloropropane	0.000400 U	0.000400	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Dibromochloromethane	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2-Dibromoethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Chlorobenzene	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,1,1,2-Tetrachloroethane	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Ethylbenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
o-Xylene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Styrene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Bromoform	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
P & M -Xylene	0.00200 U	0.00200	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Isopropylbenzene (Cumene)	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Bromobenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,1,2,2-Tetrachloroethane	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2,3-Trichloropropane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
n-Propylbenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
2-Chlorotoluene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS

SGS

SGS Ref.#	1044213004	**All Dates/Times are Alaska Standard Time**	
Client Name	ALTA Geosciences, INC	**Printed Date/Time**	07/30/2004 11:59
Project Name/#	Standard Steel	**Collected Date/Time**	07/14/2004 9:00
Client Sample ID	MW-26	**Received Date/Time**	07/14/2004 16:44
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
Volatile Gas Chromatography/Mass Spectroscopy									
4-Chlorotoluene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,3,5-Trimethylbenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
tert-Butylbenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2,4-Trimethylbenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
sec-Butylbenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
4-Isopropyltoluene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,4-Dichlorobenzene	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2-Dichlorobenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,3-Dichlorobenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
n-Butylbenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2-Dibromo-3-chloropropane	0.00200 U	0.00200	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2,4-Trichlorobenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Hexachlorobutadiene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Naphthalene	0.00200 U	0.00200	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2,3-Trichlorobenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
4-Methyl-2-pentanone (MIBK)	0.0100 U	0.0100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
2-Hexanone	0.0100 U	0.0100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Methyl-t-butyl ether	0.00500 U	0.00500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1-Chlorohexane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Acrylonitrile	0.0100 U	0.0100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2-Dichloroethane	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
trans 1,4-Dichloro-2-Butene	0.00200 U	0.00200	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Vinyl acetate	0.0100 U	0.0100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Methyl iodide	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Surrogates									
Dibromofluoromethane <surr>	102		%	SW8260B	A	85-115	07/21/04	07/21/04	VS
1,2-Dichloroethane-D4 <surr>	102		%	SW8260B	A	72-119	07/21/04	07/21/04	VS
Toluene-d8 <surr>	101		%	SW8260B	A	84-113	07/21/04	07/21/04	VS
4-Bromofluorobenzene <surr>	107		%	SW8260B	A	78-124	07/21/04	07/21/04	VS

SGS

SGS Ref.#	1044213005	**All Dates/Times are Alaska Standard Time**	
Client Name	ALTA Geosciences, INC	**Printed Date/Time**	07/30/2004 11:59
Project Name/#	Standard Steel	**Collected Date/Time**	07/14/2004 10:00
Client Sample ID	MW-13	**Received Date/Time**	07/14/2004 16:44
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	Stephen C. Ede
		Released By	Heather Stall

Sample Remarks:

8260 - CCV recovery for acetone does not meet laboratory QC criteria (biased low). The result for this analyte is estimated in this sample.

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
Metals by ICP/MS									
Lead	2.00 U	2.00	ug/L	SW6020	D		07/19/04	07/27/04	SCL
Polychlorinated Biphenyls									
Aroclor-1016	0.100 U	0.100	ug/L	SW8082	E		07/16/04	07/19/04	SPM
Aroclor-1221	0.100 U	0.100	ug/L	SW8082	E		07/16/04	07/19/04	SPM
Aroclor-1232	0.100 U	0.100	ug/L	SW8082	E		07/16/04	07/19/04	SPM
Aroclor-1242	0.100 U	0.100	ug/L	SW8082	E		07/16/04	07/19/04	SPM
Aroclor-1248	0.100 U	0.100	ug/L	SW8082	E		07/16/04	07/19/04	SPM
Aroclor-1254	0.100 U	0.100	ug/L	SW8082	E		07/16/04	07/19/04	SPM
Aroclor-1260	0.100 U	0.100	ug/L	SW8082	E		07/16/04	07/19/04	SPM
Surrogates									
Decachlorobiphenyl <surr>	101		%	SW8082	E	42-133	07/16/04	07/19/04	SPM
Volatile Gas Chromatography/Mass Spectroscopy									
Dichlorodifluoromethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Chloromethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Vinyl chloride	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Bromomethane	0.00300 U	0.00300	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Chloroethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Trichlorofluoromethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,1-Dichloroethene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Methylene chloride	0.00500 U	0.00500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Carbon disulfide	0.00200 U	0.00200	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Acetone	0.0100 U	0.0100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
trans-1,2-Dichloroethene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,1-Dichloroethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
2,2-Dichloropropane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS

SGS

SGS Ref.#	1044213005	**All Dates/Times are Alaska Standard Time**	
Client Name	ALTA Geosciences, INC	**Printed Date/Time**	07/30/2004 11:59
Project Name/#	Standard Steel	**Collected Date/Time**	07/14/2004 10:00
Client Sample ID	MW-13	**Received Date/Time**	07/14/2004 16:44
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
Volatile Gas Chromatography/Mass Spectroscopy									
cis-1,2-Dichloroethene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
2-Butanone (MEK)	0.0100 U	0.0100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Bromochloromethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Chloroform	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,1,1-Trichloroethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Carbon tetrachloride	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,1-Dichloropropene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Benzene	0.000400 U	0.000400	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Trichloroethene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2-Dichloropropane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Dibromomethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Bromodichloromethane	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
2-Chloroethyl Vinyl Ether	0.0100 U	0.0100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
cis-1,3-Dichloropropene	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Toluene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
trans-1,3-Dichloropropene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,1,2-Trichloroethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Tetrachloroethene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,3-Dichloropropane	0.000400 U	0.000400	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Dibromochloromethane	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2-Dibromoethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Chlorobenzene	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,1,1,2-Tetrachloroethane	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Ethylbenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
o-Xylene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Styrene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Bromoform	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
P & M -Xylene	0.00200 U	0.00200	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Isopropylbenzene (Cumene)	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Bromobenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,1,2,2-Tetrachloroethane	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2,3-Trichloropropane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
n-Propylbenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
2-Chlorotoluene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS

SGS

SGS Ref.#	1044213005	**All Dates/Times are Alaska Standard Time**	
Client Name	ALTA Geosciences, INC	**Printed Date/Time**	07/30/2004 11:59
Project Name/#	Standard Steel	**Collected Date/Time**	07/14/2004 10:00
Client Sample ID	MW-13	**Received Date/Time**	07/14/2004 16:44
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
Volatile Gas Chromatography/Mass Spectroscopy									
4-Chlorotoluene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,3,5-Trimethylbenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
tert-Butylbenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2,4-Trimethylbenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
sec-Butylbenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
4-Isopropyltoluene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,4-Dichlorobenzene	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2-Dichlorobenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,3-Dichlorobenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
n-Butylbenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2-Dibromo-3-chloropropane	0.00200 U	0.00200	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2,4-Trichlorobenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Hexachlorobutadiene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Naphthalene	0.00200 U	0.00200	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2,3-Trichlorobenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
4-Methyl-2-pentanone (MIBK)	0.0100 U	0.0100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
2-Hexanone	0.0100 U	0.0100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Methyl-t-butyl ether	0.00500 U	0.00500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1-Chlorohexane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Acrylonitrile	0.0100 U	0.0100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2-Dichloroethane	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
trans 1,4-Dichloro-2-Butene	0.00200 U	0.00200	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Vinyl acetate	0.0100 U	0.0100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Methyl iodide	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Surrogates									
Dibromofluoromethane <surr>	99.1		%	SW8260B	A	85-115	07/21/04	07/21/04	VS
1,2-Dichloroethane-D4 <surr>	99		%	SW8260B	A	72-119	07/21/04	07/21/04	VS
Toluene-d8 <surr>	100		%	SW8260B	A	84-113	07/21/04	07/21/04	VS
4-Bromofluorobenzene <surr>	106		%	SW8260B	A	78-124	07/21/04	07/21/04	VS

SGS

SGS Ref.#	1044213006	All Dates/Times are Alaska Standard Time	
Client Name	ALTA Geosciences, INC	Printed Date/Time	07/30/2004 11:59
Project Name/#	Standard Steel	Collected Date/Time	07/14/2004 11:30
Client Sample ID	MW-14 Environ.	Received Date/Time	07/14/2004 16:44
Matrix	Water (Surface, Eff., Ground)	Technical Director	Stephen C. Ede
		Released By	Heather Steele

Sample Remarks:

8260 - CCV recovery for acetone does not meet laboratory QC criteria (biased low). The result for this analyte is estimated in this sample.

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
Metals by ICP/MS									
Lead	2.00 U	2.00	ug/L	SW6020	D		07/19/04	07/27/04	SCL
Polychlorinated Biphenyls									
Aroclor-1016	0.100 U	0.100	ug/L	SW8082	E		07/16/04	07/19/04	SPM
Aroclor-1221	0.100 U	0.100	ug/L	SW8082	E		07/16/04	07/19/04	SPM
Aroclor-1232	0.100 U	0.100	ug/L	SW8082	E		07/16/04	07/19/04	SPM
Aroclor-1242	0.100 U	0.100	ug/L	SW8082	E		07/16/04	07/19/04	SPM
Aroclor-1248	0.100 U	0.100	ug/L	SW8082	E		07/16/04	07/19/04	SPM
Aroclor-1254	0.100 U	0.100	ug/L	SW8082	E		07/16/04	07/19/04	SPM
Aroclor-1260	0.100 U	0.100	ug/L	SW8082	E		07/16/04	07/19/04	SPM
Surrogates									
Decachlorobiphenyl <surr>	96.5		%	SW8082	E	42-133	07/16/04	07/19/04	SPM
Volatile Gas Chromatography/Mass Spectroscopy									
Dichlorodifluoromethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Chloromethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Vinyl chloride	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Bromomethane	0.00300 U	0.00300	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Chloroethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Trichlorofluoromethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,1-Dichloroethene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Methylene chloride	0.00500 U	0.00500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Carbon disulfide	0.00200 U	0.00200	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Acetone	0.0100 U	0.0100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
trans-1,2-Dichloroethene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,1-Dichloroethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
2,2-Dichloropropane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS

SGS

SGS Ref.#	1044213006	**All Dates/Times are Alaska Standard Time**	
Client Name	ALTA Geosciences, INC	**Printed Date/Time**	07/30/2004 11:59
Project Name/#	Standard Steel	**Collected Date/Time**	07/14/2004 11:30
Client Sample ID	MW-14 Environ.	**Received Date/Time**	07/14/2004 16:44
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
Volatile Gas Chromatography/Mass Spectroscopy									
cis-1,2-Dichloroethene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
2-Butanone (MEK)	0.0100 U	0.0100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Bromochloromethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Chloroform	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,1,1-Trichloroethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Carbon tetrachloride	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,1-Dichloropropene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Benzene	0.000400 U	0.000400	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Trichloroethene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2-Dichloropropane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Dibromomethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Bromodichloromethane	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
2-Chloroethyl Vinyl Ether	0.0100 U	0.0100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
cis-1,3-Dichloropropene	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Toluene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
trans-1,3-Dichloropropene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,1,2-Trichloroethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Tetrachloroethene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,3-Dichloropropane	0.000400 U	0.000400	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Dibromochloromethane	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2-Dibromoethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Chlorobenzene	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,1,1,2-Tetrachloroethane	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Ethylbenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
o-Xylene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Styrene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Bromoform	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
P & M -Xylene	0.00200 U	0.00200	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Isopropylbenzene (Cumene)	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Bromobenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,1,2,2-Tetrachloroethane	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2,3-Trichloropropane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
n-Propylbenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
2-Chlorotoluene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS

SGS

SGS Ref.#	1044213006	**All Dates/Times are Alaska Standard Time**	
Client Name	ALTA Geosciences, INC	**Printed Date/Time**	07/30/2004 11:59
Project Name/#	Standard Steel	**Collected Date/Time**	07/14/2004 11:30
Client Sample ID	MW-14 Environ.	**Received Date/Time**	07/14/2004 16:44
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
Volatile Gas Chromatography/Mass Spectroscopy									
4-Chlorotoluene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,3,5-Trimethylbenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
tert-Butylbenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2,4-Trimethylbenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
sec-Butylbenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
4-Isopropyltoluene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,4-Dichlorobenzene	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2-Dichlorobenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,3-Dichlorobenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
n-Butylbenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2-Dibromo-3-chloropropane	0.00200 U	0.00200	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2,4-Trichlorobenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Hexachlorobutadiene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Naphthalene	0.00200 U	0.00200	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2,3-Trichlorobenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
4-Methyl-2-pentanone (MIBK)	0.0100 U	0.0100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
2-Hexanone	0.0100 U	0.0100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Methyl-t-butyl ether	0.00500 U	0.00500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1-Chlorohexane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Acrylonitrile	0.0100 U	0.0100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2-Dichloroethane	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
trans 1,4-Dichloro-2-Butene	0.00200 U	0.00200	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Vinyl acetate	0.0100 U	0.0100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Methyl iodide	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Surrogates									
Dibromofluoromethane <surr>	104		%	SW8260B	A	85-115	07/21/04	07/21/04	VS
1,2-Dichloroethane-D4 <surr>	104		%	SW8260B	A	72-119	07/21/04	07/21/04	VS
Toluene-d8 <surr>	100		%	SW8260B	A	84-113	07/21/04	07/21/04	VS
4-Bromofluorobenzene <surr>	107		%	SW8260B	A	78-124	07/21/04	07/21/04	VS

SGS

SGS Ref.#	1044213009	**All Dates/Times are Alaska Standard Time**	
Client Name	ALTA Geosciences, INC	**Printed Date/Time**	07/30/2004 11:59
Project Name/#	Standard Steel	**Collected Date/Time**	07/14/2004 15:30
Client Sample ID	Rinsate	**Received Date/Time**	07/14/2004 16:44
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**
		Released By	Heather Stall

Sample Remarks:

8260 - CCV recovery for acetone does not meet laboratory QC criteria (biased low). The result for this analyte is estimated in this sample.

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
Metals by ICP/MS									
Lead	2.00 U	2.00	ug/L	SW6020	D		07/19/04	07/27/04	SCL
Polychlorinated Biphenyls									
Aroclor-1016	0.100 U	0.100	ug/L	SW8082	E		07/16/04	07/19/04	SPM
Aroclor-1221	0.100 U	0.100	ug/L	SW8082	E		07/16/04	07/19/04	SPM
Aroclor-1232	0.100 U	0.100	ug/L	SW8082	E		07/16/04	07/19/04	SPM
Aroclor-1242	0.100 U	0.100	ug/L	SW8082	E		07/16/04	07/19/04	SPM
Aroclor-1248	0.100 U	0.100	ug/L	SW8082	E		07/16/04	07/19/04	SPM
Aroclor-1254	0.100 U	0.100	ug/L	SW8082	E		07/16/04	07/19/04	SPM
Aroclor-1260	0.100 U	0.100	ug/L	SW8082	E		07/16/04	07/19/04	SPM
Surrogates									
Decachlorobiphenyl <surr>	98.3		%	SW8082	E	42-133	07/16/04	07/19/04	SPM
Volatile Gas Chromatography/Mass Spectroscopy									
Dichlorodifluoromethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Chloromethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Vinyl chloride	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Bromomethane	0.00300 U	0.00300	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Chloroethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Trichlorofluoromethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,1-Dichloroethene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Methylene chloride	0.00500 U	0.00500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Carbon disulfide	0.00200 U	0.00200	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Acetone	0.0100 U	0.0100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
trans-1,2-Dichloroethene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,1-Dichloroethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
2,2-Dichloropropane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS

SGS

SGS Ref.#	1044213009	**All Dates/Times are Alaska Standard Time**	
Client Name	ALTA Geosciences, INC	**Printed Date/Time**	07/30/2004 11:59
Project Name/#	Standard Steel	**Collected Date/Time**	07/14/2004 15:30
Client Sample ID	Rinsate	**Received Date/Time**	07/14/2004 16:44
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
Volatile Gas Chromatography/Mass Spectroscopy									
cis-1,2-Dichloroethene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
2-Butanone (MEK)	0.0100 U	0.0100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Bromochloromethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Chloroform	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,1,1-Trichloroethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Carbon tetrachloride	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,1-Dichloropropene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Benzene	0.000400 U	0.000400	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Trichloroethene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2-Dichloropropane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Dibromomethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Bromodichloromethane	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
2-Chloroethyl Vinyl Ether	0.0100 U	0.0100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
cis-1,3-Dichloropropene	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Toluene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
trans-1,3-Dichloropropene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,1,2-Trichloroethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Tetrachloroethene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,3-Dichloropropane	0.000400 U	0.000400	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Dibromochloromethane	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2-Dibromoethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Chlorobenzene	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,1,1,2-Tetrachloroethane	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Ethylbenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
o-Xylene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Styrene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Bromoform	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
P & M -Xylene	0.00200 U	0.00200	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Isopropylbenzene (Cumene)	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Bromobenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,1,2,2-Tetrachloroethane	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2,3-Trichloropropane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
n-Propylbenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
2-Chlorotoluene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS

SGS

SGS Ref.#	1044213009	**All Dates/Times are Alaska Standard Time**	
Client Name	ALTA Geosciences, INC	**Printed Date/Time**	07/30/2004 11:59
Project Name/#	Standard Steel	**Collected Date/Time**	07/14/2004 15:30
Client Sample ID	Rinsate	**Received Date/Time**	07/14/2004 16:44
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
Volatile Gas Chromatography/Mass Spectroscopy									
4-Chlorotoluene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,3,5-Trimethylbenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
tert-Butylbenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2,4-Trimethylbenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
sec-Butylbenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
4-Isopropyltoluene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,4-Dichlorobenzene	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2-Dichlorobenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,3-Dichlorobenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
n-Butylbenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2-Dibromo-3-chloropropane	0.00200 U	0.00200	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2,4-Trichlorobenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Hexachlorobutadiene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Naphthalene	0.00200 U	0.00200	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2,3-Trichlorobenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
4-Methyl-2-pentanone (MIBK)	0.0100 U	0.0100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
2-Hexanone	0.0100 U	0.0100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Methyl-t-butyl ether	0.00500 U	0.00500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1-Chlorohexane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Acrylonitrile	0.0100 U	0.0100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2-Dichloroethane	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
trans 1,4-Dichloro-2-Butene	0.00200 U	0.00200	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Vinyl acetate	0.0100 U	0.0100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Methyl iodide	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Surrogates									
Dibromofluoromethane <surr>	100		%	SW8260B	A	85-115	07/21/04	07/21/04	VS
1,2-Dichloroethane-D4 <surr>	102		%	SW8260B	A	72-119	07/21/04	07/21/04	VS
Toluene-d8 <surr>	99.1		%	SW8260B	A	84-113	07/21/04	07/21/04	VS
4-Bromofluorobenzene <surr>	105		%	SW8260B	A	78-124	07/21/04	07/21/04	VS

SGS

SGS Ref.#	1044213010	**All Dates/Times are Alaska Standard Time**	
Client Name	ALTA Geosciences, INC	**Printed Date/Time**	07/30/2004 11:59
Project Name/#	Standard Steel	**Collected Date/Time**	07/14/2004 6:00
Client Sample ID	Trip Blank	**Received Date/Time**	07/14/2004 16:44
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**
		Released By	Heather Stall

Sample Remarks:

8260 - CCV recovery for acetone does not meet laboratory QC criteria (biased low). The result for this analyte is estimated in this sample.

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
Volatile Gas Chromatography/Mass Spectroscopy									
Dichlorodifluoromethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Chloromethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Vinyl chloride	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Bromomethane	0.00300 U	0.00300	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Chloroethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Trichlorofluoromethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,1-Dichloroethene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Methylene chloride	0.00500 U	0.00500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Carbon disulfide	0.00200 U	0.00200	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Acetone	0.0100 U	0.0100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
trans-1,2-Dichloroethene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,1-Dichloroethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
2,2-Dichloropropane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
cis-1,2-Dichloroethene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
2-Butanone (MEK)	0.0100 U	0.0100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Bromochloromethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Chloroform	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,1,1-Trichloroethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Carbon tetrachloride	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,1-Dichloropropene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Benzene	0.000400 U	0.000400	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Trichloroethene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2-Dichloropropane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Dibromomethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Bromodichloromethane	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
2-Chloroethyl Vinyl Ether	0.0100 U	0.0100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
cis-1,3-Dichloropropene	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Toluene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
trans-1,3-Dichloropropene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,1,2-Trichloroethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Tetrachloroethene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS

SGS

SGS Ref.#	1044213010	**All Dates/Times are Alaska Standard Time**	
Client Name	ALTA Geosciences, INC	**Printed Date/Time**	07/30/2004 11:59
Project Name/#	Standard Steel	**Collected Date/Time**	07/14/2004 6:00
Client Sample ID	Trip Blank	**Received Date/Time**	07/14/2004 16:44
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
Volatile Gas Chromatography/Mass Spectroscopy									
1,3-Dichloropropane	0.000400 U	0.000400	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Dibromochloromethane	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2-Dibromoethane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Chlorobenzene	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,1,1,2-Tetrachloroethane	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Ethylbenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
o-Xylene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Styrene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Bromoform	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
P & M -Xylene	0.00200 U	0.00200	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Isopropylbenzene (Cumene)	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Bromobenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,1,2,2-Tetrachloroethane	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2,3-Trichloropropane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
n-Propylbenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
2-Chlorotoluene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
4-Chlorotoluene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,3,5-Trimethylbenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
tert-Butylbenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2,4-Trimethylbenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
sec-Butylbenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
4-Isopropyltoluene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,4-Dichlorobenzene	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2-Dichlorobenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,3-Dichlorobenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
n-Butylbenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2-Dibromo-3-chloropropane	0.00200 U	0.00200	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2,4-Trichlorobenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Hexachlorobutadiene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Naphthalene	0.00200 U	0.00200	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2,3-Trichlorobenzene	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
4-Methyl-2-pentanone (MIBK)	0.0100 U	0.0100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
2-Hexanone	0.0100 U	0.0100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Methyl-t-butyl ether	0.00500 U	0.00500	mg/L	SW8260B	A		07/21/04	07/21/04	VS

SGS

SGS Ref.#	1044213010	**All Dates/Times are Alaska Standard Time**	
Client Name	ALTA Geosciences, INC	**Printed Date/Time**	07/30/2004 11:59
Project Name/#	Standard Steel	**Collected Date/Time**	07/14/2004 6:00
Client Sample ID	Trip Blank	**Received Date/Time**	07/14/2004 16:44
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
Volatile Gas Chromatography/Mass Spectroscopy									
1-Chlorohexane	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Acrylonitrile	0.0100 U	0.0100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
1,2-Dichloroethane	0.000500 U	0.000500	mg/L	SW8260B	A		07/21/04	07/21/04	VS
trans 1,4-Dichloro-2-Butene	0.00200 U	0.00200	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Vinyl acetate	0.0100 U	0.0100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Methyl iodide	0.00100 U	0.00100	mg/L	SW8260B	A		07/21/04	07/21/04	VS
Surrogates									
Dibromofluoromethane <surr>	99.1		%	SW8260B	A	85-115	07/21/04	07/21/04	VS
1,2-Dichloroethane-D4 <surr>	101		%	SW8260B	A	72-119	07/21/04	07/21/04	VS
Toluene-d8 <surr>	102		%	SW8260B	A	84-113	07/21/04	07/21/04	VS
4-Bromofluorobenzene <surr>	106		%	SW8260B	A	78-124	07/21/04	07/21/04	VS

ATTACHMENT 11

Groundwater Monitoring Report September 2006

(provided electronically on CDROM)

[This page intentionally left blank]

ALTA GEOSCIENCES, Inc.
Environmental & Geotechnical Solutions

BIENNIAL GROUNDWATER MONITORING REPORT (SEPTEMBER 2006 EVENT)

Standard Steel and Metals Salvage Yard Superfund Site Anchorage, Alaska

Prepared for:
Standard Steel RD/RA PRP Group

JUNE 2007

22833 Bothell-Everett Hwy. Suite 102-1168 **Phone** **(425) 485-1053**
Bothell, Washington 98021-9365 **Fax** **(425) 984-0114**

STANDARD STEEL & METALS SALVAGE YARD SUPERFUND SITE

TABLE OF CONTENTS

Section		Page
EXECUTIVE SUMMARY		ES-1
1.0	INTRODUCTION	1-1
1.1	Purpose And Scope	1-1
1.2	Organization Of The Report	1-1
2.0	SITE BACKGROUND AND PHYSICAL SETTING	2-1
2.1	Site Location And Description	2-1
2.2	Background	2-1
3.0	SEPTEMBER 2006 GROUNDWATER SAMPLING AND ANALYSIS	3-1
3.1	Groundwater Monitoring Levels	3-1
3.2	Sampling Procedures	3-1
3.3	Analytical Procedures	3-2
3.4	Analytical Results	3-2
3.5	Quality Assurance/Quality Control	3-3
4.0	CONCLUSIONS	4-1
5.0	REFERENCES	5-1

LIST OF TABLES

Table 3-1 Selected Groundwater Levels
Table 3-2 Groundwater Field Parameters
Table 3-3 September 2006 VOC Testing Results

LIST OF FIGURES

Figure 2-1 Site Location Map
Figure 3-1 Monitoring Well Locations and Site Topography

Appendices

APPENDIX A DATA QUALITY ASSURANCE REVIEW
APPENDIX B LABORATORY ANALYSIS CERTIFICATES

EXECUTIVE SUMMARY

Groundwater monitoring was performed at the Standard Steel and Metals Salvage Yard Superfund Site in September 2006. This biennial monitoring event was performed in accordance with the approved Groundwater Monitoring Plan (ALTA, November 1998), as subsequently amended.

Groundwater levels were measured and groundwater elevations calculated. Groundwater elevations and flow direction were consistent with prior monitoring events.

Samples from five site monitoring wells were analyzed for polychlorinated biphenyls (PCBs), volatile organic compounds (VOCs), and Lead. All analytical reporting limits met or exceeded project quality assurance requirements. No significant quality assurance issues were noted. All data are considered acceptable for the intended purpose.

No PCBs or Lead were detected in any sample. Two VOCs were detected in site environmental samples: toluene (MW-14 (a downgradient well), 7.9 ug/L), and chloroform (MW-22: 2.31 ug/L; and Equipment Blank: 2.33 ug/L). Reported results for both compounds are far below applicable State and Federal criteria.

These groundwater monitoring results continue to show the effectiveness of the site remedy as designed and constructed.

1.0 INTRODUCTION

1.1 PURPOSE AND SCOPE

This report presents the results of the biennial groundwater monitoring event (September 2006) for the Standard Steel & Metals Salvage Yard Superfund Site (Site) in Anchorage, Alaska. It has been prepared by ALTA Geosciences, Inc. of Bothell, WA. for the Standard Steel RD/RA PRP Group, consisting of (listed alphabetically): Chugach Electric Association, Inc.; J.C. Penny Company, Inc.; Montgomery Ward and Co.; and Sears, Roebuck and Co., Inc., and Viacom, Inc., (formerly Westinghouse Electric Corporation and CBS Corp.). The groundwater monitoring and reporting is required by the Record of Decision (ROD). This report is submitted in accordance with the Consent Decree for Remedial Design/Remedial Action at this Site.

The purpose of this document is to describe the activities associated with groundwater sampling and analysis performed at the Site in September 2006. Groundwater monitoring was performed on a semiannual basis in 1998 and 1999. With the concurrence of USEPA, this was reduced to annual monitoring for 2000 through 2002, and then to biennial (every other year) beginning in 2004.

Supporting documents to this Report include the November 1998 Work Plan, Field Sampling Plan, the Quality Assurance Project Plan, and the Health and Safety Plan (ALTA, 1999). Previous groundwater monitoring work was completed by Woodward Clyde Consultants in April 1993 and ALTA Geosciences in 1998 to the present. The results of the Woodward Clyde Consultants work were summarized in the November 1998 Work Plan and the ALTA monitoring work has been summarized in individual Groundwater Monitoring Reports submitted to EPA following each event.

Staff from ALTA Geosciences, Inc. performed field work for this event on September 5th, 2006. Groundwater elevations and samples were taken in five wells. Analytical testing was performed on these samples for polychlorinated biphenyls (PCBs), Lead, and volatile organic compounds (VOCs) by SGS Environmental Services of Anchorage, Alaska. Field Sampling, data analysis, and production of this report were under the direct supervision of an ALTA Geosciences, Inc. environmental scientist.

1.2 ORGANIZATION OF REPORT

This report presents Site information and background data in sufficient detail to identify the project and place the monitoring work in perspective. Groundwater elevation data and analytical data for PCBs from prior work has been retained in summary tables in this report, and updated with the September 2006 data developed by ALTA Geosciences, Inc. The Appendices present copies of field and analytical data, as well as a quality control analysis of the analytical data.

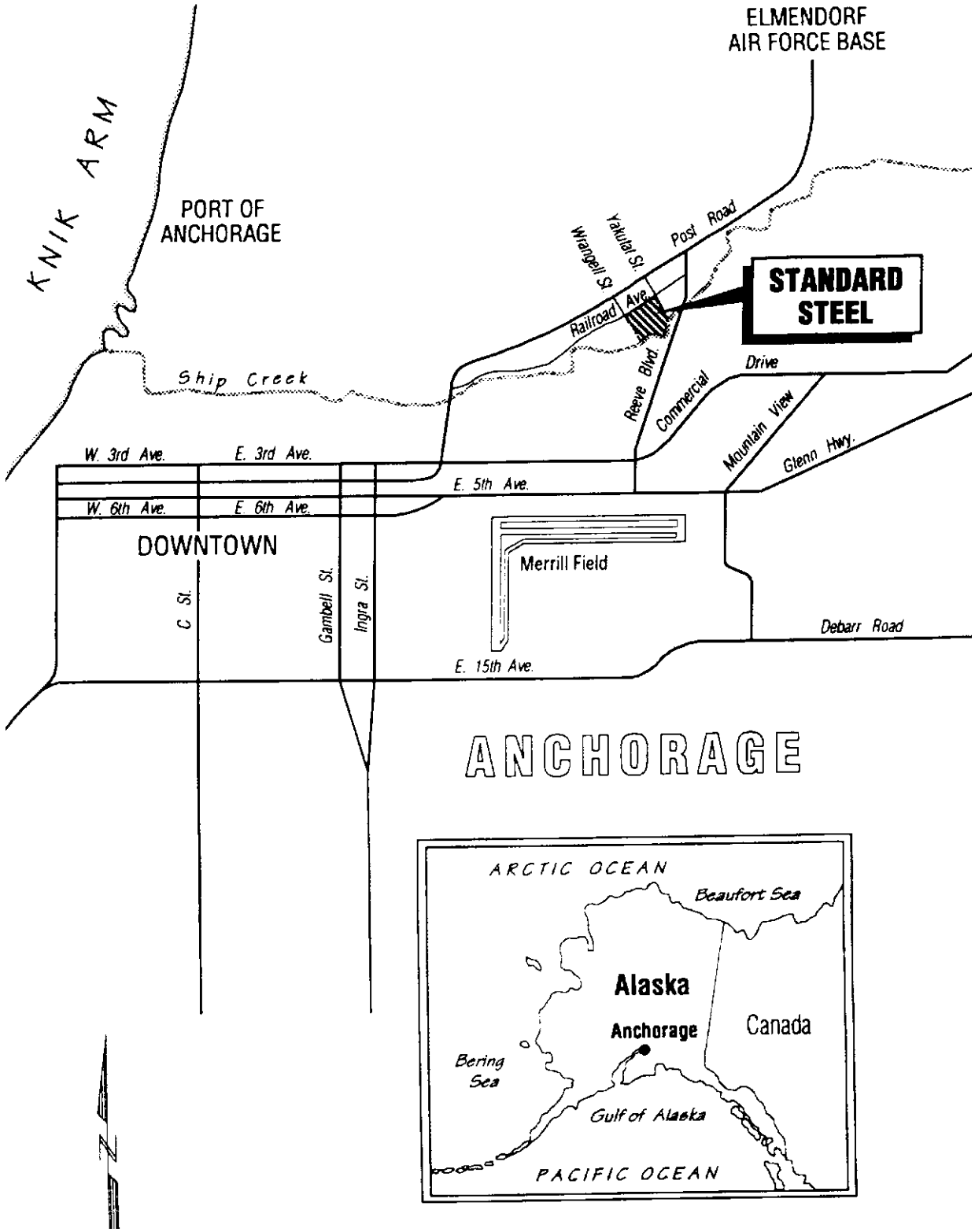
2.0
SITE BACKGROUND AND PHYSICAL SETTING

2.1 SITE LOCATION AND DESCRIPTION

The Standard Steel and Metals Salvage Yard (Site) is approximately 6.2 acres in size, and is located in the northern portion of Anchorage, Alaska, near the intersections of Railroad Avenue and Yakutat Street (see Figure 2-1, Site Location Map). Surrounding land use is primarily industrial. A warehouse is located on the north side of the Site, on the east there are warehouses, and light industrial facilities. To the west there is a steel fabrication facility. Ship Creek bounds the south side of the Site. During previous Superfund activities (see Work Plan, Section 2.3) the Site was cleared of most scrap metal and debris formerly present, and as of 2006 it was primarily covered with gravel and soil fill. Native cottonwood trees and small brush are present along Ship Creek in the southern portion of the Site.

2.2 BACKGROUND

Site regulatory history, geology, and groundwater chemistry have been summarized in the Groundwater Monitoring Plan (ALTA 1998).



Standard Steel & Metals Salvage Yard Superfund Site
Groundwater Monitoring Report

SITE LOCATION MAP

FIGURE 2 -1

ALTA Geosciences, Inc.

3.0
SEPTEMBER 2006 GROUNDWATER SAMPLING AND ANALYSIS

The approved Groundwater Monitoring Plan (ALTA, November 1998) calls for sampling and analysis of wells MW13, MW14, MW15, MW22, and MW24. For the present monitoring event, all these wells were sampled for PCBs, Lead, and volatile organic compounds.

3.1 GROUNDWATER MONITORING LEVELS – SEPTEMBER 2007

Groundwater level measurements were made in each monitoring well, MW13, MW14, MW15, MW22, and MW24. A well sounder was used to determine water depth to the nearest 0.01 foot relative to the top of the well casings. Inspection of the tape after use at each well did not reveal the presence of floating oil. The September 5, 2006 water depths and elevations (MSL) are shown in Table 3-1, along with selected, representative historic data from 1993,1998, 1999, 2000, 2001, 2002, and 2004 measurements are generally within the range of values observed in earlier monitoring, and very close to the levels measured in July 2004. The top of casing elevation for MW-22 and MW-14 were damaged and rehabilitated in the past, but top of casing elevations have not been re-surveyed; at present the new top of casing elevations are estimated. The groundwater flow direction is to the south, towards Ship Creek, consistent with prior monitoring events.

3.2 SAMPLING PROCEDURES

Groundwater samples were collected from 5 Site monitoring wells on September 5, 2006 for analytical laboratory testing. To obtain a sample representative of the surrounding formation, each well was purged and sampled using a low-flow technique to reduce interference's associated with turbidity.

Sampling

Sampling equipment consisted of a portable peristaltic pump using disposable tubing to the surface. Water analyses during sampling were made using an YSI-55 Dissolved Oxygen meter, Oakton pH5, pH meter, ORP Testr, and Oakton WD-35607 conductivity and temperature meter. All meters were calibrated the day of use.

Wells were purged at a rate of ½ to 1 liters per minute with the peristaltic pump inlet set near the top of the screened interval and samples were collected at a flow of approximately 1/2 liter per minute. Prior to groundwater sampling, each well was purged until pH, conductivity and temperature readings stabilized within 10 percent,

with a low turbidity. The samples were dispensed directly into laboratory provided containers. Each sample was appropriately labeled and stored on ice at approximately 4°C from the time of collection through the time of delivery to the laboratory, and chain of custody procedures were followed to ensure sample integrity.

Decontamination Procedures

All sampling equipment was decontaminated between each monitoring well location to avoid cross-contamination. New tubing was used for each well.

Purge Water Storage

All purge water was stored in a 55 gallon drum at the site. The drum was closed with sealed lids, bolted, and have been stored in a locked cargo container on the project site, pending testing results.

Documentation

Record keeping documentation for the samples included the use of the following:

- Fluid level measurement form; to record depth to fluid in each well.
- Groundwater sampling form; to record method of collection, purge volume, parameters pH, cond, temp., turbidity and general observations.
- Labels to identify individual samples; with well #, project name, date, time, samplers name and type of preservation (if any).
- Chain-of-custody record sheets; to document possession and transfer of samples and specify analysis requested..

Field records are included in Table 3-2.

3.3 ANALYTICAL PROCEDURES

Five environmental samples were collected, one from each of the five wells, plus one duplicate, one field rinsate blank, and a trip blank (VOCs only). Additional sample volume was collected from one of the wells so that matrix spike (MS) and matrix spike duplicate (MSD) analyses could be run on site samples. All nine samples were analyzed by SGS Environmental Services, Inc. of Anchorage, Alaska. All samples were analyzed by EPA Method 8082 for PCBs, Method 6020 for Lead, and Method 8260B for Volatile Organic Compounds. Results for PCBs were reported for seven Aroclors.

3.4 ANALYTICAL RESULTS

Laboratory analysis certificates are contained in Appendix B. Testing results indicate no detectable values for all PCB Aroclors (PQL of 0.1 ug/L). Lead testing results were non-detect for all samples (PQL of 1.0 ug/L). These results are well below the minimum reporting level for Lead (5.0 ug/L) and PCBs (0.5 ug/L) required by the project QAPP.

All samples showed non-detect for all 8260B volatile organic compounds of concern for the Site, but included the following anomalous detections: MW-14: Toluene @ 7.9 ug/L; MW-22 & Equipment Blank: Chloroform @ 2.31 and 2.33 ug/L respectively. These detections are not considered significant with respect to compliance with Site regulatory requirements and are far below all state and federal groundwater criteria. MW-14 is a downgradient well. The PQL varied by compound, but in general was 0.5 to 5.0 ug/L or lower.

3.5 QUALITY ASSURANCE/QUALITY CONTROL

Appendix A contains a Data Quality Assurance Review of the laboratory reports. This review may be summarized as follows:

- Holding Times -- all acceptable
- Method Blanks – one analyzed, acceptable for all compounds
- Surrogate Recovery -- %R acceptable for all analyses except as noted below.
- Matrix Spike Recovery -- %R is acceptable
- Blank Spike Recovery -- %R is acceptable
- Precision -- RPD is acceptable
- Completeness -- completeness is acceptable

The sample identified as DW-1 was a field duplicate of MW-13. The samples both showed non-detect for all constituents analyzed. A trip blank was analyzed for VOCs and no compounds were reported. An equipment rinsate blank was analyzed for HVOCs, PCBs, and Lead with no detections, except Chloroform at 2.33 ug/L.

The following notes apply to quality assurance parameters:

- MW-13: (Method 8260 –VOCs): Surrogate recovery for dibromofluoromethane is high and does not meet QC recovery goals. All other surrogates meet QC goals; results should not be significantly affected.
- MS/MSD and LCS analyses:
    - Method 8260 (VOCs) - Recoveries for several analytes do not meet QC recovery goals. Surrogate recovery for dibromofluoromethane is high and does not meet QC recovery goals. All other surrogates meet QC goals; results should not be significantly affected.
    - Method 6020 (metals) – Recovery for barium was outside of acceptance criteria. Post digestion spike was successful.
    - 8082 – Laboratory control sample (LCS) recovery is biased high for Aroclor 1260. Associated samples are nondetect for this Aroclor.

All results are considered acceptable for the use intended.

Table 3-1
Selected Groundwater Levels

WELL NUMBER	DATE OF MEASUREMENT	TOC ELEVATION (Feet, MSL)	DEPTH TO WATER (Feet)	WATER ELEVATION (Feet, MSL)
Well 13	1/6/93	71.06	5.61	65.45
	4/1/93	71.06	5.20	65.86
	7/22/93	71.06	5.10	65.96
	11/30/93	71.06	5.82	65.24
	5/8/98	71.06	6.46	64.60
	5/23/99	71.06	4.80	66.26
	10/2/99	71.06	4.44	66.62
	5/18/00	71.06	4.93	66.13
	9/29/00	71.06	4.70	66.36
	8/24/01	71.06	5.58	65.48
	8/18/02	71.06	5.50	65.56
	6/14/04	71.06	5.69	65.37
	9/5/06	71.06	5.54	65.52
Well 14	1/6/93	72.26	6.65	65.61
	4/1/93	72.26	6.34	65.92
	7/22/93	72.26	6.17	66.09
	11/30/93	72.26	6.15	66.11
	5/8/98	72.26	6.46	65.80
	5/23/99	72.26	6.50	65.76
	10/2/99	72.26	5.87	66.39
	5/18/00	72.26	6.20	66.06
	9/29/00	72.26	5.88	66.38
	8/24/01	72.26	6.53	65.73
	8/18/02	72.26	6.56	65.70
	6/14/04	72.26	6.83	65.43
MW-14 Wellhead Rebuilt		71.75 (Approx.)		
	9/5/06	71.75	5.86	65.89
Well 15	1/6/93	75.18	6.27	68.91
	4/1/93	75.18	6.00	69.18
	7/22/93	75.18	5.79	69.39
	11/30/93	75.18	6.13	69.05
	5/7/98	75.18	6.00	69.18
	5/23/99	75.18	5.85	69.33
	10/2/99	75.18	5.48	69.70
	5/18/00	75.18	5.62	69.56
	9/28/00	75.18	5.40	69.78
	8/24/01	75.18	6.12	69.06
	8/18/02	75.18	6.14	69.04
	6/14/04	75.18	6.11	69.07
	9/5/06	75.18	5.70	69.48
Well 22	1/6/93	80.61	8.95	71.66
	4/1/93	80.61	8.31	72.30
	7/22/93	80.61	8.92	71.69
	11/30/93	80.61	8.89	71.72
	5/7/98	80.61	8.40	72.21
	5/23/99	80.61	8.71	71.90
	10/2/99	80.61	8.59	72.02

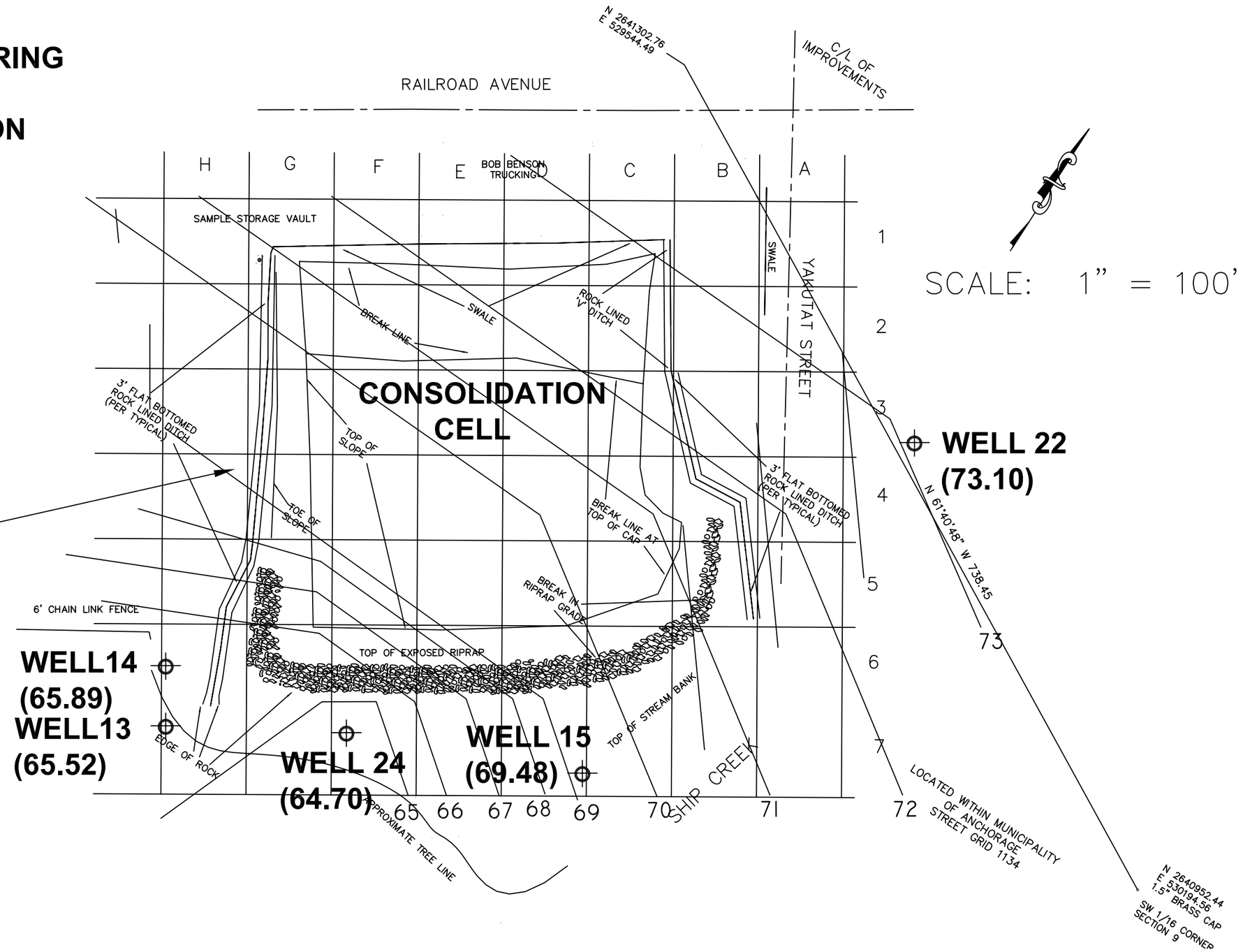
	5/18/00	80.61	8.85	71.76
(Head Re-installed)	8/24/01	78.60 (Approx.)	6.75	71.85
	8/18/02	78.60 (Approx.)	6.52	72.08
	6/14/04	78.60 (Approx.)	6.52	72.08
	9/5/06	78.60 (Approx.)	5.50	73.10
Well 24	10/2/99	70.56	5.29	65.27
	5/18/00	70.56	5.52	65.04
	9/29/00	70.56	5.43	65.13
	8/24/01	70.56	6.13	64.43
	8/18/02	70.56	6.14	64.42
	6/14/04	70.56	6.32	64.24
	9/5/06	70.56	5.86	64.70

Table 3-2
GROUNDWATER FIELD PARAMETERS

	MW13	MW14	MW15	MW22	MW24
Field Parameters					
Temperature (^oC)	6.6	10.3	6.8	7.8	7.8
pH	7.5	6.7	8.7	7.5	8.0
Conductivity (uS)	320	450	320	280	310
Turbidity (NTU)	clear	clear	clear	clear	clear
Dissolved O_2 (mg/L)	0.34	0.95	1.47	0.50	1.43
ORP	320	330	366	101	0.9

Table 3-3
SEPTEMBER 2007 VOC TESTING RESULTS

PROJECT AREA	SAMPLE ID	ANALYTE	RESULT (ug/L)	COMMENTS
Western End	MW-13	ALL COMPOUNDS ANALYZED	ND	
Western End	MW-14	Toluene	7.9	See text
		ALL OTHER COMPOUNDS ANALYZED*	ND	
South Center	MW-15	ALL COMPOUNDS ANALYZED	ND	
East Side, Outside	MW-22	Chloroform	2.31	See text
		ALL OTHER COMPOUNDS ANALYZED*	ND	
Southwest Side	MW-24	ALL COMPOUNDS ANALYZED	ND	
	DW-1	ALL COMPOUNDS ANALYZED	ND	Duplicate MW-13
	RINSATE	Chloroform	2.33	See text
		ALL OTHER COMPOUNDS ANALYZED*	ND	
	TRIP BLANK	ALL COMPOUNDS ANALYZED	ND	



STANDARD STEEL & METALS SALVAGE YARD
Superfund Site
Anchorage, Alaska

ALTA GEOSCIENCES, INC. **Bothell, Washington**	**GROUNDWATER MONITORING REPORT September 2006**	**MONITORING WELL LOCATIONS**	**FIGURE 3-1**

4.0 CONCLUSIONS

Groundwater sampling was completed on September 5, 2007 at the Standard Steel Site, in accordance with the Groundwater Sampling And Analysis Plan (ALTA Geosciences, Inc., November 1998). Monitoring wells MW-13, -14, -15, -22, and -24 were sampled. Sounding depths for water in all wells were consistent with historical water depths and show no significant variations.

Constituents being monitored included PCBs, Lead, and VOCs. There were no detections of compounds of concern in the samples at levels above the PQL levels set by the Quality Assurance Project Plan. Anomalous detections of Toluene and Chloroform were noted, but were far below applicable federal and state standards.

The Remedial Action Construction for the Site was completed in 1999. Near-surface Lead and PCB contaminated soil was excavated from areas throughout the Site and placed in a capped consolidation cell. More highly impacted soils were treated by solidification/stabilization prior to consolidation. An extensive zone of PCB contamination containing free transformer oil product was excavated, treated, and consolidated with other highly impacted soils. After soil was placed in this cell, the potential for leaching of Lead and PCBs to groundwater was greatly reduced through stabilization and hydraulic isolation. This should have a favorable long-term impact on groundwater resources within and surrounding the Site.

Given the remediation of the most significant known sources of potential groundwater contamination at the Site, in the long term, the outlook is favorable for having no detectable impacts from the contaminants of concern.

5.0 REFERENCES

ALTA Geosciences, Inc. (ALTA), November 1998. Final Groundwater Monitoring Plan, Standard Steel and Metals Salvage Yard Superfund Site, Anchorage, Alaska.

U.S. Environmental Protection Agency (EPA), 1986. Test Methods for Evaluation of Solid Waste, Vol II: Field Manual Physical/Chemical Methods (SW-846). Office of Solid Waste and Emergency Response, U.S. Environmental Protection Agency, Washington, D.C. November 1986.

Woodward Clyde Consultants (WCC), 1996. Feasibility Study Report, Standard Steel and Metals Salvage Yard Superfund Site, Anchorage, AK.

Woodward Clyde Consultants (WCC), 1994, Remedial Investigation Report, Standard Steel and Metals Salvage Yard Superfund Site, Anchorage, AK.

APPENDIX A
DATA QUALITY ASSURANCE REVIEW

GROUNDWATER SAMPLES: POLYCHLORINATED BIPHENYLS (PCBs) DATA QUALITY ASSURANCE REVIEW (SGS Reference Numbers 1065194-001 Through –10)

Upon receipt from SGS Environmental Services (SGS) laboratory, all PCB analytical results underwent a Quality Assurance (QA) review of laboratory handling procedures. In addition to sample results, the laboratory data reports included Quality Control (QC) data for blank, laboratory control sample (i.e., blank spike), surrogate, matrix spike, and matrix spike duplicate results.

SAMPLE ANALYSIS

SGS performed PCB analyses using EPA Test Method 8082B as promulgated in *Test Methods for Evaluating Solid Waste.*

HOLDING TIMES

Holding times for groundwater samples were assessed relative to the following SW846 holding times:

- A sample must be extracted within seven days from the date and time of sample collection
- A sample must be analyzed within 40 days from the date of extraction
- All samples must be shipped in an iced chest to the laboratory and stored at 4°C until they are extracted

Eight groundwater PCB samples plus a rinsate were collected September 5, 2006. SGS received the samples the same day. All samples were placed in an iced chest after collection and were stored at 4°C until extraction. SGS extracted the samples on September 11th and analyzed the samples on September 22nd. All holding times are acceptable.

BLANK ANALYSIS

Method blank analysis is performed to determine the extent of laboratory contamination of samples. Method blank criteria require that no PCBs be detected in the blank.

One method blank was analyzed. PCBs were not detected in the blank.

ACCURACY

Accuracy was assessed by evaluating surrogates, blank spikes, and matrix spike recoveries. Each sample and QC sample is spiked with a surrogate compound. Each matrix spike (MS) and matrix spike duplicate (MSD) is prepared by spiking a groundwater (environmental) sample with a known concentration of Aroclor 1260 (A1260). A blank spike (BS) is prepared by spiking a laboratory-prepared aqueous sample with a known concentration of A1260.

Surrogate Recovery

Groundwater samples were spiked with the surrogate compound Decachlorobiphenyl. The project QC limits for percent surrogate recovery (%R) are 53% to 133%. Decachlorobiphenyl %Rs ranged from 77.3% to 92.1%. All %Rs were acceptable.

Matrix Spike Recovery

The laboratory prepared an MS sample and duplicate for Aroclors 1016 and 1260. The MS/MSD limits were 69 to 115 %R. The reported %R values were 97 and 98 for %R on 1016, and 104 %R for both on 1260. The MS %R is acceptable.

PRECISION

Precision is expressed as the relative percent difference (RPD) between the MS and the MSD. Acceptable RPD limits are 0-25%. The RPD was reported by the laboratory as 0% and 2% RPD for the two Aroclors. The RPD is acceptable.

LABORATORY CONTROL SAMPLE RECOVERY

The laboratory reports the following problems with the LCS:

> LCS recovery is biased high for Aroclor 1260. Associated samples are non-detect for this Aroclor (value = 118%, whereas limits are 61 to 110 %). Because of the low PQL for this compound and the non-detect sample values, even a high bias to results on the environmental samples would not result in exceedance of allowable values for the site. Therefore, this variance is not considered significant.
>
> CCV recovery is biased high for Aroclor 1260. Associated samples are non-detect for this Aroclor.

CCV recovery is biased high for Aroclor 1260. Associated samples are non-detect for this Aroclor.

COMPOUND IDENTIFICATION

PCBs were detected using a gas chromatograph equipped with an electron capture detector (ECD). The identity of a detected compound was determined by comparison of a standard's retention times and its chromatographic trace with that of the sample detected compound. The required detection limits for all aroclors was 0.10 µg/L. This was attained for all Aroclors. The detection limits are acceptable.

COMPLETENESS

Completeness is a measure of the amount of valid sample data obtained from the measurement system compared to the amount of sample data that were analyzed. Valid results are those results which meet or exceed quality control criteria and satisfy quality assurance objectives. The percent completeness is compared to a goal of 80%. Completeness for the data set was 100%. The completeness is acceptable.

GROUNDWATER SAMPLES: LEAD
DATA QUALITY ASSURANCE REVIEW
(SGS Reference Numbers 1065194-001 Through –10)

Upon receipt from SGS Environmental Services (SGS) laboratory, all Lead analytical results underwent a Quality Assurance (QA) review of laboratory handling procedures. In addition to sample results, the laboratory data reports included Quality Control (QC) data for blank, laboratory control sample (i.e., blank spike), matrix spike, and matrix spike duplicate results.

SAMPLE ANALYSIS

SGS performed Lead analyses using EPA Test Method 6020 as promulgated in *Test Methods for Evaluating Solid Waste, USEPA SW846.*

HOLDING TIMES

Holding times for groundwater samples were assessed relative to the following SW846 holding times:

- A sample must be preserved with HNO_3 to pH<2
- A sample must be analyzed within 6 months from the date of collection
- All samples must be shipped in an iced chest to the laboratory and stored at $4^{o}C$ until they are extracted

Eight groundwater samples plus a rinsate were collected September 5, 2006. SGS received the samples on the same day. All samples were placed in an iced chest after collection and were stored at $4^{o}C$ until extraction. SGS extracted the samples on September 8th and analyzed them on September 11th and 12th. All holding times are acceptable.

BLANK ANALYSIS

Method blank analysis is performed to determine the extent of laboratory contamination of samples. Method blank criteria require that no Lead be detected in the blank. One method blank was analyzed. Lead was not detected in the blank.

ACCURACY

Accuracy was assessed by evaluating blank spikes (Laboratory Check Standard, LCS), and matrix spike recoveries. Each matrix spike (MS) and matrix spike

duplicate (MSD) is prepared by spiking a groundwater sample with a known concentration of Lead. A blank spike (LCS) is prepared by spiking a laboratory-prepared aqueous sample with a known concentration.

LCS Recovery

A laboratory check sample was spiked with a known concentration of a laboratory standard. The project QC limits for percent LCS recovery (%R) are 85% to 115%. The %R was 98.8%. The %R is acceptable.

Matrix Spike Recovery

The laboratory prepared one MS and one MSD with the data set (i.e., project sample Well 14). The project required MS %R QC limit for Lead is 80% to 120%. The %R for the MS was reported by the laboratory as 116%. The %R for the MSD was reported by the laboratory as 120%. The %R is acceptable. The laboratory QC notes for these samples were as follows:

> MS/MSD recovery for Ba was outside of acceptance criteria. Post digestion spike was successful.
>
> MS/MSD recovery for Ba was outside of acceptance criteria. Post digestion spike was successful.

PRECISION

Precision is expressed as the relative percent difference (RPD) between the MS and the MSD. The project required MS/MSD RPD control limit for Lead is 0-25%. The RPD was 3.0% for this analysis. The RPD is acceptable.

COMPOUND IDENTIFICATION

Lead was analyzed under EPA Method 6020. The required detection limits for Lead was 0.005 mg/L. This was attained for all samples. The detection limits are acceptable.

COMPLETENESS

Completeness is a measure of the amount of valid sample data obtained from the measurement system compared to the amount of sample data that were analyzed. Valid results are those results which meet or exceed quality control criteria and satisfy quality assurance objectives. The percent completeness is compared to a goal of 80%. Completeness for the data set was 100%. The completeness is acceptable.

GROUNDWATER SAMPLES: VOLATILE ORGANICS (VOC) DATA QUALITY ASSURANCE REVIEW (SGS Reference Numbers 1065194-001 Through –10)

Upon receipt from SGS Environmental Services (SGS) laboratory, all HVOC analytical results underwent a Quality Assurance (QA) review of laboratory handling procedures. In addition to sample results, the laboratory data reports included Quality Control (QC) data for blank, laboratory control sample (i.e., blank spike), matrix spike, and matrix spike duplicate results.

SAMPLE ANALYSIS

SGS performed PCB analyses using EPA Test 8260B, as promulgated in *Test Methods for Evaluating Solid Waste, USEPA SW846.*

HOLDING TIMES

Holding times for groundwater samples were assessed relative to the following SW846 holding times:

- A sample must be analyzed within 14 days from the date and time of sample collection
- A VOC sample must be preserved with HCl to pH <2
- All samples must be shipped in an iced chest to the laboratory and stored at 4°C until they are extracted

Eight groundwater samples plus a rinsate sample were collected on September 5, 2006 and were received by SGS the same day. All samples were placed in an iced chest after collection and were stored at 4°C until testing. SGS extracted and analyzed the samples on September 16th. All holding times are acceptable.

BLANK ANALYSIS

Method blank analysis is performed to determine the extent of laboratory contamination of samples. Method blank criteria require that no VOCs be detected in the blank. One method blank was analyzed.

ACCURACY

Accuracy was assessed by evaluating blank spike (a.k.a. LCS), and matrix spike recoveries. Each sample and a blank QC sample is spiked with a known quantity of the EPA 8260 compounds.

Surrogate Recovery

The laboratory note the following problem for this parameter on the MS sample (1065194004, MW-14 MS):

> Surrogate recovery for dibromofluoromethane is high and does not meet QC recovery goals. All other surrogates meet QC goals; results should not be significantly affected.

Matrix Spike Recovery

The laboratory prepared one MS and one MSD (i.e., project sample Well 14). The project required MS %R QC limits vary by compound. The %R for the MS and MSD reported by the lab were all within acceptable limits.

The laboratory notes the following problem with the MSD sample (1065194004, MW-14 MSD):

> BMSD recoveries for several analytes do not meet QC recovery goals. Refer to LCS and LCSD for recoveries and precision of these analytes.
>
> Surrogate recovery for dibromofluoromethane is high and does not meet QC recovery goals. All other surrogates meet QC goals; results should not be significantly affected.

Laboratory Check Standard Recovery

The laboratory prepared an LCS (blank) sample and duplicate for EPA 8260 compounds. The LCS/LCSD acceptable limits for %R vary by compound. The reported %R were all within the acceptable limits. The LCS %R is acceptable.

PRECISION

Precision is expressed as the relative percent difference (RPD) between the MS and the MSD. The project required MS/MSD RPD control limit is 0-25%. The RPD values reported by the laboratory varied from were all within acceptable limits. The RPD acceptable limits for LCS/LCSD samples are 0-25% and the reported RPD values all within acceptable limits.

COMPOUND IDENTIFICATION

VOCs were detected using a GC/MS. The identity of a detected compound was determined by comparison of a standard's retention times and its chromatographic trace with that of the sample detected compound.

The required detection limits for all compounds was 0.001 mg/L, except for Methyl Chloride, which is 0.010 mg/L. Overall, the detection limits are acceptable.

COMPLETENESS

Completeness is a measure of the amount of valid sample data obtained from the measurement system compared to the amount of sample data that were analyzed. Valid results are those results which meet or exceed quality control criteria and satisfy quality assurance objectives. The percent completeness is compared to a goal of 80%. Completeness for the data set was 100%. The completeness is acceptable.

APPENDIX B
LABORATORY ANALYSIS CERTIFICATES

SGS Environmental Services
Alaska Division
Level II Laboratory Data Report

Project:	Standard Steel
Client:	ALTA Geosciences, INC
SGS Work Order:	1065194

Released by:

Contents:

Cover Page
Case Narrative
Final Report Pages
Quality Control Summary Forms
Chain of Custody/Sample Receipt Forms

Note:
Unless otherwise noted, all quality assurance/quality control criteria is in compliance with the standards set forth by the proper regulatory authority, the SGS Quality Assurance Program Plan, and the National Environmental Accreditation Conference.

Case Narrative

Client	ALTAGEO	ALTA Geosciences, INC	**Printed Date/Time**	9/22/2006	16:27
Workorder	1065194	Standard Steel			

Sample ID	**Client Sample ID**

Refer to the sample receipt form for information on sample condition.

1065194001 PS MW-13

8260 - Surrogate recovery for dibromofluoromethane is high and does not meet QC recovery goals. All other surrogates meet QC goals; results should not be significantly affected.

1065194003 BMS MW-14 MS

8260 - BMS recoveries for several analytes do not meet QC recovery goals. Refer to LCS and LCSD for recoveries and precision of these analytes.
8260 - Surrogate recovery for dibromofluoromethane is high and does not meet QC recovery goals. All other surrogates meet QC goals; results should not be significantly affected.

1065194004 BMSD MW-14 MSD

8260 - BMSD recoveries for several analytes do not meet QC recovery goals. Refer to LCS and LCSD for recoveries and precision of these analytes.
8260 - Surrogate recovery for dibromofluoromethane is high and does not meet QC recovery goals. All other surrogates meet QC goals; results should not be significantly affected.

725855 MS MW-14(1065194002MS)

6020 - MS/MSD recovery for Ba was outside of acceptance criteria. Post digestion spike was successful.

725856 MSD MW-14(1065194002MSD)

6020 - MS/MSD recovery for Ba was outside of acceptance criteria. Post digestion spike was successful.

725940 LCS LCS for HBN 177100 [XXX/17254

8082 - LCS recovery is biased high for Aroclor 1260. Associated samples are nondetect for this Aroclor.

729325 CCV CCV for HBN 177816 [XGC/5605]

8082 - CCV recovery is biased high for Aroclor 1260. Associated samples are nondetect for this Aroclor.

729327 CCV CCV for HBN 177816 [XGC/5605]

8082 - CCV recovery is biased high for Aroclor 1260. Associated samples are nondetect for this Aroclor.

Laboratory Analysis Report

200 W. Potter Drive
Anchorage, AK 99518-1605
Tel: (907) 562-2343
Fax: (907) 561-5301
Web: http://www.us.sgs.com

Alex Tula
ALTA Geosciences, Inc.
22833 Bothell-Everett Hwy
Ste 102 #1168
Bothell, WA 980219365

Work Order:	1065194	
	Standard Steel	**Released by:**
Client:	ALTA Geosciences, INC	
Report Date:	September 22, 2006	

Enclosed are the analytical results associated with the above workorder.

As required by the state of Alaska and the USEPA, a formal Quality Assurance/Quality Control Program is maintained by SGS. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request.

The laboratory certification numbers are AK971-05 (DW), UST-005 (CS) and AK00971 (Micro) for ADEC and 001543 for NELAP.

Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP, the National Environmental Laboratory Accreditation Program and, when applicable, other regulatory authorities.

If you have any questions regarding this report or if we can be of any other assistance, please contact your SGS Project Manager at 907-562-2343.

The following descriptors may be found on your report which will serve to further qualify the data.

PQL	Practical Quantitation Limit (reporting limit).
U	Indicates the analyte was analyzed for but not detected.
F	Indicates value that is greater than or equal to the MDL.
J	The quantitation is an estimation.
ND	Indicates the analyte is not detected.
B	Indicates the analyte is found in a blank associated with the sample.
*	The analyte has exceeded allowable regulatory or control limits.
GT	Greater Than
D	The analyte concentration is the result of a dilution.
LT	Less Than
!	Surrogate out of control limits.
Q	QC parameter out of acceptance range.
M	A matrix effect was present.
JL	The analyte was positively identified, but the quantitation is a low estimation.
E	The analyte result is above the calibrated range.

Note: Soil samples are reported on a dry weight basis unless otherwise specified.

SGS Ref.#	1065194001	**All Dates/Times are Alaska Standard Time**	
Client Name	ALTA Geosciences, INC	**Printed Date/Time**	09/22/2006 16:27
Project Name/#	Standard Steel	**Collected Date/Time**	09/05/2006 11:04
Client Sample ID	MW-13	**Received Date/Time**	09/05/2006 15:14
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**

Sample Remarks:

8260 - Surrogate recovery for dibromofluoromethane is high and does not meet QC recovery goals. All other surrogates meet QC goals; results should not be significantly affected.

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
Metals by ICP/MS									
Lead	ND	1.00	ug/L	SW6020	D		09/08/06	09/11/06	SCL
Polychlorinated Biphenyls									
Aroclor-1016	ND	0.100	ug/L	SW8082	E		09/11/06	09/21/06	WAA
Aroclor-1221	ND	0.100	ug/L	SW8082	E		09/11/06	09/21/06	WAA
Aroclor-1232	ND	0.100	ug/L	SW8082	E		09/11/06	09/21/06	WAA
Aroclor-1242	ND	0.100	ug/L	SW8082	E		09/11/06	09/21/06	WAA
Aroclor-1248	ND	0.100	ug/L	SW8082	E		09/11/06	09/21/06	WAA
Aroclor-1254	ND	0.100	ug/L	SW8082	E		09/11/06	09/21/06	WAA
Aroclor-1260	ND	0.100	ug/L	SW8082	E		09/11/06	09/21/06	WAA
Surrogates									
Decachlorobiphenyl <surr>	87.3		%	SW8082	E	53-133	09/11/06	09/21/06	WAA
Volatile Gas Chromatography/Mass Spectroscopy									
Dichlorodifluoromethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Chloromethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Vinyl chloride	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Bromomethane	ND	3.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Chloroethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,1-Dichloroethene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Trichlorofluoromethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Methylene chloride	ND	5.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Carbon disulfide	ND	2.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
trans-1,2-Dichloroethene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,1-Dichloroethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM

SGS Ref.#	1065194001	**All Dates/Times are Alaska Standard Time**	
Client Name	ALTA Geosciences, INC	**Printed Date/Time**	09/22/2006 16:27
Project Name/#	Standard Steel	**Collected Date/Time**	09/05/2006 11:04
Client Sample ID	MW-13	**Received Date/Time**	09/05/2006 15:14
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
Volatile Gas Chromatography/Mass Spectroscopy									
2,2-Dichloropropane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
cis-1,2-Dichloroethene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
2-Butanone (MEK)	ND	10.0	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Bromochloromethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Chloroform	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,1,1-Trichloroethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Carbon tetrachloride	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,1-Dichloropropene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Benzene	ND	0.400	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Trichloroethene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2-Dichloropropane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Dibromomethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Bromodichloromethane	ND	0.500	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
2-Chloroethyl Vinyl Ether	ND	10.0	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
cis-1,3-Dichloropropene	ND	0.500	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Toluene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
trans-1,3-Dichloropropene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,1,2-Trichloroethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Tetrachloroethene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,3-Dichloropropane	ND	0.400	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Dibromochloromethane	ND	0.500	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2-Dibromoethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Chlorobenzene	ND	0.500	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,1,1,2-Tetrachloroethane	ND	0.500	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Ethylbenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
P & M -Xylene	ND	2.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Styrene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Bromoform	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Isopropylbenzene (Cumene)	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
o-Xylene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM

SGS Ref.#	1065194001	**All Dates/Times are Alaska Standard Time**	
Client Name	ALTA Geosciences, INC	**Printed Date/Time**	09/22/2006 16:27
Project Name/#	Standard Steel	**Collected Date/Time**	09/05/2006 11:04
Client Sample ID	MW-13	**Received Date/Time**	09/05/2006 15:14
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
Volatile Gas Chromatography/Mass Spectroscopy									
Bromobenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2,3-Trichloropropane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
n-Propylbenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
2-Chlorotoluene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,1,2,2-Tetrachloroethane	ND	0.500	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
4-Chlorotoluene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,3,5-Trimethylbenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
tert-Butylbenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2,4-Trimethylbenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
sec-Butylbenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
4-Isopropyltoluene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,4-Dichlorobenzene	ND	0.500	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2-Dichlorobenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
n-Butylbenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,3-Dichlorobenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2-Dibromo-3-chloropropane	ND	2.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2,4-Trichlorobenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Hexachlorobutadiene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Naphthalene	ND	2.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Xylenes (total)	ND	2.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2,3-Trichlorobenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
4-Methyl-2-pentanone (MIBK)	ND	10.0	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
2-Hexanone	ND	10.0	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Methyl-t-butyl ether	ND	5.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2-Dichloroethane	ND	0.500	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Surrogates									
Dibromofluoromethane <surr>	116 !		%	SW8260B	A	85-115	09/16/06	09/16/06	HLM
1,2-Dichloroethane-D4 <surr>	114		%	SW8260B	A	72-119	09/16/06	09/16/06	HLM
Toluene-d8 <surr>	99.6		%	SW8260B	A	85-120	09/16/06	09/16/06	HLM
4-Bromofluorobenzene <surr>	100		%	SW8260B	A	76-119	09/16/06	09/16/06	HLM

SGS Ref.#	1065194001	**All Dates/Times are Alaska Standard Time**	
Client Name	ALTA Geosciences, INC	**Printed Date/Time**	09/22/2006 16:27
Project Name/#	Standard Steel	**Collected Date/Time**	09/05/2006 11:04
Client Sample ID	MW-13	**Received Date/Time**	09/05/2006 15:14
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init

Volatile Gas Chromatography/Mass Spectroscopy

SGS Ref.#	1065194002	**All Dates/Times are Alaska Standard Time**	
Client Name	ALTA Geosciences, INC	**Printed Date/Time**	09/22/2006 16:27
Project Name/#	Standard Steel	**Collected Date/Time**	09/05/2006 10:10
Client Sample ID	MW-14	**Received Date/Time**	09/05/2006 15:14
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**

Sample Remarks:

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
Metals by ICP/MS									
Lead	ND	1.00	ug/L	SW6020	D		09/08/06	09/12/06	SCL
Polychlorinated Biphenyls									
Aroclor-1016	ND	0.100	ug/L	SW8082	E		09/11/06	09/21/06	WAA
Aroclor-1221	ND	0.100	ug/L	SW8082	E		09/11/06	09/21/06	WAA
Aroclor-1232	ND	0.100	ug/L	SW8082	E		09/11/06	09/21/06	WAA
Aroclor-1242	ND	0.100	ug/L	SW8082	E		09/11/06	09/21/06	WAA
Aroclor-1248	ND	0.100	ug/L	SW8082	E		09/11/06	09/21/06	WAA
Aroclor-1254	ND	0.100	ug/L	SW8082	E		09/11/06	09/21/06	WAA
Aroclor-1260	ND	0.100	ug/L	SW8082	E		09/11/06	09/21/06	WAA
Surrogates									
Decachlorobiphenyl <surr>	77.3		%	SW8082	E	53-133	09/11/06	09/21/06	WAA
Volatile Gas Chromatography/Mass Spectroscopy									
Dichlorodifluoromethane	ND	1.00	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
Chloromethane	ND	1.00	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
Vinyl chloride	ND	1.00	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
Bromomethane	ND	3.00	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
Chloroethane	ND	1.00	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
Trichlorofluoromethane	ND	1.00	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
1,1-Dichloroethene	ND	1.00	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
Methylene chloride	ND	5.00	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
Carbon disulfide	ND	2.00	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
trans-1,2-Dichloroethene	ND	1.00	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
1,1-Dichloroethane	ND	1.00	ug/L	SW8260B	A		09/17/06	09/17/06	HLM

SGS Ref.#	1065194002	**All Dates/Times are Alaska Standard Time**	
Client Name	ALTA Geosciences, INC	**Printed Date/Time**	09/22/2006 16:27
Project Name/#	Standard Steel	**Collected Date/Time**	09/05/2006 10:10
Client Sample ID	MW-14	**Received Date/Time**	09/05/2006 15:14
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
Volatile Gas Chromatography/Mass Spectroscopy									
2,2-Dichloropropane	ND	1.00	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
cis-1,2-Dichloroethene	ND	1.00	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
2-Butanone (MEK)	ND	10.0	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
Bromochloromethane	ND	1.00	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
Chloroform	ND	1.00	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
1,1,1-Trichloroethane	ND	1.00	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
Carbon tetrachloride	ND	1.00	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
1,1-Dichloropropene	ND	1.00	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
Benzene	ND	0.400	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
Trichloroethene	ND	1.00	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
1,2-Dichloropropane	ND	1.00	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
Dibromomethane	ND	1.00	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
Bromodichloromethane	ND	0.500	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
2-Chloroethyl Vinyl Ether	ND	10.0	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
cis-1,3-Dichloropropene	ND	0.500	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
Toluene	7.90	1.00	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
trans-1,3-Dichloropropene	ND	1.00	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
1,1,2-Trichloroethane	ND	1.00	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
Tetrachloroethene	ND	1.00	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
1,3-Dichloropropane	ND	0.400	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
Dibromochloromethane	ND	0.500	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
1,2-Dibromoethane	ND	1.00	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
Chlorobenzene	ND	0.500	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
1,1,1,2-Tetrachloroethane	ND	0.500	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
Ethylbenzene	ND	1.00	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
P & M -Xylene	ND	2.00	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
Styrene	ND	1.00	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
Bromoform	ND	1.00	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
Isopropylbenzene (Cumene)	ND	1.00	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
Bromobenzene	ND	1.00	ug/L	SW8260B	A		09/17/06	09/17/06	HLM

SGS Ref.#	1065194002	**All Dates/Times are Alaska Standard Time**	
Client Name	ALTA Geosciences, INC	**Printed Date/Time**	09/22/2006 16:27
Project Name/#	Standard Steel	**Collected Date/Time**	09/05/2006 10:10
Client Sample ID	MW-14	**Received Date/Time**	09/05/2006 15:14
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
Volatile Gas Chromatography/Mass Spectroscopy									
o-Xylene	ND	1.00	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
1,1,2,2-Tetrachloroethane	ND	0.500	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
1,2,3-Trichloropropane	ND	1.00	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
n-Propylbenzene	ND	1.00	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
2-Chlorotoluene	ND	1.00	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
4-Chlorotoluene	ND	1.00	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
1,3,5-Trimethylbenzene	ND	1.00	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
tert-Butylbenzene	ND	1.00	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
1,2,4-Trimethylbenzene	ND	1.00	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
sec-Butylbenzene	ND	1.00	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
4-Isopropyltoluene	ND	1.00	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
1,4-Dichlorobenzene	ND	0.500	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
1,2-Dichlorobenzene	ND	1.00	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
1,3-Dichlorobenzene	ND	1.00	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
n-Butylbenzene	ND	1.00	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
1,2-Dibromo-3-chloropropane	ND	2.00	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
1,2,4-Trichlorobenzene	ND	1.00	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
Hexachlorobutadiene	ND	1.00	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
Xylenes (total)	ND	2.00	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
Naphthalene	ND	2.00	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
1,2,3-Trichlorobenzene	ND	1.00	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
4-Methyl-2-pentanone (MIBK)	ND	10.0	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
2-Hexanone	ND	10.0	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
Methyl-t-butyl ether	ND	5.00	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
1,2-Dichloroethane	ND	0.500	ug/L	SW8260B	A		09/17/06	09/17/06	HLM
Surrogates									
Dibromofluoromethane <surr>	115		%	SW8260B	A	85-115	09/17/06	09/17/06	HLM
1,2-Dichloroethane-D4 <surr>	112		%	SW8260B	A	72-119	09/17/06	09/17/06	HLM
Toluene-d8 <surr>	98.9		%	SW8260B	A	85-120	09/17/06	09/17/06	HLM
4-Bromofluorobenzene <surr>	102		%	SW8260B	A	76-119	09/17/06	09/17/06	HLM

SGS Ref.#	1065194002	**All Dates/Times are Alaska Standard Time**	
Client Name	ALTA Geosciences, INC	**Printed Date/Time**	09/22/2006 16:27
Project Name/#	Standard Steel	**Collected Date/Time**	09/05/2006 10:10
Client Sample ID	MW-14	**Received Date/Time**	09/05/2006 15:14
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init

Volatile Gas Chromatography/Mass Spectroscopy

SGS Ref.#	1065194005	**All Dates/Times are Alaska Standard Time**	
Client Name	ALTA Geosciences, INC	**Printed Date/Time**	09/22/2006 16:27
Project Name/#	Standard Steel	**Collected Date/Time**	09/05/2006 13:15
Client Sample ID	MW-15	**Received Date/Time**	09/05/2006 15:14
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**

Sample Remarks:

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
Metals by ICP/MS									
Lead	ND	1.00	ug/L	SW6020	D		09/08/06	09/11/06	SCL
Polychlorinated Biphenyls									
Aroclor-1016	ND	0.100	ug/L	SW8082	E		09/11/06	09/21/06	WAA
Aroclor-1221	ND	0.100	ug/L	SW8082	E		09/11/06	09/21/06	WAA
Aroclor-1232	ND	0.100	ug/L	SW8082	E		09/11/06	09/21/06	WAA
Aroclor-1242	ND	0.100	ug/L	SW8082	E		09/11/06	09/21/06	WAA
Aroclor-1248	ND	0.100	ug/L	SW8082	E		09/11/06	09/21/06	WAA
Aroclor-1254	ND	0.100	ug/L	SW8082	E		09/11/06	09/21/06	WAA
Aroclor-1260	ND	0.100	ug/L	SW8082	E		09/11/06	09/21/06	WAA
Surrogates									
Decachlorobiphenyl <surr>	83.7		%	SW8082	E	53-133	09/11/06	09/21/06	WAA
Volatile Gas Chromatography/Mass Spectroscopy									
Dichlorodifluoromethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Chloromethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Vinyl chloride	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Bromomethane	ND	3.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Chloroethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,1-Dichloroethene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Trichlorofluoromethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Methylene chloride	ND	5.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Carbon disulfide	ND	2.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
trans-1,2-Dichloroethene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,1-Dichloroethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM

SGS Ref.#	1065194005	**All Dates/Times are Alaska Standard Time**	
Client Name	ALTA Geosciences, INC	**Printed Date/Time**	09/22/2006 16:27
Project Name/#	Standard Steel	**Collected Date/Time**	09/05/2006 13:15
Client Sample ID	MW-15	**Received Date/Time**	09/05/2006 15:14
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
Volatile Gas Chromatography/Mass Spectroscopy									
2,2-Dichloropropane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
cis-1,2-Dichloroethene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Bromochloromethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
2-Butanone (MEK)	ND	10.0	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Chloroform	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,1,1-Trichloroethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Carbon tetrachloride	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,1-Dichloropropene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Benzene	ND	0.400	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Trichloroethene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2-Dichloropropane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Dibromomethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Bromodichloromethane	ND	0.500	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
2-Chloroethyl Vinyl Ether	ND	10.0	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
cis-1,3-Dichloropropene	ND	0.500	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Toluene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
trans-1,3-Dichloropropene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,1,2-Trichloroethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Tetrachloroethene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,3-Dichloropropane	ND	0.400	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Dibromochloromethane	ND	0.500	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2-Dibromoethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Chlorobenzene	ND	0.500	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,1,1,2-Tetrachloroethane	ND	0.500	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Ethylbenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
P & M -Xylene	ND	2.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Styrene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Bromoform	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Isopropylbenzene (Cumene)	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Bromobenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM

SGS Ref.#	1065194005	**All Dates/Times are Alaska Standard Time**	
Client Name	ALTA Geosciences, INC	**Printed Date/Time**	09/22/2006 16:27
Project Name/#	Standard Steel	**Collected Date/Time**	09/05/2006 13:15
Client Sample ID	MW-15	**Received Date/Time**	09/05/2006 15:14
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
Volatile Gas Chromatography/Mass Spectroscopy									
o-Xylene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,1,2,2-Tetrachloroethane	ND	0.500	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2,3-Trichloropropane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
n-Propylbenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
2-Chlorotoluene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
4-Chlorotoluene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,3,5-Trimethylbenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
tert-Butylbenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2,4-Trimethylbenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
sec-Butylbenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
4-Isopropyltoluene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,4-Dichlorobenzene	ND	0.500	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2-Dichlorobenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,3-Dichlorobenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
n-Butylbenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2-Dibromo-3-chloropropane	ND	2.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2,4-Trichlorobenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Hexachlorobutadiene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Naphthalene	ND	2.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Xylenes (total)	ND	2.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2,3-Trichlorobenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
4-Methyl-2-pentanone (MIBK)	ND	10.0	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
2-Hexanone	ND	10.0	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Methyl-t-butyl ether	ND	5.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2-Dichloroethane	ND	0.500	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Surrogates									
Dibromofluoromethane <surr>	113		%	SW8260B	A	85-115	09/16/06	09/16/06	HLM
1,2-Dichloroethane-D4 <surr>	111		%	SW8260B	A	72-119	09/16/06	09/16/06	HLM
Toluene-d8 <surr>	100		%	SW8260B	A	85-120	09/16/06	09/16/06	HLM
4-Bromofluorobenzene <surr>	101		%	SW8260B	A	76-119	09/16/06	09/16/06	HLM

SGS Ref.#	1065194005	**All Dates/Times are Alaska Standard Time**	
Client Name	ALTA Geosciences, INC	**Printed Date/Time**	09/22/2006 16:27
Project Name/#	Standard Steel	**Collected Date/Time**	09/05/2006 13:15
Client Sample ID	MW-15	**Received Date/Time**	09/05/2006 15:14
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init

Volatile Gas Chromatography/Mass Spectroscopy

SGS Ref.#	1065194006	**All Dates/Times are Alaska Standard Time**	
Client Name	ALTA Geosciences, INC	**Printed Date/Time**	09/22/2006 16:27
Project Name/#	Standard Steel	**Collected Date/Time**	09/05/2006 14:34
Client Sample ID	MW-22	**Received Date/Time**	09/05/2006 15:14
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**

Sample Remarks:

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
Metals by ICP/MS									
Lead	ND	1.00	ug/L	SW6020	D		09/08/06	09/11/06	SCL
Polychlorinated Biphenyls									
Aroclor-1016	ND	0.100	ug/L	SW8082	E		09/11/06	09/22/06	WAA
Aroclor-1221	ND	0.100	ug/L	SW8082	E		09/11/06	09/22/06	WAA
Aroclor-1232	ND	0.100	ug/L	SW8082	E		09/11/06	09/22/06	WAA
Aroclor-1242	ND	0.100	ug/L	SW8082	E		09/11/06	09/22/06	WAA
Aroclor-1248	ND	0.100	ug/L	SW8082	E		09/11/06	09/22/06	WAA
Aroclor-1254	ND	0.100	ug/L	SW8082	E		09/11/06	09/22/06	WAA
Aroclor-1260	ND	0.100	ug/L	SW8082	E		09/11/06	09/22/06	WAA
Surrogates									
Decachlorobiphenyl <surr>	88.6		%	SW8082	E	53-133	09/11/06	09/22/06	WAA
Volatile Gas Chromatography/Mass Spectroscopy									
Dichlorodifluoromethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Chloromethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Vinyl chloride	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Bromomethane	ND	3.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Chloroethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,1-Dichloroethene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Trichlorofluoromethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Methylene chloride	ND	5.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Carbon disulfide	ND	2.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
trans-1,2-Dichloroethene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,1-Dichloroethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM

SGS Ref.#	1065194006	**All Dates/Times are Alaska Standard Time**	
Client Name	ALTA Geosciences, INC	**Printed Date/Time**	09/22/2006 16:27
Project Name/#	Standard Steel	**Collected Date/Time**	09/05/2006 14:34
Client Sample ID	MW-22	**Received Date/Time**	09/05/2006 15:14
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
Volatile Gas Chromatography/Mass Spectroscopy									
2,2-Dichloropropane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
cis-1,2-Dichloroethene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
2-Butanone (MEK)	ND	10.0	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Bromochloromethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Chloroform	2.31	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,1,1-Trichloroethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Carbon tetrachloride	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,1-Dichloropropene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Benzene	ND	0.400	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Trichloroethene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2-Dichloropropane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Dibromomethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Bromodichloromethane	ND	0.500	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
2-Chloroethyl Vinyl Ether	ND	10.0	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
cis-1,3-Dichloropropene	ND	0.500	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Toluene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
trans-1,3-Dichloropropene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,1,2-Trichloroethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Tetrachloroethene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,3-Dichloropropane	ND	0.400	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Dibromochloromethane	ND	0.500	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2-Dibromoethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Chlorobenzene	ND	0.500	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,1,1,2-Tetrachloroethane	ND	0.500	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Ethylbenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
P & M -Xylene	ND	2.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Styrene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Bromoform	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Isopropylbenzene (Cumene)	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
o-Xylene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM

SGS Ref.#	1065194006	**All Dates/Times are Alaska Standard Time**	
Client Name	ALTA Geosciences, INC	**Printed Date/Time**	09/22/2006 16:27
Project Name/#	Standard Steel	**Collected Date/Time**	09/05/2006 14:34
Client Sample ID	MW-22	**Received Date/Time**	09/05/2006 15:14
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
Volatile Gas Chromatography/Mass Spectroscopy									
Bromobenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2,3-Trichloropropane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
n-Propylbenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
2-Chlorotoluene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,1,2,2-Tetrachloroethane	ND	0.500	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
4-Chlorotoluene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,3,5-Trimethylbenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
tert-Butylbenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2,4-Trimethylbenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
sec-Butylbenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
4-Isopropyltoluene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,4-Dichlorobenzene	ND	0.500	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2-Dichlorobenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,3-Dichlorobenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
n-Butylbenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2-Dibromo-3-chloropropane	ND	2.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2,4-Trichlorobenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Hexachlorobutadiene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Naphthalene	ND	2.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Xylenes (total)	ND	2.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2,3-Trichlorobenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
4-Methyl-2-pentanone (MIBK)	ND	10.0	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
2-Hexanone	ND	10.0	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Methyl-t-butyl ether	ND	5.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2-Dichloroethane	ND	0.500	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Surrogates									
Dibromofluoromethane <surr>	115		%	SW8260B	A	85-115	09/16/06	09/16/06	HLM
1,2-Dichloroethane-D4 <surr>	112		%	SW8260B	A	72-119	09/16/06	09/16/06	HLM
Toluene-d8 <surr>	100		%	SW8260B	A	85-120	09/16/06	09/16/06	HLM
4-Bromofluorobenzene <surr>	101		%	SW8260B	A	76-119	09/16/06	09/16/06	HLM

SGS Ref.#	1065194006	**All Dates/Times are Alaska Standard Time**	
Client Name	ALTA Geosciences, INC	**Printed Date/Time**	09/22/2006 16:27
Project Name/#	Standard Steel	**Collected Date/Time**	09/05/2006 14:34
Client Sample ID	MW-22	**Received Date/Time**	09/05/2006 15:14
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init

Volatile Gas Chromatography/Mass Spectroscopy

SGS Ref.#	1065194007	**All Dates/Times are Alaska Standard Time**	
Client Name	ALTA Geosciences, INC	**Printed Date/Time**	09/22/2006 16:27
Project Name/#	Standard Steel	**Collected Date/Time**	09/05/2006 13:50
Client Sample ID	MW-24	**Received Date/Time**	09/05/2006 15:14
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**

Sample Remarks:

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
Metals by ICP/MS									
Lead	ND	1.00	ug/L	SW6020	D		09/08/06	09/11/06	SCL
Polychlorinated Biphenyls									
Aroclor-1016	ND	0.100	ug/L	SW8082	E		09/11/06	09/22/06	WAA
Aroclor-1221	ND	0.100	ug/L	SW8082	E		09/11/06	09/22/06	WAA
Aroclor-1232	ND	0.100	ug/L	SW8082	E		09/11/06	09/22/06	WAA
Aroclor-1242	ND	0.100	ug/L	SW8082	E		09/11/06	09/22/06	WAA
Aroclor-1248	ND	0.100	ug/L	SW8082	E		09/11/06	09/22/06	WAA
Aroclor-1254	ND	0.100	ug/L	SW8082	E		09/11/06	09/22/06	WAA
Aroclor-1260	ND	0.100	ug/L	SW8082	E		09/11/06	09/22/06	WAA
Surrogates									
Decachlorobiphenyl <surr>	82.5		%	SW8082	E	53-133	09/11/06	09/22/06	WAA
Volatile Gas Chromatography/Mass Spectroscopy									
Dichlorodifluoromethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Chloromethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Vinyl chloride	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Bromomethane	ND	3.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Chloroethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,1-Dichloroethene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Trichlorofluoromethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Methylene chloride	ND	5.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Carbon disulfide	ND	2.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
trans-1,2-Dichloroethene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,1-Dichloroethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM

SGS Ref.#	1065194007	**All Dates/Times are Alaska Standard Time**	
Client Name	ALTA Geosciences, INC	**Printed Date/Time**	09/22/2006 16:27
Project Name/#	Standard Steel	**Collected Date/Time**	09/05/2006 13:50
Client Sample ID	MW-24	**Received Date/Time**	09/05/2006 15:14
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
Volatile Gas Chromatography/Mass Spectroscopy									
2,2-Dichloropropane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
cis-1,2-Dichloroethene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
2-Butanone (MEK)	ND	10.0	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Bromochloromethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Chloroform	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,1,1-Trichloroethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Carbon tetrachloride	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,1-Dichloropropene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Benzene	ND	0.400	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Trichloroethene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2-Dichloropropane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Dibromomethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Bromodichloromethane	ND	0.500	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
2-Chloroethyl Vinyl Ether	ND	10.0	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
cis-1,3-Dichloropropene	ND	0.500	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Toluene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
trans-1,3-Dichloropropene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,1,2-Trichloroethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Tetrachloroethene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,3-Dichloropropane	ND	0.400	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Dibromochloromethane	ND	0.500	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2-Dibromoethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Chlorobenzene	ND	0.500	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,1,1,2-Tetrachloroethane	ND	0.500	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Ethylbenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
P & M -Xylene	ND	2.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Styrene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Bromoform	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Isopropylbenzene (Cumene)	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Bromobenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM

SGS Ref.#	1065194007	**All Dates/Times are Alaska Standard Time**	
Client Name	ALTA Geosciences, INC	**Printed Date/Time**	09/22/2006 16:27
Project Name/#	Standard Steel	**Collected Date/Time**	09/05/2006 13:50
Client Sample ID	MW-24	**Received Date/Time**	09/05/2006 15:14
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
Volatile Gas Chromatography/Mass Spectroscopy									
o-Xylene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,1,2,2-Tetrachloroethane	ND	0.500	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2,3-Trichloropropane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
n-Propylbenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
2-Chlorotoluene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
4-Chlorotoluene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,3,5-Trimethylbenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
tert-Butylbenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2,4-Trimethylbenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
sec-Butylbenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
4-Isopropyltoluene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,4-Dichlorobenzene	ND	0.500	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2-Dichlorobenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,3-Dichlorobenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
n-Butylbenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2-Dibromo-3-chloropropane	ND	2.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2,4-Trichlorobenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Hexachlorobutadiene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Xylenes (total)	ND	2.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Naphthalene	ND	2.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2,3-Trichlorobenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
4-Methyl-2-pentanone (MIBK)	ND	10.0	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
2-Hexanone	ND	10.0	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Methyl-t-butyl ether	ND	5.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2-Dichloroethane	ND	0.500	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Surrogates									
Dibromofluoromethane <surr>	115		%	SW8260B	A	85-115	09/16/06	09/16/06	HLM
1,2-Dichloroethane-D4 <surr>	111		%	SW8260B	A	72-119	09/16/06	09/16/06	HLM
Toluene-d8 <surr>	100		%	SW8260B	A	85-120	09/16/06	09/16/06	HLM
4-Bromofluorobenzene <surr>	98.4		%	SW8260B	A	76-119	09/16/06	09/16/06	HLM

SGS Ref.#	1065194007	**All Dates/Times are Alaska Standard Time**	
Client Name	ALTA Geosciences, INC	**Printed Date/Time**	09/22/2006 16:27
Project Name/#	Standard Steel	**Collected Date/Time**	09/05/2006 13:50
Client Sample ID	MW-24	**Received Date/Time**	09/05/2006 15:14
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init

Volatile Gas Chromatography/Mass Spectroscopy

SGS Ref.#	1065194008	**All Dates/Times are Alaska Standard Time**	
Client Name	ALTA Geosciences, INC	**Printed Date/Time**	09/22/2006 16:27
Project Name/#	Standard Steel	**Collected Date/Time**	09/05/2006 9:00
Client Sample ID	DW-1	**Received Date/Time**	09/05/2006 15:14
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**

Sample Remarks:

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
Metals by ICP/MS									
Lead	ND	1.00	ug/L	SW6020	D		09/08/06	09/11/06	SCL
Polychlorinated Biphenyls									
Aroclor-1016	ND	0.102	ug/L	SW8082	E		09/11/06	09/22/06	WAA
Aroclor-1221	ND	0.102	ug/L	SW8082	E		09/11/06	09/22/06	WAA
Aroclor-1232	ND	0.102	ug/L	SW8082	E		09/11/06	09/22/06	WAA
Aroclor-1242	ND	0.102	ug/L	SW8082	E		09/11/06	09/22/06	WAA
Aroclor-1248	ND	0.102	ug/L	SW8082	E		09/11/06	09/22/06	WAA
Aroclor-1254	ND	0.102	ug/L	SW8082	E		09/11/06	09/22/06	WAA
Aroclor-1260	ND	0.102	ug/L	SW8082	E		09/11/06	09/22/06	WAA
Surrogates									
Decachlorobiphenyl <surr>	92.1		%	SW8082	E	53-133	09/11/06	09/22/06	WAA
Volatile Gas Chromatography/Mass Spectroscopy									
Dichlorodifluoromethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Chloromethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Vinyl chloride	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Bromomethane	ND	3.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Chloroethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,1-Dichloroethene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Trichlorofluoromethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Methylene chloride	ND	5.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Carbon disulfide	ND	2.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
trans-1,2-Dichloroethene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,1-Dichloroethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM

SGS Ref.#	1065194008	**All Dates/Times are Alaska Standard Time**	
Client Name	ALTA Geosciences, INC	**Printed Date/Time**	09/22/2006 16:27
Project Name/#	Standard Steel	**Collected Date/Time**	09/05/2006 9:00
Client Sample ID	DW-1	**Received Date/Time**	09/05/2006 15:14
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
Volatile Gas Chromatography/Mass Spectroscopy									
2,2-Dichloropropane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
cis-1,2-Dichloroethene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
2-Butanone (MEK)	ND	10.0	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Bromochloromethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Chloroform	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,1,1-Trichloroethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Carbon tetrachloride	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,1-Dichloropropene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Benzene	ND	0.400	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Trichloroethene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2-Dichloropropane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Dibromomethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Bromodichloromethane	ND	0.500	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
2-Chloroethyl Vinyl Ether	ND	10.0	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
cis-1,3-Dichloropropene	ND	0.500	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Toluene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
trans-1,3-Dichloropropene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,1,2-Trichloroethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Tetrachloroethene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,3-Dichloropropane	ND	0.400	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Dibromochloromethane	ND	0.500	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2-Dibromoethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Chlorobenzene	ND	0.500	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,1,1,2-Tetrachloroethane	ND	0.500	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Ethylbenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
P & M -Xylene	ND	2.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Styrene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Bromoform	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Isopropylbenzene (Cumene)	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
o-Xylene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM

SGS Ref.#	1065194008	**All Dates/Times are Alaska Standard Time**	
Client Name	ALTA Geosciences, INC	**Printed Date/Time**	09/22/2006 16:27
Project Name/#	Standard Steel	**Collected Date/Time**	09/05/2006 9:00
Client Sample ID	DW-1	**Received Date/Time**	09/05/2006 15:14
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
Volatile Gas Chromatography/Mass Spectroscopy									
Bromobenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2,3-Trichloropropane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
n-Propylbenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
2-Chlorotoluene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,1,2,2-Tetrachloroethane	ND	0.500	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
4-Chlorotoluene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,3,5-Trimethylbenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
tert-Butylbenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2,4-Trimethylbenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
sec-Butylbenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
4-Isopropyltoluene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,4-Dichlorobenzene	ND	0.500	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2-Dichlorobenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
n-Butylbenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,3-Dichlorobenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2-Dibromo-3-chloropropane	ND	2.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2,4-Trichlorobenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Hexachlorobutadiene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Naphthalene	ND	2.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Xylenes (total)	ND	2.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2,3-Trichlorobenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
4-Methyl-2-pentanone (MIBK)	ND	10.0	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
2-Hexanone	ND	10.0	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Methyl-t-butyl ether	ND	5.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2-Dichloroethane	ND	0.500	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Surrogates									
Dibromofluoromethane <surr>	114		%	SW8260B	A	85-115	09/16/06	09/16/06	HLM
1,2-Dichloroethane-D4 <surr>	111		%	SW8260B	A	72-119	09/16/06	09/16/06	HLM
Toluene-d8 <surr>	98.7		%	SW8260B	A	85-120	09/16/06	09/16/06	HLM
4-Bromofluorobenzene <surr>	101		%	SW8260B	A	76-119	09/16/06	09/16/06	HLM

SGS Ref.#	1065194008	**All Dates/Times are Alaska Standard Time**	
Client Name	ALTA Geosciences, INC	**Printed Date/Time**	09/22/2006 16:27
Project Name/#	Standard Steel	**Collected Date/Time**	09/05/2006 9:00
Client Sample ID	DW-1	**Received Date/Time**	09/05/2006 15:14
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init

Volatile Gas Chromatography/Mass Spectroscopy

SGS Ref.#	1065194009	**All Dates/Times are Alaska Standard Time**	
Client Name	ALTA Geosciences, INC	**Printed Date/Time**	09/22/2006 16:27
Project Name/#	Standard Steel	**Collected Date/Time**	09/05/2006 9:30
Client Sample ID	Equipment Blank	**Received Date/Time**	09/05/2006 15:14
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**

Sample Remarks:

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
Metals by ICP/MS									
Lead	ND	1.00	ug/L	SW6020	D		09/08/06	09/11/06	SCL
Polychlorinated Biphenyls									
Aroclor-1016	ND	0.100	ug/L	SW8082	E		09/11/06	09/22/06	WAA
Aroclor-1221	ND	0.100	ug/L	SW8082	E		09/11/06	09/22/06	WAA
Aroclor-1232	ND	0.100	ug/L	SW8082	E		09/11/06	09/22/06	WAA
Aroclor-1242	ND	0.100	ug/L	SW8082	E		09/11/06	09/22/06	WAA
Aroclor-1248	ND	0.100	ug/L	SW8082	E		09/11/06	09/22/06	WAA
Aroclor-1254	ND	0.100	ug/L	SW8082	E		09/11/06	09/22/06	WAA
Aroclor-1260	ND	0.100	ug/L	SW8082	E		09/11/06	09/22/06	WAA
Surrogates									
Decachlorobiphenyl <surr>	91.7		%	SW8082	E	53-133	09/11/06	09/22/06	WAA
Volatile Gas Chromatography/Mass Spectroscopy									
Dichlorodifluoromethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Chloromethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Vinyl chloride	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Bromomethane	ND	3.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Chloroethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Trichlorofluoromethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,1-Dichloroethene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Methylene chloride	ND	5.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Carbon disulfide	ND	2.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
trans-1,2-Dichloroethene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,1-Dichloroethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM

SGS Ref.#	1065194009	**All Dates/Times are Alaska Standard Time**	
Client Name	ALTA Geosciences, INC	**Printed Date/Time**	09/22/2006 16:27
Project Name/#	Standard Steel	**Collected Date/Time**	09/05/2006 9:30
Client Sample ID	Equipment Blank	**Received Date/Time**	09/05/2006 15:14
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
Volatile Gas Chromatography/Mass Spectroscopy									
2,2-Dichloropropane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
cis-1,2-Dichloroethene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
2-Butanone (MEK)	ND	10.0	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Bromochloromethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Chloroform	2.33	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,1,1-Trichloroethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Carbon tetrachloride	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,1-Dichloropropene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Benzene	ND	0.400	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Trichloroethene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2-Dichloropropane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Dibromomethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Bromodichloromethane	ND	0.500	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
2-Chloroethyl Vinyl Ether	ND	10.0	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
cis-1,3-Dichloropropene	ND	0.500	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Toluene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
trans-1,3-Dichloropropene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,1,2-Trichloroethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Tetrachloroethene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,3-Dichloropropane	ND	0.400	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Dibromochloromethane	ND	0.500	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2-Dibromoethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Chlorobenzene	ND	0.500	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,1,1,2-Tetrachloroethane	ND	0.500	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Ethylbenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
P & M -Xylene	ND	2.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Styrene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Bromoform	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Isopropylbenzene (Cumene)	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Bromobenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM

SGS Ref.#	1065194009	**All Dates/Times are Alaska Standard Time**	
Client Name	ALTA Geosciences, INC	**Printed Date/Time**	09/22/2006 16:27
Project Name/#	Standard Steel	**Collected Date/Time**	09/05/2006 9:30
Client Sample ID	Equipment Blank	**Received Date/Time**	09/05/2006 15:14
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
Volatile Gas Chromatography/Mass Spectroscopy									
o-Xylene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,1,2,2-Tetrachloroethane	ND	0.500	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2,3-Trichloropropane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
n-Propylbenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
2-Chlorotoluene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
4-Chlorotoluene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,3,5-Trimethylbenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
tert-Butylbenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2,4-Trimethylbenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
sec-Butylbenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
4-Isopropyltoluene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,4-Dichlorobenzene	ND	0.500	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2-Dichlorobenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,3-Dichlorobenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
n-Butylbenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2-Dibromo-3-chloropropane	ND	2.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2,4-Trichlorobenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Hexachlorobutadiene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Xylenes (total)	ND	2.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Naphthalene	ND	2.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2,3-Trichlorobenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
4-Methyl-2-pentanone (MIBK)	ND	10.0	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
2-Hexanone	ND	10.0	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Methyl-t-butyl ether	ND	5.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2-Dichloroethane	ND	0.500	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Surrogates									
Dibromofluoromethane <surr>	115		%	SW8260B	A	85-115	09/16/06	09/16/06	HLM
1,2-Dichloroethane-D4 <surr>	110		%	SW8260B	A	72-119	09/16/06	09/16/06	HLM
Toluene-d8 <surr>	99.1		%	SW8260B	A	85-120	09/16/06	09/16/06	HLM
4-Bromofluorobenzene <surr>	98.8		%	SW8260B	A	76-119	09/16/06	09/16/06	HLM

SGS Ref.#	1065194009	**All Dates/Times are Alaska Standard Time**	
Client Name	ALTA Geosciences, INC	**Printed Date/Time**	09/22/2006 16:27
Project Name/#	Standard Steel	**Collected Date/Time**	09/05/2006 9:30
Client Sample ID	Equipment Blank	**Received Date/Time**	09/05/2006 15:14
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init

Volatile Gas Chromatography/Mass Spectroscopy

SGS Ref.#	1065194010	**All Dates/Times are Alaska Standard Time**	
Client Name	ALTA Geosciences, INC	**Printed Date/Time**	09/22/2006 16:27
Project Name/#	Standard Steel	**Collected Date/Time**	09/05/2006 0:00
Client Sample ID	Trip Blank	**Received Date/Time**	09/05/2006 15:14
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**

Sample Remarks:

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
Volatile Gas Chromatography/Mass Spectroscopy									
Dichlorodifluoromethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Chloromethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Vinyl chloride	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Bromomethane	ND	3.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Chloroethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,1-Dichloroethene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Trichlorofluoromethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Methylene chloride	ND	5.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Carbon disulfide	ND	2.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
trans-1,2-Dichloroethene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,1-Dichloroethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
2,2-Dichloropropane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
cis-1,2-Dichloroethene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
2-Butanone (MEK)	ND	10.0	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Bromochloromethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Chloroform	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,1,1-Trichloroethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Carbon tetrachloride	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,1-Dichloropropene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Benzene	ND	0.400	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Trichloroethene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2-Dichloropropane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Dibromomethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Bromodichloromethane	ND	0.500	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
2-Chloroethyl Vinyl Ether	ND	10.0	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
cis-1,3-Dichloropropene	ND	0.500	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Toluene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
trans-1,3-Dichloropropene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM

SGS Ref.#	1065194010	**All Dates/Times are Alaska Standard Time**	
Client Name	ALTA Geosciences, INC	**Printed Date/Time**	09/22/2006 16:27
Project Name/#	Standard Steel	**Collected Date/Time**	09/05/2006 0:00
Client Sample ID	Trip Blank	**Received Date/Time**	09/05/2006 15:14
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
Volatile Gas Chromatography/Mass Spectroscopy									
1,1,2-Trichloroethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Tetrachloroethene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,3-Dichloropropane	ND	0.400	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Dibromochloromethane	ND	0.500	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2-Dibromoethane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Chlorobenzene	ND	0.500	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,1,1,2-Tetrachloroethane	ND	0.500	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Ethylbenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
P & M -Xylene	ND	2.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Styrene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Bromoform	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Isopropylbenzene (Cumene)	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
o-Xylene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Bromobenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,1,2,2-Tetrachloroethane	ND	0.500	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2,3-Trichloropropane	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
n-Propylbenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
2-Chlorotoluene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
4-Chlorotoluene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,3,5-Trimethylbenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
tert-Butylbenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2,4-Trimethylbenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
sec-Butylbenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
4-Isopropyltoluene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,4-Dichlorobenzene	ND	0.500	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2-Dichlorobenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
n-Butylbenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,3-Dichlorobenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2-Dibromo-3-chloropropane	ND	2.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2,4-Trichlorobenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM

SGS Ref.#	1065194010	**All Dates/Times are Alaska Standard Time**	
Client Name	ALTA Geosciences, INC	**Printed Date/Time**	09/22/2006 16:27
Project Name/#	Standard Steel	**Collected Date/Time**	09/05/2006 0:00
Client Sample ID	Trip Blank	**Received Date/Time**	09/05/2006 15:14
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**

Parameter	Results	PQL	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
Volatile Gas Chromatography/Mass Spectroscopy									
Hexachlorobutadiene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Naphthalene	ND	2.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Xylenes (total)	ND	2.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2,3-Trichlorobenzene	ND	1.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
4-Methyl-2-pentanone (MIBK)	ND	10.0	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
2-Hexanone	ND	10.0	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Methyl-t-butyl ether	ND	5.00	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
1,2-Dichloroethane	ND	0.500	ug/L	SW8260B	A		09/16/06	09/16/06	HLM
Surrogates									
Dibromofluoromethane <surr>	112		%	SW8260B	A	85-115	09/16/06	09/16/06	HLM
1,2-Dichloroethane-D4 <surr>	110		%	SW8260B	A	72-119	09/16/06	09/16/06	HLM
Toluene-d8 <surr>	99.8		%	SW8260B	A	85-120	09/16/06	09/16/06	HLM
4-Bromofluorobenzene <surr>	100		%	SW8260B	A	76-119	09/16/06	09/16/06	HLM

SGS Ref.#	725853	Method Blank	**Printed Date/Time**		09/22/2006 16:27
Client Name	ALTA Geosciences, INC		**Prep**	**Batch**	MXX18101
Project Name/#	Standard Steel			**Method**	SW3010A
Matrix	Water (Surface, Eff., Ground)			**Date**	09/08/2006

QC results affect the following production samples:

1065194001, 1065194002, 1065194005, 1065194006, 1065194007, 1065194008, 1065194009

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date
Metals by ICP/MS					
Lead	ND	1.00	0.310	ug/L	09/11/06

Batch MMS4390
Method SW6020
Instrument Perkin Elmer Sciex ICP-MS P3

SGS Ref.#	725939	Method Blank	**Printed Date/Time**		09/22/2006 16:27
Client Name	ALTA Geosciences, INC		**Prep**	**Batch**	XXX17254
Project Name/#	Standard Steel			**Method**	SW3510C
Matrix	Water (Surface, Eff., Ground)			**Date**	09/11/2006

QC results affect the following production samples:

1065194001, 1065194002, 1065194005, 1065194006, 1065194007, 1065194008, 1065194009

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date
Polychlorinated Biphenyls					
Aroclor-1016	ND	0.100	0.0310	ug/L	09/21/06
Aroclor-1221	ND	0.100	0.0310	ug/L	09/21/06
Aroclor-1232	ND	0.100	0.0310	ug/L	09/21/06
Aroclor-1242	ND	0.100	0.0310	ug/L	09/21/06
Aroclor-1248	ND	0.100	0.0310	ug/L	09/21/06
Aroclor-1254	ND	0.100	0.0310	ug/L	09/21/06
Aroclor-1260	ND	0.100	0.0310	ug/L	09/21/06
Surrogates					
Decachlorobiphenyl <surr>	86.7	53-133		%	09/21/06

Batch XGC5605
Method SW8082
Instrument HP 5890 Series II ECD SV I F

SGS Ref.#	727775	Method Blank	**Printed Date/Time**		09/22/2006 16:27
Client Name	ALTA Geosciences, INC		**Prep**	**Batch**	VXX15944
Project Name/#	Standard Steel			**Method**	SW5030B
Matrix	Water (Surface, Eff., Ground)			**Date**	09/16/2006

QC results affect the following production samples:

1065194001, 1065194005, 1065194006, 1065194007, 1065194008, 1065194009, 1065194010

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date

Volatile Gas Chromatography/Mass Spectroscopy

SGS Ref.#	727775	Method Blank	**Printed Date/Time**	09/22/2006 16:27
Client Name	ALTA Geosciences, INC		**Prep Batch**	VXX15944
Project Name/#	Standard Steel		**Method**	SW5030B
Matrix	Water (Surface, Eff., Ground)		**Date**	09/16/2006

Volatile Gas Chromatography/Mass Spectroscopy

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date
Dichlorodifluoromethane	ND	1.00	0.310	ug/L	09/16/06
Chloromethane	ND	1.00	0.310	ug/L	09/16/06
Vinyl chloride	ND	1.00	0.310	ug/L	09/16/06
Bromomethane	ND	3.00	0.940	ug/L	09/16/06
Chloroethane	ND	1.00	0.310	ug/L	09/16/06
1,1-Dichloroethene	ND	1.00	0.310	ug/L	09/16/06
Trichlorofluoromethane	ND	1.00	0.310	ug/L	09/16/06
Methylene chloride	ND	5.00	1.00	ug/L	09/16/06
Carbon disulfide	ND	2.00	0.620	ug/L	09/16/06
trans-1,2-Dichloroethene	ND	1.00	0.310	ug/L	09/16/06
1,1-Dichloroethane	ND	1.00	0.310	ug/L	09/16/06
2,2-Dichloropropane	ND	1.00	0.310	ug/L	09/16/06
cis-1,2-Dichloroethene	ND	1.00	0.310	ug/L	09/16/06
Bromochloromethane	ND	1.00	0.310	ug/L	09/16/06
2-Butanone (MEK)	ND	10.0	3.10	ug/L	09/16/06
Chloroform	ND	1.00	0.300	ug/L	09/16/06
1,1,1-Trichloroethane	ND	1.00	0.310	ug/L	09/16/06
Carbon tetrachloride	ND	1.00	0.310	ug/L	09/16/06
1,1-Dichloropropene	ND	1.00	0.310	ug/L	09/16/06
Benzene	ND	0.400	0.120	ug/L	09/16/06
Trichloroethene	ND	1.00	0.310	ug/L	09/16/06
1,2-Dichloropropane	ND	1.00	0.310	ug/L	09/16/06
Dibromomethane	ND	1.00	0.310	ug/L	09/16/06
Bromodichloromethane	ND	0.500	0.150	ug/L	09/16/06
2-Chloroethyl Vinyl Ether	ND	10.0	3.10	ug/L	09/16/06
cis-1,3-Dichloropropene	ND	0.500	0.150	ug/L	09/16/06
Toluene	ND	1.00	0.310	ug/L	09/16/06
trans-1,3-Dichloropropene	ND	1.00	0.310	ug/L	09/16/06
1,1,2-Trichloroethane	ND	1.00	0.310	ug/L	09/16/06
Tetrachloroethene	ND	1.00	0.310	ug/L	09/16/06
1,3-Dichloropropane	ND	0.400	0.120	ug/L	09/16/06
Dibromochloromethane	ND	0.500	0.150	ug/L	09/16/06
1,2-Dibromoethane	ND	1.00	0.310	ug/L	09/16/06
Chlorobenzene	ND	0.500	0.150	ug/L	09/16/06
1,1,1,2-Tetrachloroethane	ND	0.500	0.150	ug/L	09/16/06
Ethylbenzene	ND	1.00	0.310	ug/L	09/16/06
P & M -Xylene	ND	2.00	0.620	ug/L	09/16/06
Styrene	ND	1.00	0.310	ug/L	09/16/06
Bromoform	ND	1.00	0.310	ug/L	09/16/06

SGS Ref.#	727775	Method Blank	**Printed Date/Time**	09/22/2006 16:27
Client Name	ALTA Geosciences, INC		**Prep Batch**	VXX15944
Project Name/#	Standard Steel		**Method**	SW5030B
Matrix	Water (Surface, Eff., Ground)		**Date**	09/16/2006

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date
Volatile Gas Chromatography/Mass Spectroscopy					
Isopropylbenzene (Cumene)	ND	1.00	0.310	ug/L	09/16/06
Bromobenzene	ND	1.00	0.310	ug/L	09/16/06
o-Xylene	ND	1.00	0.310	ug/L	09/16/06
1,1,2,2-Tetrachloroethane	ND	0.500	0.150	ug/L	09/16/06
1,2,3-Trichloropropane	ND	1.00	0.310	ug/L	09/16/06
n-Propylbenzene	ND	1.00	0.310	ug/L	09/16/06
2-Chlorotoluene	ND	1.00	0.310	ug/L	09/16/06
4-Chlorotoluene	ND	1.00	0.310	ug/L	09/16/06
1,3,5-Trimethylbenzene	ND	1.00	0.310	ug/L	09/16/06
tert-Butylbenzene	ND	1.00	0.310	ug/L	09/16/06
1,2,4-Trimethylbenzene	ND	1.00	0.310	ug/L	09/16/06
sec-Butylbenzene	ND	1.00	0.310	ug/L	09/16/06
4-Isopropyltoluene	ND	1.00	0.310	ug/L	09/16/06
1,4-Dichlorobenzene	ND	0.500	0.150	ug/L	09/16/06
1,2-Dichlorobenzene	ND	1.00	0.310	ug/L	09/16/06
n-Butylbenzene	ND	1.00	0.310	ug/L	09/16/06
1,3-Dichlorobenzene	ND	1.00	0.310	ug/L	09/16/06
1,2-Dibromo-3-chloropropane	ND	2.00	0.620	ug/L	09/16/06
1,2,4-Trichlorobenzene	ND	1.00	0.310	ug/L	09/16/06
Hexachlorobutadiene	ND	1.00	0.310	ug/L	09/16/06
Xylenes (total)	ND	2.00	1.00	ug/L	09/16/06
Naphthalene	ND	2.00	0.620	ug/L	09/16/06
1,2,3-Trichlorobenzene	ND	1.00	0.310	ug/L	09/16/06
4-Methyl-2-pentanone (MIBK)	ND	10.0	3.10	ug/L	09/16/06
2-Hexanone	ND	10.0	3.10	ug/L	09/16/06
Methyl-t-butyl ether	ND	5.00	1.50	ug/L	09/16/06
1,2-Dichloroethane	ND	0.500	0.150	ug/L	09/16/06
Surrogates					
Dibromofluoromethane <surr>	112	85-115		%	09/16/06
1,2-Dichloroethane-D4 <surr>	109	72-119		%	09/16/06
Toluene-d8 <surr>	100	85-120		%	09/16/06
4-Bromofluorobenzene <surr>	102	76-119		%	09/16/06

Batch VMS8686
Method SW8260B
Instrument HP 5890 Series II MS1 VJA

SGS Ref.#	727788	Method Blank	**Printed Date/Time**		09/22/2006 16:27
Client Name	ALTA Geosciences, INC		**Prep**	**Batch**	VXX15945
Project Name/#	Standard Steel			**Method**	SW5030B
Matrix	Water (Surface, Eff., Ground)			**Date**	09/17/2006

QC results affect the following production samples:

1065194002

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date

Volatile Gas Chromatography/Mass Spectroscopy

SGS Ref.#	727788	Method Blank	**Printed Date/Time**	09/22/2006 16:27
Client Name	ALTA Geosciences, INC		**Prep Batch**	VXX15945
Project Name/#	Standard Steel		**Method**	SW5030B
Matrix	Water (Surface, Eff., Ground)		**Date**	09/17/2006

Volatile Gas Chromatography/Mass Spectroscopy

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date
Dichlorodifluoromethane	ND	1.00	0.310	ug/L	09/17/06
Chloromethane	ND	1.00	0.310	ug/L	09/17/06
Vinyl chloride	ND	1.00	0.310	ug/L	09/17/06
Bromomethane	ND	3.00	0.940	ug/L	09/17/06
Chloroethane	ND	1.00	0.310	ug/L	09/17/06
1,1-Dichloroethene	ND	1.00	0.310	ug/L	09/17/06
Trichlorofluoromethane	ND	1.00	0.310	ug/L	09/17/06
Methylene chloride	ND	5.00	1.00	ug/L	09/17/06
Carbon disulfide	ND	2.00	0.620	ug/L	09/17/06
trans-1,2-Dichloroethene	ND	1.00	0.310	ug/L	09/17/06
1,1-Dichloroethane	ND	1.00	0.310	ug/L	09/17/06
2,2-Dichloropropane	ND	1.00	0.310	ug/L	09/17/06
cis-1,2-Dichloroethene	ND	1.00	0.310	ug/L	09/17/06
Bromochloromethane	ND	1.00	0.310	ug/L	09/17/06
2-Butanone (MEK)	ND	10.0	3.10	ug/L	09/17/06
Chloroform	ND	1.00	0.300	ug/L	09/17/06
1,1,1-Trichloroethane	ND	1.00	0.310	ug/L	09/17/06
Carbon tetrachloride	ND	1.00	0.310	ug/L	09/17/06
1,1-Dichloropropene	ND	1.00	0.310	ug/L	09/17/06
Benzene	ND	0.400	0.120	ug/L	09/17/06
Trichloroethene	ND	1.00	0.310	ug/L	09/17/06
1,2-Dichloropropane	ND	1.00	0.310	ug/L	09/17/06
Dibromomethane	ND	1.00	0.310	ug/L	09/17/06
Bromodichloromethane	ND	0.500	0.150	ug/L	09/17/06
2-Chloroethyl Vinyl Ether	ND	10.0	3.10	ug/L	09/17/06
cis-1,3-Dichloropropene	ND	0.500	0.150	ug/L	09/17/06
Toluene	ND	1.00	0.310	ug/L	09/17/06
trans-1,3-Dichloropropene	ND	1.00	0.310	ug/L	09/17/06
1,1,2-Trichloroethane	ND	1.00	0.310	ug/L	09/17/06
Tetrachloroethene	ND	1.00	0.310	ug/L	09/17/06
1,3-Dichloropropane	ND	0.400	0.120	ug/L	09/17/06
Dibromochloromethane	ND	0.500	0.150	ug/L	09/17/06
1,2-Dibromoethane	ND	1.00	0.310	ug/L	09/17/06
Chlorobenzene	ND	0.500	0.150	ug/L	09/17/06
1,1,1,2-Tetrachloroethane	ND	0.500	0.150	ug/L	09/17/06
Ethylbenzene	ND	1.00	0.310	ug/L	09/17/06
P & M -Xylene	ND	2.00	0.620	ug/L	09/17/06
Styrene	ND	1.00	0.310	ug/L	09/17/06
Bromoform	ND	1.00	0.310	ug/L	09/17/06

SGS Ref.#	727788	Method Blank	**Printed Date/Time**	09/22/2006 16:27
Client Name	ALTA Geosciences, INC		**Prep Batch**	VXX15945
Project Name/#	Standard Steel		**Method**	SW5030B
Matrix	Water (Surface, Eff., Ground)		**Date**	09/17/2006

Volatile Gas Chromatography/Mass Spectroscopy

Parameter	Results	Reporting/Control Limit	MDL	Units	Analysis Date
Isopropylbenzene (Cumene)	ND	1.00	0.310	ug/L	09/17/06
Bromobenzene	ND	1.00	0.310	ug/L	09/17/06
o-Xylene	ND	1.00	0.310	ug/L	09/17/06
1,2,3-Trichloropropane	ND	1.00	0.310	ug/L	09/17/06
n-Propylbenzene	ND	1.00	0.310	ug/L	09/17/06
2-Chlorotoluene	ND	1.00	0.310	ug/L	09/17/06
4-Chlorotoluene	ND	1.00	0.310	ug/L	09/17/06
1,1,2,2-Tetrachloroethane	ND	0.500	0.150	ug/L	09/17/06
1,3,5-Trimethylbenzene	ND	1.00	0.310	ug/L	09/17/06
tert-Butylbenzene	ND	1.00	0.310	ug/L	09/17/06
1,2,4-Trimethylbenzene	ND	1.00	0.310	ug/L	09/17/06
sec-Butylbenzene	ND	1.00	0.310	ug/L	09/17/06
4-Isopropyltoluene	ND	1.00	0.310	ug/L	09/17/06
1,4-Dichlorobenzene	ND	0.500	0.150	ug/L	09/17/06
1,2-Dichlorobenzene	ND	1.00	0.310	ug/L	09/17/06
n-Butylbenzene	ND	1.00	0.310	ug/L	09/17/06
1,3-Dichlorobenzene	ND	1.00	0.310	ug/L	09/17/06
1,2-Dibromo-3-chloropropane	ND	2.00	0.620	ug/L	09/17/06
1,2,4-Trichlorobenzene	ND	1.00	0.310	ug/L	09/17/06
Hexachlorobutadiene	ND	1.00	0.310	ug/L	09/17/06
Xylenes (total)	ND	2.00	1.00	ug/L	09/17/06
Naphthalene	ND	2.00	0.620	ug/L	09/17/06
1,2,3-Trichlorobenzene	ND	1.00	0.310	ug/L	09/17/06
4-Methyl-2-pentanone (MIBK)	ND	10.0	3.10	ug/L	09/17/06
2-Hexanone	ND	10.0	3.10	ug/L	09/17/06
Methyl-t-butyl ether	ND	5.00	1.50	ug/L	09/17/06
1,2-Dichloroethane	ND	0.500	0.150	ug/L	09/17/06
Surrogates					
Dibromofluoromethane <surr>	110	85-115		%	09/17/06
1,2-Dichloroethane-D4 <surr>	108	72-119		%	09/17/06
Toluene-d8 <surr>	98.4	85-120		%	09/17/06
4-Bromofluorobenzene <surr>	103	76-119		%	09/17/06

Batch	VMS8687
Method	SW8260B
Instrument	HP 5890 Series II MS1 VJA

SGS Ref.#	725854	Lab Control Sample	**Printed Date/Time**	09/22/2006	16:27
			Prep **Batch**	MXX18101	
Client Name	ALTA Geosciences, INC		**Method**	SW3010A	
Project Name/#	Standard Steel		**Date**	09/08/2006	
Matrix	Water (Surface, Eff., Ground)				

QC results affect the following production samples:

1065194001, 1065194002, 1065194005, 1065194006, 1065194007, 1065194008, 1065194009

Parameter		QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
Metals by ICP/MS								
Lead	LCS	1000	100	(80-120)			1000 ug/L	09/11/2006

Batch	MMS4390
Method	SW6020
Instrument	Perkin Elmer Sciex ICP-MS P3

SGS Ref.#	725940	Lab Control Sample	**Printed Date/Time**	09/22/2006	16:27
			Prep **Batch**	XXX17254	
Client Name	ALTA Geosciences, INC		**Method**	SW3510C	
Project Name/#	Standard Steel		**Date**	09/11/2006	
Matrix	Water (Surface, Eff., Ground)				

QC results affect the following production samples:

1065194001, 1065194002, 1065194005, 1065194006, 1065194007, 1065194008, 1065194009

Parameter		QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
Polychlorinated Biphenyls								
Aroclor-1016	LCS	1.10	110	(69-115)			1 ug/L	09/21/2006
Aroclor-1260	LCS	1.18	118 *	(61-110)			1 ug/L	09/21/2006
Surrogates								
Decachlorobiphenyl <surr>	LCS		92	(53-133)				09/21/2006

Batch	XGC5605
Method	SW8082
Instrument	HP 5890 Series II ECD SV I F

SGS Ref.#	727776	Lab Control Sample	**Printed Date/Time**	09/22/2006	16:27
	727777	Lab Control Sample Duplicate	**Prep** **Batch**	VXX15944	
Client Name	ALTA Geosciences, INC		**Method**	SW5030B	
Project Name/#	Standard Steel		**Date**	09/16/2006	
Matrix	Water (Surface, Eff., Ground)				

QC results affect the following production samples:

1065194001, 1065194005, 1065194006, 1065194007, 1065194008, 1065194009, 1065194010

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date

Volatile Gas Chromatography/Mass Spectroscopy

SGS Ref.#	727776	Lab Control Sample	**Printed Date/Time**	09/22/2006	16:27
	727777	Lab Control Sample Duplicate	**Prep Batch**	VXX15944	
Client Name	ALTA Geosciences, INC		**Method**	SW5030B	
Project Name/#	Standard Steel		**Date**	09/16/2006	
Matrix	Water (Surface, Eff., Ground)				

Parameter		QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
Volatile Gas Chromatography/Mass Spectroscopy								
Dichlorodifluoromethane	LCS	37.7	126	(54-131)			30 ug/L	09/16/2006
	LCSD	36.0	120		5	(< 20)	30 ug/L	09/16/2006
Chloromethane	LCS	29.6	99	(56-125)			30 ug/L	09/16/2006
	LCSD	28.6	95		3	(< 20)	30 ug/L	09/16/2006
Vinyl chloride	LCS	31.6	105	(50-134)			30 ug/L	09/16/2006
	LCSD	30.4	101		4	(< 20)	30 ug/L	09/16/2006
Bromomethane	LCS	34.9	116	(57-141)			30 ug/L	09/16/2006
	LCSD	35.2	117		1	(< 20)	30 ug/L	09/16/2006
Chloroethane	LCS	29.7	99	(60-133)			30 ug/L	09/16/2006
	LCSD	29.9	100		1	(< 20)	30 ug/L	09/16/2006
1,1-Dichloroethene	LCS	30.0	100	(70-130)			30 ug/L	09/16/2006
	LCSD	29.8	99		1	(< 20)	30 ug/L	09/16/2006
Trichlorofluoromethane	LCS	32.4	108	(72-129)			30 ug/L	09/16/2006
	LCSD	31.0	103		4	(< 20)	30 ug/L	09/16/2006
Methylene chloride	LCS	27.6	92	(72-120)			30 ug/L	09/16/2006
	LCSD	28.4	95		3	(< 20)	30 ug/L	09/16/2006
Carbon disulfide	LCS	54.6	121	(37-146)			45 ug/L	09/16/2006
	LCSD	51.8	115		5	(< 20)	45 ug/L	09/16/2006
trans-1,2-Dichloroethene	LCS	30.0	100	(71-127)			30 ug/L	09/16/2006
	LCSD	29.9	100		0	(< 20)	30 ug/L	09/16/2006
1,1-Dichloroethane	LCS	30.1	100	(81-120)			30 ug/L	09/16/2006
	LCSD	30.5	102		1	(< 20)	30 ug/L	09/16/2006
2,2-Dichloropropane	LCS	32.6	109	(77-135)			30 ug/L	09/16/2006
	LCSD	32.0	107		2	(< 20)	30 ug/L	09/16/2006
cis-1,2-Dichloroethene	LCS	29.6	99	(79-120)			30 ug/L	09/16/2006
	LCSD	29.9	100		1	(< 20)	30 ug/L	09/16/2006
Bromochloromethane	LCS	30.9	103	(76-126)			30 ug/L	09/16/2006
	LCSD	30.6	102		1	(< 20)	30 ug/L	09/16/2006

SGS Ref.#	727776	Lab Control Sample	**Printed Date/Time**	09/22/2006	16:27
	727777	Lab Control Sample Duplicate	**Prep Batch**	VXX15944	
Client Name	ALTA Geosciences, INC		**Method**	SW5030B	
Project Name/#	Standard Steel		**Date**	09/16/2006	
Matrix	Water (Surface, Eff., Ground)				

Parameter		QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
Volatile Gas Chromatography/Mass Spectroscopy								
2-Butanone (MEK)	LCS	83.3	93	(67-136)			90 ug/L	09/16/2006
	LCSD	80.7	90		3	(< 20)	90 ug/L	09/16/2006
Chloroform	LCS	28.7	96	(86-115)			30 ug/L	09/16/2006
	LCSD	29.3	98		2	(< 20)	30 ug/L	09/16/2006
1,1,1-Trichloroethane	LCS	31.8	106	(82-120)			30 ug/L	09/16/2006
	LCSD	31.7	106		0	(< 20)	30 ug/L	09/16/2006
Carbon tetrachloride	LCS	32.3	108	(79-132)			30 ug/L	09/16/2006
	LCSD	32.0	107		1	(< 20)	30 ug/L	09/16/2006
1,1-Dichloropropene	LCS	28.2	94	(80-121)			30 ug/L	09/16/2006
	LCSD	27.4	91		3	(< 20)	30 ug/L	09/16/2006
Benzene	LCS	31.6	105	(84-115)			30 ug/L	09/16/2006
	LCSD	32.1	107		2	(< 20)	30 ug/L	09/16/2006
Trichloroethene	LCS	27.6	92	(82-118)			30 ug/L	09/16/2006
	LCSD	28.0	93		2	(< 20)	30 ug/L	09/16/2006
1,2-Dichloropropane	LCS	28.1	94	(88-115)			30 ug/L	09/16/2006
	LCSD	29.3	98		4	(< 20)	30 ug/L	09/16/2006
Dibromomethane	LCS	29.6	99	(86-119)			30 ug/L	09/16/2006
	LCSD	29.9	100		1	(< 20)	30 ug/L	09/16/2006
Bromodichloromethane	LCS	29.0	97	(81-120)			30 ug/L	09/16/2006
	LCSD	29.9	100		3	(< 20)	30 ug/L	09/16/2006
2-Chloroethyl Vinyl Ether	LCS	40.1	89	(63-148)			45 ug/L	09/16/2006
	LCSD	39.3	87		2	(< 20)	45 ug/L	09/16/2006
cis-1,3-Dichloropropene	LCS	28.0	93	(90-126)			30 ug/L	09/16/2006
	LCSD	27.6	92		1	(< 20)	30 ug/L	09/16/2006
Toluene	LCS	31.8	106	(81-115)			30 ug/L	09/16/2006
	LCSD	30.7	102		3	(< 20)	30 ug/L	09/16/2006
trans-1,3-Dichloropropene	LCS	28.2	94	(89-125)			30 ug/L	09/16/2006

SGS Ref.#	727776	Lab Control Sample	**Printed Date/Time**	09/22/2006	16:27
	727777	Lab Control Sample Duplicate	**Prep Batch**	VXX15944	
Client Name	ALTA Geosciences, INC		**Method**	SW5030B	
Project Name/#	Standard Steel		**Date**	09/16/2006	
Matrix	Water (Surface, Eff., Ground)				

Parameter		QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
Volatile Gas Chromatography/Mass Spectroscopy								
	LCSD	27.1	90		4	(< 20)	30 ug/L	09/16/2006
1,1,2-Trichloroethane	LCS	29.0	97	(86-116)			30 ug/L	09/16/2006
	LCSD	28.9	96		0	(< 20)	30 ug/L	09/16/2006
Tetrachloroethene	LCS	30.0	100	(79-117)			30 ug/L	09/16/2006
	LCSD	28.3	94		6	(< 20)	30 ug/L	09/16/2006
1,3-Dichloropropane	LCS	31.9	106	(86-118)			30 ug/L	09/16/2006
	LCSD	31.8	106		0	(< 20)	30 ug/L	09/16/2006
Dibromochloromethane	LCS	30.0	100	(88-116)			30 ug/L	09/16/2006
	LCSD	29.8	100		0	(< 20)	30 ug/L	09/16/2006
1,2-Dibromoethane	LCS	30.5	102	(86-119)			30 ug/L	09/16/2006
	LCSD	29.5	98		4	(< 20)	30 ug/L	09/16/2006
Chlorobenzene	LCS	29.4	98	(88-115)			30 ug/L	09/16/2006
	LCSD	28.9	96		2	(< 20)	30 ug/L	09/16/2006
1,1,1,2-Tetrachloroethane	LCS	30.0	100	(81-120)			30 ug/L	09/16/2006
	LCSD	29.7	99		1	(< 20)	30 ug/L	09/16/2006
Ethylbenzene	LCS	28.5	95	(85-120)			30 ug/L	09/16/2006
	LCSD	27.7	92		3	(< 20)	30 ug/L	09/16/2006
P & M -Xylene	LCS	58.1	97	(80-120)			60 ug/L	09/16/2006
	LCSD	56.3	94		3	(< 20)	60 ug/L	09/16/2006
Styrene	LCS	28.2	94	(84-129)			30 ug/L	09/16/2006
	LCSD	27.8	93		2	(< 20)	30 ug/L	09/16/2006
Bromoform	LCS	31.2	104	(85-126)			30 ug/L	09/16/2006
	LCSD	31.4	105		1	(< 20)	30 ug/L	09/16/2006
Isopropylbenzene (Cumene)	LCS	27.6	92	(80-120)			30 ug/L	09/16/2006
	LCSD	26.5	89		4	(< 20)	30 ug/L	09/16/2006
Bromobenzene	LCS	30.9	103	(87-115)			30 ug/L	09/16/2006
	LCSD	31.1	104		1	(< 20)	30 ug/L	09/16/2006

SGS Ref.#	727776	Lab Control Sample	**Printed Date/Time**	09/22/2006	16:27
	727777	Lab Control Sample Duplicate	**Prep Batch**	VXX15944	
Client Name	ALTA Geosciences, INC		**Method**	SW5030B	
Project Name/#	Standard Steel		**Date**	09/16/2006	
Matrix	Water (Surface, Eff., Ground)				

Parameter		QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
Volatile Gas Chromatography/Mass Spectroscopy								
o-Xylene	LCS	28.0	93	(80-120)			30 ug/L	09/16/2006
	LCSD	27.2	91		3	(< 20)	30 ug/L	09/16/2006
1,2,3-Trichloropropane	LCS	27.7	92	(86-118)			30 ug/L	09/16/2006
	LCSD	28.3	94		2	(< 20)	30 ug/L	09/16/2006
n-Propylbenzene	LCS	28.4	95	(87-123)			30 ug/L	09/16/2006
	LCSD	28.0	93		1	(< 20)	30 ug/L	09/16/2006
2-Chlorotoluene	LCS	28.0	93	(85-121)			30 ug/L	09/16/2006
	LCSD	28.2	94		1	(< 20)	30 ug/L	09/16/2006
4-Chlorotoluene	LCS	28.5	95	(81-126)			30 ug/L	09/16/2006
	LCSD	28.6	96		1	(< 20)	30 ug/L	09/16/2006
1,1,2,2-Tetrachloroethane	LCS	29.4	98	(80-123)			30 ug/L	09/16/2006
	LCSD	30.0	100		2	(< 20)	30 ug/L	09/16/2006
1,3,5-Trimethylbenzene	LCS	28.3	94	(87-118)			30 ug/L	09/16/2006
	LCSD	28.0	93		1	(< 20)	30 ug/L	09/16/2006
tert-Butylbenzene	LCS	27.9	93	(86-121)			30 ug/L	09/16/2006
	LCSD	27.5	92		1	(< 20)	30 ug/L	09/16/2006
1,2,4-Trimethylbenzene	LCS	28.5	95	(87-117)			30 ug/L	09/16/2006
	LCSD	28.3	94		1	(< 20)	30 ug/L	09/16/2006
sec-Butylbenzene	LCS	30.2	101	(88-125)			30 ug/L	09/16/2006
	LCSD	28.9	96		4	(< 20)	30 ug/L	09/16/2006
4-Isopropyltoluene	LCS	28.1	94	(83-119)			30 ug/L	09/16/2006
	LCSD	27.2	91		3	(< 20)	30 ug/L	09/16/2006
1,4-Dichlorobenzene	LCS	28.9	96	(82-121)			30 ug/L	09/16/2006
	LCSD	29.5	98		2	(< 20)	30 ug/L	09/16/2006
1,2-Dichlorobenzene	LCS	28.8	96	(86-114)			30 ug/L	09/16/2006
	LCSD	29.0	97		1	(< 20)	30 ug/L	09/16/2006
n-Butylbenzene	LCS	27.5	92	(83-130)			30 ug/L	09/16/2006
	LCSD	26.6	89		3	(< 20)	30 ug/L	09/16/2006

SGS Ref.#	727776	Lab Control Sample	**Printed Date/Time**	09/22/2006	16:27
	727777	Lab Control Sample Duplicate	**Prep Batch**	VXX15944	
Client Name	ALTA Geosciences, INC		**Method**	SW5030B	
Project Name/#	Standard Steel		**Date**	09/16/2006	
Matrix	Water (Surface, Eff., Ground)				

Parameter		QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
Volatile Gas Chromatography/Mass Spectroscopy								
1,3-Dichlorobenzene	LCS	32.1	107	(83-118)			30 ug/L	09/16/2006
	LCSD	32.0	107		1	(< 20)	30 ug/L	09/16/2006
1,2-Dibromo-3-chloropropane	LCS	26.9	90	(80-122)			30 ug/L	09/16/2006
	LCSD	27.3	91		2	(< 20)	30 ug/L	09/16/2006
1,2,4-Trichlorobenzene	LCS	27.1	90	(85-120)			30 ug/L	09/16/2006
	LCSD	26.7	89		2	(< 20)	30 ug/L	09/16/2006
Hexachlorobutadiene	LCS	31.9	106	(81-126)			30 ug/L	09/16/2006
	LCSD	29.1	97		9	(< 20)	30 ug/L	09/16/2006
Xylenes (total)	LCS	86.1	96	(80-120)			90 ug/L	09/16/2006
	LCSD	83.5	93		3	(< 20)	90 ug/L	09/16/2006
Naphthalene	LCS	26.0	87	(82-126)			30 ug/L	09/16/2006
	LCSD	27.2	91		5	(< 20)	30 ug/L	09/16/2006
1,2,3-Trichlorobenzene	LCS	27.1	90	(86-124)			30 ug/L	09/16/2006
	LCSD	27.6	92		2	(< 20)	30 ug/L	09/16/2006
4-Methyl-2-pentanone (MIBK)	LCS	79.2	88	(73-134)			90 ug/L	09/16/2006
	LCSD	79.5	88		0	(< 20)	90 ug/L	09/16/2006
2-Hexanone	LCS	81.5	91	(76-130)			90 ug/L	09/16/2006
	LCSD	78.6	87		4	(< 20)	90 ug/L	09/16/2006
Methyl-t-butyl ether	LCS	42.6	95	(83-119)			45 ug/L	09/16/2006
	LCSD	44.0	98		3	(< 20)	45 ug/L	09/16/2006
1,2-Dichloroethane	LCS	28.6	95	(82-119)			30 ug/L	09/16/2006
	LCSD	29.8	99		4	(< 20)	30 ug/L	09/16/2006
Surrogates								
Dibromofluoromethane <surr>	LCS		100	(85-115)				09/16/2006
	LCSD		102		1			09/16/2006
1,2-Dichloroethane-D4 <surr>	LCS		98	(72-119)				09/16/2006
	LCSD		100		3			09/16/2006

SGS Ref.#	727776	Lab Control Sample	**Printed Date/Time**	09/22/2006	16:27
	727777	Lab Control Sample Duplicate	**Prep** **Batch**	VXX15944	
Client Name	ALTA Geosciences, INC		**Method**	SW5030B	
Project Name/#	Standard Steel		**Date**	09/16/2006	
Matrix	Water (Surface, Eff., Ground)				

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
Volatile Gas Chromatography/Mass Spectroscopy							
Toluene-d8 <surr>	LCS	100	(85-120)				09/16/2006
	LCSD	98		2			09/16/2006
4-Bromofluorobenzene <surr>	LCS	96	(76-119)				09/16/2006
	LCSD	96		0			09/16/2006

Batch	VMS8686
Method	SW8260B
Instrument	HP 5890 Series II MS1 VJA

SGS Ref.#	727789	Lab Control Sample	**Printed Date/Time**	09/22/2006	16:27
	727790	Lab Control Sample Duplicate	**Prep** **Batch**	VXX15945	
Client Name	ALTA Geosciences, INC		**Method**	SW5030B	
Project Name/#	Standard Steel		**Date**	09/17/2006	
Matrix	Water (Surface, Eff., Ground)				

QC results affect the following production samples:

1065194002

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date

Volatile Gas Chromatography/Mass Spectroscopy

SGS Ref.#	727789	Lab Control Sample	**Printed Date/Time**	09/22/2006	16:27
	727790	Lab Control Sample Duplicate	**Prep Batch**	VXX15945	
Client Name	ALTA Geosciences, INC		**Method**	SW5030B	
Project Name/#	Standard Steel		**Date**	09/17/2006	
Matrix	Water (Surface, Eff., Ground)				

Parameter		QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
Volatile Gas Chromatography/Mass Spectroscopy								
Dichlorodifluoromethane	LCS	34.4	115	(54-131)			30 ug/L	09/17/2006
	LCSD	36.4	121		6	(< 20)	30 ug/L	09/17/2006
Chloromethane	LCS	27.7	92	(56-125)			30 ug/L	09/17/2006
	LCSD	28.4	95		3	(< 20)	30 ug/L	09/17/2006
Vinyl chloride	LCS	29.5	98	(50-134)			30 ug/L	09/17/2006
	LCSD	30.7	102		4	(< 20)	30 ug/L	09/17/2006
Bromomethane	LCS	34.2	114	(57-141)			30 ug/L	09/17/2006
	LCSD	34.9	116		2	(< 20)	30 ug/L	09/17/2006
Chloroethane	LCS	28.0	93	(60-133)			30 ug/L	09/17/2006
	LCSD	29.3	98		4	(< 20)	30 ug/L	09/17/2006
1,1-Dichloroethene	LCS	29.5	98	(70-130)			30 ug/L	09/17/2006
	LCSD	30.4	101		3	(< 20)	30 ug/L	09/17/2006
Trichlorofluoromethane	LCS	30.0	100	(72-129)			30 ug/L	09/17/2006
	LCSD	32.1	107		7	(< 20)	30 ug/L	09/17/2006
Methylene chloride	LCS	27.5	92	(72-120)			30 ug/L	09/17/2006
	LCSD	27.8	93		1	(< 20)	30 ug/L	09/17/2006
Carbon disulfide	LCS	50.7	113	(37-146)			45 ug/L	09/17/2006
	LCSD	51.6	115		2	(< 20)	45 ug/L	09/17/2006
trans-1,2-Dichloroethene	LCS	29.4	98	(71-127)			30 ug/L	09/17/2006
	LCSD	30.4	101		3	(< 20)	30 ug/L	09/17/2006
1,1-Dichloroethane	LCS	29.9	100	(81-120)			30 ug/L	09/17/2006
	LCSD	30.3	101		1	(< 20)	30 ug/L	09/17/2006
2,2-Dichloropropane	LCS	33.7	112	(77-135)			30 ug/L	09/17/2006
	LCSD	32.0	107		5	(< 20)	30 ug/L	09/17/2006
cis-1,2-Dichloroethene	LCS	29.3	98	(79-120)			30 ug/L	09/17/2006
	LCSD	29.4	98		0	(< 20)	30 ug/L	09/17/2006
Bromochloromethane	LCS	30.0	100	(76-126)			30 ug/L	09/17/2006
	LCSD	30.4	101		1	(< 20)	30 ug/L	09/17/2006

SGS Ref.#	727789	Lab Control Sample	**Printed Date/Time**	09/22/2006	16:27
	727790	Lab Control Sample Duplicate	**Prep Batch**	VXX15945	
Client Name	ALTA Geosciences, INC		**Method**	SW5030B	
Project Name/#	Standard Steel		**Date**	09/17/2006	
Matrix	Water (Surface, Eff., Ground)				

Volatile Gas Chromatography/Mass Spectroscopy

Parameter		QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
2-Butanone (MEK)	LCS	81.6	91	(67-136)			90 ug/L	09/17/2006
	LCSD	81.8	91		0	(< 20)	90 ug/L	09/17/2006
Chloroform	LCS	28.3	94	(86-115)			30 ug/L	09/17/2006
	LCSD	28.8	96		2	(< 20)	30 ug/L	09/17/2006
1,1,1-Trichloroethane	LCS	31.1	104	(82-120)			30 ug/L	09/17/2006
	LCSD	32.1	107		3	(< 20)	30 ug/L	09/17/2006
Carbon tetrachloride	LCS	31.0	103	(79-132)			30 ug/L	09/17/2006
	LCSD	32.7	109		5	(< 20)	30 ug/L	09/17/2006
1,1-Dichloropropene	LCS	27.9	93	(80-121)			30 ug/L	09/17/2006
	LCSD	28.0	93		0	(< 20)	30 ug/L	09/17/2006
Benzene	LCS	31.1	104	(84-115)			30 ug/L	09/17/2006
	LCSD	31.6	105		2	(< 20)	30 ug/L	09/17/2006
Trichloroethene	LCS	27.3	91	(82-118)			30 ug/L	09/17/2006
	LCSD	27.8	93		2	(< 20)	30 ug/L	09/17/2006
1,2-Dichloropropane	LCS	28.5	95	(88-115)			30 ug/L	09/17/2006
	LCSD	28.1	94		2	(< 20)	30 ug/L	09/17/2006
Dibromomethane	LCS	29.3	98	(86-119)			30 ug/L	09/17/2006
	LCSD	29.5	98		1	(< 20)	30 ug/L	09/17/2006
Bromodichloromethane	LCS	29.1	97	(81-120)			30 ug/L	09/17/2006
	LCSD	29.3	98		1	(< 20)	30 ug/L	09/17/2006
2-Chloroethyl Vinyl Ether	LCS	37.1	83	(63-148)			45 ug/L	09/17/2006
	LCSD	39.2	87		5	(< 20)	45 ug/L	09/17/2006
cis-1,3-Dichloropropene	LCS	27.5	92	(90-126)			30 ug/L	09/17/2006
	LCSD	27.3	91		1	(< 20)	30 ug/L	09/17/2006
Toluene	LCS	31.1	104	(81-115)			30 ug/L	09/17/2006
	LCSD	31.2	104		0	(< 20)	30 ug/L	09/17/2006
trans-1,3-Dichloropropene	LCS	28.1	94	(89-125)			30 ug/L	09/17/2006

SGS Ref.#	727789	Lab Control Sample	**Printed Date/Time**	09/22/2006	16:27
	727790	Lab Control Sample Duplicate	**Prep Batch**	VXX15945	
Client Name	ALTA Geosciences, INC		**Method**	SW5030B	
Project Name/#	Standard Steel		**Date**	09/17/2006	
Matrix	Water (Surface, Eff., Ground)				

Parameter		QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
Volatile Gas Chromatography/Mass Spectroscopy								
	LCSD	27.4	91		3	(< 20)	30 ug/L	09/17/2006
1,1,2-Trichloroethane	LCS	29.2	97	(86-116)			30 ug/L	09/17/2006
	LCSD	29.0	97		1	(< 20)	30 ug/L	09/17/2006
Tetrachloroethene	LCS	28.7	96	(79-117)			30 ug/L	09/17/2006
	LCSD	29.0	97		1	(< 20)	30 ug/L	09/17/2006
1,3-Dichloropropane	LCS	31.7	106	(86-118)			30 ug/L	09/17/2006
	LCSD	31.7	106		0	(< 20)	30 ug/L	09/17/2006
Dibromochloromethane	LCS	29.6	99	(88-116)			30 ug/L	09/17/2006
	LCSD	29.5	98		0	(< 20)	30 ug/L	09/17/2006
1,2-Dibromoethane	LCS	29.4	98	(86-119)			30 ug/L	09/17/2006
	LCSD	29.5	98		0	(< 20)	30 ug/L	09/17/2006
Chlorobenzene	LCS	28.9	96	(88-115)			30 ug/L	09/17/2006
	LCSD	29.0	97		0	(< 20)	30 ug/L	09/17/2006
1,1,1,2-Tetrachloroethane	LCS	29.7	99	(81-120)			30 ug/L	09/17/2006
	LCSD	29.9	100		1	(< 20)	30 ug/L	09/17/2006
Ethylbenzene	LCS	28.1	94	(85-120)			30 ug/L	09/17/2006
	LCSD	28.1	94		0	(< 20)	30 ug/L	09/17/2006
P & M -Xylene	LCS	56.8	95	(80-120)			60 ug/L	09/17/2006
	LCSD	57.2	95		1	(< 20)	60 ug/L	09/17/2006
Styrene	LCS	28.1	94	(84-129)			30 ug/L	09/17/2006
	LCSD	27.7	92		2	(< 20)	30 ug/L	09/17/2006
Bromoform	LCS	31.1	104	(85-126)			30 ug/L	09/17/2006
	LCSD	31.4	105		1	(< 20)	30 ug/L	09/17/2006
Isopropylbenzene (Cumene)	LCS	27.1	91	(80-120)			30 ug/L	09/17/2006
	LCSD	27.3	91		0	(< 20)	30 ug/L	09/17/2006
Bromobenzene	LCS	31.0	103	(87-115)			30 ug/L	09/17/2006
	LCSD	31.0	103		0	(< 20)	30 ug/L	09/17/2006

SGS Ref.#	727789	Lab Control Sample	**Printed Date/Time**	09/22/2006	16:27
	727790	Lab Control Sample Duplicate	**Prep Batch**	VXX15945	
Client Name	ALTA Geosciences, INC		**Method**	SW5030B	
Project Name/#	Standard Steel		**Date**	09/17/2006	
Matrix	Water (Surface, Eff., Ground)				

Parameter		QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
Volatile Gas Chromatography/Mass Spectroscopy								
o-Xylene	LCS	27.4	91	(80-120)			30 ug/L	09/17/2006
	LCSD	27.5	92		1	(< 20)	30 ug/L	09/17/2006
1,1,2,2-Tetrachloroethane	LCS	30.1	100	(80-123)			30 ug/L	09/17/2006
	LCSD	29.3	98		3	(< 20)	30 ug/L	09/17/2006
1,2,3-Trichloropropane	LCS	28.9	96	(86-118)			30 ug/L	09/17/2006
	LCSD	28.2	94		3	(< 20)	30 ug/L	09/17/2006
n-Propylbenzene	LCS	28.1	94	(87-123)			30 ug/L	09/17/2006
	LCSD	28.1	94		0	(< 20)	30 ug/L	09/17/2006
2-Chlorotoluene	LCS	28.1	94	(85-121)			30 ug/L	09/17/2006
	LCSD	27.9	93		1	(< 20)	30 ug/L	09/17/2006
4-Chlorotoluene	LCS	28.7	96	(81-126)			30 ug/L	09/17/2006
	LCSD	28.3	94		1	(< 20)	30 ug/L	09/17/2006
1,3,5-Trimethylbenzene	LCS	28.3	94	(87-118)			30 ug/L	09/17/2006
	LCSD	28.2	94		0	(< 20)	30 ug/L	09/17/2006
tert-Butylbenzene	LCS	27.3	91	(86-121)			30 ug/L	09/17/2006
	LCSD	28.1	94		3	(< 20)	30 ug/L	09/17/2006
1,2,4-Trimethylbenzene	LCS	28.6	95	(87-117)			30 ug/L	09/17/2006
	LCSD	28.5	95		0	(< 20)	30 ug/L	09/17/2006
sec-Butylbenzene	LCS	29.1	97	(88-125)			30 ug/L	09/17/2006
	LCSD	29.6	99		2	(< 20)	30 ug/L	09/17/2006
4-Isopropyltoluene	LCS	27.3	91	(83-119)			30 ug/L	09/17/2006
	LCSD	27.5	92		1	(< 20)	30 ug/L	09/17/2006
1,4-Dichlorobenzene	LCS	29.2	97	(82-121)			30 ug/L	09/17/2006
	LCSD	28.8	96		1	(< 20)	30 ug/L	09/17/2006
1,2-Dichlorobenzene	LCS	28.7	96	(86-114)			30 ug/L	09/17/2006
	LCSD	28.7	96		0	(< 20)	30 ug/L	09/17/2006
n-Butylbenzene	LCS	27.0	90	(83-130)			30 ug/L	09/17/2006
	LCSD	26.8	89		1	(< 20)	30 ug/L	09/17/2006

SGS Ref.#	727789	Lab Control Sample	**Printed Date/Time**	09/22/2006	16:27
	727790	Lab Control Sample Duplicate	**Prep Batch**	VXX15945	
Client Name	ALTA Geosciences, INC		**Method**	SW5030B	
Project Name/#	Standard Steel		**Date**	09/17/2006	
Matrix	Water (Surface, Eff., Ground)				

Parameter		QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
Volatile Gas Chromatography/Mass Spectroscopy								
1,3-Dichlorobenzene	LCS	32.1	107	(83-118)			30 ug/L	09/17/2006
	LCSD	31.7	106		1	(< 20)	30 ug/L	09/17/2006
1,2-Dibromo-3-chloropropane	LCS	27.5	92	(80-122)			30 ug/L	09/17/2006
	LCSD	27.0	90		2	(< 20)	30 ug/L	09/17/2006
1,2,4-Trichlorobenzene	LCS	27.4	91	(85-120)			30 ug/L	09/17/2006
	LCSD	26.7	89		3	(< 20)	30 ug/L	09/17/2006
Hexachlorobutadiene	LCS	29.4	98	(81-126)			30 ug/L	09/17/2006
	LCSD	30.5	102		4	(< 20)	30 ug/L	09/17/2006
Xylenes (total)	LCS	84.2	94	(80-120)			90 ug/L	09/17/2006
	LCSD	84.7	94		1	(< 20)	90 ug/L	09/17/2006
Naphthalene	LCS	28.0	93	(82-126)			30 ug/L	09/17/2006
	LCSD	26.4	88		6	(< 20)	30 ug/L	09/17/2006
1,2,3-Trichlorobenzene	LCS	28.1	94	(86-124)			30 ug/L	09/17/2006
	LCSD	27.1	90		4	(< 20)	30 ug/L	09/17/2006
4-Methyl-2-pentanone (MIBK)	LCS	79.7	89	(73-134)			90 ug/L	09/17/2006
	LCSD	78.0	87		2	(< 20)	90 ug/L	09/17/2006
2-Hexanone	LCS	81.5	91	(76-130)			90 ug/L	09/17/2006
	LCSD	79.7	89		2	(< 20)	90 ug/L	09/17/2006
Methyl-t-butyl ether	LCS	43.8	97	(83-119)			45 ug/L	09/17/2006
	LCSD	43.2	96		1	(< 20)	45 ug/L	09/17/2006
1,2-Dichloroethane	LCS	28.9	96	(82-119)			30 ug/L	09/17/2006
	LCSD	29.3	98		2	(< 20)	30 ug/L	09/17/2006
Surrogates								
Dibromofluoromethane <surr>	LCS		99	(85-115)				09/17/2006
	LCSD		100		1			09/17/2006
1,2-Dichloroethane-D4 <surr>	LCS		98	(72-119)				09/17/2006
	LCSD		99		0			09/17/2006

SGS Ref.#	727789	Lab Control Sample	**Printed Date/Time**	09/22/2006	16:27
	727790	Lab Control Sample Duplicate	**Prep** **Batch**	VXX15945	
Client Name	ALTA Geosciences, INC		**Method**	SW5030B	
Project Name/#	Standard Steel		**Date**	09/17/2006	
Matrix	Water (Surface, Eff., Ground)				

Parameter	QC Results	Pct Recov	LCS/LCSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
Volatile Gas Chromatography/Mass Spectroscopy							
Toluene-d8 <surr>	LCS	98	(85-120)				09/17/2006
	LCSD	98		0			09/17/2006
4-Bromofluorobenzene <surr>	LCS	97	(76-119)				09/17/2006
	LCSD	96		2			09/17/2006

Batch	VMS8687
Method	SW8260B
Instrument	HP 5890 Series II MS1 VJA

SGS Ref.#	725857	Bench Spike DIGESTED	**Printed Date/Time**		09/22/2006 16:27
			Prep	**Batch**	MXX18101
				Method	3010 H20 Digest for Metals ICI
				Date	09/08/2006
Original	1065194002				
Matrix	Water (Surface, Eff., Ground)				

QC results affect the following production samples:

1065194001, 1065194002, 1065194005, 1065194006, 1065194007, 1065194008, 1065194009

Parameter	Qualifiers	Original Result	QC Result	Pct Recov	MS/MSD Limits	RPD	RPD Limits	Spiked Amount		Analysis Date
Metals by ICP/MS										
Lead	BND	ND	4010	80	(75-125)			5000	ug/L	09/11/2006

Batch MMS4390
Method SW6020
Instrument Perkin Elmer Sciex ICP-MS P3

SGS Ref.#	1065194003	Billable Matrix Spike	**Printed Date/Time**		09/22/2006 16:27
	1065194004	Billable Matrix Spike Dup.	**Prep**	**Batch**	MXX18101
				Method	3010 H20 Digest for Metals ICI
				Date	09/08/2006
Original	1065194002				
Matrix	Water (Surface, Eff., Ground)				

QC results affect the following production samples:

Parameter	Qualifiers		Original Result	QC Result	Pct Recov	MS/MSD Limits	RPD	RPD Limits	Spiked Amount		Analysis Date
Metals by ICP/MS											
Lead		BMS	ND	1160	116	(80-120)			1000	ug/L	09/12/2006
		BMSD		1200	120		3	(< 15)	1000	ug/L	09/12/2006
Batch	MMS4392										
Method	SW6020										
Instrument	Perkin Elmer Sciex ICP-MS P3										
Polychlorinated Biphenyls											
Aroclor-1016		BMS	ND	.98	97	(69-115)			1.02	ug/L	09/21/2006
		BMSD		0.982	98		0	(< 25)	1	ug/L	09/21/2006
Aroclor-1260		BMS	ND	1.06	104	(61-110)			1.02	ug/L	09/21/2006
		BMSD		1.04	104		2	(< 25)	1	ug/L	09/21/2006
Surrogates											
Decachlorobiphenyl <surr>		BMS		0.763	75	(53-133)					09/21/2006
		BMSD		0.761	76		0				09/21/2006
Batch	XGC5605										
Method	SW8082										
Instrument	HP 5890 Series II ECD SV I F										

Volatile Gas Chromatography/Mass Spectroscopy

SGS Ref.#	1065194003	Billable Matrix Spike	**Printed Date/Time**	09/22/2006 16:27
	1065194004	Billable Matrix Spike Dup.	**Prep** **Batch**	VXX15945
			Method	Volatiles Extraction 8240/8260
			Date	09/17/2006
Original	1065194002			
Matrix	Water (Surface, Eff., Ground)			

Volatile Gas Chromatography/Mass Spectroscopy

Parameter	Qualifiers	Original Result	QC Result	Pct Recov	MS/MSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
Dichlorodifluoromethane	BMS	ND	31.1	104	(54-131)			30 ug/L	09/17/2006
	BMSD		28.2	94		10	(< 20)	30 ug/L	09/17/2006
Chloromethane	BMS	ND	26.8	89	(56-125)			30 ug/L	09/17/2006
	BMSD		24.8	83		8	(< 20)	30 ug/L	09/17/2006
Vinyl chloride	BMS	ND	26.3	88	(50-134)			30 ug/L	09/17/2006
	BMSD		25.4	85		4	(< 20)	30 ug/L	09/17/2006
Bromomethane	BMS	ND	32.4	108	(57-141)			30 ug/L	09/17/2006
	BMSD		30.6	102		6	(< 20)	30 ug/L	09/17/2006
Chloroethane	BMS	ND	26	87	(60-133)			30 ug/L	09/17/2006
	BMSD		25.5	85		2	(< 20)	30 ug/L	09/17/2006
1,1-Dichloroethene	BMS	ND	26	87	(70-130)			30 ug/L	09/17/2006
	BMSD		25.1	84		3	(< 20)	30 ug/L	09/17/2006
Trichlorofluoromethane	BMS	ND	26.9	90	(72-129)			30 ug/L	09/17/2006
	BMSD		26.6	89		1	(< 20)	30 ug/L	09/17/2006
Methylene chloride	BMS	ND	26	87	(72-120)			30 ug/L	09/17/2006
	BMSD		25.6	85		2	(< 20)	30 ug/L	09/17/2006
Carbon disulfide	BMS	ND	46.3	103	(37-146)			45 ug/L	09/17/2006
	BMSD		44.2	98		5	(< 20)	45 ug/L	09/17/2006
trans-1,2-Dichloroethene	BMS	ND	26.1	87	(71-127)			30 ug/L	09/17/2006
	BMSD		25.3	84		3	(< 20)	30 ug/L	09/17/2006
1,1-Dichloroethane	BMS	ND	28.4	95	(81-120)			30 ug/L	09/17/2006
	BMSD		27.5	92		3	(< 20)	30 ug/L	09/17/2006
2,2-Dichloropropane	BMS	ND	30.6	102	(77-135)			30 ug/L	09/17/2006
	BMSD		29.9	100		2	(< 20)	30 ug/L	09/17/2006
cis-1,2-Dichloroethene	BMS	ND	27.4	91	(79-120)			30 ug/L	09/17/2006
	BMSD		26.9	90		2	(< 20)	30 ug/L	09/17/2006
Bromochloromethane	BMS	ND	28.7	96	(76-126)			30 ug/L	09/17/2006
	BMSD		28.2	94		2	(< 20)	30 ug/L	09/17/2006
2-Butanone (MEK)	BMS	ND	80	89	(67-136)			90 ug/L	09/17/2006
	BMSD		75.4	84		6	(< 20)	90 ug/L	09/17/2006
Chloroform	BMS	ND	27.1	90	(86-115)			30 ug/L	09/17/2006
	BMSD		26.5	88		2	(< 20)	30 ug/L	09/17/2006
1,1,1-Trichloroethane	BMS	ND	28.2	94	(82-120)			30 ug/L	09/17/2006
	BMSD		28	93		1	(< 20)	30 ug/L	09/17/2006
Carbon tetrachloride	BMS	ND	28.2	94	(79-132)			30 ug/L	09/17/2006
	BMSD		27.7	92		2	(< 20)	30 ug/L	09/17/2006
1,1-Dichloropropene	BMS	ND	24.2	81	(80-121)			30 ug/L	09/17/2006
	BMSD		24.4	81		1	(< 20)	30 ug/L	09/17/2006
Benzene	BMS	ND	29.4	98	(84-115)			30 ug/L	09/17/2006
	BMSD		28.7	96		2	(< 20)	30 ug/L	09/17/2006

SGS Ref.#	1065194003	Billable Matrix Spike	**Printed Date/Time**	09/22/2006 16:27
	1065194004	Billable Matrix Spike Dup.	**Prep** **Batch**	VXX15945
			Method	Volatiles Extraction 8240/8260
			Date	09/17/2006
Original	1065194002			
Matrix	Water (Surface, Eff., Ground)			

Volatile Gas Chromatography/Mass Spectroscopy

Parameter	Qualifiers	Original Result	QC Result	Pct Recov	MS/MSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
Trichloroethene	BMS	ND	25	83	(82-118)			30 ug/L	09/17/2006
	BMSD		25	83		0	(< 20)	30 ug/L	09/17/2006
1,2-Dichloropropane	BMS	ND	26.4	88	(88-115)			30 ug/L	09/17/2006
	BMSD		26.5	88		0	(< 20)	30 ug/L	09/17/2006
Dibromomethane	BMS	ND	28.3	95	(86-119)			30 ug/L	09/17/2006
	BMSD		27.6	92		3	(< 20)	30 ug/L	09/17/2006
Bromodichloromethane	BMS	ND	27.5	92	(81-120)			30 ug/L	09/17/2006
	BMSD		27	90		2	(< 20)	30 ug/L	09/17/2006
2-Chloroethyl Vinyl Ether	BMS	ND	0	0*	(63-148)			45 ug/L	09/17/2006
	BMSD		0	0*		0	(< 20)	45 ug/L	09/17/2006
cis-1,3-Dichloropropene	BMS	ND	24.7	82*	(90-126)			30 ug/L	09/17/2006
	BMSD		24	80*		3	(< 20)	30 ug/L	09/17/2006
Toluene	BMS	7.90	35.3	91	(81-115)			30 ug/L	09/17/2006
	BMSD		33.6	86		5	(< 20)	30 ug/L	09/17/2006
trans-1,3-Dichloropropene	BMS	ND	26.7	89	(89-125)			30 ug/L	09/17/2006
	BMSD		26.1	87*		2	(< 20)	30 ug/L	09/17/2006
1,1,2-Trichloroethane	BMS	ND	27.5	92	(86-116)			30 ug/L	09/17/2006
	BMSD		27.7	92		1	(< 20)	30 ug/L	09/17/2006
Tetrachloroethene	BMS	ND	26.3	88	(79-117)			30 ug/L	09/17/2006
	BMSD		26.2	88		0	(< 20)	30 ug/L	09/17/2006
1,3-Dichloropropane	BMS	ND	30.5	102	(86-118)			30 ug/L	09/17/2006
	BMSD		30.3	101		1	(< 20)	30 ug/L	09/17/2006
Dibromochloromethane	BMS	ND	28.2	94	(88-116)			30 ug/L	09/17/2006
	BMSD		28.3	94		0	(< 20)	30 ug/L	09/17/2006
1,2-Dibromoethane	BMS	ND	28.5	95	(86-119)			30 ug/L	09/17/2006
	BMSD		27.9	93		2	(< 20)	30 ug/L	09/17/2006
Chlorobenzene	BMS	ND	27.3	91	(88-115)			30 ug/L	09/17/2006
	BMSD		27.2	91		1	(< 20)	30 ug/L	09/17/2006
1,1,1,2-Tetrachloroethane	BMS	ND	28.3	94	(81-120)			30 ug/L	09/17/2006
	BMSD		28.1	94		1	(< 20)	30 ug/L	09/17/2006
Ethylbenzene	BMS	ND	26	87	(85-120)			30 ug/L	09/17/2006
	BMSD		25.8	86		0	(< 20)	30 ug/L	09/17/2006
P & M -Xylene	BMS	ND	53.1	88	(80-120)			60 ug/L	09/17/2006
	BMSD		52.7	88		1	(< 20)	60 ug/L	09/17/2006
Styrene	BMS	ND	26.1	87	(84-129)			30 ug/L	09/17/2006
	BMSD		26	87		0	(< 20)	30 ug/L	09/17/2006
Bromoform	BMS	ND	30.5	102	(85-126)			30 ug/L	09/17/2006
	BMSD		29.5	98		3	(< 20)	30 ug/L	09/17/2006
Isopropylbenzene (Cumene)	BMS	ND	24.7	82	(80-120)			30 ug/L	09/17/2006
	BMSD		24.4	82		1	(< 20)	30 ug/L	09/17/2006

SGS Ref.#	1065194003	Billable Matrix Spike	**Printed Date/Time**	09/22/2006 16:27
	1065194004	Billable Matrix Spike Dup.	**Prep** **Batch**	VXX15945
			Method	Volatiles Extraction 8240/8260
			Date	09/17/2006
Original	1065194002			
Matrix	Water (Surface, Eff., Ground)			

Parameter	Qualifiers	Original Result	QC Result	Pct Recov	MS/MSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
Volatile Gas Chromatography/Mass Spectroscopy									
Bromobenzene	BMS	ND	29.4	98	(87-115)			30 ug/L	09/17/2006
	BMSD		29.3	98		0	(< 20)	30 ug/L	09/17/2006
o-Xylene	BMS	ND	25.8	86	(80-120)			30 ug/L	09/17/2006
	BMSD		26	87		1	(< 20)	30 ug/L	09/17/2006
1,2,3-Trichloropropane	BMS	ND	27.5	92	(86-118)			30 ug/L	09/17/2006
	BMSD		27.4	91		0	(< 20)	30 ug/L	09/17/2006
n-Propylbenzene	BMS	ND	25.7	86*	(87-123)			30 ug/L	09/17/2006
	BMSD		25.6	85*		0	(< 20)	30 ug/L	09/17/2006
2-Chlorotoluene	BMS	ND	26.1	87	(85-121)			30 ug/L	09/17/2006
	BMSD		26.1	87		0	(< 20)	30 ug/L	09/17/2006
4-Chlorotoluene	BMS	ND	26.8	89	(81-126)			30 ug/L	09/17/2006
	BMSD		26.9	90		1	(< 20)	30 ug/L	09/17/2006
1,1,2,2-Tetrachloroethane	BMS	ND	29	97	(80-123)			30 ug/L	09/17/2006
	BMSD		29.2	97		1	(< 20)	30 ug/L	09/17/2006
1,3,5-Trimethylbenzene	BMS	ND	26.2	87	(87-118)			30 ug/L	09/17/2006
	BMSD		26	87*		1	(< 20)	30 ug/L	09/17/2006
tert-Butylbenzene	BMS	ND	25.1	84*	(86-121)			30 ug/L	09/17/2006
	BMSD		24.9	83*		1	(< 20)	30 ug/L	09/17/2006
1,2,4-Trimethylbenzene	BMS	ND	26.6	89	(87-117)			30 ug/L	09/17/2006
	BMSD		26.7	89		0	(< 20)	30 ug/L	09/17/2006
sec-Butylbenzene	BMS	ND	26.3	88*	(88-125)			30 ug/L	09/17/2006
	BMSD		25.9	86*		2	(< 20)	30 ug/L	09/17/2006
4-Isopropyltoluene	BMS	ND	25.1	84	(83-119)			30 ug/L	09/17/2006
	BMSD		24.5	82*		3	(< 20)	30 ug/L	09/17/2006
1,4-Dichlorobenzene	BMS	ND	27.5	92	(82-121)			30 ug/L	09/17/2006
	BMSD		27.3	91		1	(< 20)	30 ug/L	09/17/2006
1,2-Dichlorobenzene	BMS	ND	27.3	91	(86-114)			30 ug/L	09/17/2006
	BMSD		27.2	91		0	(< 20)	30 ug/L	09/17/2006
n-Butylbenzene	BMS	ND	24.8	83*	(83-130)			30 ug/L	09/17/2006
	BMSD		23.8	79*		4	(< 20)	30 ug/L	09/17/2006
1,3-Dichlorobenzene	BMS	ND	29.9	100	(83-118)			30 ug/L	09/17/2006
	BMSD		30.1	100		1	(< 20)	30 ug/L	09/17/2006
1,2-Dibromo-3-chloropropane	BMS	ND	27.4	91	(80-122)			30 ug/L	09/17/2006
	BMSD		26.6	89		3	(< 20)	30 ug/L	09/17/2006
1,2,4-Trichlorobenzene	BMS	ND	26.1	87	(85-120)			30 ug/L	09/17/2006
	BMSD		25.9	86		1	(< 20)	30 ug/L	09/17/2006
Hexachlorobutadiene	BMS	ND	28	93	(81-126)			30 ug/L	09/17/2006
	BMSD		25.6	86		9	(< 20)	30 ug/L	09/17/2006
Xylenes (total)	BMS	ND	78.8	88	(80-120)			90 ug/L	09/17/2006
	BMSD		78.7	87		0	(< 20)	90 ug/L	09/17/2006

SGS Ref.#	1065194003	Billable Matrix Spike	**Printed Date/Time**	09/22/2006 16:27
	1065194004	Billable Matrix Spike Dup.	**Prep** **Batch**	VXX15945
			Method	Volatiles Extraction 8240/8260
			Date	09/17/2006
Original	1065194002			
Matrix	Water (Surface, Eff., Ground)			

Parameter	Qualifiers	Original Result	QC Result	Pct Recov	MS/MSD Limits	RPD	RPD Limits	Spiked Amount	Analysis Date
Volatile Gas Chromatography/Mass Spectroscopy									
Naphthalene	BMS	ND	26.6	89	(82-126)			30 ug/L	09/17/2006
	BMSD		26.1	87		2	(< 20)	30 ug/L	09/17/2006
1,2,3-Trichlorobenzene	BMS	ND	26.7	89	(86-124)			30 ug/L	09/17/2006
	BMSD		26.5	88		1	(< 20)	30 ug/L	09/17/2006
4-Methyl-2-pentanone (MIBK)	BMS	ND	73.6	82	(73-134)			90 ug/L	09/17/2006
	BMSD		73.7	82		0	(< 20)	90 ug/L	09/17/2006
2-Hexanone	BMS	ND	76.1	85	(76-130)			90 ug/L	09/17/2006
	BMSD		76.1	85		0	(< 20)	90 ug/L	09/17/2006
Methyl-t-butyl ether	BMS	ND	41.6	93	(83-119)			45 ug/L	09/17/2006
	BMSD		41.6	92		0	(< 20)	45 ug/L	09/17/2006
1,2-Dichloroethane	BMS	ND	27.6	92	(82-119)			30 ug/L	09/17/2006
	BMSD		27.4	91		1	(< 20)	30 ug/L	09/17/2006
Surrogates									
Dibromofluoromethane <surr>	BMS		30.2	101	(85-115)				09/17/2006
	BMSD		29.7	99		2			09/17/2006
1,2-Dichloroethane-D4 <surr>	BMS		29.6	99	(72-119)				09/17/2006
	BMSD		29.1	97		2			09/17/2006
Toluene-d8 <surr>	BMS		29	97	(85-120)				09/17/2006
	BMSD		29.4	98		1			09/17/2006
4-Bromofluorobenzene <surr>	BMS		28.8	96	(76-119)				09/17/2006
	BMSD		29.1	97		1			09/17/2006

Batch	VMS8687
Method	SW8260B
Instrument	HP 5890 Series II MS1 VJA

SGS

CHAIN OF CUSTODY RECORD
SGS Environmental Services Inc.

1065194

i
ind
Carolina
062862

(1)

CLIENT: Alta Geoscience

CONTACT: Alex Tula — PHONE NO: (425) 485 1053

PROJECT: Standard Steel — SITE/PWSID#:

REPORTS TO: Alex Tula, Alta GeoScience — E-MAIL: atula@altageo.com — FAX NO.: ( )

INVOICE TO: Alex Tula, Alta Geoscience — QUOTE #

P.O. NUMBER

SGS Reference:

PAGE 1 OF 1

(2)

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	No CONTAINERS	SAMPLE TYPE (C= COMP, G= GRAB)	VOCs (8260B)	Lead (6020)	PCBs (8082)	REMARKS
Preservatives Used							HCl	HNO3		
(1) A-F	MW-13	9-5-06	11:04	GW	6		X	X	X	
(2) A-H (3)(4) A-G	MW-14		10:10		6		X	X	X	
~~(3) A-F~~	MW-14 MS/MSD		10:10		12		X	X	X	
(5) (6) A-F	MW-15		13:15		6		X	X	X	
(6) (7)	MW-22		14:34		6		X	X	X	
(7) (8)	MW-24		15:50		6		X	X	X	
(8) (9)	DW-1		9:00		6		X	X	X	
(9) (10)	Equipment Blank		9:30		6		X	X	X	
(10) (11) A-C	Trip Blank						X			

(5)

Collected/Relinquished By:(1)	Date	Time	Received By:
Gerald Warrick	9-5-06	15:10	
Relinquished By: (2)	Date	Time	Received By:
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	Date 9/5/06	Time 1514	Received By:

(4)

Shipping Carrier:

Shipping Ticket No:

Samples Received Cold? (Circle) YES NO

Temperature (C): TB1 = 7.0 TB2 = 8.3 ~~TB3 = 4.4~~ C1 = 3.5 C2 = 2.8 C3 = 5.9

Special Deliverable Requirements:

Chain of Custody Seal: (Circle)

INTACT BROKEN ABSENT

Requested Turnaround Time and Special Instructions:

Reporting limit for lead 0.1.

Standard Turn

65 of 67

1065194

SGS

SAMPLE RECEIPT FORM

SGS WO#:

Yes	No	NA	
	✓		Are samples **RUSH**, priority, or *w/n 72 hrs.* of **hold time**?
		✓	If yes have you done *e-mail notification*?
	✓		Are samples *within 24 hrs.* of **hold time** or **due date**?
		✓	If yes, have you *spoken with* Supervisor?
		✓	Archiving bottles – if req., are they properly marked?
✓			Are there any **problems**? PM Notified?
✓			Were samples preserved correctly and pH verified?

Sample 8 / Containers ID = MW-13 @ 0900

	✓		If this is for PWS, provide **PWSID.**
	✓		Will courier charges apply?
			Method of payment?
	✓		Data package required? (Level: 1 / 2 / 3 / 4)
			Notes:
	✓		Is this a DoD project? (USACE, Navy, AFCEE)

Due Date: 9-19-06
Received Date: 9-5-06
Received Time: 1514
Is **date/time conversion** necessary? N
# of hours to AK Local Time: —
Thermometer ID: 69D

Cooler ID	Temp Blank	Cooler Temp
1	7.0 °C	3.5 °C
2	8.3 °C	2.8 °C
3	4.4 °C	5.9 °C
	°C	°C
	°C	°C

*Temperature readings include thermometer correction factors

Delivery method (circle all that apply): Client / Alert Courier / UPS / FedEx / USPS / AA Goldstreak / NAC / ERA / PenAir / Carlile Lynden / SGS / Other:

Airbill #

Additional Sample Remarks: (√ *if applicable*)
- ____ Extra Sample Volume?
- ____ Limited Sample Volume?
- ____ Field preserved for volatiles?
- ____ Field-filtered for dissolved?
- ____ Lab-filtered for dissolved?
- ____ Ref Lab required?
- ____ Foreign Soil?

This section must be filled out for DoD projects (USACE, Navy, AFCEE)

Yes	No	
		Is received temperature 4 ± 2°C?
		Exceptions: / Samples/Analyses Affected:
		Rad Screen performed? Result:
		Was there an airbill? *(Note # above in the right hand column)*
		Was cooler sealed with custody seals?
		# / where:
		Were seal(s) intact upon arrival?
		Was there a COC with cooler?
		Was COC sealed in plastic bag & taped inside lid of cooler?
		Was the COC filled out properly?
		Did the COC indicate COE / AFCEE / Navy project?
		Did the COC and samples correspond?
		Were all sample packed to prevent breakage?
		Packing material:
		Were all samples unbroken and clearly labeled?
		Were all samples sealed in separate plastic bags?
		Were all VOCs free of headspace and/or MeOH preserved?
		Were correct container / sample sizes submitted?
		Is sample condition good?
		Was copy of CoC, SRF, and custody seals given to PM to fax?

This section must be filled if problems are found.

Yes	No	
✓		Was client notified of problems?

Individual contacted: Clay Sullivan / Gerald Warrick
Via: Phone / Fax / Email (*circle one*)
Date/Time: 9-5-06 4:35 pm
Reason for contact: COC / Sample bottle ID mismatch for "DW-1" vs. "MW-13" at 09:00

Change Order Required?
SGS Contact: J. Poirson

Notes: * cell # 252-8946, Use COC ID as "DW-1" @ 0900 as correct ID. JP 9-5-06

Completed by (sign): **(print):** Jamey Johnson

Login proof (check one): waived ✓ required ____ performed by:

SGS 1065194

SAMPLE RECEIPT FORM (page 2)

SGS WO#:

#	Container ID	Matrix	Test	QC	TB	1 L	500 mL	250 mL	125 mL	60 mL	40 mL	8oz (250 mL)	4oz (125 mL)	Other	AG	CG	HDPE	Nalgene	Cubie	Coli	Septa	Other	None	HCl	HNO_3	H_2SO_4	MeOH	$Na_2S_2O_3$	NaOH	Other
1,5-9	A-C	1	VOC								18				X						X			X						
	D		Pb					6									X								X					
	E-F		PCBs			12									X								X							
2	A-C	1	VOC								3				X						X			X						
	D		Pb					1									X								X					
	E-F		PCBs			2									X								X							
	G-H		~~extr~~					2									X								X					
3	A-C	1	VOC								3				X						X			X						
	D		Pb											SJA(2)D																
	E-F		PCBs			2									X								X							
4	A-C	1	VOC								3				X						X			X						
	D		Pb											SJA(2)D																
	EF		PCBs			2									X															
10	A-C	1	VOC		X						3				X						X			X						

Bottle Totals	1 L	500 mL	250 mL	125 mL	60 mL	40 mL	8oz	4oz	Other
	19		9			30			

Completed by: [signature] Date: 9-5-06

ATTACHMENT 12

Ground Lease with K&T Enterprises, Inc.
Special Land Use Permit for RJH (dba STEELFAB)

[This page intentionally left blank]

SSMFF
26.4
ICAPR
35.0

GROUND LEASE

Between

ALASKA RAILROAD CORPORATION

and

K & T ENTERPRISES

CONTRACT NO. 7085
(AMENDS AND RESTATES CONTRACT NO. 7085 DATED 01/04/96)

USEPA SF
1253001

INDEX

ARTICLE 1 LEASED PREMISES AND TERM

1.01 Leased Premises
1.02 Reservation of Minerals
1.03 Improvements Owned by Lessor
1.04 Improvements Owned by Lessee
1.05 Lease Term
1.06 Effect on Prior Lease Document
1.07 Environmental Restrictions Related to Standard Steel Superfund Site

ARTICLE 2 RENTS

2.01 Rents
2.02 Determination of Fair Market Value Rent
2.03 Absolutely Net Rent

ARTICLE 3 QUIET ENJOYMENT

ARTICLE 4 LESSEE'S COVENANTS

4.01 Use of Leased Premises
4.02 Taxes, Assessments and Charges
4.03 Improvements Required by Law
4.04 Construction or Removal of Improvements, Additions and Alterations
4.05 Repair and Maintenance
4.06 Observance of Laws; Environmental Provisions
4.07 Inspection and Repair by Lessor
4.08 Waste and Wrongful Use
4.09 Setback
4.10 Liens
4.11 Indemnification
4.12 Costs and Expenses of Lessor
4.13 Holdover
4.14 Lessee's Improvements as Security for Obligations to Lessor
4.15 Permits from Corps of Engineers and Others
4.16 Responsibility Upon Damage to or Destruction of Property

ARTICLE 5 INSURANCE

5.01 Workers' Compensation
5.02 Liability Insurance
5.03 Property Insurance
5.04 Policy Provisions
5.05 Proof of Insurance

ARTICLE 6 EMINENT DOMAIN

6.01 Effect of Eminent Domain on Lease
6.02 Disposition of Proceeds
6.03 Temporary Taking

ARTICLE 7 ASSIGNMENTS, MORTGAGES, SUBLEASES AND SUBDIVISION

7.01 Limitations on Assignment
7.02 Lessee's Right to Assign
7.03 Conditions Precedent to Assignment
7.04 Lessee's Nonliability after Assignment
7.05 Lessor's Disapproval of Assignment
7.06 Mortgage of Leasehold Interest
7.07 Right to Sublet
7.08 Subdivision of Leased Premises

ARTICLE 8 ARBITRATION AND APPRAISAL PROCESS

8.01 Appointment of Arbitrators and Conduct of Arbitration
8.02 Special Qualifications of Arbitrators
8.03 Judicial Review of Arbitration Decision

ARTICLE 9 DEFAULT AND DEFEASANCE

9.01 Events of Default
9.02 Notice and Right to Cure
9.03 Nonwaiver
9.04 Right of Lessor to Protect Against Default
9.05 Lessor's Remedies
9.06 Assignment of Subrents
9.07 Application of Sums Collected by Lessor

ARTICLE 10 GENERAL PROVISIONS

10.01 Lessor's Right to Entry, Inspection and Repair
10.02 Notices
10.03 Covenants and Conditions
10.04 Integration and Amendments
10.05 Approvals of Lessor
10.06 Survival and Severability
10.07 Binding Effect
10.08 Lessor's Authority to Convey Fee Title
10.09 Powers of Lessor as Public Corporation
10.10 Captions

ARTICLE 11 DUTIES UPON TERMINATION OR EXPIRATION

11.01 Surrender of Leased Premises
11.02 Removal of Improvements Upon Termination
11.03 Abandonment of Lessee's Property
11.04 Liability for Cleanup Expenses

ARTICLE 12 EXECUTION AND MEMORANDUM OF LEASE

12.01 Execution and Counterparts
12.02 Recordation of Memorandum of Lease

AMENDED AND RESTATED GROUND LEASE

THIS AMENDED AND RESTATED GROUND LEASE (herein called "this Lease") is made on the day executed by the last signatory hereto, by and between the **ALASKA RAILROAD CORPORATION** (herein called "Lessor"), a public corporation created pursuant to AS 42.40, whose mailing address is P.O. Box 107500, Anchorage, Alaska 99510-7500, and **K & T ENTERPRISES**, an Alaska general partnership (herein called "Lessee"), whose mailing address is 1817 Parkside Drive, Anchorage, Alaska 99501-5751.

RECITALS

A. The Lessor has agreed to lease to Lessee a parcel of land located within the Alaska Railroad Anchorage Reserve and more specifically described on Schedule 1 attached to and for all purposes made a part of this Lease.

B. A portion of Lots 53-57 has been under a long-term lease, ARRC Contract No. 7085 dated January 4, 1996, between Lessor and Lessee. Pursuant to paragraph 1.07 ("Right of First Refusal") of the Lease, Lessee is exercising its right of first refusal to lease the property adjacent to and south of said Lots 53-57, also known as the Standard Steel Superfund Site. Said adjacent property has been occupied by Lessee since September 1, 1999, under permit from Lessor dated July 12, 2000, ARRC Contract No. 7776.

C. By this document, it is the desire of the Lessor and Lessee to amend and restate Contract No. 7085, incorporating the adjacent property known as the Standard Steel Superfund Site into the leased premises, modifying or deleting several provisions that have become obsolete since the Superfund remediation is complete, and adding the long term use restrictions imposed by the EPA and recognized in the appraisal dated November 1, 2001.

D. The rental rate to be multiplied against the fee simple value as determined in accordance with paragraph 2.02 is eight percent (8%) and is to remain constant throughout the original lease term of thirty (30) years.

ARTICLE 1

LEASED PREMISES AND TERM

1.01 Leased Premises. Lessor, for and in consideration of the rents, covenants and conditions hereinafter specified to be paid, performed and observed by Lessee, hereby leases to Lessee, and Lessee hereby leases from Lessor, the vacant, unimproved (except as noted in paragraph 1.03 below) land situated in the Anchorage Recording District, Third Judicial District, State of Alaska, more particularly described on Schedule 1 attached to and for all purposes made a part of this Lease, together with all rights, easements, privileges, both subterranean and vertical, and appurtenances attaching or belonging to the described land, but subject to the reservation contained in paragraph 1.02 hereof (herein called the "Leased Premises"). **This lease document amends and**

restates the rights and obligations of Lessee and any of Lessee's subtenants respecting the Leased Premises under that certain lease between the parties or their predecessors in interest dated January 4, 1996, known as Lease Contract No. 7085. This amendment and restatement shall be effective as of December 1, 2000. This Lease also terminates all rights, if any, Lessee or any party claiming under Lessee has under that certain permit, ARRC Contract No. 7776 or otherwise respecting the adjacent area being added to the Leased Premises by this Lease; provided, however, that Lessee shall not be relieved of any obligations that may have arisen or accrued or be based on an event which occurred during such prior occupancy of said adjacent area.

1.02 Reservation of Minerals. All oil, gas, coal, geothermal resources and minerals of whatever nature in or under the above-described land are excluded from the Leased Premises and reserved to Lessor. Notwithstanding the foregoing, Lessee shall have the right, subject to the restrictions contained in paragraph 1.07 and the other terms of this Lease, to use earth materials on or in the above-described land to a depth not to exceed twenty (20) feet below the surface, and to move and recontour such materials on the Leased Premises. During the term of this Lease, Lessor shall not have the right to enter on the surface of the Leased Premises, without Lessee's prior consent, for the purpose of mining and/or extracting such oil, gas, coal, geothermal resources, or other minerals and shall not mine and/or extract the same by any means at a depth less than twenty-five (25) feet below the surface of the Leased Premises. If Lessor mines and/or extracts such oil, gas, coal, geothermal resources, or other minerals, the mining and/or extraction shall not interfere with Lessee's business and activities on the Leased Premises, parking or access to the Leased Premises.

1.03 Improvements Owned by Lessor. The following described improvements ("Lessor's Improvements") are situated on and are a part of the Leased Premises and are and shall remain throughout the term of this Lease the property of the Lessor:

> All fill, retaining walls, berms, earth contours, and all other below-surface improvements situated on the Leased Premises on the date of this Lease; excepting however, any utility service connections and any underground storage tank(s) on the Leased Premises or appurtenances to such tank(s).

Any subsurface improvements to the Leased Premises during the Lease Term shall become the property of Lessor (and included within the term "Lessor's Improvements") immediately upon installation, except underground storage tank(s) (and their appurtenances) and utility service connections, which shall be and remain the sole property of Lessee.

1.04 Improvements Owned by Lessee. The following described improvements ("Lessee's Improvements") are situated on and are a part of the Leased Premises and are and shall remain throughout the term of this Lease the property of the Lessee: A 10,155 square foot pre-engineered metal warehouse/office building.

Lessee's Improvements shall also include any additional above surface improvement constructed or placed on the Leased Premises by Lessee during the term of this Lease.

1.05 Lease Term. This Lease shall be and continue in full force and effect for a term of thirty (30) years (the "Lease Term") commencing as of December 1, 2000, and expiring November 30, 2030, unless earlier terminated as provided in this Lease.

1.06 Effect on Prior Lease Document. As of the commencement of the Lease Term stated above, this Lease shall be substituted for the lease document between Lessor and Lessee dated January 4, 1996 and administered as Contract No. 7085, which prior lease document shall thereupon be of no further force and effect except as to liabilities accrued prior to such date. Any such accrued liabilities shall survive and be binding upon Lessor and Lessee in accordance with the original lease provisions.

1.07 Environmental Restrictions Related to Standard Steel Superfund Site.

A. Additional Right of Access and Re-Entry. In addition to any right of access and/or re-entry described in this Lease, Lessor, the United States Environmental Protection Agency ("EPA"), the Alaska Department of Environmental Conservation ("ADEC"), and Settling Defendants (as defined in the below-described Consent Decree), or their designees, shall have an irrevocable, permanent, and continuing right of access to the Premises at reasonable times and in a reasonable manner for the purpose of implementing the Record of Decision ("ROD") for the Standard Steel Superfund Site issued by EPA on July 16, 1996 and determining whether the Premises is being used in a manner that is prohibited by the Consent Decree between the United States of America and Settling Defendants and the Owner Settling Defendant, and entered by the United States District Court of the District of Alaska in the matter of, United States v. Alaska Railroad Corporation, et al., A91-0589-CV (JWS), entered by the court on January 24, 1998.

B. Access Agreement. Lessee hereby agrees to provide Lessor, EPA, ADEC, Settling Defendants, and their authorized representatives and agents, access at all reasonable times to the Premises that is covered by this Lease for the implementation of the ROD and Consent Decree to the same extent as Lessor has agreed to provide access under Section VII (Site Access and Cooperation) of the Partial Consent Decree entered on December 11, 1996 by the United States District Court in the District of Alaska in the matter of United States v. Alaska Railroad Corporation, et al., A91-0589-CV (JWS).

C. Environmental Protection Requirement/Restrictions on Use. Lessee hereby covenants and agrees that Lessee, its employees, representatives, agents, successors, assigns, and sublessees shall not use or allow any licensee, or any person given a right to use, occupy, or possess any of the Premises, in violation of any of the following restrictions:

1. No residential use or activity shall be permitted on the Premises, and no commercial use or activity shall be permitted if it involves potential chronic exposures of children to soil (e.g., use of the Premises for a day care center);

2. No use or activity on the Premises shall be permitted that will disturb any of the remedial measures that have been implemented pursuant to the Consent Decree or that could potentially impair the integrity of the landfill in which contaminated soils and solidified soils have been disposed;

3. Except as necessary to perform the remedial action, no use or activity on the Premises shall disturb the surface or subsurface of the land by filling, drilling, excavation, or removal of topsoil, rock or minerals which could move soil containing greater than 1,000 mg/kg lead or 10 mg/kg polychlorinated biphenyl (PCB) to the surface or within the top foot of soil where chronic long-term worker exposures could occur;

4. Groundwater underlying the Premises shall not be consumed or used in any way except for the limited purpose of monitoring ground water contamination levels. Ground water wells and facilities installed for such purpose shall only be installed pursuant to a plan approved by EPA;

5. Access to the Toxic Substances Control Act landfill by the general public shall be prohibited, and access by long- or short-term workers shall be restricted in compliance with 40 C.F.R. ' 761.75(b)(9)(i), through maintenance of a six-foot woven mesh fence, wall, or similar device. If the solidified soil mass is capped or designed and used as a building foundation or parking lot, EPA may waive this requirement upon a written request which shall include long-term maintenance of such cap, building foundation or parking lot in accordance with the approved Operation & Maintenance Plan. Unrestricted access by the general public to those areas of the Site where surface contamination of 1 mg/kg PCB or greater remains after all excavation, treatment, and disposal is complete shall be prohibited through maintenance of a six-foot fence, cap, parking lot or similar structure approved by EPA; and

6. During remedial design and construction of the remedial action, the public, including long- and short-term workers, other than authorized representatives of EPA, the State, and Settling Defendants and Owner Settling Defendant, shall only have access to areas in or around the Site that are not affected by soil contamination.

D. Enforcement. The Lessee hereby covenants and agrees that the Lessor shall have continuing right to enforce the terms and conditions of the Right of Access and Re-entry and the Environmental Protection Requirement Sections of this Lease by resort to specific performance or legal process, and that the Lessee's failure to satisfy the terms and conditions of such sections shall render this Lease void. All remedies available hereunder shall be in addition to any and all other remedies at law or in equity. Enforcement of the terms of this Lease shall be at the discretion of the Lessor, and any forbearance, delay or omission to exercise its rights under this Lease shall not be deemed to be a waiver by the Lessor of such term or any subsequent breach of the same or any other term, or of any of the rights of the Lessor under this Lease.

E. Notice Requirements. At least thirty (30) days prior to any assignment or sublease of an interest in the Premises, Lessee shall give written notice of the Consent Decree to the assignee or sublessee, and written notice to EPA of the proposed assignment or sublease, including the name and address of the assignee or sublessee and the date on which notice of the Consent Decree was given.

F. Third Party Beneficiary. The Lessor and the Lessee hereby agree that the EPA and Settling Defendants shall be third party beneficiaries of all the benefits and rights reserved and

retained by the Lessor in subparagraph 1.07.C ("Environmental Protection Requirement/Restrictions on Use") and subparagraph 1.07.D ("Enforcement") of this Lease.

ARTICLE 2

RENTS

2.01 Rents.

A. Basic Rents. Lessee shall pay the following rents (herein called "Basic Rents") to Lessor in legal tender of the United States of America, without deduction and without notice or demand, net of all real property taxes, assessments, and other charges required to be paid by Lessee under this Lease with respect to the Leased Premises, and in equal monthly installments in advance on or before the first day of each calendar month during the Lease Term, with partial periods prorated on a daily basis. The Basic Rents shall be as follows:

1. Lease years 1-5 inclusive, annual Basic Rents will be Forty-Three Thousand, Two Hundred Seven Dollars ($43,207.00). 00-05

2. Lease years 6-10 inclusive, Basic Rents will be at "fair market value" as determined by appraisal under paragraph 2.02. However, this annual rent is not to exceed $58,329.00, 135 % of the annual rent as determined for lease years 1-5 inclusive, or at a minimum drop below the rent determined in lease years 1-5 inclusive. 05-10

3. Lease years 11-15 inclusive, Basic Rents will be at "fair market value" as determined by appraisal under paragraph 2.02. However, this annual rent is not to exceed 135% of the rent as determined for lease years 6-10 inclusive, or at a minimum drop below the rent determined in lease years 6-10 inclusive. 10-15

4. Lease years 16-20 inclusive, Basic Rents will be at "fair market value" as determined by appraisal under paragraph 2.02. However, this annual rent is not to exceed 135% of the rent as determined for lease years 11-15 inclusive, or at a minimum drop below the rent determined in lease years 11-15 inclusive. 15-20

5. Lease years 21-25 inclusive, Basic Rents will be at "fair market value" as determined by appraisal under paragraph 2.02. However, this annual rent is not to exceed 135% of the rent as determined for lease years 16-20 inclusive, or at a minimum drop below the rent determined in lease years 16-20 inclusive. 20-20

6. Lease years 26-30 inclusive, Basic Rents will be at "fair market value" as determined by appraisal under paragraph 2.02. However, this annual rent is not to exceed 135% of the rent as determined for lease years 21-25 inclusive, or at a minimum drop below the rent determined in lease years 21-25 inclusive. 25-30

B. Adjustments for Improvements to Premises. If, at any time during the Lease Term, infrastructure or similar improvements are made by Lessor that increase the fair market value

of the Premises (such as, but not limited to, the provision of water service to the Premises), the Basic Rent and minimum and maximum rental amounts set under subparagraph 2.01.A above shall, as of the date such improvement is available to the Premises, be adjusted to take the increased value into account. The increase shall be calculated in the following manner: An appraisal shall be obtained pursuant to subparagraph 2.02.A and the resulting fair market value shall be multiplied by the rent capitalization rate set in subparagraph 2.02.B, with the resulting amount becoming the new Basic Rent, without regard to whether said amount exceeds 135% of the prior period's Basic Rent. The fair market value rent established at the next succeeding regular five-year rent adjustment shall not exceed 135% of said new Basic Rent, nor shall it drop below said new Basic Rent.

2.02 Determination of Fair Market Value Rent. The fair market value rent upon which Lessee's obligation to pay Basic Rent under paragraph 2.01 above is based, shall be determined as follows:

A. Appraisal of Fair Market Value of Fee Simple Interest. Lessor shall select an appraiser from a list of qualified appraisers compiled by Lessor and kept available for public inspection at Lessor's office. The appraiser shall determine, as of a date within one hundred eighty (180) days before or after the beginning of the applicable rent period, the fair market value of the fee simple interest in the Leased Premises, unencumbered by this Lease, and including improvements owned by Lessor (identified in paragraph 1.03 of this Lease), and excluding improvements owned by Lessee (identified in paragraph 1.04 of this Lease). The appraiser shall value the Leased Premises taking into account the existence of encapsulated contamination on a portion of the Premises, the associated development limitations, and the stigma, if any, attached to the Premises as a result of said contamination. A copy of the appraisal report shall be provided by Lessor to Lessee at Lessee's request.

B. Fair Market Value Rent. The fair market value rent shall be the product derived from multiplying the fair market value of the Leased Premises (established in accordance with subparagraph 2.02.A) by eight percent (8%).

C. Appeal and Arbitration of Rent Increases. In the event Lessee disagrees with an appraisal of fee simple value made by Lessor pursuant to subparagraph 2.02.A of this Lease, Lessee may appeal the value determined in such appraisal by notifying Lessor in writing of its demand for appeal within ten (10) days of receiving Lessor's notice of change in rent. Lessee's failure to give said notice will constitute a waiver of Lessee's right to appeal a change in rent based on such appraisal, and Lessee shall be bound by Lessor's determination of the fair market value rent.

In the event Lessee so appeals a change in rent, Lessee shall, at its own expense, obtain an appraisal of the fair market value of the fee simple interest in the Leased Premises, unencumbered by this Lease, and including Lessor's Improvements and excluding Lessee's Improvements, and provide the same to Lessor no later than sixty (60) days after receiving Lessor's notice of change in rent. Said appraisal shall be performed in accordance with Lessor's Standard Appraisal Instructions in effect at the time of appraisal. If within fifteen (15) days after Lessor receives Lessee's appraisal, the parties are unable to agree as to the fair market value of the fee simple interest, Lessee may, at its option, refer the matter to arbitration in accordance with the procedures contained in Article 8 of this Lease by notifying Lessor in writing of its demand for arbitration within ten (10) days after expiration of

the 15-day period provided above. Otherwise, Lessee shall have no right to refer a rent dispute to arbitration and shall be bound by Lessor's determination of rent under this Lease.

Notwithstanding the foregoing, Lessee shall pay all rent at the new rate provided in Lessor's notice of change in rent until the issue of fair market value of the Leased Premises is resolved.

D. Retroactive Rent. Until a change in Basic Rent is determined, Lessee shall pay the same Basic Rent as in the previous year. When the adjusted Basic Rent has been determined, and Lessee notified, such Basic Rent as so determined shall be due and payable to Lessor retroactive to the commencement of the lease year for which such rent adjustment is made, and any deficiency resulting from such rent adjustment shall be payable within thirty (30) days after the giving of such notice to Lessee. However, at no time will the Lessee be responsible for more than ninety (90) days of unbilled retroactive rent at the increased level.

2.03 Absolutely Net Rent. When a Basic Rent becomes effective under this Lease, such rent shall not thereafter be reduced for any reason, except in the event of condemnation. It is the purpose and intent of Lessor and Lessee that the Basic Rents established under this Lease shall be absolutely net to Lessor so that this Lease shall yield, net to Lessor, the rent specified herein during the term of this Lease, and that all costs, expenses and obligations of every kind and nature whatsoever relating to the Leased Premises, which may arise or become due during the Lease Term, except as otherwise expressly provided in this Lease, and except costs, expenses, and obligations (other than those to be borne by Lessee as herein provided) incurred by Lessor in connection with the sale or mortgaging of the Leased Premises, shall be paid by Lessee, and that Lessor shall be indemnified and held harmless by Lessee from and against the same.

ARTICLE 3

QUIET ENJOYMENT

Upon timely payment by Lessee of all of such rents and other payments required to be paid by Lessee under this Lease, and upon full and faithful observance and performance by Lessee of all of its covenants contained in this Lease, and so long as such observance and performance continues, Lessee shall peaceably hold and enjoy the Leased Premises during the Lease Term without hindrance or interruption by Lessor or anyone lawfully claiming by, through, or under Lessor, except as provided in that certain "Declaration of Restrictive Covenants and Notice of Remedial Action" dated April 23, 1998 and recorded at Book 3235, Page 547, Records of the Anchorage Recording District, Third Judicial District, State of Alaska.

ARTICLE 4

LESSEE'S COVENANTS

4.01 Use of Leased Premises. Lessee specifically agrees that for the term of this Lease, it shall use the Leased Premises for no other purpose other than warehouse/truck maintenance and

storage facility and subject to the development limitations and restrictions set forth in paragraph 1.07 above. Any change in use will require prior written approval of Lessor.

4.02 Taxes, Assessments and Charges.

A. Lessee shall pay, not less than ten (10) days before they become delinquent, all real property taxes, assessments, special assessments or other charges of every description for which the Leased Premises, or any improvement thereon or any use thereof, are now or during the Lease Term may be assessed or become liable, whether made by governmental authority or by any public utility or community service company, and whether assessed to or payable by Lessor or Lessee, subject to Lessee's option to pay in installments hereinafter provided. Such taxes and assessments include, but are not limited to, any increased real property tax resulting from any classification of the Leased Premises during the Lease Term to a higher use (other than a classification occurring at the initiative of Lessor or its agents), for which classification Lessee shall be deemed to be the petitioner and upon request by Lessor shall so notify the appropriate governmental authorities. Payments of real property taxes and assessments due during the first and last years of the Lease Term shall be prorated as of the dates the Lease Term begins and ends. Upon request by Lessor, Lessee shall promptly deposit with Lessor true and complete copies of receipts for such real property taxes and assessments evidencing their timely payment.

B. If at any time during the Lease Term any new or additional taxes (other than federal or state net income taxes or any other taxes existing on the effective date hereof) are assessed against the Leased Premises, or any improvement thereon, or any rents payable to Lessor under this Lease, or against Lessor with respect thereto, Lessee shall pay to the taxing authority or Lessor, not less than ten (10) days before they become delinquent and as additional rents, all of such new taxes.

C. Nothing contained in this Lease shall prevent Lessee from contesting in good faith the validity or the amount of such real property taxes or assessments by appropriate proceedings commenced before such real property taxes or assessments become delinquent; provided, however, that (1) Lessee shall not commence such proceedings without first giving written notice to Lessor of Lessee's intention to do so not less than ten (10) days before such real property taxes or assessments become delinquent; (2) concurrently with such written notice, Lessee shall provide and continue to provide Lessor with security approved by Lessor as to quality and quantity to assure full payment of all of such real property taxes or assessments and all interest and penalties which may accrue or be assessed thereon or with respect to such taxes; and (3) Lessor, as long as Lessee so provides Lessor with such security, shall not be entitled to pay such real property taxes or assessments for the account and at the expense of Lessee. Lessee shall not be deemed in default under this Lease because of its failure to pay any property taxes or assessments subject to a pending appeal of such taxes or assessments.

D. If there is an option given to pay assessments or special assessments in installments, Lessee may elect to pay for such installments as shall accrue during the term of this Lease and during any extended term. As to permitted installment payments for which at least the first installment fell due before commencement of the Lease Term, Lessee shall pay all installments falling due during the Lease Term.

E. Subject to the exception set out in subparagraph 4.02.C above, Lessor may elect, in its sole discretion and after giving written notice to Lessee and any Qualified Mortgagee (as defined in subparagraph 7.06.B, below), to pay any delinquent tax, assessment or charge for which Lessee is liable under this paragraph 4.02 for the account and at the expense of Lessee, and may further elect, upon such payment: (1) to terminate this Lease under Article 9, after giving thirty (30) days' written notice and allowing an opportunity for cure as provided therein, and bring an appropriate action against Lessee for recovery of the sum paid; (2) to continue this Lease in force and charge the Lessee with the payment as additional rent; or (3) to continue this Lease in force and bring an appropriate action against Lessee for recovery of the sum paid. The above-enumerated elections are not in derogation of, and do not limit, any other rights or remedies Lessor may have under this Lease or applicable law. Nothing in this subparagraph 4.02.E requires Lessor to pay any delinquent tax, assessment, or charge for which Lessee is liable.

4.03 Improvements Required by Law. Lessee, at Lessee's own expense, during the Lease Term and subject to the requirements of paragraph 4.06 of this Lease, shall make, build, maintain and repair all fences, sewers, drains, roads, road widening, driveways, sidewalks, water, underground electric and telephone lines, curbs, gutters and other installations which may be required by law to be made, built, maintained, or repaired upon, or adjoining and in connection with, or for use of the Leased Premises or any part of it, and regardless of whether the same were erected by Lessor or in existence at the inception of this Lease. In case any such installations required by law shall be made, built, maintained or repaired by Lessor, Lessee shall reimburse Lessor for the reasonable cost thereof plus fifteen percent (15%) to cover Lessor's overhead, upon presentation of a bill therefor, as additional rent.

4.04 Construction or Removal of Improvements, Additions and Alterations.

A. "Significant Work," as used in this paragraph 4.04, means all work on the Leased Premises costing more than $25,000.00, or which will occur or have an effect within twenty (20) feet of the centerline of Lessor's railroad track, which (1) involves the excavation, filling, or other alteration of the grade or drainage of the Leased Premises, or (2) involves the construction, demolition, or removal on or from the Leased Premises of any improvement, any addition or alteration, or (3) if the fees or other charges therefor are not timely paid, will subject the Leased Premises or the interest of Lessor or Lessee therein to any lien or other encumbrance.

B. Lessee shall not begin any Significant Work without first obtaining the prior written approval of Lessor with respect to such work and to the preliminary plans for such work, if any, and to the final plans and specifications for such work. The preliminary plans and the final plans and specifications shall be prepared by a licensed architect or engineer and shall include, but not be limited to, a detailed plot plan, a landscaping plan, appropriate cross sections, elevations, and floor plans indicating building heights, bulk, density, functions, materials, and utility systems, an itemized estimate of the total cost of such work, and a timetable for completion. No approval by Lessor or by its architects or engineers of such preliminary plans or final plans and specifications shall be deemed a warranty or other representation by any of them that the improvements, additions, alterations, or other work contemplated thereby are legal, safe, or sound or constitute the highest and best use of the Leased Premises. All of such work by Lessee on the Leased Premises shall be supervised by a licensed architect or engineer. Lessee hereby acknowledges that, except as provided

in paragraph 4.03 with respect to improvements required by law and paragraph 11.02 with respect to removal of improvements upon expiration of the Lease Term or earlier termination of this Lease, Lessor has not authorized or required and does not authorize or require Lessee to improve the Leased Premises in any manner that permits Lessor's interest in and title to the Leased Premises to become subject to the liens of Lessee's mechanics and materialmen.

4.05 Repair and Maintenance. Lessee shall, at Lessee's expense and without notice from Lessor at all times during the Lease Term, keep all improvements now or hereafter built on the Leased Premises (including but not limited to exterior building walls, windows, doors, fences, signs, landscaping and yard areas, refuse disposal equipment and facilities, pavement, curbs, gutters, exterior lighting, and drainage facilities), in good order, condition, maintenance, operability, and repair and of a neat, clean, and pleasing appearance satisfactory to Lessor.

4.06 Observance of Laws. Lessee, at all times during the Lease Term, at its own expense, and with all due diligence, shall observe and comply with all laws, ordinances, rules, and regulations which are now in effect or may later be adopted by any governmental authority and which may be applicable to the Leased Premises or any improvement on it or any use of it.

4.07 Environmental Provisions.

A. Environmental Compliance. In furtherance and not in limitation of paragraph 4.06 above, Lessee must, at its own expense, comply with all laws, ordinances, regulations and administrative agency or court orders relating to health, safety, noise, environmental protection, waste disposal, hazardous or toxic materials, and water and air quality. In the event any discharge, leakage, spillage, emission or pollution of any type occurs upon or from the Leased Premises during the Lease Term or any holdover thereafter, Lessee shall immediately notify Lessor and shall, at Lessee's own expense, clean and restore the Leased Premises to the satisfaction of Lessor and any governmental body or court having jurisdiction of the matter.

B. Definitions. For purposes of this paragraph 4.07, paragraph 4.08 and elsewhere in this Lease, the following terms are defined as set forth below.

1. Affected Property. Any properties damaged by the Lessee or its operations or identified to be contaminated or having Hazardous Substance(s) in, on, or under the surface that was caused or Materially Contributed to by the Lessee or its operations.

2. Environmental Baseline. A document based on Environmental Site Assessment(s) that identifies any contamination and the presence of Hazardous Substance(s) in, on, or under the surface of the Leased Premises that was not caused by the Lessee or its operations. In the event there is contamination or the presence of Hazardous Substance(s) in, on, or under the surface of the Leased Premises that was Materially Contributed to by the Lessee, the Environmental Baseline will only include that portion not attributed to the Lessee or its operations.

3. Environmental Site Assessment. An assessment of property, consistent with generally accepted professional practices, which determines the environmental condition and is

supported by reports and tests that describe the environmental condition and the presence, type, concentration, and extent of Hazardous Substance(s) in, on, and under the surface of the property.

4. Hazardous Substance. Any substance that is or at any time becomes defined as a hazardous waste, hazardous substance, hazardous material, toxic, pollutant, contaminant, petroleum, petroleum product or oil under any applicable federal, state or local statute, regulations, rule or ordinance and amendments thereto, including but not limited to those listed in the U.S. Department of Transportation Hazardous Materials Table (49 CFR ' 172.101) or by the U.S. Environmental Protection Agency in 40 C.F.R. Part 302, or regulated under the Comprehensive Environmental Response, Compensation and Liability Act, the Resource Conservation and Recovery Act, or the Alaska Water, Air, Energy and Environmental Conservation Acts.

5. Materially Contribute. The release of Hazardous Substance(s) of a reportable quantity as defined by any federal, state, or local agency with such authority and jurisdiction.

C. Hazardous Substance(s) on Leased Premises. Lessee shall not cause or permit any Hazardous Substance to be brought upon, kept or used in or about the Leased Premises by Lessee, its agents, employees, contractors or invitees without the prior written consent of Lessor, which Lessor shall not unreasonably withhold as long as Lessee demonstrates to Lessor's reasonable satisfaction that such Hazardous Substance is necessary or useful to Lessee's business and will be used, kept and stored in a manner that complies with all laws regulating any such Hazardous Substance(s) so brought upon or used or kept in or about the Leased Premises.

D. Disclosure. At the beginning of this Lease and on January 1 of each year thereafter and including January 1 of the year after termination of this Lease, Lessee shall disclose to Lessor the names and amounts of all Hazardous Substance(s) or any combination thereof which were stored, used or disposed of on the Leased Premises, or which Lessee intends to store, use or dispose of on the Leased Premises.

4.08 Responsibility for Contamination.

A. Lessee's Environmental Indemnity. Lessee agrees to indemnify, hold harmless and defend Lessor against all liability, cost and expense (including, without limitation, any fines, penalties, diminution in value of the Leased Premises, assessment and clean-up costs, judgments, litigation costs and attorneys' fees) incurred by or levied against Lessor as a result of Lessee's breach of paragraph 4.07 or as a result of any discharge, leakage, spillage, emission or pollution on or from the Leased Premises, without regard to whether such liability, cost or expense arises during or after the Lease Term of this Lease; provided, however, that Lessee shall not be required to indemnify Lessor under this paragraph if the parties agree or a court of competent jurisdiction determines that such liability, cost or expense is caused directly and solely by the active negligence of Lessor or if the related contamination is either (i) related to the prior Superfund Site contamination described in subparagraph B below or (ii) described in an Environmental Baseline established under the provisions of this paragraph 4.08. The foregoing indemnity shall survive the expiration or earlier termination of this Lease.

B. Standard Steel Superfund Site Contamination.

1. Baseline Established. Prior to Lessee's occupancy of the Leased Premises, the entire Premises was designated under the federal Superfund program as the Standard Steel Site. Contamination from various Hazardous Substances, including polychlorinated byphenols ("PCBs") and battery acid lead was found on the site and remediated in accordance with the ROD described in subparagraph 1.07.A. The EPA-approved remediation included treatment and disposal of a portion of the contamination on-site, resulting in the restrictions set forth in the ROD and listed in subparagraph 1.07 above. The contaminants known to remain on the Premises after completion of the remediation are described in the document entitled "Completion Report--Remedial Action Construction" prepared by Alta Geosciences, Inc. dated August 1999 ("Report"), which is a document of record in the EPA's case file. A copy of the Report has been provided to Lessee. The Report and any associated data shall be treated as establishing an Environmental Baseline for the Premises, and shall become the basis of indemnification between Lessor and Lessee to the extent hereinafter provided.

2. Lessor's Indemnification of Lessee. Lessor agrees to indemnify, hold harmless and defend Lessee against all liability, cost and expense (including, without limitation, any fines, penalties, diminution in value of the Leased Premises, enforcement action costs, assessment and clean-up costs, judgments, litigation costs and attorneys' fees) that arise from the presence of the Hazardous Substances specifically identified in the Report. Notwithstanding the foregoing, Lessor shall not be required to indemnify Lessee under this paragraph if the parties agree or a court of competent jurisdiction determines that such liability, cost or expense arose from the negligence of Lessee. The foregoing indemnity shall survive the expiration or earlier termination of this Lease. This indemnity extends only to the Hazardous Substances specifically mentioned in the Report, and only up to the levels of such Hazardous Substances as are indicated by the tests described in the Report. However, should either of the following conditions occur: (1) a Hazardous Substance is discovered that was not mentioned in the Report; or (2) a higher level of Hazardous Substances is discovered than was identified in the Report; and such condition leads to a required environmental response of any kind (including but not limited to the expenditure of costs and expenses as identified above), Lessor shall indemnify Lessee for such costs if Lessee proves by a preponderance of the evidence that any such Hazardous Substances not mentioned in the Report or any such higher level of contamination either (i) did not occur during the Lease Term; or (ii) occurred during the Lease Term but is attributable to the negligence or willful act of Lessor or its employees, agents or contractors.

3. Interaction between Lessor's Indemnity and Lessee's Indemnity. Subparagraph 4.08.A requires Lessee to indemnify Lessor for certain environmental liabilities. Without limiting the generality of that paragraph, but in illustration of the interaction between it (that is, subparagraph 4.08.A) and subparagraph 4.08.B.2, the indemnity provided for in subparagraph 4.08.A applies if Hazardous Substances which are mentioned in the Report are discovered to be present in quantities greater than described in the Report and the higher level of contamination is not proved by a preponderance of the evidence presented by Lessee to meet any of the following conditions: (i) the condition did not occur or arise during the Lease Term; or (ii) the condition occurred or arose during the Lease Term but is attributable to the negligence or willful act of Lessor

or its employees, agents or contractors; or (iii) the condition was caused by activity conducted by a third party outside the Leased Premises.

The indemnity provided for in this subparagraph 4.08.B.2 shall survive the expiration or earlier termination of this Lease.

C. Establishing any Supplemental Environmental Baseline for the Leased Premises. The Lessee has the sole responsibility under this Lease to ascertain the environmental condition and presence of Hazardous Substance(s) existing in, on, and under the surface of the Premises (other than those described in the Report referenced in subparagraph B above).

1. If Lessee desires to establish any additional Environmental Baseline or if, after an Environmental Baseline is established for any portion of the Premises, the Lessee discovers additional contamination or the presence of Hazardous Substance(s) in, on, or under the surface of that portion of the Premises having an Environmental Baseline that has not been caused by the Lessee or its operations, the Lessee may, at its own cost, submit an Environmental Site Assessment reflecting this to the Lessor for the Lessor's consideration to add to the Environmental Baseline. The Lessee's Environmental Site Assessment must prove to the satisfaction of the Lessor that the additional contamination or presence of Hazardous Substance(s) on the Premises was not caused or Materially Contributed to by the Lessee or its operations.

If the Lessee Materially Contributed to the presence or release of the Hazardous Substance(s) on the Premises, the Lessee's Environmental Site Assessment must indicate the portion of the contamination not attributed to the Lessee. The Environmental Baseline may only be amended to include that portion of contamination not attributed to the Lessee or its operations.

2. When the Lessor receives the Lessee's Environmental Site Assessment to add to the Environmental Baseline, the Lessor, in its sole discretion, will do one of the following:

(a) Accept the findings of the Lessee's Environmental Site Assessment to add to the Environmental Baseline.

(b) Require the Lessee to perform additional environmental testing(s) if the Lessor determines in writing that the findings of the Environmental Site Assessment are inadequate to determine if additional contamination or the presence of Hazardous Substance(s) should be added to the Environmental Baseline. The Lessor's written rejection of the Lessee's submittal(s) will be based on generally accepted professional practices necessary to determine the environmental condition and presence of Hazardous Substance(s) in, on, or under the surface of the Premises or failure to demonstrate the portion of the contamination not attributed to the Lessee or its operations.

(c) At the Lessor's expense, the Lessor may perform additional environmental testing to verify the Lessee's findings. If the results of the Lessor's tests conflict with the Lessee's Environmental Site Assessment, the Lessee and Lessor will negotiate in good faith to add to the Environmental Baseline.

3. If, after the Environmental Baseline for any portion of the Premises is

established, it is discovered that the presence of Hazardous Substance(s) identified in the Environmental Baseline was caused or Materially Contributed to by the Lessee or its operations, the Environmental Baseline may be amended to delete that portion of the contamination that is attributed to the Lessee or its operations. The Lessor will have the burden of proof in establishing that the Lessee caused or Materially Contributed to this contamination.

4. If Hazardous Substance(s) not attributed to the Lessee are discovered, or if it is discovered that Hazardous Substance(s) identified in the Environmental Baseline are attributed to the Lessee, the parties will agree upon a supplement to the Environmental Baseline within a reasonable time.

D. Site Assessment upon Termination. The Lessor will, in its discretion and at its own expense, perform an Environmental Site Assessment of the Premises upon the cancellation, termination, or expiration of this Lease. The Lessee assumes financial responsibility to the Lessor for any contamination or presence of Hazardous Substance(s) in, on, and under the Premises and any Affected Property, except for contamination or presence of Hazardous Substance(s) that is identified in an Environmental Baseline. In addition, if the Site Assessment reveals new contamination, Lessee shall reimburse Lessor for the expense of the foregoing Environmental Site Assessment or the portion thereof attributable to the newly identified contamination or presence of Hazardous Substance(s). The provisions of this paragraph are without prejudice to the Lessee's right to seek contribution or indemnity from either prior lessees of the Premises and Affected Property, or other potentially responsible parties except for the Lessor.

E. Release of Lessee. The Lessor releases the Lessee from liability to the Lessor for contamination and the presence of Hazardous Substance(s) identified by the Environmental Baseline that was not caused or Materially Contributed to by the Lessee.

F. Required Remediation. The Lessor is under no obligation to remediate contamination identified in an Environmental Site Assessment except as follows: the Lessor agrees to remediate, or have responsible parties remediate, the contamination identified in the Environmental Baseline if the Lessee or Lessor is required to remediate by an agency with such authority. In the event of such required remediation, the Lessor will make a reasonable effort to coordinate the remediation with the Lessee to minimize disruption of the Lessee's operations and damage to the Lessee's improvements and property. The Lessee releases and holds the Lessor harmless for all costs associated with the damage to, relocation and removal of, and the repair of Lessee's improvements and property that results from this remediation.

G. Action Against Potentially Responsible Parties. This article does not restrict the Lessor or the Lessee from seeking and obtaining cleanup efforts, costs, or damages from potentially responsible parties for contamination identified in the Environmental Baseline.

4.09 Inspection and Repair by Lessor. Lessee shall repair, maintain and make good all conditions required under the provisions of this Lease to be repaired or maintained within (1) three (3) days from the date of written notice from Lessor with regard to removal of trash or debris, landscape or yard maintenance, pavement or sidewalk sweeping, snow removal or cleaning, or parking lot lighting replacement and repair, and (2) thirty (30) days from the date of written notice

from Lessor with regard to all other matters. If Lessee refuses or neglects to repair or maintain the Leased Premises as required under the terms of this Lease to the reasonable satisfaction of Lessor after written demand, then Lessor, without prejudice to any other right or remedy it has under this Lease or otherwise, may perform such maintenance work or make such repairs without liability to Lessee for any loss or damage that may accrue to Lessee's merchandise or other property or Lessee's business by reason thereof. Upon completion of any such repair or maintenance, and no later than ten (10) days after presentation of a bill therefor, Lessee shall pay as additional rent Lessor's costs for making such repairs or performing such maintenance plus fifteen percent (15%) to cover its overhead.

4.10 Waste and Wrongful Use. Lessee shall not commit or suffer any strip or waste of the Leased Premises or any unlawful, unsafe, improper, or offensive use thereof or any public or private nuisance thereon.

4.11 Setback. Lessee shall observe all setback lines applicable to the Leased Premises and shall not construct or maintain any building or other structure whatever between any street boundary of the Leased Premises and any setback along such boundary, except for fences or walls approved by Lessor.

4.12 Liens. Lessee shall not commit or suffer any act or neglect whereby the Leased Premises or the interest of Lessor or Lessee therein at any time during the Lease Term may become subject to any attachment, execution, lien, charge, or other encumbrance, other than a statutory lien for nondelinquent real property taxes or assessments or a mortgage approved by Lessor, and shall indemnify and hold Lessor harmless against all losses, costs, and expenses, including reasonable attorneys' fees, paid or incurred by Lessor in connection therewith. Lessee shall not incur any cost or expense with respect to the Leased Premises which, if not timely paid, may subject the Leased Premises or the interest of Lessor or Lessee therein to any lien or other encumbrance, without first complying with the requirements of paragraph 7.06 of this Lease.

4.13 Indemnification.

A. Subject to the provisions of paragraph 4.08 above, Lessee shall indemnify and hold Lessor harmless from and against any and all claims arising from (1) Lessee's use of the Leased Premises, or from the conduct of Lessee's business, or from any activity, work or things done, permitted or suffered by Lessee in or about the Leased Premises or elsewhere; (2) any breach or default in the performance of any obligation on Lessee's part to be performed under the terms of this Lease; (3) any negligence of Lessee, or any of Lessee's agents, contractors, customers, employees, or any person claiming by, through or under Lessee; and (4) any accident on or in connection with the Leased Premises, or any fire thereon, or any nuisance made or suffered thereon. Lessee shall further indemnify and hold Lessor harmless from and against all costs, attorneys' fees, expenses and liabilities incurred in the defense of any proceeding brought against Lessor by reason of any such claim. Lessee, upon notice from Lessor, shall defend any of the above-described claims at Lessee's expense by counsel satisfactory to Lessor. Lessee, as a material part of the consideration to Lessor, hereby assumes all risk of damage to property or injury to persons, in, upon or about the Leased Premises, arising from any cause and Lessee hereby waives all claims in respect thereof against Lessor. The provisions of this subparagraph 4.13.A shall not apply if the parties agree or a court of

competent jurisdiction determines that such claims or liabilities are caused by the sole negligence of Lessor.

B. Lessee acknowledges that, before entering this Lease, it has fully inspected or been provided with an opportunity to fully inspect the Leased Premises and all documents in the possession of Lessor relating to the condition of the Leased Premises, and to test or examine all conditions of or on the Leased Premises. Lessee further acknowledges that, at the time this Lease is entered into and on the basis of the foregoing inspection or opportunity to inspect, Lessee is as knowledgeable about the physical condition of the Leased Premises as Lessor and, on that basis, assumes all risks relating to the condition of the Leased Premises, including but not limited to latent defects that may be unknown both to Lessee and Lessor at the time this Lease is entered into. Lessor represents and warrants that it has provided Lessee with an opportunity to inspect all documentation maintained by Lessor in its records concerning the condition of the Leased Premises.

4.14 Costs and Expenses of Lessor. Lessee shall forthwith pay to Lessor all costs and expenses, including reasonable attorneys' fees, which are (1) paid or incurred by Lessor but are required to be paid by Lessee under any provision of this Lease; (2) paid or incurred by Lessor in enforcing any covenant of Lessee contained in this Lease, in protecting itself against or remedying any breach thereof, in recovering possession of the Leased Premises or any part thereof, or in collecting or causing to be paid any delinquent rents, real property taxes, assessments, or rates; (3) incurred by Lessor in reviewing any matter for which Lessor's approval is sought and in processing such approval; or (4) incurred by Lessor in connection with any action in any respect related to this Lease, the Leased Premises, or Lessee's actions or omissions on the Leased Premises, other than a condemnation action filed by or against Lessee, to and in which Lessor is made a party but not adjudicated to be at fault. The term "costs and expenses" as used in this Lease shall include but not be limited to all of Lessor's out-of-pocket expenditures attributable to the matter involved. Except as otherwise expressly provided herein, all costs and expenses of Lessor shall be payable by Lessee to Lessor forthwith after mailing or personal delivery of statements therefor to Lessee and shall bear interest from the date which is ten (10) days after the date of such mailing or personal delivery at the rate of ten and one-half percent (10½%) per annum. Such obligations and interest shall constitute additional rents.

4.15 Holdover. If Lessee remains in possession of the Leased Premises after expiration of the Lease Term without the execution of a new lease or of an extension of this Lease, and in such a manner as to create a valid holdover tenancy, and if no notice of termination has been delivered by Lessor to Lessee, Lessee shall be deemed to occupy the Leased Premises only as a tenant at will from month-to-month, upon and subject to all of the provisions of this Lease which may be applicable to a month-to-month tenancy, including but not limited to the provisions of Article 2 and of paragraph 11.02 of this Lease, excepting only that the rent payable during the holdover tenancy shall be one hundred fifty percent (150%) of the rental rate in effect immediately prior to expiration of the Lease Term.

4.16 Lessee's Improvements as Security for Obligations to Lessor. Lessor and Lessee covenant and agree that all of Lessee's Improvements, as identified in paragraph 1.04 of this Lease, in any way affixed or attached to the Leased Premises or to a structure thereon (including, but not limited to, buildings, fill, drains, walls, fences, pavement, roadways, signs, and machinery) are real

property. Lessee hereby grants to Lessor a security interest in all improvements and fixtures owned by Lessee and in any way affixed or attached, whether now or later, to the Leased Premises. Such security interest is granted and made as security for the payment of rent and all other payments of whatever nature for which Lessee may be or become obligated to Lessor under the terms of this Lease, without regard to whether such obligation arises before or after the termination of this Lease. The security interest shall expire and be released only (1) upon recordation of Lessor's release of such interest to Lessee or a person claiming under Lessee, or (2) removal of such improvements and fixtures from the Leased Premises upon termination of the Lease with the prior consent of Lessor.

4.17 Permits from Corps of Engineers and Others.

A. Lessee shall obtain all necessary permits from the Corps of Engineers and any other governmental entity with authority over the occupancy or construction of improvements on or adjacent to navigable waters and tidelands or wetlands. Lessee shall give Lessor notice of its proposed application for any such permit thirty (30) days before submission of the application to the governmental entity and obtain Lessor's approval of the proposed work as provided in paragraph 4.04 of this Lease. If Lessor fails to respond to the notice of proposed application given by Lessee within the thirty (30) day period, it shall be deemed to have approved the proposed work.

B. Any application to the State of Alaska or other governmental entity for water rights appurtenant to the Leased Premises shall be made by Lessee on behalf and in the name of Lessor. Lessee shall give Lessor notice of its proposed application for such water rights thirty (30) days before submission of the application and obtain Lessor's approval. Lessee shall bear the costs associated with such application and shall have the rights accruing from such application, if granted, for the entire Lease Term, without payment of additional compensation to Lessor.

4.18 Responsibility Upon Damage to or Destruction of Property. In the event a building or improvement situated on the Leased Premises is destroyed or damaged by fire or other casualty, Lessee shall comply in full with one of the following conditions within ninety (90) days of such destruction or damage (or within such other time period as is mutually agreed to in writing):

A. Lessee may repair, rebuild, or otherwise reinstate the damaged improvement(s) in a good and substantial manner and in substantially the same form as it previously existed. In such event, the Lease shall continue in full force and effect without abatement of rental.

B. Lessee may repair, rebuild or otherwise reinstate the damaged improvement(s) in a manner and style different from the previously existing improvement, so long as the plans therefor are previously approved by Lessor if required under paragraph 4.04 of this Lease. In such event, the Lease shall continue in full force and effect without abatement of rental.

C. Lessee may remove the damaged improvement(s) in which event Lessee must also restore the Leased Premises to the condition specified in Article 11 of this Lease. In such event, the Lease shall continue in full force and effect without abatement of rental.

D. Lessee may elect to terminate the Lease by performing each of the following:

1. Giving written notice to Lessor of its intention to terminate,

2. Removing the damaged improvement(s) and restoring the Leased Premises to the condition specified in Article 11, and

3. Tendering to Lessor the total amount of rents to come due during the remaining term of the Lease, applying the rental rate then in effect to the remainder of the Lease Term, and discounting the total at the Federal discount rate in effect on the date of notice.

ARTICLE 5

INSURANCE

5.01 Workers' Compensation. Lessee shall ensure that, with respect to all personnel performing work on the Leased Premises, Lessee maintains in effect at all times during the term of this Lease, coverage or insurance in accordance with the applicable laws relating to workers' compensation and employer's liability insurance, regardless of whether such coverage or insurance is mandatory or merely elective under the law.

5.02 Liability Insurance. During the entire Lease Term, and during any holdover thereafter, whether or not authorized by Lessor, Lessee shall keep in full force and effect a policy or policies of general liability insurance which includes bodily injury, property damage, and personal injury acceptable to Lessor with respect to the Leased Premises and the business operated by Lessee in which the limits for each shall be not less than Two Million Dollars ($2,000,000) per occurrence and Four Million Dollars ($4,000,000) aggregate or such higher limits as Lessor may specify from time to time consistent with prudent business practice then prevailing in the State of Alaska; provided, however, that no such limit shall in any way limit Lessee's liability or be construed as a representation of sufficiency to fully protect Lessee or Lessor. The policy or policies purchased pursuant to this paragraph shall name both Lessor and Lessee as insureds, with respect to the Leased Premises and the business operated by Lessee on the Leased Premises.

5.03 Property Insurance. During the Lease Term and any holdover thereafter, whether or not authorized by Lessor, Lessee shall keep all improvements now or hereafter erected or placed on the Leased Premises insured against loss or damage on an all risk basis in an amount equal to the full replacement cost of all such improvements and shall pay all premiums thereon at the time and place the same are payable. Every policy shall be made payable in case of loss or damage to the Lessee and Lessor jointly and shall be distributed according to their interests in the improvements unless otherwise specified by this paragraph. All compensation, indemnity or other monies paid on account of any loss or damage, other than rental value insurance, shall with all convenient speed be paid out in rebuilding, repairing or otherwise reinstating the same improvements or in constructing different improvements unless Lessee exercises its option not to rebuild under paragraph 4.18 of this Lease.

5.04 Policy Provisions. Each policy of comprehensive general liability or property insurance described in paragraphs 5.02 and 5.03 of this Lease shall:

A. Provide that the liability of the insurer thereunder shall not be affected by, and that the insurer shall not claim, any right of setoff, counterclaim, apportionment, proration, or contribution by reason of any other insurance obtained by or for Lessor, Lessee, or any person claiming by, through, or under any of them;

B. Provide that such policy requires thirty (30) days notice to Lessor of any proposed cancellation, expiration, or change in material terms thereof and that such policy may not be canceled, whether or not requested by Lessee, unless the insurer first gives not less than thirty (30) days' prior written notice thereof to Lessor; and

C. Contain a waiver by the insurer of any right of subrogation to proceed against Lessor or against any person claiming by, through, or under Lessor.

5.05 Proof of Insurance. Lessee shall deliver to Lessor certificates of insurance on or before the effective date of this Lease or at such other date as agreed to in writing by Lessor. Additionally, Lessee shall deliver to Lessor photocopies of the policy or policies of insurance, certificates of insurance, or copies of endorsements as requested by the Lessor from time to time.

ARTICLE 6

EMINENT DOMAIN

6.01 Effect of Eminent Domain on Lease.

A. The terms "taking" and "to take" (in any of its forms) as used in this paragraph refer to any competent authority's acquisition by the power of eminent domain, including inverse condemnation, of all or any part of the Leased Premises or an interest therein, at any time during the Lease Term. The transfer of title effecting the taking may be either a transfer resulting from the recording of a final order in condemnation or a voluntary transfer or conveyance to the condemning agency or entity under threat of condemnation in avoidance of an exercise of eminent domain, made before or while condemnation proceedings are pending. The time of taking shall be determined by application of the law of the State of Alaska.

B. In the event of a taking of all or materially all of the Leased Premises, this Lease shall terminate on the earlier of vesting of title in, or the taking of possession by, the condemner.

C. Subject to the exception set out in subparagraph 6.01.D below, if less than materially all of the Leased Premises are taken (herein called a "partial taking"), this Lease shall continue in effect except as to the portion so taken or condemned, but the rent to be paid by Lessee shall thereafter be reduced by the same ratio as the value of the portion of the Leased Premises so taken bears to the value of the Leased Premises before taking. If no portion of the net usable area of the Leased Premises is taken, or if the portion thereof so taken is subterranean or aerial and does not interfere with the use of the surface, then Lessee shall not be entitled to any adjustment of rent hereunder. If Lessor and Lessee disagree as to whether a taking is a partial taking, either of them may submit the matter to arbitration under Article 8.

D. If a partial taking renders the remaining Leased Premises unsuitable for the purposes for which Lessee's improvements were designed or occurs during the last five (5) years of the term of this Lease or any extension thereof, then Lessee, upon sixty (60) days' written notice to Lessor and compliance with Article 11 of this Lease, and subject to the rights of any Qualified Mortgagee, may terminate this Lease after vesting of title in the condemnor or taking of possession by the condemner. If Lessee does so, the rent and other charges under this Lease shall be apportioned as of the date of termination.

6.02 Disposition of Proceeds.

A. Total Taking. In the event of a total taking, the rights of Lessor and Lessee to share in the net proceeds of any and all awards for land, building, improvements and damages shall be in the following order of priority:

1. To Lessor, a sum equal to the fair market value of the fee simple interest in the Leased Premises unencumbered by this Lease or any sublease, and including Lessor's Improvements and excluding Lessee's Improvements.

2. To Lessee, a sum representing the fair market value of Lessee's Improvements. In no event shall Lessee be entitled to any claim for its leasehold interest, and any compensation therefor is hereby assigned to Lessor.

3. To Lessor, the balance of the award, excluding interest. Interest shall be allocated between the parties in proportion to their respective shares of the total award provided above. If the value of such respective interests of Lessor and Lessee have been separately determined in such condemnation proceeding, the values so determined shall be conclusive upon Lessor and Lessee. If such values have not been so determined, they may be fixed by agreement between Lessor and Lessee, or if the parties cannot agree, then by arbitration under Article 8 of this Lease.

B. Partial Taking. In the event of a partial taking, rental shall be abated as provided in subparagraph 6.01.C, and the net proceeds of the award shall be divided between Lessor and Lessee as follows:

1. To Lessor, a sum representing the fair market value of the fee simple interest of the part or parts of the Leased Premises so taken, unencumbered by this Lease, including Lessor's Improvements and excluding Lessee's Improvements; plus an amount representing consequential damages to the part or parts of the land remaining after such taking, considered as if vacant and unimproved.

2. To Lessee, the balance of the award, which shall be applied by Lessee first to restoration of Lessee's Improvements as nearly as reasonably possible to their condition before such taking, unless Lessee terminates this Lease as provided in subparagraph 6.01.D above.

C. Rights on Termination. Notwithstanding anything in this Lease to the contrary, if Lessee exercises its right to terminate the Lease under subparagraph 6.01.D, above, the award

balance attributable to Lessee's Improvements other than the principal balance, if any, and other proper charges of a Qualified Mortgagee shall belong to Lessor free of any claim of Lessee. In no event shall Lessee be entitled to any compensation for its improvements if the taking occurs after expiration of the Lease Term or termination of this Lease.

6.03 Temporary Taking. If the whole or any part of the Leased Premises, or of Lessee's interest under this Lease, is taken by any competent authority for its temporary use or occupancy, this Lease shall not terminate by reason thereof and Lessee shall continue to pay all rental payments and other charges payable by Lessee hereunder, and to perform all other terms, covenants, and conditions contained herein, except to the extent Lessee is prevented from so doing by the terms of the order of the taking authority. In the event of a temporary taking, Lessee shall be entitled to receive the entire amount of the award and shall be obligated, at its sole expense, to restore the Leased Premises as nearly as may be reasonably possible to the condition in which they existed immediately prior to such taking; provided, however, that if the period of temporary use or occupancy extends beyond the expiration of the Lease Term, the award shall be apportioned between Lessor and Lessee as of said date of expiration, after Lessor shall have received the entire portion of the award attributable to physical damage to the Leased Premises (excluding Lessee's Improvements) and to the restoration thereof to the condition existing immediately prior to the taking or condemnation. Upon expiration of the temporary taking, Lessee shall have the rights and obligations provided in Article 11, including but not limited to removal of Lessee's Improvements within a reasonable time to be negotiated by Lessor and Lessee.

ARTICLE 7

ASSIGNMENTS, MORTGAGES, SUBLEASES AND SUBDIVISION

7.01 Limitations on Assignment. Lessee shall not voluntarily or by operation of law assign, transfer, mortgage, sublet, or otherwise transfer or encumber all or any part of Lessee's interest in this Lease or in the Leased Premises, except in strict compliance with this Article 7. Any attempted assignment, transfer, mortgage, encumbrance or subletting without such compliance shall be void, and shall constitute a breach of this Lease.

7.02 Lessee's Right to Assign. Lessee shall have the right to assign or otherwise transfer Lessee's interest in this Lease and the estate created by this Lease to a Qualified Assignee, upon compliance with the provisions of paragraph 7.03 below and only upon the written consent of the Lessor.

A Qualified Assignee is any person or entity, including a corporate successor of Lessee, whose net worth on the date of assignment is equal to or greater than the Lessee's net worth at the commencement of this Lease or who can otherwise demonstrate to Lessor, in the exercise of prudent business judgment, that he or it is financially capable of meeting Lessee's obligations under this Lease. Net worth shall mean the amount by which the total of all assets of the person or entity exceeds the total of all his or its liabilities as determined by an independent, certified public accountant, in accordance with generally accepted accounting principles. For the purposes of this paragraph, the sale, assignment, transfer, or other disposition of any of the issued and outstanding capital stock of the Lessee, or of the interest of a general partner or joint venturer or syndicate

member or co-tenant, if Lessee is a partnership or joint venture or syndicate or co-tenancy, which shall result in changing the control of Lessee, shall be construed as an assignment of this Lease. Control, in the provisions of this Lease relating to assignment, means fifty percent (50%) or more of the voting power of the entity.

7.03 Conditions Precedent to Assignment. The following are conditions precedent to Lessee's right of assignment:

A. Lessee shall give Lessor reasonable notice of the proposed assignment with appropriate documentation as evidence that the proposed assignee qualifies as a Qualified Assignee. Such documentation shall include, at the request of Lessor, a certified financial statement prepared independently and in accordance with generally accepted accounting principles fairly representing the existing financial condition of the proposed assignee. Prior years' income tax returns may be an acceptable substitute for the certified financial statement.

B. The proposed assignee shall, in recordable form, expressly assume all the covenants and conditions of this Lease.

C. Lessee shall pay Lessor the sum of Three Hundred Dollars ($300.00) to enable Lessor adequately to investigate the proposed assignee's qualifications as a Qualified Assignee. Lessor shall not be required to account for the use of the sum paid.

D. Lessee shall not be in default on any obligation owed to Lessor under this Lease.

7.04 Lessee's Nonliability after Assignment. Upon an assignment made in accordance with the provisions and conditions of this Lease, Lessee shall have no further obligation under this Lease and, as between Lessor and Lessee, shall be considered to have assigned to the Qualified Assignee all claims against Lessor arising under this Lease; provided, however, that an assignment does not release Lessee of any obligations that may have arisen or accrued or be based on events which occurred before the assignment, including but not limited to, an obligation to pay delinquent rent or an obligation to pay all costs associated with cleaning up any environmental contamination, unless Lessor expressly releases Lessee from the same in writing. Upon assignment, the Qualified Assignee shall assume all rights and obligations of Lessee under this Lease, including unsatisfied obligations to cure any delinquency in rent or other charges under this Lease or to perform any repairs or other work or action required by Lessor before the assignment. The Qualified Assignee's satisfaction of any of Lessee's obligations to Lessor that accrued prior to assignment shall subrogate the Qualified Assignee to Lessor's cause of action against Lessee with respect to such satisfied obligation.

7.05 Lessor's Disapproval of Assignment. The effective date of the assignment shall be sixty (60) days after Lessee's notice of the proposed assignment, unless, within that time, Lessor gives notice of a valid objection that a proposed assignee is not a Qualified Assignee. Lessor's failure to give notice within that time shall constitute a waiver of objection to the assignment.

7.06 Mortgage of Leasehold Interest. Lessee shall have the right at any time, and from time to time, to subject the leasehold estate and any or all of Lessee's Improvements situated on the Leased Premises to one or more mortgages or assignments as security for a loan or loans or other

obligation of Lessee (each of which instruments is herein called a "Leasehold Mortgage"), provided that:

A. Subordinate to Lease. The Leasehold Mortgage and all rights acquired under it shall be subject and subordinate to each and all the covenants, conditions, and restrictions stated in this Lease, and to all rights and interests of Lessor except as otherwise provided in this Lease.

B. Notice to Lessor. Lessee shall give Lessor prior notice of any such Leasehold Mortgage, and shall accompany the notice with a true copy of the note and the Leasehold Mortgage as proposed for execution. Upon Lessor's written consent to the Leasehold Mortgage and upon execution of the Leasehold Mortgage by all parties, the mortgagee shall become a Qualified Mortgagee as that term is used in this Lease.

C. Notice of Default and Opportunity to Cure. Upon any default on any of the terms of the Lease by Lessee, Lessor, in addition to notifying Lessee pursuant to paragraph 9.02 below, shall also notify each Qualified Mortgagee of such default. Upon receipt of a written notice of default, any such Qualified Mortgagee shall have the length of time set forth in paragraph 9.02.C of this Lease to cure the default.

D. Possession by Mortgagee. A Qualified Mortgagee may take possession of the Leased Premises and vest in the interest of Lessee in the Lease upon the performance of the following conditions:

1. The payment to Lessor of any and all sums due to Lessor under the Lease, including but not limited to accrued unpaid rent.

2. The sending of a written notice to Lessor and Lessee of the Qualified Mortgagee's intent to take possession of the Leased Premises and assume the Lease.

3. The curing of all defaults not remediable by the payment of money within an additional thirty (30) days of the date upon which such default was required to be cured by the Lessee under the terms of this Lease.

E. No Liability of Mortgagee Without Possession. A qualified Mortgagee shall have no liability or obligation under the Lease unless and until it sends to Lessor the written notice described in paragraph 7.06.D.2 above. Nothing in this Lease nor in the taking of possession of the Leased Premises and assumption of the Lease by a Qualified Mortgagee or a subsequent assignee shall relieve Lessee of any duty or liability to Lessor under the Lease.

F. Subsequent Transfer. In the event the Qualified Mortgagee forecloses the Leasehold Mortgage, any subsequent assignee or transferee of the leasehold estate proposed by the Qualified Mortgagee must be approved by Lessor, whose discretion in the matter shall be complete.

7.07 Right to Sublet. Lessee shall have the right during the Lease Term to sublet all or any part or parts of the Leased Premises or the improvements, or both, and to assign, encumber, extend, or renew any sublease, providing the following provisions are complied with:

A. Each sublease shall contain a provision satisfactory to Lessor requiring the sublessee to attorn to Lessor if Lessee defaults under this Lease and if the sublessee is notified of Lessee's default and is instructed to make sublessee's rental payments to Lessor.

B. Prior to execution of each sublease, Lessee shall notify Lessor of the name and mailing addresses of the proposed sublessee and provide Lessor with photocopies of the proposed sublease. Lessee shall not execute any such sublease until it has received the written consent of Lessor, which shall not be unreasonably withheld. Promptly after execution, Lessee shall provide Lessor with a photocopy of the executed sublease.

C. Lessee shall not accept, directly or indirectly, more than three (3) months' prepaid rent from any sublessee.

D. A Qualified Subtenant is a subtenant in possession under an existing sublease as to which the foregoing conditions have been met and as to which Lessor has given its written consent.

No sublease shall relieve Lessee of any of its covenants or obligations under this Lease, and any provision of a sublease purporting to do so shall be deemed a nullity as between Lessor and Lessee notwithstanding Lessor's failure to object to the sublease.

7.08 Subdivision of Leased Premises. Lessee shall not, under any circumstances whatsoever, subdivide the Leased Premises or any part thereof.

ARTICLE 8

ARBITRATION AND APPRAISAL PROCESS

8.01 Appointment of Arbitrators and Conduct of Arbitration. If Lessor and Lessee fail to agree upon (1) the appraisal of a fee simple interest under Article 2; or (2) the value of the respective interests of Lessor and Lessee in a condemnation action under Article 6; the matter of disagreement, upon the election of either of them, shall be submitted to and determined by a single arbitrator, mutually appointed by them, whose decision and award shall be final, conclusive, and binding upon both of them. If Lessor and Lessee fail to mutually appoint a single arbitrator, the matter shall be submitted to and determined by three (3) arbitrators, in which event either Lessor or Lessee may give to the other written notice of election to have the matter of disagreement so arbitrated and shall appoint therein one of the arbitrators. The other party shall, within twenty (20) days after the receipt of such written notice, appoint a second arbitrator. If he fails to do so, the party who has already appointed an arbitrator may have the second arbitrator appointed by any judge of the Superior Court of Alaska resident in the district where the Leased Premises are situated. The two arbitrators so appointed in either manner shall appoint the third arbitrator, and if the first two arbitrators fail to appoint a third arbitrator within twenty (20) days after the appointment of the second arbitrator, either Lessor or Lessee may have the third arbitrator appointed by any judge of the Superior Court of Alaska resident in the district where the Leased Premises are situated. Each of the arbitrators appointed under this paragraph shall possess the professional qualifications provided in paragraph 8.02 hereof.

The three arbitrators so appointed shall thereupon proceed to arbitrate the matter of disagreement, upon such rules of procedure as they may adopt, and shall render a written decision containing their findings and conclusions. The Lessor and Lessee shall share equally the costs associated with the arbitration.

8.02 Special Qualifications of Arbitrators. Each arbitrator appointed pursuant to paragraph 8.01 shall be a person who (1) has not less than five (5) years appraisal experience in the State of Alaska prior to his appointment; (2) has appraised similar classes of property throughout the State of Alaska; and (3) is a member (MAI [but not RM]) of the American Institute of Real Estate Appraisers, a Senior Real Estate Analyst (SREA), or a Senior Real Property Appraiser (SRPA) of the Society of Real Estate Appraisers. It is understood and agreed that if any of such institutes or societies is merged or otherwise consolidated with another duly qualified appraisal or counseling organization, and thereby loses its name or designation, the arbitrator may be appointed from among the members of such other organization.

8.03 Judicial Review of Arbitration Decision. The decision of the arbitrator or arbitrators shall be final and unreviewable by any court, except to the extent authorized by Alaska Statutes 09.43.110, .120 and .130. If the court determines that the arbitration decision should be set aside on one of the grounds enumerated in such statutes, it may proceed to decide the merits of the matter at the instance of either party to the Lease and neither party shall be required to submit to rearbitration of the matter.

ARTICLE 9

DEFAULT AND DEFEASANCE

9.01 Events of Default. Each of the following events shall be a default by Lessee and breach of this Lease:

A. Failure to Perform Lease Covenants. Lessee's abandonment or surrender of the Leased Premises or of the leasehold estate, or failure or refusal to pay when due any installment of rent or any other sum required by this Lease to be paid by Lessee, or to perform as required by any other covenant or condition of this Lease.

B. Appointment of Receiver. The appointment of a receiver or trustee to take possession of the Leased Premises or improvements or of the Lessee's interest in the leasehold estate or of Lessee's operations on the Leased Premises for any reason.

C. Insolvency, Bankruptcy. An assignment by Lessee for the benefit of creditors or the filing of a voluntary or involuntary petition by or against Lessee under any provision of the U. S. Bankruptcy Code.

9.02 Notice and Right to Cure.

A. Notices. As a precondition to pursuing any remedy for an alleged default by Lessee, Lessor shall, before pursuing any remedy, give notice of default to Lessee. Each notice of default shall state the alleged event of default and the intended remedy, but the identification of the intended remedy shall not limit Lessor's right to seek or use any other available remedy not identified in the notice.

B. Method of Giving Notice. Lessor shall give notice of default in accordance with subparagraph 9.02.A by personal delivery to each party required to receive it; or by (1) mailing by certified mail (return receipt requested) a copy of the notice to each party required to receive it at the last address provided by that party to Lessor and (2) mailing by first class mail a copy of the same notice to each such party at the same address. To be effective, personal delivery shall be documented by written acknowledgment of receipt by Lessee or by an affidavit of the personal delivery by Lessor's representative.

C. Lessee's Right to Cure Defaults.

1. If the alleged default is nonpayment of rent, taxes, or other sums to be paid by Lessee as provided in Articles 2 and 4 or elsewhere in this Lease directed to be paid as rent, Lessee shall have thirty (30) days after the notice is given to cure the default.

2. If, in the reasonable opinion of Lessor, the alleged default substantially endangers either the person or property of Lessor or a third party, or human health or the environment, Lessee shall commence curing the default immediately upon notice and complete the cure within such reasonable time period as is imposed by Lessor or any governmental body having jurisdiction in the matter.

3. For the cure of any other default, Lessee shall promptly and diligently after the notice commence curing the default and shall have sixty (60) days after notice is given to complete the cure.

9.03 Nonwaiver. Acceptance by Lessor or its agents of any rents, whether basic or additional, shall not be deemed to be a waiver by it of any breach by Lessee of any of its covenants contained in this Lease or of the right of Lessor to reenter the Leased Premises or to declare a forfeiture for any such breach. Waiver by Lessor of any breach by Lessee shall not operate to extinguish the covenant the breach of which is so waived, nor be deemed to be a waiver of the right of Lessor to declare a forfeiture for any other breach thereof or of any other covenant.

9.04 Right of Lessor to Protect Against Default. If Lessee fails to observe or perform any of its covenants contained herein, Lessor, at any time thereafter and without notice, shall have the right but not the obligation to observe or perform such covenant for the account and at the expense of Lessee, and shall not be liable to Lessee or anyone claiming by, through, or under it for any loss or damage by reason thereof to the occupancy, business, or property of any of them. All costs and expenses paid or incurred by Lessor in observing or performing such covenant shall constitute additional rents, which Lessee shall forthwith pay to Lessor upon statements therefor.

9.05 Lessor's Remedies. If any default by Lessee shall continue uncured, following notice of default as required by this Lease, for the period applicable to the default under paragraph 9.02 of this Lease, Lessor has the following remedies in addition to all other rights and remedies provided by law or equity or other provisions of this Lease, to which Lessor may resort cumulatively or in the alternative. The election of one remedy for any one default shall not foreclose an election of any other remedy for another default or for the same default at a later time.

A. Termination. Lessor may, at Lessor's election, terminate this Lease by giving Lessee notice of termination in accordance with the procedures specified in paragraph 9.02 of this Lease. On the giving of the notice, all Lessee's rights in the Leased Premises and in all improvements thereon shall terminate, unless Lessor expressly and in writing requires Lessee to remove specified improvements (in which event Lessee's rights shall continue in the improvements required to be removed). Promptly after notice of termination, Lessee shall surrender and vacate the Leased Premises and all improvements not required to be removed in a broom-clean condition, and Lessor may reenter and take possession of the Leased Premises and all remaining improvements and eject all parties in possession, or eject some and not others, or eject none. Termination under this paragraph shall not relieve Lessee, or any of its guarantors, insurers, or sureties, from the payment of any sum then due to Lessor or from any claim for damages previously accrued or then accruing against Lessee.

B. Re-entry Without Termination. Lessor may, at Lessor's election, reenter the Leased Premises, and, without terminating this Lease, at any time and from time to time relet the Leased Premises and improvements, or any part or parts of them, for the account and in the name of Lessee or otherwise. Lessor may, at Lessor's election, eject all persons or eject some and not others or eject none. Any reletting may be for the remainder of the Lease Term or for a longer or shorter term. Lessor may execute any leases made under this provision either in Lessor's name or in Lessee's name, and shall be entitled to all rents from the use, operation, or occupancy of the Leased Premises or improvements or both. Lessor shall apply all rents from reletting as provided in paragraph 9.07 of this Lease. Lessee shall nevertheless pay to Lessor on the due dates specified in this Lease, the equivalent of all sums required of Lessee under this Lease, plus Lessor's expenses, less the proceeds of any reletting. No act by or on behalf of Lessor under this provision shall constitute a termination of this Lease unless Lessor gives Lessee notice of termination.

C. Recovery of Rent. Lessor shall be entitled, at Lessor's election, to each installment of rent or to any combination of installments for any period before termination, plus interest at the rate of ten and one-half percent (10½%) per annum from the due date of each installment. If Lessor elects to relet the Leased Premises without terminating this Lease, the proceeds of such reletting shall be applied, when received, as provided in paragraph 9.07 of this Lease.

D. Lessee's Personal Property. Lessor may, at Lessor's election, use Lessee's personal property and trade fixtures on the Leased Premises, or any of such property and fixtures, without compensation and without liability for use or damage, or store them for the account and at the cost of Lessee.

E. Damages. Lessor shall also be entitled, at Lessor's election, to damages in the following sums: (1) all amounts that would have fallen due as rent between the time of termination and the time the property is relet; provided that Lessor shall exert reasonable efforts to relet the property at prevailing market value; and (2) the amount, if any, by which the Basic Rents under this Lease exceed the rents under any subsequent lease upon reletting calculated over the Lease Term; and (3) all administrative, marketing, brokerage, repair, cleaning and similar costs incurred by Lessor and necessary or useful to reletting the Leased Premises or placing it in good and marketable condition.

9.06 Assignment of Subrents. Lessee assigns to Lessor all subrents and other sums falling due from subtenants, licensees and concessionaires (referred to as "Subtenants" in this paragraph 9.06) during any period in which Lessor has the right under this Lease, whether exercised or not, to reenter the Leased Premises for Lessee's default, and Lessee shall not have any right to such sums during that period. Lessor may at Lessor's election reenter the Leased Premises and improvements with or without process of law, without terminating this Lease, and either, or both, collect these sums or bring action for the recovery of the sums directly from Subtenants. Lessor shall apply all such collected subrents as provided in paragraph 9.07. Lessee shall nevertheless pay to Lessor on the due dates specified in this Lease the equivalent of all sums required of Lessee under this Lease, plus Lessor's expenses, less the avails of the sums assigned and actually collected under this paragraph 9.06. Lessor may proceed to collect either the assigned sums or Lessee's balances, or both, or any installment or installments of them, either before or after expiration of the Lease Term, but the period of limitations shall not begin to run on Lessee's payments until the due date of the final installment to which Lessor is entitled under this Lease, nor shall it begin to run on the payments of the sums assigned under this paragraph 9.06 until the due date of the final installment due from the respective Subtenants.

9.07 Application of Sums Collected by Lessor. Lessor shall apply all subrents and proceeds of reletting as follows: first, to the payment of reasonable expenses (including attorneys' fees and brokers' commissions or both) paid or incurred by or on behalf of Lessor in recovering possession, placing the Leased Premises and improvements in good condition, and preparing or altering the Leased Premises or improvements for reletting; second, to the reasonable expense of securing new lessees; third, to the fulfillment of Lessee's covenants to the end of the Lease Term; and fourth, to Lessee's uses and purposes.

ARTICLE 10

GENERAL PROVISIONS

10.01 Lessor's Right to Entry, Inspection and Repair. Lessor or its authorized agents may enter and inspect the Leased Premises at any time during regular business hours, with or without the presence of Lessee or its authorized representative, after giving twenty-four (24) hours' advance notice to Lessee of such inspection. Such inspections may include, but not be limited to, conducting tests for environmental contamination. All inspections will be conducted in a manner that does not unreasonably interfere with the operation of Lessee's business. If contamination is identified on the Leased Premises, Lessee shall be responsible for all resulting costs associated with clean-up as provided in paragraphs 4.06-.08 and 4.13. In the event of an emergency, Lessor may enter and

inspect the Leased Premises on reasonable notice (including no notice to Lessee if the circumstances warrant) and make such repairs or institute such measures, on the account and at the expense of Lessee, as may be necessary to avert or terminate the emergency. An emergency is any action, event, or condition, either extant or imminent, that threatens significant damage to property or injury to persons on or near the Leased Premises, and includes but is not limited to flood, fire, explosion, avalanche, earthquake, uncontrolled or dangerous discharge or release of water or other fluids, unauthorized or illegal placement of hazardous or toxic materials on the Leased Premises, and shifting, settling or loss of earth or support on the Leased Premises.

10.02 Notices. Any notice, other than notice of default under subparagraphs 9.02.A and 9.02.B of this Lease, or demand to Lessor or Lessee provided for in this Lease may be given sufficiently for all purposes in writing, mailed by registered or certified mail, return receipt requested, and addressed to such party or its agent at its mailing address specified herein or at the last such address specified by such party in writing to the other, or may be delivered personally within the State of Alaska to such party or its agent. Except as otherwise expressly provided herein, such notice shall be conclusively deemed to have been given on the date of such mailing or personal delivery. If at any time during the Lease Term Lessee is more than one person or entity, any notice given by Lessor to any of them shall constitute notice to all of them, and any agreement or approval with or in favor of Lessor made or given by any of them shall bind all of them.

10.03 Covenants and Conditions. Every provision in this Lease which imposes an obligation upon Lessee or invests an option, power, or right in Lessor shall be deemed to be a covenant of Lessee in favor of Lessor, and the time of observance and performance by Lessee of each such covenant shall be of the essence. Full and faithful observance and performance by Lessee of each of its covenants contained in this Lease shall be a condition hereof.

10.04 Integration and Amendments. Except as otherwise expressly provided in this Lease and except for the provisions of the Memorandum of Lease, this Lease is a complete integration of every agreement and representation made by or on behalf of Lessor and Lessee with respect to the Leased Premises, and no implied covenant or prior oral or written agreement shall be held to vary the provisions of this Lease, any law or custom to the contrary notwithstanding. In the event of any conflict between this Lease and the Memorandum of Lease, the provisions of the Memorandum of Lease shall control. No amendment or other modification of the provisions of this Lease shall be effective unless incorporated in a written instrument duly executed and acknowledged by Lessor and Lessee.

10.05 Approvals of Lessor. Except as otherwise expressly provided in this Lease and except for amendments or modifications of this Lease, Lessor shall neither unreasonably, capriciously, nor arbitrarily withhold any approval required to be obtained by Lessee hereunder, nor require any consideration therefor as a condition thereof other than payment forthwith by Lessee to Lessor of all costs and expenses paid or incurred by Lessor in connection with the review of the matter for which such approval is sought and the processing of such approval.

10.06 Survival and Severability. The rights and obligations of Lessor and Lessee provided in paragraphs 4.06-.08 and 4.13 through 4.17 of this Lease, and in the Memorandum of Lease, except to the extent expressly varied or superseded by a subsequent instrument executed by Lessor and Lessee,

shall survive the expiration or earlier termination of this Lease. If any provision of this Lease is held to be void or otherwise unenforceable by any court or other tribunal of competent jurisdiction, other than at the initiative or with the support of Lessor, within thirty (30) days after receipt of written notice of such holding Lessor shall have the right and option, exercisable by written notice thereof to Lessee, to terminate this Lease effective as of the date of such written notice of exercise. It is understood and agreed that otherwise this Lease, except for such provision so held to be void or otherwise unenforceable, shall remain in full force and effect.

10.07 Binding Effect. This Lease shall be binding upon and shall inure to the benefit of Lessor and Lessee and their respective successors and assigns. The designations "Lessor" and "Lessee" include their respective successors and assigns and shall be so construed that the use of the singular number includes the plural number, and vice versa, and the use of any gender includes the other genders. If at any time during the Lease Term Lessee is more than one person or entity, including persons who are partners and operate Lessee as a partnership, their liability hereunder shall be joint and several.

10.08 Lessor's Authority to Convey Fee Title. Lessor retains the absolute and unconditional right to convey fee title in the Leased Premises, or an interest or estate therein, subject to this Lease and the interest of any Qualified Mortgagee or Subtenant under this Lease.

10.09 Powers of Lessor as Public Corporation. Nothing in this Lease restricts or limits the authority of Lessor, the Alaska Railroad Corporation, in the exercise of governmental authority delegated to it by the Alaska Railroad Corporation Act, AS 42.40, or by any other applicable law or regulation.

10.10 Captions. The captions of the articles and paragraphs hereof are for convenience only, are not an operative part hereof, and neither limit nor amplify in any way the provisions hereof.

ARTICLE 11

DUTIES UPON TERMINATION OR EXPIRATION

11.01 Surrender of Leased Premises. Upon expiration or early termination of this Lease, Lessee shall surrender to Lessor the possession of the Leased Premises. Lessee shall leave the surrendered Leased Premises and any improvements in a broom-clean condition, as noted in paragraph 11.02. If Lessee fails to surrender the Leased Premises at expiration or termination, Lessee shall defend and indemnify Lessor from all liability and expense resulting from the delay or failure to surrender, including but not limited to claims made by any succeeding tenant founded on or resulting from Lessee's failure to surrender. In the event of failure or refusal of Lessee to surrender possession of the Leased Premises, Lessor shall have the right to reenter the Leased Premises and remove therefrom Lessee or any person, firm or corporation claiming by, through or under Lessee and to obtain damages for trespass from Lessee.

11.02 Removal of Improvements Upon Termination.

A. Upon the expiration or termination of this Lease or any extension thereof, including termination resulting from Lessee's breach ("termination"), Lessee shall leave the Leased Premises in a broom-clean and leasable condition, which shall include removal of all improvements, buildings, foundations and footings to buildings, personal property, trash, vehicles, and equipment, except as noted in subparagraphs 11.02.B, .C and .D below. Any excavation on the property, including excavation to remove Lessee's Improvements, shall be filled and compacted with material approved by Lessor.

B. Lessor may, at its option, allow Lessee to leave some or all of Lessee's Improvements on the Leased Premises upon termination. If Lessor so elects, such improvements shall become the property of Lessor upon termination.

C. Pursuant to the security interest granted under paragraph 4.16 of this Lease, Lessor may, at its option, require Lessee to leave some or all of Lessee's Improvements on the Leased Premises upon termination, with Lessor becoming the owner of such improvements, when at the time of termination, Lessee has failed to make all payments to Lessor required under this Lease.

D. Any improvements owned by Lessor and identified in paragraph 1.03, or added to the Leased Premises by Lessor after execution of this Lease, shall not be removed by Lessee.

11.03 Abandonment of Lessee's Property. All property that Lessee is not required or allowed to leave on the Leased Premises shall, on the tenth (10th) day following termination, be conclusively deemed abandoned. Abandoned property shall, at the election of Lessor, become the property of Lessor or be destroyed or removed by Lessor.

11.04 Liability for Clean-up Expenses. Lessee shall be liable for all costs and expenses incurred by Lessor to remove or destroy abandoned property and improvements not required or allowed to be left on the Leased Premises, and for the removal of trash or other debris left thereon. In addition, nothing in this Lease shall relieve Lessee of any obligation or liability for removal of hazardous substances (including wastes) or inappropriate fill material placed on the Leased Premises during the term of the Lease, regardless of when such hazardous substance (including waste) or inappropriate fill material is discovered, subject, however, to the provisions of paragraphs 4.06-.08 above.

ARTICLE 12

EXECUTION AND MEMORANDUM OF LEASE

12.01 Execution and Counterparts. This Lease is executed in two or more counterparts, each of which shall be an original, and all of which shall constitute one and the same instrument.

12.02 Recordation of Memorandum of Lease. This Lease shall not be recorded. The parties shall execute in suitable form for recordation a memorandum of this Lease ("Memorandum of Lease"), which shall be recorded. The Memorandum of Lease shall be the Lessor's standard form Memorandum of Lease or, with the agreement of Lessor, a Memorandum of Lease in a form proposed by a title insurance company insuring Lessee's leasehold interest or the interest of any

Qualified Mortgagee sufficient to give constructive notice of this Lease to subsequent purchasers and mortgagees.

IN WITNESS WHEREOF, Lessor and Lessee have duly executed and acknowledged this Ground Lease.

ALASKA RAILROAD CORPORATION

Dated: 1/30/03

By: PK Gamble
Patrick K. Gamble
President and Chief Executive Officer

Dated: 1/30/03

By: James W. Kubitz
James W. Kubitz
Vice President, Real Estate

K & T ENTERPRISES

Dated: Jan 11 2003

By: Leonard Kragness
Leonard Kragness
Partner

Dated: 1-11-2003

By: Samuel Turner
Samuel Turner
Partner

STATE OF ALASKA)
)ss.
THIRD JUDICIAL DISTRICT)

The foregoing instrument was acknowledged before me this 30th day of January, 2003 ~~2002~~, by Patrick K. Gamble, President and Chief Executive Officer of the Alaska Railroad Corporation, a public corporation created by Alaska Statute 42.40, on behalf of the corporation.

KATHLEEN A. LEWIS NOTARY PUBLIC STATE OF ALASKA

Kathleen A. Lewis
Notary Public in and for Alaska
My Commission expires: 12-11-2004

STATE OF ALASKA)
)ss.
THIRD JUDICIAL DISTRICT)

The foregoing instrument was acknowledged before me this 30th day of January, 2003 ~~2002,~~ by James. W. Kubitz, Vice President, Real Estate of the Alaska Railroad Corporation, a public corporation created by Alaska Statute 42.40, on behalf of the corporation.

Kathleen A. Lewis
Notary Public in and for Alaska
My Commission expires: 12-11-2004

KATHLEEN A. LEWIS NOTARY PUBLIC STATE OF ALASKA

STATE OF ALASKA)
)ss.
THIRD JUDICIAL DISTRICT)

The foregoing instrument was acknowledged before me this 17th day of January, 2003, by Leonard Kragness, partner, on behalf of K & T Enterprises, an Alaska general partnership, on behalf of the partnership.

MARY WALSH NOTARY PUBLIC STATE OF ALASKA

Mary Walsh
Notary Public in and for Alaska
My Commission expires: Feb 6, 2006

STATE OF ALASKA)
)ss.
THIRD JUDICIAL DISTRICT)

The foregoing instrument was acknowledged before me this 17th day of January, 2003, by Samuel Turner, partner, on behalf of K & T Enterprises, an Alaska general partnership, on behalf of the partnership.

MARY WALSH NOTARY PUBLIC STATE OF ALASKA

Mary Walsh
Notary Public in and for Alaska
My Commission expires: Feb 6, 2006

K & T Enterprises
Lease Contract No.7085

SCHEDULE 1

LEGAL DESCRIPTION

A parcel of land located within the Alaska Railroad Anchorage Reserve situated in the Anchorage Recording District, Third Judicial District, State of Alaska and further described as follows:

A portion of Lots 53-57 of the ARRC Post Road Industrial Lease Lots beginning at the northeast corner of Lot 53; thence S 57° 27' 30 " W, a distance of 482 feet to the northwest corner of Lot 57; thence S 32° 30' 30" E, a distance of 550 feet; thence S 57° 27' 30" W, a distance of 392 feet; thence S 12° 28' 30" W, a distance of 127.32 feet; thence S 32° 30' 30" E, a distance of 460 feet to the True Point of Beginning, containing an area of 261,050 square feet, more or less, as shown on the attached drawing.

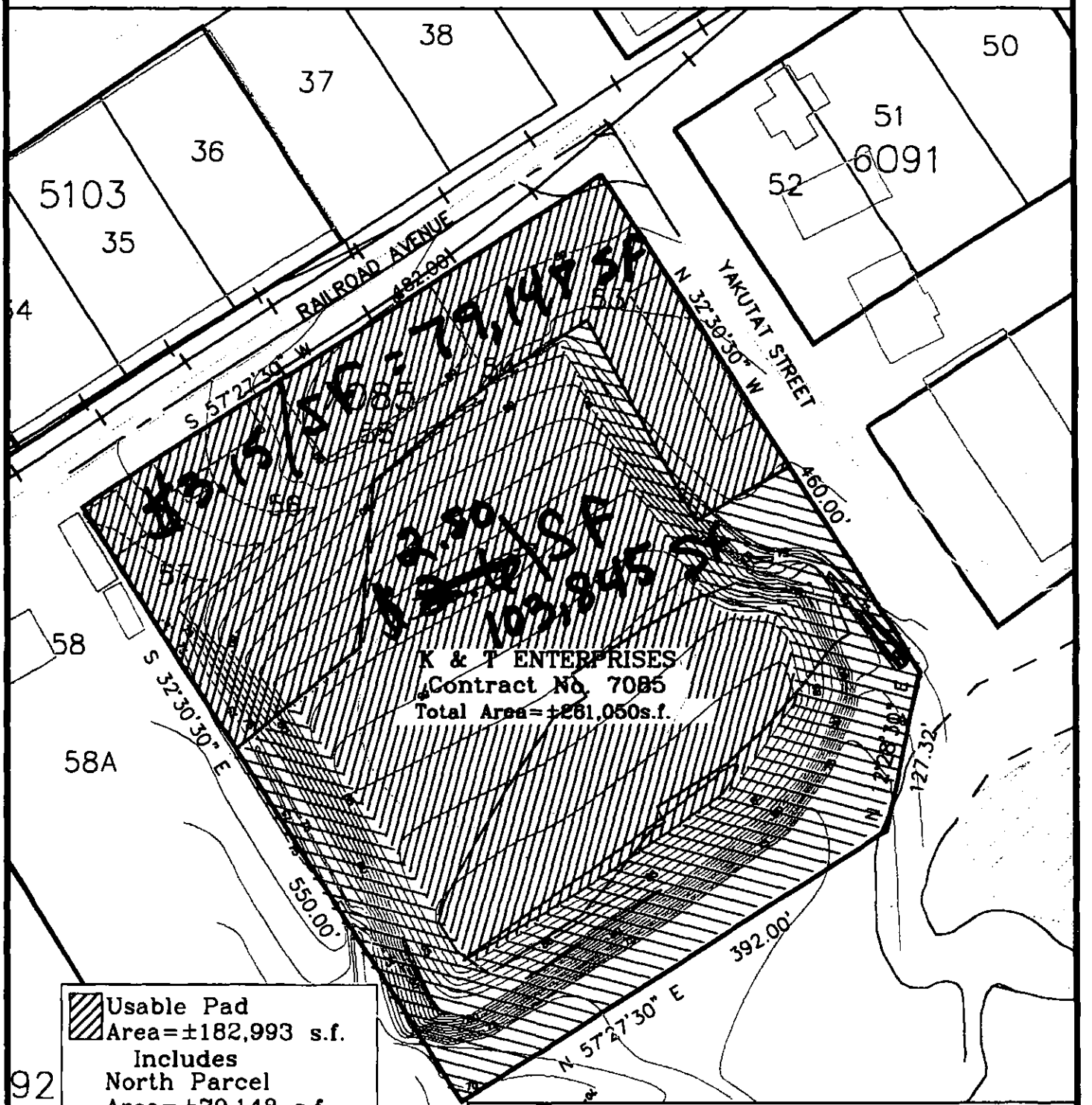
In the event of any inconsistency between the attached drawing and the foregoing legal description, the latter shall govern for purposes of this Lease.

RECORDERS OFFICE RETURN TO:
ALASKA RAILROAD CORPORATION
ATTN: REAL ESTATE
P.O. BOX 107500
ANCHORAGE, AK 99510-7500

K & T Enterprises

Contract No. 7085

Total Area = Approx. 261,050s.f.



Alaska Railroad Corporation

K&T Enterprises

Contract No. 7085

Anchorage Reserve

Date: 10/30/01	Scale: 1"=100'
Dwg. By: mdg	Filename: r:\...\leases\7085-2-L

ALASKA RAILROAD CORPORATION

Corporate Address: P.O. Box 107500, Anchorage, Alaska 99510
327 W. Ship Creek Avenue, Anchorage, Alaska 99501

ARRC Contract No. 8319

SPECIAL LAND USE PERMIT

PERMITTEE: R.J.H., dba STEELFAB

ADDRESS: 2132 Railroad Avenue, Anchorage, Alaska 99501

PERMIT AREA/DESCRIPTION: Lot 58-A of the ARRC Post Road Industrial Lease Lots, located within the ARRC Anchorage Reserve, containing 92,000 SF, as shown on the attached drawing.

The Alaska Railroad Corporation (ARRC) hereby grants to Permittee a non-exclusive revocable Permit to occupy and use the above-described Permit Area for the limited purposes and upon the terms and conditions set forth herein.

1. Use by Permittee: The Permittee may use the Permit Area only for the following limited purposes: Storage of steel and other uses related to Permittee's steel fabrication facility located on the adjacent property leased to Permittee under ARRC Contract No. 6392.

2. ARRC Use: ARRC reserves for itself, its successors, assigns, permittees and licensees, the right to use the Permit Area for any purpose whatsoever, including without limitation transportation, communication and transmission purposes, which shall be deemed to include but not be limited to the construction, maintenance and operation of existing tracks and existing and additional pipes, communication and power transmission lines, drainage ditches or any other facilities located upon, over and beneath the Permit Area.

3. Specific Restrictions in Permit Area:

(a) Permittee acknowledges that safety is a primary consideration and that in any area marked "clear zone" on the drawing of the Permit Area attached to this Permit, no structure will be allowed that would restrict the visibility from the track, or if in the vicinity of road crossings, would restrict the visibility of motor vehicles. The opinion of ARRC's

Chief Engineer will be final regarding any disagreement on safety. No improvement or facility, including temporary structures and fences, may be constructed in the Permit Area without prior written approval of ARRC. If the Permit Area is within an area governed by local building or land use regulations, any construction must comply with such regulations.

(b) The general contour of the Permit Area shall not be altered without prior written approval from ARRC. No excavation work shall be performed upon the Permit Area. Permittee's use of the Permit Area shall not interfere with the construction, maintenance, repair, use or operation of any railroad facility, drainage ditch, or related facilities, which may be located upon, over or under the Permit Area. Watering and irrigation shall be done in such a manner that there will be no flooding or fouling of ARRC's roadbed.

4. Term: This Permit shall be for a term of one (1) year, commencing February 1, 2002, and expiring January 31, 2003, provided that ARRC shall have the absolute right to terminate this Permit at any time, without cause, upon thirty (30) days written notice to Permittee. Any continued use of the Permit Area by Permittee after the expiration of the original term, absent prior ARRC approval, shall be under the same terms and conditions as this Permit. Permittee may abandon the Permit Area and give up all rights under this Permit at any time, however, Permittee's obligation to pay an annual fee, and any other affirmative obligations of Permittee under this Permit, will continue until Permittee has given written notification to ARRC that it is abandoning all rights under this Permit, and in addition, has removed any personal property from the Permit Area and restored it pursuant to paragraph 11 of this Permit.

5. Assignment: This Permit is personal to Permittee and may not be assigned or transferred in any manner, including by operation of law, without prior written consent of ARRC. Any attempt to assign or transfer this Permit shall cause an immediate termination.

6. Permit Fee: As consideration for the use of the Permit Area, Permittee shall pay an annual fee of $15,824.00, payable monthly in advance in the amount of $1,318.67. Effective September 1, 2002, the annual fee shall be subject to increase based upon the increase in value, if any, of Permittee's adjacent lease property as disclosed by the appraisal to be performed pursuant to the terms of ARRC Contract No. 6392.

7. Release; Indemnification: Permittee shall release, indemnify, defend, and hold harmless ARRC from and against all claims, demands, liability, cost, expense, judgments and consensual settlements for loss of or damage to property, and for injury to or death of any person (including, but not limited to, the property and employees of each party hereto) when arising or resulting from:

(a) The use of the Permit Area by Permittee, its agents, employees, invitees, or licensees; or

(b) Breach of the provisions of this Permit by Permittee, whether or not caused or contributed to by any negligent act or omission, active, passive, or otherwise, of ARRC, its employees, agents, contractors, subcontractors, or their employees or agents, or any other person.

8. Insurance:

(a) Liability Insurance. During the entire Permit Term, and during any holdover thereafter, whether or not authorized by ARRC, Permittee shall keep in full force and effect a policy or policies of general liability insurance which includes bodily injury, property damage, and personal injury acceptable to ARRC with respect to the Permit Area and the business operated by Permittee in which the limits for each shall be not less than Two Million Dollars ($2,000,000) per occurrence and Four Million Dollars ($4,000,000) aggregate or such higher limits as ARRC may specify from time to time consistent with prudent business practice then prevailing in the State of Alaska; provided, however, that no such limit shall in any way limit Permittee's liability or be construed as a representation of sufficiency to fully protect ARRC or Permittee. The policy or policies purchased pursuant to this paragraph shall name both ARRC and Permittee as insureds, with respect to the Permit Area and the business operated by Permittee on the Permit Area.

(b) Policy Provisions. Each policy of comprehensive general liability insurance described in paragraph 8(a) of this Permit shall:

(i) Provide that the liability of the insurer thereunder shall not be affected by, and that the insurer shall not claim, any right of setoff, counterclaim, apportionment, proration, or contribution by reason of any other insurance obtained by or for ARRC, Permittee, or any person claiming by, through, or under any of them.

(ii) Provide that such policy requires thirty (30) days notice to ARRC of any proposed cancellation, expiration, or change in material terms thereof and that such policy may not be canceled, whether or not requested by Permittee, unless the insurer first gives not less than thirty (30) days' prior written notice thereof to ARRC.

(iii) Contain a waiver by the insurer of any right of subrogation to proceed against ARRC or against any person claiming by, through, or under ARRC.

(c) Proof of Insurance. Permittee shall deliver to ARRC certificates of insurance on or before the effective date of this Permit or at another date as agreed to in writing by ARRC. Additionally, Permittee shall deliver to ARRC photocopies of the policy or policies of insurance, certificates of insurance, or copies of endorsements as requested by the ARRC from time to time.

9. Default and Remedies:

(a) Default. The occurrence of any one or more of the following events shall constitute a material default by Permittee.

(i) The failure by Permittee to make any payments required to be made by Permittee hereunder, as and when due, where such failure shall continue for a period of five (5) days after written notice thereof from ARRC to Permittee;

(ii) Except as otherwise provided in this Permit, the failure by Permittee to observe or perform any of the covenants, conditions or provisions of this Permit to be observed or performed by Permittee, other than described in paragraph 9(a)(i) above, where such failure shall continue for a period of ten (10) days after written notice thereof from ARRC to Permittee;

(iii) The occurrence of any of the following:

(a) the making by Permittee of any general arrangement or general assignment for the benefit of creditors;

(b) Permittee becomes a debtor in bankruptcy;

(c) the appointment of a trustee or receiver to take possession of substantially all of Permittee's assets;

(d) the attachment, execution or other judicial seizure of substantially all of Permittee's assets;

(iv) The discovery by ARRC that any financial statement given to ARRC by Permittee, any assignee of Permittee, any successor in interest of Permittee or any guarantor of Permittee's obligation hereunder, was materially false at the time given; or

(v) Vacation or abandonment of the Permit Area by Permittee.

(b) Remedies. In the event of any material default by Permittee, ARRC may at any time thereafter, without notice or demand and without limiting ARRC in the exercise of any right or remedy, which ARRC may have by reason of such default:

(i) Terminate Permittee's rights under this Permit and ARRC may pursue other remedies.

(ii) Maintain Permittee's rights under this Permit in which case this Permit shall continue in effect. In such event ARRC shall be entitled to enforce all of ARRC's

rights and remedies under this Permit, including the right to recover the payments due hereunder.

(iii) Pursue any other remedy now or hereafter available to ARRC under the laws or judicial decisions of the State of Alaska.

(c) Late Charges; Interest. If any payment due from Permittee shall not be received by ARRC when such amount shall be due, then, without any requirement for notice to Permittee, Permittee shall pay to ARRC all charges and interest as set forth in ARRC's credit policy. This late charge does not waive, excuse or cure any default.

10. Observance of Laws; Environmental Provisions.

(a) General Compliance. Permittee, at all times during the Permit Term, at its own expense, and with all due diligence, shall observe and comply with all laws, ordinances, rules, and regulations which are now in effect or may later be adopted by any governmental authority, including the Alaska Railroad Corporation, and which may be applicable to the Permit Area or any use of it by Permittee.

(b) Environmental Laws. In furtherance and not in limitation of the foregoing paragraph, Permittee must, at its own expense, comply with all laws, ordinances, regulations and administrative agency or court orders relating to health, safety, noise, environmental protection, waste disposal, hazardous or toxic materials, and water and air quality related to Permittee's use of the Permit Area. In the event any discharge, leakage, spillage, emission or pollution of any type occurs upon or from the Permit Area during the Permit Term or any holdover thereafter, Permittee shall immediately notify ARRC and shall, at Permittee's own expense, clean and restore the Permit Area to the satisfaction of ARRC and any governmental body or court having jurisdiction of the matter.

(c) Hazardous Materials on the Permit Area. Permittee shall not cause or permit any Hazardous Material to be brought upon, kept or used in or about the Permit Area by Permittee, its agents, employees, contractors or invitees without the prior written consent of ARRC, which ARRC shall not unreasonably withhold as long as Permittee demonstrates to ARRC's reasonable satisfaction that such Hazardous Material is necessary or useful to Permittee's business and will be used, kept and stored in a manner that complies with all laws regulating any such Hazardous Materials so brought upon or used or kept in or about the Permit Area.

(d) Disclosure. At the beginning of this Permit and on January 1 of each year thereafter and including January 1 of the year after termination of this Permit, Permittee shall disclose to ARRC the names and amounts of all Hazardous Materials or any combination thereof which were stored, used or disposed of on the Permit Area, or which Permittee intends to store, use or dispose of on the Permit Area.

(e) Environmental Indemnity. Permittee agrees to indemnify, hold harmless and defend ARRC against all liability, cost and expense (including, without limitation, any fines, penalties, diminution in value of the Permit Area, assessment and clean-up costs, judgments, litigation costs and attorneys' fees) incurred by or levied against ARRC as a result of Permittee's breach of this paragraph 10 or as a result of any discharge, leakage, spillage, emission or pollution of or by a Hazardous Material by Permittee, its agents, invitees or employees, on or from the Permit Area, without regard to whether such liability, cost or expense arises during or after the Permit Term. The foregoing indemnity shall survive the expiration or earlier termination of this Permit.

(f) "Hazardous Material". For purposes of this Permit, the term "Hazardous Material" means any hazardous or toxic substances, material or waste, including but not limited to those substances, materials and wastes listed in the U.S. Department of Transportation Hazardous Materials Table (49 CFR § 172.101) or by the U.S. Environmental Protection Agency as hazardous substances (40 CFR Part 302), and amendments thereto, or such substances, materials and wastes that are or become similarly regulated under any applicable local, state or federal law.

(g) Environmental Testing. ARRC may, upon the expiration or termination of this Permit, conduct environmental testing of the Permit Area to determine if there is any environmental impairment for which Permittee is responsible under this paragraph 10. Permittee shall be responsible for all costs and expenses associated with such tests if such impairment is discovered and the parties agree or a court of competent jurisdiction determines that the impairment resulted from a breach by Permittee of its obligations under this Permit. Payments from Permittee under this subparagraph shall be due within ten (10) days of the rendering of a bill to Permittee therefor, and shall bear interest at the rate of ten and one-half percent (10-1/2%) per annum.

11. Restoration of Permit Area on Termination: Upon the expiration or termination of this Permit, the Permittee shall remove from and off the Permit Area, all property owned or controlled by Permittee and restore the Permit Area to a condition satisfactory to ARRC; and, upon failure so to do, ARRC may perform such work at Permittee's expense. Until said property is removed and the Permit Area restored, either by Permittee or by ARRC at Permittee's expense, this Permit, with all terms contained herein, including the payment of consideration under paragraph 6, shall, at ARRC's option, remain in effect until said property is removed and Permit Area restored.

12. No Warranties: ARRC does not warrant or represent that the Permit Area is safe, healthful or suitable for the purpose for which it is to be used under this Permit. Absence of markers does not constitute a warranty by ARRC of no subsurface installations.

13. Taxes, Assessments and Charges: If at any time during the Permit Term any new or additional taxes (other than federal or state net income taxes or any other taxes existing on the effective date hereof) are assessed against the Permit Area, or any improvement thereon, or any rents payable to ARRC under this Permit, or against

ARRC with respect thereto, Permittee shall pay to the taxing authority or ARRC, not less than ten (10) days before they become delinquent and as additional rents, all of such new taxes.

14. Miscellaneous:

(a) The captions of paragraphs in this Permit are for convenience of reference only and shall not be used in the construction of any term hereof.

(b) The terms of this Permit shall inure to the benefit of any successor or assign of ARRC, and, subject to the provisions of paragraph 5, to the successors and assigns of Permittee.

(c) This Permit represents the entire agreement of the parties with respect to the subject matter hereof, and it may not be modified except by an agreement in writing signed by both parties.

(d) Time is of the essence with respect to any obligations to be performed under this Permit.

(e) **Special Conditions**. Permittee acknowledges and agrees that the Permit Area is subject to certain restrictions of record relating to the Standard Steel Superfund Site as more specifically set forth in that certain "Declaration of Restrictive Covenants and Notice of Remedial Action" recorded on April 24, 1998, at Book 3235, Pages 547-552, Records of the Anchorage Recording District, Third Judicial District, State of Alaska. A true and complete copy of said Declaration is attached to this Permit.

ALASKA RAILROAD CORPORATION

Dated: 2/22/02

By: Karen J. Morrissey
Karen J. Morrissey
Director, Real Estate

R.J.H., dba STEELFAB

Dated: February 13, 2002

By: Richard Faulkner
Richard Faulkner
Its: President

DECLARATION OF RESTRICTIVE COVENANTS AND NOTICE OF REMEDIAL ACTION

This Declaration of Restrictive Covenants and Notice of Remedial Action ("Deed Restrictions") is made this 23rd day of April, 1998 pursuant to, and in consideration for, the terms of the prior consent agreements and the Record of Decision ("ROD") pertaining to the Standard Steel Superfund Site ("Site") issued by the U.S. Environmental Protection Agency ("EPA") on July 16, 1996.

1. Grantor. These Deed Restrictions are granted by the Alaska Railroad Corporation and are binding upon its successors and assigns (collectively "Grantor") with respect to a parcel of land located in Anchorage, Alaska, more particularly described on Attachment "A" attached to and for all purposes made a part of these Deed Restrictions (the "Property").

2. Purpose. It is the purpose of these Deed Restrictions to implement the Institutional Controls required by the ROD to notify all successors-in-interest or other persons of the land and water use and access restrictions that apply to the Property to assure the Property will be used only for purposes which are compatible with the Remedial Action and the RD/RA Consent Decree entered into by Grantor, the United States, and other parties, and entered by the U.S. District Court of the District of Alaska on January 26, 1998, in the matter of U.S. v. Alaska Railroad Corporation, et al., A91-0589-CV (JWS), and to ensure that the Property will not be used in a manner that will pose a threat to human health or the environment.

3. Servitude in Perpetuity. The covenants, terms, conditions and restrictions of these Deed Restrictions shall be binding upon and inure to the benefit of the Alaska Railroad Corporation, its successors and assigns, any grantee, and their successors and assigns, and shall continue as a legal and equitable servitude running in perpetuity with the Property.

4. **Notice of Remedial Action. THIS PROPERTY IS PART OF THE STANDARD STEEL AND METALS SALVAGE YARD SUPERFUND SITE, WHICH THE EPA, PURSUANT TO SECTION 105 OF THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT ("CERCLA"), 42 U.S.C. §9605, PLACED ON THE NATIONAL PRIORITIES LIST, SET FORTH AT 40 C.F.R. PART 300, APPENDIX B, BY PUBLICATION IN THE FEDERAL REGISTER ON AUGUST 30, 1990. 55 FED. REG. 35502. IN THE RECORD OF DECISION FOR THE SITE DATED JULY 16, 1996, THE EPA REGION 10 REGIONAL ADMINISTRATOR SELECTED A "REMEDIAL ACTION" FOR THE SITE, WHICH PROVIDES, IN PART, FOR IMPLEMENTATION OF INSTITUTIONAL CONTROLS LIMITING FUTURE LAND USES OF THE SITE, PREVENTING GROUNDWATER USE AND LIMITING SITE ACCESS. ANY INTEREST IN THE PROPERTY CONVEYED OR ACQUIRED IS SUBJECT TO THE RESTRICTIVE COVENANTS CONTAINED IN THIS DECLARATION.**

5. Restriction on Use. The following restrictions apply to the use of the Property, run with the land and are binding upon any grantee.

(i) no residential use or activity shall be permitted on the Property, and no commercial use or activity shall be permitted if it involves potential chronic exposures of children to soil (e.g., use of the Property for a day care center);

(ii) no use or activity on the Property shall be permitted that will disturb any of the remedial measures that have been implemented pursuant to the Consent Decree referred to in Paragraph 2 above or that could potentially impair the integrity of the landfill in which contaminated soils and solidified soils have been disposed; and

(iii) except as necessary to perform the Remedial Action, no use or activity on the Property shall disturb the surface or subsurface of the land by filling, drilling, excavation, or removal of topsoil, rock or minerals which could move soil containing greater than 1,000 mg/kg lead or 10 mg/kg polychlorinated biphenyl ("PCB") to the surface or within the top foot of soil where chronic long-term worker exposures could occur;

(iv) groundwater underlying the Property shall not be consumed or used in any way except for the limited purpose of monitoring groundwater contamination levels. Groundwater wells and facilities installed for such purpose shall only be installed pursuant to a plan approved by EPA;

(v) access to the Toxics Substances Control Act landfill by the general public shall be prohibited, and access by long- or short-term workers shall be restricted in compliance with 40 C.F.R. §761.75(b)(9)(i), through maintenance of a six-foot woven mesh fence, wall, or similar device. If the solidified soil mass is capped or designed and used as a building foundation or parking lot, EPA may waive this requirement upon a written request which shall include long-term maintenance of such cap, building foundation or parking lot in accordance with the approved O & M Plan. Unrestricted access by the general public to those areas of the Site where surface contamination of 1 mg/kg PCB or greater remains after all excavation, treatment,

and disposal is complete shall be prohibited through maintenance of a six-foot fence, cap, parking lot or similar structure approved by EPA; and

(vi) during remedial design and construction of the remedial action, the public, including long- and short-term workers, other than authorized representatives of EPA, the State, and Settling Defendants and Owner Settling Defendant, shall only have access to areas in or around the Site that are not affected by soil contamination.

6. Reservation When Conveying an Interest. Any instrument conveying an interest in any portion of the Property, including but not limited to deeds, leases and mortgages, must include language that is in substantially the same form as Appendices F or G of the above-referenced RD/RA Consent Decree. Within thirty (30) days of the date any such instrument of conveyance is executed, the grantor of such instrument must provide grantee with a certified true copy of said instrument and its recording reference.

7. Administrative Jurisdiction. The federal agency having administrative jurisdiction over the instrument on behalf of the United States is the EPA. The Regional Administrator of EPA Region 10 shall exercise the rights granted to the United States herein. If the United States assigns its rights created by this Declaration, unless it provides otherwise in any such assignment document, the rights referred to in this paragraph shall also be assigned.

8. Enforcement. The grantor shall be entitled to enforce the terms of these Deed Restrictions by resort to specific performance or legal process. All remedies available hereunder shall be in addition to any and all other remedies at law or in equity.

9. Third Party Beneficiary. Any grantor and grantee of an interest in the Property must agree that the EPA and the Settling Defendants in the above-referenced RD/RA Consent Decree shall be third party beneficiaries of all the benefits and rights reserved and retained by the Grantor in this Declaration and as contained in Appendices F and G of said RD/RA Consent Decree.

10. No Forfeiture. Nothing contained herein will result in a forfeiture or revision of Grantor's title in any respect.

11. Defined Terms. Words or terms used in this Declaration with the first letter capitalized are defined either in this document or in the RD/RA Consent Decree described in Paragraph 2.

ALASKA RAILROAD CORPORATION

By: _____
William J. Sheffield
President and Chief Executive Officer

STATE OF ALASKA)
) ss.
THIRD JUDICIAL DISTRICT)

The foregoing instrument was acknowledged before me this 23rd day of April, 1998, by William J. Sheffield, President and Chief Executive Officer, of the Alaska Railroad Corporation, a public corporation created by Alaska Statute 42.40, on behalf of the corporation.

_____
Notary Public in and for Alaska
My Commission Expires: 11/28/99

arrc/u/legal.appendix

JULIE A. BLACK
NOTARY PUBLIC
STATE OF ALASKA

PLEASE RETURN TO:

Alaska Railroad Corporation
Legal Department
P.O. Box 107500
Anchorage, Alaska 99501-7500

ATTACHMENT "A"

LEGAL DESCRIPTION

STANDARD STEEL SITE

A parcel of land located within the Alaska Railroad Anchorage Terminal Reserve, situated in the Anchorage Recording District, Third Judicial District, State of Alaska, including Lots 53 through 58-A of the Alaska Railroad Corporation Post Road Industrial Lease Lots and more particularly described as follows:

Beginning at the northwesterly corner of Lot 53; thence S 32° 30' 30" E a distance of 510.00 feet; thence along Ship Creek Meanders as follows:

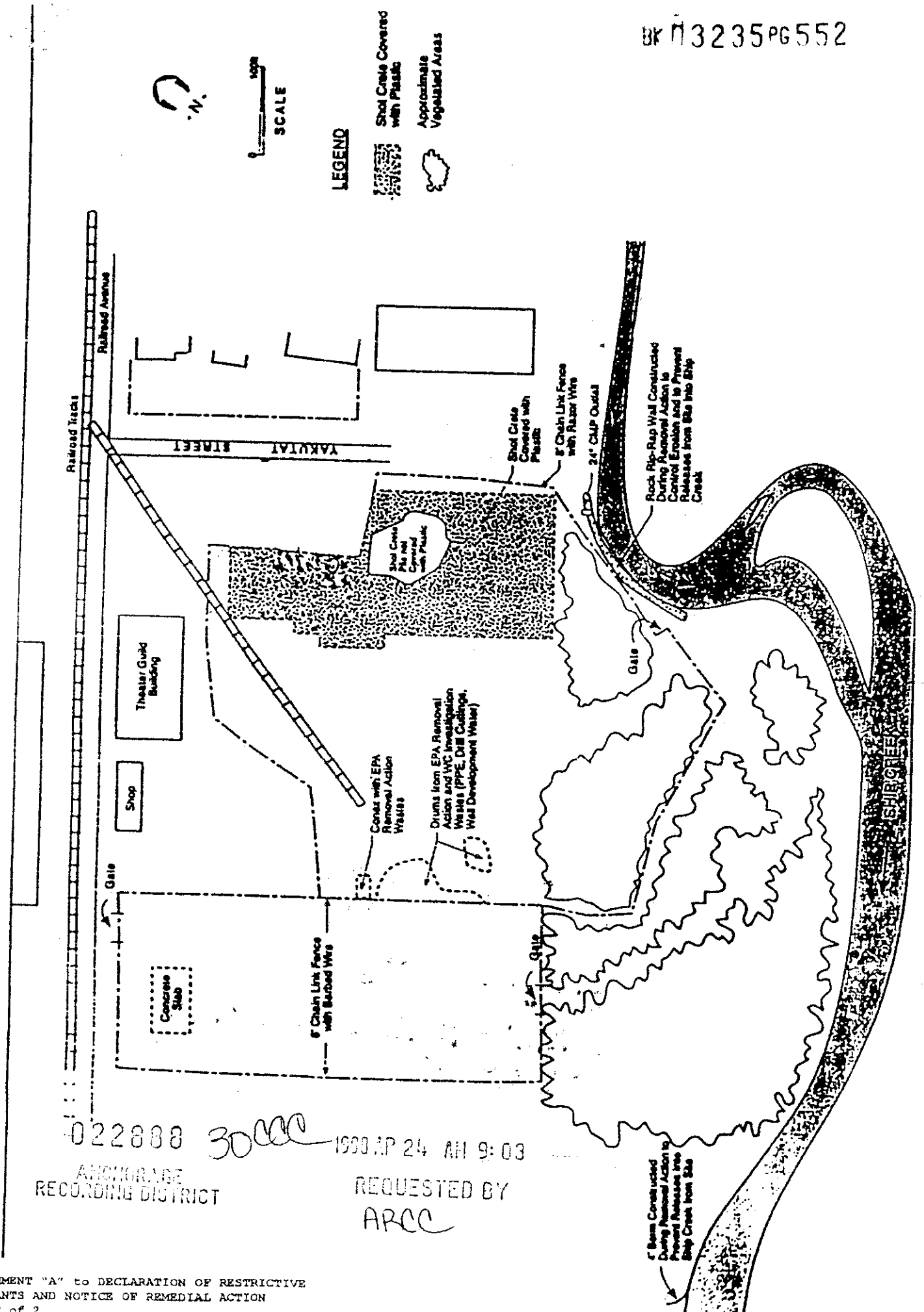
> S 41° 15' 25" W, 54.09'; S 19° 09' 22" W, 57.22 feet; S 4° 01' 53" E, 96.37 feet; S 45° 50' 52" E, 32.76 feet; S 4° 05' 54" W, 34.49 feet, S 23° 05' 08" W, 85.10 feet; S 49° 36' 47" W, 246.17'; S 71° 18' 37" W, 203.76';

thence N 34° 46' 19" W a distance of 277.99 feet; thence N 32° 32' 30" W a distance of 459.88 feet, thence N 57° 27' 30" E a distance of 678.95 feet to the point of beginning.

Containing an area of 484,428 square feet or 11.12 acres more or less, as shown on the attached drawing. In the event of any inconsistency between the attached drawing and the foregoing legal description, the latter shall govern for purposes of this Declaration of Restrictive Covenants and Notice of Remedial Action.

arrc/u/legal/ss.des

BK 3235 PG 552



022888 30 CC 1998 AP 24 AM 9:03

ANCHORAGE
RECORDING DISTRICT

REQUESTED BY
ARCC

ACHMENT "A" to DECLARATION OF RESTRICTIVE
ENANTS AND NOTICE OF REMEDIAL ACTION
e 2 of 2

ALASKA RAILROAD CORPORATION

Corporate Address: P.O. Box 107500, Anchorage, Alaska 99510
327 West Ship Creek Avenue, Anchorage, Alaska 99501
www.alaskarailroad.com

Supplement No. 1 to
ARRC Contract No. 8319

SUPPLEMENT

THIS SUPPLEMENT is made on the day executed by the last signatory hereto, by and between the **ALASKA RAILROAD CORPORATION** ("ARRC"), a public corporation created pursuant to AS 42.40, whose mailing address is P.O. Box 107500, Anchorage, Alaska 99510-7500, and **R.J.H., dba Steelfab** ("Permittee"), whose mailing address is 2132 Railroad Avenue, Anchorage, Alaska 99501.

Recitals

A. The ARRC is the permittor of real property located in the Anchorage Recording District, Third Judicial District, State of Alaska under that certain special land use permit dated February 22, 2002, ARRC Contract No. 8319 (the "Permit").

B. It is the desire of the parties to supplement the permit as mutually agreed.

Agreement

NOW, THEREFORE, in consideration of the foregoing and other good and valuable consideration, the parties agree that the Permit be amended as follows:

I. Paragraph 4, page 2 of the Permit is hereby deleted in its entirety and the following shall be inserted in place thereof.

4. Term: This Permit shall be for a term of two (2) years, commencing February 1, 2002 and ending January 31, 2004, provided that ARRC shall have the absolute right to terminate this Permit at any time, without cause, upon thirty (30) days written notice to Permittee. Any continued use of the Permit Area by Permittee after the expiration of the original term, absent prior ARRC approval, shall be under the same terms and conditions as this Permit. Permittee may abandon the Permit Area and give up all rights under this Permit at any time, however, Permittee's obligation to pay an annual fee, and any other affirmative obligations of Permittee under this Permit, will continue until Permittee has given written notification to ARRC that it is abandoning all rights

under this Permit, and in addition, has removed any personal property from the Permit Area and restored it pursuant to paragraph 11 of this Permit.

II. Paragraph 6, page 2 of the Permit is hereby deleted in its entirety and the following shall be inserted in place thereof.

6. Permit Fee: As consideration for the use of the Permit Area, effective May 1, 2003, Permittee shall pay an annual fee of Seventeen Thousand, Nine Hundred Forty-Four and 61/100 Dollars ($17,94~~1~~4.61) payable monthly in advance in the amount of $1,495.38.

EXCEPT AS AMENDED by the foregoing, the Permit as it may have been previously amended by supplements shall continue in full force and effect.

IN WITNESS WHEREOF, the parties hereto have executed this Supplement as of the dates set out below.

ALASKA RAILROAD CORPORATION

Dated: 5/27/03

By: Karen J. Morrissey
Karen J. Morrissey
Director, Real Estate

R.J.H., dba Steelfab

Dated: May 21, 2003

By: [illegible]
Its: President

ALASKA RAILROAD CORPORATION

Corporate Address: P.O. Box 107500, Anchorage, Alaska 99510
327 West Ship Creek Avenue, Anchorage, Alaska 99501
www.alaskarailroad.com

Supplement No. 2 to
ARRC Contract No. 8319

SUPPLEMENT

THIS SUPPLEMENT is made on the day executed by the last signatory hereto, by and between the Alaska Railroad Corporation ("ARRC") ("Permittor"), a public corporation created pursuant to AS 42.40, whose mailing address is P.O. Box 107500, Anchorage, Alaska 99510-7500, and R.J.H. dba Steelfab ("Permittee"), whose address is 2132 Railroad Avenue, Anchorage, Alaska 99501.

RECITALS

I. The ARRC, as Permittor, under that certain Special Land Use Permit dated February 22, 2002, ARRC Contract No. 8319 (the "Permit"), did grant to Permittee a non-exclusive revocable Permit to occupy and use Lot 58-A of the ARRC Post Road Industrial Lease Lots, located within the ARRC Anchorage Reserve containing approximately 92,000 square feet, as further described therein.

II. Permittee is the permittee under the Permit, or the successor in interest to such permittee.

III. The Permit was amended by Supplement No. 1 dated May 27, 2003.

IV. The permit expired on January 31, 2004 and it is the desire of both parties to extend the term of the permit for an additional period of time, but only on the terms and conditions hereafter set forth.

AGREEMENT

NOW, THEREFORE, in consideration of the foregoing and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties agree that the Permit, is hereby amended as follows:

1. Paragraph 4, Term, is hereby amended to extend the term for an additional one (1) year, namely February 1, 2004 through January 31, 2005.

EXCEPT AS HEREIN AMENDED, all other terms and conditions of the aforesaid Permit shall continue in full force and effect.

ALASKA RAILROAD CORPORATION

Dated: 3/22/04

By: Karen J. Morrissey
Karen J. Morrissey
Director, Real Estate

R.J.H. DBA STEELFAB

Dated: 3-18-04

By:

Its: President

ATTACHMENT 13

Municipality of Anchorage
Public Parcel Inquiry Report
Parcels 53 though 59

[This page intentionally left blank]

''''''

Property Appraisal
Municipality of Anchorage, Alaska

Public Inquiry Parcel Details

Show Parcel on Map

PARCEL: 004-011-31-001 01/01 Commercial Warehouse 12/11/07

K & T ENTERPRISES
1817 Parkside Dr
Anchorage AK 99501 Site

ARR 7085
LT 53 THRU 57 & PAR A PTN
POST ROAD IND
ARR LSE

Lot Size:	182,993	---Date Changed---		----Deed Changed----	
Zone :	I2	Owner :	02/13/96	Stateid:	2875 0000619
Tax Dist:	001	Address:	07/11/07	Date :	01/08/96
Grid :	SW1134	Hra # :		Plat :	
GRW: PIWC				REF #:	11/13/98 004-011-54-001

ASSESSMENT HISTORY

	---Land--	--Building-	---Total---	
Appraised Val 2005:	335,300	185,000	520,300	
Appraised Val 2006:	565,200	233,900	799,100	--Exemption---
Appraised Val 2007:	667,400	232,900	900,300	-----Type-----
Exempt Value 2007:	0	0	0	
State Credit 2007:			0	
Resid Credit 2007:			0	
Taxable Value 2007:			900,300	

Liv Units: 000 Common Area: Leasehold: Y Insp Dt: 06/05 Land Only
08/99 Exterior
10/05 Quick Reinv

BUILDING DATA

Name: BENSON TRUCKING Bldg Area: 9,470 Eff Yr: 1968 Ident
Bldg Use : Warehouse Grade : Average M # Units: 001 Units: 1

INTERIOR FEATURES

Floor Level	Size Area:	Use Type:	Wall Hgt :	Wall Material:	Constrct Type:	Heat Type:	Air Con	Phys Cond:	Funct Utilt
01/01	8,540	Warehouse	20	Light Metal	Light Steel	Unit Heat	0	Fair	Fair
E1/E1	930	Multi-Use	09	Enclosures		Hot Water	0	Normal	Normal

M1/M1	930 Multi-Use	09	Enclosures		Hot Water	0 Normal	Normal

OTHER BUILDING AND YARD IMPROVEMENTS

Yard Structure:	Size/Amt:	Units:	Yr/Blt:	Condition:	Funct/Util:
Chain Link Fence	300	01	65	Fair	Fair

BUILDING OTHER FEATURES-ATTACHED IMPROVEMENTS

Qty:	Structure Code:	Size1:	Size2:	Qty:	Structure Code:	Size1:	Size2:
1	Canopy Only	1	1,330				
1	Dock Level Floo	1	9,870				
3	Ov'hd Dr Wood/M	1	192				

Feedback E-mail: wwfipa@muni.org

Contact Us | Disclaimer | Privacy Statement | (c) 2002 MOA IT e-Gov

''''''

Property Appraisal
Municipality of Anchorage, Alaska

Public Inquiry Parcel Details

Show Parcel on Map

PARCEL: 004-011-58-000 01/01 Commercial Warehouse 12/31/07

ARR ARR ANCHORAGE TERMINAL RESERVE
LT 53
POST ROAD INDUSTRIAL LEASE LOT
POuch 7-2111
Anchorage AK 99510 Site

Lot Size:	20,000	---Date Changed---		----Deed Changed----	
Zone :	I2	Owner :	11/13/98	Stateid:	0000 0000000
Tax Dist:	001	Address:	/ /	Date :	00/00/00
Grid :	SW1134	Hra # :		Plat :	
GRW: PIWC				REF #:	11/13/98 004-011-31-000

ASSESSMENT HISTORY

	---Land--	--Building-	---Total---	
Appraised Val 2005:	0	0	0	
Appraised Val 2006:	0	0	0	--Exemption---
Appraised Val 2007:	0	0	0	-----Type-----
Exempt Value 2007:	0	0	0	State
State Credit 2007:			0	
Resid Credit 2007:			0	
Taxable Value 2007:			0	

Liv Units: 000 Common Area: Leasehold: Y Insp Dt: 08/88 Land Only
03/97 Interior
/

''''''

Property Appraisal
Municipality of Anchorage, Alaska

Public Inquiry Parcel Details

Show Parcel on Map

PARCEL: 004-011-59-000 01/01 Commercial Warehouse 12/31/07

ARR ARR ANCHORAGE TERMINAL RESERVE
LT 54
POST ROAD INDUSTRIAL LEASE LOT
POuch 7-2111
Anchorage AK 99510 Site 2400 Railroad Ave

Lot Size:	20,000	---Date Changed---		----Deed Changed----	
Zone :	I2	Owner :	11/13/98	Stateid:	0000 0000000
Tax Dist:	001	Address:	/ /	Date :	00/00/00
Grid :	SW1134	Hra # :		Plat :	
GRW: PIWC				REF #:	11/13/98 004-011-31-000

ASSESSMENT HISTORY

	---Land--	--Building-	---Total---	
Appraised Val 2005:	0	0	0	
Appraised Val 2006:	0	0	0	--Exemption---
Appraised Val 2007:	0	0	0	-----Type-----
Exempt Value 2007:	0	0	0	State
State Credit 2007:			0	
Resid Credit 2007:			0	
Taxable Value 2007:			0	

Liv Units: 000 Common Area: Leasehold: Y Insp Dt: 08/88 Land Only
03/97 Interior
/

''''''

Property Appraisal
Municipality of Anchorage, Alaska

Public Inquiry Parcel Details

Show Parcel on Map

PARCEL: 004-011-60-000 01/01 Commercial Warehouse 12/31/07

ARR
ARR ANCHORAGE TERMINAL RESERVE
LT 55
POST ROAD INDUSTRIAL LEASE LOT
POuch 7-2111
Anchorage AK 99510 Site 2346 Railroad Ave

Lot Size:	20,000	---Date Changed---		----Deed Changed----	
Zone :	I2	Owner :	11/13/98	Stateid:	0000 0000000
Tax Dist:	001	Address:	/ /	Date :	00/00/00
Grid :	SW1134	Hra # :		Plat :	
GRW: PIWC				REF #:	11/13/98 004-011-31-000

ASSESSMENT HISTORY

	---Land--	--Building-	---Total---	
Appraised Val 2005:	0	0	0	
Appraised Val 2006:	0	0	0	--Exemption---
Appraised Val 2007:	0	0	0	-----Type-----
Exempt Value 2007:	0	0	0	State
State Credit 2007:			0	
Resid Credit 2007:			0	
Taxable Value 2007:			0	

Liv Units: 000 Common Area: Leasehold: Y Insp Dt: 08/88 Land Only
03/97 Interior
/

''''''

Property Appraisal
Municipality of Anchorage, Alaska

Public Inquiry Parcel Details

Show Parcel on Map

PARCEL: 004-011-61-000 01/01 Commercial Warehouse 12/31/07

ARR
ARR ANCHORAGE TERMINAL RESERVE
LT 56
POST ROAD INDUSTRIAL LEASE LOT
POuch 7-2111
Anchorage AK 99510 Site 2346 Railroad Ave

Lot Size:	20,000	---Date Changed---		----Deed Changed----	
Zone :	I2	Owner :	11/13/98	Stateid:	0000 0000000
Tax Dist:	001	Address:	/ /	Date :	00/00/00
Grid :	SW1134	Hra # :		Plat :	
GRW: PIWC				REF #:	11/13/98 004-011-31-000

ASSESSMENT HISTORY

	---Land--	--Building-	---Total---	
Appraised Val 2005:	0	0	0	
Appraised Val 2006:	0	0	0	--Exemption---
Appraised Val 2007:	0	0	0	-----Type-----
Exempt Value 2007:	0	0	0	State
State Credit 2007:			0	
Resid Credit 2007:			0	
Taxable Value 2007:			0	

Liv Units: 000 Common Area: Leasehold: Y Insp Dt: 08/88 Land Only
03/97 Interior
/

''''''

Property Appraisal
Municipality of Anchorage, Alaska

Public Inquiry Parcel Details

Show Parcel on Map

PARCEL: 004-011-54-000 01/01 Commercial Warehouse 12/31/07

ARR
ARR ANCHORAGE TERMINAL RESERVE
LT 57
POST ROAD INDUSTRIAL LEASE LOT
POuch 7-2111
Anchorage AK 99510 Site 2300 Railroad Ave

Lot Size:	16,400	---Date Changed---		----Deed Changed----	
Zone :	I2	Owner :	11/13/98	Stateid:	0000 0000000
Tax Dist:	001	Address:	/ /	Date :	00/00/00
Grid :	SW1134	Hra # :		Plat :	
GRW: PIWC				REF #:	11/13/98 004-011-31-000

ASSESSMENT HISTORY

	---Land--	--Building-	---Total---	
Appraised Val 2005:	0	0	0	
Appraised Val 2006:	0	0	0	--Exemption---
Appraised Val 2007:	0	0	0	-----Type-----
Exempt Value 2007:	0	0	0	State
State Credit 2007:			0	
Resid Credit 2007:			0	
Taxable Value 2007:			0	

Liv Units: 000 Common Area: Leasehold: Y Insp Dt: 08/88 Land Only
03/97 Interior
/

''''''

Property Appraisal
Municipality of Anchorage, Alaska

Public Inquiry Parcel Details

Show Parcel on Map

PARCEL: 004-011-53-000 01/01 Commercial Warehouse 12/31/07

ARR
PO Box 7-2111
Anchorage AK 99510 Site

ARR ANCHORAGE TERMINAL RESERVE
LT 58
POST ROAD INDUSTRIAL LEASE LOT

Lot Size:	20,000	---Date Changed---		----Deed Changed----	
Zone :	I2	Owner :	11/13/98	Stateid:	0000 0000000
Tax Dist:	001	Address:	/ /	Date :	00/00/00
Grid :	SW1134	Hra # :		Plat :	
GRW: PIWC				REF #:	11/13/98 004-011-27-000

ASSESSMENT HISTORY

	---Land--	--Building-	---Total---	
Appraised Val 2005:	0	0	0	
Appraised Val 2006:	0	0	0	--Exemption---
Appraised Val 2007:	0	0	0	-----Type-----
Exempt Value 2007:	0	0	0	State
State Credit 2007:			0	
Resid Credit 2007:			0	
Taxable Value 2007:			0	

Liv Units: 000 Common Area: Leasehold: Insp Dt: 08/88 Land Only
01/94 Exterior
/

''''''

Property Appraisal
Municipality of Anchorage, Alaska

Public Inquiry Parcel Details

Show Parcel on Map

PARCEL: 004-022-07-000 01/01 Commercial Manufacturing/Proc 12/31/07

ARR
PO Box 107500
Anchorage AK 99510 Site

ARR ANCHORAGE TERMINAL RESERVE
LT 59
POST ROAD INDUSTRIAL LEASE LOT

Lot Size:	20,000	---Date Changed---		----Deed Changed----	
Zone :	I2	Owner :	11/12/98	Stateid:	0000 0000000
Tax Dist:	001	Address:	/ /	Date :	00/00/00
Grid :	SW1134	Hra # :		Plat :	
GRW: PIWC				REF #:	11/12/98 003-041-36-000

ASSESSMENT HISTORY

	---Land--	--Building-	---Total---	
Appraised Val 2005:	0	0	0	
Appraised Val 2006:	0	0	0	--Exemption---
Appraised Val 2007:	0	0	0	-----Type-----
Exempt Value 2007:	0	0	0	State
State Credit 2007:			0	
Resid Credit 2007:			0	
Taxable Value 2007:			0	

Liv Units: Common Area: Leasehold: Y Insp Dt: 08/88 Land Only
01/98 Exterior
/

ATTACHMENT 14

Operations and Maintenance Plan (Revised)
ALTA Geosciences, July 2000

(provided electronically on CDROM)

[This page intentionally left blank]

ALTA GEOSCIENCES, Inc.

Environmental & Geotechnical Solutions

OPERATIONS AND MAINTENANCE PLAN (REVISED)

REMEDIAL DESIGN/REMEDIAL ACTION STANDARD STEEL AND METALS SALVAGE YARD SUPERFUND SITE

Prepared For:

Standard Steel RD/RA PRP Group

July 2000

11711 Northcreek Parkway S., Suite 101
Bothell, Washington 98011-8224

Phone (425) 485-1053
Fax (425) 486-7651

ALTA GEOSCIENCES, Inc.

TABLE OF CONTENTS

Section		Page
1.0	**INTRODUCTION**	**1-1**
	1.1 Purpose and Scope of Plan	1-1
	1.2 Project Description and Location	1-1
2.0	**OPERATION AND MAINTENANCE REQUIREMENTS**	**2-1**
	2.1 Purpose of O&M Requirements	2-1
	2.2 Operating Limitations	2-1
	2.3 Maintenance Requirements	2-4
	2.4 Schedule	2-5
	2.5 Health and Safety Considerations	2-5
	2.6 Responsibility	2-5
	2.7 Contingency Measures	2-5
	2.8 Groundwater Sampling And Analysis	2-6
3.0	**INSPECTION PROCEEDURES AND REPORTING REQUIREMENTS**	**3-1**
4.0	**REFERENCES**	**4-1**

FIGURES

1-1 Site Location Map
2-1 Consolidation Cell and Surrounding Area
2-2 Building Sites Outside Consolidation Cell

TABLES

2-1 Summary Of Guidelines And Limitations For Site Use
3-1 Operations & Maintenance Checklist

1.0 INTRODUCTION

This document was prepared by ALTA Geosciences, Inc. (ALTA) of Bothell, Washington, on behalf of the Standard Steel RD/RA PRP Group (PRP Group) consisting of (listed alphabetically): Chugach Electric Association, Inc.; J.C. Penny Company, Inc.; Montgomery Ward and Co.; Sears, Roebuck and Co., Inc.; and CBS Corporation (formerly Westinghouse Electric Corporation).

The PRP Group has assumed the responsibility for implementing the Consent Decree at the Site. A complete description of the Remedial Action Construction can be found in the *Completion Report - Remedial Action Construction* (ALTA, 1999). Information regarding the Remedial Design is contained in Preliminary Design Report and in the *Project Manual, Remedial Action Construction* (ALTA, December 1997).

1.1 PURPOSE AND SCOPE OF PLAN

The overall goal of the Remedial Action (RA) Design and Construction for the Site is to provide an effective mechanism for protecting human health and the environment from contaminated Site soils, while allowing future industrial and commercial use of the property (EPA, July 1996).

A specific goal of the Remedial Action Design was to formalize details of the design and prepare plans and other documents needed to undertake the RA Construction. The ***Operations and Maintenance Plan***, as part of the overall Remedial Action Design, presents a discussion of the features constructed during the Remedial Action and the maintenance, inspection, and monitoring requirements which apply to the Site in the post-RA Construction era.

The purpose of this Operations and Maintenance Plan is to help assure future protection of human health and the environment at this site.

1.2 PROJECT DESCRIPTION AND LOCATION

1.2.1 Location and Site Conditions. The Standard Steel and Metals Salvage Yard (Site) is approximately 6.2 acres in size, and is located in the northern portion of Anchorage, Alaska, near the intersections of Railroad Avenue and Yakutat Street (see Figure 1-1, Site Location Map). It is owned by the Federal Railroad Administration and is in the possession and control of the Alaska Railroad Corporation. Surrounding land use is primarily industrial. A warehouse is located on the north side of the Site, on the east there are warehouses, and light industrial facilities. To the west there is a steel fabrication facility. Ship Creek bounds the south side of the Site. During Superfund activities prior to the RA Construction in

1998, the Site was cleared of most scrap metal and debris formerly present. Cottonwood trees and small brush were present along Ship Creek, in the south portion of the Site and most of the main Site was a bare soil surface.

1.2.2 Description of the Remedial Action Construction. EPA selected a remedial action for the Site, and documented their selection in the Record Of Decision, Standard Steel And Metals Salvage Yard Superfund Site, Anchorage, Alaska (EPA, July 1996). The RA Construction for the selected remedy has included the following elements (this list is smaller than the total work required by the ROD):

- Excavation and consolidation of all soils exceeding the 10 mg/kg PCBs or exceeding 1000 mg/kg Lead cleanup level

- Excavation of soils exceeding 1.0 mg/kg PCBs or 500 mg/kg Lead from the Ship Creek floodplain and consolidation of these soils in a TSCA Cell

- Stabilization/solidification (S/S) treatment of all soils having contamination levels at or greater than 1000 mg/kg Lead or at or greater than 50 mg/kg PCBs, and subsequent consolidation of these materials in the TSCA Cell

In addition, the Remedial Design incorporated the following provisions which were more protective than strictly required by the ROD:

1. A geomembrane cover system was constructed on top of the stabilized portion of the consolidation cell, followed by a minimum of 3 feet of clean soil fill. The geomembrane is approximately 120,000 square feet in size.
2. Excavation and consolidation within the consolidation cell of all soils containing greater than 1 mg/kg PCBs from all affected areas to a depth of at least 3 feet.

Groundwater is about 6 to 12 feet below the pre-RA construction ground surface. Some soils removal excavations were below the groundwater level. The consolidation cell was constructed entirely above elevations which were 1 foot above the maximum groundwater elevation, as determined by data from the Remedial Investigation (Woodward Clyde Consultants, 1994) initially and verified during construction. An erosion control wall was constructed around the southerly side of the consolidation cell. Site restoration activities include placement of boulders in the floodplain area to reduce the potential for soil erosion adjacent to the consolidation cell, planting numerous trees and shrubs in the floodplain area, and hydroseeding disturbed ground to reduce future soil erosion. The top of the consolidation cell was left as a bare sand and gravel surface.

2.0 OPERATION AND MAINTENANCE REQUIREMENTS

2.1 PURPOSE OF O&M REQUIREMENTS

The purposes of Monitoring and Maintenance activities are the following:

- Assure continued protection of human health and the environment.
- Verify that no conditions exist which would result in an imminent hazard to human health or the environment from consolidated/treated soil which has been placed in the cell.
- Verify that construction components of the cell are intact and operating properly.
- Verify that no excessive erosion is occurring which could endanger the security of the consolidation cell and/or which might result in exposure or release of the consolidated/treated soil in the cell.
- Verify that no human activities have occurred or are occurring which could jeopardize the integrity of the consolidation cell.
- Perform any corrective actions necessary to ensure integrity of the cell.

General features of the consolidation cell and surrounding areas are shown on Figure 2-1.

2.2 OPERATING LIMITATIONS

A summary of guidelines and limitations for site use is shown on Table 2-1.

> *NOTE: The Remedial Action Design includes neither analyses nor recommendations for building foundations, floor slabs, utility lines and connections, surface paving, or other associated developments. Future Site development should include a proper geotechnical evaluation of the cell design criteria and construction records (Completion Report) by a qualified professional to assure adequate engineering for such developments.*

2.2.1 General Limitations

In general, operating limitations restrict any activities that would cause environmental or human exposure to consolidated or treated soils with in the TSCA cell. Also restricted are activities which might penetrate, expose, or either

chemically or physically damage the geomembrane cover system. These restrictions may be lifted or modified if appropriate engineering and environmental controls are provided and appropriate EPA approval has been obtained. Discharge of chemicals that would potentially be damaging to the geomembrane is prohibited within the cell area. Placement or storage of heavy objects over the geomembrane system is restricted. Heavy loads are defined as loads in excess of 2,000 pounds per square foot at the surface. Heavy dynamic loads are also not allowed, unless appropriate engineering studies have been performed that show that the geomembrane cover system will not be harmed by such activities. Repeated or constant application of water or other liquids to the ground surface within the cell, such that the liquids infiltrate to the subsurface, is not allowed. Open fires on the ground surface are prohibited. The sides of the cell cannot be paved or covered in such a way as to inhibit drainage discharge from the slope.

None of the above limitations is meant to prevent moving, parking, loading, or unloading of vehicles which are loaded to normal highway standards. However, the surface of the cell was not provided with a highway-rated wearing surface. If deep rutting occurs the practice should be discontinued until a suitable wearing surface is installed.

Operating limitations as stated above may be mitigated by engineering design, followed by construction of additional protective features (e.g., pavements or layers of crushed rock). Such modifications of constructed features on the Site require approval of the U.S. EPA, the Site Owner, and the PRP Group.

2.2.2 Building Sites With Minimal Limitations

Light industrial and commercial structures located on specific portions of the Site are compatible with the Remedial Action Design and Construction. Two specific areas are shown on Figure 2-2. These include:

1. The undeveloped area (approximately 200' x 400') located in the western portion of the Site. Aside from the southeast corner, which is crossed by a rock-lined drainage ditch, there are no restrictions on the development of the area, provided the consolidation cell or its drainage features are not impacted.
2. The area located adjacent to Yakutat Street, approximately 90 feet wide between the street and the consolidation cell, and extending approximately 300 feet from Railroad Avenue in a southern direction. This area provides utility access without crossing the consolidation cell and no restrictions on the depth of buried utilities or building foundations. Structures comparable to the existing onsite structure (located at north side of site) could be built entirely within this strip with no restrictions on excavations or construction technique, provided the consolidation cell or its drainage features are not impacted.

Additionally, that portion of the site located north of the consolidation cell between the cell and Railroad Avenue has no significant limitation on development, except for the necessity to provide for maintenance of the drainage ditch on the north side of the cell which collects surface runoff from the cell and directs it into the ditches on the east and west side of the cell.

2.2.3 Buildings On The Consolidation Cell

There are limitations on the construction of any structures placed on the consolidation cell, in order to avoid damage to the geomembrane cover system or environmental exposure to contaminated materials.

Utilities crossing the consolidation to buildings or beneath buildings should not penetrate the geomembrane cover system and must remain at least 1 foot above the top of this system unless specific engineering and health and safety provisions are adopted. These provisions are needed to protect the geomembrane cover system, provide for health and safety of site workers, and prevent exposure or offsite migration of contaminated soils. This makes the installation of heated or insulated utility corridors a likely feature of such developments.

Footings placed at least one foot above the geomembrane liner may be constructed without special construction techniques or considerations. This may require a slight increase in Site grade in these areas to allow for adequate footing burial depth. Footings should be sized for a maximum allowable load of 1,500 pounds per square foot to avoid undue stresses on the geomembrane.

Footings may be placed directly on the solidified soil beneath the geomembrane cover system. Such footings may be sized for a maximum allowable load of 3,000 pounds per square foot. Such construction will require the following special design and construction practices:

- All such developments must be designed and overseen by a qualified professional engineer who develops complete detailed drawings and specifications for the work, which must be approved by the U.S. EPA, Alaska Railroad Corporation, and the PRP Group.

- The drainage geocomposite and geomembrane should be carefully excavated and exposed.

- The drainage net and geomembrane should be carefully cut where footings are to be placed. The geomembrane should be cut so that sufficient material is available to fold up onto the formed footings.

- The geomembrane should be extended up onto the footing sides and secured using appropriately designed details. Any seams or tears should be sealed.

- Foam insulation board should be removed from the footing locations.

- Any construction below the geomembrane which may result in exposure to contaminants should be performed only by OSHA HAZWOPER trained site workers. A health and safety plan should be in effect.

2.2.4 Parking And Storage Uses

The entire site should be suitable for parking or storage, and loading or unloading of vehicles, provided suitable modifications are made for the intended use. The surface on the consolidation cell during the Remedial Action Construction is not intended to be highly durable and suitable for heavy vehicles or repeated traffic without additional layers of material being installed. Heavy use of the consolidation cell area without additional protective layers may result in damage to the geomembrane cover system or overlying cover soil. Safe use by heavy vehicles or for repeated traffic may require placement of additional surface materials such as crushed rock road base, and/or asphalt concrete paving. Paving the consolidation cell area will require provisions for storm runoff which may exceed the existing ditch capacity, since paving will result in increased peak surface runoff flows.

2.2.5 Surface Drainage

Future developments and operations on or around the consolidation cell must not create ponded water on the cell or interfere with surface water drainage. Snow must not be plowed into the drainage ditches, since this will interfere with their functioning during the Spring breakup. Parking vehicles or equipment in drainage ditches is prohibited. Storage of any type is prohibited in drainage ditches.

2.3 MAINTENANCE REQUIREMENTS

Inspections of all surface features of the TSCA cell are necessary.

- The erosion protection wall must be maintained; inspection should be required following any major flood event, with timely repair of any damage.

- The top surface and sides of the consolidation cell must be maintained free of deep-rooted plant species and any erosion or man-made excavations must be immediately backfilled with engineered fill. Side slopes of the consolidation cell should be inspected for slope failures or slumping following major earthquakes in the Anchorage area, and repairs should be initiated if damage is identified.

- Damage caused by erosion, excavations, or other activities that penetrate, tear, or otherwise compromise the integrity of the geomembrane cover system require professional maintenance/repair that exposes the damage, replaces damaged materials with properly engineered patch materials and restores the full functionality of the system, including the soil backfill.

- Perimeter storm drainage ditches must be periodically cleaned and the gravel lining maintained to prevent erosion in the ditch. Discharge areas for the ditches should be kept free of obstructions and sediment buildup.

- The pipe discharge area for the geomembrane cover anchor trench piping must be kept clear of debris and plant growth, and the drainage path free.

- Monitoring Wells must be maintained

2.4 SCHEDULE

Inspections of the consolidation cell need to be made at least twice yearly during the first three years (1999 - 2001) following the Remedial Construction: Once in April or May and once in August or September. After that time, annual inspections in the Spring should be sufficient. Inspections should also be made following major flood events, wildfires, earthquakes, or other events with the potential to damage the cell.

2.5 HEALTH AND SAFETY CONSIDERATIONS

Provided that the consolidation cell is intact and no consolidated or treated soils are exposed, no special health and safety requirements are needed. In the event that consolidated or treated soils are exposed, initially anyone entering the area should avoid contact with soil, and workers should conform to a suitable Health and Safety Plan for the duration of the work.

2.6 RESPONSIBILITY

Responsibility for inspections and maintenance rests with the PRP Group, the members of which are signatories of the Consent Decree. However, with the concurrence of EPA, this responsibility may be transferred to other appropriate parties.

2.7 CONTINGENCY MEASURES

Normal maintenance activities which may be done to rectify deficiencies and which should be identified during inspections include:

1. Backfilling erosion channels and subsidence areas

2. Revegetation of bare ground areas (except rip rap)

3. Clearing and maintenance of drainage ditches

In the event that serious damage has occurred to the consolidation cell which could result in exposure of the consolidated/treated soils or which may have impacted the integrity of the geomembrane system, then the area should be cordoned off and environmental engineering specialists contracted to design appropriate corrective measures, depending on the nature of the problem. Emergency measures may include covering the damaged areas to prevent further erosion and exposure of surface water to impacted materials, and surface water diversion away from the damaged area. Such measures should be undertaken immediately, in the event of exposure of the geomembrane cover system or the consolidated/treated materials.

2.8 GROUNDWATER SAMPLING AND ANALYIS

The Record of Decision requires groundwater monitoring at the Site to evaluate the continuing effectiveness of the Remedial Action Construction. This may be considered an operating requirement for the Site. The number and location of wells to be monitored in the post-construction era are presented in the Groundwater Monitoring Plan (ALTA, 1998). General features of the monitoring program include:

- Monitoring will continue for a minimum of 5 years
- Monitoring will be performed twice yearly for a minimum of two years. With EPA concurrence, this may be reduced to once annual monitoring.
- Analyses will be for PCBs, Lead, and Halogenated Volatile Organic Compounds

TABLE 2-1
SUMMARY OF GUIDELINES AND LIMITATIONS FOR SITE USE
Standard Steel & Metals Salvage Yard Superfund Site

This table summarizes guidelines and limitations for site use of the consolidation cell/TSCA landfill portions of the Standard Steel and Metals Salvage Yard Superfund Site. For complete information, see the Operations and Maintenance Plan and Preliminary Design Reports. The Remedial Action Construction has removed contaminated soils from the near-surface environment, and consolidated and solidified them in the landfill which underlies the site. Contaminated treated soils are present beneath the site surface below a geomembrane cover system. The geomembrane cover system is approximately three feet below the final surface of the consolidation cell. To avoid future environmental or human exposure to these soils, operating limitations restrict any activities that would degrade the protective features of the landfill or interfere with their operation. These restrictions may be lifted or modified if appropriate engineering and environmental controls are provided and appropriate EPA approval has been obtained (see O&M Plan for details).

Restricted Activities

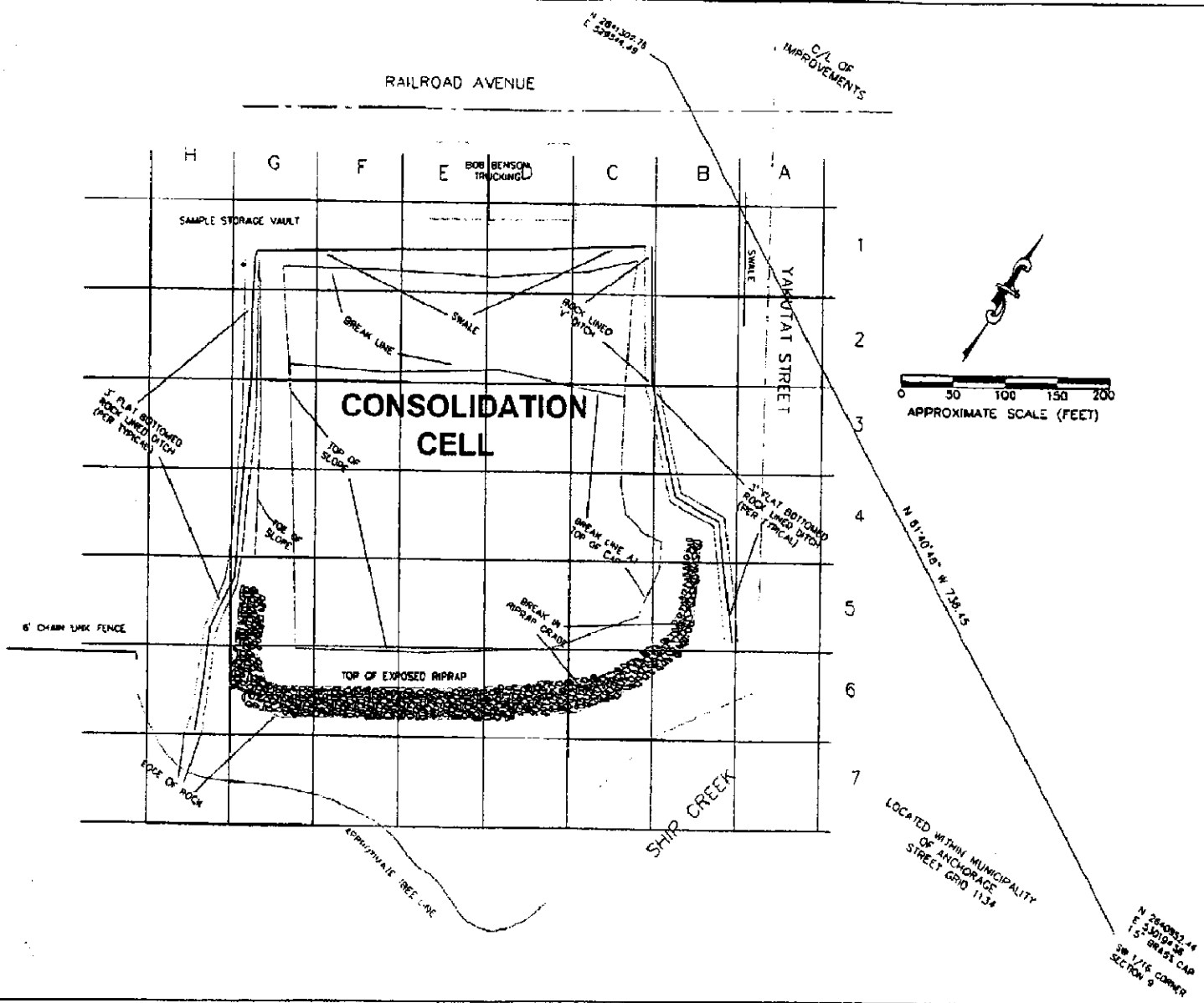
- Any acts which might penetrate, expose, or either chemically or physically damage the geomembrane cover system, including the cover soil.
- Discharge of chemicals that would potentially be damaging to the geomembrane
- Placement or storage of heavy objects (over 2,000 per square foot)
- Heavy repeated dynamic or vehicle loads.
- Repeated or constant application of water or other liquids to the ground surface
- Open fires on the ground surface.
- Paving or covering the sides of the cell in such a way as to inhibit drainage discharge from the slope.
- Developments and operations on or around the consolidation cell must not create ponded water on the cell or interfere with surface water drainage.
- Snow must not be plowed into the drainage ditches. Culverts and ditches must be kept clear of snow or other obstructions, especially at breakup.

Buildings On The Consolidation Cell

- There are significant limitations on the construction of any structures placed on the consolidation cell. See the O&M Plan for details.
- Utilities crossing the consolidation cell must not penetrate the geomembrane cover system and must remain at least 1 foot above the top of this system unless special engineering and construction features are adopted.

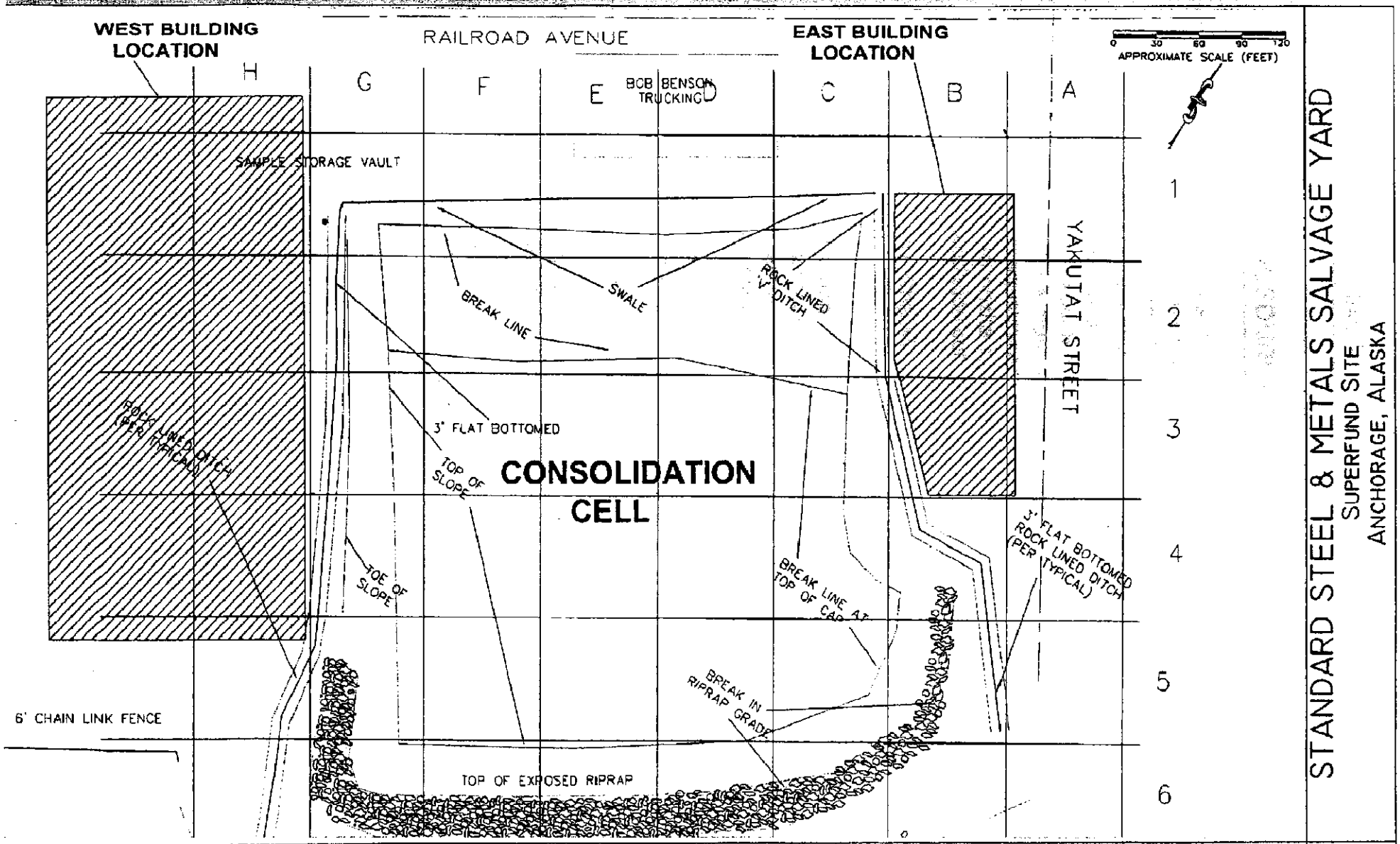
Parking And Storage Uses

- The entire site is generally suitable for parking or storage and loading and unloading of highway-loaded vehicles. The surface soils over the consolidation cell as originally constructed are not intended to be highly durable and suitable for heavy vehicles or repeated traffic without additional layers of appropriate material (e.g., crushed rock) being installed
- Generally, the site surface as constructed may be suitable for highway loaded vehicles, but such use may cause rutting if additional wearing courses are not provided.
- Paving the consolidation cell will require provisions for storm runoff which may exceed the existing ditches, since paving will result in increased peak surface runoff flows.



STANDARD STEEL & METALS SALVAGE YARD
SUPERFUND SITE
ANCHORAGE, ALASKA

ALTA GEOSCIENCES, INC. BOTHELL, WASHINGTON	OPERATIONS AND MAINTENANCE PLAN JULY 2000	CONSOLIDATION CELL AND SURROUNDING AREA	FIGURE 2-1



STANDARD STEEL & METALS SALVAGE YARD
SUPERFUND SITE
ANCHORAGE, ALASKA

ALTA GEOSCIENCES, INC. BOTHELL, WASHINGTON	OPERATIONS AND MAINTENANCE PLAN JULY 2000	BUILDING SITES OUTSIDE CONSOLIDATION CELL	FIGURE 2-2

3.0
INSPECTION PROCEDURES REPORTING REQUIREMENTS

Inspections should include a complete walk-around of the Site and Ship Creek floodplain areas. The check list shown on Table 3-1 should be used to record observations. The list may be updated in the future with appropriate additional items as needed. The checklist and any supporting documentation will be filed with the EPA Site Manager in a timely manner following inspections. Any necessary maintenance must be documented and the evidence of completion reported to the EPA Site Manager. EPA must be notified immediately if any condition is observed which could result in an imminent threat to human health or the environment, of if any activities (such as onsite excavation) are observed which could jeopardize the integrity of the consolidation cell components.

A signed copy of the Checklist shall be mailed to the EPA Site Manager at the following address:

Site Manager-Standard Steel and Metals Salvage Yard Superfund Site
U.S. Environmental Protection Agency, Region 10
1200 Sixth Avenue, HW-113
Seattle, Washington 98101

A copy of the completed checklist should be returned to the Project Coordinator and placed in the permanent project files.

EPA should be immediately notified if:

- Any conditions are observed which could result in an imminent threat to human health or the environment.
- Any activities (such as onsite excavation) are observed which could jeopardize the integrity of the consolidation cell components.

ALTA GEOSCIENCES, Inc.

TABLE 3-1
OPERATIONS & MAINTENANCE CHECKLIST
Standard Steel & Metals Salvage Yard Superfund Site

Item	Description	Action Needed? (yes[describe]/no)	See Note
1.	**Drainage Channels and Pipes** Inspect drainage channels surrounding cell area and subsurface drainage pipe discharges for evidence of blockages, parked vehicles or equipment, stored items, excess erosion, and proper function.		1
2.	**Cell Side Slopes** Inspect side slopes for excessive erosion (erosion channels greater than 6 inches in depth), excessive settlement, slumping or sliding, and vegetation condition.		1
3.	**Cell Top Surface** Inspect top surface for erosion, subsidence, and vegetative condition. No water should be ponding on the cell top surface.		1
4.	**Integrity of Cell** Verify that consolidated/treated soils are not exposed, no actions (natural or manmade) have occurred which threaten the integrity of the consolidation cell or the geomembrane system.		2
5.	**Vegetation Around Erosion Control Wall** Verify that no deep-rooted species are growing with 25 feet of the exposed riprap.		1
6.	**Monitoring Wells** Verify that wells appear in good repair and are capped and covered.		1

Notes:
1. Handle as routine maintenance.
2. Notify EPA. Take action to prevent access to affected area. Contact appropriate parties to evaluate appropriate corrective measures.

INSPECTION PERFORMED BY: _____ **Date:** _____

DESCRIPTION OF CORRECTIVE ACTIONS & NOTIFICATIONS:

Name: _____ **Date:** _____

4.0 REFERENCES

ALTA Geosciences, 1999, Completion Report, Remedial Action Construction, Steel and Metals Salvage Yard, Anchorage, Alaska.

ALTA Geosciences, 1997, Design Level Treatability Study Work Plan, Standard Steel and Metals Salvage Yard, Anchorage, Alaska. January 1997.

ALTA Geosciences, 1997, Work Plan, Standard Steel and Metals Salvage Yard, Anchorage, Alaska. May 1997.

ALTA Geosciences, 1997, Preliminary Design Report and Project Implementation Plans. December 1997.

ALTA Geosciences, 1997, Project Manual for Remedial Action Construction. December 1997.

U.S. Environmental Protection Agency (EPA), 1996. Record of Decision, Standard Steel and Metals Salvage Yard Superfund Site, Anchorage, Alaska, US EPA Region X, Seattle, Washington, July 16, 1996.

Woodward Clyde Consultants (WCC), 1994a. Remedial Investigation Report, Standard Steel and Metals Salvage Yard Superfund Site, Anchorage, AK.

ATTACHMENT 15

Public Notice of 5 Year Review
Anchorage Daily News
December 19 and 22, 2007

[This page intentionally left blank]

12/27/2007

Anchorage Daily News
Affidavit of Publication

1001 Northway Drive, Anchorage, AK 99508

AD #	DATE	PO	ACCOUNT	PRICE PER DAY	OTHER CHARGES	OTHER CHARGES #2	OTHER CHARGES #3	OTHER CHARGES #4	OTHER CHARGES #5	GRAND TOTAL
396159	12/19/2007		USAR0201	$189.24						
	12/22/2007		USAR0201	$189.24						
				$378.48	$10.00	$0.00	$0.00	$0.00	$0.00	$388.48

STATE OF ALASKA
THIRD JUDICIAL DISTRICT

Shane Drew, being first duly sworn on oath deposes and says that he is an advertising representative of the Anchorage Daily News, a daily newspaper.

That said newspaper has been approved by the Third Judicial Court, Anchorage, Alaska, and it now and has been published in the English language continually as a daily newspaper in Anchorage, Alaska, and it is now and during all said time was printed in an office maintained at the aforesaid place of publication of said newspaper. That the annexed is a copy of an advertisement as it was published in regular issues (and not in supplemental form) of said newspaper on the above dates and that such newspaper was regularly distributed to its subscribers during all of said period. That the full amount of the fee charged for the foregoing publication is not in excess of the rate charged private individuals.

Signed Shane R. Drew

Subscribed and sworn to me before this date:

12/28/07

Notary Public in and for the State of Alaska.
Third Division. Anchorage, Alaska

MY COMMISSION EXPIRES: 12/17/09

CYNTHIA A. GROVE
NOTARY
PUBLIC
STATE OF ALASKA

NOTICE OF FIVE-YEAR REVIEW

U.S. Environmental Protection Agency (USEPA) announces the beginning of the Five-Year Review of soil remedies implemented at the Standard Steel & Metal Salvage Yard site located at 2400 Railroad Avenue, Anchorage, Alaska.

Section 121 (C) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Contingency Plan states "a remedial action that resulted in hazardous substances, pollutants, or contaminants remaining at the site shall be reviewed no less frequently than every five years." Thus, CERCLA requires a statutory Five-Year Review of the selected remedial actions at the Standard Steel site.

The findings of the Five-Year Review will be available for public review after April 2008 at the Alaska Resources Library and Information Services (ARLIS) located in the University of Alaska Anchorage Consortium Library. This library also contains detailed information about the selected remedies at Standard Steel and the contamination addressed by the remedies.

An initial Five-Year Review was completed in April 2003 and concluded the remedy is protective of human health and the environment. Monitoring has continued to ensure on-site groundwater is not adversely impacted by stabilized material and that no off-site migration occurs that could affect Ship Creek.

If you have any questions or concerns regarding the Five-Year Review process, please contact:

Christopher Cora, Remedial Project Manager
U.S. Environmental Protection Agency, Region 10
1200 6th Ave, Suite 900, ECL-115
Seattle, WA 98101-3140
Phone: (206) 553-1478
Cora.Christopher@epa.gov

Published: December 19 and 22, 2007

ATTACHMENT 16

O&M Checklists

[This page intentionally left blank]

OPERATIONS & MAINTENANCE CHECKLIST
Standard Steel & Metals Salvage Yard Superfund Site

Item	Description	Action Needed? (yes[describe]/no)	See Note
1.	**Drainage Channels and Pipes** Inspect drainage channels surrounding cell area and subsurface drainage pipe discharges for evidence of blockages, parked vehicles or equipment, stored items, excess erosion, and proper function.	Drainage structures working as designed. Some windblown trash, not sufficient to obstruct operations. Vegetation levels in drainage channels increasing.	**1**
2.	**Cell Side Slopes** Inspect side slopes for excessive erosion (erosion channels greater than 6 inches in depth), excessive settlement, slumping or sliding, and vegetation condition.	Appear to be in acceptable condition. Essentially unchanged since prior inspection.	**1**
3.	**Cell Top Surface** Inspect top surface for erosion, subsidence, and vegetative condition. No water should be ponding on the cell top surface.	Acceptable condition. Extensive vehicle parking	**1**
4.	**Integrity of Cell** Verify that consolidated/treated soils are not exposed, no actions (natural or manmade) have occurred which threaten the integrity of the consolidation cell or the geomembrane system.	There are no exposures of consolidated/treated material or the geomembrane system.	**1**
5.	**Vegetation Around Erosion Control Wall** Verify that no deep-rooted species are growing within 25 feet of the exposed riprap.	Acceptable.	**1**
6.	**Monitoring Wells** Verify that wells appear in good repair and are capped and covered.	MW-13, -14, -5, -22 and –24 all appear to be in good condition.	**1**
7.	**Other** Observed several apparently abandoned lead acid batteries adjacent to containment structure. Researching ownership and disposal options. See photos.	Remove batteries and properly dispose	**3**

Notes:
1. No action required.
2. Noted for potential future action, no immediate action needed.
3. Corrective action in progress

INSPECTION PERFORMED BY: **A. Tula** **Date:** **May 16, 2007**

DESCRIPTION OF CORRECTIVE ACTIONS & NOTIFICATIONS:

Item 7: Batteries subsequently removed by unkown others (observed July 30). No further action required.

Name: **Alex Tula** **Date:** **August 1, 2007**

ALTA GEOSCIENCES, Inc.

Environmental & Geotechnical Solutions

MEMORANDUM

TO: Dave Duvall, Paul Beveridge
DATE: May 25, 2007
FROM: Alex Tula
SUBJECT: Standard Steel

I did the spring inspection at Standard Steel site on May 16 and found some 13 large lead acid batteries apparently abandoned on the site. See photos below. I went back on May 24, and they were still there, so I don't think this was just something somebody was about to come and pick up. It would be good if they could be gone, otherwise I'll have to report to EPA. Any thoughts? I was unsure of who else this should go to, if anyone.

Alex

22833 Bothell-Everett Hwy. Suite 102 #1168 **Phone (425) 485-1053**
Bothell, Washington 98021-9365 **Fax (425) 984-0114**

WORKAHOLIC
WORKAHOLIC
INTERSTATE
INTERSTATE

INTERSTATE

OPERATIONS & MAINTENANCE CHECKLIST
Standard Steel & Metals Salvage Yard Superfund Site

Item	Description	Action Needed? (yes[describe]/no)	See Note
1.	**Drainage Channels and Pipes** Inspect drainage channels surrounding cell area and subsurface drainage pipe discharges for evidence of blockages, parked vehicles or equipment, stored items, excess erosion, and proper function.	Level of trash and vegetation reaching unacceptable levels. Drainage structures working acceptably at present. Schedule maintenance	**3**
2.	**Cell Side Slopes** Inspect side slopes for excessive erosion (erosion channels greater than 6 inches in depth), excessive settlement, slumping or sliding, and vegetation condition.	Appear to be in acceptable condition. Essentially unchanged since prior inspection. Vegetation on riprap becoming significant. Schedule for maintenance	**1**
3.	**Cell Top Surface** Inspect top surface for erosion, subsidence, and vegetative condition. No water should be ponding on the cell top surface.	Acceptable condition. Extensive vehicle parking	**1**
4.	**Integrity of Cell** Verify that consolidated/treated soils are not exposed, no actions (natural or manmade) have occurred which threaten the integrity of the consolidation cell or the geomembrane system.	There are no exposures of consolidated/treated material or the geomembrane system.	**1**
5.	**Vegetation Around Erosion Control Wall** Verify that no deep-rooted species are growing within 25 feet of the exposed riprap.	Vegetation on riprap becoming significant. Schedule for maintenance	**3**
6.	**Monitoring Wells** Verify that wells appear in good repair and are capped and covered.	MW-13, -14, -5, -22 and –24 all appear to be in good condition.	**1**
7.	**Other** None		**3**

Notes:
1. No action required.
2. Noted for potential future action, no immediate action needed.
3. Corrective action in progress

INSPECTION PERFORMED BY: **A. Tula** **Date:** **October 17, 2007**

DESCRIPTION OF CORRECTIVE ACTIONS & NOTIFICATIONS:

Items 1&5: Maintenance performed to remove excess vegetation, trash, and debris on 10/10-10/11. See photos.

Name: **Alex Tula** **Date:** **November 1, 2007**

EAST DRAINAGE CHANNEL

SOUTH FACE

WEST DRAINAGE CHANNEL

ATTACHMENT 17

Record of Decision
July 1996

[This page intentionally left blank]

EPA/ROD/R10-96/141
1996

EPA Superfund
Record of Decision:

STANDARD STEEL & METAL SALVAGE YARD (USDOT)
EPA ID: AKD980978787
OU 01
ANCHORAGE, AK
07/16/1996

RECORD OF DECISION
STANDARD STEEL AND METALS
SALVAGE YARD SUPERFUND SITE
ANCHORAGE, ALASKA

DECLARATION

Site Name and Location
Standard Steel and Metals Salvage Yard
Anchorage Alaska

Statement of Basis and Purpose

This decision document presents the selected remedial action for the Standard Steel and Metals Salvage Yard, in Anchorage, Alaska, which was chosen in accordance with the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA), and, to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This decision is based on the administrative record for this site.

The State of Alaska concurs with the selected remedy.

Assessment of the Site

Actual or threatened releases of hazardous substances from this site, if not addressed by implementing the response action selected in this Record of Decision (ROD), may present an imminent and substantial endangerment to public health, welfare, or the environment.

Description of the Selected Remedy

This is the final remedial action for the site. The site was not divided into operable units. EPA conducted a Removal Action to address the principle threats and most imminent sources of continued releases of hazardous substances, and to stabilize the site prior to conducting this remedial action. The Removal Action utilized treatment as a principle element for the principle sources.

The selected remedy entails the following major components:

- Removal of regulated material stockpiled on-site and investigation derived wastes with subsequent disposal in a RCRA Subtitle C or D landfill, or recycling of materials;
- Off-site disposal of remaining scrap debris by recycling or disposal in a RCRA Subtitle D landfill or, if the debris is a characteristic hazardous waste or containing greater that 50 mg/kg PCBs or 10ug/100cm^2 by standard wipe tests, treatment and disposal in a RCRA Subtitle C or TSCA landfill;
- Excavation and consolidation of all soils exceeding cleanup levels;
- Treatment of all soils at or greater than 1000 mg/kg lead and 50 mg/kg PCB by stabilization/solidification;
- On-site disposal of stabilized/solidified soils and excavated soils between 10 mg/kg and 50 mg/kg in a TSCA landfill;
- Excavation of soils impacted above 1mg/kg PCB's and 500 mg/kg lead from the flood plain and consolidation of these soils elsewhere on the site;
- Maintenance and Repair of erosion control structure on bank of Ship Creek;
- Maintenance of solidified/stabilized soils and the landfill;
- Institutional controls to limit land uses of the site and, if appropriate, access;
- Monitoring of groundwater at the site to ensure the effectiveness of the remedial action.

Statutory Determinations

The selected remedy is protective of human health and the environment, complies with or justifies a waiver of Federal and State requirements that are legally applicable or relevant and appropriate to the remedial action, and is cost-effective. This remedy utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable, and satisfies the statutory preference for remedies that employ treatment that reduces toxicity, mobility, or volume as a principal element.

Because this remedy will result in hazardous substances remaining on-site above health based levels, a review will be conducted within five years after commencement of remedial action to ensure that the remedy continues to provide adequate protection of human health and the environment.

<IMG SRC 1096141>

TABLE OF CONTENTS

SECTION	TITLE	PAGE
1.0	SITE NAME, LOCATION, AND DESCRIPTION	1
1.1	Site Name	1
1.1.1	Site Location and Description	1
1.2	Topography	1
1.3	Zoning	2
1.4	Natural Resources Uses	2
1.4.1	Terrestrial Resources	2
1.4.2	Aquatic Resources	2
1.4.3	Endangered Species/Wetlands	3
1.5	Location and Distance to Nearby Human Populations	3
1.6	General Surface-water, Groundwater Resources and Geology	3
1.6.1	Ship Creek Stage	3
1.6.2	Surface Water Runoff	3
1.6.3	Geology	4
1.6.4	Regional Groundwater Conditions	4
1.6.5	Unconfined Aquifer	5
1.6.6	Bootlegger Cove Formation Aquitard	5
1.6.7	Confined Aquifer	5
1.6.8	Groundwater Occurrence	6
1.6.9	Groundwater Supply	6
2.0	SITE HISTORY AND ENFORCEMENT ACTIONS	6
2.1	Scope and Role of Removal Action	8
3.0	HIGHLIGHTS OF COMMUNITY PARTICIPATION	9
3.1	Summary of Community Relations Activities:	10
4.0	SUMMARY OF SITE CHARACTERISTICS	11
4.1	Nature and Extent of Contamination	11
4.2	Media of Concern	11
4.2.1	Surface and Subsurface Soil	11
4.2.1.1	Lead	11
4.2.1.2	Other Inorganics	12
4.2.1.3	PCBs	12
4.2.1.4	Dioxins and Furans	13
4.2.1.5	Volatiles and Semivolatiles	13
4.2.1.6	Presence of Light Non-Aqueous Phase Liquid (LNAPL)	13
4.2.1.6.1	Concentration of PCBs in LNAPL	14
4.2.1.6.2	Concentration of Lead in LNAPL	14
4.2.1.6.3	Concentration of Other Contaminants in LNAPL	14
4.2.1.7	Shotcrete Covered Soils	14
4.3	Groundwater	15
4.3.1	Lead	15
4.3.2	PCBs	15
4.3.3	Volatile Organic Compounds	15
4.3.4	Semivolatile Organic Compounds	16
4.3.5	Other Metals	16
4.4	Surface Water	17
4.5	Sediment	17
4.6	Air	18
4.7	Summary	18
5.0	SUMMARY OF SITE RISKS	18
5.1	Human Health Risks	19
5.1.1	Contaminants of Potential Concern	19
5.1.2	Risks Related to Compounds Other Than Lead	19

5.1.2.1 Toxicity Assessment 20
5.1.2.2 Exposure Assessment 20
5.1.2.3 Risk Characterization 21
5.1.2.4 Soil COC's 22
5.2 Combined Short- and Long-Term Workers Exposure Pathways 22
5.2.1 Short-Term Worker 22
5.2.2 Long-Term Worker 23
5.3 Combined Residential Exposure Pathways 23
5.4 Risks Related to Lead Only 23
5.5 Ecological Risk Assessment 25
5.6 Uncertainty in the Risk Assessment 25
5.7 Conclusion 26

6.0 REMEDIAL ACTION OBJECTIVES AND CLEANUP STANDARDS 26
6.1 Remedial Action Objectives 27
6.2 Cleanup Standards 27
6.2.1 Soil Cleanup Standards 27
6.2.1.1 PCB Cleanup Standards 28
6.2.1.2 Lead Cleanup Standards 28
6.3 Cleanup Standards Conclusions 29

7.0 DESCRIPTION OF ALTERNATIVES 30
7.1 Individual Analysis of Alternatives 32
7.1.1 Alternative 1 - No Action/Monitoring 32
7.1.1.1 Cost 32
7.1.2 Alternative 2 - Limited Action 32
7.1.2.1 Cost 33
7.1.3 Alternative 3 - Capping 34
7.1.3.1 Cost 35
7.1.4 Alternative 4 - Containment with Treatment of Principal Threat Soils by Stabilization/Solidification 35
7.1.4.1 Cost 37
7.1.5 Alternative & Stabilization/Solidification with Treatment of PCB Principal Threat Soils by Thermal Desorption 37
7.1.5.1 Cost 38
7.1.6 Alternative 6 - Stabilization/Solidification 38
7.1.6.1 Cost 40
7.1.7 Alternative 7 - Soil Washing 41
7.1.7.1 Cost 42
7.1.8 Alternative 8 - Thermal Desorption 43
7.1.8.1 Cost 44
7.1.9 Alternative 9 - Off-site Disposal 45
7.1.9.1 Cost 46
7.1.10 Alternative 10 - Off-site Incineration 46
7.1.10.1 Cost 47
7.2 Groundwater Component 47
7.3 Applicable or Relevant and Appropriate Requirements 48
7.3.1 Chemical-Specific ARARs 48
7.3.2 Action-Specific ARARs 48

8.0 COMPARATIVE ANALYSIS 49
8.1 Overall Protection of Human Health and the Environment 50
8.2 Compliance with ARARs 50
8.2.1 Assessment 50
8.3 Long-Term Effectiveness and Permanence 51
8.3.1 Magnitude of Residual Risk 51
8.3.2 Adequacy and Reliability of Controls 52
8.3.3 Assessment 52
8.4 Reduction of Toxicity, Mobility, or Volume Through Treatment 53
8.4.1 Discussion 53

8.4.2 Assessment 54
8.5 Short-Term Effectiveness 55
8.5.1 Short-Term Protection of the Community, Workers, and the Environment 55
8.5.2 Time Unit Remedial Response Objectives are Achieved 56
8.5.3 Assessment 56
8.6 Implementability 57
8.6.1 Technical Feasibility 57
8.6.2 Administrative Feasibility 58
8.6.3 Availability of Services and Materials 58
8.6.4 Assessment 58
8.7 Cost 59
8.8 State Acceptance 59
8.9 Community Acceptance 59

9.0 THE SELECTED REMEDY
9.1 Remedy Description 60

10.0 STATUTORY DETERMINATIONS 70
10.1 Protective of Human Health and the Environment 70
10.2 Applicable or Relevant and Appropriate Requirements 71
10.3 Cost Effectiveness 72
10.4 Utilization of Permanent Solutions and Alternative Treatment Technologies to the Maximum Extent Practicable 72
10.5 Preference for Treatment as a Principle Element 73

11.0 DOCUMENTATION OF SIGNIFICANT CHANGES 73

FIGURES AND TABLES (Attached at the End of Record of Decision)

Figure 1-1 Site Location Map
Figure 1-2 Flood Plain and Wetland Map
Figure 1-3 Locations of Historical Operation and Storage Areas
Figure 1-4 Current Site Status (Post scrap Removal)
Table 5-1 Summary of Media and Chemicals of Concern
Figure 5-1 Concentration of PCBs in Surface Soil
Figure 5-2 Concentration of PCBs in Soil within the Water Table Zone
Figure 5-3 Concentration of Lead in Surface Soil
Figure 5-4 Monitoring Well and Ship Creek Sediment Sampling Locations
Table 6-1 Residential Risk Blend Based Concentrations, Background Concentrations, and Maximum Concentrations of PCOC's in Soils and Groundwater
Table 6-2 Parameters Used to Calculate Risk-Based Screening Concentrations
Table 6-3 Summaries of RME Hazard Indices
Table 6-4 Summaries of RME Excess Cancer Risks
Table 6-5 Summary of Estimated Excess Cancer Risks Associated with 10 mg/kg PCB Cleanup Level
Figure 6-1 Areas of Concern
Figure 8-1 Areas to be Remediated - Alternative 4
Figure 8-2 Areas to be Remediated - Alternative 5
Figure 8-3 Areas to be Remediated - Alternatives 6, 7, 8, 9, and 10
Table 9-1 Soil Cleanup Level Summary

RESPONSIVENESS SUMMARY

RECORD OF DECISION

STANDARD STEEL AND METALS SALVAGE YARD

1.0 SITE NAME, LOCATION, AND DESCRIPTION

1.1 Site Name

Standard Steel and Metals Salvage Yard

1.1.1 Site Location and Description

Standard Steel and Metals Salvage Yard (site) is located on a 6.2 acre parcel of land in Anchorage, Alaska, near the intersection of Railroad Avenue and Yakutat Street. The site is owned by the Federal Railroad Administration and in the possession and control of the Alaska Railroad Corporation. The site is situated in an industrialized area of Anchorage along the north side of lower Ship Creek (Figure 1-1). A warehouse is located directly north of the site. To the east are assorted light industries, warehouses and a produce packing facility, and to the west is a steel fabrication operation. Approximately 500 feet upstream of the site is the Elmendorf Fish Hatchery and the Eagle Glen Golf Course on Elmendorf Air Force Base. Non-adjacent land use is comprised of assorted light industry and the Alaska Railroad Corporation's rail yard.

The site has been cleared of most scrap metal and debris during previous CERCLA activities (see Section 2.0). There is a small stand of cottonwoods and small brush adjacent to Ship Creek, otherwise the site is covered with gravel/fill. The site was contaminated during 30 years of salvage operations, primarily by releases from lead acid batteries and PCB contaminated transformers. The site consists of all areas contaminated by PCBs and lead which resulted from activities at the Standard Steel and Metals Salvage Yard. These areas are defined in the remedial investigation and generally conform to the property boundaries.

1.2 Topography

The site is situated on a gently sloping outwash plain. The ground surface elevation ranges from approximately 70 to 80 feet above mean sea level. The site is built upon the reclaimed flood plain of Ship Creek. Ship Creek defines the southern border of the site. The site extends into Ship Creek's 100 year flood plain on the south-western corner of the site. A preservation wetland is also located in the south-western corner of the site (Figure 1-2). Review of historical aerial photographs showed that significant areas of the site have been excavated and subsequently filled to raise the surface elevation of the site to its current height of between 70 and 80 feet above sea level.

1.3 Zoning

The areas from Reeve Boulevard to Knik Arm surrounding Ship Creek and enclosing the site are zoned I-2, denoting a heavy industrial district. The areas south of this district (beginning 1/4 mile from the site) are zoned as business districts, light industrial districts, and public lands and institution districts. The area to the north (1/3 mile from the site) is reserved for the military.

The Municipality of Anchorage has adopted a land use plan that reflects and continues the current zoning of this area. The site, as well as all lands west of Reeve Avenue, south of Post Road, east of Wrangell Street and north of Ship Creek, is currently managed and controlled by the Alaska Railroad Corporation (ARRC) pursuant to an exclusive license issued by the United States under the authority of an act of Congress, the Alaska Railroad Transfer Act of 1983. ARRC assumed control of these properties from the United States government on January 5, 1985. The underlying property owner of the site is the United States, pending eventual transfer to ARRC as contemplated by that Act. The ARRC is a public corporation

owned by the State of Alaska. ARRC has publicly taken the position that the zoning of the site and surrounding areas should remain industrial. An active rail line is located along Post Road, with a spur that connects the site to the main line.

1.4 Natural Resources Uses

1.4.1 Terrestrial Resources

The site has limited terrestrial natural resources. It was used during the 1950's as a gravel mine. There is very limited vegetation and habitat on the site. Small rodents, passerines and gulls have been observed on the site. Moose have been adjacent to the site along Ship Creek.

1.4.2 Aquatic Resources

The quantity and variety of fish in Ship Creek is dependent upon stocking, harvesting and environmental factors. Status of the stock is measured by fish harvest reports by the Alaska Department of Fish & Game. The only data collected on native fish of Ship Creek are from the annual harvest reports and visual fish counts, which concentrate on the chinook and coho species. In relation to the total numbers of chinook and coho in Ship Creek in any given year, it is important to note the regulated nature of fish stocking. Many variables influence the decision regarding the number of chinook and coho smelt to stock into Ship Creek each year; this, in turn, affects the total number of returning adults. Approximately 5 percent of chinook smelt and approximately 5-15 percent of coho smelt return to Ship Creek as adults. It is estimated that roughly twenty percent of both returning coho and chinook are native stock. Small numbers of pink and chum salmon may also use Ship Creek.

1.4.3 Endangered Species/Wetlands

No threatened or endangered species have been observed at the site. The site has been heavily disturbed throughout it's history and provides little preferred or suitable habitat. A small wetland is located on the south-west boundary of the site. This area has not been contaminated by site activities. Threatened or endangered species which may be in the vicinity of the site are highly unlikely to utilize the site for feeding, resting, or propagating.

1.5 Location and Distance to Nearby Human Populations

The area around the site is dedicated to industrial/commercial use. The nearest residential area is located ½ mile south-east of the site on the other side of Ship Creek in the Mountainview area. Military housing at Elmendorf Air Force Base is located 1/3 mile north-east of the site. Population figures for the area in the immediate vicinity are not available. However, 1990 Anchorage Census Tracts 5 and 6, which cover the site and a large surrounding area including Mountainview residential area, contained 7,188 people. An unknown number of homeless adults are reported to live along Ship Creek and the Bluff north of the site during summer months.

1.6 General Surface-water, Groundwater Resources and Geology

1.6.1 Ship Creek Stage

The lower Ship Creek drainage basin covers roughly 27 square miles. The creek traverses approximately 10 miles from the Chugach Mountains to Cook Inlet. The site is located along the north bank of Ship Creek, approximately 2 miles upstream from the mouth. Ship Creek flows south and west adjacent to the site.

The U.S. Army Corp of Engineers (Alaska District) personnel made numerous cross section measurements (August 1976) in order to project possible flood magnitude in the area. Floodway boundaries were computed for each cross section with the HEC-2 computer program.

The projected 100-year flood plain area is depicted on Figure 1-2.

1.6.2 Surface Water Runoff

A site map based on the topographic site survey is presented as Figure 1-2. The site is relatively flat, sloping slightly to the south with an average slope of less than 3 percent. Surface water drainage from the site appears to be variable, with the majority of precipitation infiltrating the soil rather than forming discrete runoff patterns. Only a single potential drainage channel leading from the site has been observed to date, but surface water has never been observed in the channel, and it is blocked by an earthen berm before it reaches Ship Creek. It is located outside of and approximately parallel to the fence along the south of the site. The slope in this channel appears to trend southwesterly and eventually joins the fairly pronounced gully southwest of the site which is visible on the site map (Figure 1-2). This gully heads toward Ship Creek downstream of the site.

Although the snow melted within a relatively short period of time during the spring of 1993, no surface runoff from the site to the creek or to surrounding properties was observed, except for a small amount flowing for several days southwest into the adjacent property. This surface runoff infiltrated into the soil soon after entering that property; no runoff to the creek was observed.

Available municipal and railroad records do not indicate existence of storm sewers that drain surface runoff from the site. Field teams did not find any storm sewer grates at the site or other water conduits down gradient of the site, except for a culvert near Yakutat Street, which drains a storm sewer on the northeast corner of Yakutat and Railroad Avenues.

1.6.3 Geology

The site is located in the Anchorage lowland area within the Upper Cook Inlet region of Alaska. The lowland areas of the Cook Inlet region are surrounded by several heavily glaciated mountain ranges, including the Alaska, Talkeetna, Chugach, and Kenai Ranges. Unconsolidated glacial deposits, which are typical of the lowland areas surrounding Cook Inlet, have been deposited and reworked by three main agents: glacial ice; flowing water in streams or deltas; and still water in ponds, lakes and marine estuaries.

Several glacial events in the Cook Inlet area resulted in deposition of thick sequences of unconsolidated fine-grained glacial sediments in glacially-dammed lakes. The outwash from these glaciers has deposited rock flour and silt in the lowlands, producing large areas of mud flats along the Cook Inlet shoreline. These silt-rich deposits discontinuously overlay glacial and glacial fluvial materials. The lowland deposits are bordered by uplands or glacial moraine and drift deposits. The site is located in an active seismic area.

1.6.4 Regional Groundwater Conditions

The area commonly referred to as the Anchorage Bowl encompasses approximately 180 square miles and includes the site and most of the urban area of Anchorage. This area is bounded on the north, west and south by two estuaries, the Knik and Turnagain Arms of Cook Inlet, and on the east by the Chugach foothills. Two aquifers have been identified in this area separated by a thick aquitard (the Bootlegger Cove Formation). These aquifers are distinguished by their relatively coarse lithologies and capacity to transmit groundwater horizontally. An unconfined aquifer is located in the deposits above the Bootlegger Cove Formation and a confined aquifer is located in the deposits below the Bootlegger Cove Formation. The existence of potential water-bearing units beneath the confined aquifer at the site was not investigated.

The Bootlegger Cove Formation has been identified as an effective aquitard based on its relatively fine-grained lithology, thickness, and continuous areal extent over the study area. This aquitard is an important feature of the hydrogeologic model, because it impedes vertical groundwater flow and chemical transport. The three units are described below.

1.6.5 Unconfined Aquifer

An unconfined aquifer is located in a sheet of outwash plain deposits (chiefly sand and gravel) that covers much of the northeast, central and western parts of the Anchorage area. This aquifer generally extends from the flanks of the Chugach foothills on the east to Cook Inlet, including the Turnagain and Knik Arms, on the north, west and south. This aquifer consists of sand and gravel lenses intermixed with silty sand and gravel. In the vicinity of the site the aquifer is approximately 25 feet thick. This aquifer is naturally recharged by rain, snowmelt and leakage from streams. Groundwater flows to the south west with some water discharging to Ship Creek and the remainder to Cook Inlet.

1.6.6 Bootlegger Cove Formation Aquitard

The Pleistocene Bootlegger Cove Formation is a low permeability clay unit that underlies most of the Anchorage area. This unit is up to 270 feet thick and generally thickens with increasing distance from the mountains. In the vicinity of the site, the aquitard is 100 to 150 feet thick.

The aquitard consists of saturated, clayey glacially-derived sediments of very low permeability. Permeability tests were performed on five samples collected from the Bootlegger Cove Formation at the site and resulted in hydraulic conductivity values ranging from 0.0006 to 0.002 ft/day (2.1 x 10-7 to 7.0 x 10-7 cm/sec). These estimated hydraulic conductivity values are consistent with the regional value (0.0001 ft/day).

1.6.7 Confined Aquifer

The confined aquifer is composed of several layers of interbedded sand and gravel, till, and silty clay deposits. The more permeable sand and gravel layers are hydraulically connected and are considered to be a single aquifer. The aquifer is continuous below the entire Anchorage Bowl. The thickness generally increases from approximately 100 feet in the Chugach foothills to 1100 feet at a point between the Knik and Turnagain Arms. In the vicinity of the site, the aquifer is approximately 600 feet thick and is located approximately 100 to 300 feet below the ground surface.

1.6.8 Groundwater Occurrence

The depth to the top of the unconfined aquifer ranges from about 3 to 10 feet below the ground surface and the average saturated thickness is approximately 15 feet. The surface of the water table slopes southwest at the site and varies in elevation between approximately 65 and 74 feet above mean sea level. The water elevations measured during the RI field investigation were used to create water table contour maps. The two sets of contours are similarly shaped and show a difference in water table of 1 to 2 feet. The horizontal hydraulic gradient ranged from approximately 0.007 to 0.01 ft/ft.

1.6.9 Groundwater Supply

A survey of the water supply wells within ½ mile radius of the site revealed 9 potable water wells and 4 non-potable water wells. All of these wells draw from the lower confined aquifer with the potable wells ranging in depth from 76 feet below ground surface (bgs) to 850 feet bgs, and the non-potable wells ranging in depth from 152 feet bgs to 257 feet bgs. Only three of these wells, the Inlet Co. well, the Steel Fab well, and the Alaska Concrete Products well are located down gradient from the site. No groundwater wells completed in the unconfined aquifer were identified within a half-mile radius of the site.

2.0 SITE HISTORY AND ENFORCEMENT ACTIONS

The first documented use of the site occurred in October of 1950, when much of the site was leased by a construction company for maintenance and storage of heavy equipment and supplies. This operation continued on parts of the site until 1960.

Aerial photographs of the Ship Creek area are available for most years since 1939. Photographs prior to 1939 show little salvage material and debris and no buildings onsite. Aerial photographs show that considerable excavation occurred in the southern half of the site between 1950 and 1953. A haul road is visible up the bluff to the north leading to Elmendorf Air Force Base, and it is likely that gravel from the site was mined for use in base construction. Aerial photographs also show that these excavations had been backfilled by 1972 to establish the present site grade. Soil borings and test pits indicate that the fill material consisted mostly of sandy and silty soil. No material was encountered during subsurface investigations which indicates dumping of hazardous waste materials during fill operations.

Metal recycling and salvage businesses operated on the site beginning in 1955 and until 1993. From 1955 to 1986, metal recycling and salvaging occurred on the entire area within the present fence lines. Following EPA's initial response action in 1986, the scrap business was restricted to the small parcel northeast of the fenced area south of Railroad Avenue and west of Yakutat Street. During the period from 1955 to 1986, hundreds of thousands of tons of ferrous and nonferrous materials were handled at the site. At some time after 1955 batteries were handled at the site to recover their lead and transformers were handled primarily to recover the copper in the core windings.

Transformer oil was drained by site operators. The oil was released onto the ground, or used as hydraulic fluid in onsite equipment. There is no information (such as manifests) which indicate that transformer oils were shipped off-site for proper disposal or treatment. Copper transformer cores were removed from the cases and placed in an onsite incinerator to remove shellac and paper insulation. The copper cores were then shipped offsite for salvage. Batteries were stockpiled onsite and many have been processed onsite prior to sale for their lead content. Processing of batteries may have included draining fluid from cases and breaking the cases to remove the lead plates. Drums containing wastes and chemicals were also stored onsite as part of the salvaging operations.

Aerial photographs from the 1960s through 1986 reveal salvage materials onsite. By 1975, the incinerator building, sales office trailer, and warehouse on the north end of the site had been constructed. The volume of salvage material and the number of buildings adjacent to the site continued to increase until 1985.

Although activities known to have resulted in hazardous substance releases were discontinued in April 1986, when an EPA Order was issued pursuant to 42 U.S.C. § 9606, site operations continued on the northeast corner of the site until April 1993. The site owners and site operator were requested to perform a removal action but declined to or were unable to conduct the work. The 1986 Order led to an EPA removal action and resulted in a portion of the site being fenced off and closed to public access. The removal action is described in more detail in Section 2.1 below. Figure 1-3 shows the location of former operations on the site and scrap-covered areas in existence when the removal action was begun by the EPA in 1986.

The site was proposed for listing on the National Priorities List (NPL) on July 14, 1989. The site was listed on the NPL on August 30, 1990. 55 Fed. Reg. 35502.

On December 6, 1991, the United States filed a lawsuit under Section 107 of CERCLA, 42 U.S.C. § 9607, against eight parties for recovery of EPA's costs incurred in performing the removal action and a determination of liability for future costs. The eight parties sued were the Alaska Railroad Corporation, Ben Lomand, Inc., Chugach Electric Association, Inc., Westinghouse Electric Corporation, Sears, Roebuck and Co., Montgomery Ward and Co., Inc., J.C. Penny Company, Inc., and Bridgestone/Firestone, Inc. Certain other Federal entities are considered to be within the class of persons who may be liable under CERCLA. Those entities are the Federal Railroad Administration, Department of Transportation, Defense Reutilization and Marketing Service, Department of Defense, and the Army/Air Force Exchange Service.

On September 23, 1992, Chugach Electric Association entered into an Administrative Order on Consent to conduct a remedial investigation/feasibility study at the site. The RI commenced in October 1992 and ended in August 1994. The feasibility study, treatability tests were

performed for solidification and soil washing and a pilot scale soil washing unit was tested on-site. Supplemental soil sampling occurred during preparation of the feasibility study. During the EPA removal action, the RI/FS field work, and scrap/debris removal, wastes were containerized and placed within the fenced portion of the site. The current location of existing fence and the various containers and wastes are shown in Figure 1-4.

EPA issued a Unilateral Administrative Order on September 7, 1993 to the Alaska Railroad Corporation to remove armored personnel carriers sitting on a portion of the site to allow access to the site for completing the remedial investigation and feasibility study.

2.1 Scope and Role of Removal Action

During the period 1986 to 1988, the EPA Region X Superfund Removal and Investigations Section performed a removal action at the site under authority provided in Section 104 of CERCLA, 42 U.S.C. § 9604. The scope of the removal effort was directed towards removing the ongoing sources of releases or substantial threat of releases of hazardous substances from transformers, lead acid batteries and barrels and drums stored on the site. Additionally, soil and groundwater samples were collected. A rip-rap berm was constructed along the bank of Ship Creek on the southeast corner of the site to prevent erosion. Several areas of contaminated soils were excavated and placed in a mound on-site and sprayed with shotcrete (Figure 1-4). A more complete description of the removal action can be found in the On Scene Coordinators Report for the site.

The removal actions removed and treated with principle threats present at the site. These principle threats include more than one thousand gallons of PCB contaminated oils, eighty-two 55 gallon drums of RCRA hazardous waste, 10,450 gallons of waste oils, 185 PCB contaminated transformers and 781,000 pounds of lead acid batteries. The PCB oils were incinerated and the waste oil was recovered and the batteries were recycled.

Major Chronological Events of the Removal Action are as follows:

August 1985	Soil Samples collected by the Alaska Department of Environmental conservation (ADEC) identified PCB contamination in on-site surface soils as high as 110,000:
October 1985	EPA conducted a two week assessment documenting wide spread PCB and heavy metal contamination in soils, the presence of 175 transformers, hundreds of drums and thousands of batteries. Chlorinated Dioxins and Furans were identified in ash associated with an on-site incinerator.
April 1986	EPA issued a CERCLA 106 Order against potentially responsible parties to begin stabilization and cleanup of the site. No parties came forward to implement the cleanup.
June-July 31 1986	Phase 1 of the response action commenced by EPA. Site security was undertaken, removal of 1000 gallons of PCB contaminated oils, removal of eighty-five 55 gallons drums of RCRA hazardous waste, installation of four groundwater monitoring wells, isolation of dioxin/furan wastes, construction of an erosion control wall along Ship Creek, fish bioassay of resident fish in Ship Creek, initial PCB soil sampling.
May 1987	EPA Emergency Response Team and EPA contractors conducted additional site assessment including installing seven temporary monitoring wells, shallow surface soil borings, off-site sampling along Ship Creek.
June 1987- October 1987	EPA conducted phase II of removal action. Approximately 781,000 pounds of batteries and 10,450 gallons of waste oils were recycled, 1600 cubic

yards of PCB contaminated soils were stockpiled and sprayed with a temporary concrete fiber cap.

June 1988 — EPA conducted final phase of removal action. These activities were primarily focused on securing the site until further remedial actions could be undertaken.

3.0 HIGHLIGHTS OF COMMUNITY PARTICIPATION

The Proposed Plan for the site was released to the public for comment on March 13, 1996. The plan identified EPA's recommendation for cleaning up lead and polychlorinated biphenyl contaminated soil at the Standard Steel and Metals Salvage Yard in Anchorage. The Proposed Plan was made available along with the RI/FS reports at the Information Repositories. The comment period lasted from March 18 to April 17, 1996. The selected remedy is based on the Administrative Record for this site. The Administrative Record is located in the EPA Region 10 office and in the site information repository located in the Bureau of Land Management Library in Anchorage, Alaska.

A public meeting was held on April 10 at the Fairview Community Recreation Center in Anchorage. On April 2 a reminder of the meeting was mailed. The meeting was attended by twenty-two people. EPA's project manager and Chugach Electric Association's project manager presented information about the site and the recommended cleanup alternative. Questions were answered and formal comment was taken. Four commmentators presented oral comments at the meeting. Responses to the comments are included in the Responsiveness Summary to the ROD.

3.1 Summary of Community Relations Activities:

July 14, 1989 - Standard Steel proposed for inclusion on the NPL and 60-day comment period initiated.

July 22, 1992 - Community Relations Plan issued based on telephone interviews conducted throughout May of 1992.

October 2, 1992 - A fact sheet issued summarizing previous cleanup activities and upcoming investigations.

May 26, 1993 - A fact sheet announced an agreement signed by Chugach Electric Association to conduct investigations, and announced an informational meeting to be held on June 24.

June 24, 1993 - EPA attended meetings with local community groups to discuss the scope of the remedial investigation. EPA was interviewed by two local television stations.

November 24, 1993 - A fact sheet was published to update the public activities at the site.

July 12, 1994 - A 30-day public comment period was announced on a proposed Consent Decree for past cost recovery between EPA and a number of federal and private parties.

March 16, 1995 - A fact sheet asked for input on cleanup alternatives being evaluated based on the completed RI/FS.

April 25, 1995 - EPA and the State of Alaska hosted an informational meeting regarding the remedial alternatives being evaluated.

June 23, 1995 - A fact sheet explained the need for delaying the Proposed Plan for cleanup and the need for additional studies to evaluate soil washing as a alternative for remediating the site.

April 10, 1996- A public meeting was held in Anchorage Alaska to present the Preferred Alternative to the community.

4.0 SUMMARY OF SITE CHARACTERISTICS

4.1 Nature and Extent of Contamination

The nature and extent of contamination has been evaluated using data presented in the OSC and the RI reports and supplemental soil sampling conducted during the feasibility study. These data show that, consistent with past site operations, the primary chemicals of concerns (COCs) are lead and polychlorinated biphenyls (PCBs).

For almost all samples where PCBs were detected, Aroclor 1260 was the only PCB congener which was found, so that the total PCB concentration is represented by Aroclor 1260.

4.2 Media of Concern

The media of concern utilized to evaluate the site are surface and subsurface soil, groundwater, surface water, sediment, and air. Contaminants were screened against Risk Screening Tables, Supplemental Guidance for Superfund Risk Assessments in Region 10, USEPA, October 30, 1992 (Table 6-1) (these values have been replaced in Region 10 by using the Region 3 risk tables), and local background values for inorganics. The tables utilize a residential exposure scenario, using standard default exposure (ingestion and inhalation) assumptions which would not result in a 1 in one million additional chance of developing cancer from exposure to a contaminant through ingestion or pose a non-carcinogenic risk as expressed by a Hazard Quotient (HQ) greater than 0.1 for contaminants in groundwater and 1xE-7 and 0.1 HQ in soils. Background values were derived from the Elmendorf Air Force Base Basewide Background Sampling Report, Volume 1. Contaminants which exceeded screening values were further evaluated in the Baseline Risk Assessment.

4.2.1 Surface and Subsurface Soil

Surface soil is defined as the ground surface to 12 inches depth. Subsurface soil is defined as below 12 inches depth. The following paragraphs discuss the COCs for surface and subsurface soil. Figures 5-1 through 5-3 depict surface and subsurface soil PCB and surface lead concentrations.

4.2.1.1 Lead

Lead was detected in 128 of 132 samples analyzed during the RI. The maximum concentration measured during the RI sampling was 4,300 mg/kg. The maximum lead concentration detected during EPA's removal actions investigations was 44,500 mg/kg. Supplemental sampling during the FS had detections up to 7,200 mg/kg in surface soil. The background soil concentration for lead is 13.3 mg/kg, as determined by studies conducted during the Elmendorf Air Force Base remedial investigations. Lead concentrations greater that 500 mg/kg do not extend below the first two feet of soil.

During the FS numerous additional samples were collected to conduct treatability tests. These samples focused on acquiring representative soils representing low, average, and high lead contamination. Low concentrations were around 500 mg/kg, average concentrations were around 1700 mg/kg, and high concentrations were around 5200 mg/kg. The highest lead concentration detected 24,000 mg/kg.

4.2.1.2 Other Inorganics

Arsenic, beryllium, cadmium, chromium, copper and zinc were detected above screening values and/or background. Arsenic concentrations were below background values (13.1mg/kg) in all but two samples (27 mg/kg and 55 mg/kg). These samples were located in areas with greater than 1000 mg/kg lead. Beryllium concentrations exceeded the screening criteria but were all

below background. Cadmium concentrations (maximum of 11.6 mg/kg) exceeded background values (3.01 mg/kg) but were below the screening criteria (100mg/kg). Chromium concentrations were all within background (48.4 mg/kg surface soils and 76.1 mg/kg in subsurface soils) and below the screening value of 137 mg/kg in all but three samples. These samples were all located in areas with greater than 1000 mg/kg lead. The maximum chromium concentration detected was 151 mg/kg. Copper was detected above background (20 mg/kg) and above the screening value of 2,900 mg/kg in only one sample. This sample had greater than 1,000 mg/kg lead. Zinc was detected (maximum 2,520 mg/kg) above area background (103 mg/kg) but below the screening value of 80,000,mg/kg.

4.2.1.3 PCBs

PCBs were detected in 89 of 132 soil samples analyzed during the RI. The maximum concentration measured during the RI/FS sampling was 380 mg/kg. Twenty nine of 212 samples had concentrations above 50 mg/kg. Stockpiled (Section 4.2.1.7) soils from the Removal Action had maximum PCB concentrations of up to 10,600 mg/kg. During sample collection for treatability testing samples were obtained from the stockpiled soils which had concentrations up to 3,500 mg/kg.

Subsurface PCB contamination extends to groundwater in three locations on site. These locations are depicted in Figure 5-2. Of approximately 120 subsurface soil samples collected (RI/FS and Removal Actions) 3 had concentrations greater than 50 mg/kg. Maximum concentrations of up to 519 mg/kg PCBs were detected in subsurface soils associated with the LNAPL. The LNAPL had PCB concentrations of 4,500 mg/kg.

During the FS numerous additional samples were collected to conduct treatability studies. These samples were focused on acquiring representative samples of low, average and high soil PCB contaminated soils. Low soils were around 50 mg/kg, average soils were around 150 mg/kg and high soils were around 700 mg/kg. The maximum high detected was 2700 mg/kg PCBs.

4.2.1.4 Dioxins and Furans

The concentrations of the dioxins and furans are expressed as 2,3,7,8-tetrachlorodibenzo-p-dioxin equivalent (2,3,7,8-TCDD equivalent). Dioxins and furans were detected at 9 of 10 surface sample locations. The maximum 2,3,7,8-TCDD equivalent concentration was 0.0017 mg/kg. All nine samples exceeded the screening value of .0000004 mg/kg.

4.2.1.5 Volatiles and Semivolatiles

Several volatile and semivolatile organic compounds were detected in the surface soils. These compounds include methylene chloride, trichlorofluoromethane, tetrachloroethane, bis(2-ethylhexyl)phthalate, butylbenzylphthalate, di-n-butylphthalate, di-n-octylphthalate, diethylphthalate, dimethylphthalate, 1,2,4-trichlorobenzene, 2-methylnaphthalene, acenaphthene, anthracene, fluoranthene, fluorene, naphthalene, phenanthrene, and pyrene. These compounds were all eliminated as potential COCs in the screening process after comparison of the maximum concentrations with the chemical specific RBCs.

One or more carcinogenic Polycyclic Aromatic Hydrocarbons (cPAH) were detected at 8 of 11 surface sample locations, often at estimated concentrations less than the practical quantification limit. No cPAHs were detected at the 9 subsurface soil sample locations. The maximum concentration of total cPAHs was 25.4 mg/kg.

4.2.1.6 Presence of Light Non-Aqueous Phase Liquid (LNAPL)

The LNAPL present at monitoring wells 17 and 19 locations is not evaluated separately as a medium of concern. The LNAPL is a very viscous, tarry material that cannot be effectively separated from the soil. Consequently, the LNAPL is considered as the same media of concern as subsurface soil.

During each groundwater sampling event all wells were monitored for the presence of both light and dense NAPL phases. DNAPL was not detected in any well. LNAPL was detected in MW-17A and MW-19A. Selected wells were examined for the presence of LNAPL using an oil/water interface probe during four separate measuring events. A layer of LNAPL was detected in MW-17A (0.23 to 0.44 feet thick) and MW-19A (0.05 to 0.89 feet thick). An LNAPL sheen was detected in well MW-17 for three events and in MW-19 for the first event only. Temporary wells MW-25 through MW-29 did not contain LNAPL during any of the measuring events. These data indicate that the LNAPL plume is confined to the central part of the site in the vicinity of MW-17A and MW-19A bounded by the temporary well locations 25, 26, 27, 28 and 29, where a free product layer was not detected. A sample of LNAPL was collected from MW-17A and analyzed for volatile and semivolatile organics, PCBs, and metals. The LNAPL analyte concentrations are compared with risk based screening values and MCLs for groundwater in the paragraph below. However, the risk based screening values and MCLs for groundwater are not applicable for product layer and are mentioned for comparative purposes only.

4.2.1.6.1 Concentration of PCBs in LNAPL

The MW-17A product sample was analyzed for seven congeners of PCBs. Only PCB 1260 was detected, at a concentration of 4500 mg/kg (the laboratory reports product results in mg/kg instead of mg/L).

4.2.1.6.2 Concentration of Lead in LNAPL

Lead was detected in the MW-17A product sample at a concentration of 4.3 mg/kg.

4.2.1.6.3 Concentration of Other Contaminants in LNAPL

Volatile organic compounds detected in the MW17-A product sample indicated concentrations of methylene chloride (9300 mg/kg), tetrachloroethane (3600 mg/kg), 1,3-dimethyl-cylochexane (3.0 mg/kg), 1,2-dichlorobenzene (0.62 mg/kg), 1,4-dichlorobenzene (2.8 mg/kg), ethylbenzene (1.7 mg/kg), tetrachloroethane (5.6 mg/kg), toluene (0.34 mg/kg), 1,1,1-trichloroethane (0.049 mg/kg), trichlorofluoromethane (0.017 mg/kg) and total xylenes (7.2 mg/kg), and six unknown hydrocarbon compounds.

Semivolatile organic compounds detected in the product sample included 1,4-dichlorobenzene (13 mg/kg), 1,2,4-trichlorobenzene (1300 mg/kg), 2-methylnaphthalene (33 mg/kg), and bis(2-ethylhexyl)phthalate (20 mg/kg).

Other metals detected in the product sample which exceeded screening values for groundwater included aluminum (116 mg/kg), calcium (84.5 mg/kg), chromium (0.72 mg/kg), copper (4.8 mg/kg), iron (148 mg/kg), magnesium (47.3 mg/kg), manganese (3.4 mg/kg), potassium (15.6 mg/kg) and vanadium (0.69 mg/kg). Arsenic, beryllium, cadmium, mercury, silver and thallium were not detected, but the detection limits were above their respective screening values.

4.2.1.7 Shotcrete Covered Soils

Approximately 1,600 cubic yards of PCB contaminated soils are covered with Shotcrete along the eastern boundary of the site. These soils have the highest concentration of PCBs detected at the site, with a maximum concentration of 10,600 mg/kg. An evaluation of frequency has not been conducted but the purpose of the stockpiling on-site was to address off-site hot spot areas which exceeded the OSC's off-site action level of 10 mg/kg. On-site soils which had high concentrations (not defined in OSC report but some were above 500 mg/kg PCB) of PCBs were excavated and placed in the are which was subsequently covered with shotcrete.

4.3 Groundwater

Three sets of groundwater data were obtained from twenty wells over approximately a one year period. Sampling was conducted at high and low groundwater events. Seven wells were

installed as pairs to monitor for dense and light non-aqueous phase liquids. Because of sampling problems associated with high sediment levels in groundwater the first round groundwater data was not utilized for PCBs, metals and semivolatile organic compounds. Phase 1 and 2 data were used for evaluating volatile organic compounds. Volatile organic compounds were not measured during Phase 3. Phase 2 and 3 data were used for evaluating metals and semivolatile compounds, including PCBs.

4.3.1 Lead

Lead was detected at 3 of 9 down gradient groundwater monitoring locations in Round 2 at concentrations of 0.0016 to 0.0031 mg/L. Lead was not detected at any of 8 down gradient locations in Round 3.

Lead concentrations in Rounds 2 and 3 are low relative to the EPA promulgated action level of 0.015 mg/L, and relative to background at Elmendorf AFB (0.047 mg/L). Considering the low frequency of detection and the low concentrations detected relative to the guideline, lead was not retained as a COC for groundwater.

4.3.2 PCBs

PCBs were detected in none of 12 well locations during Round 2. During Round 3, PCBs were detected at 2 of 9 well locations ranging from 0.000023 mg/L to 0.000032 mg/L. The concentrations are about 20 times lower than the MCL (0.0005 mg/L). Considering the low frequency of detection and the low concentrations detected relative to the MCL, PCBs were not retained as a COC for groundwater.

4.3.3 Volatile Organic Compounds

Tetrachloroethane (PCE) was detected at 2 of 12 sample locations during Round 1, and 2 of 9 sample locations during Round 2. The MCL for PCE is 0.005 mg/L and the RBC was 0.002 mg/L. PCE was detected at 0.0075 mg/L (MW-21) and 0.0022 mg/L (MW-24) during Round 1 (January 1993). During Round 2 (April/May 1993), the concentrations at these well locations (non-detect at MW-21 and 0.0016 mg/L at MW-24) were below both the MCL and close to the RBC. The additional Round 2 detection (0.0002 mg/L at well MW-23), was below both the MCL and the RBC. The 95% upper confidence limit concentration of PCE including Round 1 data (0.00176 mg/L) is less than the MCL and the RBC. PCE was not identified as a COC in soil in the RA. The maximum level of PCE measured in soil was 0.12 mg/kg. Based on the low levels of PCE in groundwater and no significant detections in soils, PCE is not retained as a COC for groundwater.

4.3.4 Semivolatile Organic Compounds

1,2,4-trichlorobenzene was detected at only two locations (MW-21 and MW-24). The measured levels were 0.0003 mg/L (MW-21) and 0.0007 mg/L (MW-24). These concentrations are below the state and federal MCLs (0.07 mg/L) and the RBC (0.02 mg/L). (1,2,4-trichlorobenzene was detected in MW-21 at 0.003 mg/L during Round 2, which is above the RBC. This concentration, however, was an estimated concentration below the practical quantification limit for that sample. 1,2,4-trichlorobenzene was detected at .024 mg/l at MW-21 during round 1, however this data was not utilized because of excessive sediment in the sample.) Consequently, 1,2,4-trichlorobenzene is not retained as a COC for groundwater.

4.3.5 Other Metals

Various metals in addition to lead were detected in groundwater samples from all twelve monitoring wells. As stated previously, Round 1 data will not be discussed here because high levels of sediments in those samples do not make them representative of groundwater conditions. Metals which exceeded screening values in Round 2 and/or Round 3 included arsenic (9 wells), cadmium (1 well), and manganese (1 well). Arsenic was the only metal that exceeded its screening value in up gradient monitoring well #23. The maximum reported detection for arsenic was 13.9 µg/L in well MW-18, which is below the MCL (50 µg/L). The

only metal to exceed its MCL was cadmium, which exceeded the MCL of 5 µg/L in MW-13 (29.1 µg/L) and up gradient well MW-23 (16.9 µg/L). Concentration of arsenic in Anchorage groundwater production wells ranged from 2 to 10 µg/L. This indicates that the arsenic levels detected in the groundwater samples only slightly exceed area background for the lower aquifer.

The reported background level for cadmium is 0.1 µg/L. However, the detection frequency of cadmium was low. Cadmium was detected at 3 of 9 well locations within or down gradient of the fenced area. Cadmium was detected in 4 of 32 samples collected from these wells. Further, it was detected only in unfiltered groundwater samples. The levels of cadmium measured in unfiltered samples ranged from 2.4 to 29 µg/L. Finally, as noted above, it was also detected at the up gradient MW-23 well location at a concentration of 16.9 µg/L. These data suggest that the few detections of cadmium likely result from the cadmium associated with sediment in unfiltered samples. The data do not suggest elevated cadmium resulting from past site operations.

4.4 Surface Water

No surface water runoff was observed at the site during the course of the RI. The only surface water feature in the site vicinity is Ship Creek. The average flow rate in Ship Creek is approximately 90 million gallons per day.

4.5 Sediment

Ship Creek sediment quality was evaluated in the RI. Samples were analyzed for lead and PCBs. Washington State 1991 Marine Sediment Guidelines were utilized for screening sediments because no federal or Alaska criteria were as stringent or available at the time. The PCB screening value was .07 mg/kg weight and the lead value was 31.0 mg/kg. The RI data revealed no significant impacts to Ship Creek sediment immediately adjacent to the site as far as 500 feet below the site from ongoing or current releases from the site. The scope of the RI did not include sampling further downstream because there were reported, non-site related, PCB spills into Ship Creek and sediments are periodically dredged from Ship Creek. These two activities would have made evaluating past site releases into Ship Creek impractical. Only two of 22 creek sediment samples contained lead (CS-261: 34 mg/kg and CSA6-3: 45 mg/kg) above the screening value; however, the CS-261 sediments were not found to be toxic to aquatic life as a result of using two toxicity tests and downstream benthic macro invertebrate samples indicated that the benthic communities appeared to be similar to upstream communities. Two of 22 creek sediment sampling locations (CS-268 and CSA6-3) contained PCBs above the detention limit. The measured concentration were 0.2 mg/kg and 0.078 mg/kg, which are above the screening value. Creek sampling locations are shown on Figure 5-4.

The detections of lead and PCBs may have resulted from transport of soil containing lead and PCBs from the site into the creek or from transport of sediments containing lead and PCBs from locations upstream from the site. Soil transport from the site could occur as surface water runoff (although surface water runoff from the site was not observed during the RI field investigations) or during flood events. The estimated area of submergence during a 100-year flood event is depicted on Figure 1-2. The soils present in the areas that would be submerged generally contain low levels of lead (maximum 350 mg/kg) and PCBs (maximum 12 mg/kg). The general lack of lead and PCB detections at significant concentrations in Ship Creek sediment samples, the lack of observed surface water runoff from the site, and the relatively low levels of lead and PCBs in soils that would be submerged during flooding suggest that impacts to the creek sediment from lead and PCBs originating from the site would not be significant. These soils are not creek sediments and as explained earlier, there is no direct surface water runoff pathway to transport them into Ship Creek.

The location of a wetland identified in the vicinity of the site is shown on Figure 1-2. No samples of the sediment in the wetland were collected during the RI; however, the nearest soil samples, located between the fenced area of the site and the wetland, about 50 feet from the edge of the wetland, contained low levels of lead (74 to 110 mg/kg) and PCBs (<0.03 to

1.4 mg/kg).

4.6 Air

Air dispersion modeling was performed to estimate potential maximum off-site ambient air concentrations and deposition of PCBs and lead resulting from contaminant emissions from the site under current site conditions and during salvage operations (pre 1986). Modeling was conducted using the EPA-approved Industrial Source Complex- Long-term Dispersion Model (ISCLT2). Modeling conclusions were that air concentrations and subsequent deposition were insignificant.

Air is not retained as a medium of concern.

4.7 Summary

The highest and most consistent detections of the principle contaminants, lead and PCBs, was found in surface and subsurface soils. These levels were not as high as those initially detected during the Removal Action. However, the RI did not re-sample the soil stockpile and therefore higher concentrations than were reported in the RI are likely present in the stockpile.

5.0 SUMMARY OF SITE RISKS

CERCLA response actions at the site as described in this ROD are intended to protect human health and the environment from current and potential future exposure to hazardous substances found at the site.

To assess the risks posed by site contamination, a "Baseline Human Health and Ecological Risk Assessment," (Risk Assessment) was conducted by EPA. The Risk Assessment assumes that there is no further site cleanup.

The site was divided into three Areas of Concerns (AOC) (Figure 6-1). The AOC's were selected based on current site conditions and historical activities. AOC-1 comprises the north eastern portion of the site. This area was where transformers and other materials were handled frequently. AOC-1 is characterized by the highest concentrations of PCBs and lead. It is also the area where PCB contained soils were stockpiled and covered during the Removal Action. AOC-2 comprises the remaining portions of the site within the EPA erected fence and areas bordering the site along Ship Creek. This area was used primarily as a storage area for the salvage operations prior to EPA's Removal Action. AOC-3 consists of areas outside the fence primarily on the north-west side of the site.

5.1 Human Health Risks

The site is currently a vacant lot. Past uses of the site and the surrounding property is industrial/commercial. Activities at the site are anticipated to stay industrial/commercial.

An assessment of the risks to human health involve a four-step process: identification of contaminants of potential concern (COPCs), an assessment of contaminant toxicity, an exposure assessment for the population at risk, and a quantitative characterization of the risk.

5.1.1 Contaminants of Potential Concern

An initial screening analysis was done to identify the chemicals of potential concern (COPCs). This screening involved two steps. In the first step, COPCs were selected based upon a very conservative estimate of potential health risk. Maximum concentrations of chemicals in media (e.g., soil and groundwater) on the site were compared to conservative risk based concentrations (EPA Region 3 Risk Based Concentration Table) and background values for inorganics. The risk based concentrations were derived assuming residential exposures; acceptable cancer risk levels of 1x10-7 for soil and 1x10-6 for water; and acceptable HQs of

0.1 (Table 6-2). For lead, the risk based criteria selected were 500 mg/kg for soil (After completion of the Baseline Risk Assessment, EPA lowered the screening level for lead to 400 mg/kg in soils. This change does not affect the conclusions of the Risk Assessment at this site) and 15 ug/l for water. These values are recommended by Superfund guidance.

The second step in the selection of COPCs was a more refined screening which narrowed the lost of COPCs by considering factors such as frequency of occurrence of each COC and detection limits.

The final list of COCs for soil and groundwater are: Arsenic, cadmium, copper, chromium, lead, dioxins/furans, PAH's, PCB's, tetrachloroethane, and 1,2,4-trichlorobenzene. The potential for these COCs to impact health was further evaluated using more realistic and site-specific exposure assumptions.

5.1.2 Risks Related to Compounds Other Than Lead

The methods used to assess exposure and toxicity and to characterize risk are different for lead than for other contaminants. Therefore, lead is discussed separately from the other contaminants in Section 5.4.

5.1.2.1 Toxicity Assessment

Toxicity information was provided in the Risk Assessment for the chemicals of potential concern (COPCs.) Generally cancer risks are calculated using toxicity factors known as slope factors (SFs), while noncancer risks are assessed using reference doses (RfDs).

EPA developed SFs for estimating excess lifetime cancer risks associated with exposure to potential carcinogens. SFs are expressed in units of (mg/kg-day)-1 and are multiplied by the estimated intake of a potential carcinogen, in mg/kg-day, to provide an upper-bound estimate of the excess lifetime cancer risk associated with exposure at that intake level. The term "upper-bound" reflects the conservative estimate of the risks calculated from the SF. Use of this approach makes underestimates of the actual cancer risk highly unlikely. SFs are derived from the results of human epidemiological studies, or chronic animal bioassay data, to which mathematical interpolation from high to low doses, and from animal to human studies, have been applied.

EPA developed RfDs to indicate the potential for adverse health effects from exposure to chemicals exhibiting noncarcinogenic effects. RfDs, which are expressed in units of mg/kg-day, are estimates of lifetime daily exposure for humans, including sensitive subpopulations likely to be without risk of adverse effect. Estimated intakes of contaminants of concern from environmental media (e.g., the amount of contaminant of concern ingested from contaminated drinking water) can be compared to the RfD. RfDs are derived from human epidemiological studies or animal studies to which uncertainty factors have been applied.

The Risk Assessment relied on oral and inhalation SFs and RfDs. For the two chemicals for which dermal exposures were able to be estimated (PCBs and chlorinated dioxins/furans), SFs were derived from oral SFs by adjusting for oral absorption. Toxicity factors were obtained from the Integrated Risk Information System (IRIS) or, if no IRIS values were available, from the Health Effects Assessment Summary Table (HEAST).

5.1.2.2 Exposure Assessment

The exposure assessment characterizes the exposure scenarios, identifies potentially exposed populations and their exposure pathways and routes of exposure, and quantifies exposure in terms of chronic daily dose (mg/kg/day of milligrams of contaminant taken into the body per kilogram of body weight per day).

For current land use, exposures to long-term workers in AOC 3 were considered, AOC 1 and 2 are fenced off and are not currently used. For future land-use, on-site exposures to workers

as well as potential future residents were added for evaluation. For residential exposures, the following pathways were considered: (1) exposure to soil contaminants through soil ingestion and dermal contact, and inhalation of soil contaminants that have volatilized or have been resuspended on particles in the air; and (2) exposure to groundwater contaminants through ingestion of drinking water and inhalation of volatiles during showering. For industrial exposures, all of the same pathways were considered except inhalation during showering.

EPA Superfund guidance recommends that both reasonable maximum exposures (RMEs) and average exposures be calculated in site risk assessment. RME exposures are calculated using assumptions that result in higher than average exposures to ensure that the risk assessment results are protective of the reasonably maximally exposed individual. For this risk assessment, RME and average exposures were quantified by using EPA default exposure factors (e.g., body weight, contact rate, exposure frequency and duration) with site-specific exposure point concentrations. Both RME and average (more typical) exposures were calculated for residents and workers.

To estimate exposure point concentrations (EPCs) for soil ingestion and dermal exposures, the 95 percent upper confidence levels (UCLs) on the mean were calculated separately for soils in each AOC. Because the EPA removal data representing soils below the shotcrete cap were not quantitatively evaluated, the EPCs do not include the highest PCB concentrations observed in soils at the site. For drinking water, the maximum values of the COPCs in individual wells were used as the EPCs.

5.1.2.3 Risk Characterization

For carcinogens, risks are estimated as the incremental probability of an individual developing cancer over a lifetime as a result of exposure to the specific carcinogen. Excess lifetime cancer risk is calculated by multiplying the SF (see toxicity assessment, Section 5.1.2.1) by the quantitative estimate of exposure, the "chronic daily intake." These risks are probabilities generally expressed in scientific notation (e.g., 1x10-6). An excess lifetime cancer risk of 1x10-6 indicates that an individual has a one in a million (1:1,000,000) chance of developing cancer as a result of site-related exposure to a carcinogen under the specific exposure conditions assumed.

The potential for noncarcinogenic effects is evaluated by comparing an exposure level over a specified time period (lifetime) with a RfD (see toxicity assessment section above) derived for a similar exposure period. The ratio of exposure to toxicity is called a hazard quotient (HQ). Hazard quotients are calculated by dividing the exposure by the specific RfD. By adding the hazard quotients for all contaminants of concern that affect the same target organ (liver, nervous system, etc), the hazard index (HI) can be calculated.

The RME provides a conservative but reasonable exposure scenario for considering remedial actions at a Superfund site. Based on the RME, when the excess lifetime cancer risks estimates are below 1x10-6, or when the noncancer HI is less than 1, EPA generally considers the potential human health risks to be below levels of concern. Remedial action may be warranted when excess lifetime cancer risks exceed 1x10-4 (one in ten thousand) and HIs exceed 1.0. Between 1x10-6 and 1x10-4, clean up may or may not be selected, depending on individual site conditions including human health and ecological concerns.

The following discussion summarizes the cancer and noncancer risk characterization results for the site.

5.1.2.4 Soil COC's

Cadmium, chromium, and copper were identified in the Risk Assessment (RA) as preliminary COCs for surface soils. None of these metals were identified in the RA as posing a carcinogenic risk above 10-6 or non-carcinogenic risk greater than a HQ of 1.0. The RA determined that metals other than lead do not contribute significantly to risk. These metals were not retained as COCs for developing Remedial Action Objectives (RAOs); however, their potential

contribution to cumulative systemic toxicity was utilized in evaluating overall risks for the site. RAOs are discussed in Section 6.

Polycyclic Aromatic Hydrocarbons; Each of the polycyclic aromatic hydrocarbons (PAHs) identified in the RA as a potential COC is a suspected carcinogen. The compounds are generally discussed as a group and referred to as carcinogenic PAHs (cPAHs). Neither total or individual cPAH risks exceeded the lower end of EPA's range (1xE-4) for any scenario or exposure pathway. Five of the cPAHs posed a risk greater than 1xE-6 for residential exposure via ingestion, and only two cPAHs posed greater than 1xE-6 risk for long-term worker industrial exposure via ingestion (Benzo(a)pyrene 3.2xE-6 risk and Chrysene 1.9xE-6 risk). The RA concluded that cPAHs are not significant risk driver at the site and cPAHs were not retained as COCs for development of RAOs.

5.2 Combined Short- and Long-Term Worker Exposure Pathways

Both short- and long-term workers may be exposed to soil ingestion, dermal contact, and particulate inhalation pathways. Short-term workers are characterized as construction, or utility workers who would be exposed to the site for a limited amount of time. Short term workers have a higher ingestion rate (480 vs. 50 mg/day) but shorter exposure frequency (<75 days/year vs. 250 days/year) and duration (1 year vs. 25 years) and averaging time for noncarcinogens (365 days vs. 9,125 days) than long-term workers.

5.2.1 Short-Term Worker

Combined RME short-term worker pathway excess cancer risks are 3E-5 in AOC-1, and combined AOC-1 hazard indices are 3.1. Risks are primarily contributed by PCBs. Cancer risks are within the 1E-4 to 1E-6 target risk range, while the hazard index exceeds the level of exposure unlikely to result in adverse health effects.

5.2.2 Long-Term Worker

Combined RME long-term excess cancer risks are 1E-3 in AOC-1 and combined AOC-1 hazard indices are 5.3. Combined RME long-term cancer risks are 1E-4 in AOC's 2 and 3, while combined hazard indices are 1.0 in AOC-3 and less than 1.0 in AOC-2. These risks are also primarily contributed by PCBs. PCB cancer risks exceed or are equivalent to the 1E-4 target risk range in all the AOCs. The hazard index in AOC-1 exceeds the level of exposure unlikely to result in adverse health effects.

5.3 Combined Residential Exposure Pathways

Combined RME excess cancer risks are in AOC-1, 6E-4 in AOC-2, and 9E-4 in AOC-3. Combined RME hazard indices exceed unity in all AOCs. PCB and 2,3,7,8-TCDD equivalent cancer risks exceed the 1E-4 to 1E-6 target risk range in all AOCs. Hazard indices for all AOCs exceed the level of exposure that is unlikely to result in adverse health effects. PCBs contribute the greatest to site risks, estimated at approximately 80%. Lead risks were not quantified but exceed EPA's soil screening values in all AOCs. Groundwater risks do not contribute significantly to total risks.

The RA reported that 2,3,7,8-TCDD equivalent presented as residential cancer risk exceeding 10-4. Dioxins and furans are retained as soil COCs for development of RAOs, because of their potential to contribute to the cumulative excess cancer risk. However, residential use of the site is highly unlikely and the risk posed by dioxins/furans to long and short term workers is within the acceptable risk range.

Combined Short- and Long-term workers, and residential risks are summarized in Tables 6-3 and 6-4.

The groundwater pathways do not contribute significantly to risk if inorganic risk are not considered, due to high background concentrations. The inorganic risks were attributed to

background contaminants. Lead risks are discussed below.

5.4 Risks Related to Lead Only

There is substantial scientific literature on the toxicology effects or lead in humans. Children appear to be the segment of the population at greatest risk from the toxic effects of lead. Health impacts from lead are primarily assessed by using levels of lead in blood. At blood lead levels of 40 to 100 micrograms per deciliter (ug/dL), children have exhibited nerve damage, permanent mental retardation, colic, anemia, brain damage, and death. Blood lead levels as low as 10ug/dL (or lower) have been associated with neurological and developmental defects in children. Blood lead levels of concern for adults are generally higher than for children. However, studies examining the relationship between lead exposure and blood pressure suggest that blood lead levels from as low as 7 ug/dL upward to approximately 30 or 40 ug/dL may increase blood pressure. In addition, studies suggest that low levels of exposure for pregnant women may increase the risk for developmental effects in the unborn child.

For lead in soil, EPA's Office of Solid Waste and Emergency Response (OSWER) has issued Interim Soil Lead Guidance for CERCLA sites. In this guidance, a 400 mg/kg screening level for lead in soil under residential land use is recommended. This level was derived using the Integrated Exposure Uptake/Biokinetic (IEUBK) Model to estimate a soil concentration that will not result, under default residential exposure assumptions, in an unacceptable blood lead level in children. Exceeding this level does not necessarily indicate that a remedial action is necessary, but does indicate that a site-specific study of risks is warranted. Residential cleanup standards for CERCLA remedial actions can be developed using the IEUBK Model on a site-specific basis where site data support modification of model default parameters. EPA considers this model to be the most appropriate and widely applicable tool available for evaluating residential risks from lead.

Lead was not included in the quantitative risk estimates of the Risk Assessment because: (1) EPA-approved RfDs and Sfs are unavailable, and (2) EPA guidelines specify the use of the EPA Integrated Exposure Uptake/Biokinetic (IEUBK) model for estimating acceptable lead levels in soil for children in residential scenarios but there is no EPA accepted model for estimating lead exposure to adults in Industrial scenarios.

The IEUBK model estimates the blood lead concentrations expected to result from exposure to lead concentrations in soil and other media (e.g., air, water, diet, dust, and paint) for children. EPA recommends a benchmark of either 95 percent of the sensitive population of children having blood lead levels below 10ug/dL or a 95 percent probability of an individual child having a blood lead level below 10ug/dL. When the IEUBK model is run using this benchmark and all the model's default parameters, an acceptable soil screening level of about 400 mg/kg is predicted for lead. [Note: When the Risk Assessment was done for the site the IEUBK model in use by EPA predicted an acceptable soil screening level of about 500 mg/kg. The newer version of the model predicts a level around 400 mg/kg.]

The IEUBK model does not address lead exposure to older children or adults. Therefore, potential risks associated with exposures of adult residents and workers could not be quantitatively evaluated using the IEUBK model. However, the exposure potential and sensitivity of older receptors are generally lower than those of young children.

Health impacts for lead were characterized by comparing the exposure point concentrations calculated for lead in soil at the site, using the methods summarized above to 500 mg/kg (for residential exposures); and to 1,000 mg/kg (for industrial exposure). In both case, risks associated with either residential or industrial exposures to the elevated concentrations of lead in site soil were determined to present significant risks to human health. Therefore, a cleanup action to address the lead-contaminated soil at the site is warranted.

5.5 Ecological Risk Assessment

The objective of the ecological risk assessment was to evaluate potential harm to ecological receptors posed by chemicals in environmental media both on- and off-site. The scope of assessment was limited to the two primary chemicals-of-concern, PCBs and lead. The assessment identifies several groups of potential ecological pathways and receptors:

- Vegetation potentially exposed through contact with soils
- Soil-dwelling invertebrates potentially exposed through contact with soil
- Small mammals potentially exposed through ingestion of soil and contaminated food
- Aquatic life potentially exposed through contact with sediments, or through ingestion of contaminated prey.

The ecological risk assessment concluded that the most sensitive ecological habitat in the site vicinity is found in Ship Creek. It further concluded that the data indicate that conditions within Ship Creek, within the study area, are not significantly impacted by contamination from the site.

The ecological risk assessment observed that the highest contamination concentrations were measured in the area where former site operations were concentrated and that, because of the gravely fill material and shotcrete cap, little ecological habitat is present in this area.

Based on the information presented in the ecological risk assessment, it appears that risk to ecological receptors are small, due to the poor habitat of the site. Concentrations of PCBs outside the existing fence and adjacent to Ship Creek pose a risk to ecological receptors.

5.6 Uncertainty in the Risk Assessment

The accuracy of the risk characterization depends in large part of the accuracy and representatives of the sampling, exposure, and toxicological data. Most assumptions are intentionally conservative so the risk assessment will be more likely to overestimate the risk than to underestimate it. For instance, the Risk Assessment did not alter the exposure frequency to account for at least five months of frozen, or snow covered soils at the site.

Uncertainty in the toxicity evaluation may over-estimate risks by relying on slope factors that describe the upper confidence limit on cancer risk from carcinogens. Also, evidence for carcinogenicity of the contaminants of potential concern are based on animal studies and limited human data. Some under-estimation of risk may occur, however, due to lack of quantitative toxicity information for some contaminants detected at the site, and because the PCB-contaminated soils below the shotcrete were not quantitatively evaluated. The soils stockpiled below the shotcrete had PCB detections up to 10,600 mg/kg.

5.7 Conclusion

The Baseline Risk Assessment supports the conclusion that hazardous substances are found on the site and that the actual or threatened release of these substances from this site, if a response action is not taken, may present an imminent and substantial endangerment to the public health, welfare, or the environment.

6.0 REMEDIAL ACTION OBJECTIVES AND CLEANUP STANDARDS

The overall objective of the remedial actions for the Standard Steel and Metals Salvage Yard Site is to provide an effective mechanism for protecting human health and the environment from contaminated site soils, while allowing future industrial use of the property. Remediating the site to industrial cleanup levels is appropriate because the existing land use is industrial/commercial and future land use plans of the municipality of Anchorage call for maintaining industrial/commercial zoning at the site and surrounding area. The following remedial action objectives for each contaminated media have been developed to describe what site remedial actions will need to be accomplished.

Groundwater us not retained as a medium of concern for development of RAOs; however, prevention of future migration of contaminants into groundwater will be addressed by the selected remedy.

Sediment is not retained as a contaminated medium for development for development of RAOs; however, prevention of future migration of contaminants into creek or wetland sediments will be addressed by the selected remedy.

Surface and subsurface soil (which includes the LNAPL soil) are retained as media of concern for development of RAOs. Table 5-1 shows the COCs for the soil medium. Groundwater, surface water, and sediments are not retained as contaminated media for development of RAOs; however, prevention of future migration of contaminants into groundwater, surface water, and sediments will be addressed by the selected remedy.

PCBs are the dominant quantified risk driver, estimated to contribute at least 80% of the risk at the site. While lead was not quantified, a comparison of the lead concentrations to other contaminants, besides PCBs, showed that lead represents the next most significant contaminant at the site. Based on the majority of risks being contributed by lead and PCBs, and the fact that all other contaminants are co-located with PCBs and lead, these two compounds were selected as "limiting chemicals" for evaluating the site and remedial action objectives.

Remedial actions at the site are required for contaminated soils only. Groundwater sediments, and surface water do not pose an unacceptable risk and therefore do not require remedial actions. These three media, as well as air, are media of concern because without taking action on contaminated soils, these media would potentially pose an unacceptable risk in the future.

6.1 Remedial Action Objectives

The RAO's identified for the site are to:

- Prevent exposure by inhalation, ingestion, and dermal contact with contaminated soils that would result in an excess lifetime carcinogenic risk above 1E-4 for industrial use, and off-site non-industrial use;
- Prevent exposure by inhalation, ingestion, and dermal contact with contaminated soils that would result in noncarcinogenic health effect as indicated by an HI greater than 1.0;
- Prevent off-site migration of contaminants caused by mechanical transport, surface water runoff, flood events, and wind erosion;
- Prevent leaching or migration of soil contaminants into groundwater that would result in groundwater contamination in excess of regulatory standards.

These RAO's will protect surface water and sediment media of concern.

6.2 Cleanup Standards

Using the RAOs, cleanup standards were developed for each of the contaminants of concern. Cleanup technologies can be evaluated against these cleanup standards.

6.2.1 Soil Cleanup Standards

Based upon future industrial land use on the site, cleanup standards for the soil on-site are required for 2 contaminants: PCBs and lead. The estimated upper-bound cancer risks were unacceptable (>1x10-4) for PCBs. Lead levels were found on site which exceed the residential screening level (400 mg/kg) and which are above typical industrial cleanup levels. Two sets of cleanup standards will apply to the site. One set for the area of the site which will have engineering and/or institutional controls applied to it. In general the controlled area will be inside the existing fence. Another set of cleanup standards for lead and PCBs will

be for areas on the site that will have unrestricted access and which pose more ecological concerns. In general, those areas will be outside of the existing fence. PCBs have been detected at levels which would pose a risk to ecological receptors beyond the fence line and pose an estimated 1E-4 risk to long-term workers in AOC 3.

There are no federal or Alaska regulatory cleanup standards for PCBs or lead in soil. The cleanup standards applied at the site soil are derived from two main sources.

EPA guidance on soil cleanup levels (for PCBs and lead);
Risk-based concentrations when guidance is not available.

6.2.1.1 PCB Cleanup Standards

For PCBs in soil, EPA established a nationwide spill cleanup policy under the Toxic Substance Control Act (TSCA), 15 U.S.C. §2601 et. seq. The requirements specified under 40 CFR 761, Subpart G, particularly with respect to the clean up of PCB-contaminated soil, are considered a to-be-considered (TBC guidance for purposes of CERCLA actions. The TSCA cleanup policy applies to spills containing PCBs at concentrations greater than 50 mg/kg. The cleanup standard for surface soils in restricted access areas is 25 mg/kg and for nonrestricted access areas is 10 mg/kg, with at least a 10 inch cover of clean (less than 1.0 mg/kg PCB) soil.

Less stringent cleanup standards may be approved by EPA on a site-specific basis, as defined in 40 CFR § 761.120(c), if factors associated with the spill "may mitigate expected exposures and risks or make clean up to these requirements impracticable." Alternatively, more stringent levels may be required by EPA based on site-specific factors (e.g., depth to groundwater or presence of drinking water wells) as outlined in 40 CFR § 761.120(b).

For CERCLA sites, EPA developed guidance which recommends action levels for contaminated soils in both residential and industrial land use scenarios. The action level for industrial sites is between 10-25 mg/kg PCBs in soils.

Based on the above guidances and site-specific conditions, EPA has selected 10 mg/kg PCB as the cleanup level for soil within the current fenced area (industrial use) and 1 mg/kg PCB for soils outside of the fenced area. The soil above these levels will have to be a part of the response action. Table 6-5 presents residual risks posed by the main risk drivers, excluding lead.

6.2.1.2 Lead Cleanup Standards

For Standard Steel and Metal Salvage Yard an industrial land-use scenario is considered most appropriate. Unfortunately, the IEUBK Model is applicable only to children, and no IEUBK model is currently approved by EPA for developing an adult industrial screening level for lead.

To mitigate health impacts from lead exposure, a 1000 mg/kg soil cleanup level was chosen as protective. This level is consistent with other Superfund lead cleanup levels at industrial sites and past EPA guidance (current EPA guidance suggests a 400 mg/kg screening level is protective for residential scenarios, no screening level is given for industrial scenarios).

Soil lead concentrations exceed 1000 mg/kg over much of the site in surface soils. The RI data show that all soils with greater than 1,000 mg/kg lead in surface soils were within the 10 mg/kg PCB surface soil contour.

Lead in excavated soil is a RCRA hazardous waste when the results of the Toxicity Characteristic Leaching Procedure (TCLP) exceeds 5 mg/kg. When a soil fails TCLP for lead it is known as a "characteristic" hazardous waste. Concentrations of 1,000 mg/kg for lead in site soils have failed TCLP, and therefore, are considered hazardous waste.

Considering the RCRA characteristic waste criteria, collocation of soils with greater than 10 mg/kg PCBs with 1000 mg/kg lead contaminated soils, EPA's lead cleanup guidance, and other lead cleanup levels at Superfund sites, the soil cleanup standard for lead at 1000 mg/kg was selected for the site. Soils exceeding 500 mg/kg outside current fenced area will be consolidated into the remediation area. A 500 mg/kg cleanup level was selected instead of current guidance of 400 mg/kg lead screening level in soils because the surrounding land use is industrial, and will remain industrial in the future. These soils are not considered RCRA wastes. However, these soils could be transported to Ship Creek in the future by surface activities or surface water runoff and pose an unacceptable risk to biological receptors.

Therefore, excavating and treating soils with greater than 1000 mg/kg lead would occur to reduce the risks posed by lead in those soils and those soils would require treatment to comply with RCRA. Cleanup levels established for lead at other industrial sites in the region were considered in establishing the cleanup standard at the site.

6.3 Cleanup Standards Conclusions

Based on the information gathered and evaluated in the RI/FS, EPA concludes that contaminated soil on the site presents an unacceptable risk to human health, welfare, and the environment. All other contaminants of concern detected at the site above risk based levels were contained within soils with greater than 10 mg/kg PCBs and 1000 mg/kg lead. Therefore actions taken for PCBs and lead will address all remaining unacceptable risks at the site.

As stated above, the area within the existing fence line is considered the remediation area. This area, depending upon the alternative, will require an element of remediation (capping, treatment, or excavation) and institutional controls. The area outside of the existing fence line will not have engineered controls, thus, those area will have a 1 mg/kg PCB and a 500 mg/kg lead cleanup level for protection of ecological receptors adjacent and within Ship Creek. All soils removed from outside of the existing fence line will be consolidated and disposed of within the existing fence boundary, outside of the flood plain.

Liquid PCBs, if present, are considered a principle threat at the site for PCBs. Principle threat lead soils are those which will always fail TCLP. TCLP tests run during the RI found a concentration of 3,000 mg/kg lead always exceeded 5 mg/L lead. The determination of principle threat lead soils is not a significant factor for evaluating remedial actions at the site, but all principle threat soils will be treated. All soils failing TCLP are a continuing source which could impact groundwater, and soils with greater than 500 mg/kg PCBs pose an estimated one to two orders of magnitude greater risk than the acceptable low end risk range, 1Ex-4 and are a potential source for impacting groundwater.

EPA evaluated the impacts of dioxins/furans in the Baseline Risk Assessment. The assessment determined that dioxins/furans do pose a risk. These soils are collocated with PCB soils having greater than 10 mg/kg PCBs. All actions taken to address PCBs will also address dioxins/furans.

Soil cleanup standards* for the site are:

Contaminant	Within Fence Line	Beyond Fence Line
PCBs	10 mg/kg	1 mg/kg
Lead	1,000 mg/kg	500 mg/kg

* EPA altered the subsurface cleanup level contained in the FS for PCBs from 50 mg/kg to 10 mg/kg to consolidate all soils which would pose an unacceptable risk if these soils were exposed in the future by site activities or erosion. This consolidation will ensure that all surface soils contain less than 10 mg/kg PCBs even after remedial actions are complete without monitoring soil concentrations or maintaining a clean soil layer (when applicable). The cost of this alteration is not considered significant because treatment of soils between 10 mg/kg and 50 mg/kg is not required and there is a reduction in monitoring and maintenance costs consolidating contaminated soils.

7.0 DESCRIPTION OF ALTERNATIVES

General response actions and the process options chosen to represent the various technology types are combined to form alternatives for the site as a whole. Alternatives were developed to represent a range of potential remedial actions, including institutional controls, on-site containment, on-site treatment, and off-site treatment and disposal.

The alternatives include a no-action alternative (Alternative 1); an alternative using institutional controls with limited on-site remedial actions (Alternative 2); a capping alternative (Alternative 3); two alternatives that combine containment of low threat soil with treatment of principal threat soil (Alternatives 4 and 5); three alternatives that incorporate on-site treatment of both low threat and principal threat soil (Alternatives 6, 7, and 8); and two alternatives that incorporate off-site treatment and disposal of both low threat and principal threat soil (Alternatives 9 and 10).

All alternatives considered except Alternative 1, include: (1) excavation and disposal within the existing fence line of contaminated soils from ecologically sensitive areas (flood plains and wetlands); and (2) treatment or disposal of materials stockpiled on-site from EPA removal actions, remaining scrap material that are deemed hazardous wastes under RCRA or as PCB wastes under TSCA, and investigation derived wastes.

An important element in considering each alternative is the residual risk to human health and the environment after completion of remedial actions. The risk equations and exposure parameters used in the residual risk calculations were the same as those used in the Baseline Risk Assessment except for Exposure Frequency. The exposure frequency was changed to 150 days/year to account for the presence of frozen ground for five months of the year at the site.

Estimates of volumes of soil to be excavated, treated, and disposed of were obtained in the following manner. In the feasibility study, volumes of soil are divided into two major categories: principal threat soils (i.e., soils with greater than 3,000 mg/kg lead and soils with greater than 500 mg/kg PCBs) and soils exceeding remedial action goals (i.e., soils with greater than 1,000 mg/kg lead and/or greater than 10 mg/kg PCBs, and subsurface soils with greater than 1,000 mg/kg lead and/or greater than 50 mg/kg PCBs).

After the FS was completed EPA decided that the subsurface soil PCB cleanup level was should be 10 mg/kg. This change will affect the volume estimates for subsurface excavation for the selected remedy. This alteration was deemed more protective of human health and the environment because it ensures future releases would not occur from vehicular traffic, freeze thaw process and erosion. Based on current site information this alteration should not result in a significant volume increase, in excavated soils.

For each category of soil, a range of potential volumes was estimated. The minimum estimated volumes of soil are obtained using existing soil data with limited extrapolation into areas where sampling was not conducted. The maximum estimated volumes of soil are obtained using the existing soil data with extrapolation that involved estimating a potential maximum extent of contaminated area based on assessment of existing data.

Present worth cost of each of the alternatives was estimated using the procedures described in the EPA Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA (EPA 1988). Consistent with this guidance the cost for each alternative (where appropriate consisted of an estimation of capital (based on volume estimates, and contingencies) operation and maintenance, and present worth costs determined for 30 years at a 10 percent discount rate. Operation, maintenance and monitoring costs vary per alternative depending on action (soil cover vs geomembrane cap, removal of all soils vs removal of principle threat soils) and groundwater monitoring results after five year review) Ranges of costs are presented based on the sensitivity of the costs to the volume of soil requiring remediation and the unit costs of transportation, treatment, and disposal.

7.1 Individual Analysis of Alternatives

Detailed description of these elements is presented in the discussion of the selected remedy only. (See chapter 10)

7.1.1 Alternative 1 - No Action/Monitoring

Alternative Description

Alternative 1 includes these key components:

- Long-term groundwater and surface water monitoring

The existing fence would provide a margin of protection by restricting access; however, the fence would not provide long-term protection because it would not be maintained under this alternative, and a fence is not an engineering control to eliminate migration of contaminated soil by wind erosion, site activities, or a major flood event. The hazardous substances stockpiled on site would also remain and, over time, present a threat of future releases into the environment. Detoxification of the soil as a result of the natural degradation of the COCs over time is not expected to contribute significantly to long-term effectiveness as lead does not degrade and degradation of PCBs is slow. The half-lives of the more highly-chlorinated PCB congeners in soil environments are estimated to be 20 to 30 years, under controlled laboratory conditions.

7.1.1.1 Cost

Capital Cost.....$ 0.0
30 Years Operations and Maintenance Cost.....$ 264,000
Present Worth (1).....$ 264,000

(1) Discount rate (10%) is the average rate of return on private investment, before taxes and after inflation.

7.1.2 Alternative 2 - Limited Action

Alternative Description

Alternative 2 includes these key components:

- Removal of regulated material stockpiled on-site and disposal in a RCRA Subtitle C or D landfill
- Excavation and, consolidation within existing fenceline, or impacted and estimated 650 cubic yards (cy) soil from flood plain
- Installation and maintenance of a protective cover over upland areas
- Off-site disposal of 150 tons of scrap and debris by recycling or in a TSCA or RCRA Subtitle C or D landfill
- Maintenance of the existing fence to restrict access to the site
- Institutional controls to restrict land uses.
- Long-term groundwater and surface water monitoring

Institutional controls would limit site use to industrial/commercial use and would prohibit use of the site for potentially high-exposure commercial use such as a day care facility. Land use restrictions combined with the fence would greatly reduce the potential for future exposure of children to lead in site soils. This alternative would require long-term maintenance of the existing shotcrete cover over the northern part of the site and establish health and safety procedures for future workers should soil excavation be conducted.

Other long-term management controls would include groundwater and surface water monitoring and installation and maintenance of a protective cover. The cover would consist of 12 inches

of soil over the existing contaminated surface soils to prevent direct exposure to COCs. The protective cover would reduce long-term worker exposure (by about one order of magnitude based on EPA's PCB guidance) and would prevent erosion and migration of contaminated soil to surface water on wetlands. The alternative contains no provisions for treatment or containment of the LNAPL soil.

The relatively small volume of soil containing greater than 500 mg/kg lead or 1 mg/kg PCBs that is present in the flood plain would be consolidated within the fenced area and beneath the protective cover.

7.1.2.1 Cost

Capital Cost.....$ 1,290,000
30 Years Operations and Maintenance Cost.....$ 283,000
Present Worth (1).....$ 1,573,000

(1) Discount rate (10%) is the average rate of return on private investment, before taxes and after inflation.

7.1.3 Alternative 3 - Capping

Alternative Description

The key components of Alternative 3 include:

- Removal of regulated material stockpiled on-site and disposal in a RCRA Subtitle C or D landfill
- Off-site disposal of 150 tons of scrap debris by recycling or disposal in a TSCA or RCRA Subtitle C or D landfill
- Capping all soils exceeding the cleanup levels
- Consolidation, under the cap, an estimate 1,800 cy of soil exceeding cleanup levels from areas outside the proposed capping area
- Installation and maintenance of a protective cover over remaining upland areas of the site
- Institutional controls to restrict land use

The cap would cover an area of about 19,000 square yards. The capped area is entirely outside of the limits of the 100-year floodplain. Soil from areas beyond the proposed capping area with lead or PCBs above cleanup levels would be excavated and consolidated beneath the cap, however, none of these soils would be characteristic hazardous waste by TCLP-lead or would contain greater than 50 mg/kg PCBs. Soil stockpiled during the EPA removal action would also be capped.

The consolidation area would be compacted prior to cap placement. The consolidation area would be capped with a composite layer consisting of a 6-inch sand base layer, a minimum 60 mil thick synthetic liner, a 6-inch sand drainage layer, and a 12-inch soil top layer. Run-on water would be diverted away from the capped area. Based on groundwater modeling, this cap configuration would limit groundwater infiltration to less than 0.01 feet per year and decrease the potential for groundwater contamination. The LNAPL soil would be capped but not treated.

The cap would be designed to be resistant to freeze-thaw and burrowing animals. Since the low permeability layer of the cap consists of a synthetic liner and not clay, freeze-thaw resistance could be achieved by providing a base for the synthetic liner that is composed of non-frost susceptible material, such as sand. Resistance to burrowing animals could be achieved by incorporating a layer of cobbles or heavy-guage wire mesh above the synthetic liner. The cap would also be designed to support vehicle traffic.

This alternative would require long-term maintenance and repair of the cap. Maintenance would include yearly inspections of the cap. The inspections would assess any damage to the

synthetic liner or cover materials caused by surface water erosion, freeze-thaw action, or human or animal activities. The inspections would be conducted after breakup, when any potential effects of erosion and freeze-thaw would be most visible.

A protective cover would be placed over upland areas that are not capped. The cover would consist of 12 inches of soil containing less than 1 mg/kg PCBs.

Protection of Ship Creek and wetland sediment and water quality would be achieved through installation of the cap, as the cap would effectively isolate impacted soil from surface water. Soil within the flood plain containing >500 mg/kg lead or >1 mg/kg PCBs would be excavated and consolidated on-site beneath the cap.

7.1.3.1 Cost

	Low	High
Capital Cost	$ 2,839,000	$ 2,862,000
30 Years Operations and Maintenance Cost	$ 283,000	$ 283,000
Present Worth(1)	$ 3,122,000	$ 3,145,000

(1) Discount rate (10%) is the average rate of return on private investment, before taxes and after inflation.

7.1.4 Alternative 4 - Containment with Treatment of Principal Threat Soils by Stabilization/Solidification

Alternative Description

The key components of Alternative 4 include:

- Removal of regulated material stockpiled on-site and disposal in a RCRA Subtitle C or D landfill, or recycling
- Off-site disposal of 150 tons of scrap debris by recycling or in a TSCA or RCRA Subtitle C or D Landfill
- Excavation and treatment by stabilization/solidification of an estimated 4,400 cy of soil containing lead and PCBs above principal threat concentrations
- Capping all remaining soils exceeding the cleanup levels
- Containment of the LNAPL soil within a 20,000 square foot slurry wall
- Excavation and consolidation beneath the cap of impacted soil from the flood plain
- Installation and maintenance of a protective cover over remaining upland areas of the site
- Institutional controls to restrict land use
- Groundwater monitoring meeting the requirements of 40 CFR § 271.75 (b)(6)

The combination of treatment of principal threat soils and containment of low threat soils is consistent with the NCP (40 CFR § 300.430(a)(iii)(A) through (C)).

The cap would be constructed in the same manner and would cover the same area for this alternative as for Alternative 3 (Capping). The area of the cap, the source areas that would be consolidated beneath the cap, the principal threat soil source areas, and the location of the slurry wall are depicted on Figure 8-1. The cap would have the same beneficial effects in preventing contact with impacted soil and minimizing surface water infiltration as discussed for Alternative 3. The area contained by the vertical barrier (discussed below) would be included within the capped area. Areas outside of the cap would be covered with 12 inches of soils containing less than 1 mg/kg PCB.

All principal threat soil (greater than 3000 mg/kg lead and 500 mg/kg PCBs) at the site would be treated to significantly reduce mobility of the containments using stabilization/ solidification. The stabilization/solidification treatment is described in greater detail under Alternative 6. The treated soil would be placed on-site beneath the cap above the zone of groundwater fluctuation and below 1 foot depth. Some principal threat soil is present in

the stockpiled soil from the EPA removal action. The principal threat soil would be treated and the remainder of the stockpiled soil would be consolidated beneath the cap. The stabilization/solidification treatment would result in a soil volume increase (estimated to be 15 to 30%) due to addition of stabilizing agents.

Further groundwater protection would be provided by containing the LNAPL soil area (the area beneath grids B4 through E5, Figure 8-1) within a low-permeability soil/bentonite slurry wall that is keyed five feet into the low-permeability Bootlegger Cove Formation. The LNAPL containment area is included within the capped area. The perimeter of the wall is approximately 800 feet and the area of the wall (assuming the Bootlegger Cove Formation is an average of 25 feet from the soil surface) is 20,000 square feet. The wall would be formed by excavating a trench around the area to be contained. The trench would be filled with a bentonite slurry. The soil excavated from the trench, which is not expected to be significantly contaminated, would be mixed with bentonite, and the slurry mixture backfilled into the trench to form the cutoff wall.

Protection of Ship Creek and wetland sediment and water quality would be achieved through the treatment for mobility of the principle threat soils and installation of the cap, as the cap would effectively isolate impacted soil from the surface water. Soil within the flood plain containing >500 mg/kg lead or >1 mg/kg PCBs would be excavated and consolidated on-site beneath the cap.

Institutional controls, including land use and access restrictions would be used. The deed and access restrictions would be the same as those described for Alternative 3. Groundwater monitoring would be conducted meeting the requirements of 40 CFR 271.75(b)(6).

7.1.4.1 Cost

	Low	High
Capital Cost	$ 4,367,000	$ 4,505,000
30 Years Operations and Maintenance Cost	$ 283,000	$ 283,000
Present Worth(1)	$ 4,650,000	$ 4,788,000

(1) Discount rate (10%) is the average rate of return on private investment, before taxes and after inflation.

7.1.5 Alternative 5 - Stabilization/Solidification with Treatment of PCB Principal Threat Soils by Thermal Desorption

Alternative Description

The key components of Alternative 5 include:

- Removal of regulated material stockpiled on-site and disposal in a RCRA Subtitle C or D landfill, or recycling
- Off-site disposal of 150 tons of scrap debris in an appropriate landfill (TSCA, RCRA Subtitle C or D)
- Treatment of an estimated 3,500 cy of soil exceeding the PCB principal threat level using the thermal desorption
- Excavation and on-site stabilization/solidification of an estimated 12,600 cy of soils exceeding cleanup levels
- Disposal of treated soil on-site in a TSCA landfill
- Off-site disposal of thermal desorption process residuals, including lead-contaminated dusts (RCRA Subtitle C landfill) and desorbed PCBs (incineration)
- Excavation and consolidation within the existing fenceline of impacted soil from the flood plain
- Installation and maintenance of a protective cover over upland areas of the site
- Institutional controls to restrict land use
- Long-term maintenance of a fence to restrict access to the containment area

Soil above cleanup levels would be excavated and pre-processed. Soil containing greater than 500 mg/kg PCBs would be segregated for treatment using thermal desorption. Soil containing less than 500 mg/kg but greater than 50 mg/kg PCBs and greater than 1,000 mg/kg lead would be stabilized. Soil containing less than 1,000 mg/kg lead and 50 mg/kg PCBs would be disposed of on-site at a depth of greater than one foot but above the zone of groundwater fluctuation. The zone of groundwater fluctuation would be backfilled with clean fill. The locations and approximate depths of the soil that would be treated are depicted on Figure 8-2. After pre-processing, the volume of soil to be treated by thermal desorption would be approximately 2,400 to 2,900 cubic yards, and the volume treated by stabilization/solidification would be approximately 7,700 to 12,600 cubic yards. Detailed descriptions of the stabilization/solidification and thermal desorption treatments are presented under Alternatives 6 and 8, respectively.

The LNAPL soil would be excavated, solidified and disposed of on-site or, if PCB concentrations are greater than 500 mg/kg, treated by thermal desorption.

A protective cover consisting of 12 inches of soil containing less than 1 mg/kg PCBs would be placed over upland areas of the site to minimize erosion and potential for migration of contaminants to surface water or wetlands. Soil within the flood plain containing >500 mg/kg lead or >1 mg/kg PCBs would be excavated and consolidated on-site beneath the cover. Long-term groundwater monitoring would be conducted to assess the effectiveness of the treatment for protecting groundwater.

7.1.5.1 Cost

	Low	High
Capital Cost.....$	7,346,000	$ 8,866,000
30 Years Operations and Maintenance Cost.....$	283,000	$ 283,000
Present Worth(1).....$	7,629,000	$ 9,149,000

(1) Discount rate (10%) is the average rate of return on private investment, before taxes and after inflation.

7.1.6 Alternative 6 - Stabilization/Solidification

Alternative Description

The key components of Alternative 6 include:

- Removal of regulated material stockpiled on-site and disposal in a RCRA Subtitle C or D landfill
- Disposal of 150 tons of scrap debris by recycling or disposal in a TSCA or RCRA subtitle C or D landfill

Excavation of an estimated 12,600 cy of soil with subsequent treatment by stabilization/solidification of soils

- Disposal of an estimated 18,300 cy of stabilized/solidified soil on-site in a TSCA landfill
- Excavation and consolidation within the existing fenceline of impacted soil from the flood plain
- Installation and maintenance of a protective cover over upland areas of the site
- Institutional controls to restrict land use
- Long-term Operation, Maintenance, and Monitoring of the stabilized/solidified soils and the protective cover (if no re-use of solidified soils)
- Groundwater monitoring that meets the requirements of 40 CFR § 761.75(b)(6)

Soil above cleanup levels would be excavated and pre-processed to remove debris and oversized rocks. Soil containing between 10 mg/kg and 50 mg/kg PCBs would be backfilled on-site at a depth of greater than one foot but above the zone of groundwater fluctuation in the on-site TSCA landfill. The zone of groundwater fluctuation would be treated are depicted on Figure 8-3. The excavated, pre-processed soil would be added to a pug mill where it would be mixed with the stabilizing additives and placed in the landfill. After pre-processing the total volume of soil to be treated would be approximately 7,700 to 12,600 cubic yards. A mixture of 16% cement and 8% fly ash, which was determined to be the most effective combination during the treatability study, is the suggested stabilizing agent combination. The LNAPL soil may be included with the soil that is stabilized/solidified.

The exact mixing ratios and long-term durability would be evaluated by further testing during remedial design, including freeze-thaw and wet-dry testing. If inadequate durability is obtained, engineering controls (for example, changing the agent:soil ratio, increasing the burial depth, or providing a low-permeability liner above or below the treated soil) would be implemented. Based on treatability study results, a soil volume increase of about 15 to 30% is anticipated after stabilization.

Stabilization/solidification is anticipated to be a very effective treatment for protecting groundwater because of two factors: (1) stabilization/solidification of the lead and PCBs results in lower potential leaching of COCs to groundwater from the stabilized mass and (2) the low permeability of the stabilized material results in very slow rates of infiltration to the aquifer. Leaching tests (TCLP) conducted during treatability studies indicate that the concentrations of lead and PCBs in leach water would be less than MCLs. The TCLP test uses an acidic solution to simulate leaching, which generally results in more leaching of COCs than would occur under natural conditions at the site. Permeability tests indicate very low hydraulic conductivities of the stabilized soil, ranging from 7 x 10-7 to 8 x 10-8 centimeters per second (cm/sec). By comparison, the average hydraulic conductivity of site soils estimated from grain-size distribution relationships was 5 x 10-3 cm/sec (Woodward-Clyde 1994a), and the hydraulic conductivity in the site vicinity was estimated by the USGS to be about 3×10^{-2} cm/sec (USGS 1988). The TSCA chemical waste landfill liner hydraulic conductivity requirement is 10-7 cm/sec which indicates that the solidified material itself will meet the requirements of a landfill liner.

A potentially important factor in evaluating stabilization/solidification is the effect of the presence of the solidified mass on future land use. The solidified soil would not be

placed within the 100-year flood plain and would be placed at least one foot above the maximum groundwater table elevation. Clean soil (less than 1 mg/kg PCBs) from on-site sources would be used to replace soil excavated from the groundwater table zone. A gravel course would be placed over the treated soils to provide a wearing surface and minimize erosion. The ground surface elevations will increase due to the volume increase from the treatment and the addition of the cover layer. The solidified mass would be configured to accommodate future site development. The solidified mass will provide excellent foundation support for structures and excellent stability during seismic events. Excavation of the solidified soil, however, could not be conducted by conventional methods. Disposal of solidified material would be in accordance with TSCA disposal and landfill requirements, 40 CFR §§ 761.60 and 761.75. Justification for waiving selected technical requirements of 40 CFR § 761.75 have been justified in the feasibility study, and are discussed in more detail in Section 9.2.

A protective cover consisting of 12 inches of soil would be placed over upland areas of the site to minimize erosion and migration of contaminants to surface water or wetlands. Soil within the flood plain containing >500 mg/kg lead or >1 mg/kg PCBs would be excavated and consolidated on-site. Groundwater monitoring in compliance with 40 CFR § 761.75(b)(6) would be conducted to assess the effectiveness of the remedy for protecting groundwater.

Institutional controls to limit land uses and restrict access would be used. At a minimum, land use restrictions must be recorded on the title of the property to keep activities limited to commercial/industrial uses and restrict high exposure uses of children, such as day care facilities. Unless the solidified soils are designed and used as a building foundation, a fence or other access barrier may be required to limit unrestricted access onto the landfill.

Long-term monitoring and, if needed, maintenance of the landfill will be required.

7.1.6.1 Cost

	Low	High
Capital Cost	$ 4,434,000	$ 5,396,000
30 Years Operations and Maintenance Cost	$ 283,000	$ 283,000
Present Worth(1)	$ 4,717,000	$ 5,679,000

(1) Discount rate (10%) is the average rate of return on private investment, before taxes and after inflation.

7.1.7 Alternative 7 - Soil Washing

Alternative Description

The key components of this remedial alternative include:

- Removal of regulated materials stockpiled on-site and disposal in a RCRA Subtitle C or D landfill
- Off-site disposal of 150 tons of scrap debris by recycling or disposal in a TSCA or RCRA Subtitle C or D landfill
- Excavation of 17,700 cy of soil and treatment by enhanced soil washing of an estimated 12,600 cy (after screening) of soil exceeding cleanup levels
- Backfilling of an estimated 16,200 cy of screened and washed soil on-site
- Stabilization (if necessary) of soil containing elevated levels of lead prior to on site disposal
- Dewatering and stabilization of contaminated fines and disposal in an off-site TSCA landfill
- On-site treatment of process water and disposal in a POTW
- Excavation and consolidation within the existing fenceline of impacted soil from the flood plain
- Installation and maintenance of a protective cover over upland areas of the site

- Institutional controls to restrict land use
- Groundwater monitoring in compliance with 40 CFR § 761.75(b)(6)

Soil above cleanup levels would be excavated. Surface soils containing less than 1,000 mg/kg lead and 50 mg/kg PCBs but above cleanup levels would be backfilled on-site at depth of greater than one foot but above the zone of groundwater fluctuation. Soil containing greater than 1,000 mg/kg lead or 50 mg/kg PCBs would be treated by soil washing. The LNAPL soil would be excavated and treated.

The excavated soil would be screened to remove oversize material including large gravel and scrap material. The soil aggregates would then be broken down and the soil separated into fine (fine sand and smaller particle sizes) and coarse fractions using a trommel. The fine fraction is estimated to be 12% to 20% of the total volume washed, based on particle-size analyses. The fine fraction (particles smaller than 0.15 mm diameter) would be dewatered, stabilized to pass TCLP-lead criteria, and disposed of in an off-site TSCA landfill. The fine fraction is estimated to be 25% solids prior to dewatering and 50% solids after dewatering. The fines would be disposed of off-site in a TSCA landfill. The coarse fraction would be treated in one or two steps. Particulate lead may be removed using a specific gravity separation technique, such as jigging. The soil would then be washed using surfactant-enhanced water. Approximately 7,700 to 12,600 cubic yards of soil would be washed in this manner.

Process water and water removed from the sludge fraction would be treated on-site as needed and discharged to the POTW. Five thousand gallons of process water was generated during the pilot tests. A full scale soil washing system must be more effective at minimizing process water generation. Lead concentrations in the process water were as high as 32 mg/L (sample SS-WWH4). The POTW discharge standard for lead is 5.0 mg/L; there is no standard for PCBs. Process water would be treated to reduce inorganic chemicals, organic chemicals and surfactants, and pH neutralization. Water treatment may include one or more of the following processes: oil/water separation, Electrofloc , precipitation, ultraviolet oxidation, neutralization, and carbon adsorption.

The treated coarse fraction would be disposed on-site. Treated soil that contains greater than greater than 1,000 mg/kg lead or 10 mg/kg PCBs would not be replaced within the top foot or within the zone of groundwater fluctuation. Disposal of soils with greater than 50 mg/kg PCBs would invoke TSCA disposal and landfill requirements, 40 CFR §§ 761.60 and 761.75. Waivers of parts of 40 CFR § 761.75 would be required, however justification for waiving bottom liners and leachate collection systems can not be justified.

A protective cover consisting of 12 inches of soil would be placed over upland areas of the site to minimize erosion and migration of contaminants to surface water or wetlands. Soil within the flood plain containing >500 mg/kg lead or >1 mg/kg PCBs would be excavated and consolidated on-site beneath the cover.

Deed and access restrictions would be used as described under Alternative 6. Periodic groundwater monitoring would be conducted after remediation is completed.

7.1.7.1 Cost

	Low	High
Capital Cost.....$	6,563,000	$ 8,881,000
30 Years Operations and Maintenance Cost.....$	234,000	$ 234,000
Present Worth(1).....$	6,797,000	$ 9,115,000

(1) Discount rate (10%) is the average rate of return on private investment, before taxes and after inflation.

Because of the relatively high unit of cost of treatment, the estimated cost for this alternative is sensitive to the volume of soil requiring treatment. In addition, the volume of fines generated requiring treatment, transportation, and disposal has significant cost

implications, again due to the relatively high unit disposal cost for this soil fraction. This is particularly true if incineration of fines is required. The cost estimate assumes no soil or fines will require incineration. The volume and ultimate treatment requirements for the process water may have significant impact on the final cost for this alternative. Cost estimates assumes local treatment of process water will be employed, and that incineration will not be required. Finally, cost estimates assumed stabilization of treated soils to obtain a TCLP-lead level of <5 mg/L will not be required. If this supplemental treatment process is necessary, an additional cost approximately $300,000 - $425,000 can be expected. The Operation and Maintenance cost reduce groundwater monitoring after the first 10 years.

7.1.8 Alternative 8 - Thermal Desorption

Alternative Description

The key components of this remedial alternative include:

- Removal of regulated materials stockpiled on-site and disposal in a RCRA Subtitle C or D landfill
- Off-site disposal of 150 tons of scrap debris by recycling or disposal in a TSCA or RCRA Subtitle C or D landfill
- Excavation of an estimated 17,700 cy of soils exceeding cleanup levels and treatment of 12,000 cy of soils by thermal desorption
- Backfilling treated soil on-site
- Stabilization of 5,000 cy of soil and dusts containing elevated lead prior to on-site disposal
- Disposal of process residuals, including lead-contaminated dusts (off-site landfill) and desorbed PCBs (off-site incineration)
- Excavation and consolidation within the existing fenceline of impacted soil from the flood plain
- Installation and maintenance of a protective cover over upland areas of the site
- Institutional controls to restrict land use

Soil above cleanup levels would be excavated and pre-processed. Surface soil containing less than 1,000 mg/kg lead and 50 mg/kg PCBs but above surface soil cleanup levels would be backfilled on-site at a depth of greater than one foot but above the zone of groundwater fluctuation. Soil containing greater than 50 mg/kg PCBs would be treated by low-temperature thermal desorption. Soil containing greater than 1,000 mg/kg lead would be treated by stabilization. The estimated volume of soil that would be treated by thermal desorption following pre-processing is 7,200 to 12,000 cubic yards. The estimated volume of soil that would be treated by stabilization following pre-processing is 3,300 to 5,000 cubic yards. The LNAPL soil would be excavated and treated.

The excavated, pre-processed soil would be treated using thermal desorption. The vacuum-enhanced desorption process is incorporated in the alternative as a potential process option. The soil would be fed into a batch processing unit where the temperature is raised to volatilize PCBs. A negative pressure (vacuum up to 28 inches Hg) would be maintained within the processing unit to control air emissions and to allow PCBs to volatilize at a lower temperature (300 to 400°F) than at atmospheric pressure (1,100 to 1,300°F). The volatilized PCBs would be condensed and concentrated in an oil phase. The captured PCBs would be drummed and transported off-site to a TSCA incinerator. Lead-contaminated dusts collected in the air emissions system would be stabilized and land filled off-site. The quantity of dust that would be generated is estimated to be 750 to 1,000 tons.

The vacuum-enhanced process option is currently undemonstrated and not TSCA-permitted for PCBs. The vacuum-enhanced process may be unavailable when remedial activities begin at the site. The high-temperature process option is demonstrated for PCBs; however, it would be much more expensive to mobilize to Alaska.

Further studies would be required during remedial design to demonstrate effectiveness and to determine the most appropriate treatment operating parameters for site soils. In addition,

further studies should probably be conducted to evaluate materials-handling aspects, such as rewetting of the soil after treatment.

The treated soil would be disposed of on-site. Treated soils with lead concentrations exceeding 1,000 mg/kg would be stabilized prior to disposal on-site. The thermally desorbed soil would require rewetting before it can be stabilized. The water volatilized during the desorption process may be used to rewet the soil if it is free of lead and PCBs. Treated soil that contains greater than 1,000 mg/kg lead or greater than 10 mg/kg PCBs would not be replaced within the top foot of soil.

A protective cover consisting of 12 inches of soil would be placed over upland areas of the site to minimize erosion and migration of contaminants to surface water or wetlands. Soil within the flood plain containing >500 mg/kg lead or >1 mg/kg PCBs would be excavated and consolidated on-site beneath the cover.

Deed restrictions would be used as described under Alternative 6. Periodic groundwater monitoring in compliance with 40 CFR § 761.75(b)(6) would be conducted after remediation is completed.

7.1.8.1 Cost

	Low	High
Capital Cost.....$	9,316,000	$12,709,000
30 Years Operations and Maintenance Cost.....$	234,000	$ 234,000
Present Worth(1).....$	9,550,000	$12,313,000

(1) Discount rate (10%) is the average rate of return on private investment, before taxes and after inflation.

The estimated present worth cost for Alternative 8 ranges from $9,550,000 to $12,313,000. Because of the relatively high unit cost of treatment, the estimated cost for this alternative is sensitive to the volume of soil requiring treatment. The unit cost for processing and cost for mobilization used in the cost estimate assumed that the vacuum-enhanced thermal desorption process option, which is currently unproven, will not be available when remediation of the site is conducted. The high-temperature thermal desorption process option costs were used in the estimate.

7.1.9 Alternative 9 - Off-site Disposal

Alternative Description

The key components of this remedial alternative include:

- Removal of regulated material stockpiled on-site and disposal in a RCRA Subtitle C or D landfill
- Disposal of 150 tons of scrap debris by recycling or disposal in a TSCA or RCRA Subtitle C or D landfill
- Excavation of an estimated 17,700 cy of soils exceeding cleanup levels and disposal of an estimated 12,600 cy of soils in an off-site TSCA/RCRA landfill
- Backfilling of excavations with imported clean soil
- Excavation and consolidation within the existing fenceline of impacted soil from the flood plain
- Installation and maintenance of a protective cover over upland areas of the site
- Institutional controls to restrict land use

Soil above cleanup levels would be excavated. Soils containing greater than 1,000 mg/kg lead would be disposed of in a solid waste landfill, except that any soils above 5 mg/L TCLP-lead will require stabilization prior to disposal. Surface soil containing less than 1,000 mg/kg lead and 50 mg/kg PCBs but above cleanup levels would be backfilled on-site at a depth greater than one foot but above the zone of groundwater fluctuation. The excavations would

be backfilled with imported clean fill material. Soil containing greater than 50 mg/kg PCBs would be disposed of in an off-site TSCA landfill. The LNAPL soil would be excavated and disposed of off-site.

Prior to disposal, all debris and material larger than two inches would be screened out. The estimated volume of material to be disposed is 7,700 to 12,600 cubic yards. The remaining material would be loaded on rail gondola cars to be transported to a permitted landfill in the lower 48 states for disposal. All soils would be stabilized for lead prior to landfilling.

A protective cover consisting of 12 inches of soil, containing less than 1 mg/kg PCBs, would be placed over upland areas of the site to minimize erosion and migration of contaminants to surface water or wetlands. Soil within the flood plain containing >500 mg/kg lead or >1 mg/kg PCBs would be excavated and consolidated on-site beneath the cover.

Institution controls would be used to prevent exposure to contaminated soils.

7.1.9.1 Cost

	Low	High
Capital Cost.....$	8,246,000	$12,168,000
30 Years Operations and Maintenance Cost.....$	139,000	$ 139,000
Present Worth(1).....$	8,385,000	$12,307,000

(1) Discount rate (10%) is the average rate of return on private investment, before taxes and after inflation.

7.1.10 Alternative 10 - Off-site Incineration

Alternative Description

The key components of this remedial alternative include:

- Removal of regulated material stockpiled on-site and disposal in a RCRA Subtitle C or D landfill
- Off-site disposal of 150 tons of scrap debris by recycling or disposal in a TSCA or RCRA Subtitle C or D landfill
- Excavation of an estimated 17,700 cy of soils exceeding cleanup levels, treatment of an estimated 12,600 cy of soils at an off-site TSCA incinerator, and stabilization of incinerator ash for lead
- Backfilling excavations with clean imported soil
- Excavation and consolidation within the existing fenceline of impacted soil from the flood plain
- Installation and maintenance of a protective cover over upland areas of the site
- Institutional controls to restrict land use

Soil above cleanup levels would be excavated. Surface soil containing less than 1,000 mg/kg lead and 50 mg/kg PCBs but above cleanup levels would be backfilled on-site at a depth greater than one foot but above the zone of groundwater fluctuation. The excavations would be backfilled with imported clean fill material. Soil containing greater than 1,000 mg/kg lead or 50 mg/kg PCBs would be transported off-site and treated at a TSCA incinerator. The LNAPL soil would be excavated and treated off-site. Lead-contaminated incinerator ash would be stabilized.

Prior to disposal, all debris and material larger than two inches would be screened out. The volume of material to be treated/disposed is estimated to range from 7,700 to 12,600 cubic yards. The remaining material would be loaded on rail gondola cars to be transported to a TSCA incinerator in the lower 48 states of disposal.

A protective cover consisting of 12 inches of soil, containing less than 1 mg/kg PCBs, would be placed over upland areas of the site to minimize erosion and migration of contaminants to surface water or wetlands. Soil within the flood plain containing >500 mg/kg lead or >1 mg/kg PCBs would be excavated and consolidated on-site beneath the soil cover.

Institutional controls would be used to restrict land use.

The estimated present worth cost for Alternative 10 ranges from $21,880,000 to $34,318,000. Because of the very high unit costs of transportation and disposal, the estimated cost for this alternative is very sensitive to the volume of soil requiring treatment.

7.1.10.1 Cost

	Low	High
Capital Cost.....$	21,741,000	$34,179,000
30 Years Operations and Maintenance Cost.....$	139,000	$ 139,000
Present Worth(1).....$	21,880,000	$34,318,000

(1) Discount rate (10%) is the average rate of return on private investment, before taxes and after inflation.

7.2 Groundwater Component

The remedial investigation determined that groundwater is not a media of concern requiring treatment. Although there is a LNAPL present in the center of the site, no dissolved contaminants were identified at the boundary of the site. The physical properties of the LNAPL are conducive to excavation with contaminated soils. The LNAPL will be remediated by the same treatment as the soils, unless it is determined during the remedial design testing that the LNAPL requires off-site disposal because it is considered a liquid as determined by Method 9095 (Paint Filter Liquids Test) contained in 40 CFR § 268.32(i).

7.3 Applicable or Relevant and Appropriate Requirements

Remedial actions implemented under CERCLA must meet legally applicable or relevant and appropriate requirements (ARARs). ARARs include promulgated environmental requirements, criteria, standards, and other limitations. Other factors to be considered (TBCs) in remedy selection may include nonpromulgated standards, criteria, advisories, and guidance, but are not evaluated pursuant to the formal process required for ARARs. ARARs of federal or state governments must be complied with during CERCLA response actions. Local ordinances with promulgated criteria or standards are not considered ARARs, but may represent TBCs. Major chemical-specific, location-specific, and action-specific ARARs and TBCs for the remedial alternatives are presented below.

7.3.1 Chemical-Specific ARARs

Clean Water Act, 33 U.S.C. § 1314, establishes water quality criteria for freshwater surface waters for lead and PCBs.

Clean Water Act, 33 U.S.C. § 1313 and 40 CFR § 131.36(d)(12), establishes and implements the National Toxics Rule, and sets water quality standards for Alaska.

40 CFR § 141, Subpart B and F, the Safe Drinking Water Act Maximum Contaminant Levels and Maximum Contaminant Level Goals establishes cleanup standards for metals and organic compounds, including PCBs, in ground water.

7.3.2 Action-Specific ARARs

Toxic Substances Control Act, 15 U.S.C. § 2601 et seq., and 40 CFR §§ 761.60, 761.70, and 761.75 for the treatment, incineration, and disposal of PCBs.

Clean Water Act, 33 U.S.C. § 1311, 40 CFR § 122.26, direct discharges must meet technology-based standards, and storm water regulations for controlling discharges associated with industrial or construction activities.

Clean Water Act, 33 U.S.C. § 1314(b)(1) and 40 CFR Part 230, substantive requirements for dredge and fill requirements in waters of the United States.

40 CFR Part 403, pretreatment standards for discharges to Publicly Owned Treatment Works.

40 CFR §§ 268.45 and 268.48. RCRA Land Disposal Restrictions for Hazardous Debris treatment and disposal.

40 CFR § 261.24. RCRA Characteristic Hazardous Waste Determination is applicable for identifying soil that must be managed as hazardous waste (i.e. lead). 40 CFR 264, Subpart C, RCRA Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities; Preparedness and Prevention is applicable for staging and implementing the remedy.

40 CFR 264.310(a), RCRA Subtitle C Landfill Regulation is relevant and appropriate for the cover design of a landfill, if appropriate.

40 CFR 268, Subparts C and D, Prohibitions on Land Disposal and Treatment Standards (i.e. lead and California List Wastes) is applicable for preventing the disposal of Characteristic and California List Wastes;

Alaska Air Quality Regulations 18 AAC Chapter 50 for dust suppression.

7.3.3 Location-Specific ARARs

Executive Order 11988, 40 CFR 6, App. A, action within floodplains, avoid adverse effects, minimize potential harm, restore and preserve natural and beneficial values.

Executive Order 11990, 40 CFR 6, App. A, action within wetlands, avoid adverse effects, minimize potential harm, restore and preserve natural and beneficial values.

7.3.4 To-Be-Considered (TBC) Guidances and Policies

EPA's Groundwater Protection Strategy, August 1984.

40 CFR Part 761, Subpart G, TSCA PCB Spill Cleanup Policy.

Guidance on Remedial Actions at Superfund Sites with PCB Contamination, OSWER Directive 9355.4-01.

8.0 COMPARATIVE ANALYSIS

In this selection, the relative performance of each alternative in relation to each specific evaluation criterion is assessed. According to the RI/FS guidance, "the purpose of the comparative analysis is to identify the advantages and disadvantages of each alternative relative to one another so that the key tradeoffs the decision maker must balance can be identified".

The NCP requires that CERCLA remedy provide overall protection of human health and the environment and comply with ARARs. These criteria are referred to as the "threshold criteria." The remaining five criteria that are analyzed in the FS are referred to as the "balancing criteria." The balancing criteria are:

- Long-Term Effectiveness and Permanence;
- Reduction in Toxicity, Mobility, or Volume (TMV) through Treatment;
- Short-Term Effectiveness;
- Implementability; and
- Cost.

The final two criteria, state acceptance and community acceptance, are evaluated by EPA after public comment, on the Proposed Plan and are referred to as the "modifying criteria."

8.1 Overall Protection of Human Health and the Environment

Evaluation of this criterion focused on how exposure pathways (ingestion, inhalation, dermal contact of soils) are eliminated, reduced, or controlled through engineering or institutional controls.

Alternatives 1 and 2 would not be protective of human health and the environment because site conditions would remain fundamentally unchanged except for a ten inch soil cover in Alternative 2, which would not be protective, nor effective over the long term because activities on-site and/or weather would easily disturb or remove the ten inches of soil and expose the contaminated soils below. Alternative 2 does not comply with TSCA disposal requirements. They will not be discussed further. All other alternatives would be protective of human health and the environment. Alternatives 9 and 10 would provide the greatest degree of protection for receptors in Anchorage Alaska because the contaminants would be treated and/or disposed off-site. Alternatives 3, 4, 5, 6, 7, 8, 9, and 10 would be protective of human health and the environment.

The principal tradeoffs are between alternatives that provide permanent reductions in residual risks to human health and the environment through treatment and/or off-site disposal (Alternatives 5, 6, 7, 8, 9, and 10) and alternatives that are less permanent but involve less short-term risk and are easier to implement (Alternative 3). Alternative 4 provides a compromise in that it combines slightly lower levels of permanence relative to Alternatives 5, 6, 7, 8, 9, and 10, but has less short-term risk and easier implementability.

8.2 Compliance with ARARs

This criterion addressed whether each alternative meets the action-specific, chemical-specific, and location-specific ARARs relevant for each alternative at the site.

8.2.1 Assessment

It is anticipated that Alternatives 5, 6, 8, 9, and 10 would comply with all ARARs or meet the criteria for a waiver.

Alternatives 2, 3, and 4 would not meet the TSCA treatment and disposal requirements because no treatment or disposal in an approved chemical waste landfill would occur and, as proposed, these alternatives would not meet the criteria for a waiver under TSCA's landfill regulation.

Alternatives 2, 3, and 4 do not comply with Safe Drinking Water MCLs because they would not treat contaminated, on-site groundwater.

Alternative 7 would not meet RCRA LDR ARARs because the treatment method would not be able to remove the toxicity characteristic for lead, nor would it achieve the percent reductions required for a treatability variance.

Alternatives 5, 6, 7, 8, 9, and 10 would meet all TBCs.

Alternatives 3 and 4 do not meet the response objectives of the PCB Spill Cleanup Policy because soil containing greater than 10 mg/kg would not be excavated to a depth of 10 inches.

Alternative 3 does not meet the response objectives of the CERCLA PCB guidance because containment of low threat soils and treatment of principal threat soils would not be provided.

8.3 Long-Term Effectiveness and Permanence

The evaluation of alternatives under this criterion addresses the results of a remedial action in terms of the risk remaining at the site after response objectives have been met. The criterion is composed of two components: magnitude of residual risk and adequacy and reliability of controls used to manage residuals at the site.

As part of the Removal Action all liquid principle threats were removed and treated or disposed.

8.3.1 Magnitude of Residual Risk

Estimated residual long-term worker cancer risk levels in the range of 10-5 to 10-6 and an HI of less than 1.0 are estimated after remediation is completed for Alternative 3 through 10. Protection of the environment, including groundwater, surface water, and sediments in the short term, would be achieved for each of these alternatives. The potential for impacts to groundwater from the LNAPL soil would be slightly higher for Alternative 3 than for Alternatives 4, 5, 6, 7, 8, 9, and 10, although no impacts to groundwater, outside of a very small on-site area, have been observed to date.

8.3.2 Adequacy and Reliability of Controls

Alternatives 5 through 10 have reliable controls to ensure their permanence. Alternative 4 relies on a cap and slurry wall which is not as reliable or permanent as solidification, thermal desorption or off-site disposal/treatment.

Institutional controls provided for Alternatives 4, 5, 6, 7, 8, 9, and 10 are consistent with the long-term management controls listed in the PCB guidance and are considered to be adequate and reliable for the levels of lead and PCB residuals that would be left at the site.

The institutional controls provided for Alternatives 2 and 3 (Capping) are not anticipated to be adequate for long-term protection of human health, surface water, and sediments. Alternative 1 does not include institutional controls.

8.3.3 Assessment

Long-term effectiveness and permanence at the site would be greatest for Alternatives 9 (Off-site Landfill) and 10 (Off-site Incineration). The maximum residual long-term worker cancer risk is in the range of 10-5 to 10-6 and the HI is less than 1.0. Protection of the environment would be achieved for each of these alternatives. Adequate and reliable controls would be provided for the concentrations of lead and PCBs left on-site. Future land use would be unrestricted except for a restriction on residential use.

Alternative 8 (Thermal Desorption) was ranked next highest for long-term effectiveness and permanence. Residual long-term worker cancer risks in the range of 10-5 to 10-6 are estimated for this alternative. Long-term protection of the environment would be achieved. Future land use, however, would be restricted by the presence of elevated concentrations of lead in soil. The alternative includes reliance on institutional controls to protect workers from exposure to lead and to maintain the soil cover.

Alternatives 5 (Stabilization/Solidification with Treatment of PCB Principal Threat by Thermal Desorption) 6 (Stabilization/Solidification), and 7 (Soil Washing) were ranked next highest for long-term effectiveness and permanence. The maximum residual long-term worker cancer risk is also in the range of 10-5 to 10-6 and the HI is also less than 1.0.

Protection of the environment would be achieved for each of these alternatives by either destruction of principle threat COCs or the immobilization of all soils above cleanup levels. Although, higher levels of COCs in treated soil would be left on-site compared to Alternatives 8, 9, and 10, long-term groundwater monitoring would be required to assess protection of groundwater, and future land use will be restricted to maintain industrial exposures. Additionally these alternatives would rely on institutional controls and long-term maintenance of solidified soils and soil cover.

Alternative 4 (Containment with Treatment of Principal Threats by Stabilization) was ranked significantly lower. It also achieves a maximum residual long-term worker cancer risk in the range of 10-5 to 10-6, an HI of less than 1.0, and protection of the environment. However, while principle threat COCs are immobilized, destruction of COCs would not be achieved and the majority of PCB and lead contaminated soil would be untreated and left on-site under a cap. Institutional controls would be required for maintenance and monitoring of the cap. Permanence of the cap would depend on future land use, and would rely more on institutional controls to keep it intact. A cap and slurry wall are less permanent and reliable in the long term than solidification of soils. Future catastrophic events, such as flooding and seismic events would pose a significant threat to the cap and require greater operation, maintenance and monitoring procedures than solidification or off-site disposal.

Alternative 3 (Capping) was ranked lower than Alternative 4, although the residual long-term worker health risks are 10-5 to 10-6 and the HI is less than 1.0, and impacts to the environment are not anticipated. All COCs (except the emergency removal action and scrap removal action wastes) would remain on-site as untreated residuals. The LNAPL soil would not be treated or contained, and some potential for long-term groundwater impacts would exist. Similar to Alternative 4, a higher reliance on future land use restrictions would be required to maintain the cap.

8.4 Reduction of Toxicity, Mobility, or Volume Through Treatment

This evaluation focuses on the NCP expectation of reduction of toxicity, mobility, or volume (TMV) for principal threats. The components of the criterion are:

- Treatment process used and materials treated
- Amount of hazardous material destroyed or treated
- Degree of expected reductions in toxicity, mobility, or volume
- Degree to which treatment is irreversible
- Type and quantity of treatment residuals remaining after treatment

8.4.1 Discussion

Alternatives 8 and 10 are expected to achieve significant reductions (anticipated to be 95% or greater) in TMV through treatment. All soil above cleanup levels would be remediated. It is estimated that greater than 90% of the mass of lead would be immobilized and greater than 90% of the mass of PCBs would be destroyed.

Alternatives 5, 6, and 7 also treat and/or contain all soil above cleanup levels; however, these were downgraded relative to Alternatives 8 and 10 because of lower TMV reductions and the volume increase (estimated to be 15 to 30%) associated with stabilization/ solidification (all soils are stabilized/solidified in Alternative 6; all soil except principal threat PCBs are stabilized/solidified in Alternative 5; and sludges and lead-contaminated soils are stabilized as part of Alternative 7). Average PCB reductions of 93% are estimated for Alternatives 5 and 6 (based on TCLP reduction, however TCLP reductions are difficult to reproduce and leaching of PCBs is not a significant issue). PCB reductions of 57% to 94% were observed during pilot testing for Alternative 7. For Alternative 7, lead reductions as low as 7% and as high as 99% were observed during pilot testing. Alternative 5 was ranked higher than 6 or 7 because destruction of principal threat PCBs would be achieved.

Alternatives 4 (Containment with Treatment of Principal Threats by Stabilization) was downgraded somewhat because low threat soil would not be treated.

Alternative 9 (Off-site Landfill) was rated significantly lower because the only reduction in TMV that would be achieved is associated with stabilization that is required for lead.

Alternatives 3, 4, 6, and 9 would produce little or no process residuals. Alternative 7 followed by 5, 8, and 10 produce the greatest amount of process residuals that would require further treatment or off-site disposal. Alternative 5 produces an intermediate amount of process residuals.

Alternatives 4, 5, 6, 7, 8 and 10 would satisfy the statutory preference for treatment as a principal element. Alternatives 3 and 9 would not satisfy the statutory preference.

8.4.2 Assessment

Alternatives 8 (Thermal Desorption) and 10 (Off-site Incineration) are ranked highest. Lead would be treated using BDAT and greater than 95% of PCBs would be destroyed. Alternative 5 (Stabilization/Solidification with Treatment of PCB Principal Threats by Thermal Desorption) is ranked next highest. Lead in principal threat soil would be treated using stabilization/ solidification and greater than 95% of PCBs contained in principal threat soil would be destroyed.

Alternatives 4, 6 and 7 are comparable. Lead would be treated by stabilization/solidification and PCBs would be treated using solidification (80 to 99% reduction in mobility). The tradeoffs involved in rating the alternatives are that Alternative 7 would produce relatively large quantities of process residuals, whereas, Alternative 6 would produce a relatively large volume increase, while Alternative 4 presents a compromise in that a somewhat smaller mass of COCs would be treated but relatively small residual amounts and volume increases would be produced.

Alternative 9 (Off-site Disposal) is ranked significantly lower. The treatment for toxicity employed would be minimal and the wastes would be transferred to another location to contain.

8.5 Short-Term Effectiveness

In this section, two criteria are considered: protection of the community, workers, and the environment during remedial actions and the time until remedial response objectives are achieved.

8.5.1 Short-Term Protection of the Community, Workers, and the Environment

Alternative 3 (Capping) involves no excavation, above ground treatment, or transport of wastes; therefore, the associated community, worker, and ecological exposures during the remedial actions are lowest.

Alternatives 4 (Containment with Treatment of Principal Threat Soil by Stabilization), 5 (Stabilization/Solidification with Treatment of PCB Principal Threats by Thermal Desorption) 6 (Stabilization/Solidification), 7 (Soil Washing), 8 (Thermal Desorption), 9 (Off-site Disposal), and 10 (Off-site Incineration) are generally similar in that the potential for human environmental exposures exists during excavation activities. The potential community and worker exposures include physical injury and inhalation of contaminated dusts. The potential environmental exposures are releases of contaminated dusts and runoff water to surface water or wetlands and mobilization of COCs to groundwater. The potential exposures are significantly less for Alternatives 4 and 5 than Alternatives 6, 7, 8, 9, and 10 because of the much smaller volumes of excavation involved.

Alternatives 5, 7, 8, 9, and 10 have additional potential exposures during transportation of contaminated wastes or process residuals to the continental U.S. for treatment/disposal.

These potential exposures are associated with overland transport, overseas transport, and on- and off-loading. Alternatives 9 and 10 involve the largest volumes of transported wastes and Alternative 5 the smallest volume. Alternative 10 also includes potential releases of COCs to air at the incinerator site and exposures during treatment and transport of lead-contaminated ash.

Alternatives 4, 5, 6, 7, and 8 involve additional potential exposures resulting from on-site treatment of soil. The potential exposures include physical hazards and releases of contaminated residuals. The greatest potential exposure from release of treatment residuals is estimated to result from dry, lead-contaminated dusts and volatile COCs associated with the thermal desorption treatment (Alternatives 5 and 8). The potential exposures are greater for Alternative 8 than Alternative 5 because of the larger volume of soil treated. Alternative 7 is anticipated to result in an intermediate level of exposures during treatment including process water management, while the exposures associated with the stabilization/solidification treatment used in Alternatives 4 and 6 are expected to be less.

8.5.2 Time Until Remedial Response Objectives are Achieved

The time frame for completing Alternatives 3 (Capping) is shortest because no excavation is involved. Excavation of smaller volumes of soil at shallower depth is included in Alternatives 4 and 5, and delays due to excavation are not anticipated. The times for completing excavations under Alternatives 6, 7, 8, 9, and 10 are likely to be longer because excavation of relatively large volumes of soil, likely including soil beneath the groundwater table, is required. Excavation times could be lengthened if wet weather, which is common in Anchorage in the summer, is encountered. For Alternatives 9 (Off-site Disposal) 10 (Off-site Incineration), the time to obtain all necessary approvals for shipment of wastes to the off-site treatment/disposal facility could be significant.

The time frames for completing the treatment component of Alternatives 5 (Stabilization/ Solidification with Treatment of PCB Principal Threats by Thermal Desorption) 7 (Soil Washing), and 8 (Thermal Desorption) would likely be longer because of factors including:

- Pilot and/or pre-remediation testing of equipment
- Uncertainty of equipment availability
- Multiple treatment/containment processes

It is reasonable to expect that each of Alternatives 3, 4, 6, 9, and 10 can be completed in a single construction season. Despite the relatively small treatment volumes under Alternative 5, a significant potential exists that the Alternative would not be completed in a single construction season because of the need for two separate treatment processes and the uncertainties of equipment availability, effectiveness, and implementability. Alternatives 7 and 8 have the greatest potential for extended remediation times.

8.5.3 Assessment

Alternative 3 (Capping) has the highest short-term effectiveness. No excavation or above ground treatment is involved; therefore, the associated community, worker, and ecological exposures during the remedial actions are small. Human exposure and the potential for migration of COCs to surface water or groundwater are significantly reduced in a relatively short (one construction season) time period. The short-term effectiveness of Alternative 4 (Containment with Treatment of Principal Threats by Stabilization) is nearly as good as Alternative 3 (Capping). Excavation volumes are limited, no significant exposures have been identified for the treatment process, and it is anticipated that the remediation can be completed within a single construction season using locally available contractors and materials. Alternative 6 (Stabilization/Solidification) is similar to Alternative 4 but was downgraded because of the larger excavation volumes, although the short-term impacts due to excavation could be prevented by using an in-situ process option and mitigation methods such as dust control.

Overall short-term effectiveness is similar for Alternatives 5, 9, and 10. The tradeoffs are that smaller volumes of soil are excavated and less waste is transported over long distances with Alternative 5, but potential exposures and schedule delays associated with the treatment process are greater.

The poorest short-term effectiveness is associated with Alternatives 7 (Soil Washing) and 8 (Thermal Desorption). Both involve excavation of large volumes of soil, relatively complex treatment processes, and transport of residual wastes over long distances. Each involves potential exposures and schedule delays associated with the treatment process.

8.6 Implementability

In this section, three criteria are compared: technical feasibility, administrative feasibility, and availability of services and materials.

8.6.1 Technical Feasibility

Few technical feasibility considerations have been identified for Alternative 3 (Capping).

Greater implemtability concerns exist for Alternatives 5, 6, 7, 8, 9, and 10 because of the potential need to control groundwater during excavation near the groundwater table. An additional consideration is availability of space to conduct excavation, soil staging and dewatering (if required), and treatment/loading.

Few concerns exist with respect to the ability to successfully operate a stabilization/ solidification technology (Alternatives 4, 5, and 6). Stabilization is a common remedy chosen for CERCLA sites and has been accepted in EPA guidance as a treatment technology for PCBs. Stabilization/Solidification has also been identified as Best Demonstrated Available Technology (BDAT) for treating lead under the land disposal restrictions. Treatability studies conducted on soil from the site indicate that leaching of lead (measured using the TCLP test) is reduced by greater than 99% and leaching of PCBs is reduced by 80 to 99% (not a significant issue) following stabilization/solidification treatment. The FS provides a summary of the detailed analyses conducted to address potential implementability and permanence issues associated with stabilization/solidification. These analyses confirmed that the technology is effective, permanent, and implementable at the site. A potential implementability concern for Alternatives 4, 5, and 6 is designing the stabilized monolith to withstand freeze thaw conditions at the site. These concerns would be addressed during remedial design.

The greatest technical feasibility considerations are associated with soil washing (Alternative 7) and thermal desorption (Alternatives 5 and 8). These considerations are related to uncertainties in the ability to successfully operate the technologies and possible schedule delays resulting from technical problems and equipment unavailability.

8.6.2 Administrative Feasibility

Administrative feasibility considerations are expected to be low for Alternatives 3 (Capping), 4 (Containment with Treatment of Principal Threat Soil by Stabilization), and 6 (Stabilization/Solidification). Some concerns related to the long distance transport of contaminated material exist for Alternatives 5 (Stabilization/Solidification with Treatment of PCB Principal Threats by Thermal Desorption) 7 (Soil Washing), 8 (Thermal Desorption), 9 (Off-site Disposal), and 10 (Off-site Incineration). Additional implementability considerations for Alternatives 5, 7, and 8 are related to meeting process water disposal and air emissions (Alternatives 5 and 8 only) requirements.

8.6.3 Availability of Services and Materials

Availability of services and materials is not anticipated to be a problem for Alternatives 3, 4, 6, 9, and 10. Alternatives 3, 4, and 6 can be implemented using local materials and

contractors. Treatment/disposal under Alternatives 9 and 10 would require services available only in the lower 48 states. Availability of services and materials is concern for Alternatives 5, 7, and 8. Availability of services is particularly a concern for Alternatives 5 and 8 since only one contractor can currently supply the process option evaluated. It is unlikely that Alternatives 5, 7, and 8 can be completed using local contractors.

8.6.4 Assessment

The fewest considerations are associated with Alternatives 3 (Capping), 4 (Containment with Treatment of Principal Threat Soil by Stabilization), and 6 (Stabilization/Solidification). Alternative 6 was downgraded somewhat because of technical implementability considerations related to excavation near the groundwater table.

Alternative 5 (Stabilization/Solidification with Treatment of PCB Principal Threats by Thermal Desorption) is ranked next highest for implementability, but was downgraded significantly relative to Alternative 6 (Stabilization/Solidification) because of uncertainties of the ability to successfully operate the thermal desorption equipment, the potential for schedule delays due to equipment problems, the need to meet air emissions and process water disposal requirements, administrative considerations related to long-distance transport of wastes, and potential for poor availability of services, and the difficulties in operating multiple treatment trains on site with limited available space.

Alternative 7 (soil washing) is ranked with Alternative 5 due to implementability considerations summarized above, including wash water volume and corresponding treatment requirements, and potential operational difficulties due to input materials variability. Excavation near the water table, equipment reliability, and transport of residual waste over long distances are additional implementability considerations associated with this alternative.

Alternatives 9 (Off-site Landfill) and 10 (Off-site Incineration) are ranked below Alternative 5. The tradeoffs are that excavation near the groundwater table and transport of larger volumes of waste would be required under Alternatives 9 and 10, and this would more than balance the greater concerns with equipment availability and reliability and meeting air emissions and process water disposal requirements that are associated with Alternative 5.

Alternative 8 (Thermal Desorption) is ranked lowest for implementability. This alternative has numerous implementability considerations, including excavation near the water table, equipment availability and reliability, process water disposal and air emissions (Alternative 8) requirements, and transport of waste over long distances.

8.7 Cost

Costs for the ten alternatives range from a low of $0.3 million for Alternative 1 (No Action) to a high of $21.9 to $34.3 million for Alternative 10 (Off-site Incineration). The remaining eight alternatives rank as followed (from low to high):

- Alternative 2 (Limited Action)-$1.6 million
- Alternative 3 (Capping)-$3.1 million
- Alternative 4 (Containment with Treatment of Principal Threat Soils by Stabilization/Solidification)-$4.7 to $4.8 million
- Alternative 6 (Stabilization/Solidification)-$4.7 to $5.8 million
- Alternative 7 (Soil Washing)-$6.8 to $9.1 million.
- Alternative 5 (Stabilization/Solidification with Treatment of PCB Principal Threats by Thermal Desorption)-$7.6 to $9.1 million
- Alternative 9 (Off-site Landfilling)-$8.4 to $12.3 million
- Alternative 8 (Thermal Desorption)-$9.6 to $12.3 million

8.8 State Acceptance

The State of Alaska concurs with the selected remedy.

8.9 Community Acceptance

Comments received during the Public Review were both receptive and opposed to the preferred alternative. Comments opposed were mainly concerned with future releases of contaminants from the TSCA landfill. Some of these concerns will be addressed during remedial design of the landfill. More complete responses to the comments received are contained in the Responsiveness Summary attached to this Record of Decision.

9.0 THE SELECTED REMEDY

9.1 Remedy Description

Based upon consideration of the requirements of CERCLA, the detailed analysis of the alternatives using the nine criteria, and public comments, EPA has determined that Alternative 6 (Solidification/stabilization), with changes from the feasibility study described below, is the most appropriate remedy for the Standard Steel and Metals Salvage Yard Site in Anchorage, Alaska.

The key components of the selected remedy include: (Refer to Table 9-1 for cleanup and treatment level summary)

- Removal of regulated material stockpiled on-site and investigation derived wastes with subsequent disposal in a RCRA Subtitle C or D landfill, or recycling of materials;
- Off-site disposal of remaining scrap debris by recycling or disposal in a RCRA Subtitle D landfill or, if the debris is a characteristic hazardous waste or contains greater than 50 mg/kg PCBs or 10ug/100cm^2 by standard wipe tests, treatment and disposal in a RCRA Subtitle C or TSCA landfill;
- Excavation and consolidation of all soils exceeding a 10 mg/kg PCBs or 1000mg/kg lead and cleanup level;
- Treatment of all soils at or greater than 1000 mg/kg lead or 50 mg/kg PCB, or greater, by stabilization/solidification;
- On-site disposal of stabilized/solidified soils and excavated soils between 10 mg/kg and 50 mg/kg PCBs in TSCA landfill;
- Excavation of soils impacted above 1mg/kg PCBs and 500 mg/kg lead from the flood plain and consolidation of these soils elsewhere on the site;
- Maintenance and repair of erosion control structure on bank of Ship Creek;
- Maintenance of solidified/stabilized soils and the landfill;
- Institutional controls to limit land uses of the site and, if appropriate, access;
- Monitoring of groundwater at the site to ensure the effectiveness of the remedial action.

Scrap Debris Disposal

Approximately 150 tons of debris generated during the scrap removal action remain stockpiled on-site. All scrap and debris, including that generated during soil pre-screening and located in the channel of Ship Creek, would be transported off-site and disposed at a permitted Subtitle C, D or TSCA landfill. Disposal will comply with all applicable rules and regulations. Scrap metal is to be recycled through a legally permitted scrap metal recycler. This recycling must include resmelting/melting of all scrap metal. (Scrap metal may be incorporated into the on-site TSCA landfill if it will not compromise the integrity of the landfill.)

Regulated Material Removal

Approximately 290 drums are currently stored on-site. The drums contain materials stored by EPA during the emergency removal actions, oil and fuel salvaged during the scrap removal actions, and decontamination wastes and personal protective equipment generated during the RI field work. Also remaining on-site are a shipping container with the former site incinerator, various batteries, and other wastes. Off-site disposal of some of these materials is regulated by RCRA, depending on the specific waste. Disposal options include off-site landfilling or off-site incineration. Final disposal actions will be decided during remedial design and will be based on cost, and availability of services. Disposal will comply with all applicable rules and regulations.

Excavation

All soils above 10 mg/kg PCBs and all soils above 1000 mg/kg lead will be excavated and placed in the on-site TSCA landfill. Soils within the flood plain will be excavated when it exceeds 1 mg/kg PCBs or 500 mg/kg lead and placed elsewhere on-site.

Contaminant levels will be determined prior to excavation by current data or additional sampling. Soils may not be stockpiled in a manner which would reduce the contaminant concentrations to below the treatment level of 50 mg/kg PCBs or 1000 mg/kg lead, unless the stockpiled soils will be treated.

Soil above cleanup levels would be excavated, screened and pre-processed to remove materials not suitable for stabilization/solidification. Soil containing less than 1,000 mg/kg lead and less than 50 mg/kg PCBs but greater than 10 mg/kg PCB will be consolidated on-site in the TSCA landfill at a depth of greater than one foot below the surface, but above the zone of groundwater fluctuation. The change of the subsurface cleanup level contained in the feasibility study from 50 mg/kg to 10 mg/kg PCBs is appropriate to insure future site activities and flood events do not expose greater than 10 mg/kg PCBs contaminated soils. This change is more cost effective than requiring a TSCA cap over the entire site and associated monitoring and maintenance of the soils and cap. If soils with PCB concentrations between 10 mg/kg and 50 mg/kg are placed on the top of the landfill a cover which will prevent erosion, infiltration and contact with untreated soils will be required above these soils.

Grading/Backfilling/Cover

The zone of groundwater fluctuation would be backfilled with clean fill (less than 1 mg/kg PCBs). The site will be graded to prevent surface water runoff to Ship Creek (see Stormwater Management section). Excavated areas above the groundwater fluctuation zone will be backfilled with soils containing less than 10 mg/kg PCBs. The surface of the site will be graded with clean soils which will support a vegetative cover or paved to prevent erosion of surface soils. If no immediate reuse of the TSCA landfill occurs than it will be covered with a protective cap to (1) allow the landfill to function with minimal maintenance and (2) promote drainage, reduce freeze thaw effects and minimize erosion or abrasion of the treated soils. 40 CFR 264.310(a) is relevant and appropriate for this action.

Soil Pretreatment/Prescreening

All soil that needs to be treated (greater than or equal to 50 mg/kg PCBs and 1000 mg/kg lead) would go through a pretreatment step to screen out material which is oversized and may interfere with the treatment process. Potential material to be screened out includes wood, cardboard, wire, cobbles and scrap debris. As observed during the site investigations, the scrap debris include predominantly pieces of metal and wood. If remedial design determines that scrap will not interfere in the performance of the monolith than this material may be included in the monolith. Wood and other organic debris will be screened out and disposed of off-site pursuant to all rules and regulations (see above discussion on Scrap Debris Disposal)

Soils and debris will be kept wet during screening to minimize dust. The cobbles may be separated from the debris in an additional screening step. The cobbles could be used along fill material to backfill the excavations or be disposed of in the TSCA landfill.

Stabilization/Solidification Process

The excavated, pre-processed soil would be added to a pug mill where it would be mixed with the stabilizing additives. After pre-processing the total volume of soil to be treated would be approximately 7,700 to 12,600 cubic yards. A mixture of 16% cement and 8% fly ash, which was determined to be the most effective combination during the treatability study is anticipated as a likely mix ratio. However, additional design testing will be conducted to refine the mix ratio to minimize volume increases, reduce freeze thaw effects and maximize the solidified mass's long-term durability and potential as a building platform. The addition of pozzolans will be evaluated to reduce pH changes in the solidified soils and temperature increases during curing. The LNAPL will be included with the soil that is stabilized/solidified if it is determined that it will not interfere with curing and is not considered a liquid. If the LNAPL is considered a liquid or will interfere with the curing of the monolith then the LNAPL will be collected and transported off-site for incineration. Contaminated soils associated with the LNAPL will be stabilized if they do not interfere with the stabilization process.

An expanded treatability study shall be conducted as soon as practicable to further assess the stability and physical characteristics of the stabilization/solidification process and to demonstrate the predicted effectiveness of the stabilization/solidification process. The recommended tests shall include, but not be limited to: (1) PSA Mod. MCC-1 Static Leach Test (U.S. DOE-5820) or comparable test procedure; (2) TCLP analysis on the solidified material; (3) additional leaching test(s) on solidified samples subjected to test procedures to simulate long term weathering such as freeze-thaw, compression, etc.; and (4) evaluation of chemical/physical properties such as temperature and pH on the solidification process. A life expectancy of 1000 years will be a design goal. Life expectancy is defined as the time before contaminants are released above design criteria from the TSCA landfill.

If inadequate durability is obtained, additional engineering controls (for example, changing the agent: soil ratio, increasing the burial depth, or providing a low-permeability liner above and/or below the treated soil) would be implemented at the discretion of EPA. Based on treatability study results, a soil volume increase of about 15 to 30% is anticipated after stabilization.

A potentially important factor in evaluating stabilization/solidification is the effect of the presence of the solidified mass on future land use. The solidified soil would not be placed within the 100-year flood plain and would be placed at least one foot above the maximum groundwater table elevation. Clean soil (less than 1mg/kg PCBs) and other fill would be used to replace soil excavated from the groundwater table zone. In the event there is no planned future use of the landfill as a building foundation or parking area, a cover to protect the landfill will be placed to provide a wearing surface, prevent infiltration and minimize erosion. The cover will be maintained until reuse of the monolith occurs. The ground surface elevations will increase due to the volume increase from the treatment and the addition of the cover layer (see Grading/Backfilling/Cover section). The solidified mass will be configured to accommodate future site development to the greatest extent practicable.

There are potential short-term human health and environmental impacts associated with excavation and the solidification/stabilization process. One potential impact is dust, which could be inhaled by workers or members of the community or could migrate to surface waters or adjacent properties. The steps that would be taken to minimize these impacts include use of dust suppressants and collection and analysis of air samples. A second potential impact is migration of COCs to ecological receptors via surface water runoff. These impacts would be controlled by covering impacted soils and using berms and diversion ditches. A final potential impact is physical injury to workers. These impacts would be controlled by instituting appropriate health and safety procedures. A third potential impact is the volatilization of PCBs during the solidification process. This potential will be evaluated

during treatability testing and appropriate measures will be taken to prevent volatilization of PCBs or control the release of volatilized PCBs during treatment.

In order to evaluate the effectiveness of the stabilization/solidification process, the following physical and chemical tests of treated solidified soil shall be established as minimum performance standards. The minimum performance standards shall be demonstrated in the laboratory and in field testing during construction.

1. The Toxicity Characteristic Leaching Procedure (TCLP test for PCBs shall be .5 ug/L or less. For lead the values shall be 5 mg/L or less. These values reflect the MCL for PCBs and the Maximum Concentration of Contaminants for the Toxicity Characteristic test, pursuant to 40 CFR 261.24, Table 1.

2. The 28-day unconfined compressive strength shall be greater than 50 psi (ASTM Method D2166 or equivalent). Depending upon the additive mix ratio this test may be inappropriate and another test will be utilized to determine unconfined compressive strength, with the approval of EPA.

3. The triaxial permeability shall be less than 1 x 10[-7] cm/sec (USACE Method 1110-2-1906 or equivalent).

4. PSA Mod. MCC-1 Static Leach Test (U.S. DOE-5820) This test will demonstrate that the treated soils do not leach lead above 15 ug/L. The goal is to not increase the leachability of lead under neutral water conditions.

If during design testing it is determined that the Performance Standards for unconfined compressive strength and triaxial permeability will reduce the permanence of the containment system these standards may be altered with the approval of EPA. Engineered controls shall be employed to compensate for the reduction of compressive strength and permeability.

Confirmation Sampling

All soils to be excavated, treated or disposed will include confirmation sampling to determine the amount of soil to be excavated and treated and to document that soils above cleanup levels are removed and treated if necessary. Confirmation testing would include analysis for both lead and PCBs. If the excavation testing indicates that the lead or PCB cleanup level is exceeded, additional material would be excavated vertically and horizontally until cleanup levels are met. Samples of the stabilized soil will be collected for future evaluation and testing.

Treatment Equipment and Staging Areas Preparation

A soil staging area would be set up on the site. The area, which would be on the order of 200 by 200 feet, would be lined by plastic sheeting. An area on the order of 100 feet by 200 feet, depending on the needs for the project, would be cleared near the soil staging area and compacted prior to construction of a bermed pad for equipment set up. Utility hook-ups would be established as appropriate for the equipment.

Consolidation of Soil from Flood Plain Within Upland Areas

Soils within the floodplain which contain lead or PCBs at concentrations at or greater than 500 mg/kg lead or at or greater then 1 mg/kg PCBs would be excavated and consolidated within the existing fence line outside of the 100 year floodplain. These lower action levels (compared to the 1,000 mg/kg lead and 10 mg/kg PCBs cleanup levels for non-flood plain soils) would be used to provide an additional margin of protection in ecologically-sensitive areas. Figure 2-3 shows the approximate extent of the 100-year flood plain (based on 1988 mapping). A small flood plain area beyond the southwest corner of the fence contains soil with greater than 1 mg/kg PCBs. A comparison of Figure 2-3 with Figures 1-6 and 1-8 indicates that no mapped wetlands contain soil with greater than 500 mg/kg lead or 1 mg/kg PCBs. The area disturbed by excavation would be restored to the original grade and revegetated with native

species. The consolidation action would not include any excavation or disposal of hazardous waste or TSCA-regulated material.

Disposal of Treated Soils

Treated soil and soils at or above 10 mg/kg PCBs would be disposed into an on-site TSCA landfill. The location and dimensions of the landfill shall be determined during remedial design and must be outside the 100-year floodplain. The relevant TSCA regulations for design are provided in 40 CFR § 761.75(b), except the requirements waived pursuant to 40 CFR § 761.75(c)(4) below. Solidified soils with lead or PCB concentrations at or greater than 1,000 or 50 mg/kg, respectively, would not be replaced in the top foot or in the zone of groundwater fluctuation. Surface concentrations of the treated soils will be less than 10 mg/kg PCBs. Routine maintenance and inspection of the TSCA landfill shall be conducted during groundwater monitoring events and after any seismic or flood event. The landfill will be designed and located to maximize future use of the site, specifically to utilize the solidified soils as a building foundation or parking area. If use of the landfill as a foundation or parking lot does not occur a cover consisting of an impermeable liner, drainage layer, and erosion control layer will be provided. These layers will consist of a impermeable (less than 1xE-6 permeability) liner, a one foot boundary layer and one foot of growth media.

The following technical requirements specified in 40 CFR § 761.75(b) are waived: (1),(2),(3),(7), and (8). 40 CFR § 761.75(b)(9)(i) may be waived if conditions discussed below occur. The following evaluation justifies waiving these requirements:

- Soils. This standard specifies that the landfill be located in a thick, relatively impermeable soil or rock formation or a low-permeability in-place soil with a minimum thickness of 4 feet or on a compacted, low permeability liner with a minimum thickness of 3 feet. [40 CFR § 761.75(b)(1)]. The Selected Remedy includes encapsulation of the COCs. Through proper design, this encapsulation will be equivalent to the relatively impermeable soils, low permeability soils, and low permeability liner specified in the standard. The solidified mass will have an extremely low permeability such that leachate generation out of the disposal unit will be minimized. The treatability study completed for the site supports this determination. The hydraulic conductivities of solidified treatability study samples ranged from 8 x 10-8 to 7 x 10-7 cm/sec, similar to the hydraulic conductivity requirement provided in 40 CFR § 761.75(b)(1). Additionally, research and applicable experience at CERCLA sites provide further evidence that a properly designed stabilization/solidification remedy can adequately, through groundwater releases, protect against an unreasonable risk of injury to health or the environment by reducing leachate generation to extremely low levels.

- Synthetic Membrane Liners. This standard specifies that a synthetic membrane liner with a minimum thickness of 30 mils will be used when, in the judgment of the Regional Administrator, the hydrologic or geologic conditions at the landfill require such a liner to provide at least a permeability equivalent to the soils described above. [40 CFR § 761.75(b)(2)]. This requirement addresses a bottom liner under the waste. As noted above, the soil treatment design will be developed such that the stabilized/solidified soils provide a level of protection comparable to a low permeability liner, (e.g. a 30 mil synthetic bottom liner system as specified in the regulations). In general, a top liner would be needed at a disposal site to minimize infiltration into the waste if hydrologic or geologic conditions were such that precipitation could enter the waste at a rate greater than it could leave the waste. This would not be the case with the selected remedy because the treated soils would have an extremely low permeability as compared to the underlying and surrounding native soils. Following the path of least resistance, precipitation would instead tend to migrate around the solidified mass rather than through it. Therefore waiving this requirement will not present an unreasonable risk of injury to health or the environment.

- Hydrologic Conditions. In part, this standard specifies that the bottom of the landfill be at least 50 feet above the historical high water table. [40 CFR § 761.75(b)(3)]. The very minimal amount of leachate that could result from a properly designed and implemented solidification/stabilization remedy would not result in excessive risk to human health or the environment. This determination is supported by the groundwater sampling results, the treatability study, and the soil stabilization/solidification durability assessment. Waiving this requirement will not present an unreasonable risk of injury to health or the environment even though not located 50 feet above the high water table.
- Leachate Collection. This standard describes methods for collection and analysis of leachate produced by the landfill. [40 CFR § 761.75(b)(7)]. The amount of leachate produced from a properly designed and implemented solidification/stabilization remedy would be minimal because precipitation would travel around, rather than through, the treated soils. Additionally, as shown in the treatability study, the concentration of PCBs in the leachate is expected to be low (the average concentration of PCBs in 8 treatability study TCLP samples was 0.26 µg/L, as compared to the PCBs MCL of 0.5 µg/L). The combination of low volumes of leachate and low PCB concentrations within the leachate make it appropriate to waive this requirement because such a waiver will not present an unreasonable risk of injury to human health or the environment.

- Chemical Waste Landfill Operations. Operation requirements contained in 40 CFR § 761.75(b)(8) are not applicable to the TSCA landfill on this site because no liquid or other types of wastes other than the solidified soils and low concentration PCB soils will be placed in it before final closure.

- Fence, Wall or Similar Device. The requirement, contained in 40 CFR § 761.75(b)(9)(i), to place a fence, wall or similar device around the landfill will not be waived unless the solidified soil mass is designed and used as a building foundation or it is paved over for a parking lot. A waiver of fence or other access barrier is appropriate under these two scenarios because access to unauthorized persons and animals would be effectively prohibited by the building or pavement.

Based on the evidence presented in the remedial investigation and feasibility study and other information contained in the administrative record for this Record of Decision, it has been determined that waiving these requirements will not result in an unreasonable risk of injury to health or the environment from PCBs.

Waste Shipment

Shipment of wastes would be conducted as part of debris, and potentially LNAPL disposal. This debris and wastes will be shipped pursuant to Department of Transportation rules and regulations regarding transport of hazardous waste, if applicable. All off-site facilities will be in compliance with the off-site Disposal Rule (40 CFR 300.440)

Repair of Erosion Control Wall Along Ship Creek

The erosion control wall constructed during Removal Action along Ship Creek will be repaired and, where needed, reconstructed. Repair and maintenance of this structure is needed to meet the goals of the Floodplain and Protection of Wetlands Executive Orders, as well as, to ensure protection of the TSCA landfill once constructed. Repair and, where necessary, reconstruction of the erosion control wall must comply with the substantive requirements of Section 404(b)(1) of the Clean Water Act and its implementing regulations.

Flood Evaluation

As part of Remedial Design a study will be conducted to evaluate the 100 year and 500 year flood potential for Ship Creek and potential impacts on the site. This study will produce an updated flood map depicting the 100 year flood plain and 500 year flood plain for the site. The results of the study will be used to design appropriate controls to prevent damage to the

landfill from flooding.

Institutional Controls

In addition to the remedial actions used to treat COCs, institutional controls would be used to prevent unacceptable exposure to contamination remaining at source areas at concentrations above acceptable levels. Institutional controls for soil left on-site that contains greater than 1 mg/kg PCBs were selected following EPA guidance for long-term management controls of CERCLA PCB sites. Specific controls will include restrictions limiting future land use, preventing groundwater use, and limiting site access. EPA guidance suggests selecting institutional controls for solidified PCBs based on mobility (TCLP) testing and exposure potential.

Deed Notice and Land Use Restrictions

A deed notice will be recorded on the title records for the site, if possible, and will notify any subsequent purchaser and/or successor in interest that the property is subject to a CERCLA Record of Decision. The selected cleanup levels for the COCs are based on a future industrial land use scenario. Consequently, land use restrictions must be implemented at the site to assure that no residential land uses, or commercial uses with potential chronic exposures of children (i.e., day care center) are allowed. To assure long-term protectiveness, the land use restrictions shall run with the land, bind all successors in interest, and be recorded in the property records. The objectives of the land use restrictions are:

- Ensure that site use continues to be industrial or commercial and prevent use of the site for commercial developments that involve potential chronic exposures of children to soil (e.g., use of the site for a day care center);

- Restrict activities at the site that could potentially impair the integrity of the TSCA landfill; and

- Prevent movement of soil containing greater than 1,000 mg/kg lead or 10 mg/kg PCBs to the surface or within the top foot of soil where chronic long-term worker exposures could occur.

Groundwater Use Restrictions

Groundwater use restrictions are necessary to prevent the installation of groundwater supply wells at the site. The property interest implemented to assure acceptable future land use shall include provisions for restricting use of groundwater underlying the site for any purpose.

In addition, to the recorded restrictions all available regulatory controls shall be undertaken by providing written notification of restrictions and site conditions to local, regional, and state agencies, departments, and utilities. The property owner(s) will be responsible for providing these restrictions.

Access Restrictions

Access to all areas impacted by soil contamination shall be limited during the construction of the remedial action. Access to the landfill should be prohibited to the general public and limited to long or short-term workers in compliance with 40 CFR § 761.75(b)(9)(i), which requires a six foot woven mesh fence, wall, or similar device. However, if the solidified soil mass is designed and used as a building foundation or parking lot, this requirement may be waived. Long term public access will be limited to those areas of the site where surface contamination of greater than 1 mg/kg PCBs remains after all excavation, treatment, and disposal is complete. Public access will be limited by installing and maintaining a six foot fence, or similar structure.

Groundwater Monitoring

Ground water monitoring for PCBs and metals shall be conducted twice a year for the first two years of operation and may be reduced to annually thereafter with approval of EPA in consultation with Alaska Department of Environmental Conservation for a minimum of ten years. After ten years an assessment of the groundwater data will be conducted to determine whether groundwater monitoring is still required or whether the frequency will be altered.

Groundwater monitoring would be conducted to assess the effectiveness of the remedy for protecting groundwater. The groundwater standards that are to be achieved are the MCL and action level for PCBs and lead, 0.5 ug/L and 15 ug/L respectively.

Monitoring groundwater down gradient of the landfill for PCBs (EPA method 8080), lead (EPA method 6000/7000, pH, specific conductance, and chlorinated organics (40 CFR § 761.75(b)(6)((iii)), or methods with equivalent detection limits and accuracy will be conducted to ensure the landfill is not contributing contamination to groundwater, nor altering groundwater conditions.

Stormwater Management

The site will be graded to prevent surface water discharges to Ship Creek. Site storm water structures will be designed to meet the requirements of 40 CFR § 761.75(b)(4)(ii), and constructed to prevent contaminated discharges of storm water to Ship Creek and prevent the transport of contaminated sediments off-site, including to Ship Creek.

Operation and Maintenance

The remedy will be operated and maintained for as long as the stabilized soils (landfill) remains on-site. Operations and maintenance of the remedy will include:

- Maintenance of the landfill to ensure that it retains its structural integrity and prevents release of PCBs and lead through any of the following mechanisms: erosion (including flood and seismic events), leaching, excavation;
- Maintenance of the rip rap erosion control wall along Ship Creek. The erosion control wall will be inspected once a year for the first five years and after flood and seismic events and extreme precipitation events defined as 24-hour, 25-year storms;
- Maintenance of a six foot (minimum) woven mesh fence, wall or similar device or other means to prevent unauthorized access to the site, if deemed necessary after remedial design.

10.0 STATUTORY DETERMINATIONS

The selected remedy satisfies the statutory requirements of Section 121 of CERCLA. The following sections discuss how the selected remedy meets these requirements.

10.1 Protective of Human Health and the Environment

The selected remedy is protective of human health and the environment. The existing exposure pathways will be eliminated by preventing inhalation, dermal contact, and ingestion of the COC's through treatment and containment. Site risks will be reduced to within the 1E-4 to 1E-6 risk range for carcinogens and the Hazard Indices will be less than 1.0 for non-carcinogens in an industrial land-use scenario. No unacceptable short-term risks or cross media impacts will be caused by implementation of the remedy. The selected remedy is the best alternative for the site because it is cost effective, reliable, and allows future use of the site.

10.2 Applicable or Relevant and Appropriate Requirements

The selected remedy will comply with all ARARs and, based on the administrative record, justifies waiving certain TSCA landfill requirements as discussed in Section 9.1 above. The chemical-specific, action-specific, and location-specific applicable or relevant and appropriate requirements (ARARs) that will be attained are:

Clear Water Act, 33 U.S.C. § 1313 and 40 CFR § 131.36(d)(12) are applicable for preventing future releases to Ship Creek, establishes and implements the National Toxics Rule, and sets water quality standards for Alaska.

40 CFR § 141, Subpart B and F, the Safe Drinking Water Act Maximum Contaminant Levels are applicable and Maximum Contaminant Level Goals are relevant and appropriate, establishes cleanup standards for metals and organic compounds, including PCBs, in ground water.

Toxic Substances Control Act, 15 U.S.C. § 2601 et seq., and 40 CFR §§ 761.60 and 761.75(b), (except the waived requirements as described in section 9.0), is applicable for the on-site disposal of PCBs.

Clean Water Act, 33 U.S.C. § 1311, 40 CFR § 122.26 is applicable, direct discharges must meet technology-based standards, and storm water regulations for controlling discharges associated with industrial or construction activities.

Clean Water Act, 33 U.S.C. § 1314(b)(1) and 40 CFR Part 230, substantive requirements for dredge and fill requirements in waters of the United States is applicable for repairing the erosion control wall.

40 CFR § 261.24. RCRA Characteristic Hazardous Waste Determination is applicable for identifying soil and debris that must be managed as hazardous waste (i.e. lead).

40 CFR 264, Subpart C, Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities; Preparedness and Prevention is applicable for staging and conducting the remedial action.

40 CFR 264.310(a) RCRA Subtitle C Landfill regulation is relevant and appropriate for the cover design of the landfill, if appropriate.

40 CFR 268, RCRA Subparts C and D, Prohibitions on Land Disposal and Treatment Standards are applicable to the disposal of Characteristic and California List wastes, including contaminated debris.

Alaska Air Quality Regulations 18 AAC Chapter 50 for dust suppression and PCB emissions is applicable.

Executive Order 11988, 40 CFR 6, App. A, is applicable for action within floodplains, and to avoid adverse effects, minimize potential harm, restore and preserve natural and beneficial values.

Executive Order 11990 Protection of Wetlands is applicable for activities in wetlands or which could impact wetlands.

Off Site Disposal Rule 40 CFR 300.440 is applicable for disposing of contaminated materials off site.

<u>To-Be-Considered (TBC) Guidances and Policies</u>:

40 CFR Part 761, Subpart G, TSCA PCB Spill Cleanup Policy.

Guidance on Remedial Actions at Superfund Sites with PCB Contamination, OSWER Directive

9355.4-01.

10.3 Cost Effectiveness

The selected remedy affords overall effectiveness proportional to their costs. The selected remedy provides the best long-term permanence and risk reduction by treating the mobility of the COCs and preventing exposure via containment.

10.4 Utilization of Permanent Solutions and Alternative Treatment Technologies to the Maximum Extent Practicable

EPA has determined, by utilizing the nine criteria of CERCLA, that the selected remedy represents the maximum extent to which permanent solutions and treatment technologies can be used cost-effectively at the Steel and Metals Salvage Yard Site. Of those alternatives that are protective of human health and the environment and comply with ARARs, EPA has determined that the selected remedy provides the best balance in terms of long-term effectiveness and permanence; reduction in toxicity, mobility or volume achieved through treatment; short-term effectiveness; implementability; cost; and the statutory preference for treatment as a principle element and considering state and community acceptance.

The selected remedy will provide for permanent containment of the contaminants of concern. Greater protection could have been achieved by transporting the wastes off-site. However, because Alaska does not have chemical or hazardous waste treatment or disposal facilities, this option was deemed less implementable, too costly, and along with increased short-term risks, would not have reduced the risks substantially more than on-site treatment and containment.

10.5 Preference for Treatment as a Principle Element

The preference for treatment is satisfied by the selected remedy because EPA's removal action treated the principle threats and additional treatment is being implemented. The treatment will immobilize lead and PCBs in soil as well as eliminate lead contaminated soils as Characteristic Waste, pursuant to RCRA.

11.0 DOCUMENTATION OF SIGNIFICANT CHANGES

No significant changes to the proposed remedy, as presented to the public in the Proposed Plan have occurred. EPA altered Alternative 6, as presented in the feasibility study, in proposing its preferred alternative to the public. EPA determined that the subsurface cleanup standard should be 10 mg/kg for PCBs instead of 50 mg/kg. This alteration was deemed necessary to ensure future releases of hazardous substances from the site would not occur. The change is not anticipated to result in significant change in estimated costs for the remedial action.

Additionally, the feasibility study and the Proposed Plan incorporated the Removal Action as a common element of the analysis of alternatives. The Removal Action included the construction of an erosion control wall along Ship Creek. In describing the selected remedy, EPA has more specifically included a requirement that the erosion control wall be repaired and maintained.

<IMG SRC 1096141A>
<IMG SRC 1096141B>
<IMG SRC 1096141C>
<IMG SRC 1096141D>

Table 5-1
SUMMARY OF MEDIA AND CHEMICALS OF CONCERN

Media of Concern	Chemicals of Concern
Surface and Subsurface Soil	PCBs Lead Dioxins and Furans (co-located with PCBs)

<IMG SRC 1096141E>
<IMG SRC 1096141F>
<IMG SRC 1096141G>
<IMG SRC 1096141H>
<IMG SRC 1096141HH>

Table 6-1
RESIDENTIAL RISK BASED CONCENTRATIONS BACKGROUND CONCENTRATIONS, AND MAXIMUM CONCENTRATIONS OF PCOC'S IN SOILS AND GROUNDWATER

Chemical	Risk Based Concentration mg/kg in soil & mg/L in groundwater	Maximum Background Concentration(1) mg/kg in soil & mg/L in groundwater	Maximum Concentration(2) mg/kg in soil & mg/L in groundwater	Concentration (EPA Removal Action)(3) mg/kg in soil & mg/L in groundwater
Soil				
PCBs	0.008	NA	380	10,600
Chrysene	0.009	NA	7.8	NA
Benzo(b)fluoranthene	0.009	NA	4.9	NA
Benzo(k)fluoranthene	0.009	NA	1.6	NA
Benzo(a)pyrene	0.009	NA	3.8	NA
Indeno(1,2,3-c,d)pyrene	0.009	NA	2.5	NA
Dibenzo(a,h)anthracene	0.009	NA	0.68	NA
2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD)	0.0000004	NA	0.00172	NA
Cadmium	10	1.13	11.60	128
Chromium	136.7	19.80	151	1,570
Copper	1000	14.85	3,320	7,700
Lead	500	6.89	7,200	44,500
GROUNDWATER				
Tetrachloroethylene	0.002	NA	0.0075	0.043
1,2,4-Trichlorobenzene	0.002	NA	0.024	0.39
Arsenic	0.00005	0.010	0.0159	ND
Cadmium	0.02	0.0001	0.0291	ND
PCBs	0.00001	NA	0.000032	2,025
Lead	NA	0.047	0.0031J	0.00076

Table 6-2
PARAMETERS USED TO CALCULATE RISK-BASED SCREENING CONCENTRATIONS

Parameter/Reasonable Maximum Exposures Values

Media	Scenario/ Receptor	Target Exposure Route	Target Cancer Risk Level	Hazard Index	Exposure Ingestion Rate	Exposure Frequency (days/year)	Duration (years)	Body Weight (kg)	Averaging Time (days)
Soil	Residential/ Adult	Ingestion	1.00E-07	0.1	100 mg/day	350	24	70	25,550 (Carcinogen) 10,950 (Noncarcinogen)
	Residential/ Child	Ingestion	1.00E-07	0.1	200 mg/day	350	6	15	25,550 (Carcinogen) 10,950 (Noncarcinogen)
Groundwater	Residential/ Adult	Ingestion	1.00E-06	0.1	2 L/day	350	30	70	25,550 (Carcinogen) 10,950 (Noncarcinogen)

Table 6-3
SUMMARIES OF RME HAZARD INDICES

Exposure Pathway	Short-Term Worker			Long-Term Worker			Resident		
	AOC 1	AOC 2	AOC 3	AOC 1	AOC 2	AOC 3	AOC 1a	AOC 2b	AOC 3
Soil Ingestion	1.8	1	0.3	1.4	0.1	0.3	10.6	1	2
Soil Dermal Contact	1.3	0.8	0.2	3.9	0.5	0.7	8.5	1.1	1.6
Particulate Inhalation	2E-5	4E-6	4E-6	NA	NA	NA	NA	NA	NA
Groundwater Ingestion	NA	NA	NA	NA	NA	NA	0.6	1.6	NA
Groundwater Dermal Contact	NA	NA	NA	NA	NA	NA	0.03	0.1	NA
Inhalation of Volatile Organic Compounds During Showering	NA	NA	NA	NA	NA	NA	0.01	NA	NA
Total Hazard Indices	3.1	1.8	0.5	5.3	0.6	1	19.7	3.8	3.6

NA Not applicable

a Includes hazard indices attributed to MW-21 groundwater exposure pathways

b Includes hazard indices attributed to MW-13 groundwater exposure pathways

Table 6-4
SUMMARIES OF RME CANCER RISKS

Exposure Pathway	Short-Term Worker			Long-Term Worker			Resident		
	AOC 1	AOC 2	AOC 3	AOC 1	AOC 2	AOC 3	AOC 1a	AOC 2	AOC 3
Soil Ingestion	2E-5	9E-6	3E-6	3E-4	4E-5	5E-5	3E-3	3E-4	5E-4
Soil Dermal Contact	1E-5	6E-6	2E-6	8E-4	1E-4	1E-4	2E-3	3E-4	4E-4
Particulate Inhalation	1E-10	1E-10	4E-12	9E-8	7E-8	NA	1E-7	1E-7	NA
Groundwater Ingestion	NA	NA	NA	NA	NA	NA	1E-4b	NA	NA
Groundwater Dermal Contact	NA	NA	NA	NA	NA	NA	5E-6	NA	NA
Inhalation of Volatile Organic Compounds During Showering	NA	NA	NA	NA	NA	NA	7E-8	NA	NA
Total Hazard Indices	3E-5	1E-5	5E-6	1E-3	1E-4	1E-4	5E-3	6E-4	9E-4

NA Not applicable

a Includes risks attributed to MW-21 groundwater exposure pathways

b Preliminary groundwater data for October 1993 reports PCB detections in MW-18 and MW-19 in the 3E-5 cancer risk range

Table 6-5
SUMMARY OF ESTIMATED EXCESS CANCER RISKS
ASSOCIATED WITH 10mg/kg PCB CLEANUP LEVEL

Compound	Dioxins and PCBs	Furans	Total cPAHs	Cumulative
Concentration, mg/kg	10	0.00012(1)	0.25	--
Estimated RME risk: Long-term worker)combined dermal contact with ingestion(²)	3.0E-05	6.4E-06	5.8E-08(3)	3.6E-05

Notes:
(1) Expressed as 2,3,7,8-TCDD equivalent

(2) The procedure used to calculate risk is described in Appendix A

(3) Risk for cPAHs is ingestion only; EPA has not recommended absorption factors for dermal uptake of PAHs and states that further research is required on the bioavailability of PAHs in soil

<IMG SRC 1096141I>
<IMG SRC 1096141J>
<IMG SRC 1096141K>

Table 9-1
Soil Cleanup Level Summary

PCB (mg/kg)	Lead (mg/kg)	Action*
<1	<500	No Action
1-9.9	500-999	Flood plain soils only, excavate and consolidate elsewhere on-site
10-49	NA	Excavate and consolidate soils in onsite TSCA landfill below 1 foot of landfill surface
50 or greater	1000 or greater	Excavate soils and treat by solidification/stabilization, then dispose in a on-site TSCA landfill. Treated soils cannot be placed in top foot of landfill unless concentration is less than 10 mg/kg PCBs or within the groundwater fluctuation zone.

* Groundwater fluctuation zone will be backfilled with soils containing less than 1 mg/kg PCBs.

All other excavated areas will be backfilled with soils containing less than 10 mg/kg PCBs. Soils may not be stockpiled, and subsequently backfilled, in a manner which reduces the concentrations below 10 mg/kg, or to avoid treatment.

RESPONSIVENESS SUMMARY
STANDARD STEEL AND METALS
SALVAGE YARD SITE

The purpose of this responsiveness summary is to summarize and respond to public comments submitted regarding the Proposed Plan for the remedy at the Standard Steel and Metals Salvage Yard site Located in Anchorage, Alaska. The public comment period for the Proposed Plan was held from March 18, 1996 through April 17, 1996.

This responsiveness summary meets the requirements of Section 117 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA).

Four verbal comments were received during the April 10, 1996 public meeting held in Anchorage, Alaska. All four comments supported the selection of stabilization/solidification as a final remedy for the site.

Six written comments were received postmarked by April 17, 1996. These comments are listed and responded to in the following text. Similar comments have been combined and the text is paraphrased due to the length of comments. All comments are included in the Administrative Record.

Two comments were received after the end of the public comment period. These comments are very similar and reflect the same concerns as those submitted by Greenpeace and the Anchorage Waterways Council. EPA will address these comments in this responsiveness summary.

Comment 1. Chugach Electric Association commented on EPA's alteration of the PCB subsurface soil cleanup level from 50 mg/kg to 10 mg/kg. Chugach commented that there was insufficient notice about the change because it was not evaluated in the feasibility study. Chugach also commented that it is concerned that EPA's proposed alteration of Alternative 6 may invalidate the results of the FS. Of particular concern to Chugach is the effect on the cost of implementing the additional excavation. Chugach also notes that there is little legal basis for selecting a 10 ppm cleanup level. Chugach mentioned that if EPA limits the extent of this alteration to the three known areas of subsurface PCB contamination that their above concerns "will not be triggered". Chugach also stated that they look forward to working with EPA on implementing the remedy.

Response: In the Proposed Plan EPA presented the preferred alternative to the public with a 10 mg/kg cleanup level for both surface and subsurface soils, instead of a 10 mg/kg surface and 50 mg/kg subsurface cleanup level, as presented in the FS. The change from the FS was identified and explained in the Proposed Plan and during the public meeting. EPA supplied sufficient notice to the public and informed them of why the change was proposed. No other comments were received objecting to the proposed subsurface cleanup standard.

Chugach's concern with the alteration of the price is warranted and EPA did consider it in proposing the alteration from the FS. In EPA's judgment, the change in volume to be excavated will not have a significant impact on actual costs of implementing the remedy. Since soils between 10ppm and 50ppm are only required to be consolidated in the TSCA landfill, as is proposed with surface soils, and not treated with stabilization the only impact will be on costs of excavating and backfilling. The cost of excavating soils is estimated (FS estimates) at $25.00/cy and backfilling and compaction at $8.00/cy. The cost of increasing subsurface excavations by 1000 cy is estimated at $33,000. Even with an additional 3000 cy of subsurface soils requiring excavation the increase in cost will be less than $100,000, which is approximately 2% of the low-end estimation of the preferred alternative. Additionally, the small increase in costs resulting from additional excavation and backfilling would be less than the costs of monitoring and maintenance of the cap that would have been required over areas of the site that would have had 50 mg/kg in the subsurface.

Chugach's comment about the legal basis of selecting a 10 mg/kg cleanup level is noted. There is no federal or state ARAR that sets PCB soil cleanup levels. The cleanup levels at this site were based on residual risk, long-term protection, and consideration of cleanup standards contained in the TSCA Spill Policy and Superfund PCB Guidance and policies. Although the TSCA Spill Policy may not require 10 mg/kg beyond 10 inches, EPA has the discretion to select a more stringent cleanup level. We selected 10 mg/kg as the cleanup level for PCBs because commercial activities on the site and the nature of the climate in Anchorage cast doubt on the effectiveness of a one foot soil layer over soils containing 50 mg/kg at depth. EPA decided that either a substantial cap (asphalt, geomembrane) would be needed to prevent exposure to soils with up to 50 mg/kg PCBs, or an alternative was to excavate soils above the surface soil cleanup level and contain with other soils exceeding the cleanup level. Containing moderately contaminated soils with the treated soils was determined to be more cost effective and practical than capping most of the site and maintaining that cap forever.

Regarding the extent of subsurface soil excavations above 10 mg/kg PCBs. EPA anticipates, based on current data, that these areas are limited to four locations on-site. EPA's alteration is based on the need to prevent future releases from the site. Considering that subsurface characterization is limited and additional sampling may determine significant areas of subsurface contamination beyond the three areas identified in the RI/FS, EPA can not put a limit on the need for addressing these soils. However, EPA will reevaluate the remedy if very significant areas of subsurface contamination are discovered that would greatly increase volumes to be excavated and contained. In that event, EPA will work with the participating parties conducting the remedial action and the community to address these soils in a protective manner.

Comment 2: Anchorage Waterways Council (AWC) submitted substantial comments regarding the lack of information on current stream bed conditions and hydraulic characteristics of Ship Creek in the Administrative Record. AWC does not support stabilization/solidification as the remedy at the site and can "concur only with options 9 or 10. Main points raised by AWC are listed below.

1) Degree of aggradation of Ship Creek, a study is needed to quantify and qualify the degree of aggradation.

2) Ship Creek has been channelized in some locations upstream of the site and significant urbanization may significantly alter the slug flow and flooding characteristics of Ship Creek.

3) Dams located upstream may significantly affect the stream bed condition, gradient, and elevation. AWC states that "There appears to be a significant chance of catastrophic failure of one or both of the fish hatchery dams during a flooding event." This could significantly alter the stream bed.

4) The Standard Steel site is located in an area which "will almost certainly be inundated by a 100, 500 or 1000 year flood event, just as it was in the flood of August 1989." AWC raised concerns of changes in global weather patterns and that flooding and inundation will be more frequent.

5) EPA's evaluation of remedial options may contain errors regarding which options achieve long-term permanence and that alternatives 2, 3, 5, and 6 must be included in the category of alternatives which could be effected by catastrophic events.

6) EPA's evaluation fails to adequately consider the economic and health aspects of the release of site contaminants to Ship Creek.

7) AWC recommends EPA perform an analysis of potential economic and health effects of a release of contamination from this site. Also, that leaving these wastes on-site is in effect leaving an "environmental timebomb".

Response to points 1),2),3),4)and 5): As part of Remedial Design a study of flooding potential in the Ship Creek basin will be required. This study will evaluate the impacts of a 100 and 500 event on the site. The landfill and solidification mix will be designed to resist at a minimum a 100-year flood event in accordance with TSCA landfill requirements. It should be noted that there are common engineering solutions to designing structures in flood plains. The fact that the structure contains PCBs and lead does not prevent the structure from being designed to withstand flooding, erosion or seismic events.

The stabilized mass will immobilize the waste and not allow PCBs or lead to be released from the site. The solidified wastes and groundwater will be monitored. If monitoring shows releases of hazardous substances above drinking water standards or site cleanup levels, such releases will be addressed. It should be noted that significant transport of contaminated soils did not occur after the August 1989 flood event. This is supported by sampling data from the EPA removal actions and comparison to RI/FS sampling. The landfill will not be placed within the 100 year flood plain.

The erosion control bank along the site's border and Ship Creek will be repaired and, if necessary, improved. This erosion control structure will be maintained as long as the landfill exists.

Response to point No. 6: Concerning Long-term effectiveness and permanence, EPA stated in the Proposed Plan (March 18, 1996) that

> "Alternative 4 would require maintenance of a cap and containment measures forever, and therefore receives a low rating. Alternatives 5,6,8,9, and 10 would all have a high long term reliability because the contaminants would either be removed from the site or solidified. Although the containment cell would require monitoring, there is sufficient experience with solidification to predict that it would be reliable over time. Alternative 7 would remove most (90%) of PCBs, but would not provide as significant on-site controls (constructed mechanisms) to prevent long term releases as Alternative 6. Potential releases from Alternatives 4 and 7 would be caused by very significant site disturbances, such as earthquakes, flooding, or failure of land use controls."

EPA does not disagree with AWQ's position that "Any" waste left on-site could (EPA emphasis added) be affected by catastrophic events or improper application of land use controls. However, CERCLA states that EPA is to evaluate risk based on reasonable land use scenarios and base remedies on reasonable assumptions. Flood and seismic events can be anticipated and the landfill designed to minimize releases associated with such events. All potential effects from global warming, acts of God, or war cannot be anticipated. EPA considers the evaluation presented in the Proposed Plan as an accurate evaluation of which alternatives comply with the criteria of long-term protection and effectiveness, and that our assumptions and remedy is reasonable.

Response to point No. 7: EPA has evaluated effects of releases from the site and has determined that there are no current releases from the site. We have also determined that by implementing this remedy future releases will be highly unlikely. EPA strongly disagrees with the statement that the wastes at this site are in effect an environmental timebomb. Neither PCBs or lead are mobile in water, substantial actions have been undertaken which have eliminated risks posed by the principle threats at the site (PCB oils), and on-site containment versus offsite containment or treatment poses fewer risks due to transportation. Exposure through other pathways, such as direct contact, inhalation, ingestion will be eliminated by solidification.

Comment 3 and 4: Greenpeace and Bob French submitted the following comments (comments were separate but similar enough to address together):

1) EPA stated the life expectancy of the monolith is approximately 30 years. The commenters concern is that the short life expectancy is too short to ensure protection of environmental and human health. The commenter also states that this technology is

untested in subarctic environments and that a GAO report states that EPA officials believe that technologies must be used multiple times under a variety of conditions before their cost and performance data become reliable and acceptable for cleanup decisions.

2) EPA has minimized the severity of pollution problems ensuing from the creek and that a DEC Site Summary for Standard Steel stated groundwater was contaminated with PCBs, lead, and tetrachloroethylene (not addressed in the Proposed Plan) and that sediments in Ship Creek are contaminated with PCBs. The commenter feels the scope of the investigation was too limited to address impacts to offsite drinking water sources and bioaccumulation of persistent organochlorine contaminants downstream from the site.

3) EPA has not adequately considered the endocrine disruption potential for the organochlorine chemicals in wildlife and humans. EPA has not fully discussed the fate of dioxin/furan contaminated ash, and that the containers with the dioxin/furans are not secured.

4) Greenpeace feels that with "the serious uncertainties and lack of proven technology regarding the proposed remedy, the best solution to the problem is Alternative 9-Offsite disposal.

Responses:

1) EPA stated during the public meeting that the "life expectance is at least thirty years. We say it could go on indefinitely." Stabilization (cement/concrete) technology has been employed for thousands of years and has a long history of data to draw from. The design of the containment cell will be for hundreds of years, and Institutional Controls will be required to ensure the remedy is maintained and changes in land use do not pose an unacceptable risk to human health or the environment.

Regarding the GAO report, without knowing the report referred to and its context, EPA cannot directly respond to that statement. EPA has a national policy to promote the use of innovative technologies when they have a reasonable chance or providing a cost effective, efficient, and reliable treatment solution. Stabilization/solidification has been used at other Superfund cleanups, and EPA has proposed stabilization/solidification as an alternative remedial alternative for PCBs under the Toxic Substances Control Act, Resource Conservation and Recover Act and the Comprehensive Environmental Response, Compensation and Liability Act.

EPA acknowledges the challenge of implementing this remedy in a subarctic environment. However, solidification has been implemented successfully at many Superfund Sites in the lower forty-eight states which have similar climatic conditions as Anchorage, Alaska.

2) Both EPA and DEC were involved in the scoping of the RI/FS and concurred on the scope of the RI/FS investigation. EPA maintains that groundwater is not contaminated at levels which require remediation. The tetrachloroethylene contamination the commenter is referring to was located onsite and only in one well. This does not constitute a situation requiring remediation of groundwater, nor does it necessitate a different remedial alternative. The selected remedy includes monitoring groundwater to ensure that there is no migration of contaminants off-site.

Ship Creek was evaluated by EPA, with the input by DEC and a Biological Technical Advisory Committee consisting of the U.S. Fish and Wildlife Service, Alaska Department of Fish and Game, Elmendorf AFB Natural Resource Trustee. This group concurred with the conclusion that the Standard Steel site is not currently releasing contaminants to Ship Creek. Ship Creek is a heavily impacted waterway by many point and non-point sources. There have been other PCB spills adjacent to the creek and some directly into the creek as well as urban runoff, storm sewers and other unknown sources. It was decided during scoping that correlating past releases from the Standard Steel site to Ship Creek was impractical.

3) EPA did evaluate the impacts of dioxin/furans in the Baseline Risk Assessment. The assessment determined that dioxins/furans do pose a risk. EPA is taking action to mitigate these risks by stabilizing/solidifying all soils containing dioxins/furans. These soils are collocated with PCB soils requiring excavation and treatment.

The dioxin/furan contaminated equipment is secured on site in a locked shipping container. This container is within the fence boundary and located on private property maintained by the Alaska Railroad Corporation. Ash from the incinerator was placed in the shipping container with the incinerator equipment. The equipment and ash will be properly disposed off-site as part of the selected remedy.

4) EPA feels the uncertainty related to the effectiveness and reliability of stabilization/solidification is low and that remedial design will result in a protective long-term solution for the site. EPA feels that shipping large volumes of soils from Anchorage Alaska not alter the long-term risks and would simply transfer the waste to another location does not alter the long-term risks and would simply transfer the waste to another location at a substantial cost.

Comment 5: The Municipality of Anchorage submitted a comment concerning erosion by Ship Creek along the bank of the site. The commenter does not oppose the proposed alternative in concept.

Response: The remedy will require an assessment of Ship Creek erosion potential and mitigation requirements. The remedy will include maintenance of the erosion control structure along the site bank.

Comment 6: Sears Roebuck and Co commented that the proposed plan for remediation of the site represents an effective and pragmatic approach to remediating the subject site. However, the commenter has concerns with the selected 1000 mg/kg treatment level for lead. The commenter feels it is "excessively conservative". The commenter provided an Attachment entitled "Calculation of Lead PRG Using Bowers Et. Al. (1994) Model" This calculation results in a PRG of 7,850 mg/kg lead in soil.

Response: EPA appreciates that the commenter supports the proposed remedy. The treatment level for lead is not solely driven by risk alone. Pursuant to the Resource Conservation Recovery Act, the lead present in soils at the site is considered a characteristic RCRA hazardous waste (waste code D008) when generated (excavated). Pursuant to RCRA Land Disposal Restrictions characteristic wastes must be treated prior to land disposal or obtain at Treatability Variance. Soils at the site failed the characteristic test (SW-846, TCLP) of leaching greater than 5.0mg/kg lead when the soil concentrations was as low as 780mg/kg (Table 2-10 of FS). It was shown in the soil treatability tests that soils above 1700mg/kg lead would consistently fail the characteristic test and would be considered Hazardous Waste.

Since soils exceeding 10 mg/kg PCBs will be excavated and placed in the TSCA landfill and these soils have greater the than 1000mg/kg lead, the presence of lead forces treatment of these materials prior to land disposal.

The 1000 mg/kg cleanup level has been utilized at many other Superfund sites with an industrial land use. This level is considered protective by EPA in these circumstances. As EPA and the commenter noted an acceptable method of quantitatively evaluating the risk posed by lead to adults at industrial sites is unavailable. The Bowers Et. Al, (1994) model is being evaluated by EPA for general application in the Superfund program. However, the model has not yet been generally accepted in the Superfund guidance and it was not being considered at the time the Baseline Risk Assessment was completed for this Site.

EPA utilizes in the Baseline Risk Assessment to determine whether an evaluation of remedial alternatives is warranted at a site. EPA does re-evaluate risks when new information becomes available. However, unless that new information demonstrates that a significant change (either greater or lesser risk) in risk from the previous risk assessment would occur, EPA does not consider it necessary to delay cleanup and incur additional cost to revise the risk

assessment or reassess alternatives.

EPA (Mark Maddaloni, EPA Lead Evaluation Workgroup, chair of the sub-committee for non-residential exposure) did a limited evaluation of the analysis Sears submitted using the Bowers Et. Al. (1994) model disagrees with two default assumptions used by Sear's consultant. First and foremost, EPA cannot support adjustment of the frequency of contact (FOC) to account for EPA's default industrial exposure duration divided by a lifetime (i.e., 25 years/70 years). An elevated blood Pb level will reflect current exposure conditions and has nothing to do with the how long people tend to live. Rather that integrate the blood lead level over a lifetime, EPA is interested in exposure durations that could be limited to nine months - that duration representing the gestational period in which lead would be transferred from mother to fetus. Second, bioavailability is an issue. The value used by Sears (8%) represents a lower bound estimate in that it reflects conditions where bioavailability was measured during a fed rather than fasted state. Absorption is much greater when lead is introduced to an empty stomach. A default value employed at the Leadville Superfund Site of 12% would be recommended.

The Bowers Et. Al. (1994) model may be an appropriate tool for evaluating lead risks at non-residential sites. However, EPA does not think it would be in the best interests of the community, or the site to delay cleanup and conduct another evaluation of risks at the site, when the outcome would not likely be a significant change in cleanup level or cleanup costs. EPA considers a 1000 mg/kg cleanup level for lead appropriate at the site based on a qualitative evaluation of lead risks, previous remedial action levels at other Superfund sites, and the collocation of lead and PCBs at the site.

It would be very expensive and delay cleanup to conduct TCLP tests on all soils prior to treatment to determine whether they fail the TCLP test, and it is impractical to separate the lead contaminated soils from the PCB soils. Therefore EPA will retain the 1000mg/kg treatment level for lead contaminated soils.

Late Comments: Two comments were received from the Sierra Club, Alaska Chapter and the Downtown (Anchorage) Community Council. There concerns are that EPA does not have enough information for selecting stabilization/solidification as a final remedy and groundwater and Ship Creek Sediments are contaminated and need to be addressed. They submitted similar concerns as the above comments regarding flooding and seismic events.

Response: EPA believes there is sufficient information to assess stabilization/ solidification. Treatability tests have been conducted on site soils and have determined that s/s is effective at binding the wastes in a monolith. Further testing will be conducted to determine how to address freeze/thaw process. If these tests determine that the monolith can not be constructed to withstand freeze/thaw process and maintain its goal of preventing exposure and release of the contaminants then an alternative remedy will need to be selected.

EPA does not concur that groundwater and sediments in Ship Creek require remedial action to address contamination. The data within the RI and the Risk Assessment clearly illustrate that groundwater does not pose an unacceptable risk to human health or the environment. The LNAPL is a high risk material, but is considered to be a "source" to potential groundwater contamination and not considered to be groundwater. The LNAPL and LNAPL contaminated soils will be excavated and treated as part of the selected remedy. RI data on Ship Creek sediments show no PCB contamination is not present in sediment adjacent to the site which pose an unacceptable risk to human health or the environment and therefore does not require remedial action. Stream sediment samples adjacent to the site and downgradient did not detect PCB or lead contamination which demonstrated a release from the site. These samples were obtained in depositional areas and would indicate whether there have been recent releases. Past releases may have occurred but would be distinguishable, if detected, from non-site releases.

Flooding and seismic events will be addressed during design of the monolith. These are common engineering restraints which any activity within the Ship Creek basin and throughout most of Anchorage would have to accommodate.

ATTACHMENT 18

CERCLA Consent Decree
for Remedial Design/Remedial Action
1998

[This page intentionally left blank]

OPTIONAL FORM 99 (7-90)

FAX TRANSMITTAL # of pages ▶ 1

To	From
LORI HOLCIK	GINA BELT
Dept./Agency	Phone #
Fax #	Fax #

NSN 7540-01-317-7368 5099-101 GENERAL SERVICES ADMINISTRATION

LODGED

OCT 09 1997

FILED

JAN 26 1998

UNITED STATES DISTRICT COURT
DISTRICT OF ALASKA
By _____ Deputy

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF ALASKA

UNITED STATES OF AMERICA, Plaintiff, v. ALASKA RAILROAD CORPORATION, CHUGACH ELECTRIC ASSOCIATION, INC., WESTINGHOUSE ELECTRIC CORPORATION, SEARS, ROEBUCK AND COMPANY, MONTGOMERY WARD AND COMPANY, INC. J.C. PENNEY COMPANY, INC., AND BRIDGESTONE/FIRESTONE, INC., Defendants.	CIVIL ACTION NO. A91-0589-CV (JWS)

CERCLA REMEDIAL DESIGN AND REMEDIAL ACTION CONSENT DECREE

91414 174

AR 1.

1076172

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF ALASKA

UNITED STATES OF AMERICA, Plaintiff, v. ALASKA RAILROAD CORPORATION, CHUGACH ELECTRIC ASSOCIATION, INC., WESTINGHOUSE ELECTRIC CORPORATION, SEARS, ROEBUCK AND COMPANY, MONTGOMERY WARD AND COMPANY, INC. J.C. PENNEY COMPANY, INC., AND BRIDGESTONE/FIRESTONE, INC., Defendants.	CIVIL ACTION NO. A91-0589-CV (JWS)

CERCLA REMEDIAL DESIGN AND REMEDIAL ACTION CONSENT DECREE

TABLE OF CONTENTS

		Page
I.	BACKGROUND	3
II.	JURISDICTION	7
III.	PARTIES BOUND	8
IV.	DEFINITIONS	9
V.	GENERAL PROVISIONS	16
VI.	PERFORMANCE OF THE WORK BY SETTLING DEFENDANTS	18
VII.	REMEDY REVIEW	31
VIII.	QUALITY ASSURANCE, SAMPLING, AND DATA ANALYSIS	33
IX.	ACCESS AND INSTITUTIONAL CONTROLS	35
X.	REPORTING REQUIREMENTS	42
XI.	EPA APPROVAL OF PLANS AND OTHER SUBMISSIONS	45
XII.	PROJECT COORDINATORS	48
XIII.	ASSURANCE OF ABILITY TO COMPLETE WORK	50
XIV.	CERTIFICATION OF COMPLETION	52
XV.	EMERGENCY RESPONSE	54
XVI.	REIMBURSEMENT OF RESPONSE COSTS	56
XVII.	INDEMNIFICATION AND INSURANCE	60
XVIII.	FORCE MAJEURE	64
XIX.	DISPUTE RESOLUTION	67
XX.	STIPULATED PENALTIES	73
XXI.	COVENANTS NOT TO SUE BY PLAINTIFF	81
XII.	COVENANTS BY SETTLING DEFENDANTS AND OWNER SETTLING DEFENDANT	87
XXIII.	EFFECT OF SETTLEMENT; CONTRIBUTION PROTECTION	89
XXIV.	ACCESS TO INFORMATION	91
XXV.	RETENTION OF RECORDS	93
XXVI.	NOTICES AND SUBMISSIONS	94
XXVII.	EFFECTIVE DATE	96
XXVIII.	RETENTION OF JURISDICTION	96
XXIX.	APPENDICES	96
XXX.	COMMUNITY RELATIONS	97
XXXI.	MODIFICATION	97
XXXII.	LODGING AND OPPORTUNITY FOR PUBLIC COMMENT	98
XXXIII.	SIGNATORIES/SERVICE	99

I. BACKGROUND

A. The United States of America ("United States"), on behalf of the Administrator of the United States Environmental Protection Agency ("EPA"), filed a complaint in this matter on December 6, 1991, pursuant to Sections 104, 107, and 113 of the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA"), 42 U.S.C. §§ 9604, 9607, 9613.

B. Simultaneously with the lodging of this CERCLA Remedial Design and Remedial Action Consent Decree ("Consent Decree"), the United States has filed an amended complaint in this matter pursuant to Sections 106, 107, and 113 of CERCLA, 42 U.S.C. §§ 9606, 9607, and 9613.

C. The United States in its amended complaint seeks, inter alia: (1) reimbursement of costs incurred by EPA and the Department of Justice for response actions at the Standard Steel and Metals Salvage Yard Superfund Site ("Site") in the Municipality of Anchorage, Alaska, together with accrued interest, if any; and (2) performance of studies and response actions by the defendants at the Site consistent with the National Oil and Hazardous Substance Pollution Contingency Plan, 40 C.F.R. Part 300 (as amended) ("NCP").

D. In accordance with the NCP and Section 121(f)(1)(F) of CERCLA, 42 U.S.C. § 9621(f)(1)(F), EPA notified the State of Alaska (the "State") on November 6, 1996, of negotiations with potentially responsible parties regarding the implementation of the remedial design and remedial action for the

Site, and EPA has provided the State with an opportunity to participate in such negotiations and be a party to this Consent Decree.

E. In accordance with Section 122(j)(1) of CERCLA, 42 U.S.C. § 9622(j)(1), EPA notified the U.S. Department of the Interior and the National Oceanic and Atmospheric Administration on November 6, 1996, and the Alaska Department of Environmental Conservation on November 13, 1996, of negotiations with potentially responsible parties regarding the release of hazardous substances that may have resulted in injury to the natural resources under Federal and State trusteeship, and encouraged the trustees to participate in the negotiation of this Consent Decree.

F. The defendants that have entered into this Consent Decree ("Settling Defendants and Owner Settling Defendant") do not admit any liability to the Plaintiff arising out of the transactions or occurrences alleged in the amended complaint, nor do they acknowledge that the release or threatened release of hazardous substances at or from the Site constitutes an imminent or substantial endangerment to the public health or welfare or the environment.

G. Pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, EPA placed the Site on the National Priorities List ("NPL"), set forth at 40 C.F.R. Part 300, Appendix B, by publication in the Federal Register on August 30, 1990, 55 Fed. Reg. 35502.

H. In response to a release or a substantial threat of a release of a hazardous substance at or from the Site, Defendant Chugach Electric Association, Inc. performed a Remedial Investigation and Feasibility Study ("RI/FS") for the Site pursuant to 40 C.F.R. § 300.430 under an Administrative Order on Consent, Docket Nos. 1091-07-02-107 and 1091-07-01-120, dated September 25, 1992, as amended on July 6 and October 24, 1994, and by the Partial Consent Decree, entered by the Court on December 11, 1996 ("AOC").

I. Pursuant to the AOC, Defendant Chugach Electric Association, Inc. completed a Remedial Investigation ("RI") Report in August of 1994, and a Feasibility Study ("FS") Report in January of 1996.

J. Some of the Defendants alleged, in response to the original complaint, that certain federal agencies and instrumentalities are among the classes of persons identified in Section 107(a) of CERCLA as liable for response costs incurred with respect to the Site. These federal agencies and instrumentalities (the "Federal PRPs") reimbursed to Chugach 75% of the costs of performing the RI/FS. In addition, pursuant to the Partial Consent Decree, defined at Section IV, Paragraph N. below, the Federal PRPs are obligated to fund 61.50% of all Future Costs, as defined in Paragraph 3.n. of the Partial Consent Decree, which includes the costs of performing the Work (defined in Paragraph 4 below) and other costs.

K. Pursuant to Section 117 of CERCLA, 42 U.S.C. § 9617, EPA published notice of the completion of the FS and of the proposed plan for remedial action on March 18, 1996, in a major local newspaper of general circulation. EPA provided an opportunity for written and oral comments from the public on the proposed plan for remedial action. A copy of the transcript of the public meeting is available to the public as part of the administrative record upon which the Regional Administrator based the selection of the response action.

L. The decision by EPA on the remedial action to be implemented at the Site is embodied in a final Record of Decision ("ROD"), executed on July 16, 1996, on which the State has given its concurrence. The ROD includes EPA's explanation for any significant differences between the final plan and the proposed plan as well as a responsiveness summary to the public comments. Notice of the final plan was published in accordance with Section 117(b) of CERCLA, 42 U.S.C. § 9617(b).

M. Based on the information presently available to EPA, EPA believes that the Work and Institutional Controls (defined in Paragraph 4 below) will be properly and promptly conducted by the Settling Defendants and Owner Settling Defendant, if conducted in accordance with the requirements of this Consent Decree and its appendices.

N. Solely for the purposes of Section 113(j) of CERCLA, 42 U.S.C. § 9613(j), the Remedial Action selected by the ROD and the Work to be performed by the Settling Defendants and

the Institutional Controls to be implemented by Owner Settling Defendant shall constitute response actions taken or ordered by the President.

O. The Parties recognize, and the Court by entering this Consent Decree finds, that this Consent Decree has been negotiated by the Parties in good faith and implementation of this Consent Decree will expedite the cleanup of the Site and will avoid prolonged and complicated litigation between the Parties, and that this Consent Decree is fair, reasonable, and in the public interest.

NOW, THEREFORE, it is hereby Ordered, Adjudged, and Decreed:

II. JURISDICTION

1. This Court has jurisdiction over the subject matter of this action pursuant to 28 U.S.C. §§ 1331 and 1345, and 42 U.S.C. §§ 9606, 9607, and 9613(b). This Court also has personal jurisdiction over the Settling Defendants and Owner Settling Defendant. Solely for the purposes of this Consent Decree and the underlying amended complaint, Settling Defendants and Owner Settling Defendant waive all objections and defenses that they may have to jurisdiction of the Court or to venue in this District. The Parties shall not challenge the terms of this Consent Decree or this Court's jurisdiction to enter and enforce this Consent Decree.

III. PARTIES BOUND

2. This Consent Decree applies to and is binding upon the Parties and their agents, successors, and assigns. Any change in ownership or corporate status of a Settling Defendant or Owner Settling Defendant, including, but not limited to, any transfer of assets or real or personal property, shall in no way alter such Settling Defendant's or Owner Settling Defendant's responsibilities under this Consent Decree.

3. Settling Defendants shall provide a copy of this Consent Decree to each contractor hired to perform the Work (as defined in Paragraph 4 below) required by this Consent Decree and to each person representing any Settling Defendant with respect to the Site or the Work, and shall condition all contracts entered into hereunder upon performance of the Work in conformity with the terms of this Consent Decree. If Owner Settling Defendant hires a contractor or outside party to perform Institutional Controls, it shall provide such contractor or outside party with a copy of this Consent Decree and shall condition all contracts entered into hereunder upon performance of the Institutional Controls in conformity with the terms of this Consent Decree. Settling Defendants and, if applicable, Owner Settling Defendant or their contractors shall provide written notice of the Consent Decree to all subcontractors hired to perform any portion of the Work or Institutional Controls required by this Consent Decree. Settling Defendants and, if applicable, Owner Settling Defendant shall nonetheless be

responsible for ensuring that their contractors and subcontractors perform the Work or Institutional Controls contemplated herein in accordance with this Consent Decree. With regard to the activities undertaken pursuant to this Consent Decree, each contractor and subcontractor hired by Settling Defendants or Owner Settling Defendant shall be deemed to be in a contractual relationship with the Settling Defendants or Owner Settling Defendant, respectively, within the meaning of Section 107(b)(3) of CERCLA, 42 U.S.C. § 9607(b)(3).

IV. DEFINITIONS

4. Unless otherwise expressly provided herein, terms used in this Consent Decree which are defined in CERCLA or in regulations promulgated under CERCLA shall have the meaning assigned to them in CERCLA or in such regulations. Whenever terms listed below are used in this Consent Decree or in the appendices attached hereto and incorporated hereunder, the following definitions shall apply:

A. "ADEC" shall mean the Alaska Department of Environmental Conservation and any successor departments or agencies of the State;

B. "CERCLA" shall mean the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. §§ 9601 et seq.;

C. "Consent Decree" or "Decree" shall mean this CERCLA Remedial Design and Remedial Action Consent Decree and all

appendices attached hereto (listed in Section XXIX). In the event of conflict between this Decree and any appendix, this Decree shall control;

D. "Day" shall mean a calendar day unless expressly stated to be a working day. "Working day" shall mean a day other than a Saturday, Sunday, or Federal holiday. In computing any period of time under this Consent Decree, where the last day would fall on a Saturday, Sunday, or Federal holiday, the period shall run until the close of business of the next working day;

E. "EPA" shall mean the United States Environmental Protection Agency and any successor departments or agencies of the United States;

F. "Federal PRPs" shall mean the Department of Transportation (including the Federal Railroad Administration), the Department of Defense (including the Defense Logistics Agency, the Defense Reutilization and Marketing Service, and the Army & Air Force Exchange Service), and any successor agencies, departments or instrumentalities of the United States.

G. "Future Response Costs" shall mean all costs, including, but not limited to, direct and indirect costs, that the United States (excluding for this purpose, the Federal PRPs) incurs in reviewing or developing plans, reports and other items pursuant to this Consent Decree, verifying the Work and all Institutional Controls, or otherwise implementing, overseeing, or enforcing this Consent Decree, including, but not limited to, payroll costs, contractor costs, travel costs, laboratory costs,

the costs incurred pursuant to Sections VII, IX (including, but not limited to, the cost of attorney time and any monies paid to secure access and/or to secure or implement Institutional Controls, including, but not limited to, the amount of just compensation), XV, XI, and Paragraph 84 of Section XXI, minus $53,665.18. Future Response Costs shall include all interim response costs pursuant to 42 U.S.C. § 9607(a) paid or incurred but not yet paid by the United States in connection with the Site as follows: (1) for EPA, on or after July 16, 1996, and prior to the Effective Date of this Consent Decree, as defined in Section XXVII below, and incurred for site ID 102P; and (2) for the U.S. Department of Justice, Environmental Enforcement Section of the Environment and Natural Resources Division, incurred after December 11, 1996, and prior to the Effective Date of this Consent Decree, as defined in Section XXVII below, and billed to DOJ File No. 90-11-3-810;

H. "Institutional Controls" shall mean land and water use restrictions and access restrictions identified in the ROD, including, but not limited to, restrictions in the form of contractual agreements, restrictive covenants that run with the land, and governmental controls.

I. "Interest" shall mean interest at the rate specified for interest on investments of the Hazardous Substance Superfund established under Subchapter A of Chapter 98 of Title 26 of the U.S. Code, compounded on October 1 of each year, in accordance with 42 U.S.C. § 9607(a);

J. "National Contingency Plan" or "NCP" shall mean the National Oil and Hazardous Substances Pollution Contingency Plan promulgated pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, codified at 40 C.F.R. Part 300, and any amendments thereto;

K. "Operation and Maintenance" or "O&M" shall mean all activities required to maintain the effectiveness of the Remedial Action as provided in the ROD and required under the Operation and Maintenance Plan approved or developed by EPA pursuant to this Consent Decree and the Statement of Work (SOW);

L. "Owner Settling Defendant" shall mean the Alaska Railroad Corporation, and any successor agency, department, or corporation;

M. "Paragraph" shall mean a portion of this Consent Decree identified by an arabic numeral or an upper case letter;

N. "Partial Consent Decree" shall mean the Partial Consent Decree lodged in this Civil Action No. A91-0589-CV (JWS) on October 9, 1996, and entered on December 11, 1996, and in which Settling Defendants, Defendant Montgomery Ward and Company, Inc., Owner Settling Defendant, and the Federal PRPs agreed, among other things, to: (1) reimburse the United States for Past Costs, DOJ Enforcement Costs, and Oversight Costs, as those terms are defined in the Partial Consent Decree; and (2) in which the Federal PRPs and the Owner Settling Defendant collectively agreed to fund sixty-four percent (64%) of Future Costs as that term is defined in the Partial Consent Decree;

O. "Parties" shall mean the United States, the Settling Defendants, and Owner Settling Defendant;

P. "Performance Standards" shall mean the cleanup standards and other measures of achievement of the goals of the Remedial Action, set forth in Section 9.0 of the ROD and Sections 2.0 and 3.0 of the SOW;

Q. "Plaintiff" shall mean the United States;

R. "RCRA" shall mean the Solid Waste Disposal Act, as amended, 42 U.S.C. §§ 6901 et seq. (also known as the Resource Conservation and Recovery Act);

S. "Record of Decision" or "ROD" shall mean the EPA Record of Decision relating to the Site signed on July 16, 1996, by the Regional Administrator, EPA Region 10, and all attachments thereto. The ROD is attached as Appendix A;

T. "Remedial Action" shall mean those activities, including implementation of access and Institutional Controls, but excluding Operation and Maintenance, to be undertaken by the Settling Defendants and Owner Settling Defendant pursuant to this Consent Decree to implement the ROD, in accordance with the SOW and the final Remedial Design and Remedial Action Work Plans and other plans approved by EPA under this Consent Decree;

U. "Remedial Action Work Plan" shall mean the document developed pursuant to Paragraph 12 of this Consent Decree and approved by EPA, and any amendments thereto;

V. "Remedial Design" shall mean those activities to be undertaken by the Settling Defendants to develop the final

plans and specifications for the Remedial Action pursuant to the Remedial Design Work Plan;

W. "Remedial Design Work Plan" shall mean the document developed pursuant to Paragraph 11 of this Consent Decree and approved by EPA, and any amendments thereto;

X. "Section" shall mean a portion of this Consent Decree identified by a Roman numeral;

Y. "Settling Defendants" shall mean Chugach Electric Association, Inc., Westinghouse Electric Corporation, Sears, Roebuck and Company, J.C. Penney Company, Inc., and Bridgestone/Firestone, Inc.;

Z. "Site" shall mean the Standard Steel and Metals Salvage Yard Superfund Site, located at 2400 Railroad Avenue, in the Municipality of Anchorage, Alaska, and more specifically described in the legal description attached as Appendix C, which may be amended after the remedial action is constructed. The Site is also depicted generally on the map attached as Appendix D;

aa. "State" shall mean the State of Alaska;

bb. "Statement of Work" or "SOW" shall mean the statement of work for implementation of the Remedial Design, Remedial Action, and Operation and Maintenance at the Site, as set forth in Appendix B to this Consent Decree, and any modifications of it made in accordance with this Consent Decree;

cc. "Supervising Contractor" shall mean the principal contractor retained by the Settling Defendants to supervise and direct the implementation of the Work under this Consent Decree;

dd. "Supplemental Institutional Controls" shall mean institutional controls, other than those required pursuant to this Consent Decree and identified in the ROD, that are developed, requested, or approved by EPA for one or more of the following purposes: (1) to ensure non-interference with the performance, operation and maintenance of any response actions at or pertaining to the Site, other than the remedy selected in the ROD; (2) to ensure the integrity and effectiveness of any response actions at or pertaining to the Site, other than the remedy selected in the ROD; and (3) to otherwise ensure the protection of public health, welfare, or the environment at and in connection with the Site.

ee. "United States" shall mean the United States of America;

ff. "Waste Material" shall mean (1) any "hazardous substance" under Section 101(14) of CERCLA, 42 U.S.C. § 9601(14); (2) any pollutant or contaminant under Section 101(33) of CERCLA, 42 U.S.C. § 9601(33); or (3) any "solid waste" under Section 1004(27) of RCRA, 42 U.S.C. § 6903(27); and

gg. "Work" shall mean all activities Settling Defendants are required to perform under this Consent Decree, except those required by Section XXV (Retention of Records). Work shall not mean the Institutional Controls that Owner Settling Defendant is agreeing to perform and implement pursuant to Section IX. of this Consent Decree.

V. GENERAL PROVISIONS

5. Objectives of the Parties

The objectives of the Parties in entering into this Consent Decree are: (1) to protect public health or welfare or the environment at the Site by the performance of the Remedial Design and Remedial Action at the Site and the performance of O&M at the Site; (2) the reimbursement of Future Response Costs of the Plaintiff; and (3) the resolution of the claims of Plaintiff against Settling Defendants and Owner Settling Defendant as provided in this Consent Decree.

6. Commitments by Settling Defendants and Owner Settling Defendant.

a. Settling Defendants shall perform the Work in accordance with this Consent Decree, the ROD, the SOW, and all Work Plans and other plans, standards, specifications, and schedules set forth herein or developed by Settling Defendants and approved by EPA pursuant to this Consent Decree. Settling Defendants shall also reimburse the United States for Future Response Costs as provided in this Consent Decree.

b. The obligations of Settling Defendants to perform the Work under this Consent Decree are joint and several. In the event of the insolvency or other failure of any one or more Settling Defendants to implement the requirements of this Consent Decree, the remaining Settling Defendants shall complete all such requirements (without waiving any rights such remaining Settling Defendants may have against the defaulting Settling Defendant or

its successors or assigns). Nonpayment by any person, including the Federal PRPs, shall not be a defense to nonperformance of any provision of this Consent Decree that Settling Defendants or Owner Settling Defendant are required to perform.

c. Owner Settling Defendant shall finance and perform Institutional Controls, including title notices, site use and access restrictions, that are contained in Section IX of this Consent Decree and are required by the ROD and SOW.

7. Compliance With Applicable Law

All activities undertaken by Settling Defendants pursuant to this Consent Decree shall be performed in accordance with the requirements of all applicable federal and state laws and regulations. Settling Defendants also must comply with all applicable or relevant and appropriate requirements of all Federal and state environmental laws as set forth in the ROD and the SOW. The activities conducted pursuant to this Consent Decree, if approved by EPA, shall be considered to be consistent with the NCP.

8. Permits

a. As provided in Section 121(e) of CERCLA, 42 U.S.C. § 9621(e), and Section 300.400(e) of the NCP, no permit shall be required for any portion of the Work conducted entirely on-Site (i.e., within the areal extent of contamination or in very close proximity to the contamination and necessary for implementation of the Work). Where any portion of the Work that is not on-Site requires a federal or state permit or approval, Settling

Defendants shall submit timely and complete applications and take all other actions necessary to obtain all such permits or approvals.

b. The Settling Defendants may seek relief under the provisions of Section XVIII (Force Majeure) of this Consent Decree for any delay in the performance of the Work resulting from a failure to obtain, or a delay in obtaining, any permit required for the Work.

c. This Consent Decree is not, and shall not be construed to be, a permit issued pursuant to any federal or state statute or regulation.

9. Nothing in this Consent Decree is intended to alter or otherwise affect the provisions or terms of the Partial Consent Decree.

VI. PERFORMANCE OF THE WORK BY SETTLING DEFENDANTS

10. Selection of Supervising Contractor.

a. All aspects of the Work to be performed by Settling Defendants pursuant to Sections VI (Performance of the Work by Settling Defendants), VII (Remedy Review), VIII (Quality Assurance, Sampling and Data Analysis), and XV (Emergency Response) of this Consent Decree shall be under the direction and supervision of the Supervising Contractor, the selection of which shall be subject to disapproval by EPA. Within ten (10) days after the lodging of this Consent Decree, Settling Defendants shall notify EPA, in writing, of the name, title, and

qualifications of any contractor proposed to be the Supervising Contractor. EPA will issue a notice of disapproval or an authorization to proceed. If at any time thereafter, Settling Defendants propose to change a Supervising Contractor, Settling Defendants shall give such notice to EPA and must obtain an authorization to proceed from EPA before the new Supervising Contractor performs, directs, or supervises any Work under this Consent Decree.

b. If EPA disapproves a proposed Supervising Contractor, EPA will notify Settling Defendants, in writing. Settling Defendants shall submit to EPA a list of contractors, including the qualifications of each contractor, that would be acceptable to them within thirty (30) days of receipt of EPA's disapproval of the contractor previously proposed. EPA will provide written notice of the names of any contractor(s) that it disapproves and an authorization to proceed with respect to any of the other contractors. Settling Defendants may select any contractor from that list that is not disapproved and shall notify EPA of the name of the contractor selected within twenty-one (21) days of EPA's authorization to proceed.

c. If EPA fails to provide written notice of its authorization to proceed or disapproval as provided in this Paragraph and this failure prevents the Settling Defendants from meeting one or more deadlines in a plan approved by the EPA pursuant to this Consent Decree, Settling Defendants may seek

relief under the provisions of Section XVIII (Force Majeure) hereof.

11. Remedial Design.

a. Within sixty (60) days after EPA's issuance of an authorization to proceed pursuant to Paragraph 9, Settling Defendants shall submit to EPA and the State a Work Plan for the design of the Remedial Action at the Site ("Remedial Design Work Plan" or "RD Work Plan"). The Remedial Design Work Plan shall provide for design of the remedy set forth in the ROD, in accordance with the SOW and for achievement of the Performance Standards and other requirements set forth in the ROD, this Consent Decree and/or the SOW. Upon its approval by EPA, the Remedial Design Work Plan shall be incorporated into and become enforceable under this Consent Decree.

b. The Remedial Design Work Plan shall include plans and schedules for implementation of all remedial design and pre-design tasks identified in the SOW. The Remedial Design Work Plan shall incorporate the approved Design Level Treatability Study Work Plan and schedule therefor and incorporate results of pre-design treatability studies, both of which were drafted and performed pursuant to the AOC, as amended. The Remedial Design Work Plan shall include, but not be limited to, plans and schedules for the completion of: (1) a Sampling and Analysis Plan (SAP); (2) a Quality Assurance Project Plan (QAPP); (3) a Field Sampling Plan (FSP); (4) a Construction Quality Plan; (5) a conceptual design of the landfill (which is required in the ROD

to meet requirements of the Toxics Substances and Control Act, 15 U.S.C. § 2601, ("TSCA")) and future use of the facility or a process to incorporate the Owner Settling Defendant's planned future use of the Site; (6) a preliminary (30%) design submittal; and (7) pre-final (95%) and final (100%) design submittals. The Remedial Design Work Plan shall include a schedule for completion of the Remedial Action Work Plan. Together with the RD Work Plan, Settling Defendants shall submit a Health and Safety Plan for field design activities which conforms to the applicable Occupational Safety and Health Administration and EPA requirements including, but not limited to, 29 C.F.R. § 1910.120.

c. Upon approval of the Remedial Design Work Plan by EPA, after a reasonable opportunity for review and comment by the State, Settling Defendants shall implement the Remedial Design Work Plan. The Settling Defendants shall submit to EPA and the State all plans, submittals and other deliverables required under the approved Remedial Design Work Plan in accordance with the approved schedule for review and approval pursuant to Section XI (EPA Approval of Plans and Other Submissions). Unless otherwise directed or approved in writing by EPA, Settling Defendants shall not commence further Remedial Design activities at the Site prior to approval of the Remedial Design Work Plan.

d. The preliminary thirty percent (30%) design submittal shall include, at a minimum, the following: (1) preliminary plans, drawings, and sketches, including design criteria; (2) available results of treatability studies and

additional field sampling; (3) design assumptions and parameters, including design restrictions, process performance criteria, appropriate unit processes for the treatment train, design duration and leachate generation of the landfill; (4) proposed cleanup and treatment verification methods, including compliance with Applicable or Relevant and Appropriate Requirements (ARARs); (5) outline of required specifications; (6) proposed siting/location of treatment equipment/construction activity; (7) expected long-term monitoring and operation requirements; (8) preliminary construction schedule, including contracting strategy; and (9) conceptual future use of the site. Together with the preliminary (30%) design submittal, Settling Defendants shall submit a Health and Safety Plan for construction activities which conforms to the applicable Occupational Safety and Health Administration and EPA requirements including, but not limited to, 29 C.F.R. § 1910.120.

e. The pre-final ninety-five percent (95%) and final design one hundred percent (100%) submittal shall include, at a minimum, the following: (1) a draft Operation and Maintenance Plan; (2) a Capital and Operation and Maintenance Cost Estimate that revises the FS cost estimate; and (3) a final project schedule for the construction and implementation of the RA which identifies timing for initiation and completion of all critical path tasks.

12. Remedial Action.

a. Within thirty (30) days after receipt of EPA's approval of the final design submittal, Settling Defendants shall submit to EPA and the State a Work Plan for the performance of the Remedial Action at the Site ("Remedial Action Work Plan"). The Remedial Action Work Plan shall provide for construction and implementation of the remedy set forth in the ROD and achievement of the Performance Standards, in accordance with this Consent Decree, the ROD, the SOW, and the design plans and specifications developed in accordance with the Remedial Design Work Plan and approved by EPA. Upon its approval by EPA, the Remedial Action Work Plan shall be incorporated into and become enforceable under this Consent Decree. At the same time as they submit the Remedial Action Work Plan, Settling Defendants shall submit to EPA and the State a Health and Safety Plan for field activities required by the Remedial Action Work Plan which conforms to the applicable Occupational Safety and Health Administration and EPA requirements including, but not limited to, 29 C.F.R. § 1910.120.

b. The Remedial Action Work Plan shall include the following: (1) a Draft Performance Standard Verification Plan; (2) a Draft Construction Quality Assurance Plan; (3) a Draft SAP including the final QAPP and final FSP/Final H&S Plan/Final Contingency Plan; (4) Construction Management Plan; (5) discussion and planning of the RA work elements, including rationale for the various tasks; (6) relevant changes in the RD Work Plan, if any; (7) identification of RA inspections, hold

points, and reports; (8) identification of protocol and coordination of field oversight and preliminary field inspections where applicable; (9) contingency procedures; (10) a Waste Management Plan; (11) a Project Management Plan; (12) Equipment Decontamination Plan; (13) performance measurement points and rationale for their selection; and (14) any other procedures relevant to the RA. The Remedial Action Work Plan also shall include a schedule for implementation of all Remedial Action tasks identified in the final design submittal.

c. Upon approval of the Remedial Action Work Plan by EPA, after a reasonable opportunity for review and comment by the State, Settling Defendants shall implement the activities required under the Remedial Action Work Plan in accordance with the schedule therein. The Settling Defendants shall submit to EPA and the State all plans, submittals, or other deliverables required under the approved Remedial Action Work Plan in accordance with the approved schedule for review and approval pursuant to Section XI (EPA Approval of Plans and Other Submissions). Unless otherwise directed by EPA or approved in writing, Settling Defendants shall not commence physical Remedial Action activities at the Site prior to approval of the Remedial Action Work Plan.

d. Within fifteen (15) days after Settling Defendants preliminarily conclude that construction of the Remedial Action is complete, Settling Defendants shall notify EPA and the State and schedule a Pre-Final Construction Completion inspection with

representatives of Settling Defendants, EPA, and the State. No later than fifteen (15) days after the Pre-Final Construction Completion Inspection, the Settling Defendants shall submit a Pre-Final Construction Completion Report, containing the results of the Pre-Final Construction Completion Inspection and complying with the requirements of the SOW. In the report, a registered professional engineer and the Settling Defendants' Project Coordinator (designated pursuant to Section XII) shall state that the Remedial Action has been constructed in accordance with the approved design and specifications. The written report shall include as-built drawings signed and stamped by a registered professional engineer. The report shall contain the following statement, signed by a responsible corporate official of a Settling Defendant or the Settling Defendants' Project Coordinator:

> "To the best of my knowledge, after thorough investigation, I certify that the information contained in or accompanying this submission is true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

After the Pre-Final Construction Completion Inspection and receipt and review of the Pre-Final Construction Completion Report, EPA may approve, request modifications, or disapprove the Report pursuant to Section XI (EPA Approval of Plans and Other Submissions), after reasonable opportunity to review and comment by the State. If EPA determines that construction of the Remedial Action or any portion thereof has not been completed in

accordance with this Consent Decree, EPA will notify Settling Defendants, in writing, of the activities that must be undertaken by Settling Defendants pursuant to this Consent Decree to complete construction of the Remedial Action. EPA will set forth in the notice a schedule for performance of such activities consistent with the Consent Decree and the SOW and for finalization of the Construction Completion Report, or require the Settling Defendants to submit a schedule to EPA for approval pursuant to Section XI (EPA Approval of Plans and Other Submissions). Settling Defendants shall perform all activities described in the notice in accordance with the specifications and schedules established pursuant to this Paragraph, subject to their right to invoke the dispute resolution procedures set forth in Section XIX (Dispute Resolution). If requested by EPA, Settling Defendants shall schedule a Final Construction Completion Inspection within fifteen (15) days of completion of all activities identified by EPA to be completed. Settling Defendants shall submit a Final Construction Completion Report in accordance with the SOW within ninety (90) days of (i) completion of the last activity required to be performed by Settling Defendant under this Paragraph 12.d., or (ii) the Final Construction Completion Inspection, whichever is later. The Final Construction Completion Report shall contain all of the registered engineer's statements and the responsible corporate official statement required above in this Paragraph 12.d. EPA will attempt to approve or disapprove the Final Construction

Completion Report within ninety (90) days of its receipt of same; nonetheless, a written approval from EPA is required.

e. Commencing upon the date of lodging of this Consent Decree, Settling Defendants agree not to use any portion of the Site for purposes of performing Remedial Action and for conducting O&M of the Remedial Action in violation of any of the restrictions listed in Paragraph 29.a. Commencing upon the date of lodging of this Consent Decree, Settling Defendants also agree not to allow the use by any licensee, agent, contractor, subcontractor, or any person under the control of Settling Defendants given an interest or right to use, enter upon, occupy, or possess any portion of the Site for purposes of performing Remedial Action and for conducting O&M of the Remedial Action in violation of any of the restrictions listed in Paragraph 29.a. With respect to the access restrictions contained in Paragraph 29.a., subparagraph v., and in order to protect the Remedial Action, the public health, and the environment during and after implementation of the Remedial Action, Settling Defendants shall perform and implement the following as Work required by this Consent Decree:

(i) Settling Defendants shall construct a six-foot woven mesh fence, wall or similar device approved by EPA around the TSCA landfill and the cover required by the ROD. And, pursuant to the ROD, if requested by Settling Defendants and approved by

EPA, a building foundation or parking lot may be substituted for the fence and the cover;

(ii) Settling Defendants shall construct a six-foot high fence or similar structure around all areas of the Site with surface concentrations between 1 mg/kg and 10 mg/kg PCBs. And, pursuant to the ROD, if requested by Settling Defendants and approved by EPA, a cap, building foundation, or parking lot may be substituted for the fence.

13. The Settling Defendants shall continue to implement the Remedial Action and O&M until the Performance Standards are achieved, and as required under this Consent Decree. The Settling Defendants shall continue to implement O&M as long as contaminants that exceed the cleanup levels set forth in the ROD remain on-Site, and as required under this Consent Decree.

14. Modification of the SOW or Related Work Plans.

a. If EPA determines that modification to the Work specified in the SOW and/or in Work Plans developed pursuant to the SOW is necessary to achieve and maintain the Performance Standards or to carry out and maintain the effectiveness of the remedy set forth in the ROD, EPA may require that such modification be incorporated in the SOW and/or such Work Plans. A modification may only be required pursuant to this Paragraph, however, to the extent that it is consistent with the scope of the remedy selected in the ROD and the Performance Standards.

b. If Settling Defendants object to any modification determined by EPA to be necessary pursuant to this Paragraph, they may seek dispute resolution pursuant to Section XIX (Dispute Resolution), Paragraph 66 (record review). The SOW and/or related Work Plans shall be modified in accordance with final resolution of the dispute.

c. If Settling Defendants do not invoke dispute resolution or the dispute resolution process results in an adverse decision for Settling Defendants, Settling Defendants shall implement any Work required by any modifications incorporated in the SOW and/or in Work Plans developed pursuant to the SOW in accordance with this Paragraph.

d. Nothing in this Paragraph shall be construed to limit EPA's authority to select and seek performance of further response actions as otherwise provided in this Consent Decree.

e. If at any time during performance of the Work, Settling Defendants identify a need for additional data or work beyond that required by this Consent Decree or in the approved Plans, a memorandum documenting the need for such data or work shall be submitted to the EPA Project Coordinator. EPA, by its Project Coordinator, will determine whether such additional data or work are to be incorporated into subsequent reports and deliverables required in this Consent Decree.

f. The following modifications or changes may be made by written agreement of the Project Coordinators: (1) technical field modifications to, and modifications of any schedules

contained in, any Plan required under the SOW; and (2) any other change to the Plans required in the SOW, not otherwise addressed in this Paragraph or in Section XXXI (Modification) of this Consent Decree.

15. Settling Defendants acknowledge and agree that nothing in this Consent Decree, the SOW, or the Remedial Design or Remedial Action Work Plans constitutes a warranty or representation of any kind by Plaintiff that compliance with the work requirements set forth in the SOW and the Work Plans will achieve the Performance Standards.

16. In accordance with 40 C.F.R. Section 300.440, Settling Defendants shall, prior to any off-Site shipment of Waste Material from the Site to an out-of-state waste management facility, provide written notification to the appropriate state environmental official in the receiving facility's state and to the EPA Project Coordinator of such shipment of Waste Material. However, this notification requirement shall not apply to any off-Site shipments when the total volume of all such shipments will not exceed 10 cubic yards.

a. The Settling Defendants shall include in the written notification the following information, where available: (1) the name and location of the facility to which the Waste Material is to be shipped; (2) the type and quantity of the Waste Material to be shipped; (3) the expected schedule for the shipment of the Waste Material; and (4) the method of transportation. The Settling Defendants shall notify the state

in which the planned receiving facility is located of major changes in the shipment plan, such as a decision to ship the Waste Material to another facility within the same state, or to a facility in another state.

b. The identity of the receiving facility and state will be determined by the Settling Defendants following the award of the contract for Remedial Action construction. The Settling Defendants shall provide the information required by Paragraph 15.a as soon as practicable after the award of the contract and before the Waste Material is actually shipped.

VII. REMEDY REVIEW

17. Periodic Review. Settling Defendants shall conduct studies and investigations requested by EPA as necessary to permit EPA to conduct reviews of whether the Remedial Action is protective of human health and the environment at least every five (5) years, as required by Section 121(c) of CERCLA, 42 U.S.C. § 9621(c), and any applicable regulations.

18. EPA Selection of Further Response Actions. If EPA determines, at any time, that the Remedial Action is not protective of human health and the environment, EPA may select further response actions, including Supplemental Institutional Controls, for the Site in accordance with the requirements of CERCLA and the NCP.

19. Opportunity To Comment. Settling Defendants and Owner Settling Defendant and, if required by Sections 113(k)(2)

or 117 of CERCLA, 42 U.S.C. §§ 9613(k)(2) or 9617, the public will be provided with an opportunity to comment on any further response actions proposed by EPA as a result of the review conducted pursuant to Section 121(c) of CERCLA, 42 U.S.C. § 9621(c), and to submit written comments for the record during the comment period.

20. If EPA selects further response actions for the Site related to releases of hazardous substances or the threat of a release of a hazardous substance at or from the Site resulting from the Settling Defendants' disposal of hazardous substances at the Site or performance of the Remedial Action, or Federal PRPs' ownership of the Site or disposal of hazardous substances at the Site, and the reopener conditions in Paragraph 81 or Paragraph 82 (United States' reservations of liability based on unknown conditions or new information) are satisfied, Settling Defendants shall not contest that they are among the persons liable for releases of hazardous substances at or from the Site in any action brought by the United States to require Settling Defendants to perform such further response actions. If EPA selects further response actions that include Supplemental Institutional Controls that only Owner Settling Defendant can perform as the party in possession and control of the property, Owner Settling Defendant shall not contest liability in any action brought by the United States to require Owner Settling Defendant to perform Supplemental Institutional Controls.

VIII. QUALITY ASSURANCE, SAMPLING, AND DATA ANALYSIS

21. Settling Defendants shall use quality assurance, quality control, and chain-of-custody procedures for all treatability, design, compliance and monitoring samples in accordance with "EPA Requirements for Quality Assurance Project Plans for Environmental Data Operation" (EPA QA/R5); "Preparing Perfect Project Plans" (EPA /600/9-88/087), and subsequent amendments to such guidelines upon notification by EPA to Settling Defendants of such amendment. Amended guidelines shall apply only to procedures conducted after such notification. Prior to the commencement of any monitoring project under this Consent Decree, Settling Defendants shall submit to EPA for approval, after a reasonable opportunity for review and comment by the State, a Quality Assurance Project Plan ("QAPP") that is consistent with the SOW, the NCP, and applicable guidance documents referred to in writing or provided to Settling Defendants by EPA. If relevant to the proceeding, the Parties agree that validated sampling data generated in accordance with the QAPP(s) and reviewed and approved by EPA shall be admissible as evidence, without objection, in any proceeding under this Decree. Settling Defendants shall ensure that EPA and State personnel and their authorized representatives are allowed access at reasonable times to all laboratories utilized by Settling Defendants in implementing this Consent Decree. In addition, Settling Defendants shall ensure that such laboratories shall analyze all samples submitted by EPA pursuant to the QAPP for

quality assurance monitoring. Settling Defendants shall ensure that the laboratories they utilize for the analysis of samples taken pursuant to this Decree perform all analyses according to accepted EPA methods. Accepted EPA methods consist of those methods which are documented in the "Contract Lab Program Statement of Work for Inorganic Analysis" and the "Contract Lab Program Statement of Work for Organic Analysis," dated February 1988, and any amendments made thereto during the course of the implementation of this Decree. Settling Defendants shall ensure that all laboratories they use for analysis of samples taken pursuant to this Consent Decree participate in an EPA or EPA-equivalent QA/QC program. Settling Defendants shall ensure that all field methodologies utilized in collecting samples for subsequent analysis pursuant to this Decree will be conducted in accordance with the procedures set forth in the QAPP approved by EPA.

22. Upon request, the Settling Defendants shall allow split or duplicate samples to be taken by EPA or its authorized representatives. Settling Defendants shall notify EPA and the State not less than 28 days in advance of any sample collection activity unless shorter notice is agreed to by EPA. In addition, EPA shall have the right to take any additional samples that EPA deems necessary. Upon request, EPA shall allow the Settling Defendants to take split or duplicate samples of any samples it takes as part of the Plaintiff's oversight of the Settling Defendants' implementation of the Work.

23. Settling Defendants shall submit to EPA two (2) copies of the results of all sampling and/or tests or other data obtained or generated by or on behalf of Settling Defendants with respect to the Site and/or the implementation of this Consent Decree unless EPA agrees otherwise.

24. Notwithstanding any provision of this Consent Decree, the United States hereby retains all of its information gathering and inspection authorities and rights, including enforcement actions related thereto, under CERCLA, RCRA, and any other applicable statutes or regulations.

IX. ACCESS AND INSTITUTIONAL CONTROLS

25. In accordance with Section VII of the Partial Consent Decree, Owner Settling Defendant shall provide access to the United States and its representatives, the State and its representatives, and to Settling Defendants and their agents and representatives, to the Site and to any such other property under its control, that is necessary for the implementation of the ROD and this Consent Decree.

26. To the extent that the Site or any other property to which access is required for the implementation of this Consent Decree is owned or controlled by persons other than the Owner Settling Defendant, Settling Defendants shall use best efforts to secure from such persons access for Settling Defendants, as well as for the United States and the State and their representatives, including, but not limited to, their

contractors, as necessary to effectuate this Consent Decree. For purposes of this Paragraph "best efforts" includes the payment of reasonable sums of money in consideration of access. If any access required to complete the Work is not obtained within forty-five (45) days of the date of lodging of this Consent Decree, or within forty-five (45) days of the date EPA notifies the Settling Defendants, in writing, that additional access beyond that previously secured is necessary, Settling Defendants shall promptly notify the United States, in writing, and shall include in that notification a summary of the steps Settling Defendants have taken to attempt to obtain access. The United States may, as it deems appropriate, assist Settling Defendants in obtaining access. Settling Defendants shall reimburse the United States, in accordance with the procedures in Section XVI (Reimbursement of Response Costs), for all costs incurred by the United States in obtaining access.

27. Notwithstanding any provision of this Consent Decree, the United States retains all of its access authorities and rights, including enforcement authorities related thereto, under CERCLA, RCRA and any other applicable statute or regulations.

28. <u>Notice to Successors-in-Title</u>

a. Within fifteen (15) days of the entry of this Consent Decree, Owner Settling Defendant shall execute and file with the State Recorder's Office, Anchorage District, State of Alaska, a Declaration of Restrictive Covenants and Notice of

Remedial Action in the form attached to this Consent Decree as Appendix E.

b. At least 30 days prior to the conveyance of any interest in property located within the Site including, but not limited to, fee interests, leasehold interests, and mortgage interests, the Owner Settling Defendant shall give written notice of this Consent Decree, the Declaration of Restrictive Covenants and Notice of Remedial Action, and any additional covenants, terms, conditions and restrictions, if applicable, that have been filed with respect to the property pursuant to Section IX (Access and Institutional Controls) to the grantee and written notice to EPA and ADEC of the proposed conveyance, including the name and address of the grantee and the date on which the Declaration of Restrictive Covenants and Notice of Remedial Action was given to the grantee. In the event of any such conveyance, Owner Settling Defendant shall remain obligated to: (1) secure access and implement Institutional Controls under this Consent Decree to the extent the Site is in the possession or control of ARRC; and (2) undertake to enforce the access and use restrictions contained in this Consent Decree when such restrictions are not being complied with. In no event shall the conveyance release or otherwise affect the liability of the Settling Defendants to comply with all provisions of this Consent Decree. If the United States approves in writing, the grantee may perform some or all of the Work under this Consent Decree.

29.a. Commencing upon the date of lodging of this Consent Decree, the Owner Settling Defendant agrees not to use, occupy or possess the property, or some portion thereof, described in the legal description attached as Appendix C, that is owned or controlled by the Owner Settling Defendant or for which access and land use restrictions are required to protect the remedial action, the public health, or the environment during or after implementation of the remedial action, in violation of any of the restrictions provided in this Paragraph. Commencing upon the date of lodging of this Consent Decree, the Owner Settling Defendant also agrees not to allow the use by any licensee, lessee, or any person given an interest to use, occupy, or possess the property, or some portion thereof, described in the legal description attached as Appendix C that is owned or controlled by the Owner Settling Defendant or, for which access and land use restrictions are required to protect the remedial action, the public health, or the environment during or after implementation of the remedial action, in violation of any of the following restrictions:

(i) no residential use or activity shall be permitted on the property, and no commercial use or activity shall be permitted if it involves potential chronic exposures of children to soil (e.g., use of the property for a day care center);

(ii) no use or activity on the property shall be permitted that will disturb any of the remedial measures that have been implemented pursuant to this Consent Decree or that could potentially impair the integrity of the landfill in which contaminated soils and solidified soils have been disposed; and

(iii) except as necessary to perform the Remedial Action, no use or activity on the property shall disturb the surface or subsurface of the land by filling, drilling, excavation, or removal of topsoil, rock or minerals which could move soil containing greater than 1,000 mg/kg lead or 10 mg/kg polychlorinated biphenyl (PCB) to the surface or within the top foot of soil where chronic long-term worker exposures could occur;

(iv) groundwater underlying the property shall not be consumed or used in any way except for the limited purpose of monitoring ground water contamination levels. Ground water wells and facilities installed for such purpose shall only be installed pursuant to a plan approved by EPA;

(v) access to the TSCA landfill by the general public shall be prohibited, and access by long- or short-term workers shall be restricted in compliance with 40 C.F.R. § 761.75(b)(9)(i), through maintenance of a six-foot woven mesh fence, wall, or similar device. If the solidified soil mass is capped or designed and used as a building foundation or parking lot, EPA may waive this requirement upon a written request which shall include long-term maintenance of such cap, building foundation or parking lot in accordance with the approved O & M Plan. Unrestricted access by the general public to those areas of the Site where surface contamination of 1 mg/kg PCB or greater remains after all excavation, treatment, and disposal is complete shall be prohibited through maintenance of a six-foot fence, cap, parking lot or similar structure approved by EPA; and

(vi) during remedial design and construction of the remedial action, the public, including long and short-term workers, other than authorized representatives of EPA, the State, and Settling Defendants and Owner Settling Defendant, shall only have access to areas in or around the Site that are not affected by soil contamination.

b. If Owner Settling Defendant, any transferee of an interest in the Site or any Settling Defendant seek to undertake any restricted use or activity on the property, such use or

activity may be proposed to EPA in accordance with Section XIX (EPA Approval of Plan and Other Submissions) and EPA's disapproval shall be subject to dispute resolution under Paragraph 66 of Section XIX (Dispute Resolution).

c. Owner Settling Defendant agrees that upon transfer of fee simple title from the United States, it will accept such fee simple title subject to the restrictions listed in subparagraph 29.a. above if the United States places such restrictions on the property as a part of such transfer.

d. Owner Settling Defendant agrees that, in order to perform and implement the remedial action selected in the ROD, it is appropriate and necessary to impose access obligations contained in Paragraph 25 of this Consent Decree, and the land and water use restrictions and access restrictions listed in subparagraph 29.a. above, on the real property described in Appendix C.

e. Owner Settling Defendant, in any instrument conveying an interest in the Site shall provide an access right to the United States, the State, Settling Defendants, and their representatives, and shall place the land and water use restrictions and access restrictions listed in subparagraph 29.a. above on the Site, which shall run with the land and be binding upon successors in interest. Owner Settling Defendant agrees to condition the conveyance of any interest in property located within the Site, including, but not limited to, fee interests, leasehold interests, and mortgage interests, upon the express

written agreement of the person or persons acquiring the interest that such person or persons will take such interest subject to the access obligations contained in Paragraph 25, and land and water use restrictions and access restrictions contained in this Consent Decree. In addition, prior to or upon a transfer of any interest in the Site Owner, Settling Defendant shall comply with the following requirements:

(i) impose the access obligations identified in Paragraph 25 and the land and water use restrictions and access restrictions identified in Paragraph 29.a. on such property by including in the instrument transferring such property the Reservation of Access Easement and Restrictions on Use set forth in Appendix F. Within seven (7) days of the execution of the instrument conveying any title interest in Property described in Appendix C, the Owner Settling Defendant shall ensure said instrument is in recordable form and record such instrument with the State Recorder's Office, Anchorage District, State of Alaska, or other appropriate office where land ownership and transfer records are maintained for the subject property(ies), or

(ii) upon the transfer of any leasehold interest in real property described in Appendix C, Owner Settling Defendant shall impose the access obligations identified in Paragraph 25 and the land and water use restrictions and access restrictions identified in Paragraph 29.a. by including in the lease transferring such a lease interest the Lease Prohibition set forth in Appendix G. Within 7 days of execution of such lease, the Owner Settling Defendant shall ensure the lease is in recordable form and record such lease in the State Recorder's Office, Anchorage District, State of Alaska, or other appropriate office where land ownership and transfer records are maintained for the subject property(ies).

(iii) Prior to a transfer of any interest in the Site by a conveyance instrument containing the language in Appendices F or G required in Subparagraphs e. (i) and (ii) above, Owner Settling Defendant shall

review the language for consistency with then existing State or local law.

30. Within sixty (60) days of the Effective Date of this Consent Decree, Owner Settling Defendant shall provide a copy of the executed and recorded Declaration of Restriction Covenant and Notice of Remedial Action (Appendix E) to the following entities:

State of Alaska
- Alaska Department of Environmental Conservation
- Alaska Department of Fish & Game

Municipality of Anchorage ("MOA")
- MOA Department of Community Planning and Development
- MOA Department of Public Works
- MOA Department of Parks & Recreation

Utilities
- Anchorage Water & Wastewater Utility
- Anchorage Municipal Power & Light
- Chugach Electric Association
- Enstar Natural Gas
- AT&T Alascom
- ATU Telecommunications
- Prime Cable of Alaska

As long as Owner Settling Defendant is in possession and control of the Site, Owner Settling Defendant shall send a copy of the recorded Declaration to other agencies, departments or entities in the future that it becomes aware of could affect land or water use at the Site or remedial activities taken thereon. Owner Settling Defendant shall send EPA copies of all notices required by this Paragraph.

X. REPORTING REQUIREMENTS

31. In addition to any other requirement of this Consent Decree, Settling Defendants shall submit to EPA and the State two (2) copies of written monthly progress reports that:

(a) describe the actions which have been taken toward achieving compliance with this Consent Decree during the previous month; (b) include a summary of all results of sampling and tests and all other data received or generated by Settling Defendants or their contractors or agents in the previous month; (c) identify all Work Plans, plans, and other deliverables required by this Consent Decree completed and submitted during the previous month; (d) describe all actions, including, but not limited to, data collection and implementation of Work Plans, which are scheduled for the next month and provide other information relating to the progress of construction, such as critical path diagrams, Gantt charts or Pert charts; (e) include information regarding percentage of completion, unresolved delays encountered or anticipated that may affect the future schedule for implementation of the Work, and a description of efforts made to mitigate those delays or anticipated delays; (f) include any modifications to the Work Plans or other schedules that Settling Defendants have proposed to EPA or that have been approved by EPA; and (g) describe all activities undertaken in support of the Community Relations Plan during the previous month and those to be undertaken in the next month. Settling Defendants shall submit these progress reports to EPA and the State by the fifteenth (15th) day of every month following the lodging of this Consent Decree until EPA notifies the Settling Defendants pursuant to Paragraph 50.b. of Section XIV (Certification of Completion). If requested by EPA, Settling Defendants shall also

provide briefings for EPA and the State to discuss the progress of the Work.

32. The Settling Defendants shall notify EPA of any change in the schedule described in the monthly progress report for the performance of any activity, including, but not limited to, data collection and implementation of Work Plans, no later, when possible, than seven (7) days prior to the performance of the activity.

33. Upon the occurrence of any event during performance of the Work that Settling Defendants are required to report pursuant to Section 103 of CERCLA, 42 U.S.C. § 9603, or Section 304 of the Emergency Planning and Community Right-to-Know Act (EPCRA), 42 U.S.C. § 11004, Settling Defendants shall within 24 hours of learning of the onset of such event orally notify the EPA Project Coordinator or the Alternate EPA Project Coordinator (in the event of the unavailability of the EPA Project Coordinator), or, in the event that neither the EPA Project Coordinator or Alternate EPA Project Coordinator is available, the Emergency Response Section, Region 10, United States Environmental Protection Agency. These reporting requirements are in addition to the reporting required by CERCLA Section 103 or EPCRA Section 304.

34. Within twenty (20) days of learning of the onset of such an event, Settling Defendants shall furnish to Plaintiff a written report, signed by the Settling Defendants' Project Coordinator, setting forth the events that occurred and the

measures taken, and to be taken, in response thereto. Within thirty (30) days of the conclusion of such an event, Settling Defendants shall submit a report setting forth all actions taken in response thereto.

35. Settling Defendants shall submit two (2) copies of all plans, reports, and data required by the SOW, the Remedial Design Work Plan, the Remedial Action Work Plan, or any other approved plans to EPA in accordance with the schedules set forth in such plans. Settling Defendants shall simultaneously submit one copy of all such plans, reports, and data to the State.

36. All reports and other documents submitted by Settling Defendants to EPA (other than the monthly progress reports referred to above) which purport to document Settling Defendants' compliance with the terms of this Consent Decree shall be signed by an authorized representative of the Settling Defendants.

XI. EPA APPROVAL OF PLANS AND OTHER SUBMISSIONS

37. After review of any plan, report or other item that is required to be submitted for approval pursuant to this Consent Decree, EPA, after reasonable opportunity for review and comment by the State, shall in writing: (a) approve the submission, in whole or in part; (b) approve the submission upon specified conditions; (c) modify the submission to cure the deficiencies; (d) disapprove the submission, in whole or in part, directing that the Settling Defendants modify the submission; or

(e) any combination of the above. However, EPA shall not modify a submission without first providing Settling Defendants at least one written notice of deficiency and an opportunity to cure within thirty (30) days, except where to do so would cause serious disruption to the Work or where previous submission(s) have been disapproved due to material defects and the deficiencies in the submission under consideration indicate a bad faith lack of effort to submit an acceptable deliverable.

38. In the event of approval, approval upon conditions, or modification by EPA, pursuant to Paragraph 37(a), (b), or (c), Settling Defendants shall proceed to take any action required by the plan, report, or other item, as approved or modified by EPA subject only to their right to invoke the Dispute Resolution procedures set forth in Section XIX (Dispute Resolution) with respect to the modifications or conditions made by EPA. In the event that EPA modifies the submission to cure the deficiencies pursuant to Paragraph 37(c) because the submission has a material defect, EPA retains its right to seek stipulated penalties, as provided in Section XX (Stipulated Penalties).

39.a. Upon receipt of a notice of disapproval pursuant to Paragraph 37(d), Settling Defendants shall, within thirty (30) days, or such longer time as specified by EPA in such notice, correct the deficiencies and resubmit the plan, report, or other item for approval. Any stipulated penalties applicable to the submission, as provided in Section XX, shall accrue during the

30-day or otherwise specified period, but shall not be payable unless the resubmission is disapproved or modified due to a material defect as provided in Paragraphs 40 and 41.

b. Notwithstanding the receipt of a notice of disapproval pursuant to Paragraph 37(d), Settling Defendants shall proceed, at the direction of EPA, to take any action required by any non-deficient portion of the submission. Implementation of any non-deficient portion of a submission shall not relieve Settling Defendants of any liability for stipulated penalties, if applicable, under Section XX (Stipulated Penalties).

40. In the event that a resubmitted plan, report, or other item, or portion thereof, is disapproved by EPA, EPA may again require the Settling Defendants to correct the deficiencies, in accordance with the preceding Paragraphs. EPA also retains the right to modify or develop the plan, report or other item. Settling Defendants shall implement any such plan, report, or item as modified or developed by EPA, subject only to their right to invoke the procedures set forth in Section XIX (Dispute Resolution).

41. If upon resubmission, a plan, report, or item is disapproved or modified by EPA due to a material defect, Settling Defendants shall be deemed to have failed to submit such plan, report, or item timely and adequately unless the Settling Defendants invoke the dispute resolution procedures set forth in Section XIX (Dispute Resolution) and EPA's action is overturned

pursuant to that Section. The provisions of Section XIX (Dispute Resolution) and Section XX (Stipulated Penalties) shall govern the implementation of the Work and accrual and payment of any stipulated penalties during Dispute Resolution. If EPA's disapproval or modification is upheld, stipulated penalties, if applicable, shall accrue for such violation from the date on which the initial submission was originally required, as provided in Section XX.

42. All plans, reports, and other items required to be submitted to EPA under this Consent Decree shall, upon approval or modification by EPA, be enforceable under this Consent Decree. In the event EPA approves or modifies a portion of a plan, report, or other item required to be submitted to EPA under this Consent Decree, the approved or modified portion shall be enforceable under this Consent Decree.

XII. PROJECT COORDINATORS

43. Within twenty (20) days of lodging this Consent Decree, Settling Defendants, Owner Settling Defendant, EPA, and the State will notify each other, in writing, of the name, address and telephone number of their respective designated Project Coordinators and Alternate Project Coordinators. If a Project Coordinator or Alternate Project Coordinator initially designated is changed, the identity of the successor will be given to the other Parties and the State at least five (5) working days before the changes occur, unless impracticable, but

in no event later than the actual day the change is made. The Settling Defendants' Project Coordinator shall be subject to disapproval by EPA and shall have the technical expertise sufficient to adequately oversee all aspects of the Work. The Settling Defendants' Project Coordinator shall not be an attorney for any of the Settling Defendants in this matter. He or she may assign other representatives, including other contractors, to serve as a Site representative for oversight of performance of daily operations during remedial activities.

44. Plaintiff may designate other representatives, including, but not limited to, EPA employees, and federal contractors and consultants, to observe and monitor the progress of any activity undertaken pursuant to this Consent Decree. EPA's Project Coordinator and Alternate Project Coordinator shall have the authority lawfully vested in a Remedial Project Manager (RPM) and an On-Scene Coordinator (OSC) by the NCP, 40 C.F.R. Part 300. In addition, EPA's Project Coordinator or Alternate Project Coordinator shall have authority, consistent with the NCP, to halt any Work required by this Consent Decree and to take any necessary response action when s/he determines that conditions at the Site constitute an emergency situation or may present an immediate threat to public health or welfare or the environment due to release or threatened release of Waste Material.

[Paragraph 45. Intentionally Left Blank]

XIII. ASSURANCE OF ABILITY TO COMPLETE WORK

46. Within thirty (30) days of entry of this Consent Decree, Settling Defendants shall establish and maintain financial security in the amount of $3,234,000 (38.5% of the high cost estimate for Solidification/Stabilization in the Feasibility Study plus a 50% cost overrun contingency) in one or more of the following forms:

(a) A surety bond guaranteeing performance of the Work;

(b) One or more irrevocable letters of credit equalling the total estimated cost of the Work;

(c) A trust fund;

(d) A guarantee to perform the Work by one or more parent corporations or subsidiaries, or by one or more unrelated corporations that have a substantial business relationship with at least one of the Settling Defendants; or

(e) A demonstration that one or more of the Settling Defendants satisfy the requirements of 40 C.F.R. Section 264.143(f).

47. If the Settling Defendants seek to demonstrate the ability to complete the Work through a guarantee by a third party pursuant to Paragraph 46(d) of this Consent Decree, Settling Defendants shall demonstrate that the guarantor satisfies the requirements of 40 C.F.R. Section 264.143(f). If Settling Defendants seek to demonstrate their ability to complete the Work by means of the financial test or the corporate guarantee pursuant to Paragraph 46(d) or (e), they shall resubmit sworn

statements conveying the information required by 40 C.F.R. Section 264.143(f) annually, on the anniversary of the Effective Date of this Consent Decree. In the event that EPA determines at any time that the financial assurances provided pursuant to this Section are inadequate, Settling Defendants shall, within thirty (30) days of receipt of notice of EPA's determination, obtain and present to EPA for approval one of the other forms of financial assurance listed in Paragraph 46 of this Consent Decree. Settling Defendants' inability to demonstrate financial ability to complete the Work shall not excuse performance of any activities required under this Consent Decree.

48. If Settling Defendants can show that the estimated cost to complete the remaining Work has diminished below the amount set forth in Paragraph 46 above after entry of this Consent Decree, Settling Defendants may, on any anniversary date of entry of this Consent Decree, or at any other time agreed to by the Settling Defendants and EPA, reduce the amount of the financial security provided under this Section to the estimated cost of the remaining Work to be performed. Settling Defendants shall submit a proposal for such reduction to EPA, in accordance with the requirements of this Section, and may reduce the amount of the security upon approval by EPA. In the event of a dispute, Settling Defendants may reduce the amount of the security in accordance with the final administrative or judicial decision resolving the dispute pursuant to Section XIX (Dispute Resolution).

49. Settling Defendants may change the form of financial assurance provided under this Section at any time, upon notice to and approval by EPA, provided that the new form of assurance meets the requirements of this Section. In the event of a dispute, Settling Defendants may change the form of the financial assurance only in accordance with the final administrative or judicial decision resolving the dispute.

XIV. CERTIFICATION OF COMPLETION

50. Completion of the Remedial Action

a. Notice. Upon Settling Defendants' preliminary determination that the Remedial Action is operational and functional and that Performance Standards have been met, but no sooner than two (2) years following the Final Construction Completion Inspection, Settling Defendants shall provide notice to EPA and the State that Remedial Action is complete.

b. Draft Completion of Remedial Action Report. Within thirty (30) days from the notice required in subparagraph a. above, Settling Defendants shall submit a Draft Completion of Remedial Action Report. In the report, a registered professional engineer and the Settling Defendants' project Coordinator shall state that the Remedial Action has been constructed in accordance with the approved design and specifications and is operational and functional. The report shall reference all the data and supporting documentation on which Settling Defendants rely to determine that all Performance Standards have been met and the RA

has been completed in accordance with the ROD, SOW, and this Consent Decree. The written report shall be signed and stamped by a registered professional engineer and reference as-built drawings from the Final Construction Completion Report. The report shall contain the following statement, signed by a responsible corporate official of a Settling Defendant or the Settling Defendants' Project Coordinator:

> "To the best of my knowledge, after thorough investigation, I certify that the information contained in or accompanying this submission is true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

c. Final Completion of Remedial Action Report. Within thirty (30) days of receipt of EPA comments on the Draft Completion of Remedial Action Report, Settling Defendants shall submit a Final Completion of Remedial Action Report. In the report, a registered professional engineer and the Settling Defendants' Project Coordinator shall state the RA has been completed in full satisfaction of the requirements of the Consent Decree. The written report shall be signed and stamped by a registered professional engineer and reference as-built drawings from the Final Construction Completion Report. The report shall contain the following statement, signed by a responsible corporate official of a Settling Defendant or the Settling Defendants' Project Coordinator:

> "To the best of my knowledge, after thorough investigation, I certify that the information contained in or accompanying this submission is true, accurate,

and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

d. Certification of Completion. If EPA concludes, based on the Final Completion of Remedial Action Report requesting Certification of Completion and after a reasonable opportunity for review and comment by the State, that the Remedial Action has been performed in accordance with this Consent Decree and that the Performance Standards have been achieved, EPA will so certify, in writing, to Settling Defendants. EPA will attempt to certify completion within ninety (90) days of receipt of the Final Completion of Remedial Action Report, nonetheless, a written certification from EPA is necessary for Remedial Action to be complete. This certification shall constitute the Certification of Completion of the Remedial Action for purposes of this Consent Decree, including, but not limited to, Section XXI (Covenants Not to Sue by Plaintiff). Certification of Completion of the Remedial Action shall not affect Settling Defendants' and Owner Settling Defendant's obligations under this Consent Decree that extend beyond completion of the Remedial Action.

XV. EMERGENCY RESPONSE

51. In the event of any action or occurrence during the performance of the Work which causes or threatens a release of Waste Material from the Site that constitutes an emergency situation or may present an immediate threat to public health or

welfare or the environment, Settling Defendants shall, subject to Paragraph 52, immediately take all appropriate action to prevent, abate, or minimize such release or threat of release, and shall immediately notify the EPA's Project Coordinator, or, if the Project Coordinator is unavailable, EPA's Alternate Project Coordinator. If neither of these persons is available, the Settling Defendants shall notify the EPA Emergency Response and Cleanup Unit 1, Region 10. Settling Defendants shall take such actions in consultation with EPA's Project Coordinator or other available authorized EPA officer and in accordance with all applicable provisions of the Health and Safety Plans, the Contingency Plans, and any other applicable plans or documents developed pursuant to the SOW. In the event that Settling Defendants fail to take appropriate response actions as required by this Section, and EPA takes such actions instead, Settling Defendants shall, pursuant to Section XVI (Reimbursement of Response Costs), reimburse EPA for all costs incurred in connection with response actions not inconsistent with the NCP.

52. Nothing in the preceding Paragraph or in this Consent Decree shall be deemed to limit any authority of the United States: a) to take all appropriate action to protect human health and the environment or to prevent, abate, respond to, or minimize an actual or threatened release of Waste Material on, at, or from the Site; or b) to direct or order such action, or seek an order from the Court, to protect human health and the environment or to prevent, abate, respond to, or minimize an

actual or threatened release of Waste Material on, at, or from the Site, subject to Section XXI (Covenants Not to Sue by Plaintiff).

XVI. REIMBURSEMENT OF RESPONSE COSTS

53. In accordance with this Section XVI, Settling Defendants shall reimburse the EPA Hazardous Substance Superfund for all Future Response Costs as defined in this Consent Decree for response actions not inconsistent with the NCP. The United States will send Settling Defendants a bill requiring payment that includes a Superfund Cost Organization and Recovery Enhancement System (SCORES) Report and a DOJ Cost Summary on a periodic basis. Except as otherwise provided in Paragraph 54, Settling Defendants shall pay no less than 38.5% of each bill within sixty (60) days of Settling Defendants' receipt of each bill requiring payment and shall pay the Federal PRPs' share of 61.5% (as set forth in the Partial Consent Decree) of each bill within ten (10) days of receipt of payment from the Federal PRPs if the federal payment is not received before or during the 60-day payment period. The Settling Defendants shall make all payments required by this Paragraph in the form of a certified or cashier's check or checks made payable to "EPA Hazardous Substance Superfund" and referencing the EPA Region and Site/Spill ID # 102P; the DOJ case number 90-11-3-810, and the name and address of the party making payment. The Settling Defendants shall send the check(s) to:

Mellon Bank
EPA-Region 10
Attn: Superfund Accounting
P.O. Box 360903M
Pittsburgh, PA 15251

and shall send copies of the check(s) to the United States as specified in Section XXVI (Notices and Submissions) and to Joseph Penwell, Finance Unit, Office of Management Programs, Mail Stop OMP-146, 1200 Sixth Avenue, Seattle, Washington, 98101. In the alternative, Settling Defendants shall make payments required by this Paragraph to the EPA Hazardous Substance Superfund by FedWire Electronic Funds Transfer. Wire transfer instructions will be provided by EPA upon request.

54.a. Settling Defendants may contest payment of any Future Response Costs under Paragraph 53 if they determine that the United States has made an accounting error or if they allege that a cost item that is included represents response actions that are inconsistent with the NCP or costs outside the scope of this Consent Decree. Such objection shall be made, in writing, within sixty (60) days of receipt of the bill and must be sent to the United States pursuant to Section XXVI (Notices and Submissions). Any such objection shall specifically identify the contested Future Response Costs and the basis for objection. In the event of an objection, the Settling Defendants shall within the sixty (60) day period pay all uncontested Future Response Costs to the United States in the manner described in Paragraph 53. Simultaneously, the Settling Defendants shall establish an

interest-bearing bank account in a federally-insured bank duly chartered in the State of Alaska and remit to that bank account funds equivalent to the amount of the contested Future Response Costs. The Settling Defendants shall send to the United States, as provided in Section XXVI (Notices and Submissions), a copy of the letter and the check transmitting the uncontested Future Response Costs to the bank, and a copy of the correspondence that establishes and funds the bank account, including, but not limited to, information containing the identity of the bank and bank account under which the account is established as well as a bank statement showing the initial balance of the bank account. Simultaneously with establishment of the bank account, the Settling Defendants shall initiate the Dispute Resolution procedures in Section XIX (Dispute Resolution). If the United States prevails in the dispute, within five (5) days of the resolution of the dispute, the Settling Defendants shall pay the sums due (with accrued Interest) to the United States in the manner described in Paragraph 53. If the Settling Defendants prevail concerning any aspect of the contested costs, the Settling Defendants shall pay that portion of the costs (plus associated accrued Interest) for which they did not prevail to the United States in the manner described in Paragraph 53; Settling Defendants shall be disbursed any balance of the bank account. The dispute resolution procedures set forth in this Paragraph in conjunction with the procedures set forth in Section XIX (Dispute Resolution) shall be the exclusive mechanisms for

resolving disputes regarding the Settling Defendants' obligation to reimburse the United States for its Future Response Costs.

b. Within thirty (30) days of receipt of each bill, Settling Defendants may request the following categories of supporting documentation: employee time sheets for payroll costs; receipts for travel costs; contractor invoices and supporting documentation for contractor charges and expenses; and computation of EPA indirect costs. Some of the requested information may be redacted or issued only after Settling Defendants agree to protective provisions if the information is subject to a claim of privilege or is confidential business information. EPA shall provide the requested supporting documentation within thirty (30) days of receipt of the written request.

55. In the event that the payments required by Paragraph 53 are not made within sixty (60) days of the Settling Defendants' receipt of the bill, Settling Defendants shall pay Interest on the 38.5% share of the unpaid balance. The Interest on Future Response Costs shall begin to accrue on the date of the bill. The Interest shall accrue through the date of the Settling Defendants' payment. If Settling Defendants do not receive the Federal PRPs' share of Future Response Costs until after the 60-day payment period, and if Settling Defendants receive Interest from the Federal PRPs on their share of any billed Future Response Costs, Settling Defendants shall pay the Interest received from the Federal PRPs to the United States at the same

time it pays the Federal PRPs' share of Future Response Costs as provided above. Payments of Interest made under this Paragraph shall be in addition to such other remedies or sanctions available to Plaintiff by virtue of Settling Defendants' failure to make timely payments under this Section. The Settling Defendants shall make all payments required by this Paragraph in the manner described in Paragraph 53.

XVII. INDEMNIFICATION AND INSURANCE

56.a. The United States does not assume any liability by entering into this agreement or by virtue of any designation of Settling Defendants as EPA's authorized representatives under Section 104(e) of CERCLA, 42 U.S.C. § 9604(e). Settling Defendants and/or Owner Settling Defendant, as appropriate, shall indemnify, save and hold harmless the United States (excluding, for this purpose, the Federal PRPs) and its officials, agents, employees, contractors, subcontractors, or representatives for or from any and all claims or causes of action arising from, or on account of, negligent or other wrongful acts or omissions of Settling Defendants and/or Owner Settling Defendant, their officers, directors, employees, agents, contractors, subcontractors, and any persons acting on their behalf or under their control, in carrying out activities pursuant to this Consent Decree, including, but not limited to, any claims arising from any designation of Settling Defendants or Owner Settling Defendant as EPA's authorized representatives

under Section 104(e) of CERCLA, 42 U.S.C. § 9604(e). Further, the Settling Defendants and/or Owner Settling Defendant, as appropriate, agree to pay the United States (excluding, for this purpose, the Federal PRPs) all costs it incurs including, but not limited to, attorneys' fees and other expenses of litigation and settlement arising from, or on account of, claims made against the United States based on negligent or other wrongful acts or omissions of Settling Defendants and/or Owner Settling Defendant, their officers, directors, employees, agents, contractors, subcontractors, and any persons acting on their behalf or under their control, in carrying out activities pursuant to this Consent Decree. The United States shall not be held out as a party to any contract entered into, by or on behalf of Settling Defendants or Owner Settling Defendant in carrying out activities pursuant to this Consent Decree. Neither the Settling Defendants, Owner Settling Defendant, nor any such contractor shall be considered an agent of the United States. Notwithstanding anything herein to the contrary, Settling Defendants shall not be liable to indemnify, save and hold harmless or pay the United States' costs under this Paragraph for the negligent or wrongful acts or omissions of Owner Settling Defendant or the Owner Settling Defendant's officers, directors, employees, agents, contractors, subcontractors, or other persons acting on it's behalf or under it's control. Likewise, Owner Settling Defendant shall not be liable to indemnify, save and hold harmless or pay the United States' costs under this

Paragraph for the negligent or wrongful acts or omissions of Settling Defendants or Settling Defendants' officers, directors, employees, agents, contractors, subcontractors, or other persons acting on their behalf or under their control.

b. The United States shall give Settling Defendants and/or Owner Settling Defendant, as appropriate, notice of any claim for which the United States plans to seek indemnification pursuant to Paragraph 56.a., and shall consult with Settling Defendants and/or Owner Settling Defendant, as appropriate, prior to settling such claim.

57. Settling Defendants and Owner Settling Defendant waive all claims against the United States for damages or reimbursement or for set-off of any payments made or to be made to the United States, arising from or on account of any contract, agreement, or arrangement between any one or more of Settling Defendants, Owner Settling Defendant, and any person for performance of Work or Institutional Controls implemented by Owner Settling Defendant on or relating to the Site, including, but not limited to, claims on account of construction delays. In addition, Settling Defendants and Owner Settling Defendant shall indemnify and hold harmless the United States with respect to any and all claims for damages or reimbursement arising from or on account of any contract, agreement, or arrangement between any one or more of Settling Defendants, Owner Settling Defendant, and any person for performance of Work or Institutional Controls implemented by Owner Settling Defendant on or relating to the

Site, including, but not limited to, claims on account of construction delays.

58. No later than fifteen (15) days before commencing any on-Site Work, Settling Defendants or their contractor or subcontractor, as set forth below, shall secure, and shall maintain until the first anniversary of EPA's Certification of Completion of the Remedial Action pursuant to Paragraph 50 of Section XIV (Certification of Completion)] comprehensive general liability insurance with limits of $3 million, combined single limit (including excess umbrella coverage), and automobile liability insurance with limits of $1 million, combined single limit, naming the United States as an additional insured (including excess umbrella coverage). In addition, for the duration of this Consent Decree, Settling Defendants shall satisfy, or shall ensure that their contractors or subcontractors satisfy, all applicable laws and regulations regarding the provision of workers' compensation insurance for all persons performing the Work on behalf of Settling Defendants in furtherance of this Consent Decree. Prior to commencement of the Work under this Consent Decree, Settling Defendants shall provide to EPA certificates of such insurance and a copy of each insurance policy. Settling Defendants shall resubmit such certificates and copies of policies each year on the anniversary of the Effective Date of this Consent Decree. If Settling Defendants demonstrate by evidence satisfactory to EPA that any contractor or subcontractor maintains insurance equivalent to

that described above, or insurance covering the same risks but in a lesser amount, then, with respect to that contractor or subcontractor, Settling Defendants need provide only that portion of the insurance described above which is not maintained by the contractor or subcontractor.

XVIII. FORCE MAJEURE

59. "Force Majeure", for purposes of this Consent Decree, is defined as any event arising from causes beyond the control of the Settling Defendants or Owner Settling Defendant, of any entity controlled by Settling Defendants or Owner Settling Defendant, or their contractors, that delays or prevents the performance of any obligation under this Consent Decree despite Settling Defendants' or Owner Settling Defendant's best efforts to fulfill the obligation. The requirement that the Settling Defendants and Owner Settling Defendant exercise "best efforts to fulfill the obligation" includes using best efforts to anticipate any potential Force Majeure event and best efforts to address the effects of any potential Force Majeure event (1) as it is occurring, and (2) following the potential Force Majeure event, such that the delay is minimized to the greatest extent possible. "Force Majeure" does not include financial inability to complete the Work or a failure to attain the Performance Standards.

60. If any event occurs or has occurred that may delay the performance of any obligation under this Consent Decree, whether or not caused by a Force Majeure event, the Settling

Defendants or Owner Settling Defendant shall notify orally EPA's Project Coordinator or, in his or her absence, EPA's Alternate Project Coordinator or, in the event both of EPA's designated representatives are unavailable, the Director of the Office of Environmental Cleanup, EPA Region 10, within five (5) days of when Settling Defendants or Owner Settling Defendant first knew that the event might cause a delay. Within five (5) days thereafter, Settling Defendants or Owner Settling Defendant shall provide, in writing, to EPA an explanation and description of the reasons for the delay; the anticipated duration of the delay; all actions taken or to be taken to prevent or minimize the delay; a schedule for implementation of any measures to be taken to prevent or mitigate the delay or the effect of the delay; the Settling Defendants' rationale for attributing such delay to a Force Majeure event if they intend to assert such a claim; and a statement as to whether, in the opinion of the Settling Defendants or Owner Settling Defendant, such event may cause or contribute to an endangerment to public health, welfare or the environment. The Settling Defendants or Owner Settling Defendant shall include with any notice all available documentation supporting their claim that the delay was attributable to a Force Majeure event. Failure to comply with the above requirements shall preclude Settling Defendants or Owner Settling Defendant from asserting any claim of Force Majeure for that event for the period of time of such failure to comply, and for any additional delay caused by such failure. Settling Defendants shall be

deemed to know of any circumstance of which Settling Defendants, any entity controlled by Settling Defendants or their contractors knew or should have known. Owner Settling Defendant shall be deemed to know of any circumstance of which Owner Settling Defendant, any entity controlled by Owner Settling Defendant, or its contractors knew or should have known. Neither Settling Defendants nor Owner Settling Defendant shall be deemed to have knowledge of circumstances within the control of the other Party or any entity controlled by the other Party, and a Force Majeure event hereunder shall include events arising from causes beyond the control of Settling Defendants or Owner Settling Defendant, as the case may be, even if such events are within the control of the other Party or any entity controlled by the other Party.

61. If EPA agrees that the delay or anticipated delay is attributable to a Force Majeure event, the time for performance of the obligations under this Consent Decree that are affected by the Force Majeure event will be extended by EPA for such time as is necessary to complete those obligations, but in any event, no longer than the period performance was delayed as a result of the Force Majeure event. An extension of the time for performance of the obligations affected by the Force Majeure event shall not, of itself, extend the time for performance of any other unrelated obligation. If EPA does not agree that the delay or anticipated delay has been or will be caused by a Force Majeure event, EPA will notify the Settling Defendants or Owner Settling Defendant, in writing, of its decision. If EPA agrees

that the delay is attributable to a Force Majeure event, EPA will notify the Settling Defendants or Owner Settling Defendant, in writing, of the length of the extension for performance of the obligations affected by the Force Majeure event.

62. If the Settling Defendants or Owner Settling Defendant elect to invoke the dispute resolution procedures set forth in Section XIX (Dispute Resolution) regarding a Force Majeure event, they shall do so no later than fifteen (15) days after receipt of EPA's notice. In any such proceeding, Settling Defendants or Owner Settling Defendant shall have the burden of demonstrating by a preponderance of the evidence that the delay or anticipated delay has been or will be caused by a Force Majeure event, that the duration of the delay or the extension sought was or will be warranted under the circumstances, that best efforts were exercised to avoid and mitigate the effects of the delay, and that Settling Defendants or Owner Settling Defendant, as appropriate, complied with the requirements of Paragraphs 59 and 60 above. If Settling Defendants or Owner Settling Defendant carry this burden, the delay at issue shall be deemed not to be a violation by Settling Defendants or Owner Settling Defendant of the affected obligation of this Consent Decree identified to EPA and, if applicable, the Court.

XIX. DISPUTE RESOLUTION

63. Unless otherwise expressly provided for in this Consent Decree, the dispute resolution procedures of this Section

shall be the exclusive mechanism to resolve disputes arising under or with respect to this Consent Decree. However, the procedures set forth in this Section shall not apply to actions by the United States to enforce obligations of the Settling Defendants that have not been disputed in accordance with this Section.

64. Any dispute which arises under or with respect to this Consent Decree shall in the first instance be the subject of informal negotiations between the parties to the dispute. The period for informal negotiations shall not exceed twenty (20) days from the time the dispute arises, unless it is modified by written agreement of the parties to the dispute. The dispute shall be considered to have arisen when one party sends the other parties a written Notice of Dispute.

65.a. In the event that the parties cannot resolve a dispute by informal negotiations under the preceding Paragraph, then the position advanced by EPA shall be considered binding unless, within thirty (30) days after the conclusion of the informal negotiation period, Settling Defendants or Owner Settling Defendant invoke the formal dispute resolution procedures of this Section by serving on the United States a written Statement of Position on the matter in dispute, including, but not limited to, any factual data, analysis or opinion supporting that position and any supporting documentation relied upon by the Settling Defendants or Owner Settling Defendant that is not already in the ROD administrative record

or the post-ROD site file. The Statement of Position shall specify the Settling Defendants' or Owner Settling Defendant's position as to whether formal dispute resolution should proceed under Paragraph 66 or Paragraph 67.

b. Within thirty (30) days after receipt of Settling Defendants' or Owner Settling Defendant's Statement of Position, EPA will serve on the appropriate Party its Statement of Position, including, but not limited to, any factual data, analysis, or opinion supporting that position and all supporting documentation relied upon by EPA that is not already in the ROD administrative record or the post-ROD Site file. EPA's Statement of Position shall include a statement as to whether formal dispute resolution should proceed under Paragraph 66 or 67. Within ten (10) days after receipt of EPA's Statement of Position, Settling Defendants or Owner Settling Defendant may submit a Reply.

c. If there is disagreement between EPA and the Settling Defendants or Owner Settling Defendant as to whether dispute resolution should proceed under Paragraph 66 or 67, the parties to the dispute shall follow the procedures set forth in the Paragraph determined by EPA to be applicable. However, if the Settling Defendants or Owner Settling Defendant ultimately appeal to the Court to resolve the dispute, the Court shall determine which Paragraph is applicable in accordance with the standards of applicability set forth in Paragraphs 66 and 67.

66. Formal dispute resolution for disputes pertaining to the selection or adequacy of any response action and all other disputes that are accorded review on the administrative record under applicable principles of administrative law shall be conducted pursuant to the procedures set forth in this Paragraph. For purposes of this Paragraph, the adequacy of any response action includes, without limitation: (1) the adequacy or appropriateness of plans, procedures to implement plans, or any other items requiring approval by EPA under this Consent Decree; and (2) the adequacy of the performance of response actions taken pursuant to this Consent Decree. Nothing in this Consent Decree shall be construed to allow any dispute by Settling Defendants or Owner Settling Defendant regarding the validity of the ROD's provisions.

a. An administrative record of the dispute shall be maintained by EPA and shall contain all statements of position, including supporting documentation, submitted pursuant to this Section. Where appropriate, EPA may allow submission of supplemental statements of position by the parties to the dispute.

b. The Director of the Environmental Cleanup Office, EPA Region 10, will issue a final administrative decision resolving the dispute based on the administrative record described in Paragraph 66.a. This decision shall be binding upon the Settling Defendants and/or Owner Settling Defendant, subject

only to the right to seek judicial review pursuant to subparagraphs c and d of this Paragraph.

c. Any administrative decision made by EPA pursuant to Paragraph 66.b. shall be reviewable by this Court, provided that a motion for judicial review of the decision is filed by the Settling Defendants or Owner Settling Defendant with the Court and served on all Parties within ten (10) days of receipt of EPA's decision. The motion shall include a description of the matter in dispute, the efforts made by the parties to resolve it, the relief requested, and the schedule, if any, within which the dispute must be resolved to ensure orderly implementation of this Consent Decree. The United States may, within fifteen (15) days of receipt of Settling Defendants' or Owner Settling Defendant's motion or such other period as the court may permit, file a response to Settling Defendants' or Owner Settling Defendant's motion.

d. In proceedings on any dispute governed by this Paragraph, Settling Defendants or Owner Settling Defendant shall have the burden of demonstrating that the decision of the Office of Environmental Cleanup Director is arbitrary and capricious or otherwise not in accordance with law. Judicial review of EPA's decision shall be on the administrative record compiled pursuant to subparagraph 66.a.

67. Formal dispute resolution for disputes that neither pertain to the selection or adequacy of any response action nor are otherwise accorded review on the administrative

record under applicable principles of administrative law, shall be governed by this Paragraph.

a. Following receipt of Settling Defendants' or Owner Settling Defendant's Statement of Position submitted pursuant to Paragraph 65, the Director of the Environmental Cleanup Office, EPA Region 10, will issue a final decision resolving the dispute. The Office of Environmental Cleanup Division Director's decision shall be binding on the Settling Defendants or Owner Settling Defendant unless, within ten (10) days of receipt of the decision, the Settling Defendants or Owner Settling Defendant file with the Court and serve on the parties a motion for judicial review of the decision setting forth the matter in dispute, the efforts made by the parties to resolve it, the relief requested, and the schedule, if any, within which the dispute must be resolved to ensure orderly implementation of the Consent Decree. The United States may, within fifteen (15) days of receipt of Settling Defendants' or Owner Settling Defendant's motion or such other period that the court may permit, file a response to Settling Defendants' or Owner Settling Defendant's motion.

b. Notwithstanding Paragraph N of Section I (Background) of this Consent Decree, judicial review of any dispute governed by this Paragraph shall be governed by applicable principles of law.

68. The invocation of formal dispute resolution procedures under this Section shall not extend, postpone or

Penalty Per Violation Per Day	Period of Noncompliance
$ 500	First through the Thirtieth Day
$1,000	Thirty-first through the Sixtieth Day
$3,000	Sixty-first through the Ninetieth Day
$7,000	Ninety-first Day and Beyond

c. Notwithstanding the foregoing, Owner Settling Defendant shall not be subject to Stipulated Penalties for failure to provide EPA with timely notice under Paragraph 28(b) and 29 (including Appendices F and G) so long as ARRC has: (i) timely executed and recorded the Declaration of Restrictive Covenants and Notice of Remedial Action required under Paragraph 28.a.; (ii) imposed the access and use restrictions provided in Paragraph 29.a. as a condition of the transfer; and (iii) placed the language contained in Appendices F or G, or approved modified language, in the conveyance instrument, as required by Paragraphs 29.d. and e. Owner Settling Defendant also shall not be subject to stipulated penalties in the event that any of the access rights, and land and water use restrictions provided in Section IX of this Consent Decree, as supplemented or modified pursuant to this Consent Decree, are determined by a court not to run with the land or bind subsequent owners, transferees, or lessees of the Site.

71. In the event that EPA assumes performance of a portion or all of the Work pursuant to Paragraph 84 of Section XXI (Covenants Not to Sue by Plaintiff) and the costs associated with that Work exceed $25,000, Settling Defendants shall be

liable for a stipulated penalty in the amount of 10% of the cost of the Work incurred by EPA but not to exceed $250,000.

72. All penalties shall begin to accrue on the day after the complete performance is due (for timeliness and notice violations, including but not limited to, submission of deliverables, compliance with any schedule contained in any Work Plan, report, or other plan required under this Consent Decree, and notice required under this Consent Decree) or the day after EPA notifies the Settling Defendants in writing that a violation (other than one based on timeliness) has occurred, and shall continue to accrue through the final day of the correction of the noncompliance or completion of the activity. However, stipulated penalties shall not accrue: (1) with respect to a deficient submission under Section XI (EPA Approval of Plans and Other Submissions), during the period, if any, beginning on the first (1st) day after EPA's receipt of such submission until the date that EPA notifies Settling Defendants in writing of any deficiency; (2) with respect to a decision by the Director of the Office of Environmental Cleanup, EPA Region 10, under Paragraph 66.b. or 67.a. of Section XIX (Dispute Resolution), during the period, if any, beginning on the eleventh (11th) day after the date that Settling Defendants' (i) reply to EPA's Statement of Position is received (for decisions under Paragraph 66.b.) or (ii) statement of position under Paragraph 65 is received (for decisions under Paragraph 67.a.) until the date that the Director issues a final decision regarding such dispute;

or (3) with respect to judicial review by this Court of any dispute under Section XIX (Dispute Resolution), during the period, if any, beginning on the 31st day after the date the Settling Defendants or Owner Settling Defendants file the motion for judicial review until the date that the Court issues a final decision regarding such dispute. Nothing herein shall prevent the simultaneous accrual of separate penalties for separate violations of this Consent Decree.

73. Following EPA's determination that Settling Defendants or Owner Settling Defendant have failed to comply with a requirement of this Consent Decree, EPA shall give Settling Defendants or Owner Settling Defendant written notification of the same and describe the noncompliance. EPA shall send the Settling Defendants or Owner Settling Defendant a written demand for the payment of the penalties. Except for violations based on timeliness and noncompliance with a known due date or trigger event as contained in Paragraph 72, penalties shall not accrue as provided in the preceding Paragraph until EPA has notified the Settling Defendants or Owner Settling Defendant in writing of a violation.

74. All penalties accruing under this Section shall be due and payable to the United States within thirty (30) days of the Settling Defendants' or Owner Settling Defendant's receipt from EPA of a demand for payment of the penalties, unless the appropriate Parties invoke the Dispute Resolution procedures under Section XIX (Dispute Resolution). All payments to the

United States under this Section shall be paid by certified or cashier's check(s) made payable to "EPA Hazardous Substances Superfund," shall be mailed to:

Mellon Bank
EPA-Region 10
Attn: Superfund Accounting
P.O. Box 360903M
Pittsburgh, PA 15251

and shall indicate that the payment is for stipulated penalties, and shall reference the EPA Region and Site/Spill ID #102P, the DOJ Case Number 90-11-3-810, and the name and address of the party making payment. Copies of check(s) paid pursuant to this Section, and any accompanying transmittal letter(s), shall be sent to the United States as provided in Section XXVI (Notices and Submissions), and to Joseph Penwell, Finance Unit, Office of Management Programs, Mail Stop OMP-146, 1200 Sixth Avenue, Seattle, Washington, 98101. In the alternative, Settling Defendants shall make payments required by this Paragraph to the EPA Hazardous Substance Superfund by FedWire Electronic Funds Transfer. Wire transfer instructions will be provided by EPA upon request.

75. The payment of penalties shall not alter in any way Settling Defendants' obligation to complete the performance of the Work specifically agreed to by them in this Consent Decree or Owner Settling Defendant's obligation to perform the Institutional Controls required by Section IX.

76. Penalties shall continue to accrue as provided in Paragraphs 72 and 73 during any dispute resolution period, but need not be paid until one of the following events occur:

a. If the dispute is resolved by agreement or by a decision of EPA that is not appealed to this Court, accrued penalties determined to be owing shall be paid to EPA within fifteen (15) days of the agreement or the receipt of EPA's decision or order;

b. If the dispute is appealed to this Court and the United States prevails in whole or in part, Settling Defendants or Owner Settling Defendant shall pay all accrued penalties determined by the Court to be owed to EPA within sixty (60) days of receipt of the Court's decision or order, except as provided in Subparagraph c below;

c. If the District Court's decision is appealed by any Party, Settling Defendants or Owner Settling Defendant shall pay all accrued penalties determined by the District Court to be owing to the United States into an interest-bearing escrow account within sixty (60) days of receipt of the Court's decision or order. Penalties shall be paid into this account as they continue to accrue, at least every sixty (60) days. Within fifteen (15) days of receipt of the final appellate court decision, the escrow agent shall pay the balance of the account to EPA or to Settling Defendants or Owner Settling Defendant to the extent that they prevail, as determined by the appellate court.

77.a. If Settling Defendants or Owner Settling Defendant fail to pay stipulated penalties when due, the United States may institute proceedings to collect the penalties, as well as Interest. Settling Defendants or Owner Settling Defendant shall pay Interest on the unpaid balance, which shall begin to accrue on the date of demand made pursuant to Paragraph 74.

b. Nothing in this Consent Decree shall be construed as prohibiting, altering, or in any way limiting the ability of the United States to seek any other remedies or sanctions available by virtue of Settling Defendants' or Owner Settling Defendant's violation of this Decree or of the statutes and regulations upon which it is based, including, but not limited to, penalties pursuant to Section 122(l) of CERCLA, 42 U.S.C. § 9622(l). Provided, however, that the United States shall not seek civil penalties pursuant to Section 122(l) of CERCLA, 42 U.S.C. § 9622(l), for any violation for which a stipulated penalty is provided herein, except in the case of a willful violation of the Consent Decree.

78. Notwithstanding any other provision of this Section, the United States may, in its unreviewable discretion, waive any portion of stipulated penalties that have accrued pursuant to this Consent Decree.

XXI. COVENANTS NOT TO SUE BY PLAINTIFF

79. In consideration of the actions that will be performed and the payments that will be made by the Settling Defendants and, where applicable, the Owner Settling Defendant, under the terms of the Consent Decree, and except as specifically provided in Paragraphs 80, 81, and 83 of this Section, the United States covenants not to sue or to take administrative action against Settling Defendants and Owner Settling Defendant pursuant to Sections 106 and 107(a) of CERCLA, 42 U.S.C. §§ 9606 and 9607(a), relating to the Site. These covenants not to sue shall take effect with respect to future liability upon Certification of Completion of Remedial Action by EPA pursuant to Paragraph 50 of Section XIV (Certification of Completion). These covenants not to sue are conditioned upon the satisfactory performance by Settling Defendants and Owner Settling Defendant of their obligations under this Consent Decree. These covenants not to sue extend only to the Settling Defendants and Owner Settling Defendant and do not extend to any other person.

80. United States' Pre-certification reservations. Notwithstanding any other provision of this Consent Decree, the United States reserves, and this Consent Decree is without prejudice to, the right to institute proceedings before the Court in this action or in a new action, or to issue an administrative order seeking to compel Settling Defendants to perform further response actions relating to the Site or to reimburse the United States for additional costs of response and/or to compel Owner

Settling Defendant to perform Supplemental Institutional Controls that only it can perform as the party in possession and control of the property if, prior to Certification of Completion of the Remedial Action:

(i) conditions at the Site, previously unknown to EPA, are discovered; or

(ii) information, previously unknown to EPA, is received, in whole or in part;

and these previously unknown conditions or information together with any other relevant information indicates that the Remedial Action is not protective of human health or the environment.

81. United States' Post-certification reservations. Notwithstanding any other provision of this Consent Decree, the United States reserves, and this Consent Decree is without prejudice to, the right to institute proceedings before the Court in this action or in a new action, or to issue an administrative order seeking to compel Settling Defendants to perform further response actions relating to the Site or to reimburse the United States for additional costs of response and/or to compel Owner Settling Defendant to perform Supplemental Institutional Controls that only it can perform as the party in possession and control of the property if, subsequent to Certification of Completion of the Remedial Action:

(i) conditions at the Site, previously unknown to EPA, are discovered; or

(ii) information, previously unknown to EPA, is received, in whole or in part;

and these previously unknown conditions or this information together with other relevant information indicate that the Remedial Action is not protective of human health or the environment.

82. For purposes of Paragraph 80, the information and the conditions known to EPA shall include only that information and those conditions known to EPA as of the date the ROD was signed and set forth in the Record of Decision for the Site and the administrative record supporting the Record of Decision. For purposes of Paragraph 81, the information and the conditions known to EPA shall include only that information and those conditions known to EPA as of the date of Certification of Completion of the Remedial Action and set forth in the Record of Decision, the administrative record supporting the Record of Decision, the post-ROD administrative record, or in any information received by EPA pursuant to the requirements of this Consent Decree prior to Certification of Completion of the Remedial Action.

83.a. General reservations of rights. The covenants not to sue set forth above do not pertain to any matters other than those expressly specified in Paragraph 79. The United States reserves, and this Consent Decree is without prejudice to, all rights against Settling Defendants with respect to all other matters, including but not limited to, the following:

(1) claims based on a failure by Settling Defendants to meet a requirement of this Consent Decree;

(2) claims seeking, or liability for, the securing and implementation of Supplemental Institutional Controls, and liability for any response costs incurred relating to the implementation or securing of Supplemental Institutional Controls;

(3) liability arising from the past, present, or future disposal, release, or threat of release of Waste Materials outside of the Site;

(4) liability for future disposal of Waste Material at the Site, other than as provided in the ROD, the Work Plan, or otherwise ordered or approved in writing by EPA;

(5) liability for damages for injury to, destruction of, or loss of natural resources, and for the costs of any natural resource damage assessments;

(6) criminal liability;

(7) liability for violations of federal or state law which occur during or after implementation of the Remedial Action; and

(8) liability, prior to Certification of Completion of the Remedial Action, for additional response actions that EPA determines are necessary to achieve Performance Standards, but that cannot be required pursuant to Paragraph 15 (Modification of the SOW or Related Work Plans).

b. With respect to the Owner Settling Defendant, the covenants not to sue set forth above do not pertain to any matters other than those expressly specified in Paragraph 79. The United States reserves, and this Consent Decree is without prejudice to, all rights against Owner Settling Defendant with respect to all other matters, including but not limited to, the following:

(1) claims based on a failure by Owner Settling Defendant to meet a requirement of this Consent Decree;

(2) claims seeking, or liability for, the securing and implementation of Supplemental Institutional Controls that only Owner Settling Defendant, as the party in possession and control of the property can perform, and liability for any response costs incurred relating to the implementation or securing of such Supplemental Institutional Controls;

(3) liability arising from the past, present, or future disposal, release, or threat of release of Waste Materials outside of the Site;

(4) liability for future disposal of Waste Material at the Site, other than as provided in the ROD, the Work Plan, or otherwise ordered or approved in writing by EPA;

(5) criminal liability; and

(6) liability for violations of federal or state law which occur during or after implementation of the Remedial Action.

84. Work Takeover. In the event EPA determines that Settling Defendants and, with respect to implementation of Institutional Controls contained in Section IX of this Consent Decree only, Owner Settling Defendant have ceased implementation of any portion of the Work or Institutional Controls (except as a result of a Force Majeure event), are seriously or repeatedly deficient or late in their performance of the Work or Institutional Controls, or are implementing the Work or Institutional Controls in a manner which may cause an endangerment to human health or the environment, EPA may assume the performance of all or any portions of the Work or may seek to enforce such Institutional Controls required by Section IX as EPA determines necessary. Settling Defendants and Owner Settling Defendant may invoke the procedures set forth in Section XIX (Dispute Resolution), Paragraph 66 only, to dispute EPA's determination that takeover of the Work or Institutional Controls is warranted under this Paragraph. Costs incurred by the United States in performing the Work and Institutional Controls pursuant to this Paragraph shall be considered Future Response Costs that Settling Defendants shall pay pursuant to Section XVI (Reimbursement of Response Costs).

85. Notwithstanding any other provision of this Consent Decree, the United States retains all authority and reserves all rights to take any and all response actions authorized by law.

XXII. COVENANTS BY SETTLING DEFENDANTS AND OWNER SETTLING DEFENDANT

86. Covenant Not to Sue. Subject to the reservations in subparagraph 86.d., Settling Defendants and Owner Settling Defendant hereby covenant not to sue and agree not to assert any claims or causes of action against the United States with respect to the Site, and Future Response Costs as defined herein, or this Consent Decree, including, but not limited to:

a. any direct or indirect claim for reimbursement from the Hazardous Substance Superfund (established pursuant to the Internal Revenue Code, 26 U.S.C. § 9507) through CERCLA Sections 106(b)(2), 107, 111, 112, 113, 42 U.S.C. §§ 9606(b)(2), 9607, 9611, 9612, 9613, or any other provision of law;

b. any claims against the United States, including any department, agency or instrumentality of the United States under CERCLA Sections 107 or 113, 42 U.S.C. §§ 9607 or 9613, related to the Site; or

c. any claims arising out of response activities at the Site, including claims based on EPA's selection of response actions, oversight of response activities or approval of plans for such activities.

d. Notwithstanding the provisions of Paragraph 86.a., Owner Settling Defendant reserves any right it may have to pursue the claim it has asserted against the United States as provided in Paragraphs 12.b. and 20.c. of the Partial Consent Decree.

e. The Settling Defendants reserve, and this Consent Decree is without prejudice to, claims against the United States, subject to the provisions of Chapter 171 of Title 28 of the United States Code, for money damages for injury or loss of property or personal injury or death caused by the negligent or wrongful act or omission of any employee of the United States while acting within the scope of his office or employment under circumstances where the United States, if a private person, would be liable to the claimant in accordance with the law of the place where the act or omission occurred. However, any such claim shall not include a claim for any damages caused, in whole or in part, by the act or omission of any person, including any contractor, who is not a federal employee as that term is defined in 28 U.S.C. § 2671; nor shall any such claim include a claim based on EPA's selection of response actions, or the oversight or approval of the Settling Defendants' plans or activities. The foregoing applies only to claims which are brought pursuant to any statute other than CERCLA and for which the waiver of sovereign immunity is found in a statute other than CERCLA;

87. Nothing in this Consent Decree shall be deemed to constitute preauthorization of a claim within the meaning of Section 111 of CERCLA, 42 U.S.C. § 9611, or 40 C.F.R. § 300.700(d).

88. In consideration of the mutual obligations undertaken and the payments to be made by the Settling Defendants and Owner Settling Defendant under the terms of this Consent

Decree, each of the Settling Defendants and Owner Settling Defendant covenants not to sue any other Settling Defendant or Owner Settling Defendant for contribution pursuant to Sections 107 or 113 of CERCLA, 42 U.S.C. §§ 9607 or 9613, any provision of the Resource Conservation and Recovery Act, state statutory or common law, or any other provision of law with respect to the Site, including, without limitation, contribution claims relating to the Work, this Consent Decree or payment of or liability for Future Costs, as that term is defined in Section IV of the Partial Consent Decree, provided, however, that as to each Settling Defendant and Owner Settling Defendant, these covenants are conditioned on performance by each Settling Defendant and the Owner Settling Defendant of the obligations undertaken by each under this Consent Decree and payment of its allocated share of the costs of the Work. These covenants not to sue extend only to the Settling Defendants and Owner Settling Defendant and not to any other persons or entities.

XXIII. EFFECT OF SETTLEMENT; CONTRIBUTION PROTECTION

89. Nothing in this Consent Decree shall be construed to create any rights in, or grant any cause of action to, any person not a Party to this Consent Decree. The preceding sentence shall not be construed to waive or nullify any rights that any person not a signatory to this decree may have under applicable law. Each of the Parties expressly reserves any and all rights (including, but not limited to, any right to

contribution), defenses, claims, demands, and causes of action which each Party may have with respect to any matter, transaction, or occurrence relating in any way to the Site against any person not a Party hereto.

90. The Parties agree, and by entering this Consent Decree this Court finds, that the Settling Defendants and Owner Settling Defendant are entitled, as of the Effective Date of this Consent Decree, to protection from contribution actions or claims as provided by CERCLA Section 113(f)(2), 42 U.S.C. § 9613(f)(2), for matters addressed in this Consent Decree.

91. The Settling Defendants and Owner Settling Defendant agree that with respect to any suit or claim for contribution brought by them for matters related to this Consent Decree they will notify the United States, in writing, no later than sixty (60) days prior to the initiation of such suit or claim.

92. The Settling Defendants and Owner Settling Defendant also agree that with respect to any suit or claim for contribution brought against them for matters related to this Consent Decree they will notify the United States in writing within ten (10) days of service of the complaint on them. In addition, Settling Defendants and Owner Settling Defendant shall notify the United States within ten (10) days of service or receipt of any Motion for Summary Judgment and within ten (10) days of receipt of any order from a court setting a case for trial of matters related to this Consent Decree.

93. In any subsequent administrative or judicial proceeding initiated by the United States for injunctive relief, recovery of response costs, or other appropriate relief relating to the Site, Settling Defendants and Owner Settling Defendant shall not assert, and may not maintain, any defense or claim based upon the principles of waiver, res judicata, collateral estoppel, issue preclusion, claim-splitting, or other defenses based upon any contention that the claims raised by the United States in the subsequent proceeding were or should have been brought in the instant case; provided, however, that nothing in this Paragraph affects the enforceability of the covenants not to sue set forth in Section XXI (Covenants Not to Sue by Plaintiff).

XXIV. ACCESS TO INFORMATION

94. Subject to the terms of Paragraph 95, Settling Defendants and Owner Settling Defendant shall provide to EPA, upon request, copies of all documents and information within their possession or control or that of their contractors or agents relating to activities at the Site or to the implementation of this Consent Decree, including, but not limited to, sampling, analysis, chain of custody records, manifests, trucking logs, receipts, reports, sample traffic routing, correspondence, or other documents or information related to the Work. Settling Defendants and Owner Settling Defendant shall also make available to EPA, for purposes of investigation,

information gathering, or testimony, their employees, agents, or representatives with knowledge of relevant facts concerning the performance of the Work.

95.a. Settling Defendants and Owner Settling Defendant may assert business confidentiality claims covering part or all of the documents or information submitted to Plaintiff under this Consent Decree to the extent permitted by and in accordance with Section 104(e)(7) of CERCLA, 42 U.S.C. § 9604(e)(7), and 40 C.F.R. § 2.203(b). Documents or information determined to be confidential by EPA will be afforded the protection specified in 40 C.F.R. Part 2, Subpart B. If no claim of confidentiality accompanies documents or information when they are submitted to EPA, or if EPA has notified Settling Defendants or Owner Settling Defendant in writing that the documents or information are not confidential under the standards of Section 104(e)(7) of CERCLA, 42 U.S.C. § 9604(e)(7), the public may be given access to such documents or information without further notice to Settling Defendants or Owner Settling Defendant.

b. The Settling Defendants and Owner Settling Defendant may assert that certain documents, records and other information are privileged under the attorney-client privilege or any other privilege or doctrine recognized by federal law. If the Settling Defendants or Owner Settling Defendant assert such a privilege in lieu of providing documents, they shall provide the Plaintiff with the following: (1) the title of the document, record, or information; (2) the date of the document, record, or

information; (3) the name and title of the author of the document, record, or information; (4) the name and title of each addressee and recipient; (5) a description of the contents of the document, record, or information: and (6) the privilege asserted by Settling Defendants. However, no documents, reports or other information created or generated pursuant to the requirements of the Consent Decree shall be withheld on the grounds that they are privileged.

96. No claim of confidentiality shall be made with respect to any data, including, but not limited to, all sampling, analytical, monitoring, hydrogeologic, scientific, chemical, or engineering data, or any other documents or information evidencing conditions at or around the Site.

XXV. RETENTION OF RECORDS

97. Settling Defendants and Owner Settling Defendant agree that records and documents within their possession or control that relate in any manner to the performance of the Work or liability of any person for response actions conducted or to be conducted at the Site shall be retained in accordance with Section VIII of the Partial Consent Decree.

98. Each Settling Defendant and Owner Settling Defendant hereby certify individually that, to the best of its knowledge and belief, after thorough inquiry, it has not altered, mutilated, discarded, destroyed or otherwise disposed of any records, documents or other information relating to its potential

liability regarding the Site since notification of potential liability by the United States or the filing of suit against it regarding the Site and that it has fully complied with any and all EPA requests for information pursuant to Section 104(e) and 122(e) of CERCLA, 42 U.S.C. §§ 9604(e) and 9622(e), and Section 3007 of RCRA, 42 U.S.C. § 6927.

XXVI. NOTICES AND SUBMISSIONS

99. Whenever, under the terms of this Consent Decree, written notice is required to be given or a report or other document is required to be sent by one Party to another, it shall be directed to the individuals at the addresses specified below, unless those individuals or their successors give notice of a change to the other Parties, in writing. All notices and submissions shall be considered effective upon receipt, unless otherwise provided. Written notice as specified herein shall constitute complete satisfaction of any written notice requirement of the Consent Decree with respect to the United States, EPA, the Settling Defendants, and Owner Settling Defendant respectively.

As to the United States:

Chief, Environmental Enforcement Section
Environment and Natural Resources Division
U.S. Department of Justice
P.O. Box 7611
Ben Franklin Station
Washington, D.C. 20044-7611
Re: DJ # 90-11-3-810

As to EPA:

Lori L. Houck
Office of Regional Counsel
U.S. EPA, Region 10
ORC-158
1200 Sixth Avenue
Seattle, Washington 98101

Christopher Cora
EPA Project Coordinator
U.S. EPA, Region 10
ECL-114
1200 Sixth Avenue
Seattle, Washington 98101

As to the State:

Jennifer Roberts
State Project Coordinator
Alaska Department of Environmental Conservation
555 Cordova Street, Second Floor
Anchorage, Alaska 99501-2617

As to the Settling Defendants:

Alex Tula
Alta Geosciences, Inc.
11711 Northcreek Parkway South, Suite 101
Bothell, WA 98011-8224

As to the Owner Settling Defendant

Phyllis C. Johnson, Esq.
General Counsel
Alaska Railroad Corporation
P.O. Box 107500
327 W. Ship Creek Avenue
Anchorage, Alaska 99501

As to the Federal PRPs:

Bruce Noble
Defense Reutilization and Marketing Service
ATTN: DRMS-FHO
Federal Center 74 N. Washington Avenue
Battle Creek, MI 49017-3092

XXVII. EFFECTIVE DATE

100. The Effective Date of this Consent Decree shall be the date upon which this Consent Decree is entered by the Court, except as otherwise provided herein.

XXVIII. RETENTION OF JURISDICTION

101. This Court retains jurisdiction over both the subject matter of this Consent Decree and the Settling Defendants and Owner Settling Defendant for the duration of the performance of the terms and provisions of this Consent Decree for the purpose of enabling any of the Parties to apply to the Court at any time for such further order, direction, and relief as may be necessary or appropriate for the construction or modification of this Consent Decree, or to effectuate or enforce compliance with its terms, or to resolve disputes in accordance with Section XIX (Dispute Resolution) hereof.

XXIX. APPENDICES

102. The following appendices are attached to and incorporated into this Consent Decree:

"Appendix A" is the ROD.

"Appendix B" is the SOW.

"Appendix C" is the legal description of the Site.

"Appendix D" is a map of the Site.

"Appendix E" is Declaration of Restrictive Covenants and Notice of Remedial Action.

"Appendix F" is the Reservation of Access Easement and Restrictions on Use.

"Appendix G" is the Lease Prohibitions.

XXX. COMMUNITY RELATIONS

103. Settling Defendants shall propose to EPA their participation in the community relations plan to be developed by EPA. EPA will determine the appropriate role for the Settling Defendants under the Plan. Settling Defendants shall also cooperate with EPA in providing information regarding the Work to the public. As requested by EPA, Settling Defendants shall participate in the preparation of such information for dissemination to the public and in public meetings which may be held or sponsored by EPA to explain activities at or relating to the Site.

XXXI. MODIFICATION

104. Schedules specified in this Consent Decree for completion of the Work may be modified by agreement of EPA and the Settling Defendants. All such modifications shall be made in writing.

105. Except as provided in Paragraph 14 ("Modification of the SOW or related Work Plans"), no material modifications shall be made to the SOW without written notification to and written approval of the United States, Settling Defendants, and Owner Settling Defendant. The dispute resolution provisions in Section XIX. of this Consent Decree shall apply to this

unless each and every Settling Defendant and Owner Settling Defendant has duly executed this Consent Decree.

109. If for any reason the Court should decline to approve this Consent Decree in the form presented, this agreement is voidable at the sole discretion of any Party and the terms of the agreement may not be used as evidence in any litigation between the Parties.

XXXIII. SIGNATORIES/SERVICE

110. Each undersigned representative of a Settling Defendant and Owner Settling Defendant to this Consent Decree and the Assistant Attorney General for Environment and Natural Resources of the Department of Justice certifies that he or she is fully authorized to enter into the terms and conditions of this Consent Decree and to execute and legally bind such Party to this document.

111. Each Settling Defendant and Owner Settling Defendant hereby agrees not to oppose entry of this Consent Decree by this Court or to challenge any provision of this Consent Decree unless the United States has notified the Settling Defendants and Owner Settling Defendant, in writing, that it no longer supports entry of the Consent Decree.

112. Each Settling Defendant and Owner Settling Defendant shall identify, on the attached signature page, the name, address, and telephone number of an agent who is authorized to accept service of process by mail on behalf of that Party with

respect to all matters arising under or relating to this Consent Decree. Settling Defendants and Owner Settling Defendant hereby agree for purposes of this action to accept service in that manner and to waive the formal service requirements set forth in Rule 4 of the Federal Rules of Civil Procedure and any applicable local rules of this Court, including, but not limited to, service of a summons.

SO ORDERED THIS 24th DAY OF January, 1998.

John W. Sedwick
United States District Judge

A91-0589--CV (JWS)

B. BOOKMAN (PERKINS)
C. JOHNSON
J. LIBIWILER (GOESS)
P. JOHNSON
J. REECE
M. CARTER (US-ATTNY)

THE UNDERSIGNED PARTIES enter into this Consent Decree in the matter of United States v. Alaska Railroad corporation et. al., relating to the Standard Steel & Metals Salvage Yard Superfund Site.

FOR THE UNITED STATES OF AMERICA

LOIS J. SCHIFFER
Assistant Attorney General
Environment & Natural Resources
Division

Dated: 10/6/97

JOEL M. GROSS, Chief
Environmental Enforcement Section
U. S. Department of Justice
Washington, D. C. 20530

Dated: 10/8/97

for REGINA R. BELT, Attorney
Environmental Enforcement Section
801 B Street, Suite 504
Anchorage, Alaska 99501-3657

CHUCK CLARKE
Regional Administrator, Region 10
U.S. Environmental ProtectionAgency
1200 Sixth Avenue
Seattle, Washington 98101

LORI L. HOUCK
Assistant Regional Counsel
U.S. Environmental ProtectionAgency
Region 10, ORC-158
1200 Sixth Avenue
Seattle, Washington 98101

FOR THE DEFENDANTS:

For the Alaska Railroad Corporation:

Dated: 8/25/97

William J. Sheffield, ~~Chairman~~
~~Board of Directors~~
President & CEO

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Phyllis Johnson
General Counsel
Alaska Railroad Corporation
P.O. Box 107500
Anchorage, Alaska 99510-7500

For Bridgestone/Firestone, Inc.:

Dated: 8-30-97

James K. Vines
General Counsel
Environmental

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Heidi H. Bumpers, Esq.
Jones, Day, Reavis & Pogue
Metropolitan Square
1450 "G" Street, N.W. Suite 700
Washington, D.C. 20005-2088

For Chugach Electric Association, Inc.:

Dated: August 22, 1997

Eugene N. Bjornstad
General Manager

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Eugene N. Bjornstad
General Manager
Chugach Electric Association, Inc.
5601 Minnesota Drive
P.O. Box 196300
Anchorage, Alaska 99519-6300

For J. C. Penney Company, Inc.:

Dated: April 20, 1997

William H. Baxley, III
Manager of Risk Management

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Guess & Rudd
510 L Street, Suite 700
Anchorage, Alaska 99501

For Sears, Roebuck and Co.:

Dated: 5/25/97

William H. Baker
Assistant General Counsel-Complex Lit.
Sears, Roebuck and Co.

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Frederick J. Kulevich
Attorney
Sears, Roebuck and Co.
3333 Beverly Road
Hoffman Estates, Illinois 60179

For Westinghouse Electric Corporation:

Dated: August 25, 1997

Louis J. Briskman
Senior Vice President and General Counsel

Agent Authorized to Accept Service on Behalf of Above-signed Party:

C T Corporation System
Suite 300
801 West Tenth Street
Juneau, Alaska 99801

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 6TH AVENUE
SEATTLE, WASHINGTON

RECORD OF DECISION

DECLARATION,
DECISION SUMMARY,
AND
RESPONSIVENESS SUMMARY

FOR

FINAL REMEDIAL ACTION
STANDARD STEEL AND METALS SALVAGE YARD
SUPERFUND SITE
ANCHORAGE ALASKA

RECORD OF DECISION
STANDARD STEEL AND METALS
SALVAGE YARD SUPERFUND SITE
ANCHORAGE, ALASKA

DECLARATION

Site Name and Location
Standard Steel and Metals Salvage Yard
Anchorage Alaska

Statement of Basis and Purpose

This decision document presents the selected remedial action for the Standard Steel and Metals Salvage Yard, in Anchorage, Alaska, which was chosen in accordance with the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA), and, to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This decision is based on the administrative record for this site.

The State of Alaska concurs with the selected remedy.

Assessment of the Site

Actual or threatened releases of hazardous substances from this site, if not addressed by implementing the response action selected in this Record of Decision (ROD), may present an imminent and substantial endangerment to public health, welfare, or the environment.

Description of the Selected Remedy

This is the final remedial action for the site. The site was not divided into operable units. EPA conducted a Removal Action to address the principle threats and most imminent sources of continued releases of hazardous substances, and to stabilize the site prior to conducting this remedial action. The Removal Action utilized treatment as a principle element for the principle sources.

The selected remedy entails the following major components:

- Removal of regulated material stockpiled on-site and investigation derived wastes with subsequent disposal in a RCRA Subtitle C or D landfill, or recycling of materials;
- Off-site disposal of remaining scrap debris by recycling or disposal in a RCRA Subtitle D landfill or, if the debris is a characteristic hazardous waste or contains greater than 50 mg/kg PCBs or 10ug/100cm^2 by

standard wipe tests, treatment and disposal in a RCRA Subtitle C or TSCA landfill;

- Excavation and consolidation of all soils exceeding cleanup levels;
- Treatment of all soils at or greater than 1000 mg/kg lead and 50 mg/kg PCB by stabilization/solidification;
- On-site disposal of stabilized/solidified soils and excavated soils between 10 mg/kg and 50 mg/kg in a TSCA landfill;
- Excavation of soils impacted above 1mg/kg PCB's and 500 mg/kg lead from the flood plain and consolidation of these soils elsewhere on the site;
- Maintenance and Repair of erosion control structure on bank of Ship Creek;
- Maintenance of solidified/stabilized soils and the landfill;
- Institutional controls to limit land uses of the site and, if appropriate, access;
- Monitoring of groundwater at the site to ensure the effectiveness of the remedial action.

Statutory Determinations

The selected remedy is protective of human health and the environment, complies with or justifies a waiver of Federal and State requirements that are legally applicable or relevant and appropriate to the remedial action, and is cost-effective. This remedy utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable, and satisfies the statutory preference for remedies that employ treatment that reduces toxicity, mobility, or volume as a principal element.

Because this remedy will result in hazardous substances remaining on-site above health based levels, a review will be conducted within five years after commencement of remedial action to ensure that the remedy continues to provide adequate protection of human health and the environment.

Chuck Clarke

Chuck Clarke
Regional Administrator
U.S. Environmental Protection Agency
Region 10

7/16/96
Date

RECORD OF DECISION
STANDARD STEEL AND METALS SALVAGE YARD
DECISION SUMMARY
AND
RESPONSIVENESS SUMMARY

TABLE OF CONTENTS

SECTION	TITLE	PAGE
1.0	SITE NAME, LOCATION, AND DESCRIPTION	1
	1.1 Site Name	1
	1.1.1 Site Location and Description	1
	1.2 Topography	1
	1.3 Zoning	2
	1.4 Natural Resource Uses	2
	1.4.1 Terrestrial Resources	2
	1.4.2 Aquatic Resources	2
	1.4.3 Endangered Species/Wetlands	3
	1.5 Location and Distance to Nearby Human Populations	3
	1.6 General Surface-water, Groundwater Resources and Geology	3
	1.6.1 Ship Creek Stage	3
	1.6.2 Surface Water Runoff	3
	1.6.3 Geology	4
	1.6.4 Regional Groundwater Conditions	4
	1.6.5 Unconfined Aquifer	5
	1.6.6 Bootlegger Cove Formation Aquitard	5
	1.6.7 Confined Aquifer	5
	1.6.8 Groundwater Occurrence	6
	1.6.9 Groundwater Supply	6
2.0	SITE HISTORY AND ENFORCEMENT ACTIONS	6
	2.1 Scope and Role of Removal Action	8
3.0	HIGHLIGHTS OF COMMUNITY PARTICIPATION	9
	3.1 Summary of Community Relations Activities:	10
4.0	SUMMARY OF SITE CHARACTERISTICS	11
	4.1 Nature and Extent of Contamination	11
	4.2 Media of Concern	11
	4.2.1 Surface and Subsurface Soil	11
	4.2.1.1 Lead	11
	4.2.1.2 Other Inorganics	12
	4.2.1.3 PCBs	12

4.2.1.4 Dioxins and Furans 13
4.2.1.5 Volatiles and Semivolatiles 13
4.2.1.6 Presence of Light Non-Aqueous Phase Liquid (LNAPL) 13
4.2.1.6.1 Concentration of PCBs in LNAPL 14
4.2.1.6.2 Concentration of Lead in LNAPL 14
4.2.1.6.3 Concentration of Other Contaminants in LNAPL 14
4.2.1.7 Shotcrete Covered Soils 14
4.3 Groundwater 15
4.3.1 Lead 15
4.3.2 PCBs 15
4.3.3 Volatile Organic Compounds 15
4.3.4 Semivolatile Organic Compounds 16
4.3.5 Other Metals 16
4.4 Surface Water 17
4.5 Sediment 17
4.6 Air 18
4.7 Summary 18

5.0 SUMMARY OF SITE RISKS 18
5.1 Human Health Risks 19
5.1.1 Contaminants of Potential Concern 19
5.1.2 Risks Related to Compounds Other Than Lead 19
5.1.2.1 Toxicity Assessment 20
5.1.2.2 Exposure Assessment 20
5.1.2.3 Risk Characterization 21
5.1.2.4 Soil COC's 22
5.2 Combined Short- and Long-Term Workers Exposure Pathways 22
5.2.1 Short-Term Worker 22
5.2.2 Long-Term Worker 23
5.3 Combined Residential Exposure Pathways 23
5.4 Risks Related to Lead Only 23
5.5 Ecological Risk Assessment 25
5.6 Uncertainty in the Risk Assessment 25
5.7 Conclusion 26

6.0 REMEDIAL ACTION OBJECTIVES AND CLEANUP STANDARDS 26
6.1 Remedial Action Objectives 27
6.2 Cleanup Standards 27
6.2.1 Soil Cleanup Standards 27
6.2.1.1 PCB Cleanup Standards 28
6.2.1.2 Lead Cleanup Standards 28
6.3 Cleanup Standards Conclusions 29

7.0 DESCRIPTION OF ALTERNATIVES 30
7.1 Individual Analysis of Alternatives 32
7.1.1 Alternative 1 - No Action/Monitoring 32

7.1.1.1 Cost
7.1.2 Alternative 2 - Limited Action 32
7.1.2.1 Cost 33
7.1.3 Alternative 3 - Capping 34
7.1.3.1 Cost 35
7.1.4 Alternative 4 - Containment with Treatment of Principal Threat Soils by Stabilization/Solidification 35
7.1.4.1 Cost 37
7.1.5 Alternative & Stabilization/Solidification with Treatment of PCB Principal Threat Soils by Thermal Desorption 37
7.1.5.1 Cost 38
7.1.6 Alternative 6 - Stabilization/Solidification 38
7.1.6.1 Cost 40
7.1.7 Alternative 7 - Soil Washing 41
7.1.7.1 Cost 42
7.1.8 Alternative 8 - Thermal Desorption 43
7.1.8.1 Cost 44
7.1.9 Alternative 9 - Off-site Disposal 45
7.1.9.1 Cost 46
7.1.10 Alternative 10 - Off-site Incineration 46
7.1.10.1 Cost 47
7.2 Groundwater Component 47
7.3 Applicable or Relevant and Appropriate Requirements 48
7.3.1 Chemical-Specific ARARs 48
7.3.2 Action-Specific ARARs 48

8.0 COMPARATIVE ANALYSIS 49
8.1 Overall Protection of Human Health and the Environment 50
8.2 Compliance with ARARs 50
8.2.1 Assessment 50
8.3 Long-Term Effectiveness and Permanence 51
8.3.1 Magnitude of Residual Risk 51
8.3.2 Adequacy and Reliability of Controls 52
8.3.3 Assessment 52
8.4 Reduction of Toxicity, Mobility, or Volume Through Treatment 53
8.4.1 Discussion 53
8.4.2 Assessment
8.5 Short-Term Effectiveness 55
8.5.1 Short-Term Protection of the Community, Workers, and the Environment 55
8.5.2 Time Unit Remedial Response Objectives are Achieved 56
8.5.3 Assessment 56
8.6 Implementability 57
8.6.1 Technical Feasibility 57
8.6.2 Administrative Feasibility 58
8.6.3 Availability of Services and Materials 58

8.6.4 Assessment 58
8.7 Cost 59
8.8 State Acceptance 59
8.9 Community Acceptance 59

9.0 THE SELECTED REMEDY
9.1 Remedy Description 60

10.0 STATUTORY DETERMINATIONS 70
10.1 Protective of Human Health and the Environment 70
10.2 Applicable or Relevant and Appropriate Requirements 71
10.3 Cost Effectiveness 72
10.4 Utilization of Permanent Solutions and Alternative Treatment Technologies to the Maximum Extent Practicable 72
10.5 Preference for Treatment as a Principle Element 73

11.0 DOCUMENTATION OF SIGNIFICANT CHANGES 73

FIGURES AND TABLES (Attached at the End of Record of Decision)

Figure 1-1 Site Location Map
Figure 1-2 Flood Plain and Wetlands Map
Figure 1-3 Locations of Historical Operation and Storage Areas
Figure 1-4 Current Site Status (Post-Scrap Removal)
Table 5-1 Summary of Media and Chemicals of Concern
Figure 5-1 Concentration of PCBs in Surface Soil
Figure 5-2 Concentration of PCBs in Soil within the Water Table Zone
Figure 5-3 Concentration of Lead in Surface Soil
Figure 5-4 Monitoring Well and Ship Creek Sediment Sampling Locations
Table 6-1 Residential Risk Blend Based Concentrations, Background Concentrations, and Maximum Concentrations of PCOC's in Soils and Groundwater
Table 6-2 Parameters Used to Calculate Risk-Based Screening Concentrations
Table 6-3 Summaries of RME Hazard Indices
Table 6-4 Summaries of RME Excess Cancer Risks
Table 6-5 Summary of Estimated Excess Cancer Risks Associated with 10mg/kg PCB Cleanup Level
Figure 6-1 Areas of Concern
Figure 8-1 Areas to be Remediated - Alternative 4
Figure 8-2 Areas to be Remediated - Alternative 5
Figure 8-3 Areas to be Remediated - Alternatives 6, 7, 8, 9, and 10
Table 9-1 Soil Cleanup Level Summary

RESPONSIVENESS SUMMARY

RECORD OF DECISION

STANDARD STEEL AND METALS SALVAGE YARD

1.0 SITE NAME, LOCATION, AND DESCRIPTION

1.1 Site Name

Standard Steel and Metals Salvage Yard

1.1.1 Site Location and Description

Standard Steel and Metals Salvage Yard (site) is located on a 6.2 acre parcel of land in Anchorage, Alaska, near the intersection of Railroad Avenue and Yakutat Street. The site is owned by the Federal Railroad Administration and in the possession and control of the Alaska Railroad Corporation. The site is situated in an industrialized area of Anchorage along the north side of lower Ship Creek (Figure 1-1). A warehouse is located directly north of the site. To the east are assorted light industries, warehouses and a produce packing facility, and to the west is a steel fabrication operation. Approximately 500 feet upstream of the site is the Elmendorf Fish Hatchery and the Eagle Glen Golf Course on Elmendorf Air Force Base. Non-adjacent land use is comprised of assorted light industry and the Alaska Railroad Corporation's rail yard.

The site has been cleared of most scrap metal and debris during previous CERCLA activities (see Section 2.0). There is a small stand of cottonwoods and small brush adjacent to Ship Creek, otherwise the site is covered with gravel/fill. The site was contaminated during 30 years of salvage operations, primarily by releases from lead acid batteries and PCB contaminated transformers. The site consists of all areas contaminated by PCBs and lead which resulted from activities at the Standard Steel and Metals Salvage Yard. These areas are defined in the remedial investigation and generally conform to the property boundaries.

1.2 Topography

The site is situated on a gently sloping outwash plain. The ground surface elevation ranges from approximately 70 to 80 feet above mean sea level. The site is built upon the reclaimed flood plain of Ship Creek. Ship Creek defines the southern border of the site. The site extends into Ship Creek's 100 year flood plain on the south-western corner of the site. A preservation wetland is also located in the south-western corner of the site (Figure 1-2). Review of historical aerial photographs showed that significant areas of the site have been excavated and subsequently filled to raise the surface elevation of the site to its current height of between 70 and 80 feet above sea level.

1.3 Zoning

The areas from Reeve Boulevard to Knik Arm surrounding Ship Creek and enclosing the site are zoned I-2, denoting a heavy industrial district. The areas south of this district (beginning 1/4 mile from the site) are zoned as business districts, light industrial districts, and public lands and institution districts. The area to the north (1/3 mile from the site) is reserved for the military.

The Municipality of Anchorage has adopted a land use plan that reflects and continues the current zoning of this area. The site, as well as all lands west of Reeve Avenue, south of Post Road, east of Wrangell Street and north of Ship Creek, is currently managed and controlled by the Alaska Railroad Corporation (ARRC) pursuant to an exclusive license issued by the United States under the authority of an act of Congress, the Alaska Railroad Transfer Act of 1983. ARRC assumed control of these properties from the United States government on January 5, 1985. The underlying property owner of the site is the United States, pending eventual transfer to ARRC as contemplated by that Act. The ARRC is a public corporation owned by the State of Alaska. ARRC has publicly taken the position that the zoning of the site and surrounding areas should remain industrial. An active rail line is located along Post Road, with a spur that connects the site to the main line.

1.4 Natural Resource Uses

1.4.1 Terrestrial Resources

The site has limited terrestrial natural resources. It was used during the 1950's as a gravel mine. There is very limited vegetation and habitat on the site. Small rodents, passerines and gulls have been observed on the site. Moose have been seen adjacent to the site along Ship Creek.

1.4.2 Aquatic Resources

The quantity and variety of fish in Ship Creek is dependent upon stocking, harvesting and environmental factors. Status of the stock is measured by fish harvest reports by the Alaska Department of Fish & Game. The only data collected on native fish of Ship Creek are from the annual harvest reports and visual fish counts, which concentrate on the chinook and coho species. In relation to the total numbers of chinook and coho in Ship Creek in any given year, it is important to note the regulated nature of fish stocking. Many variables influence the decision regarding the number of chinook and coho smelt to stock into Ship Creek each year; this, in turn, affects the total number of returning adults. Approximately 5 percent of chinook smelt and approximately 5-15 percent of coho smelt return to Ship Creek as adults. It is estimated that roughly twenty percent of both returning coho and chinook are of native stock. Small numbers of pink and chum salmon may also use Ship Creek.

1.4.3 Endangered Species/Wetlands

No threatened or endangered species have been observed at the site. The site has been heavily disturbed throughout it's history and provides little preferred or suitable habitat. A small wetland is located on the south-west boundary of the site. This area has not been contaminated by site activities. Threatened or endangered species which may be in the vicinity of the site are highly unlikely to utilize the site for feeding, resting, or propagating.

1.5 Location and Distance to Nearby Human Populations

The area around the site is dedicated to industrial/commercial use. The nearest residential area is located 1/2 mile south-east of the site on the other side of Ship Creek in the Mountainview area. Military housing at Elmendorf Air Force Base is located 1/3 mile north-east of the site. Population figures for the area in the immediate vicinity are not available. However, 1990 Anchorage Census Tracts 5 and 6, which cover the site and a large surrounding area including Mountainview residential area, contained 7,188 people. An unknown number of homeless adults are reported to live along Ship Creek and the Bluff north of the site during summer months.

1.6 General Surface-water, Groundwater Resources and Geology

1.6.1 Ship Creek Stage

The lower Ship Creek drainage basin covers roughly 27 square miles. The creek traverses approximately 10 miles from the Chugach Mountains to Cook Inlet. The site is located along the north bank of Ship Creek, approximately 2 miles upstream from the mouth. Ship Creek flows south and west adjacent to the site.

The U.S. Army Corp of Engineers (Alaska District) personnel made numerous cross section measurements (August 1976) in order to project possible flood magnitude in the area. Floodway boundaries were computed for each cross section with the HEC-2 computer program. The projected 100-year flood plain area is depicted on Figure 1-2.

1.6.2 Surface Water Runoff

A site map based on the topographic site survey is presented as Figure 1-2. The site is relatively flat, sloping slightly to the south with an average slope of less than 3 percent. Surface water drainage from the site appears to be variable, with the majority of precipitation infiltrating the soil rather than forming discrete runoff patterns. Only a single potential drainage channel leading from the site has been observed to date, but surface water has never been observed in the channel, and it is blocked by an earthen berm before it reaches Ship Creek. It is located outside of and approximately parallel to the fence along the south of the site. The slope in this channel appears to trend

southwesterly and eventually joins the fairly pronounced gully southwest of the site which is visible on the site map (Figure 1-2). This gully heads toward Ship Creek downstream of the site.

Although the snow melted within a relatively short period of time during the spring of 1993, no surface runoff from the site to the creek or to surrounding properties was observed, except for a small amount flowing for several days southwest into the adjacent property. This surface runoff infiltrated into the soil soon after entering that property; no runoff to the creek was observed.

Available municipal and railroad records do not indicate existence of storm sewers that drain surface runoff from the site. Field teams did not find any storm sewer grates at the site or other water conduits down gradient of the site, except for a culvert near Yakutat Street, which drains a storm sewer on the northeast corner of Yakutat and Railroad Avenues.

1.6.3 Geology

The site is located in the Anchorage lowland area within the upper Cook Inlet region of Alaska. The lowland areas of the Cook Inlet region are surrounded by several heavily glaciated mountain ranges, including the Alaska, Talkeetna, Chugach, and Kenai Ranges. Unconsolidated glacial deposits, which are typical of the lowland areas surrounding Cook Inlet, have been deposited and reworked by three main agents: glacial ice; flowing water in streams or deltas; and still water in ponds, lakes and marine estuaries.

Several glacial events in the Cook Inlet area resulted in deposition of thick sequences of unconsolidated fine-grained glacial sediments in glacially-dammed lakes. The outwash from these glaciers has deposited rock flour and silt in the lowlands, producing large areas of mud flats along the Cook Inlet shoreline. These silt-rich deposits discontinuously overlay glacial and glacial fluvial materials. The lowland deposits are bordered by uplands or glacial moraine and drift deposits. The site is located in an active seismic area.

1.6.4 Regional Groundwater Conditions

The area commonly referred to as the Anchorage Bowl encompasses approximately 180 square miles and includes the site and most of the urban area of Anchorage. This area is bounded on the north, west and south by two estuaries, the Knik and Turnagain Arms of Cook Inlet, and on the east by the Chugach foothills. Two aquifers have been identified in this area separated by a thick aquitard (the Bootlegger Cove Formation). These aquifers are distinguished by their relatively coarse lithologies and capacity to transmit groundwater horizontally. An unconfined aquifer is located in the deposits above the Bootlegger Cove Formation and a confined aquifer is located in the deposits

below the Bootlegger Cove Formation. The existence of potential water-bearing units beneath the confined aquifer at the site was not investigated.

The Bootlegger Cove Formation has been identified as an effective aquitard based on its relatively fine-grained lithology, thickness, and continuous areal extent over the study area. This aquitard is an important feature of the hydrogeologic model, because it impedes vertical groundwater flow and chemical transport. The three units are described below.

1.6.5 Unconfined Aquifer

An unconfined aquifer is located in a sheet of outwash plain deposits (chiefly sand and gravel) that covers much of the northeast, central and western parts of the Anchorage area. This aquifer generally extends from the flanks of the Chugach foothills on the east to Cook Inlet, including the Turnagain and Knik Arms, on the north, west and south. This aquifer consists of sand and gravel lenses intermixed with silty sand and gravel. In the vicinity of the site the aquifer is approximately 25 feet thick. This aquifer is naturally recharged by rain, snowmelt and leakage from streams. Groundwater flows to the south west with some water discharging to Ship Creek and the remainder to Cook Inlet.

1.6.6 Bootlegger Cove Formation Aquitard

The Pleistocene Bootlegger Cove Formation is a low permeability clay unit that underlies most of the Anchorage area. This unit is up to 270 feet thick and generally thickens with increasing distance from the mountains. In the vicinity of the site, the aquitard is 100 to 150 feet thick.

The aquitard consists of saturated, clayey glacially-derived sediments of very low permeability. Permeability tests were performed on five samples collected from the Bootlegger Cove Formation at the site and resulted in hydraulic conductivity values ranging from 0.0006 to 0.002 ft/day (2.1×10^{-7} to 7.0×10^{-7} cm/sec). These estimated hydraulic conductivity values are consistent with the regional value (0.0001 ft/day).

1.6.7 Confined Aquifer

The confined aquifer is composed of several layers of interbedded sand and gravel, till, and silty clay deposits. The more permeable sand and gravel layers are hydraulically connected and are considered to be a single aquifer. The aquifer is continuous below the entire Anchorage Bowl. The thickness generally increases from approximately 100 feet in the Chugach foothills to 1100 feet at a point between the Knik and Turnagain Arms. In the vicinity of the site, the aquifer is approximately 600 feet thick and is located approximately 100 to 300 feet below the ground surface.

1.6.8 Groundwater Occurrence

The depth to the top of the unconfined aquifer ranges from about 3 to 10 feet below the ground surface and the average saturated thickness is approximately 15 feet. The surface of the water table slopes southwest at the site and varies in elevation between approximately 65 and 74 feet above mean sea level. The water elevations measured during the RI field investigation were used to create water table contour maps. The two sets of contours are similarly shaped and show a difference in water table of 1 to 2 feet. The horizontal hydraulic gradient ranged from approximately 0.007 to 0.01 ft/ft.

1.6.9 Groundwater Supply

A survey of the water supply wells within 1/2 mile radius of the site revealed 9 potable water wells and 4 non-potable water wells. All of these wells draw from the lower confined aquifer with the potable wells ranging in depth from 76 feet below ground surface (bgs) to 850 feet bgs, and the non-potable wells ranging in depth from 152 feet bgs to 257 feet bgs. Only three of these wells, the Inlet Co. well, the Steel Fab well, and the Alaska Concrete Products well are located down gradient from the site. No groundwater wells completed in the unconfined aquifer were identified within a half-mile radius of the site.

2.0 SITE HISTORY AND ENFORCEMENT ACTIONS

The first documented use of the site occurred in October of 1950, when much of the site was leased by a construction company for maintenance and storage of heavy equipment and supplies. This operation continued on parts of the site until 1960.

Aerial photographs of the Ship Creek area are available for most years since 1939. Photographs prior to 1939 show little salvage material and debris and no buildings onsite. Aerial photographs show that considerable excavation occurred in the southern half of the site between 1950 and 1953. A haul road is visible up the bluff to the north leading to Elmendorf Air Force Base, and it is likely that gravel from the site was mined for use in base construction. Aerial photographs also show that these excavations had been backfilled by 1972 to establish the present site grade. Soil borings and test pits indicate that the fill material consisted mostly of sandy and silty soil. No material was encountered during subsurface investigations which indicates dumping of hazardous waste materials during fill operations.

Metal recycling and salvage businesses operated on the site beginning in 1955 and until 1993. From 1955 to 1986, metal recycling and salvaging occurred on the entire area within the present fence lines. Following EPA's initial response action in 1986, the scrap business was restricted to the small parcel northeast of the fenced area south of Railroad Avenue and west of Yakutat Street. During the period from 1955 to 1986, hundreds of thousands of tons of ferrous and nonferrous materials were handled at the site. At some

time after 1955 batteries were handled at the site to recover their lead and transformers were handled primarily to recover the copper in the core windings.

Transformer oil was drained by site operators. The oil was released onto the ground, or used as hydraulic fluid in onsite equipment. There is no information (such as manifests) which indicate that transformer oils were shipped off-site for proper disposal or treatment. Copper transformer cores were removed from the cases and placed in an onsite incinerator to remove shellac and paper insulation. The copper cores were then shipped offsite for salvage. Batteries were stockpiled onsite and may have been processed onsite prior to sale for their lead content. Processing of batteries may have included draining fluid from cases and breaking the cases to remove the lead plates. Drums containing wastes and chemicals were also stored onsite as part of the salvaging operations.

Aerial photographs from the 1960s through 1986 reveal salvage materials onsite. By 1975, the incinerator building, sales office trailer, and warehouse on the north end of the site had been constructed. The volume of salvage material and the number of buildings adjacent to the site continued to increase until 1985.

Although activities known to have resulted in hazardous substance releases were discontinued in April 1986, when an EPA Order was issued pursuant to 42 U.S.C. § 9606, site operations continued on the northeast corner of the site until April 1993. The site owners and site operator were requested to perform a removal action but declined to or were unable to conduct the work. The 1986 Order led to an EPA removal action and resulted in a portion of the site being fenced off and closed to public access. The removal action is described in more detail in Section 2.1 below. Figure 1-3 shows the location of former operations on the site and scrap-covered areas in existence when the removal action was begun by the EPA in 1986.

The site was proposed for listing on the National Priorities List (NPL) on July 14, 1989. The site was listed on the NPL on August 30, 1990. 55 Fed. Reg. 35502.

On December 6, 1991, the United States filed a lawsuit under Section 107 of CERCLA, 42 U.S.C. § 9607, against eight parties for recovery of EPA's costs incurred in performing the removal action and a determination of liability for future costs. The eight parties sued were the Alaska Railroad Corporation, Ben Lomand Inc., Chugach Electric Association, Inc., Westinghouse Electric Corporation, Sears, Roebuck and Co., Montgomery Ward and Co., Inc., J.C. Penny Company, Inc., and Bridgestone/Firestone, Inc. Certain other Federal entities are considered to be within the class of persons who may be liable under CERCLA. Those entities are the Federal Railroad Administration, Department of Transportation, Defense Reutilization and Marketing Service, Department of Defense, and the Army/Air Force Exchange Service.

On September 23, 1992, Chugach Electric Association entered into an Administrative Order on Consent to conduct a remedial investigation/feasibility study at the site. The RI commenced in October 1992 and ended in August 1994. The feasibility study was completed in January 1996. During the remedial investigation and feasibility study, treatability tests were performed for solidification and soil washing and a pilot scale soil washing unit was tested on-site. Supplemental soil sampling occurred during preparation of the feasibility study. During the EPA removal action, the RI/FS field work, and scrap/debris removal, wastes were containerized and placed within the fenced portion of the site. The current location of existing fence and the various containers and wastes are shown in Figure 1-4.

EPA issued a Unilateral Administrative Order on September 7, 1993 to the Alaska Railroad Corporation to remove armored personnel carriers sitting on a portion of the site to allow access to the site for completing the remedial investigation and feasibility study.

2.1 Scope and Role of Removal Action

During the period 1986 to 1988, the EPA Region X Superfund Removal and Investigations Section performed a removal action at the site under authority provided in Section 104 of CERCLA, 42 U.S.C. § 9604. The scope of the removal effort was directed towards removing the ongoing sources of releases or substantial threat of releases of hazardous substances from transformers, lead acid batteries and barrels and drums stored on the site. Additionally, soil and groundwater samples were collected. A rip-rap berm was constructed along the bank of Ship Creek on the southeast corner of the site to prevent erosion. Several areas of contaminated soils were excavated and placed in a mound on-site and sprayed with shotcrete (Figure 1-4). A more complete description of the removal action can be found in the On Scene Coordinators Report for the site.

The removal actions removed and treated the principle threats present at the site. These principle threats included more than one thousand gallons of PCB contaminated oils, eighty-two 55 gallon drums of RCRA hazardous waste, 10,450 gallons of waste oils, 185 PCB contaminated transformers and 781,000 pounds of lead acid batteries. The PCB oils were incinerated and the waste oil was recovered and the batteries were recycled.

Major Chronological Events of the Removal Action are as follows:

August 1985	Soil Samples collected by the Alaska Department of Environmental conservation (ADEC) identified PCB contamination in on-site surface soils as high as 110,000:
October 1985	EPA conducted a two week assessment documenting wide spread PCB and heavy metal contamination in soils, the presence of 175

	transformers, hundreds of drums and thousands of batteries. Chlorinated Dioxins and Furans were identified in ash associated with an on-site incinerator.
April 1986	EPA issued a CERCLA 106 Order against potentially responsible parties to begin stabilization and cleanup of the site. No parties came forward to implement the cleanup.
June-July 31 1986	Phase 1 of the response action commenced by EPA. Site security was undertaken, removal of 1000 gallons of PCB contaminated oils, removal of eighty-five 55 gallon drums of RCRA hazardous waste, installation of four groundwater monitoring wells, isolation of dioxin/furan wastes, construction of an erosion control wall along Ship Creek, fish bioassay of resident fish in Ship Creek, initial PCB soil sampling.
May 1987	EPA Emergency Response Team and EPA contractors conducted additional site assessment including installing seven temporary monitoring wells, shallow surface soil borings, off-site sampling along Ship Creek.
June 1987-October 1987	EPA conducted phase II of removal action. Approximately 781,000 pounds of batteries and 10,450 gallons of waste oils were recycled, 1600 cubic yards of PCB contaminated soils were stockpiled and sprayed with a temporary concrete fiber cap.
June 1988	EPA conducted final phase of removal action. These activities were primarily focused on securing the site until further remedial actions could be undertaken.

3.0 HIGHLIGHTS OF COMMUNITY PARTICIPATION

The Proposed Plan for the site was released to the public for comment on March 13, 1996. The plan identified EPA's recommendation for cleaning up lead and polychlorinated biphenyl contaminated soil at the Standard Steel and Metals Salvage Yard in Anchorage. The Proposed Plan was made available along with the RI/FS reports at the Information Repositories. The comment period lasted from March 18 to April 17, 1996. The selected remedy is based on the Administrative Record for this site. The Administrative Record is located in the EPA Region 10 office and in the site information repository located in the Bureau of Land Management Library in Anchorage, Alaska.

A public meeting was held on April 10 at the Fairview Community Recreation Center in Anchorage. On April 2 a reminder of the meeting was mailed. The meeting was attended by twenty-two people. EPA's project manager and Chugach Electric Association's project manager presented information about the site and the recommended cleanup alternative. Questions were answered and formal comment was taken. Four commentators presented oral comments at the meeting. Responses to the comments are included in the Responsiveness Summary to the ROD.

3.1 Summary of Community Relations Activities:

July 14, 1989 - Standard Steel proposed for inclusion on the NPL and 60-day comment period initiated.

July 22, 1992 - Community Relations Plan issued based on telephone interviews conducted throughout May of 1992.

October 2, 1992 - A fact sheet issued summarizing previous cleanup activities and upcoming investigations.

May 26, 1993 - A fact sheet announced an agreement signed by Chugach Electric Association to conduct investigations, and announced an informational meeting to be held on June 24.

June 24, 1993 - EPA attended meetings with local community groups to discuss the scope of the remedial investigation. EPA was interviewed by two local television stations.

November 24, 1993 - A fact sheet was published to update the public on activities at the site.

July 12, 1994 - A 30-day public comment period was announced on a proposed Consent Decree for past cost recovery between EPA and a number of federal and private parties.

March 16, 1995 - A fact sheet asked for input on cleanup alternatives being evaluated based on the completed RI/FS.

April 25, 1995 - EPA and the State of Alaska hosted an informational meeting regarding the remedial alternatives being evaluated.

June 23, 1995 - A fact sheet explained the need for delaying the Proposed Plan for cleanup and the need for additional studies to evaluate soil washing as a alternative for remediating the site.

April 10, 1996- A public meeting was held in Anchorage Alaska to present the Preferred Alternative to the community.

4.0 SUMMARY OF SITE CHARACTERISTICS

4.1 Nature and Extent of Contamination

The nature and extent of contamination has been evaluated using data presented in the OSC and the RI reports and supplemental soil sampling conducted during the feasibility study. These data show that, consistent with past site operations, the primary chemicals of concerns (COCs) are lead and polychlorinated biphenyls (PCBs).

For almost all samples where PCBs were detected, Aroclor 1260 was the only PCB congener which was found, so that the total PCB concentration is represented by Aroclor 1260.

4.2 Media of Concern

The media of concern utilized to evaluate the site are surface and subsurface soil, groundwater, surface water, sediment, and air. Contaminants were screened against Risk Screening Tables, Supplemental Guidance for Superfund Risk Assessments in Region 10, USEPA, October 30, 1992 (Table 6-1) (these values have been replaced in Region 10 by using the Region 3 risk tables), and local background values for inorganics. The tables utilize a residential exposure scenario, using standard default exposure (ingestion and inhalation) assumptions which would not result in a 1 in one million additional chance of developing cancer from exposure to a contaminant through ingestion or pose a non-carcinogenic risk as expressed by a Hazard Quotient (HQ) greater than 0.1 for contaminants in groundwater and 1xE-7 and 0.1 HQ in soils. Background values were derived from the Elmendorf Air Force Base Basewide Background Sampling Report, Volume 1. Contaminants which exceeded screening values were further evaluated in the Baseline Risk Assessment.

4.2.1 Surface and Subsurface Soil

Surface soil is defined as the ground surface to 12 inches depth. Subsurface soil is defined as below 12 inches depth. The following paragraphs discuss the COCs for surface and subsurface soil. Figures 5-1 through 5-3 depict surface and subsurface soil PCB and surface lead concentrations.

4.2.1.1 Lead

Lead was detected in 128 of 132 samples analyzed during the RI. The maximum concentration measured during the RI sampling was 4,300 mg/kg. The maximum lead concentration detected during EPA's removal actions investigations was 44,500 mg/kg. Supplemental sampling during the FS had detections up to 7,200 mg/kg in surface soil. The background soil concentration for lead is 13.3 mg/kg, as determined by studies

conducted during the Elmendorf Air Force Base remedial investigations. Lead concentrations greater than 500 mg/kg do not extend below the first two feet of soil.

During the FS numerous additional samples were collected to conduct treatability tests. These samples focused on acquiring representative soils representing low, average, and high lead contamination. Low concentrations were around 500 mg/kg, average concentrations were around 1700 mg/kg, and high concentrations were around 5200 mg/kg. The highest lead concentration detected 24,000 mg/kg.

4.2.1.2 Other Inorganics

Arsenic, beryllium, cadmium, chromium, copper and zinc were detected above screening values and/or background. Arsenic concentrations were below background values (13.1mg/kg) in all but two samples (27 mg/kg and 55 mg/kg). These samples were located in areas with greater than 1000 mg/kg lead. Beryllium concentrations exceeded the screening criteria but were all below background. Cadmium concentrations (maximum of 11.6 mg/kg) exceeded background values (3.01 mg/kg) but were below the screening criteria (100mg/kg). Chromium concentrations were all within background (48.4 mg/kg surface soils and 76.1 mg/kg in subsurface soils) and below the screening value of 137 mg/kg in all but three samples. These samples were all located in areas with greater than 1000 mg/kg lead. The maximum chromium concentration detected was 151 mg/kg. Copper was detected above background (20 mg/kg) and above the screening value of 2,900 mg/kg in only one sample. This sample had greater than 1,000 mg/kg lead. Zinc was detected (maximum 2,520 mg/kg) above area background (103 mg/kg) but below the screening value of 80,000,mg/kg.

4.2.1.3 PCBs

PCBs were detected in 89 of 132 soil samples analyzed during the RI. The maximum concentration measured during the RI/FS sampling was 380 mg/kg. Twenty nine of 212 samples had concentrations above 50 mg/kg. Stockpiled (Section 4.2.1.7) soils from the Removal Action had maximum PCB concentrations of up to 10,600 mg/kg. During sample collection for treatability testing samples were obtained from the stockpiled soils which had concentrations up to 3,500 mg/kg.

Subsurface PCB contamination extends to groundwater in three locations on site. These locations are depicted in Figure 5-2. Of approximately 120 subsurface soil samples collected (RI/FS and Removal Actions) 3 had concentrations greater than 50 mg/kg. Maximum concentrations of up to 519 mg/kg PCBs were detected in subsurface soils associated with the LNAPL. The LNAPL had PCB concentrations of 4,500 mg/kg.

During the FS numerous additional samples were collected to conduct treatability studies. These samples were focused on acquiring representative samples of low, average and high soil PCB contaminated soils. Low soils were around 50 mg/kg, average soils were around 150 mg/kg and high soils were around 700 mg/kg. The maximum high detected was 2700 mg/kg PCBs.

4.2.1.4 Dioxins and Furans

The concentrations of the dioxins and furans are expressed as 2,3,7,8-tetrachlorodibenzo-p-dioxin equivalent (2,3,7,8-TCDD equivalent). Dioxins and furans were detected at 9 of 10 surface sample locations. The maximum 2,3,7,8-TCDD equivalent concentration was 0.0017 mg/kg. All nine samples exceeded the screening value of .0000004 mg/kg.

4.2.1.5 Volatiles and Semivolatiles

Several volatile and semivolatile organic compounds were detected in the surface soils. These compounds include methylene chloride, trichlorofluoromethane, tetrachloroethane, bis(2-ethylhexyl)phthalate, butylbenzylphthalate, di-n-butylphthalate, di-n-octylphthalate, diethylphthalate, dimethylphthalate, 1,2,4-trichlorobenzene, 2-methylnaphthalene, acenaphthene, anthracene, fluoranthene, fluorene, naphthalene, phenanthrene, and pyrene. These compounds were all eliminated as potential COCs in the screening process after comparison of the maximum concentrations with the chemical specific RBCs.

One or more carcinogenic Polycyclic Aromatic Hydrocarbons (cPAH) were detected at 8 of 11 surface sample locations, often at estimated concentrations less than the practical quantification limit. No cPAHs were detected at the 9 subsurface soil sample locations. The maximum concentration of total cPAHs was 25.4 mg/kg.

4.2.1.6 Presence of Light Non-Aqueous Phase Liquid (LNAPL)

The LNAPL present at monitoring wells 17 and 19 locations is not evaluated separately as a medium of concern. The LNAPL is a very viscous, tarry material that cannot be effectively separated from the soil. Consequently, the LNAPL is considered as the same media of concern as subsurface soil.

During each groundwater sampling event all wells were monitored for the presence of both light and dense NAPL phases. DNAPL was not detected in any well. LNAPL was detected in MW-17A and MW-19A. Selected wells were examined for the presence of LNAPL using an oil/water interface probe during four separate measuring events. A layer of LNAPL was detected in MW-17A (0.23 to 0.44 feet thick) and MW-19A (0.05 to 0.89 feet thick). An LNAPL sheen was detected in well MW-17 for three events and in MW-19 for the first event only. Temporary wells MW-25 through MW-29 did not contain LNAPL during any of the measuring events. These data indicate that the

LNAPL plume is confined to the central part of the site in the vicinity of MW-17A and MW-19A bounded by the temporary well locations 25, 26, 27, 28 and 29, where a free product layer was not detected. A sample of LNAPL was collected from MW-17A and analyzed for volatile and semivolatile organics, PCBs, and metals. The LNAPL analyte concentrations are compared with risk based screening values and MCLs for groundwater in the paragraph below. However, the risk based screening values and MCLs for groundwater are not applicable for product layer and are mentioned for comparative purposes only.

4.2.1.6.1 Concentration of PCBs in LNAPL

The MW-17A product sample was analyzed for seven congeners of PCBs. Only PCB 1260 was detected, at a concentration of 4500 mg/kg (the laboratory reports product results in mg/kg instead of mg/L).

4.2.1.6.2 Concentration of Lead in LNAPL

Lead was detected in the MW-17A product sample at a concentration of 4.3 mg/kg.

4.2.1.6.3 Concentration of Other Contaminants in LNAPL

Volatile organic compounds detected in the MW-17A product sample indicated concentrations of methylene chloride (9300 mg/kg), tetrachloroethane (3600 mg/kg), 1,3-dimethyl-cyclohexane (3.0 mg/kg), 1,2-dichlorobenzene (0.62 mg/kg), 1,4-dichlorobenzene (2.8 mg/kg), ethylbenzene (1.7 mg/kg), tetrachloroethane (5.6 mg/kg), toluene (0.34 mg/kg), 1,1,1-trichloroethane (0.049 mg/kg), trichlorofluoromethane (0.017 mg/kg) and total xylenes (7.2 mg/kg), and six unknown hydrocarbon compounds.

Semivolatile organic compounds detected in the product sample included 1,4-dichlorobenzene (13 mg/kg), 1,2,4-trichlorobenzene (1300 mg/kg), 2-methylnaphthalene (33 mg/kg), and bis(2-ethylhexyl)phthalate (20 mg/kg).

Other metals detected in the product sample which exceeded screening values for groundwater included aluminum (116 mg/kg), calcium (84.5 mg/kg), chromium (0.72 mg/kg), copper (4.8 mg/kg), iron (148 mg/kg), magnesium (47.3 mg/kg), manganese (3.4 mg/kg), potassium (15.6 mg/kg) and vanadium (0.69 mg/kg). Arsenic, beryllium, cadmium, mercury, silver and thallium were not detected, but the detection limits were above their respective screening values.

4.2.1.7 Shotcrete Covered Soils

Approximately 1,600 cubic yards of PCB contaminated soils are covered with Shotcrete along the eastern boundary of the site. These soils have the highest concentration of PCBs detected at the site, with a maximum concentration of 10,600 mg/kg. An

evaluation of frequency has not been conducted but the purpose of the stockpiling on-site was to address off-site hot spot areas which exceeded the OSC's off-site action level of 10 mg/kg. On-site soils which had high concentrations (not defined in OSC report but some were above 500 mg/kg PCB) of PCBs were excavated and placed in the are which was subsequently covered with shotcrete.

4.3 Groundwater

Three sets of groundwater data were obtained from twenty wells over approximately a one year period. Sampling was conducted at high and low groundwater events. Seven wells were installed as pairs to monitor for dense and light non-aqueous phase liquids. Because of sampling problems associated with high sediment levels in groundwater the first round groundwater data was not utilized for PCBs, metals and semivolatile organic compounds. Phase 1 and 2 data were used for evaluating volatile organic compounds. Volatile organic compounds were not measured during Phase 3. Phase 2 and 3 data were used for evaluating metals and semivolatile compounds, including PCBs.

4.3.1 Lead

Lead was detected at 3 of 9 down gradient groundwater monitoring locations in Round 2 at concentrations of 0.0016 to 0.0031 mg/L. Lead was not detected at any of 8 down gradient locations in Round 3.

Lead concentrations in Rounds 2 and 3 are low relative to the EPA promulgated action level of 0.015 mg/L, and relative to background at Elmendorf AFB (0.047 mg/L). Considering the low frequency of detection and the low concentrations detected relative to the guideline, lead was not retained as a COC for groundwater.

4.3.2 PCBs

PCBs were detected in none of 12 well locations during Round 2. During Round 3, PCBs were detected at 2 of 9 well locations ranging from 0.000023 mg/L to 0.000032 mg/L. The concentrations are about 20 times lower than the MCL (0.0005 mg/L). Considering the low frequency of detection and the low concentrations detected relative to the MCL, PCBs were not retained as a COC for groundwater.

4.3.3 Volatile Organic Compounds

Tetrachloroethane (PCE) was detected at 2 of 12 sample locations during Round 1, and 2 of 9 sample locations during Round 2. The MCL for PCE is 0.005 mg/L and the RBC was 0.002 mg/L. PCE was detected at 0.0075 mg/L (MW-21) and 0.0022 mg/L (MW-24) during Round 1 (January 1993). During Round 2 (April/May 1993), the concentrations at these well locations (non-detect at MW-21 and 0.0016 mg/L at MW-24) were below both the MCL and close to the RBC. The additional Round 2 detection

(0.0002 mg/L at well MW-23), was below both the MCL and the RBC. The 95% upper confidence limit concentration of PCE including Round 1 data (0.00176 mg/L) is less than the MCL and the RBC. PCE was not identified as a COC in soil in the RA. The maximum level of PCE measured in soil was 0.12 mg/kg. Based on the low levels of PCE in groundwater and no significant detections in soils, PCE is not retained as a COC for groundwater.

4.3.4 Semivolatile Organic Compounds

1,2,4-trichlorobenzene was detected at only two locations (MW-21 and MW-24). The measured levels were 0.0003 mg/L (MW-21) and 0.0007 mg/L (MW-24). These concentrations are below the state and federal MCLs (0.07 mg/L) and the RBC (0.02 mg/L). (1,2,4-trichlorobenzene was detected in MW-21 at 0.003 mg/L during Round 2, which is above the RBC. This concentration, however, was an estimated concentration below the practical quantification limit for that sample. 1,2,4-trichlorobenzene was detected at .024 mg/l at MW-21 during round 1, however this data was not utilized because of excessive sediment in the sample.) Consequently, 1,2,4-trichlorobenzene is not retained as a COC for groundwater.

4.3.5 Other Metals

Various metals in addition to lead were detected in groundwater samples from all twelve monitoring wells. As stated previously, Round 1 data will not be discussed here because high levels of sediments in those samples do not make them representative of groundwater conditions. Metals which exceeded screening values in Round 2 and/or Round 3 included arsenic (9 wells), cadmium (1 well), and manganese (1 well). Arsenic was the only metal that exceeded its screening value in up gradient monitoring well #23. The maximum reported detection for arsenic was 13.9 μg/L in well MW-18, which is below the MCL (50 μg/L). The only metal to exceed its MCL was cadmium, which exceeded the MCL of 5 μg/L in MW-13 (29.1 μg/L) and up gradient well MW-23 (16.9 μg/L). Concentration of arsenic in Anchorage groundwater production wells ranged from 2 to 10 μg/L. This indicates that the arsenic levels detected in the groundwater samples only slightly exceed area background for the lower aquifer.

The reported background level for cadmium is 0.1 μg/L. However, the detection frequency of cadmium was low. Cadmium was detected at 3 of 9 well locations within or down gradient of the fenced area. Cadmium was detected in 4 of 32 samples collected from these wells. Further, it was detected only in unfiltered groundwater samples. The levels of cadmium measured in unfiltered samples ranged from 2.4 to 29 μg/L. Finally, as noted above, it was also detected at the up gradient MW-23 well location at a concentration of 16.9 μg/L. These data suggest that the few detections of cadmium likely result from the cadmium associated with sediment in unfiltered samples. The data do not suggest elevated cadmium resulting from past site operations.

4.4 Surface Water

No surface water runoff was observed at the site during the course of the RI. The only surface water feature in the site vicinity is Ship Creek. The average flow rate in Ship Creek is approximately 90 million gallons per day.

4.5 Sediment

Ship Creek sediment quality was evaluated in the RI. Samples were analyzed for lead and PCBs. Washington State 1991 Marine Sediment Guidelines were utilized for screening sediments because no federal or Alaska criteria were as stringent or available at the time. The PCB screening value was .07 mg/kg dry weight and the lead value was 31.0 mg/kg. The RI data revealed no significant impacts to Ship Creek sediment immediately adjacent to the site and as far as 500 feet below the site from ongoing or current releases from the site. The scope of the RI did not include sampling further downstream because there were reported, non-site related, PCB spills into Ship Creek and sediments are periodically dredged from Ship Creek. These two activities would have made evaluating past site releases into Ship Creek impractical. Only two of 22 creek sediment samples contained lead (CS-261: 34 mg/kg and CSA6-3: 45 mg/kg) above the screening value; however, the CS-261 sediments were not found to be toxic to aquatic life as a result of using two toxicity tests and downstream benthic macro invertebrate samples indicated that the benthic communities appeared to be similar to upstream communities. Two of 22 creek sediment sampling locations (CS-268 and CSA6-3) contained PCBs above the detection limit. The measured concentration were 0.2 mg/kg and 0.078 mg/kg, which are above the screening value. Creek sampling locations are shown on Figure 5-4.

The detections of lead and PCBs may have resulted from transport of soil containing lead and PCBs from the site into the creek or from transport of sediments containing lead and PCBs from locations upstream from the site. Soil transport from the site could occur as surface water runoff (although surface water runoff from the site was not observed during the RI field investigations) or during flood events. The estimated area of submergence during a 100-year flood event is depicted on Figure 1-2. The soils present in the areas that would be submerged generally contain low levels of lead (maximum 350 mg/kg) and PCBs (maximum 12 mg/kg). The general lack of lead and PCB detections at significant concentrations in Ship Creek sediment samples, the lack of observed surface water runoff from the site, and the relatively low levels of lead and PCBs in soils that would be submerged during flooding suggest that impacts to the creek sediment from lead and PCBs originating from the site would not be significant. These soils are not creek sediments and as explained earlier, there is no direct surface water runoff pathway to transport them into Ship Creek.

The location of a wetland identified in the vicinity of the site is shown on Figure 1-2. No samples of the sediment in the wetland were collected during the RI; however, the

nearest soil samples, located between the fenced area of the site and the wetland, about 50 feet from the edge of the wetland, contained low levels of lead (74 to 110 mg/kg) and PCBs (<0.03 to 1.4 mg/kg).

4.6 Air

Air dispersion modeling was performed to estimate potential maximum off-site ambient air concentrations and deposition of PCBs and lead resulting from contaminant emissions from the site under current site conditions and during salvage operations (pre 1986). Modeling was conducted using the EPA-approved Industrial Source Complex- Long-term Dispersion Model (ISCLT2). Modeling conclusions were that air concentrations and subsequent deposition were insignificant.

Air is not retained as a medium of concern.

4.7 Summary

The highest and most consistent detections of the principle contaminants, lead and PCBs, was found in surface and subsurface soils. These levels were not as high as those initially detected during the Removal Action. However, the RI did not re-sample the soil stockpile and therefore higher concentrations than were reported in the RI are likely present in the stockpile.

5.0 SUMMARY OF SITE RISKS

CERCLA response actions at the site as described in this ROD are intended to protect human health and the environment from current and potential future exposure to hazardous substances found at the site.

To assess the risks posed by site contamination, a "Baseline Human Health and Ecological Risk Assessment," (Risk Assessment) was conducted by EPA. The Risk Assessment assumes that there is no further site cleanup.

The site was divided into three Areas of Concerns (AOC) (Figure 6-1). The AOC's were selected based on current site conditions and historical activities. AOC-1 comprises the north eastern portion of the site. This area was where transformers and other materials were handled frequently. AOC-1 is characterized by the highest concentrations of PCBs and lead. It is also the area where PCB contaminated soils were stockpiled and covered during the Removal Action. AOC-2 comprises the remaining portions of the site within the EPA erected fence and areas bordering the site along Ship Creek.. This area was used primarily as a storage area for the salvage operations prior to EPA's Removal Action. AOC-3 consists of areas outside the fence primarily on the north-west side of the site.

5.1 Human Health Risks

The site is currently a vacant lot. Past uses of the site and the surrounding property is industrial/commercial. Activities at the site are anticipated to stay industrial/commercial.

An assessment of the risks to human health involve a four-step process: identification of contaminants of potential concern (COPCs), an assessment of contaminant toxicity, an exposure assessment for the population at risk, and a quantitative characterization of the risk.

5.1.1 Contaminants of Potential Concern

An initial screening analysis was done to identify the chemicals of potential concern (COPCs). This screening involved two steps. In the first step, COPCs were selected based upon a very conservative estimate of potential health risk. Maximum concentrations of chemicals in media (*e.g.*, soil and groundwater) on the site were compared to conservative risk based concentrations (EPA Region 3 Risk Based Concentration Table) and background values for inorganics. The risk based concentrations were derived assuming residential exposures; acceptable cancer risk levels of $1x10^{-7}$ for soil and $1x10^{-6}$ for water; and acceptable HQs of 0.1 (Table 6-2). For lead, the risk based criteria selected were 500 mg/kg for soil (After completion of the Baseline Risk Assessment, EPA lowered the screening level for lead to 400 mg/kg in soils. This change does not affect the conclusions of the Risk Assessment at this site) and 15 ug/l for water. These values are recommended by Superfund guidance.

The second step in the selection of COPCs was a more refined screening which narrowed the list of COPCs by considering factors such as frequency of occurrence of each COC and detection limits.

The final list of COCs for soil and groundwater are: Arsenic, cadmium, copper, chromium, lead, dioxins/furans, PAH's, PCB's, tetrachloroethane, and 1,2,4-trichlorobenzene. The potential for these COCs to impact health was further evaluated using more realistic and site-specific exposure assumptions.

5.1.2 Risks Related to Compounds Other Than Lead

The methods used to assess exposure and toxicity and to characterize risk are different for lead than for other contaminants. Therefore, lead is discussed separately from the other contaminants in Section 5.4.

5.1.2.1 Toxicity Assessment

Toxicity information was provided in the Risk Assessment for the chemicals of potential concern (COPCs). Generally cancer risks are calculated using toxicity factors known as slope factors (SFs), while noncancer risks are assessed using reference doses (RfDs).

EPA developed SFs for estimating excess lifetime cancer risks associated with exposure to potential carcinogens. SFs are expressed in units of $(mg/kg\text{-}day)^{-1}$ and are multiplied by the estimated intake of a potential carcinogen, in mg/kg-day, to provide an upper-bound estimate of the excess lifetime cancer risk associated with exposure at that intake level. The term "upper-bound" reflects the conservative estimate of the risks calculated from the SF. Use of this approach makes underestimates of the actual cancer risk highly unlikely. SFs are derived from the results of human epidemiological studies, or chronic animal bioassay data, to which mathematical interpolation from high to low doses, and from animal to human studies, have been applied.

EPA developed RfDs to indicate the potential for adverse health effects from exposure to chemicals exhibiting noncarcinogenic effects. RfDs, which are expressed in units of mg/kg-day, are estimates of lifetime daily exposure for humans, including sensitive subpopulations likely to be without risk of adverse effect. Estimated intakes of contaminants of concern from environmental media (*e.g.*, the amount of a contaminant of concern ingested from contaminated drinking water) can be compared to the RfD. RfDs are derived from human epidemiological studies or animal studies to which uncertainty factors have been applied.

The Risk Assessment relied on oral and inhalation SFs and RfDs. For the two chemicals for which dermal exposures were able to be estimated (PCBs and chlorinated dioxins/furans), SFs were derived from oral SFs by adjusting for oral absorption. Toxicity factors were obtained from the Integrated Risk Information System (IRIS) or, if no IRIS values were available, from the Health Effects Assessment Summary Table (HEAST).

5.1.2.2 Exposure Assessment

The exposure assessment characterizes the exposure scenarios, identifies potentially exposed populations and their exposure pathways and routes of exposure, and quantifies exposure in terms of chronic daily dose (mg/kg/day or milligrams of contaminant taken into the body per kilogram of body weight per day).

For current land use, exposures to long-term workers in AOC 3 were considered, AOC 1 and 2 are fenced off and are not currently used. For future land-use, on-site exposures to workers as well as potential future residents were added for evaluation. For residential exposures, the following pathways were considered: (1) exposure to soil contaminants through soil ingestion and dermal contact, and inhalation of soil

contaminants that have volatilized or have been resuspended on particles in the air; and (2) exposure to groundwater contaminants through ingestion of drinking water and inhalation of volatiles during showering. For industrial exposures, all of the same pathways were considered except inhalation during showering.

EPA Superfund guidance recommends that both reasonable maximum exposures (RMEs) and average exposures be calculated in site risk assessment. RME exposures are calculated using assumptions that result in higher than average exposures to ensure that the risk assessment results are protective of the reasonably maximally exposed individual. For this risk assessment, RME and average exposures were quantified by using EPA default exposure factors (*e.g.*, body weight, contact rate, exposure frequency and duration) with site-specific exposure point concentrations. Both RME and average (more typical) exposures were calculated for residents and workers.

To estimate exposure point concentrations (EPCs) for soil for ingestion and dermal exposures, the 95 percent upper confidence levels (UCLs) on the mean were calculated separately for soils in each AOC. Because the EPA removal data representing soils below the shotcrete cap were not quantitatively evaluated, the EPCs do not include the highest PCB concentrations observed in soils at the site. For drinking water, the maximum values of the COPCs in individual wells were used as the EPCs.

5.1.2.3 Risk Characterization

For carcinogens, risks are estimated as the incremental probability of an individual developing cancer over a lifetime as a result of exposure to the specific carcinogen. Excess lifetime cancer risk is calculated by multiplying the SF (see toxicity assessment, Section 5.1.2.1) by the quantitative estimate of exposure, the "chronic daily intake." These risks are probabilities generally expressed in scientific notation (*e.g.*, $1x10^{-6}$). An excess lifetime cancer risk of $1x10^{-6}$ indicates that an individual has a one in one million (1:1,000,000) chance of developing cancer as a result of site-related exposure to a carcinogen under the specific exposure conditions assumed.

The potential for noncarcinogenic effects is evaluated by comparing an exposure level over a specified time period (lifetime) with a RfD (see toxicity assessment section above) derived for a similar exposure period. The ratio of exposure to toxicity is called a hazard quotient (HQ). Hazard quotients are calculated by dividing the exposure by the specific RfD. By adding the hazard quotients for all contaminants of concern that affect the same target organ (liver, nervous system, etc), the hazard index (HI) can be calculated.

The RME provides a conservative but reasonable exposure scenario for considering remedial actions at a Superfund site. Based on the RME, when the excess lifetime cancer risk estimates are below $1x10^{-6}$, or when the noncancer HI is less than 1, EPA generally considers the potential human health risks to be below levels of concern. Remedial action may be warranted when excess lifetime cancer risks exceed $1x10^{-4}$ (one

in ten thousand) and HIs exceed 1.0. Between $1x10^{-6}$ and $1x10^{-4}$, clean up may or may not be selected, depending on individual site conditions including human health and ecological concerns.

The following discussion summarizes the cancer and noncancer risk characterization results for the site.

5.1.2.4 Soil COC's

Cadmium, chromium, and copper were identified in the Risk Assessment (RA) as preliminary COCs for surface soils. None of these metals were identified in the RA as posing a carcinogenic risk above 10^{-6} or non-carcinogenic risk greater than a HQ of 1.0 . The RA determined that metals other than lead do not contribute significantly to risk. These metals were not retained as COCs for developing Remedial Action Objectives (RAOs); however, their potential contribution to cumulative systemic toxicity was utilized in evaluating overall risks for the site. RAOs are discussed in Section 6.

Polycyclic Aromatic Hydrocarbons; Each of the polycyclic aromatic hydrocarbons (PAHs) identified in the RA as a potential COC is a suspected carcinogen. The compounds are generally discussed as a group and referred to as carcinogenic PAHs (cPAHs). Neither total or individual cPAH risks exceeded the lower end of EPA's range (1xE-4) for any scenario or exposure pathway. Five of the cPAHs posed a risk greater than 1xE-6 for residential exposure via ingestion, and only two cPAHs posed greater than 1xE-6 risk for long-term worker industrial exposure via ingestion (Benzo(a)pyrene 3.2xE-6 risk and Chrysene 1.9xE-6 risk). The RA concluded that cPAHs are not a significant risk driver at the site and cPAHs were not retained as COCs for development of RAOs.

5.2 Combined Short- and Long-Term Worker Exposure Pathways

Both short- and long-term workers may be exposed to soil ingestion, dermal contact, and particulate inhalation pathways. Short-term workers are characterized as construction, or utility workers who would be exposed to the site for a limited amount of time. Short term workers have a higher ingestion rate (480 vs. 50 mg/day) but shorter exposure frequency (<75 days/year vs. 250 days/year) and duration (1 year vs. 25 years) and averaging time for noncarcinogens (365 days vs. 9,125 days) than long-term workers.

5.2.1 Short-Term Worker

Combined RME short-term worker pathway excess cancer risks are 3E-5 in AOC-1, and combined AOC-1 hazard indices are 3.1. Risks are primarily contributed by PCBs. Cancer risks are within the 1E-4 to 1E-6 target risk range, while the hazard index exceeds the level of exposure unlikely to result in adverse health effects.

5.2.2 Long-Term Worker

Combined RME long-term excess cancer risks are 1E-3 in AOC-1 and combined AOC-1 hazard indices are 5.3. Combined RME long-term cancer risks are 1E-4 in AOC's 2 and 3, while combined hazard indices are 1.0 in AOC-3 and less than 1.0 in AOC-2. These risks are also primarily contributed by PCBs. PCB cancer risks exceed or are equivalent to the 1E-4 target risk range in all the AOCs. The hazard index in AOC-1 exceeds the level of exposure unlikely to result in adverse health effects.

5.3 Combined Residential Exposure Pathways

Combined RME excess cancer risks are 5E-3 in AOC-1, 6E-4 in AOC-2, and 9E-4 in AOC-3. Combined RME hazard indices exceed unity in all AOCs. PCB and 2,3,7,8-TCDD equivalent cancer risks exceed the 1E-4 to 1E-6 target risk range in all AOCs. Hazard indices for all AOCs exceed the level of exposure that is unlikely to result in adverse health effects. PCBs contribute the greatest to site risks, estimated at approximately 80%. Lead risks were not quantified but exceed EPA's soil screening values in all AOCs. Groundwater risks do not contribute significantly to total risks.

The RA reported that 2,3,7,8-TCDD equivalent presented a residential cancer risk exceeding 10^{-4}. Dioxins and furans are retained as soil COCs for development of RAOs, because of their potential to contribute to the cumulative excess cancer risk. However, residential use of the site is highly unlikely and the risk posed by dioxins/furans to long and short term workers is within the acceptable risk range.

Combined Short- and Long-term workers, and residential risks are summarized in Tables 6-3 and 6-4.

The groundwater pathways do not contribute significantly to risk if inorganic risks are not considered, due to high background concentrations. The inorganic risks were attributed to background contaminants. Lead risks are discussed below.

5.4 Risks Related to Lead Only

There is substantial scientific literature on the toxicological effects of lead in humans. Children appear to be the segment of the population at greatest risk from the toxic effects of lead. Health impacts from lead are primarily assessed by using levels of lead in blood. At blood lead levels of 40 to 100 micrograms per deciliter (ug/dL), children have exhibited nerve damage, permanent mental retardation, colic, anemia, brain damage, and death. Blood lead levels as low as 10ug/dL (or lower) have been associated with neurological and developmental defects in children. Blood lead levels of concern for adults are generally higher than for children. However, studies examining the relationship between lead exposure and blood pressure suggest that blood lead levels from as low as 7 ug/dL upward to approximately 30 or 40 ug/dL may increase blood

pressure. In addition, studies suggest that low levels of exposure for pregnant women may increase the risk for developmental effects in the unborn child.

For lead in soil, EPA's Office of Solid Waste and Emergency Response (OSWER) has issued Interim Soil Lead Guidance for CERCLA sites. In this guidance, a 400 mg/kg screening level for lead in soil under residential land use is recommended. This level was derived using the Integrated Exposure Uptake/Biokinetic (IEUBK) Model to estimate a soil concentration that will not result, under default residential exposure assumptions, in an unacceptable blood lead level in children. Exceeding this level does not necessarily indicate that a remedial action is necessary, but does indicate that a site-specific study of risks is warranted. Residential cleanup standards for CERCLA remedial actions can be developed using the IEUBK Model on a site-specific basis where site data support modification of model default parameters. EPA considers this model to be the most appropriate and widely applicable tool available for evaluating residential risks from lead.

Lead was not included in the quantitative risk estimates of the Risk Assessment because: (1) EPA-approved RfDs and Sfs are unavailable, and (2) EPA guidelines specify the use of the EPA Integrated Exposure Uptake/Biokinetic (IEUBK) model for estimating acceptable lead levels in soil for children in residential scenarios but there is no EPA accepted model for estimating lead exposure to adults in Industrial scenarios.

The IEUBK model estimates the blood lead concentrations expected to result from exposure to lead concentrations in soil and other media (e.g., air, water, diet, dust, and paint) for children. EPA recommends a benchmark of either 95 percent of the sensitive population of children having blood lead levels below 10ug/dL or a 95 percent probability of an individual child having a blood lead level below 10ug/dL. When the IEUBK model is run using this benchmark and all the model's default parameters, an acceptable soil screening level of about 400 mg/kg is predicted for lead. [Note: When the Risk Assessment was done for the site the IEUBK model in use by EPA predicted an acceptable soil screening level of about 500 mg/kg. The newer version of the model predicts a level around 400 mg/kg.]

The IEUBK model does not address lead exposure to older children or adults. Therefore, potential risks associated with exposures of adult residents and workers could not be quantitatively evaluated using the IEUBK model. However, the exposure potential and sensitivity of older receptors are generally lower than those of young children.

Health impacts for lead were characterized by comparing the exposure point concentrations calculated for lead in soil at the site, using the methods summarized above to 500 mg/kg (for residential exposures); and to 1,000 mg/kg (for industrial exposure). In both cases, risks associated with either residential or industrial exposures to the elevated concentrations of lead in site soil were determined to present significant

risks to human health. Therefore, a cleanup action to address the lead-contaminated soil at the site is warranted.

5.5 Ecological Risk Assessment

The objective of the ecological risk assessment was to evaluate potential harm to ecological receptors posed by chemicals in environmental media both on- and off-site. The scope of the assessment was limited to the two primary chemicals-of-concern, PCBs and lead. The assessment identifies several groups of potential ecological pathways and receptors:

- Vegetation potentially exposed through contact with soils
- Soil-dwelling invertebrates potentially exposed through contact with soil
- Small mammals potentially exposed through ingestion of soil and contaminated food
- Aquatic life potentially exposed through contact with sediments, or through ingestion of contaminated prey.

The ecological risk assessment concluded that the most sensitive ecological habitat in the site vicinity is found in Ship Creek. It further concluded that the data indicate that conditions within Ship Creek, within the study area, are not significantly impacted by contamination from the site.

The ecological risk assessment observed that the highest contaminant concentrations were measured in the area where former site operations were concentrated and that, because of the gravelly fill material and shotcrete cap, little ecological habitat is present in this area.

Based on the information presented in the ecological risk assessment, it appears that risk to ecological receptors are small, due to the poor habitat of the site. Concentrations of PCBs outside the existing fence and adjacent to Ship Creek pose a risk to ecological receptors.

5.6 Uncertainty in the Risk Assessment

The accuracy of the risk characterization depends in large part on the accuracy and representativeness of the sampling, exposure, and toxicological data. Most assumptions are intentionally conservative so the risk assessment will be more likely to overestimate the risk than to underestimate it. For instance, the Risk Assessment did not alter the exposure frequency to account for at least five months of frozen, or snow covered soils at the site.

Uncertainty in the toxicity evaluation may over-estimate risks by relying on slope factors that describe the upper confidence limit on cancer risk from carcinogens. Also, evidence

for carcinogenicity of the contaminants of potential concern are based on animal studies and limited human data. Some under-estimation of risk may occur, however, due to lack of quantitative toxicity information for some contaminants detected at the site, and because the PCB-contaminated soils below the shotcrete were not quantitatively evaluated. The soils stockpiled below the shotcrete had PCB detections up to 10,600 mg/kg.

5.7 Conclusion

The Baseline Risk Assessment supports the conclusion that hazardous substances are found on the site and that the actual or threatened release of these substances from this site, if a response action is not taken, may present an imminent and substantial endangerment to the public health, welfare, or the environment.

6.0 REMEDIAL ACTION OBJECTIVES AND CLEANUP STANDARDS

The overall objective of the remedial actions for the Standard Steel and Metals Salvage Yard Site is to provide an effective mechanism for protecting human health and the environment from contaminated site soils, while allowing future industrial use of the property. Remediating the site to industrial cleanup levels is appropriate because the existing land use is industrial/commercial and future land use plans of the municipality of Anchorage call for maintaining industrial/commercial zoning at the site and surrounding area. The following remedial action objectives for each contaminated media have been developed to describe what site remedial actions will need to be accomplished.

Groundwater is not retained as a medium of concern for development of RAOs; however, prevention of future migration of contaminants into groundwater will be addressed by the selected remedy.

Sediment is not retained as a contaminated medium for development of RAOs; however, prevention of future migration of contaminants into creek or wetland sediments will be addressed by the selected remedy.

Surface and subsurface soil (which includes the LNAPL soil) are retained as media of concern for development of RAOs. Table 5-1 shows the COCs for the soil medium. Groundwater, surface water, and sediments are not retained as contaminated media for development of RAOs; however, prevention of future migration of contaminants into groundwater, surface water, and sediments will be addressed by the selected remedy.

PCBs are the dominant quantified risk driver, estimated to contribute at least 80% of the risk at the site. While lead was not quantified, a comparison of the lead concentrations to other contaminants, besides PCBs, showed that lead represents the next most significant contaminant at the site. Based on the majority of risks being contributed by

lead and PCBs, and the fact that all other contaminants are co-located with PCBs and lead, these two compounds were selected as "limiting chemicals" for evaluating the site and remedial action objectives.

Remedial actions at the site are required for contaminated soils only. Groundwater, sediments, and surface water do not pose an unacceptable risk and therefore do not require remedial actions. These three media, as well as air, are media of concern because, without taking action on contaminated soils, these media would potentially pose an unacceptable risk in the future.

6.1 Remedial Action Objectives

The RAO's identified for the site are to:

- Prevent exposure by inhalation, ingestion, and dermal contact with contaminated soils that would result in an excess lifetime carcinogenic risk above 1E-4 for industrial use, and off-site non-industrial use;
- Prevent exposure by inhalation, ingestion, and dermal contact with contaminated soils that would result in noncarcinogenic health effects as indicated by an HI greater than 1.0;
- Prevent off-site migration of contaminants caused by mechanical transport, surface water runoff, flood events, and wind erosion;
- Prevent leaching or migration of soil contaminants into groundwater that would result in groundwater contamination in excess of regulatory standards.

These RAO's will protect surface water and sediment media of concern.

6.2 Cleanup Standards

Using the RAOs, cleanup standards were developed for each of the contaminants of concern. Cleanup technologies can be evaluated against these cleanup standards.

6.2.1 Soil Cleanup Standards

Based upon future industrial land use on the site, cleanup standards for the soil on-site are required for 2 contaminants: PCBs and lead. The estimated upper-bound cancer risks were unacceptable ($> 1x10^{-4}$) for PCBs. Lead levels were found on site which exceed the residential screening level (400 mg/kg) and which are above typical industrial cleanup levels. Two sets of cleanup standards will apply to the site. One set for the area of the site which will have engineering and/or institutional controls applied to it. In general, the controlled area will be inside the existing fence. Another set of cleanup standards for lead and PCBs will be for areas on the site that will have unrestricted access and which pose more ecological concerns. In general, those areas will be outside

of the existing fence. PCBs have been detected at levels which would pose a risk to ecological receptors beyond the fence line and pose an estimated 1E-4 risk to long-term workers in AOC 3.

There are no federal or Alaska regulatory cleanup standards for PCBs or lead in soil. The cleanup standards applied at the site soil are derived from two main sources:

- EPA guidance on soil cleanup levels (for PCBs and lead);
- Risk-based concentrations when guidance is not available.

6.2.1.1 PCB Cleanup Standards

For PCBs in soil, EPA established a nationwide spill cleanup policy under the Toxic Substance Control Act (TSCA), 15 U.S.C. § 2601 *et. seq.* The requirements specified under 40 CFR 761, Subpart G, particularly with respect to the clean up of PCB-contaminated soil, are considered a to-be-considered (TBC) guidance for purposes of CERCLA actions. The TSCA cleanup policy applies to spills containing PCBs at concentrations greater than 50 mg/kg. The cleanup standard for surface soils in restricted access areas is 25 mg/kg and for nonrestricted access areas is 10 mg/kg, with at least a 10 inch cover of clean (less than 1.0 mg/kg PCB) soil.

Less stringent cleanup standards may be approved by EPA on a site-specific basis, as defined in 40 CFR § 761.120(c), if factors associated with the spill "may mitigate expected exposures and risks or make clean up to these requirements impracticable." Alternatively, more stringent levels may be required by EPA based on site-specific factors (e.g., depth to groundwater or presence of drinking water wells) as outlined in 40 CFR § 761.120(b).

For CERCLA sites, EPA developed guidance which recommends action levels for contaminated soils in both residential and industrial land use scenarios. The action level for industrial sites is between 10-25 mg/kg PCBs in soils.

Based on the above guidances and site-specific conditions, EPA has selected 10 mg/kg PCB as the cleanup level for soil within the current fenced area (industrial use) and 1 mg/kg PCB for soils outside of the fenced area. The soil above these levels will have to be a part of the response action. Table 6-5 presents residual risks posed by the main risk drivers, excluding lead.

6.2.1.2 Lead Cleanup Standards

For Standard Steel and Metal Salvage Yard an industrial land-use scenario is considered most appropriate. Unfortunately, the IEUBK Model is applicable only to children, and no IEUBK model is currently approved by EPA for developing an adult industrial screening level for lead.

To mitigate health impacts from lead exposure, a 1000 mg/kg soil cleanup level was chosen as protective. This level is consistent with other Superfund lead cleanup levels at industrial sites and past EPA guidance (current EPA guidance suggests a 400 mg/kg screening level is protective for residential scenarios, no screening level is given for industrial scenarios).

Soil lead concentrations exceed 1000 mg/kg over much of the site in surface soils. The RI data show that all soils with greater than 1,000 mg/kg lead in surface soils were within the 10 mg/kg PCB surface soil contour.

Lead in excavated soil is a RCRA hazardous waste when the results of the Toxicity Characteristic Leaching Procedure (TCLP) exceeds 5 mg/kg. When a soil fails TCLP for lead it is known as a "characteristic" hazardous waste. Concentrations of 1,000 mg/kg for lead in site soils have failed TCLP, and therefore, are considered hazardous waste.

Considering the RCRA characteristic waste criteria, collocation of soils with greater than 10 mg/kg PCBs with 1000 mg/kg lead contaminated soils, EPA's lead cleanup guidance, and other lead cleanup levels at Superfund sites, the soil cleanup standard for lead at 1000 mg/kg was selected for the site. Soils exceeding 500 mg/kg outside the current fenced area will be consolidated into the remediation area. A 500 mg/kg cleanup level was selected instead of current guidance of 400 mg/kg lead screening level in soils because the surrounding land use is industrial, and will remain industrial in the future. These soils are not considered RCRA wastes. However, these soils could be transported to Ship Creek in the future by surface activities or surface water runoff and pose an unacceptable risk to biological receptors.

Therefore, excavating and treating soils with greater than 1000 mg/kg lead would occur to reduce the risks posed by lead in those soils and those soils would require treatment to comply with RCRA. Cleanup levels established for lead at other industrial sites in the region were considered in establishing the cleanup standard at the site.

6.3 Cleanup Standards Conclusions

Based on the information gathered and evaluated in the RI/FS, EPA concludes that contaminated soil on the site presents an unacceptable risk to human health, welfare, and the environment. All other contaminants of concern detected at the site above risk based levels were contained within soils with greater than 10 mg/kg PCBs and 1000 mg/kg lead. Therefore actions taken for PCBs and lead will address all remaining unacceptable risks at the site.

As stated above, the area within the existing fence line is considered the remediation area. This area, depending upon the alternative, will require an element of remediation (capping, treatment, or excavation) and institutional controls. The area outside of the existing fence line will not have engineered controls, thus, those areas will have a 1

mg/kg PCB and a 500 mg/kg lead cleanup level for protection of ecological receptors adjacent and within Ship Creek. All soils removed from outside of the existing fence line will be consolidated and disposed of within the existing fence boundary, outside of the flood plain.

Liquid PCBs, if present, are considered a principle threat at the site for PCBs. Principle threat lead soils are those which will always fail TCLP. TCLP tests run during the RI found a concentration of 3,000 mg/kg lead always exceeded 5 mg/L lead. The determination of principle threat lead soils is not a significant factor for evaluating remedial actions at the site, but all principle threat soils will be treated. All soils failing TCLP are a continuing source which could impact groundwater, and soils with greater than 500 mg/kg PCBs pose an estimated one to two orders of magnitude greater risk than the acceptable low end risk range, 1Ex-4 and are a potential source for impacting groundwater.

EPA evaluated the impacts of dioxins/furans in the Baseline Risk Assessment. The assessment determined that dioxins/furans do pose a risk. These soils are collocated with PCB soils having greater than 10 mg/kg PCBs. All actions taken to address PCBs will also address dioxins/furans.

Soil cleanup standards* for the site are:

Contaminant	Within Fence Line	Beyond Fence Line
PCBs	10 mg/kg	1 mg/kg
Lead	1,000 mg/kg	500 mg/kg

* EPA altered the subsurface cleanup level contained in the FS for PCBs from 50 mg/kg to 10 mg/kg to consolidate all soils which would pose an unacceptable risk if these soils were exposed in the future by site activities or erosion. This consolidation will ensure that all surface soils contain less than 10 mg/kg PCBs even after remedial actions are complete without monitoring soil concentrations or maintaining a clean soil layer (when applicable). The cost of this alteration is not considered significant because treatment of soils between 10 mg/kg and 50 mg/kg is not required and there is a reduction in monitoring and maintenance costs by consolidating contaminated soils.

7.0 DESCRIPTION OF ALTERNATIVES

General response actions and the process options chosen to represent the various technology types are combined to form alternatives for the site as a whole. Alternatives were developed to represent a range of potential remedial actions, including institutional controls, on-site containment, on-site treatment, and off-site treatment and disposal.

The alternatives include a no-action alternative (Alternative 1); an alternative using institutional controls with limited on-site remedial actions (Alternative 2); a capping

alternative (Alternative 3); two alternatives that combine containment of low threat soil with treatment of principal threat soil (Alternatives 4 and 5); three alternatives that incorporate on-site treatment of both low threat and principal threat soil (Alternatives 6, 7, and 8); and two alternatives that incorporate off-site treatment and disposal of both low threat and principal threat soil (Alternatives 9 and 10).

All alternatives considered except Alternative 1, include: (1) excavation and disposal within the existing fence line of contaminated soils from ecologically sensitive areas (flood plains and wetlands); and (2) treatment or disposal of materials stockpiled on-site from EPA removal actions, remaining scrap material that are deemed hazardous wastes under RCRA or as PCB wastes under TSCA, and investigation derived wastes.

An important element in considering each alternative is the residual risk to human health and the environment after completion of remedial actions. The risk equations and exposure parameters used in the residual risk calculations were the same as those used in the Baseline Risk Assessment except for Exposure Frequency. The exposure frequency was changed to 150 days/year to account for the presence of frozen ground for five months of the year at the site.

Estimates of volumes of soil to be excavated, treated, and disposed of were obtained in the following manner. In the feasibility study, volumes of soil are divided into two major categories: principal threat soils (i.e., soils with greater than 3,000 mg/kg lead and soils with greater than 500 mg/kg PCBs) and soils exceeding remedial action goals (i.e., soils with greater than 1,000 mg/kg lead and/or greater than 10 mg/kg PCBs, and subsurface soils with greater than 1,000 mg/kg lead and/or greater than 50 mg/kg PCBs).

After the FS was completed EPA decided that the subsurface soil PCB cleanup level was should be 10 mg/kg. This change will affect the volume estimates for subsurface excavation for the selected remedy. This alteration was deemed more protective of human health and the environment because it ensures future releases would not occur from vehicular traffic, freeze thaw process and erosion. Based on current site information this alteration should not result in a significant volume increase in excavated soils.

For each category of soil, a range of potential volumes was estimated. The minimum estimated volumes of soil are obtained using existing soil data with limited extrapolation into areas where sampling was not conducted. The maximum estimated volumes of soil are obtained using the existing soil data with extrapolation that involved estimating a potential maximum extent of contaminated area based on assessment of existing data.

Present worth cost of each of the alternatives was estimated using the procedures described in the EPA *Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA* (EPA 1988). Consistent with this guidance the cost for each alternative (where appropriate) consisted of an estimation of capital (based on volume

estimates, and contingencies) operation and maintenance, and present worth costs determined for 30 years at a 10 percent discount rate. Operation, maintenance and monitoring costs vary per alternative depending on action (soil cover vs geomembrane cap, removal of all soils vs removal of principle threat soils) and groundwater monitoring results after five year reviews) Ranges of costs are presented based on the sensitivity of the costs to the volume of soil requiring remediation and the unit costs of transportation, treatment, and disposal.

7.1 Individual Analysis of Alternatives

Detailed description of these elements is presented in the discussion of the selected remedy only. (See chapter 10)

7.1.1 Alternative 1 - No Action/Monitoring

Alternative Description

Alternative 1 includes these key components:

- Long-term groundwater and surface water monitoring

The existing fence would provide a margin of protection by restricting access; however, the fence would not provide long-term protection because it would not be maintained under this alternative, and a fence is not an engineering control to eliminate migration of contaminated soil by wind erosion, site activities, or a major flood event. The hazardous substances stockpiled on site would also remain and, over time, present a threat of future releases into the environment. Detoxification of the soil as a result of the natural degradation of the COCs over time is not expected to contribute significantly to long-term effectiveness as lead does not degrade and degradation of PCBs is slow. The half-lives of the more highly-chlorinated PCB congeners in soil environments are estimated to be 20 to 30 years, under controlled laboratory conditions.

7.1.1.1 Cost

Capital Cost	$ 0.0
30 Years Operations and Maintenance Cost	$ 264,000
Present Worth(1)	$ 264,000

(1) Discount rate (10%) is the average rate of return on private investment, before taxes and after inflation.

7.1.2 Alternative 2 - Limited Action

Alternative Description

Alternative 2 includes these key components:

- Removal of regulated material stockpiled on-site and disposal in a RCRA Subtitle C or D landfill
- Excavation and, consolidation within existing fenceline, of impacted and estimated 650 cubic yards (cy) soil from flood plain
- Installation and maintenance of a protective cover over upland areas
- Off-site disposal of 150 tons of scrap and debris by recycling or in a TSCA or RCRA Subtitle C or D landfill
- Maintenance of the existing fence to restrict access to the site
- Institutional controls to restrict land uses
- Long-term groundwater and surface water monitoring

Institutional controls would limit site use to industrial/commercial use and would prohibit use of the site for potentially high-exposure commercial use such as a day care facility. Land use restrictions combined with the fence would greatly reduce the potential for future exposure of children to lead in site soils. This alternative would require long-term maintenance of the existing shotcrete cover over the northern part of the site and establish health and safety procedures for future workers should soil excavation be conducted.

Other long-term management controls would include groundwater and surface water monitoring and installation and maintenance of a protective cover. The cover would consist of 12 inches of soil over the existing contaminated surface soils to prevent direct exposure to COCs. The protective cover would reduce long-term worker exposure (by about one order of magnitude based on EPA's PCB guidance) and would prevent erosion and migration of contaminated soil to surface water or wetlands. The alternative contains no provisions for treatment or containment of the LNAPL soil.

The relatively small volume of soil containing greater than 500 mg/kg lead or 1 mg/kg PCBs that is present in the flood plain would be consolidated within the fenced area and beneath the protective cover.

7.1.2.1 Cost

Capital Cost	$ 1,290,000
30 Years Operations and Maintenance Cost	$ 283,000
Present Worth(1)	$ 1,573,000

(1) Discount rate (10%) is the average rate of return on private investment, before taxes and after inflation.

7.1.3 Alternative 3 - Capping

Alternative Description

The key components of Alternative 3 include:

- Removal of regulated material stockpiled on-site and disposal in a RCRA Subtitle C or D landfill
- Off-site disposal of 150 tons of scrap debris by recycling or disposal in a TSCA or RCRA Subtitle C or D landfill
- Capping all soils exceeding the cleanup levels
- Consolidation, under the cap, of an estimate 1,800 cy of soil exceeding cleanup levels from areas outside the proposed capping area
- Installation and maintenance of a protective cover over remaining upland areas of the site
- Institutional controls to restrict land use

The cap would cover an area of about 19,000 square yards. The capped area is entirely outside of the limits of the 100-year floodplain. Soil from areas beyond the proposed capping area with lead or PCBs above cleanup levels would be excavated and consolidated beneath the cap, however, none of these soils would be a characteristic hazardous waste by TCLP-lead or would contain greater than 50 mg/kg PCBs. Soil stockpiled during the EPA removal action would also be capped.

The consolidation area would be compacted prior to cap placement. The consolidation area would be capped with a composite layer consisting of a 6-inch sand base layer, a minimum 60 mil thick synthetic liner, a 6-inch sand drainage layer, and a 12-inch soil top layer. Run-on water would be diverted away from the capped area. Based on groundwater modeling, this cap configuration would limit groundwater infiltration to less than 0.01 feet per year and decrease the potential for groundwater contamination. The LNAPL soil would be capped but not treated.

The cap would be designed to be resistant to freeze-thaw and burrowing animals. Since the low permeability layer of the cap consists of a synthetic liner and not clay, freeze-thaw resistance could be achieved by providing a base for the synthetic liner that is composed of non-frost susceptible material, such as sand. Resistance to burrowing animals could be achieved by incorporating a layer of cobbles or heavy-gauge wire mesh above the synthetic liner. The cap would also be designed to support vehicle traffic.

This alternative would require long-term maintenance and repair of the cap. Maintenance would include yearly inspections of the cap. The inspections would assess any damage to the synthetic liner or cover materials caused by surface water erosion, freeze-thaw action, or human or animal activities. The inspections would be conducted

after breakup, when any potential effects of erosion and freeze-thaw would be most visible.

A protective cover would be placed over upland areas that are not capped. The cover would consist of 12 inches of soil containing less than 1 mg/kg PCBs.

Protection of Ship Creek and wetland sediment and water quality would be achieved through installation of the cap, as the cap would effectively isolate impacted soil from surface water. Soil within the flood plain containing >500 mg/kg lead or >1 mg/kg PCBs would be excavated and consolidated on-site beneath the cap.

7.1.3.1 Cost

	Low	High
Capital Cost	$ 2,839,000	$ 2,862,000
30 Years Operations and Maintenance Cost	$ 283,000	$ 283,000
Present Worth(1)	$ 3,122,000	$ 3,145,000

(1) Discount rate (10%) is the average rate of return on private investment, before taxes and after inflation.

7.1.4 Alternative 4 - Containment with Treatment of Principal Threat Soils by Stabilization/Solidification

Alternative Description

The key components of Alternative 4 include:

- Removal of regulated material stockpiled on-site and disposal in a RCRA Subtitle C or D landfill, or recycling
- Off-site disposal of 150 tons of scrap debris by recycling or in a TSCA or RCRA Subtitle C or D Landfill
- Excavation and treatment by stabilization/solidification of an estimated 4,400 cy of soil containing lead and PCBs above principal threat concentrations
- Capping all remaining soils exceeding the cleanup levels
- Containment of the LNAPL soil within a 20,000 square foot slurry wall
- Excavation and consolidation beneath the cap of impacted soil from the flood plain
- Installation and maintenance of a protective cover over remaining upland areas of the site
- Institutional controls to restrict land use
- Groundwater monitoring meeting the requirements of 40 CFR § 271.75 (b)(6)

The combination of treatment of principal threat soils and containment of low threat soils is consistent with the NCP (40 CFR § 300.430(a)(iii)(A) through (C)).

The cap would be constructed in the same manner and would cover the same area for this alternative as for Alternative 3 (Capping). The area of the cap, the source areas that would be consolidated beneath the cap, the principal threat soil source areas, and the location of the slurry wall are depicted on Figure 8-1. The cap would have the same beneficial effects in preventing contact with impacted soil and minimizing surface water infiltration as discussed for Alternative 3. The area contained by the vertical barrier (discussed below) would be included within the capped area. Areas outside of the cap would be covered with 12 inches of soils containing less than 1 mg/kg PCB.

All principal threat soil (greater than 3000 mg/kg lead and 500 mg/kg PCBs) at the site would be treated to significantly reduce mobility of the contaminants using stabilization/solidification. The stabilization/solidification treatment is described in greater detail under Alternative 6. The treated soil would be placed on-site beneath the cap above the zone of groundwater fluctuation and below 1 foot depth. Some principal threat soil is present in the stockpiled soil from the EPA removal action. The principal threat soil would be treated and the remainder of the stockpiled soil would be consolidated beneath the cap. The stabilization/solidification treatment would result in a soil volume increase (estimated to be 15 to 30%) due to addition of stabilizing agents.

Further groundwater protection would be provided by containing the LNAPL soil area (the area beneath grids B4 through E5, Figure 8-1) within a low-permeability soil/bentonite slurry wall that is keyed five feet into the low-permeability Bootlegger Cove Formation. The LNAPL containment area is included within the capped area. The perimeter of the wall is approximately 800 feet and the area of wall (assuming the Bootlegger Cove Formation is an average of 25 feet from the soil surface) is 20,000 square feet. The wall would be formed by excavating a trench around the area to be contained. The trench would be filled with a bentonite slurry. The soil excavated from the trench, which is not expected to be significantly contaminated, would be mixed with bentonite, and the slurry mixture backfilled into the trench to form the cutoff wall.

Protection of Ship Creek and wetland sediment and water quality would be achieved through the treatment for mobility of the principle threat soils and installation of the cap, as the cap would effectively isolate impacted soil from surface water. Soil within the flood plain containing >500 mg/kg lead or >1 mg/kg PCBs would be excavated and consolidated on-site beneath the cap.

Institutional controls, including land use and access restrictions would be used. The deed and access restrictions would be the same as those described for Alternative 3. Groundwater monitoring would be conducted meeting the requirements of 40 CFR 271.75(b)(6).

7.1.4.1 Cost

	Low	High
Capital Cost	$ 4,367,000	$ 4,505,000
30 Years Operations and Maintenance Cost	$ 283,000	$ 283,000
Present Worth(1)	$ 4,650,000	$ 4,788,000

(1) Discount rate (10%) is the average rate of return on private investment, before taxes and after inflation.

7.1.5 Alternative 5 - Stabilization/Solidification with Treatment of PCB Principal Threat Soils by Thermal Desorption

Alternative Description

The key components of Alternative 5 include:

- Removal of regulated material stockpiled on-site and disposal in a RCRA Subtitle C or D landfill, or recycling
- Off-site disposal of 150 tons of scrap debris in an appropriate landfill (TSCA, RCRA Subtitle C or D)
- Treatment of an estimated 3,500 cy of soil exceeding the PCB principal threat level using thermal desorption
- Excavation and on-site stabilization/solidification of an estimated 12,600 cy of soils exceeding cleanup levels
- Disposal of treated soil on-site in a TSCA landfill
- Off-site disposal of thermal desorption process residuals, including lead-contaminated dusts (RCRA Subtitle C landfill) and desorbed PCBs (incineration)
- Excavation and consolidation within the existing fenceline of impacted soil from the flood plain
- Installation and maintenance of a protective cover over upland areas of the site
- Institutional controls to restrict land use
- Long-term maintenance of a fence to restrict access to the containment area

Soil above cleanup levels would be excavated and pre-processed. Soil containing greater than 500 mg/kg PCBs would be segregated for treatment using thermal desorption. Soil containing less than 500 mg/kg but greater than 50 mg/kg PCBs and greater than 1,000 mg/kg lead would be stabilized. Soil containing less than 1,000 mg/kg lead and 50 mg/kg PCBs would be disposed of on-site at a depth of greater than one foot but above the zone of groundwater fluctuation. The zone of groundwater fluctuation would be backfilled with clean fill. The locations and approximate depths of the soil that would be treated are depicted on Figure 8-2. After pre-processing, the volume of soil to be

treated by thermal desorption would be approximately 2,400 to 2,900 cubic yards, and the volume treated by stabilization/solidification would be approximately 7,700 to 12,600 cubic yards. Detailed descriptions of the stabilization/solidification and thermal desorption treatments are presented under Alternatives 6 and 8, respectively.

The LNAPL soil would be excavated, solidified and disposed of on-site or, if PCB concentrations are greater than 500 mg/kg, treated by thermal desorption.

A protective cover consisting of 12 inches of soil containing less than 1 mg/kg PCBs would be placed over upland areas of the site to minimize erosion and potential for migration of contaminants to surface water or wetlands. Soil within the flood plain containing >500 mg/kg lead or >1 mg/kg PCBs would be excavated and consolidated on-site beneath the cover. Long-term groundwater monitoring would be conducted to assess the effectiveness of the treatment for protecting groundwater.

7.1.5.1 Cost

	Low	High
Capital Cost	$ 7,346,000	$ 8,866,000
30 Years Operations and Maintenance Cost	$ 283,000	$ 283,000
Present Worth(1)	$ 7,629,000	$ 9,149,000

(1) Discount rate (10%) is the average rate of return on private investment, before taxes and after inflation.

7.1.6 Alternative 6 - Stabilization/Solidification

Alternative Description

The key components of Alternative 6 include:

- Removal of regulated material stockpiled on-site and disposal in a RCRA Subtitle C or D landfill
- Disposal of 150 tons of scrap debris by recycling or disposal in a TSCA or RCRA subtitle C or D landfill

Excavation of an estimated 12,600 cy of soil with subsequent treatment by stabilization/solidification of soils

- Disposal of an estimated 18,300 cy of stabilized/solidified soil on-site in a TSCA landfill
- Excavation and consolidation within the existing fenceline of impacted soil from the flood plain
- Installation and maintenance of a protective cover over upland areas of the site

- Institutional controls to restrict land use
- Long-term Operation, Maintenance, and Monitoring of the stabilized/solidified soils and the protective cover (if no re-use of solidified soils)
- Groundwater monitoring that meets the requirements of 40 CFR § 761.75(b)(6)

Soil above cleanup levels would be excavated and pre-processed to remove debris and oversized rocks. Soil containing between 10 mg/kg and 50 mg/kg PCBs would be backfilled on-site at a depth of greater than one foot but above the zone of groundwater fluctuation in the on-site TSCA landfill. The zone of groundwater fluctuation would be backfilled with clean fill. The locations and approximate depths of the soil that would be treated are depicted on Figure 8-3. The excavated, pre-processed soil would be added to a pug mill where it would be mixed with the stabilizing additives and placed in the landfill. After pre-processing the total volume of soil to be treated would be approximately 7,700 to 12,600 cubic yards. A mixture of 16% cement and 8% fly ash, which was determined to be the most effective combination during the treatability study, is the suggested stabilizing agent combination. The LNAPL soil may be included with the soil that is stabilized/solidified.

The exact mixing ratios and long-term durability would be evaluated by further testing during remedial design, including freeze-thaw and wet-dry testing. If inadequate durability is obtained, engineering controls (for example, changing the agent:soil ratio, increasing the burial depth, or providing a low-permeability liner above or below the treated soil) would be implemented. Based on treatability study results, a soil volume increase of about 15 to 30% is anticipated after stabilization.

Stabilization/solidification is anticipated to be a very effective treatment for protecting groundwater because of two factors: (1) stabilization/solidification of the lead and PCBs results in lower potential leaching of COCs to groundwater from the stabilized mass and (2) the low permeability of the stabilized material results in very slow rates of infiltration to the aquifer. Leaching tests (TCLP) conducted during treatability studies indicate that the concentrations of lead and PCBs in leach water would be less than MCLs. The TCLP test uses an acidic solution to simulate leaching, which generally results in more leaching of COCs than would occur under natural conditions at the site. Permeability tests indicate very low hydraulic conductivities of the stabilized soil, ranging from 7×10^{-7} to 8×10^{-8} centimeters per second (cm/sec). By comparison, the average hydraulic conductivity of site soils estimated from grain-size distribution relationships was 5×10^{-3} cm/sec (Woodward-Clyde 1994a), and the hydraulic conductivity in the site vicinity was estimated by the USGS to be about 3×10^{-2} cm/sec (USGS 1988). The TSCA chemical waste landfill liner hydraulic conductivity requirement is 10^{-7} cm/sec which indicates that the solidified material itself will meet the requirements of a landfill liner.

A potentially important factor in evaluating stabilization/solidification is the effect of the presence of the solidified mass on future land use. The solidified soil would not be placed within the 100-year flood plain and would be placed at least one foot above the maximum groundwater table elevation. Clean soil (less than 1 mg/kg PCBs) from on-site sources would be used to replace soil excavated from the groundwater table zone. A gravel course would be placed over the treated soils to provide a wearing surface and minimize erosion. The ground surface elevations will increase due to the volume increase from the treatment and the addition of the cover layer. The solidified mass would be configured to accommodate future site development. The solidified mass will provide excellent foundation support for structures and excellent stability during seismic events. Excavation of the solidified soil, however, could not be conducted by conventional methods. Disposal of solidified material would be in accordance with TSCA disposal and landfill requirements, 40 CFR §§ 761.60 and 761.75. Justification for waiving select technical requirements of 40 CFR § 761.75 have been justified in the feasibility study, and are discussed in more detail in section 9.2.

A protective cover consisting of 12 inches of soil would be placed over upland areas of the site to minimize erosion and migration of contaminants to surface water or wetlands. Soil within the flood plain containing >500 mg/kg lead or >1 mg/kg PCBs would be excavated and consolidated on-site. Groundwater monitoring in compliance with 40 CFR § 761.75(b)(6) would be conducted to assess the effectiveness of the remedy for protecting groundwater.

Institutional controls to limit land uses and restrict access would be used. At a minimum, land use restrictions must be recorded on the title of the property to keep activities limited to commercial/industrial uses and restrict high exposure uses of children, such as day care facilities. Unless the solidified soils are designed and used as a building foundation, a fence or other access barrier may be required to limit unrestricted access onto the landfill.

Long-term monitoring and, if needed, maintenance of the landfill will be required.

7.1.6.1 Cost

	Low	High
Capital Cost	$ 4,434,000	$ 5,396,000
30 Years Operations and Maintenance Cost	$ 283,000	$ 283,000
Present Worth(1)	$ 4,717,000	$ 5,679,000

(1) Discount rate (10%) is the average rate of return on private investment, before taxes and after inflation.

7.1.7 Alternative 7 - Soil Washing

Alternative Description

The key components of this remedial alternative include:

- Removal of regulated materials stockpiled on-site and disposal in a RCRA Subtitle C or D landfill
- Off-site disposal of 150 tons of scrap debris by recycling or disposal in a TSCA or RCRA Subtitle C or D landfill
- Excavation of 17,700 cy of soil and treatment by enhanced soil washing of an estimated 12,600 cy (after screening) of soil exceeding cleanup levels
- Backfilling of an estimated 16,200 cy of screened and washed soil on-site
- Stabilization (if necessary) of soil containing elevated levels of lead prior to on site disposal
- Dewatering and stabilization of contaminated fines and disposal in an off-site TSCA landfill
- On-site treatment of process water and disposal in a POTW
- Excavation and consolidation within the existing fenceline of impacted soil from the flood plain
- Installation and maintenance of a protective cover over upland areas of the site
- Institutional controls to restrict land use
- Groundwater monitoring in compliance with 40 CFR § 761.75(b)(6)

Soil above cleanup levels would be excavated. Surface soils containing less than 1,000 mg/kg lead and 50 mg/kg PCBs but above cleanup levels would be backfilled on-site at a depth of greater than one foot but above the zone of groundwater fluctuation. Soil containing greater than 1,000 mg/kg lead or 50 mg/kg PCBs would be treated by soil washing. The LNAPL soil would be excavated and treated.

The excavated soil would be screened to remove oversize material including large gravel and scrap material. The soil aggregates would then be broken down and the soil separated into fine (fine sand and smaller particle sizes) and coarse fractions using a trommel. The fine fraction is estimated to be 12% to 20% of the total volume washed, based on particle-size analyses. The fine fraction (particles smaller than 0.15 mm diameter) would be dewatered, stabilized to pass TCLP-lead criteria, and disposed of in an off-site TSCA landfill. The fine fraction is estimated to be 25% solids prior to dewatering and 50% solids after dewatering. The fines would be disposed of off-site in a TSCA landfill. The coarse fraction would be treated in one or two steps. Particulate lead may be removed using a specific gravity separation technique, such as jigging. The soil would then be washed using surfactant-enhanced water. Approximately 7,700 to 12,600 cubic yards of soil would be washed in this manner.

Process water and water removed from the sludge fraction would be treated on-site as needed and discharged to the POTW. Five thousand gallons of process water was generated during the pilot tests. A full scale soil washing system must be more effective at minimizing process water generation. Lead concentrations in the process water were as high as 32 mg/L (sample SS-WWH4). The POTW discharge standard for lead is 5.0 mg/L; there is no standard for PCBs. Process water would be treated to reduce inorganic chemicals, organic chemicals and surfactants, and pH neutralization. Water treatment may include one or more of the following processes: oil\water separation, Electrofloc®, precipitation, ultraviolet oxidation, neutralization, and carbon adsorption.

The treated coarse fraction would be disposed on-site. Treated soil that contains greater than greater than 1,000 mg/kg lead or 10 mg/kg PCBs would not be replaced within the top foot or within the zone of groundwater fluctuation. Disposal of soils with greater than 50 mg/kg PCBs would invoke TSCA disposal and landfill requirements, 40 CFR §§ 761.60 and 761.75. Waivers of parts of 40 CFR § 761.75 would be required, however justification for waiving bottom liners and leachate collection systems can not be justified.

A protective cover consisting of 12 inches of soil would be placed over upland areas of the site to minimize erosion and migration of contaminants to surface water or wetlands. Soil within the flood plain containing >500 mg/kg lead or >1 mg/kg PCBs would be excavated and consolidated on-site beneath the cover.

Deed and access restrictions would be used as described under Alternative 6. Periodic groundwater monitoring would be conducted after remediation is completed.

7.1.7.1 Cost

	Low	High
Capital Cost	$ 6,563,000	$ 8,881,000
30 Years Operations and Maintenance Cost	$ 234,000	$ 234,000
Present Worth(1)	$ 6,797,000	$ 9,115,000

(1) Discount rate (10%) is the average rate of return on private investment, before taxes and after inflation.

Because of the relatively high unit cost of treatment, the estimated cost for this alternative is sensitive to the volume of soil requiring treatment. In addition, the volume of fines generated requiring treatment, transportation, and disposal has significant cost implications, again due to the relatively high unit disposal cost for this soil fraction. This is particularly true if incineration of fines is required. The cost estimate assumes no soil or fines will require incineration. The volume and ultimate treatment requirements for the process water may have significant impact on the final cost for this alternative. Cost

estimates assumes local treatment of process water will be employed, and that incineration will not be required. Finally, cost estimates assumed stabilization of treated soils to obtain a TCLP-lead level of <5 mg/L will not be required. If this supplemental treatment process is necessary, an additional cost of approximately $300,000 - $425,000 can be expected. The Operation and Maintenance cost reduce groundwater monitoring after the first 10 years.

7.1.8 Alternative 8 - Thermal Desorption

Alternative Description

The key components of this remedial alternative include:

- Removal of regulated materials stockpiled on-site and disposal in a RCRA Subtitle C or D landfill
- Off-site disposal of 150 tons of scrap debris by recycling or disposal in a TSCA or RCRA Subtitle C or D landfill
- Excavation of an estimated 17,700 cy of soils exceeding cleanup levels and treatment of 12,000 cy of soils by thermal desorption
- Backfilling treated soil on-site
- Stabilization of 5,000 cy of soil and dusts containing elevated lead prior to on-site disposal
- Disposal of process residuals, including lead-contaminated dusts (off-site landfill) and desorbed PCBs (off-site incineration)
- Excavation and consolidation within the existing fenceline of impacted soil from the flood plain
- Installation and maintenance of a protective cover over upland areas of the site
- Institutional controls to restrict land use

Soil above cleanup levels would be excavated and pre-processed. Surface soil containing less than 1,000 mg/kg lead and 50 mg/kg PCBs but above surface soil cleanup levels would be backfilled on-site at a depth of greater than one foot but above the zone of groundwater fluctuation. Soil containing greater than 50 mg/kg PCBs would be treated by low-temperature thermal desorption. Soil containing greater than 1,000 mg/kg lead would be treated by stabilization. The estimated volume of soil that would be treated by thermal desorption following pre-processing is 7,200 to 12,000 cubic yards. The estimated volume of soil that would be treated by stabilization following pre-processing is 3,300 to 5,000 cubic yards. The LNAPL soil would be excavated and treated.

The excavated, pre-processed soil would be treated using thermal desorption. The vacuum-enhanced desorption process is incorporated in the alternative as a potential process option. The soil would be fed into a batch processing unit where the temperature is raised to volatilize PCBs. A negative pressure (vacuum up to 28 inches

Hg) would be maintained within the processing unit to control air emissions and to allow PCBs to volatilize at a lower temperature (300 to 400°F) than at atmospheric pressure (1,100 to 1,300°F). The volatilized PCBs would be condensed and concentrated in an oil phase. The captured PCBs would be drummed and transported off-site to a TSCA incinerator. Lead-contaminated dusts collected in the air emissions system would be stabilized and land filled off-site. The quantity of dust that would be generated is estimated to be 750 to 1,000 tons.

The vacuum-enhanced process option is currently undemonstrated and not TSCA-permitted for PCBs. The vacuum-enhanced process may be unavailable when remedial activities begin at the site. The high-temperature process option is demonstrated for PCBs; however, it would be much more expensive to mobilize to Alaska.

Further studies would be required during remedial design to demonstrate effectiveness and to determine the most appropriate treatment operating parameters for site soils. In addition, further studies should probably be conducted to evaluate materials-handling aspects, such as rewetting of the soil after treatment.

The treated soil would be disposed of on-site. Treated soils with lead concentrations exceeding 1,000 mg/kg would be stabilized prior to disposal on-site. The thermally desorbed soil would require rewetting before it can be stabilized. The water volatilized during the desorption process may be used to rewet the soil if it is free of lead and PCBs. Treated soil that contains greater than 1,000 mg/kg lead or greater than 10 mg/kg PCBs would not be replaced within the top foot of soil.

A protective cover consisting of 12 inches of soil would be placed over upland areas of the site to minimize erosion and migration of contaminants to surface water or wetlands. Soil within the flood plain containing >500 mg/kg lead or >1 mg/kg PCBs would be excavated and consolidated on-site beneath the cover.

Deed restrictions would be used as described under Alternative 6. Periodic groundwater monitoring in compliance with 40 CFR § 761.75(b)(6) would be conducted after remediation is completed.

7.1.8.1 Cost

	Low	High
Capital Cost	$ 9,316,000	$ 12,709,000
30 Years Operations and Maintenance Cost	$ 234,000	$ 234,000
Present Worth(1)	$ 9,550,000	$ 12,313,000

(1) Discount rate (10%) is the average rate of return on private investment, before taxes and after inflation.

The estimated present worth cost for Alternative 8 ranges from $9,550,000 to $12,313,000. Because of the relatively high unit cost of treatment, the estimated cost for this alternative is sensitive to the volume of soil requiring treatment. The unit cost for processing and cost for mobilization used in the cost estimate assumed that the vacuum-enhanced thermal desorption process option, which is currently unproven, will not be available when remediation of the site is conducted. The high-temperature thermal desorption process option costs were used in the estimate.

7.1.9 Alternative 9 - Off-site Disposal

Alternative Description

The key components of this remedial alternative include:

- Removal of regulated material stockpiled on-site and disposal in a RCRA Subtitle C or D landfill
- Disposal of 150 tons of scrap debris by recycling or disposal in a TSCA or RCRA Subtitle C or D landfill
- Excavation of an estimated 17,700 cy of soils exceeding cleanup levels and disposal of an estimated 12,600 cy of soils in an off-site TSCA/RCRA landfill
- Backfilling of excavations with imported clean soil
- Excavation and consolidation within the existing fenceline of impacted soil from the flood plain
- Installation and maintenance of a protective cover over upland areas of the site
- Institutional controls to restrict land use

Soil above cleanup levels would be excavated. Soils containing greater than 1,000 mg/kg lead would be disposed of in a solid waste landfill, except that any soils above 5 mg/L TCLP-lead will require stabilization prior to disposal. Surface soil containing less than 1,000 mg/kg lead and 50 mg/kg PCBs but above cleanup levels would be backfilled on-site at a depth greater than one foot but above the zone of groundwater fluctuation. The excavations would be backfilled with imported clean fill material. Soil containing greater than 50 mg/kg PCBs would be disposed of in an off-site TSCA landfill. The LNAPL soil would be excavated and disposed of off-site.

Prior to disposal, all debris and material larger than two inches would be screened out. The estimated volume of material to be disposed is 7,700 to 12,600 cubic yards. The remaining material would be loaded on rail gondola cars to be transported to a permitted landfill in the lower 48 states for disposal. All soils would be stabilized for lead prior to landfilling.

A protective cover consisting of 12 inches of soil, containing less than 1 mg/kg PCBs, would be placed over upland areas of the site to minimize erosion and migration of contaminants to surface water or wetlands. Soil within the flood plain containing >500 mg/kg lead or >1 mg/kg PCBs would be excavated and consolidated on-site beneath the cover.

Institution controls would be used to prevent exposure to contaminated soils.

7.1.9.1 Cost

	Low	High
Capital Cost	$ 8,246,000	$ 12,168,000
30 Years Operations and Maintenance Cost	$ 139,000	$ 139,000
Present Worth(1)	$ 8,385,000	$ 12,307,000

(1) Discount rate (10%) is the average rate of return on private investment, before taxes and after inflation.

7.1.10 Alternative 10 - Off-site Incineration

Alternative Description

The key components of this remedial alternative include:

- Removal of regulated material stockpiled on-site and disposal in a RCRA Subtitle C or D landfill
- Off-site disposal of 150 tons of scrap debris by recycling or disposal in a TSCA or RCRA Subtitle C or D landfill
- Excavation of an estimated 17,700 cy of soils exceeding cleanup levels, treatment of an estimated 12,600 cy of soils at an off-site TSCA incinerator, and stabilization of incinerator ash for lead
- Backfilling excavations with clean imported soil
- Excavation and consolidation within the existing fenceline of impacted soil from the flood plain
- Installation and maintenance of a protective cover over upland areas of the site
- Institutional controls to restrict land use

Soil above cleanup levels would be excavated. Surface soil containing less than 1,000 mg/kg lead and 50 mg/kg PCBs but above cleanup levels would be backfilled on-site at a depth greater than one foot but above the zone of groundwater fluctuation. The excavations would be backfilled with imported clean fill material. Soil containing greater than 1,000 mg/kg lead or 50 mg/kg PCBs would be transported off-site and treated at a

TSCA incinerator. The LNAPL soil would be excavated and treated off-site. Lead-contaminated incinerator ash would be stabilized.

Prior to disposal, all debris and material larger than two inches would be screened out. The volume of material to be treated/disposed is estimated to range from 7,700 to 12,600 cubic yards. The remaining material would be loaded on rail gondola cars to be transported to a TSCA incinerator in the lower 48 states for disposal.

A protective cover consisting of 12 inches of soil, containing less than 1 mg/kg PCBs, would be placed over upland areas of the site to minimize erosion and migration of contaminants to surface water or wetlands. Soil within the flood plain containing >500 mg/kg lead or >1 mg/kg PCBs would be excavated and consolidated on-site beneath the soil cover.

Institutional controls would be used to restrict land use.

The estimated present worth cost for Alternative 10 ranges from $21,880,000 to $34,318,000. Because of the very high unit costs of transportation and disposal, the estimated cost for this alternative is very sensitive to the volume of soil requiring treatment.

7.1.10.1 Cost

	Low	High
Capital Cost	$ 21,741,000	$ 34,179,000
30 Years Operations and Maintenance Cost	$ 139,000	$ 139,000
Present Worth(1)	$ 21,880,000	$ 34,318,000

(1) Discount rate (10%) is the average rate of return on private investment, before taxes and after inflation.

7.2 Groundwater Component

The remedial investigation determined that groundwater is not a media of concern requiring treatment. Although there is a LNAPL present in the center of the site, no dissolved contaminants were identified at the boundary of the site. The physical properties of the LNAPL are conducive to excavation with contaminated soils. The LNAPL will be remediated by the same treatment as the soils, unless it is determined during remedial design testing that the LNAPL requires off-site disposal because it is considered a liquid as determined by Method 9095 (Paint Filter Liquids Test) contained in 40 CFR § 268.32(i).

7.3 Applicable or Relevant and Appropriate Requirements

Remedial actions implemented under CERCLA must meet legally applicable or relevant and appropriate requirements (ARARs). ARARs include promulgated environmental requirements, criteria, standards, and other limitations. Other factors to be considered (TBCs) in remedy selection may include nonpromulgated standards, criteria, advisories, and guidance, but are not evaluated pursuant to the formal process required for ARARs. ARARs of federal or state governments must be complied with during CERCLA response actions. Local ordinances with promulgated criteria or standards are not considered ARARs, but may represent TBCs. Major chemical-specific, location-specific, and action-specific ARARs and TBCs for the remedial alternatives are presented below.

7.3.1 Chemical-Specific ARARs

Clean Water Act, 33 U.S.C. § 1314, establishes water quality criteria for freshwater surface waters for lead and PCBs.

Clean Water Act, 33 U.S.C. § 1313 and 40 CFR § 131.36(d)(12), establishes and implements the National Toxics Rule, and sets water quality standards for Alaska.

40 CFR § 141, Subpart B and F, the Safe Drinking Water Act Maximum Contaminant Levels and Maximum Contaminant Level Goals establishes cleanup standards for metals and organic compounds, including PCBs, in ground water.

7.3.2 Action-Specific ARARs

Toxic Substances Control Act, 15 U.S.C. § 2601 et seq., and 40 CFR §§ 761.60, 761.70, and 761.75 for the treatment, incineration, and disposal of PCBs.

Clean Water Act, 33 U.S.C. § 1311, 40 CFR § 122.26, direct discharges must meet technology-based standards, and storm water regulations for controlling discharges associated with industrial or construction activities.

Clean Water Act, 33 U.S.C. § 1314(b)(1) and 40 CFR Part 230, substantive requirements for dredge and fill requirements in waters of the United States.

40 CFR Part 403, pretreatment standards for discharges to Publicly Owned Treatment Works.

40 CFR §§ 268.45 and 268.48. RCRA Land Disposal Restrictions for Hazardous Debris treatment and disposal.

40 CFR § 261.24. RCRA Characteristic Hazardous Waste Determination is applicable for identifying soil that must be managed as hazardous waste (i.e. lead).

40 CFR 264, Subpart C, RCRA Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities; Preparedness and Prevention is applicable for staging and implementing the remedy.

40 CFR 264.310(a), RCRA Subtitle C Landfill Regulation is relevant and appropriate for the cover design of a landfill, if appropriate.

40 CFR 268, Subparts C and D, Prohibitions on Land Disposal and Treatment Standards (i.e. lead and California List Wastes) is applicable for preventing the disposal of Characteristic and California List Wastes;

Alaska Air Quality Regulations 18 AAC Chapter 50 for dust suppression.

7.3.3 Location-Specific ARARs

Executive Order 11988, 40 CFR 6, App. A, action within floodplains, avoid adverse effects, minimize potential harm, restore and preserve natural and beneficial values.

Executive Order 11990, 40 CFR 6, App. A, action within wetlands, avoid adverse effects, minimize potential harm, restore and preserve natural and beneficial values.

7.3.4 To-Be-Considered (TBC) Guidances and Policies

EPA's Groundwater Protection Strategy, August 1984.

40 CFR Part 761, Subpart G, TSCA PCB Spill Cleanup Policy.

Guidance on Remedial Actions at Superfund Sites with PCB Contamination, OSWER Directive 9355.4-01.

8.0 COMPARATIVE ANALYSIS

In this section, the relative performance of each alternative in relation to each specific evaluation criterion is assessed. According to the RI/FS guidance, "the purpose of the comparative analysis is to identify the advantages and disadvantages of each alternative relative to one another so that the key tradeoffs the decision maker must balance can be identified".

The NCP requires that a CERCLA remedy provide overall protection of human health and the environment and comply with ARARs. These criteria are referred to as the "threshold criteria." The remaining five criteria that are analyzed in the FS are referred to as the "balancing criteria." The balancing criteria are:

- Long-Term Effectiveness and Permanence;

- Reduction in Toxicity, Mobility, or Volume (TMV) through Treatment;
- Short-Term Effectiveness;
- Implementability; and
- Cost.

The final two criteria, state acceptance and community acceptance, are evaluated by EPA after public comment on the Proposed Plan and are referred to as the "modifying criteria."

8.1 Overall Protection of Human Health and the Environment

Evaluation of this criterion focused on how exposure pathways (ingestion, inhalation, dermal contact of soils) are eliminated, reduced, or controlled through engineering or institutional controls.

Alternatives 1 and 2 would not be protective of human health and the environment because site conditions would remain fundamentally unchanged except for a ten inch soil cover in Alternative 2, which would not be protective, nor effective over the long term because activities on-site and/or weather would easily disturb or remove the ten inches of soil and expose the contaminated soils below. Alternative 2 does not comply with TSCA disposal requirements. They will not be discussed further. All other alternatives would be protective of human health and the environment. Alternatives 9 and 10 would provide the greatest degree of protection for receptors in Anchorage Alaska because the contaminants would be treated and/or disposed off-site. Alternatives 3, 4, 5, 6, 7, 8, 9, and 10 would be protective of human health and the environment.

The principal tradeoffs are between alternatives that provide permanent reductions in residual risks to human health and the environment through treatment and/or off-site disposal (Alternatives 5, 6, 7, 8, 9, and 10) and alternatives that are less permanent but involve less short-term risk and are easier to implement (Alternative 3). Alternative 4 provides a compromise in that it combines slightly lower levels of permanence relative to Alternatives 5, 6, 7, 8, 9, and 10, but has less short-term risk and easier implementability.

8.2 Compliance with ARARs

This criterion addressed whether each alternative meets the action-specific, chemical-specific, and location-specific ARARs relevant for each alternative at the site.

8.2.1 Assessment

It is anticipated that Alternatives 5, 6, 8, 9, and 10 would comply with all ARARs or meet the criteria for a waiver.

Alternatives 2, 3, and 4 would not meet the TSCA treatment and disposal requirements because no treatment or disposal in an approved chemical waste landfill would occur and, as proposed, these alternatives would not meet the criteria for a waiver under TSCA's landfill regulation.

Alternatives 2, 3, and 4 do not comply with Safe Drinking Water MCLs because they would not treat contaminated, on-site groundwater.

Alternative 7 would not meet RCRA LDR ARARs because the treatment method would not be able to remove the toxicity characteristic for lead, nor would it achieve the percent reductions required for a treatability variance.

Alternatives 5, 6, 7, 8, 9, and 10 would meet all TBCs.

Alternatives 3 and 4 do not meet the response objectives of the PCB Spill Cleanup Policy because soil containing greater than 10 mg/kg would not be excavated to a depth of 10 inches.

Alternative 3 does not meet the response objectives of the CERCLA PCB guidance because containment of low threat soils and treatment of principal threat soils would not be provided.

8.3 Long-Term Effectiveness and Permanence

The evaluation of alternatives under this criterion addresses the results of a remedial action in terms of the risk remaining at the site after response objectives have been met. The criterion is composed of two components: magnitude of residual risk and adequacy and reliability of controls used to manage residuals at the site.

As part of the Removal Action all liquid principle threats were removed and treated or disposed.

8.3.1 Magnitude of Residual Risk

Estimated residual long-term worker cancer risk levels in the range of 10^{-5} to 10^{-6} and an HI of less than 1.0 are estimated after remediation is completed for Alternatives 3 through 10. Protection of the environment, including groundwater, surface water, and sediments in the short term, would be achieved for each of these alternatives. The potential for impacts to groundwater from the LNAPL soil would be slightly higher for Alternative 3 than for Alternatives 4, 5, 6, 7, 8, 9, and 10, although no impacts to groundwater, outside of a very small on-site area, have been observed to date.

8.3.2 Adequacy and Reliability of Controls

Alternatives 5 through 10 have reliable controls to ensure their permanence. Alternative 4 relies on a cap and slurry wall which is not as reliable or permanent as solidification, thermal desorption or off-site disposal/treatment.

Institutional controls provided for Alternatives 4, 5, 6, 7, 8, 9, and 10 are consistent with the long-term management controls listed in the PCB guidance and are considered to be adequate and reliable for the levels of lead and PCB residuals that would be left at the site.

The institutional controls provided for Alternatives 2 and 3 (Capping) are not anticipated to be adequate for long-term protection of human health, surface water, and sediments. Alternative 1 does not include institutional controls.

8.3.3 Assessment

Long-term effectiveness and permanence at the site would be greatest for Alternatives 9 (Off-site Landfill) and 10 (Off-site Incineration). The maximum residual long-term worker cancer risk is in the range of 10^{-5} to 10^{-6} and the HI is less than 1.0. Protection of the environment would be achieved for each of these alternatives. Adequate and reliable controls would be provided for the concentrations of lead and PCBs left on-site. Future land use would be unrestricted except for a restriction on residential use.

Alternative 8 (Thermal Desorption) was ranked next highest for long-term effectiveness and permanence. Residual long-term worker cancer risks in the range of 10^{-5} to 10^{-6} are estimated for this alternative. Long-term protection of the environment would be achieved. Future land use, however, would be restricted by the presence of elevated concentrations of lead in soil. The alternative includes reliance on institutional controls to protect workers from exposure to lead and to maintain the soil cover.

Alternatives 5 (Stabilization/Solidification with Treatment of PCB Principal Threat by Thermal Desorption) 6 (Stabilization/Solidification), and 7 (Soil Washing) were ranked next highest for long-term effectiveness and permanence. The maximum residual long-term worker cancer risk is also in the range of 10^{-5} to 10^{-6} and the HI is also less than 1.0. Protection of the environment would be achieved for each of these alternatives by either destruction of principle threat COCs or the immobilization of all soils above cleanup levels. Although, higher levels of COCs in treated soil would be left on-site compared to Alternatives 8, 9, and 10, long-term groundwater monitoring would be required to assess protection of groundwater, and future land use will be restricted to maintain industrial exposures. Additionally these alternatives would rely on institutional controls and long-term maintenance of solidified soils and soil cover.

Alternative 4 (Containment with Treatment of Principal Threats by Stabilization) was ranked significantly lower. It also achieves a maximum residual long-term worker cancer risk in the range of 10^{-5} to 10^{-6}; an HI of less than 1.0, and protection of the environment. However, while principle threat COCs are immobilized, destruction of COCs would not be achieved and the majority of PCB and lead contaminated soil would be untreated and left on-site under a cap. Institutional controls would be required for maintenance and monitoring of the cap. Permanence of the cap would depend on future land use, and would rely more on institutional controls to keep it intact. A cap and slurry wall are less permanent and reliable in the long term than solidification of soils. Future catastrophic events, such as flooding and seismic events would pose a significant threat to the cap and require greater operation, maintenance and monitoring procedures than solidification or off-site disposal.

Alternative 3 (Capping) was ranked lower than Alternative 4, although the residual long-term worker health risks are 10^{-5} to 10^{-6} and the HI is less than 1.0, and impacts to the environment are not anticipated. All COCs (except the emergency removal action and scrap removal action wastes) would remain on-site as untreated residuals. The LNAPL soil would not be treated or contained, and some potential for long-term groundwater impacts would exist. Similar to Alternative 4, a higher reliance on future land use restrictions would be required to maintain the cap.

8.4 Reduction of Toxicity, Mobility, or Volume Through Treatment

This evaluation focuses on the NCP expectation of reduction of toxicity, mobility, or volume (TMV) for principal threats. The components of the criterion are:

- Treatment process used and materials treated
- Amount of hazardous material destroyed or treated
- Degree of expected reductions in toxicity, mobility, or volume
- Degree to which treatment is irreversible
- Type and quantity of treatment residuals remaining after treatment

8.4.1 Discussion

Alternatives 8 and 10 are expected to achieve significant reductions (anticipated to be 95% or greater) in TMV through treatment. All soil above cleanup levels would be remediated. It is estimated that greater than 90% of the mass of lead would be immobilized and greater than 90% of the mass of PCBs would be destroyed.

Alternatives 5, 6, and 7 also treat and/or contain all soil above cleanup levels; however, these were downgraded relative to Alternatives 8 and 10 because of lower TMV reductions and the volume increase (estimated to be 15 to 30%) associated with stabilization/solidification (all soils are stabilized/solidified in Alternative 6; all soil except principal threat PCBs are stabilized/solidified in Alternative 5; and sludges and

lead-contaminated soils are stabilized as part of Alternative 7). Average PCB reductions of 93% are estimated for Alternatives 5 and 6 (based on TCLP reduction, however TCLP reductions are difficult to reproduce and leaching of PCBs is not a significant issue). PCB reductions of 57% to 94% were observed during pilot testing for Alternative 7. For Alternative 7, lead reductions as low as 7% and as high as 99% were observed during pilot testing. Alternative 5 was ranked higher than 6 or 7 because destruction of principal threat PCBs would be achieved.

Alternatives 4 (Containment with Treatment of Principal Threats by Stabilization) was downgraded somewhat because low threat soil would not be treated.

Alternative 9 (Off-site Landfill) was rated significantly lower because the only reduction in TMV that would be achieved is associated with stabilization that is required for lead.

Alternatives 3, 4, 6, and 9 would produce little or no process residuals. Alternative 7 followed by 5, 8, and 10 produce the greatest amount of process residuals that would require further treatment or off-site disposal. Alternative 5 produces an intermediate amount of process residuals.

Alternatives 4, 5, 6, 7, 8, and 10 would satisfy the statutory preference for treatment as a principal element. Alternatives 3 and 9 would not satisfy the statutory preference.

8.4.2 Assessment

Alternatives 8 (Thermal Desorption) and 10 (Off-site Incineration) are ranked highest. Lead would be treated using BDAT and greater than 95% of PCBs would be destroyed. Alternative 5 (Stabilization/Solidification with Treatment of PCB Principal Threats by Thermal Desorption) is ranked next highest. Lead in principal threat soil would be treated using stabilization/solidification and greater than 95% of PCBs contained in principal threat soil would be destroyed.

Alternatives 4, 6 and 7 are comparable. Lead would be treated by stabilization/solidification and PCBs would be treated using solidification (80 to 99% reduction in mobility). The tradeoffs involved in rating the alternatives are that Alternative 7 would produce relatively large quantities of process residuals, whereas, Alternative 6 would produce a relatively large volume increase, while Alternative 4 presents a compromise in that a somewhat smaller mass of COCs would be treated but relatively small residual amounts and volume increases would be produced.

Alternative 9 (Off-site Disposal) is ranked significantly lower. The treatment for toxicity employed would be minimal and the wastes would be transferred to another location to contain.

8.5 Short-Term Effectiveness

In this section, two criteria are considered: protection of the community, workers, and the environment during remedial actions and the time until remedial response objectives are achieved.

8.5.1 Short-Term Protection of the Community, Workers, and the Environment

Alternative 3 (Capping) involves no excavation, above ground treatment, or transport of wastes; therefore, the associated community, worker, and ecological exposures during the remedial actions are lowest.

Alternatives 4 (Containment with Treatment of Principal Threat Soil by Stabilization), 5 (Stabilization/Solidification with Treatment of PCB Principal Threats by Thermal Desorption) 6 (Stabilization/Solidification), 7 (Soil Washing), 8 (Thermal Desorption), 9 (Off-site Disposal), and 10 (Off-site Incineration) are generally similar in that the potential for human or environmental exposures exists during excavation activities. The potential community and worker exposures include physical injury and inhalation of contaminated dusts. The potential environmental exposures are releases of contaminated dusts and runoff water to surface water or wetlands and mobilization of COCs to groundwater. The potential exposures are significantly less for Alternatives 4 and 5 than Alternatives 6, 7, 8, 9, and 10 because of the much smaller volumes of excavation involved.

Alternatives 5, 7, 8, 9, and 10 have additional potential exposures during transportation of contaminated wastes or process residuals to the continental U.S. for treatment/disposal. These potential exposures are associated with overland transport, overseas transport, and on- and off-loading. Alternatives 9 and 10 involve the largest volumes of transported wastes and Alternative 5 the smallest volume. Alternative 10 also includes potential releases of COCs to air at the incinerator site and exposures during treatment and transport of lead-contaminated ash.

Alternatives 4, 5, 6, 7, and 8 involve additional potential exposures resulting from on-site treatment of soil. The potential exposures include physical hazards and releases of contaminated residuals. The greatest potential exposure from release of treatment residuals is estimated to result from dry, lead-contaminated dusts and volatile COCs associated with the thermal desorption treatment (Alternatives 5 and 8). The potential exposures are greater for Alternative 8 than Alternative 5 because of the larger volume of soil treated. Alternative 7 is anticipated to result in an intermediate level of exposures during treatment including process water management, while the exposures associated with the stabilization/solidification treatment used in Alternatives 4 and 6 are expected to be less.

8.5.2 Time Until Remedial Response Objectives are Achieved

The time frame for completing Alternatives 3 (Capping) is shortest because no excavation is involved. Excavation of smaller volumes of soil at shallower depth is included in Alternatives 4 and 5, and delays due to excavation are not anticipated. The times for completing excavations under Alternatives 6, 7, 8, 9, and 10 are likely to be longer because excavation of relatively large volumes of soil, likely including soil beneath the groundwater table, is required. Excavation times could be lengthened if wet weather, which is common in Anchorage in the summer, is encountered. For Alternatives 9 (Off-site Disposal) and 10 (Off-site Incineration), the time to obtain all necessary approvals for shipment of wastes to the off-site treatment/disposal facility could be significant.

The time frames for completing the treatment component of Alternatives 5 (Stabilization/Solidification with Treatment of PCB Principal Threats by Thermal Desorption) 7 (Soil Washing), and 8 (Thermal Desorption) would likely be longer because of factors including:

- Pilot and/or pre-remediation testing of equipment
- Uncertainty of equipment availability
- Multiple treatment/containment processes

It is reasonable to expect that each of Alternatives 3, 4, 6, 9, and 10 can be completed in a single construction season. Despite the relatively small treatment volumes under Alternative 5, a significant potential exists that the Alternative would not be completed in a single construction season because of the need for two separate treatment processes and the uncertainties of equipment availability, effectiveness, and implementability. Alternatives 7 and 8 have the greatest potential for extended remediation times.

8.5.3 Assessment

Alternative 3 (Capping) has the highest short-term effectiveness. No excavation or above ground treatment is involved; therefore, the associated community, worker, and ecological exposures during the remedial actions are small. Human exposure and the potential for migration of COCs to surface water or groundwater are significantly reduced in a relatively short (one construction season) time period. The short-term effectiveness of Alternative 4 (Containment with Treatment of Principal Threats by Stabilization) is nearly as good as Alternative 3 (Capping). Excavation volumes are limited, no significant exposures have been identified for the treatment process, and it is anticipated that the remediation can be completed within a single construction season using locally available contractors and materials. Alternative 6 (Stabilization/Solidification) is similar to Alternative 4 but was downgraded because of the larger excavation volumes, although the short-term impacts due to excavation could be prevented by using an in-situ process option and mitigation methods such as dust control.

Overall short-term effectiveness is similar for Alternatives 5, 9, and 10. The tradeoffs are that smaller volumes of soil are excavated and less waste is transported over long distances with Alternative 5, but potential exposures and schedule delays associated with the treatment process are greater.

The poorest short-term effectiveness is associated with Alternatives 7 (Soil Washing) and 8 (Thermal Desorption). Both involve excavation of large volumes of soil, relatively complex treatment processes, and transport of residual wastes over long distances. Each involves potential exposures and schedule delays associated with the treatment process.

8.6 Implementability

In this section, three criteria are compared: technical feasibility, administrative feasibility, and availability of services and materials.

8.6.1 Technical Feasibility

Few technical feasibility considerations have been identified for Alternative 3 (Capping).

Greater implementability concerns exist for Alternatives 5, 6, 7, 8, 9, and 10 because of the potential need to control groundwater during excavation near the groundwater table. An additional consideration is availability of space to conduct excavation, soil staging and dewatering (if required), and treatment/loading.

Few concerns exist with respect to the ability to successfully operate the stabilization/ solidification technology (Alternatives 4, 5, and 6). Stabilization is a common remedy chosen for CERCLA sites and has been accepted in EPA guidance as a treatment technology for PCBs. Stabilization/Solidification has also been identified as Best Demonstrated Available Technology (BDAT) for treating lead under the land disposal restrictions. Treatability studies conducted on soil from the site indicate that leaching of lead (measured using the TCLP test) is reduced by greater than 99% and leaching of PCBs is reduced by 80 to 99% (not a significant issue) following stabilization/solidification treatment. The FS provides a summary of the detailed analyses conducted to address potential implementability and permanence issues associated with stabilization/solidification. These analyses confirmed that the technology is effective, permanent, and implementable at the site. A potential implementability concern for Alternatives 4, 5, and 6 is designing the stabilized monolith to withstand freeze thaw conditions at the site. These concerns would be addressed during remedial design.

The greatest technical feasibility considerations are associated with soil washing (Alternative 7) and thermal desorption (Alternatives 5 and 8). These considerations are related to uncertainties in the ability to successfully operate the technologies and possible schedule delays resulting from technical problems and equipment unavailability.

8.6.2 Administrative Feasibility

Administrative feasibility considerations are expected to be low for Alternatives 3 (Capping), 4 (Containment with Treatment of Principal Threat Soil by Stabilization), and 6 (Stabilization/Solidification). Some concerns related to the long distance transport of contaminated material exist for Alternatives 5 (Stabilization/Solidification with Treatment of PCB Principal Threats by Thermal Desorption) 7 (Soil Washing), 8 (Thermal Desorption), 9 (Off-site Disposal), and 10 (Off-site Incineration). Additional implementability considerations for Alternatives 5, 7, and 8 are related to meeting process water disposal and air emissions (Alternatives 5 and 8 only) requirements.

8.6.3 Availability of Services and Materials

Availability of services and materials is not anticipated to be a problem for Alternatives 3, 4, 6, 9, and 10. Alternatives 3, 4, and 6 can be implemented using local materials and contractors. Treatment/disposal under Alternatives 9 and 10 would require services available only in the lower 48 states. Availability of services and materials is a concern for Alternatives 5, 7, and 8. Availability of services is particularly a concern for Alternatives 5 and 8 since only one contractor can currently supply the process option evaluated. It is unlikely that Alternatives 5, 7, and 8 can be completed using local contractors.

8.6.4 Assessment

The fewest considerations are associated with Alternatives 3 (Capping), 4 (Containment with Treatment of Principal Threat Soil by Stabilization), and 6 (Stabilization/Solidification). Alternative 6 was downgraded somewhat because of technical implementability considerations related to excavation near the groundwater table.

Alternative 5 (Stabilization/Solidification with Treatment of PCB Principal Threats by Thermal Desorption) is ranked next highest for implementability, but was downgraded significantly relative to Alternative 6 (Stabilization/Solidification) because of uncertainties of the ability to successfully operate the thermal desorption equipment, the potential for schedule delays due to equipment problems, the need to meet air emissions and process water disposal requirements, administrative considerations related to long-distance transport of wastes, and the potential for poor availability of services, and the difficulties in operating multiple treatment trains on a site with limited available space.

Alternative 7 (soil washing) is ranked with Alternative 5 due to implementability considerations summarized above, including wash water volume and corresponding treatment requirements, and potential operational difficulties due to input materials variability. Excavation near the water table, equipment reliability, and transport of

residual waste over long distances are additional implementability considerations associated with this alternative.

Alternatives 9 (Off-site Landfill) and 10 (Off-site Incineration) are ranked below Alternative 5. The tradeoffs are that excavation near the groundwater table and transport of larger volumes of waste would be required under Alternatives 9 and 10, and this would more than balance the greater concerns with equipment availability and reliability and meeting air emissions and process water disposal requirements that are associated with Alternative 5.

Alternative 8 (Thermal Desorption) is ranked lowest for implementability. This alternative has numerous implementability considerations, including excavation near the water table, equipment availability and reliability, process water disposal and air emissions (Alternative 8) requirements, and transport of waste over long distances.

8.7 Cost

Costs for the ten alternatives range from a low of $0.3 million for Alternative 1 (No Action) to a high of $21.9 to $34.3 million for Alternative 10 (Off-site Incineration). The remaining eight alternatives rank as follows (from low to high):

- Alternative 2 (Limited Action)—$1.6 million
- Alternative 3 (Capping)—$3.1 million
- Alternative 4 (Containment with Treatment of Principal Threat Soils by Stabilization/Solidification)—$4.7 to $4.8 million
- Alternative 6 (Stabilization/Solidification)—$4.7 to $5.8 million
- Alternative 7 (Soil Washing)—$6.8 to $9.1 million.
- Alternative 5 (Stabilization/Solidification with Treatment of PCB Principal Threats by Thermal Desorption)—$7.6 to $9.1 million
- Alternative 9 (Off-site Landfilling)—$8.4 to $12.3 million
- Alternative 8 (Thermal Desorption)—$9.6 to $12.3 million

8.8 State Acceptance

The State of Alaska concurs with the selected remedy.

8.9 Community Acceptance

Comments received during the Public Review were both receptive and opposed to the preferred alternative. Comments opposed were mainly concerned with future releases of contaminants from the TSCA landfill. Some of these concerns will be addressed during remedial design of the landfill. More complete responses to the comments received are contained in the Responsiveness Summary attached to this Record of Decision.

9.0 THE SELECTED REMEDY

9.1 Remedy Description

Based upon consideration of the requirements of CERCLA, the detailed analysis of the alternatives using the nine criteria, and public comments, EPA has determined that Alternative 6 (Solidification/stabilization), with changes from the feasibility study described below, is the most appropriate remedy for the Standard Steel and Metals Salvage Yard Site in Anchorage, Alaska.

The key components of the selected remedy include:
(Refer to Table 9-1 for cleanup and treatment level summary)

- Removal of regulated material stockpiled on-site and investigation derived wastes with subsequent disposal in a RCRA Subtitle C or D landfill, or recycling of materials;
- Off-site disposal of remaining scrap debris by recycling or disposal in a RCRA Subtitle D landfill or, if the debris is a characteristic hazardous waste or contains greater than 50 mg/kg PCBs or 10ug/100cm^2 by standard wipe tests, treatment and disposal in a RCRA Subtitle C or TSCA landfill;
- Excavation and consolidation of all soils exceeding a 10 mg/kg PCBs or 1000mg/kg lead cleanup level;
- Treatment of all soils at or greater than 1000 mg/kg lead or 50 mg/kg PCB, or greater, by stabilization/solidification;
- On-site disposal of stabilized/solidified soils and excavated soils between 10 mg/kg and 50 mg/kg PCBs in a TSCA landfill;
- Excavation of soils impacted above 1mg/kg PCBs and 500 mg/kg lead from the flood plain and consolidation of these soils elsewhere on the site;
- Maintenance and repair of erosion control structure on bank of Ship Creek;
- Maintenance of solidified/stabilized soils and the landfill;
- Institutional controls to limit land uses of the site and, if appropriate, access;
- Monitoring of groundwater at the site to ensure the effectiveness of the remedial action.

Scrap Debris Disposal

Approximately 150 tons of debris generated during the scrap removal action remain stockpiled on-site. All scrap and debris, including that generated during soil pre-screening and located in the channel of Ship Creek, would be transported off-site and disposed at a permitted Subtitle C, D or TSCA landfill. Disposal will comply with all applicable rules and regulations. Scrap metal is to be recycled through a legally permitted scrap metal recycler. This recycling must include resmelting/melting of all

scrap metal. (Scrap metal may be incorporated into the on-site TSCA landfill if it will not compromise the integrity of the landfill.)

Regulated Material Removal

Approximately 290 drums are currently stored on-site. The drums contain materials stored by EPA during the emergency removal actions, oil and fuel salvaged during the scrap removal actions, and decontamination wastes and personal protective equipment generated during the RI field work. Also remaining on-site are a shipping container with the former site incinerator, various batteries, and other wastes. Off-site disposal of some of these materials is regulated by RCRA, depending on the specific waste. Disposal options include off-site landfilling or off-site incineration. Final disposal actions will be decided during remedial design and will be based on cost, and availability of services. Disposal will comply with all applicable rules and regulations.

Excavation

All soils above 10 mg/kg PCBs and all soils above 1000 mg/kg lead will be excavated and placed in the on-site TSCA landfill. Soils within the flood plain will be excavated when it exceeds 1 mg/kg PCBs or 500 mg/kg lead and placed elsewhere on-site.

Contaminant levels will be determined prior to excavation by current data or additional sampling. Soils may not be stockpiled in a manner which would reduce the contaminant concentrations to below the treatment level of 50 mg/kg PCBs or 1000mg/kg lead, unless the stockpiled soils will be treated.

Soil above cleanup levels would be excavated, screened and pre-processed to remove materials not suitable for stabilization/solidification. Soil containing less than 1,000 mg/kg lead and less than 50 mg/kg PCBs but greater than 10 mg/kg PCB will be consolidated on-site in the TSCA landfill at a depth of greater than one foot below the surface, but above the zone of groundwater fluctuation. The change of the subsurface cleanup level contained in the feasibility study from 50 mg/kg to 10 mg/kg PCBs is appropriate to insure future site activities and flood events do not expose greater than 10 mg/kg PCBs contaminated soils. This change is more cost effective than requiring a TSCA cap over the entire site and associated monitoring and maintenance of the soils and cap. If soils with PCB concentrations between 10 mg/kg and 50 mg/kg are placed on the top of the landfill a cover which will prevent erosion, infiltration and contact with untreated soils will be required above those soils.

Grading/Backfilling/Cover

The zone of groundwater fluctuation would be backfilled with clean fill (less than 1 mg/kg PCBs). The site will be graded to prevent surface water runoff to Ship Creek (see Stormwater Management section). Excavated areas above the groundwater fluctuation

zone will be backfilled with soils containing less than 10 mg/kg PCBs. The surface of the site will be graded with clean soils which will support a vegetative cover or paved to prevent erosion of surface soils. If no immediate reuse of the TSCA landfill occurs than it will be covered with a protective cap to (1) allow the landfill to function with minimal maintenance and (2) promote drainage, reduce freeze thaw effects and minimize erosion or abrasion of the treated soils. 40 CFR 264.310(a) is relevant and appropriate for this action.

Soil Pretreatment/Prescreening

All soil that needs to be treated (greater than or equal to 50 mg/kg PCBs and 1000 mg/kg lead) would go through a pretreatment step to screen out material which is oversized and may interfere with the treatment process. Potential material to be screened out includes wood, cardboard, wire, cobbles and scrap debris. As observed during the site investigations, the scrap debris include predominantly pieces of metal and wood. If remedial design determines that scrap will not interfere in the performance of the monolith than this material may be included in the monolith. Wood and other organic debris will be screened out and disposed of off-site pursuant to all rules and regulations (see above discussion on Scrap Debris Disposal)

Soils and debris will be kept wet during screening to minimize dust. The cobbles may be separated from the debris in an additional screening step. The cobbles could be used along fill material to backfill the excavations or be disposed of in the TSCA landfill.

Stabilization/Solidification Process

The excavated, pre-processed soil would be added to a pug mill where it would be mixed with the stabilizing additives. After pre-processing the total volume of soil to be treated would be approximately 7,700 to 12,600 cubic yards. A mixture of 16% cement and 8% fly ash, which was determined to be the most effective combination during the treatability study is anticipated as a likely mix ratio. However, additional design testing will be conducted to refine the mix ratio to minimize volume increases, reduce freeze thaw effects and maximize the solidified mass's long-term durability and potential as a building platform. The addition of pozzolans will be evaluated to reduce pH changes in the solidified soils and temperature increases during curing. The LNAPL will be included with the soil that is stabilized/solidified if it is determined that it will not interfere with curing and is not considered a liquid. If the LNAPL is considered a liquid or will interfere with the curing of the monolith then the LNAPL will be collected and transported off-site for incineration. Contaminated soils associated with the LNAPL will be stabilized if they do not interfere with the stabilization process.

An expanded treatability study shall be conducted as soon as practicable to further assess the stability and physical characteristics of the stabilization/solidification process and to demonstrate the predicted effectiveness of the stabilization/solidification process. The

recommended tests shall include, but not be limited to: (1) PSA Mod. MCC-1 Static Leach Test (U.S. DOE-5820) or comparable test procedure; (2) TCLP analysis on the solidified material; (3) additional leaching test(s) on solidified samples subjected to test procedures to simulate long term weathering such as freeze-thaw, compression, etc.; and (4) evaluation of chemical/physical properties such as temperature and pH on the solidification process. A life expectancy of 1000 years will be a design goal. Life expectancy is defined as the time before contaminants are released above design criteria from the TSCA landfill.

If inadequate durability is obtained, additional engineering controls (for example, changing the agent: soil ratio, increasing the burial depth, or providing a low-permeability liner above and/or below the treated soil) would be implemented at the discretion of EPA. Based on treatability study results, a soil volume increase of about 15 to 30% is anticipated after stabilization.

A potentially important factor in evaluating stabilization/solidification is the effect of the presence of the solidified mass on future land use. The solidified soil would not be placed within the 100-year flood plain and would be placed at least one foot above the maximum groundwater table elevation. Clean soil (less than 1mg/kg PCBs) and other fill would be used to replace soil excavated from the groundwater table zone. In the event there is no planned future use of the landfill as a building foundation or parking area, a cover to protect the landfill will be placed to provide a wearing surface, prevent infiltration and minimize erosion. The cover will be maintained until reuse of the monolith occurs. The ground surface elevations will increase due to the volume increase from the treatment and the addition of the cover layer (see Grading/Backfilling/Cover section). The solidified mass will be configured to accommodate future site development to the greatest extent practicable.

There are potential short-term human health and environmental impacts associated with excavation and the solidification/stabilization process. One potential impact is dust, which could be inhaled by workers or members of the community or could migrate to surface water or adjacent properties. The steps that would be taken to minimize these impacts include use of dust suppressants and collection and analysis of air samples. A second potential impact is migration of COCs to ecological receptors via surface water runoff. These impacts would be controlled by covering impacted soils and using berms and diversion ditches. A final potential impact is physical injury to workers. These impacts would be controlled by instituting appropriate health and safety procedures. A third potential impact is the volatilization of PCBs during the solidification process. This potential will be evaluated during treatability testing and appropriate measures will be taken to prevent volatilization of PCBs or control the release of volatilized PCBs during treatment.

In order to evaluate the effectiveness of the stabilization/solidification process, the following physical and chemical tests of treated solidified soil shall be established as

minimum performance standards. The minimum performance standards shall be demonstrated in the laboratory and in field testing during construction.

1. The Toxicity Characteristic Leaching Procedure (TCLP) test for PCBs shall be .5 ug/L or less. For lead the values shall be 5 mg/L or less. These values reflect the MCL for PCBs and the Maximum Concentration of Contaminants for the Toxicity Characteristic test, pursuant to 40 CFR 261.24, Table 1.

2. The 28-day unconfined compressive strength shall be greater than 50 psi (ASTM Method D2166 or equivalent). Depending upon the additive mix ratio this test may be inappropriate and another test will be utilized to determine unconfined compressive strength, with the approval of EPA.

3. The triaxial permeability shall be less than 1 x 10[-7] cm/sec (USACE Method 1110-2-1906 or equivalent).

4. PSA Mod. MCC-1 Static Leach Test (U.S. DOE-5820) This test will demonstrate that the treated soils do not leach lead above 15 ug/L. The goal is to not increase the leachability of lead under neutral water conditions.

If during design testing it is determined that the Performance Standards for unconfined compressive strength and triaxial permeability will reduce the permanence of the containment system these standards may be altered with the approval of EPA. Engineered controls shall be employed to compensate for the reduction of compressive strength and permeability.

Confirmation Sampling

All soils to be excavated, treated or disposed will include confirmation sampling to determine the amount of soil to be excavated and treated and to document that soils above cleanup levels are removed and treated if necessary. Confirmation testing would include analysis for both lead and PCBs. If the excavation testing indicates that the lead or PCB cleanup level is exceeded, additional material would be excavated vertically and horizontally until cleanup levels are met. Samples of the stabilized soil will be collected for future evaluation and testing.

Treatment Equipment and Staging Areas Preparation

A soil staging area would be set up on the site. The area, which would be on the order of 200 by 200 feet, would be lined by plastic sheeting. An area on the order of 100 feet by 200 feet, depending on the needs for the project, would be cleared near the soil

staging area and compacted prior to construction of a bermed pad for equipment set up. Utility hook-ups would be established as appropriate for the equipment.

Consolidation of Soil from Flood Plain Within Upland Areas

Soils within the floodplain which contain lead or PCBs at concentrations at or greater than 500 mg/kg lead or at or greater then 1 mg/kg PCBs would be excavated and consolidated within the existing fence line outside of the 100 year floodplain. These lower action levels (compared to the 1,000 mg/kg lead and 10 mg/kg PCBs cleanup levels for non-flood plain soils) would be used to provide an additional margin of protection in ecologically-sensitive areas. Figure 2-3 shows the approximate extent of the 100-year flood plain (based on 1988 mapping). A small flood plain area beyond the southwest corner of the fence contains soil with greater than 1 mg/kg PCBs. A comparison of Figure 2-3 with Figures 1-6 and 1-8 indicates that no mapped wetlands contain soil with greater than 500 mg/kg lead or 1 mg/kg PCBs. The area disturbed by excavation would be restored to the original grade and revegetated with native species. The consolidation action would not include any excavation or disposal of hazardous waste or TSCA-regulated material.

Disposal of Treated Soils

Treated soil and soils at or above 10 mg/kg PCBs would be disposed into an on-site TSCA landfill. The location and dimensions of the landfill shall be determined during remedial design and must be outside the 100-year floodplain. The relevant TSCA regulations for design are provided in 40 CFR § 761.75(b), except the requirements waived pursuant to 40 CFR § 761.75(c)(4) below. Solidified soils with lead or PCB concentrations at or greater than 1,000 or 50 mg/kg, respectively, would not be replaced in the top foot or in the zone of groundwater fluctuation. Surface concentrations of the treated soils will be less than 10 mg/kg PCBs. Routine maintenance and inspection of the TSCA landfill shall be conducted during groundwater monitoring events and after any seismic or flood event. The landfill will be designed and located to maximize future use of the site, specifically to utilize the solidified soils as a building foundation or parking area. If use of the landfill as a foundation or parking lot does not occur a cover consisting of an impermeable liner, drainage layer, and erosion control layer will be provided. These layers will consist of a impermeable (less than 1xE-6 permeability) liner, a one foot boundary layer and one foot of growth media.

The following technical requirements specified in 40 CFR § 761.75(b) are waived: (1),(2),(3),(7), and (8). 40 CFR § 761.75(b)(9)(i) may be waived if conditions discussed below occur. The following evaluation justifies waiving these requirements:

- Soils. This standard specifies that the landfill be located in a thick, relatively impermeable soil or rock formation or a low-permeability in-place soil with a minimum thickness of 4 feet or on a compacted, low

permeability liner with a minimum thickness of 3 feet. [40 CFR § 761.75(b)(1)]. The Selected Remedy includes encapsulation of the COCs. Through proper design, this encapsulation will be equivalent to the relatively impermeable soils, low permeability soils, and low permeability liner specified in the standard. The solidified mass will have an extremely low permeability such that leachate generation out of the disposal unit will be minimized. The treatability study completed for the site supports this determination. The hydraulic conductivities of solidified treatability study samples ranged from 8×10^{-8} to 7×10^{-7} cm/sec, similar to the hydraulic conductivity requirement provided in 40 CFR § 761.75(b)(1). Additionally, research and applicable experience at CERCLA sites provide further evidence that a properly designed stabilization/solidification remedy can adequately, through groundwater releases, protect against an unreasonable risk of injury to health or the environment by reducing leachate generation to extremely low levels.

- Synthetic Membrane Liners. This standard specifies that a synthetic membrane liner with a minimum thickness of 30 mils will be used when, in the judgment of the Regional Administrator, the hydrologic or geologic conditions at the landfill require such a liner to provide at least a permeability equivalent to the soils described above. [40 CFR § 761.75(b)(2)]. This requirement addresses a bottom liner under the waste. As noted above, the soil treatment design will be developed such that the stabilized/solidified soils provide a level of protection comparable to a low permeability liner, (e.g. a 30 mil synthetic bottom liner system as specified in the regulations). In general, a top liner would be needed at a disposal site to minimize infiltration into the waste if hydrologic or geologic conditions were such that precipitation could enter the waste at a rate greater than it could leave the waste. This would not be the case with the selected remedy because the treated soils would have an extremely low permeability as compared to the underlying and surrounding native soils. Following the path of least resistance, precipitation would instead tend to migrate around the solidified mass rather than through it. Therefore waiving this requirement will not present an unreasonable risk of injury to health or the environment.

- Hydrologic Conditions. In part, this standard specifies that the bottom of the landfill be at least 50 feet above the historical high water table. [40 CFR § 761.75(b)(3)]. The very minimal amount of leachate that could result from a properly designed and implemented solidification/stabilization remedy would not result in excessive risk to human health or the environment. This determination is supported by the groundwater sampling results, the treatability study, and the soil stabilization/solidification durability assessment. Waiving this requirement

will not present an unreasonable risk of injury to health or the environment even though not located 50 feet above the high water table.

- Leachate Collection. This standard describes methods for collection and analysis of leachate produced by the landfill. [40 CFR § 761.75(b)(7)]. The amount of leachate produced from a properly designed and implemented solidification/stabilization remedy would be minimal because precipitation would travel around, rather than through, the treated soils. Additionally, as shown in the treatability study, the concentration of PCBs in the leachate is expected to be low (the average concentration of PCBs in 8 treatability study TCLP samples was 0.26 μg/L, as compared to the PCBs MCL of 0.5 μg/L). The combination of low volumes of leachate and low PCB concentrations within the leachate make it appropriate to waive this requirement because such a waiver will not present an unreasonable risk of injury to human health or the environment.

- Chemical Waste Landfill Operations. Operation requirements contained in 40 CFR § 761.75(b)(8) are not applicable to the TSCA landfill on this site because no liquid or other types of wastes other than the solidified soils and low concentration PCB soils will be placed in it before final closure.

- Fence, Wall or Similar Device. The requirement, contained in 40 CFR § 761.75(b)(9)(i), to place a fence, wall or similar device around the landfill will not be waived unless the solidified soil mass is designed and used as a building foundation or it is paved over for a parking lot. A waiver of fence or other access barrier is appropriate under these two scenarios because access to unauthorized persons and animals would be effectively prohibited by the building or pavement.

Based on the evidence presented in the remedial investigation and feasibility study and other information contained in the administrative record for this Record of Decision, it has been determined that waiving these requirements will not result in an unreasonable risk of injury to health or the environment from PCBs.

Waste Shipment

Shipment of wastes would be conducted as part of debris, and potentially LNAPL disposal. This debris and wastes will be shipped pursuant to Department of Transportation rules and regulations regarding transport of hazardous waste, if applicable. All off-site facilities will be in compliance with the off-site Disposal Rule (40 CFR 300.440)

Repair of Erosion Control Wall Along Ship Creek

The erosion control wall constructed during the Removal Action along Ship Creek will be repaired and, where needed, reconstructed. Repair and maintenance of this structure is needed to meet the goals of the Floodplain and Protection of Wetlands Executive Orders, as well as, to ensure protection of the TSCA landfill once constructed. Repair and, where necessary, reconstruction of the erosion control wall must comply with the substantive requirements of Section 404(b)(1) of the Clean Water Act and its implementing regulations.

Flood Evaluation

As part of Remedial Design a study will be conducted to evaluate the 100 year and 500 year flood potential for Ship Creek and potential impacts on the site. This study will produce an updated flood map depicting the 100 year flood plain and 500 year flood plain for the site. The results of the study will be used to design appropriate controls to prevent damage to the landfill from flooding.

Institutional Controls

In addition to the remedial actions used to treat COCs, institutional controls would be used to prevent unacceptable exposure to contamination remaining at source areas at concentrations above acceptable levels. Institutional controls for soil left on-site that contains greater than 1 mg/kg PCBs were selected following EPA guidance for long-term management controls of CERCLA PCB sites. Specific controls will include restrictions limiting future land use, preventing groundwater use, and limiting site access. EPA guidance suggests selecting institutional controls for solidified PCBs based on mobility (TCLP) testing and exposure potential.

Deed Notice and Land Use Restrictions

A deed notice will be recorded on the title records for the site, if possible, and will notify any subsequent purchaser and/or successor in interest that the property is subject to a CERCLA Record of Decision. The selected cleanup levels for the COCs are based on a future industrial land use scenario. Consequently, land use restrictions must be implemented at the site to assure that no residential land uses, or commercial uses with potential chronic exposures of children (i.e., day care center) are allowed. To assure long-term protectiveness, the land use restrictions shall run with the land, bind all successors in interest, and be recorded in the property records. The objectives of the land use restrictions are:

- Ensure that site use continues to be industrial or commercial and prevent use of the site for commercial developments that involve potential chronic exposures of children to soil (e.g., use of the site for a day care center);

- Restrict activities at the site that could potentially impair the integrity of the TSCA landfill; and
- Prevent movement of soil containing greater than 1,000 mg/kg lead or 10 mg/kg PCBs to the surface or within the top foot of soil where chronic long-term worker exposures could occur.

Groundwater Use Restrictions

Groundwater use restrictions are necessary to prevent the installation of groundwater supply wells at the site. The property interest implemented to assure acceptable future land use shall include provisions for restricting use of groundwater underlying the site for any purpose.

In addition, to the recorded restrictions all available regulatory controls shall be undertaken by providing written notification of restrictions and site conditions to local, regional, and state agencies, departments, and utilities. The property owner(s) will be responsible for providing these restrictions.

Access Restrictions

Access to all areas impacted by soil contamination shall be limited during the construction of the remedial action. Access to the landfill should be prohibited to the general public and limited to long or short-term workers in compliance with 40 CFR § 761.75(b)(9)(i), which requires a six foot woven mesh fence, wall, or similar device. However, if the solidified soil mass is designed and used as a building foundation or parking lot, this requirement may be waived. Long term public access will be limited to those areas of the site where surface contamination of greater than 1 mg/kg PCBs remains after all excavation, treatment, and disposal is complete. Public access will be limited by installing and maintaining a six foot fence, or similiar structure.

Groundwater Monitoring

Ground water monitoring for PCBs and metals shall be conducted twice a year for the first two years of operation and may be reduced to annually thereafter with approval of EPA in consultation with Alaska Department of Environmental Conservation for a minimum of ten years. After ten years an assessment of the groundwater data will be conducted to determine whether groundwater monitoring is still required or whether the frequency will be altered.

Groundwater monitoring would be conducted to assess the effectiveness of the remedy for protecting groundwater. The groundwater standards that are to be achieved are the MCL and action level for PCBs and lead, 0.5 ug/L and 15 ug/L respectively.

Monitoring of groundwater down gradient of the landfill for PCBs (EPA method 8080), lead (EPA method 6000/7000), pH, specific conductance, and chlorinated organics (40 CFR § 761.75(b)(6)((iii)), or methods with equivalent detection limits and accuracy will be conducted to ensure the landfill is not contributing contamination to groundwater, nor altering groundwater conditions.

Stormwater Management

The site will be graded to prevent surface water discharges to Ship Creek. Site storm water structures will be designed to meet the requirements of 40 CFR § 761.75(b)(4)(ii), and constructed to prevent contaminated discharges of storm water to Ship Creek and prevent the transport of contaminated sediments off-site, including to Ship Creek.

Operation and Maintenance

The remedy will be operated and maintained for as long as the stabilized soils (landfill) remains on-site. Operation and maintenance of the remedy will include:

- Maintenance of the landfill to ensure that it retains its structural integrity and prevents release of PCBs and lead through any of the following mechanisms: erosion (including flood and seismic events), leaching, excavation;
- Maintenance of the rip rap erosion control wall along Ship Creek. The erosion control wall will be inspected once a year for the first five years and after flood and seismic events and extreme precipitation events defined as 24-hour, 25-year storms;
- Maintenance of a six foot (minimum) woven mesh fence, wall or similar device or other means to prevent unauthorized access to the site, if deemed necessary after remedial design.

10.0 STATUTORY DETERMINATIONS

The selected remedy satisfies the statutory requirements of Section 121 of CERCLA. The following sections discuss how the selected remedy meets these requirements.

10.1 Protective of Human Health and the Environment

The selected remedy is protective of human health and the environment. The existing exposure pathways will be eliminated by preventing inhalation, dermal contact, and ingestion of the COC's through treatment and containment. Site risks will be reduced to within the 1E-4 to 1E-6 risk range for carcinogens and the Hazard Indices will be less than 1.0 for non-carcinogens in an industrial land-use scenario. No unacceptable short-term risks or cross media impacts will be caused by implementation of the remedy. The

selected remedy is the best alternative for the site because it is cost effective, reliable, and allows future use of the site.

10.2 Applicable or Relevant and Appropriate Requirements

The selected remedy will comply with all ARARs and, based on the administrative record, justifies waiving certain TSCA landfill requirements as discussed in Section 9.1 above. The chemical-specific, action-specific, and location-specific applicable or relevant and appropriate requirements (ARARs) that will be attained are:

- Clean Water Act, 33 U.S.C. § 1313 and 40 CFR § 131.36(d)(12) are applicable for preventing future releases to Ship Creek, establishes and implements the National Toxics Rule, and sets water quality standards for Alaska.

  40 CFR § 141, Subpart B and F, the Safe Drinking Water Act Maximum Contaminant Levels are applicable and Maximum Contaminant Level Goals are relevant and appropriate, establishes cleanup standards for metals and organic compounds, including PCBs, in ground water.

  Toxic Substances Control Act, 15 U.S.C. § 2601 et seq., and 40 CFR §§ 761.60 and 761.75(b), (except the waived requirements as described in section 9.0), is applicable for the on-site disposal of PCBs.

  Clean Water Act, 33 U.S.C. § 1311, 40 CFR § 122.26 is applicable, direct discharges must meet technology-based standards, and storm water regulations for controlling discharges associated with industrial or construction activities.

  Clean Water Act, 33 U.S.C. § 1314(b)(1) and 40 CFR Part 230, substantive requirements for dredge and fill requirements in waters of the United States is applicable for repairing the erosion control wall.

  40 CFR § 261.24. RCRA Characteristic Hazardous Waste Determination is applicable for identifying soil and debris that must be managed as hazardous waste (i.e. lead).

  40 CFR 264, Subpart C, Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities; Preparedness and Prevention is applicable for staging and conducting the remedial action.

  40 CFR 264.310(a) RCRA Subtitle C Landfill regulation is relevant and appropriate for the cover design of the landfill, if appropriate.

40 CFR 268, RCRA Subparts C and D, Prohibitions on Land Disposal and Treatment Standards are applicable to the disposal of Characteristic and California List wastes, including contaminated debris.

Alaska Air Quality Regulations 18 AAC Chapter 50 for dust suppression and PCB emissions is applicable.

Executive Order 11988, 40 CFR 6, App. A, is applicable for action within floodplains, and to avoid adverse effects, minimize potential harm, restore and preserve natural and beneficial values.

Executive Order 11990 Protection of Wetlands is applicable for activities in wetlands or which could impact wetlands.

Off Site Disposal Rule 40 CFR 300.440 is applicable for disposing of contaminated materials off site.

To-Be-Considered (TBC) Guidances and Policies:

40 CFR Part 761, Subpart G, TSCA PCB Spill Cleanup Policy.

Guidance on Remedial Actions at Superfund Sites with PCB Contamination, OSWER Directive 9355.4-01.

10.3 Cost Effectiveness

The selected remedy affords overall effectiveness proportional to their costs. The selected remedy provides the best long-term permanence and risk reduction by treating the mobility of the COCs and preventing exposure via containment.

10.4 Utilization of Permanent Solutions and Alternative Treatment Technologies to the Maximum Extent Practicable

EPA has determined, by utilizing the nine criteria of CERCLA, that the selected remedy represents the maximum extent to which permanent solutions and treatment technologies can be used cost-effectively at the Standard Steel and Metals Salvage Yard Site. Of those alternatives that are protective of human health and the environment and comply with ARARs, EPA has determined that the selected remedy provides the best balance in terms of long-term effectiveness and permanence; reduction in toxicity, mobility or volume achieved through treatment; short-term effectiveness; implementability; cost; and the statutory preference for treatment as a principle element and considering state and community acceptance.

The selected remedy will provide for permanent containment of the contaminants of concern. Greater protection could have been achieved by transporting the wastes off-site. However, because Alaska does not have chemical or hazardous waste treatment or disposal facilities, this option was deemed less implementable, too costly, and along with increased short-term risks, would not have reduced the risks substantially more than on-site treatment and containment.

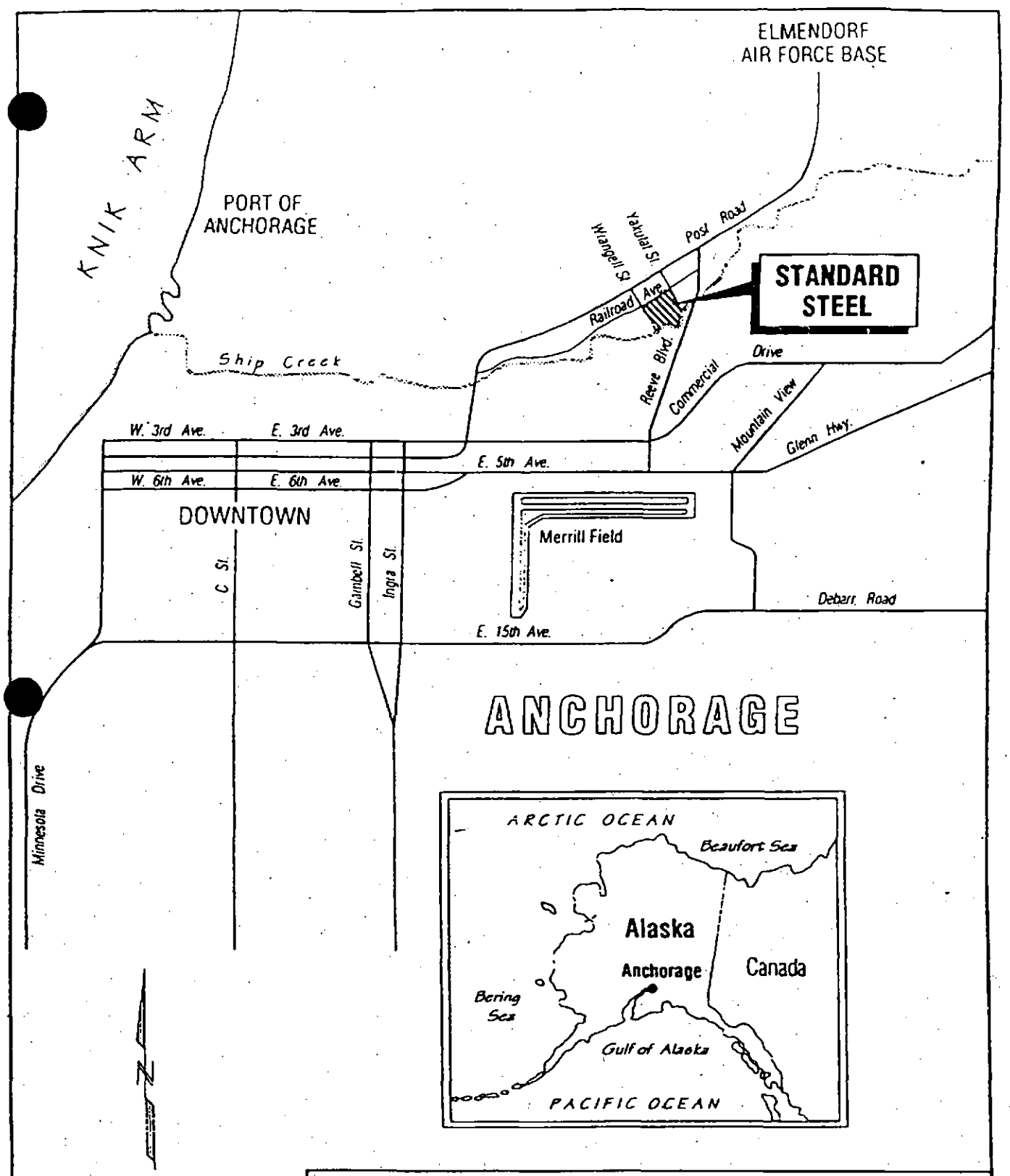
10.5 Preference for Treatment as a Principle Element

The preference for treatment is satisfied by the selected remedy because EPA's removal action treated the principle threats and additional treatment is being implemented. The treatment will immobilize lead and PCBs in soil as well as eliminate lead contaminated soils as a Characteristic Waste, pursuant to RCRA.

11.0 DOCUMENTATION OF SIGNIFICANT CHANGES

No significant changes to the proposed remedy, as presented to the public in the Proposed Plan have occurred. EPA altered Alternative 6, as presented in the feasibility study, in proposing its preferred alternative to the public. EPA determined that the subsurface cleanup standard should be 10 mg/kg for PCBs instead of 50 mg/kg. This alteration was deemed necessary to ensure future releases of hazardous substances from the site would not occur. The change is not anticipated to result in a significant change in estimated costs for the remedial action.

Additionally, the feasibility study and the Proposed Plan incorporated the Removal Action as a common element of the analysis of alternatives. The Removal Action included the construction of an erosion control wall along Ship Creek. In describing the selected remedy, EPA has more specifically included a requirement that the erosion control wall be repaired and maintained.

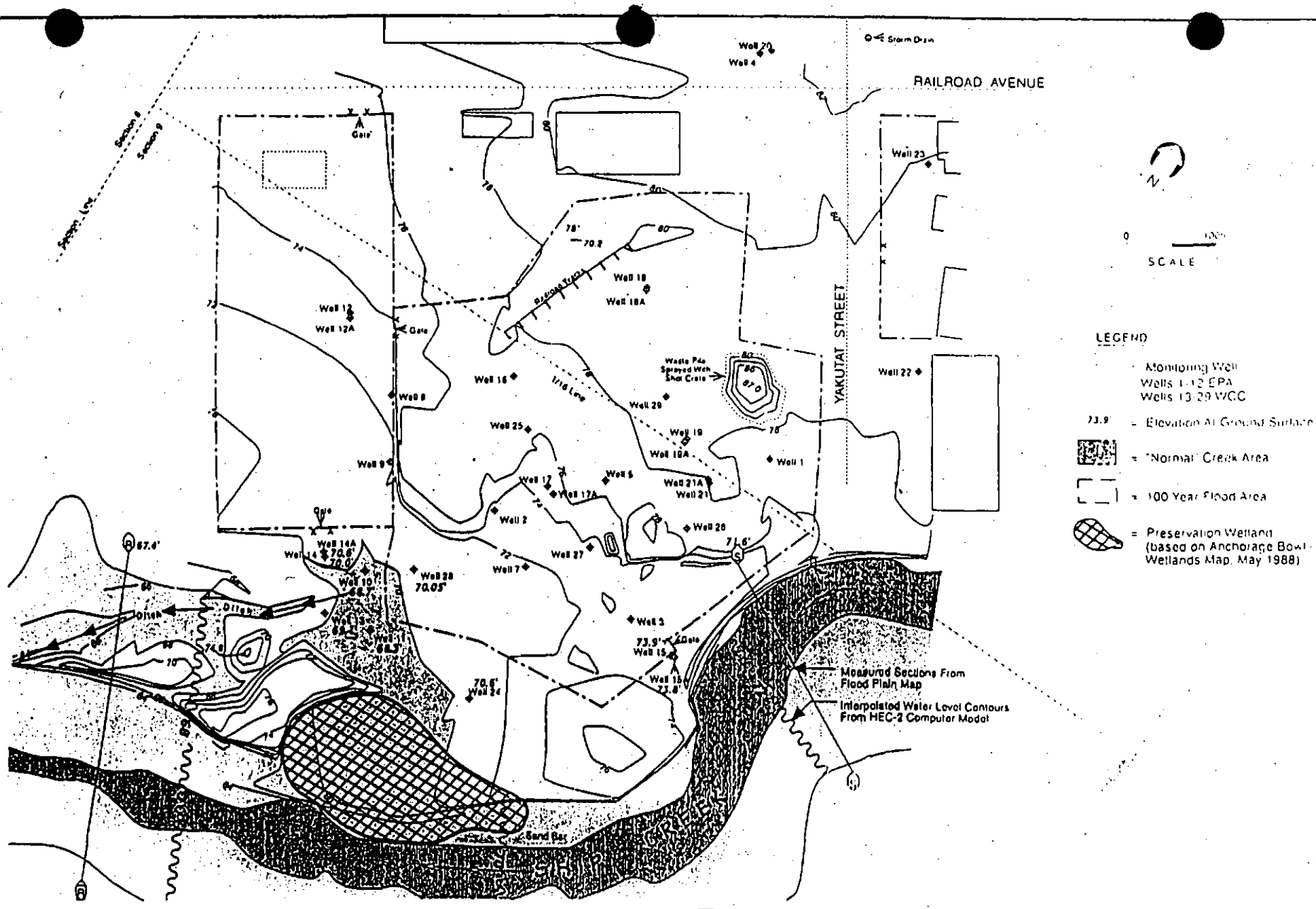


SITE LOCATION MAP

STANDARD STEEL & METALS SITE

Woodward-Clyde Consultants

Figure 1-1

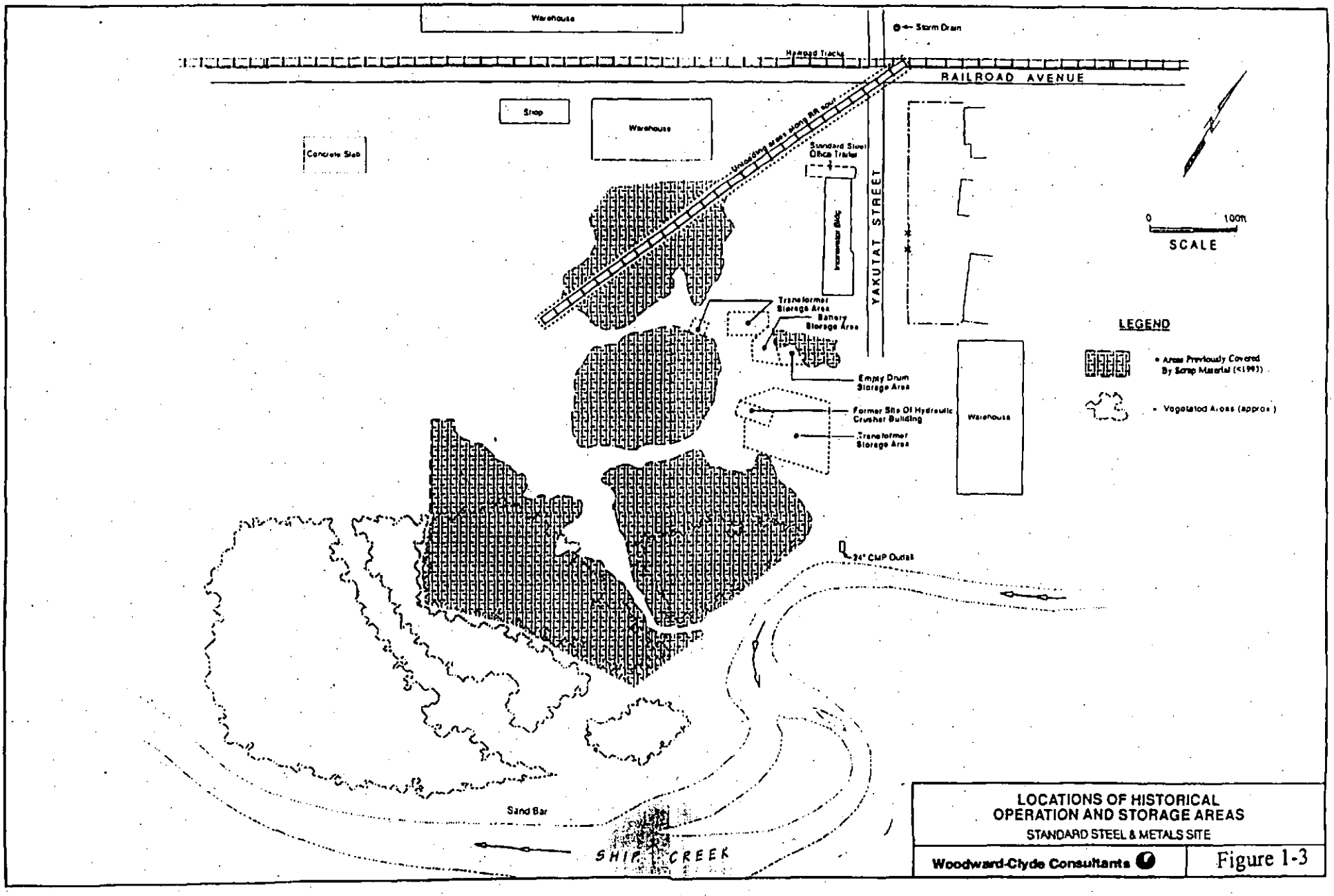


FLOOD PLAIN AND WETLANDS MAP

STANDARD STEEL & METALS SITE

Woodward-Clyde Consultants

Figure 1-2

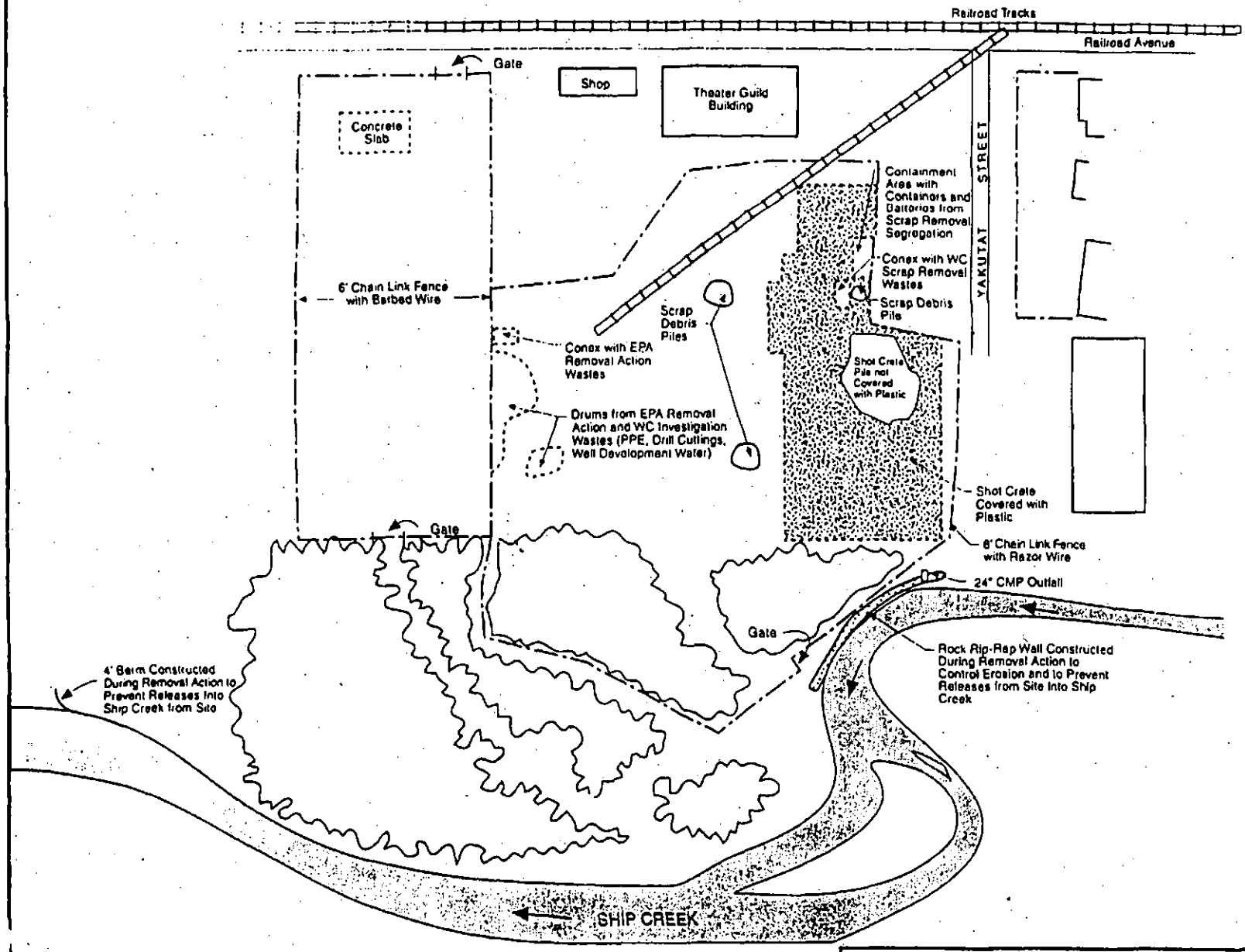


LOCATIONS OF HISTORICAL OPERATION AND STORAGE AREAS

STANDARD STEEL & METALS SITE

Woodward-Clyde Consultants

Figure 1-3



CURRENT SITE STATUS (POST-SCRAP REMOVAL)

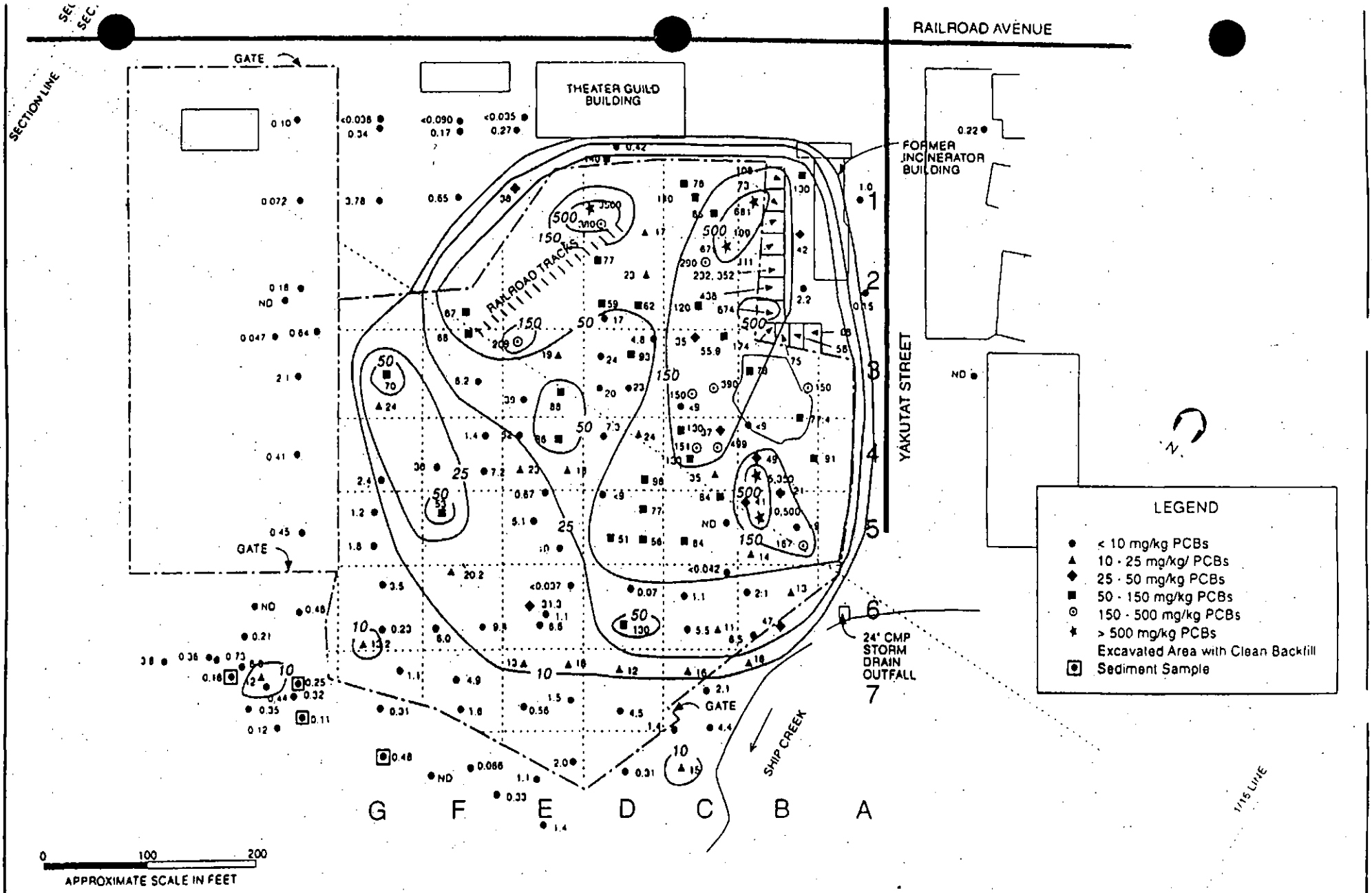
STANDARD STEEL & METALS SITE

Woodward-Clyde Consultants

Figure 1-4

Table 5-1
SUMMARY OF MEDIA AND CHEMICALS OF CONCERN

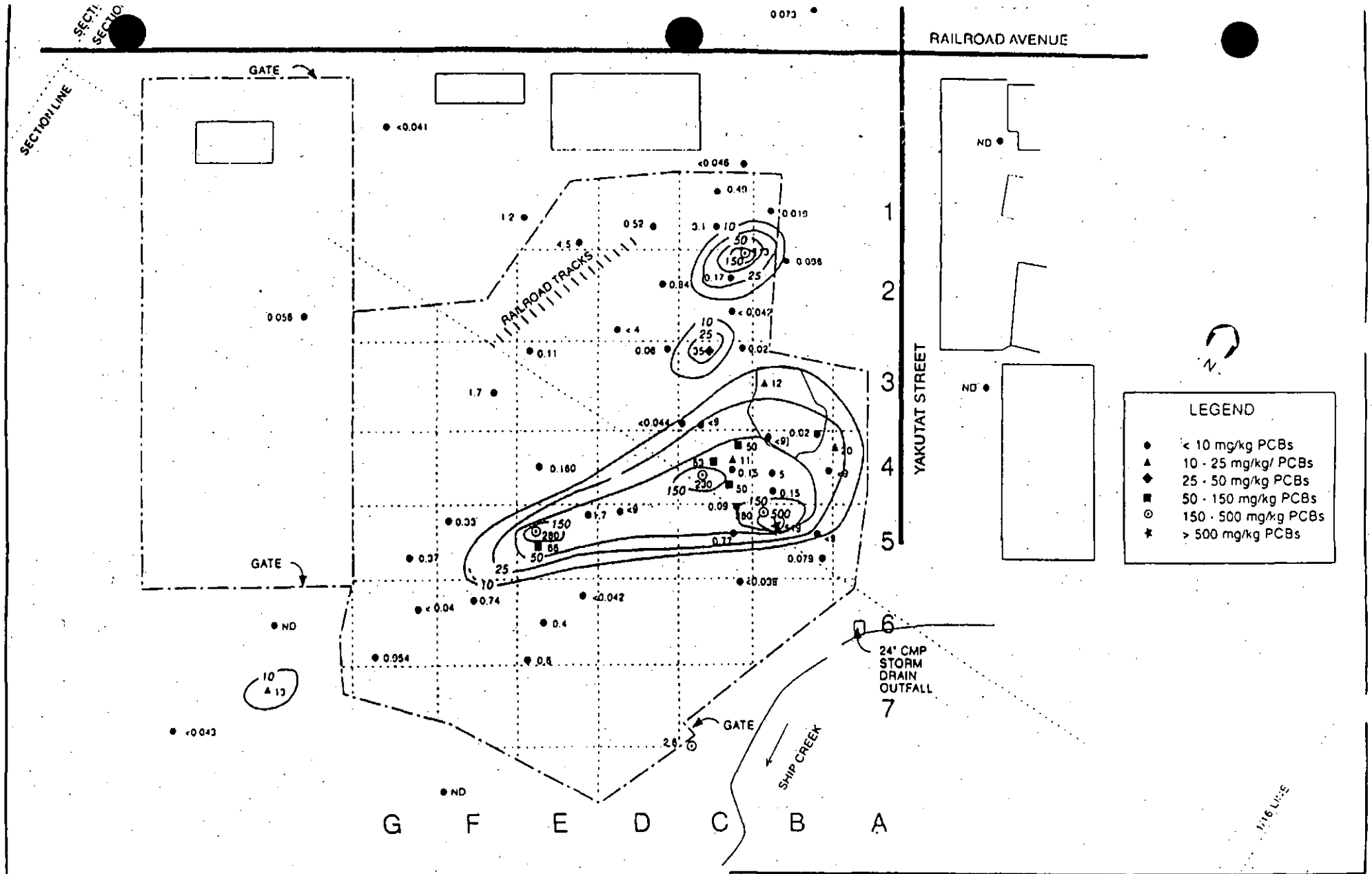
Media of Concern	Chemicals of Concern
Surface and Subsurface Soil	PCBs Lead Dioxins and Furans (co-located with PCBs)



CONCENTRATION OF PCBs IN SURFACE SOIL
STANDARD STEEL & METALS SITE

Woodward-Clyde Consultants

Figure 5-1

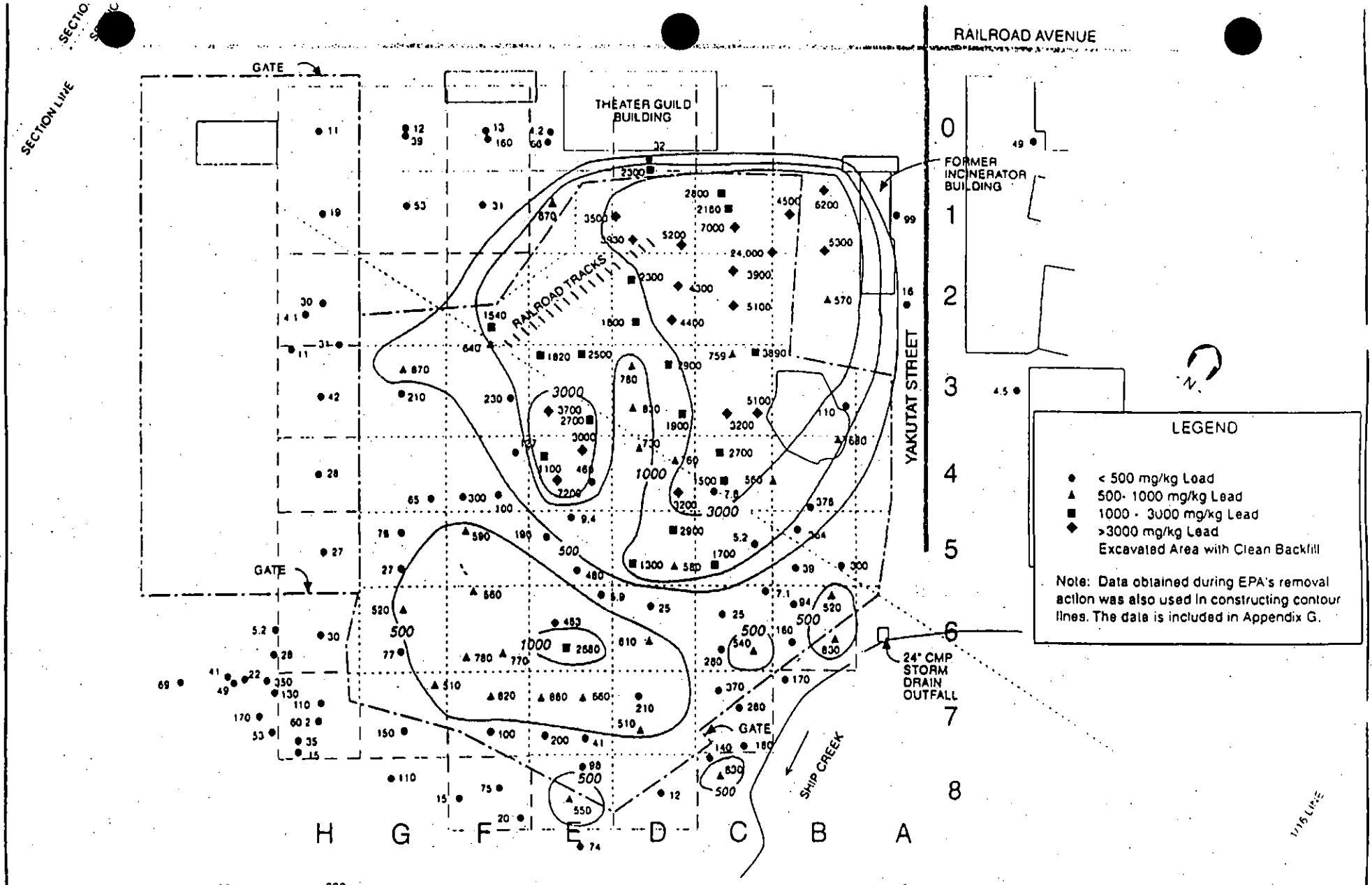


CONCENTRATION OF PCBs IN SOIL WITHIN THE WATER TABLE ZONE

STANDARD STEEL & METALS SITE

Woodward-Clyde Consultants

Figure 5-2

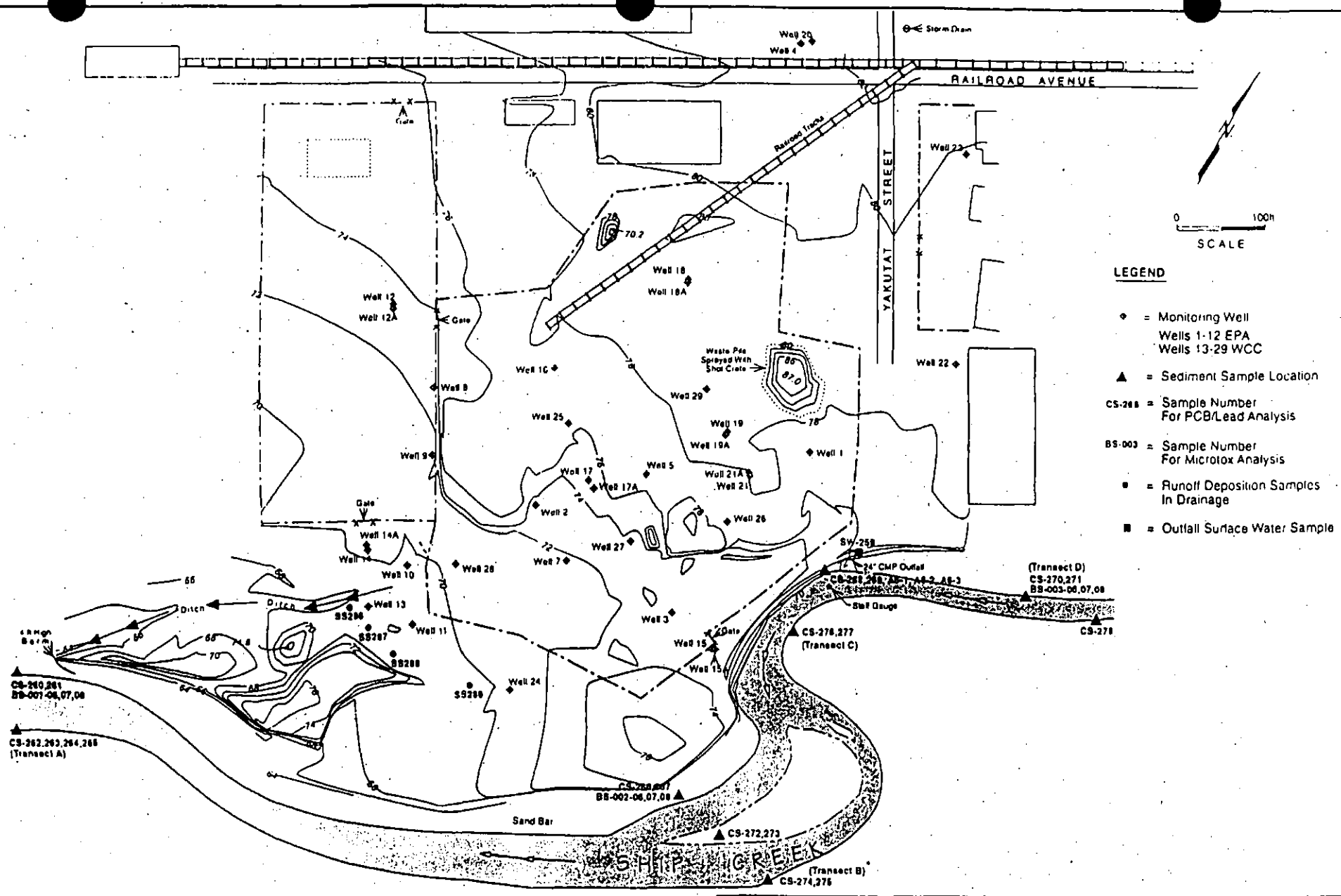


CONCENTRATION OF LEAD IN SURFACE SOIL

STANDARD STEEL & METALS SITE

Woodward-Clyde Consultants

Figure 5-3



MONITORING WELL AND SHIP CREEK SEDIMENT SAMPLING LOCATIONS

STANDARD STEEL & METALS SITE

Woodward-Clyde Consultants

Figure 5-4

Table 6-1
RESIDENTIAL RISK BASED CONCENTRATIONS, BACKGROUND CONCENTRATIONS, AND MAXIMUM CONCENTRATIONS OF PCOC'S IN SOILS AND GROUNDWATER

Chemical	Risk Based Concentration mg/kg in soil & mg/L in groundwater	Background Concentration[1] mg/kg in soil & mg/L in groundwater	Maximum Concentration[2] mg/kg in soil & mg/L in groundwater	Maximum Concentration (EPA Removal Action)[3] mg/kg in soil & mg/L in groundwater
SOIL				
PCBs	0.008	NA	380	10,600
Chrysene	0.009	NA	7.8	NA
Benzo(b)fluoranthene	0.009	NA	4.9	NA
Benzo(k)fluoranthene	0.009	NA	1.6	NA
Benzo(a)pyrene	0.009	NA	3.8	NA
Indeno(1,2,3-c,d)pyrene	0.009	NA	2.5	NA
Dibenzo(a,h)anthracene	0.009	NA	0.68	NA
2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD)	0.0000004	NA	0.00172	NA
Cadmium	10	1.13	11.60	128
Chromium	136.7	19.80	151	1,570
Copper	1000	14.85	3,320	7,700
Lead	500	6.89	7,200	44,500
GROUNDWATER				
Tetrachloroethylene	0.002	NA	0.0075	0.043
1,2,4-Trichlorobenzene	0.002	NA	0.024	0.39
Arsenic	0.00005	0.010	0.0159	ND
Cadmium	0.02	0.0001	0.0291	ND
PCBs	0.00001	NA	0.000032	2.025
Lead	NA	0.047	0.0031 J	0.00076

(1) Background concentrations in soil from Standard Steel Human Health Risk Assessment Report. Background concentrations in groundwater from Elmendorf AFB OU-5 Report.

(2) For maximum concentrations in groundwater, Phases 1 and 2 (unfiltered and filtered samples) data are used for tetrachloroethylene and 1,2,4-trichlorobenzene. Phases 2 (unfiltered and filtered samples) and 3 data are used for maximum groundwater concentrations of metals and PCBs

(3) Maximum detection during EPA removal action investigations

NA - not available

ND - not detected

Table 6-2

PARAMETERS USED TO CALUCULATE RISK-BASED SCREENING CONCENTRATIONS

Media	Scenario/ Receptor	Exposure Route	Target Cancer Risk Level	Target Hazard Index	Parameter/Reasonable Maximum Exposure Values				
					Ingestion Rate	Exposure Frequency (days/year)	Exposure Duration (years)	Body Weight (kg)	Averaging Time (days)
Soil	Residential/ Adult	Ingestion	1.00E-07	0.1	100 mg/day	350	24	70	25,550 (Carcinogen) 10,950 (Noncarcinogen)
	Residential/ Child	Ingestion	1.00E-07	0.1	200 mg/day	350	6	15	25,550 (Carcinogen) 10,950 (Noncarcinogen)
Groundwater	Residential/ Adult	Ingestion	1.00E-06	0.1	2 L/day	350	30	70	25,550 (Carcinogen) 10,950 (Noncarcinogen)

Table 6-3

SUMMARIES OF RME HAZARD INDICES

Exposure Pathway	Short-Term Worker			Long-Term Worker			Resident		
	AOC 1	AOC 2	AOC 3	AOC 1	AOC 2	AOC 3	AOC 1[a]	AOC 2[b]	AOC 3
Soil Ingestion	1.8	1	0.3	1.4	0.1	0.3	10.6	1	2
Soil Dermal Contact	1.3	0.8	0.2	3.9	0.5	0.7	8.5	1.1	1.6
Particulate Inhalation	2E-5	4E-6	4E-6	NA	NA	NA	NA	NA	NA
Groundwater Ingestion	NA	NA	NA	NA	NA	NA	0.6	1.6	NA
Groundwater Dermal Contact	NA	NA	NA	NA	NA	NA	0.03	0.1	NA
Inhalation of Volatile Organic Compounds During Showering	NA	NA	NA	NA	NA	NA	0.01	NA	NA
Total Hazard Indices	3.1	1.8	0.5	5.3	0.6	1	19.7	3.8	3.6

NA Not applicable

[a] Includes hazard indices attributed to MW-21 groundwater exposure pathways

[b] Includes hazard indices attributed to MW-13 groundwater exposure pathways

Table 6-4

SUMMARIES OF RME EXCESS CANCER RISKS

Exposure Pathway	Short-Term Worker			Long-Term Worker			Resident		
	AOC 1	AOC 2	AOC 3	AOC 1	AOC 2	AOC 3	AOC 1[a]	AOC 2	AOC 3
Soil Ingestion	2E-5	9E-6	3E-6	3E-4	4E-5	5E-5	3E-3	3E-4	5E-4
Soil Dermal Contact	1E-5	6E-6	2E-6	8E-4	1E-4	1E-4	2E-3	3E-4	4E-4
Particulate Inhalation	1E-10	1E-10	4E-12	9E-8	7E-8	NA	1E-7	1E-7	NA
Groundwater Ingestion	NA	NA	NA	NA	NA	NA	1E-4[b]	NA	NA
Groundwater Dermal Contact	NA	NA	NA	NA	NA	NA	5E-6	NA	NA
Inhalation of Volatile Organic Compounds During Showering	NA	NA	NA	NA	NA	NA	7E-8	NA	NA
Total Excess Cancer Risk	**3E-5**	**1E-5**	**5E-6**	**1E-3**	**1E-4**	**1E-4**	**5E-3**	**6E-4**	**9E-4**

NA Not applicable

[a] Includes risks attributed to MW-21 groundwater exposure pathways

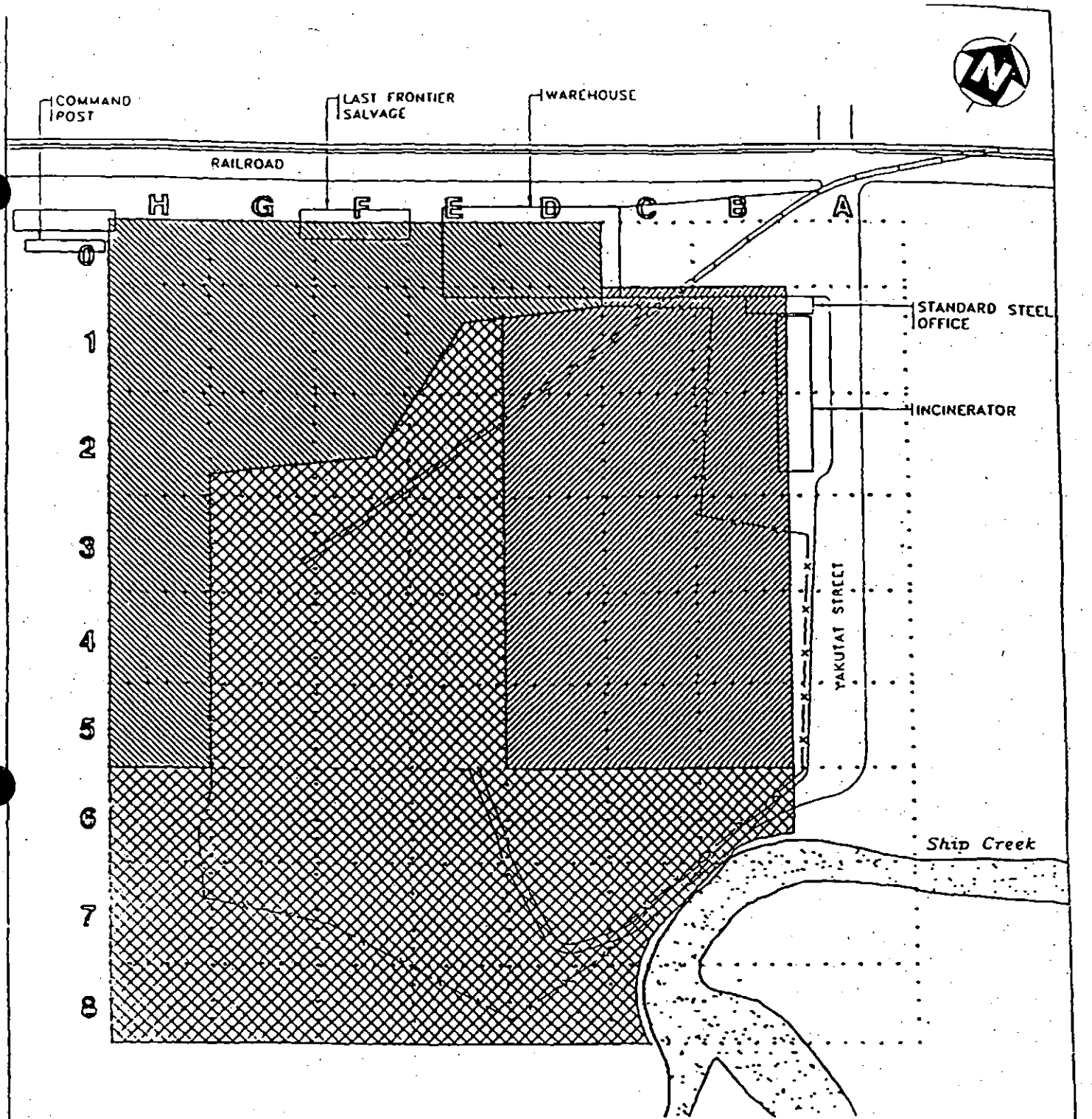
[b] Preliminary groundwater data for October 1993 reports PCB detections in MW-18 and MW-19 in the 3E-5 cancer risk range

Table 6-5

SUMMARY OF ESTIMATED EXCESS CANCER RISKS ASSOCIATED WITH 10mg/kg PCB CLEANUP LEVEL

Compound	PCBs	Dioxins and Furans	Total cPAHs	Cumulative
Concentration, mg/kg	10	0.00012[1]	0.25	--
Estimated RME risk: Long-term worker—combined dermal contact with ingestion[2]	3.0E-05	6.4E-06	5.8E-08[3]	3.6E-05

Notes:
(1) Expressed as 2,3,7,8-TCDD equivalent
(2) The procedure used to calculate risk is described in Appendix A
(3) Risk for cPAHs is ingestion only; EPA has not recommended absorption factors for dermal uptake of PAHs and states that further research is required on the bioavailability of PAHs in soil



LEGEND

SITE FENCE

GRID (80x80 FEET)

AREA OF CONCERN 1

AREA OF CONCERN 2

AREA OF CONCERN 3

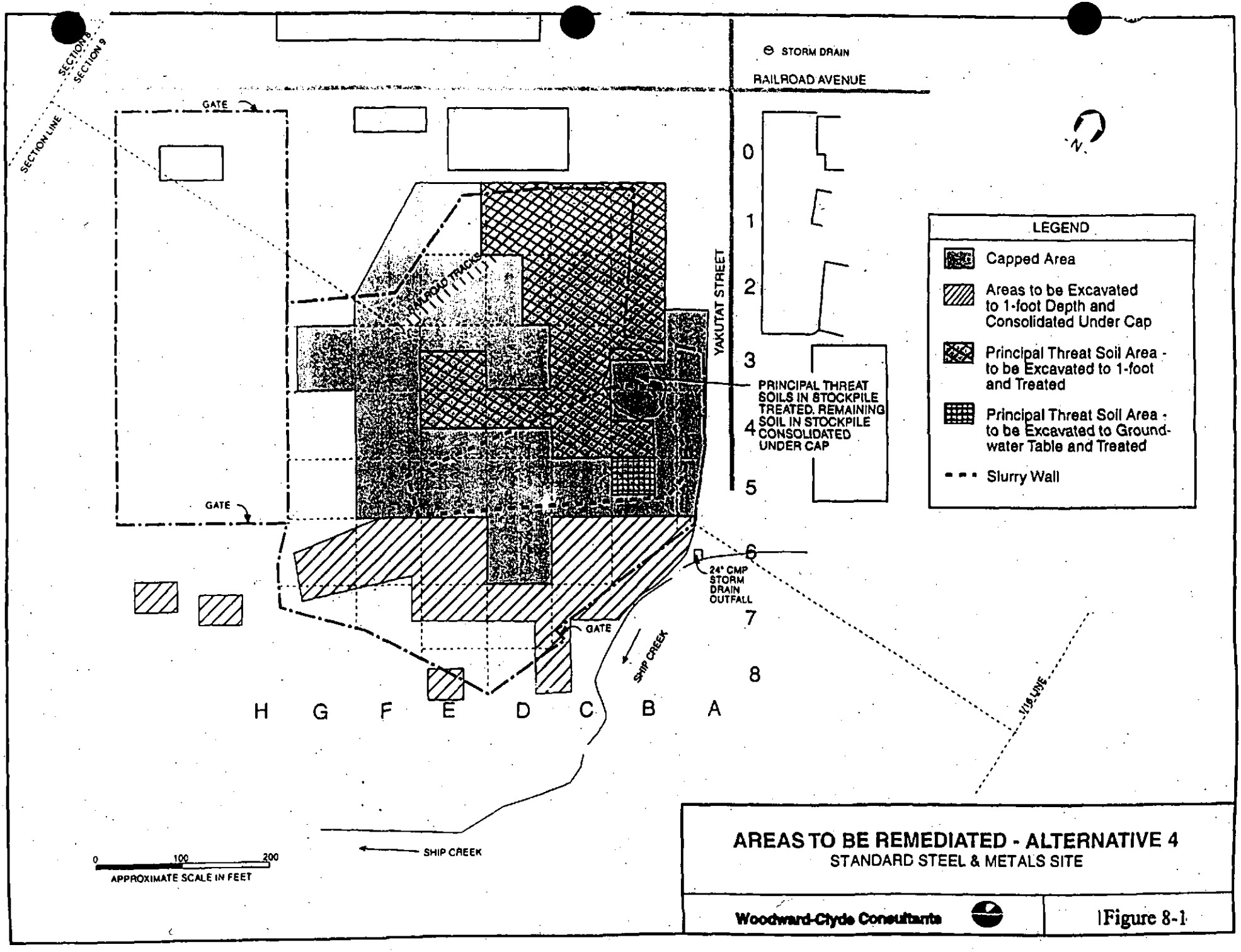
60 0 60 120

APPROXIMATE SCALE: 1" = 120'

Figure 6-1

AREAS OF CONCERN
STANDARD STEEL RISK ASSESSMENT

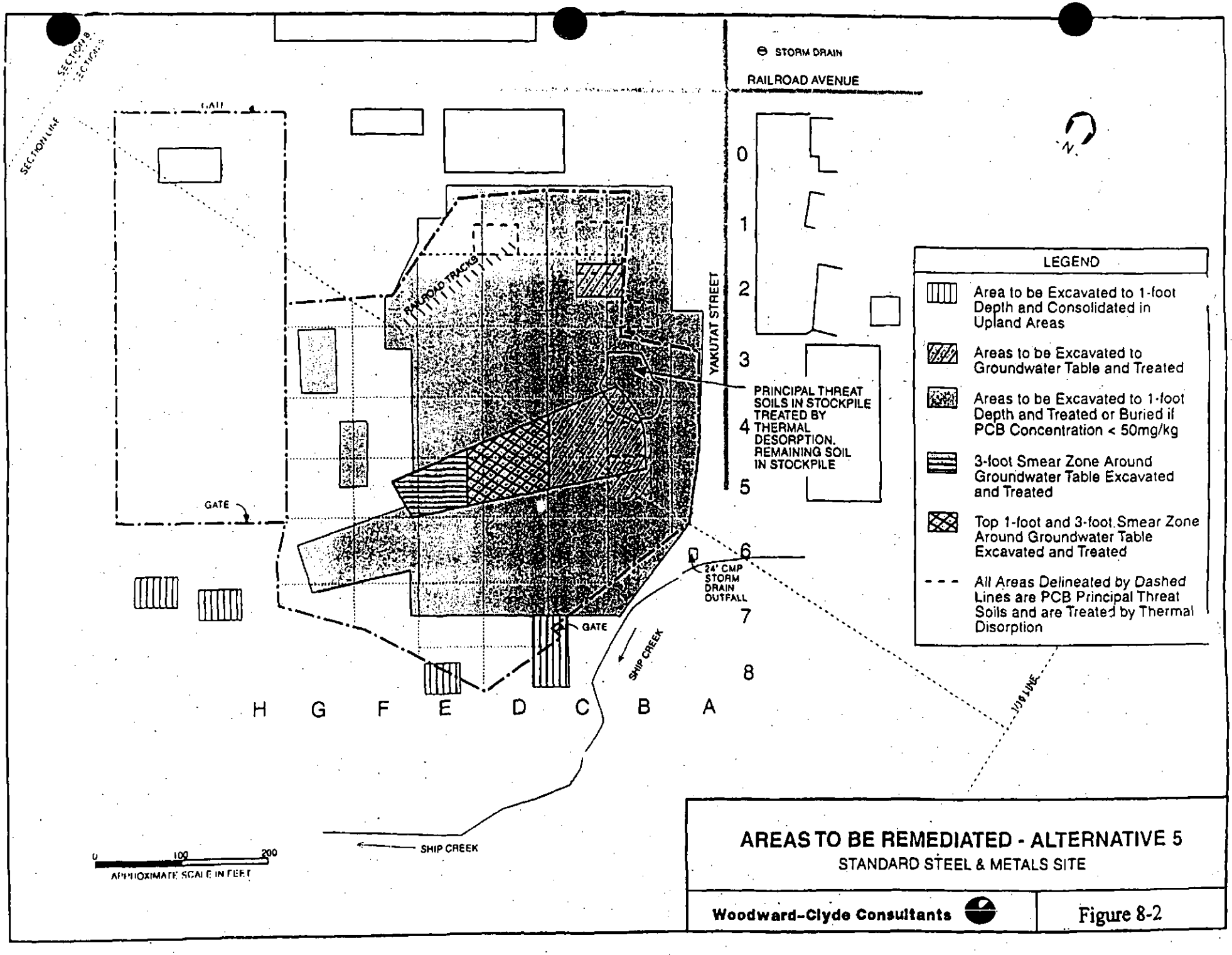
PRC ENVIRONMENTAL MANAGEMENT, INC.



AREAS TO BE REMEDIATED - ALTERNATIVE 4
STANDARD STEEL & METALS SITE

Woodward-Clyde Consultants

Figure 8-1



AREAS TO BE REMEDIATED - ALTERNATIVE 5

STANDARD STEEL & METALS SITE

Woodward-Clyde Consultants

Figure 8-2

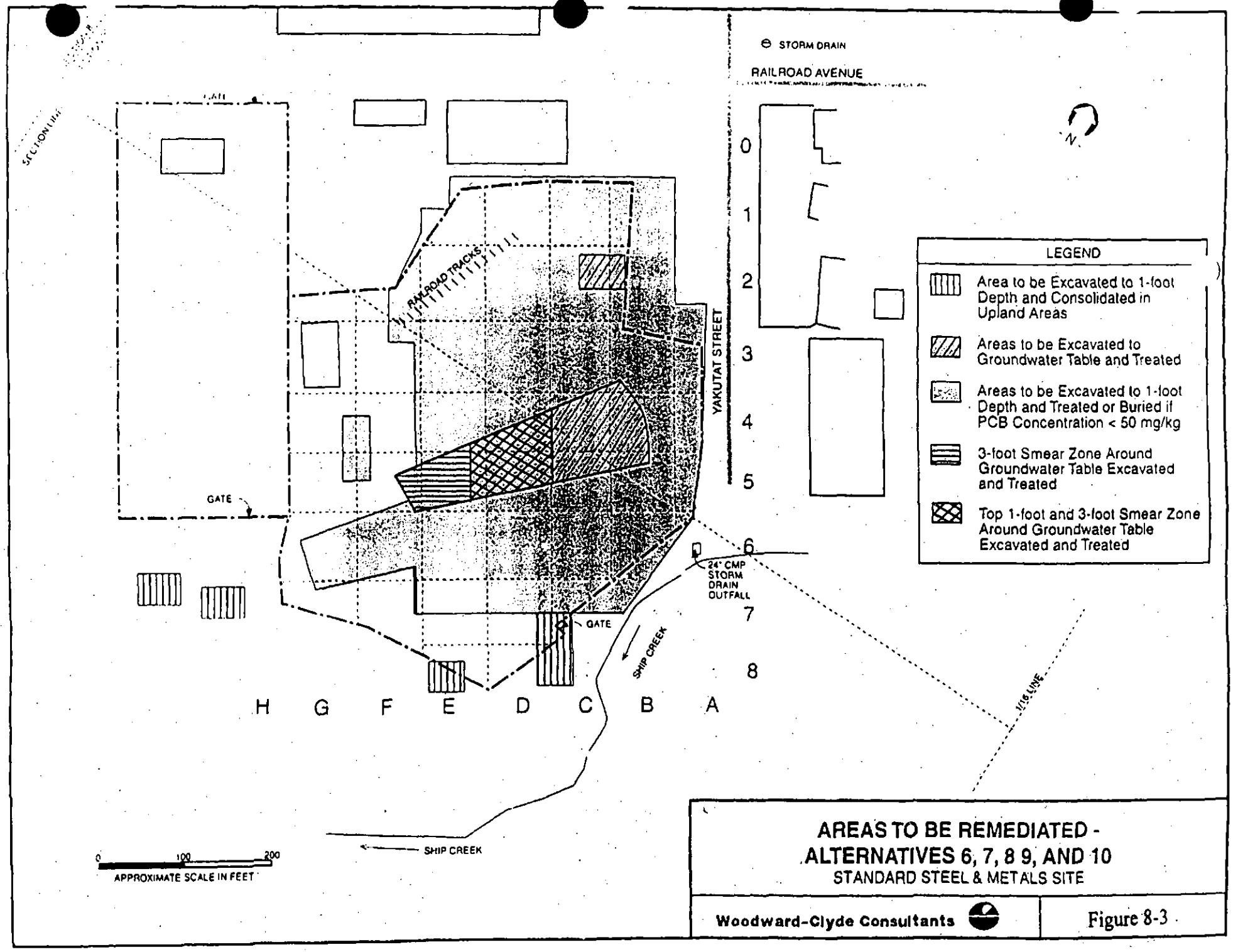

STORM DRAIN
RAILROAD AVENUE
YAKUTAT STREET
RAILROAD TRACKS
GATE
GATE
24" CMP STORM DRAIN OUTFALL
SHIP CREEK
SHIP CREEK
0
1
2
3
4
5
6
7
8
H G F E D C B A
LEGEND
Area to be Excavated to 1-foot Depth and Consolidated in Upland Areas
Areas to be Excavated to Groundwater Table and Treated
Areas to be Excavated to 1-foot Depth and Treated or Buried if PCB Concentration < 50 mg/kg
3-foot Smear Zone Around Groundwater Table Excavated and Treated
Top 1-foot and 3-foot Smear Zone Around Groundwater Table Excavated and Treated
0 100 200
APPROXIMATE SCALE IN FEET
AREAS TO BE REMEDIATED - ALTERNATIVES 6, 7, 8 9, AND 10
STANDARD STEEL & METALS SITE
Woodward-Clyde Consultants
Figure 8-3

Table 9-1

Soil Cleanup Level Summary

PCB (mg/kg)	Lead (mg/kg)	Action*
<1	<500	No Action
1-9.9	500-999	Flood plain soils only, excavate and consolidate elsewhere on-site
10-49	NA	Excavate and consolidate soils in onsite TSCA landfill below 1 foot of landfill surface
50 or greater	1000 or greater	Excavate soils and treat by solidification/stabilization, then dispose in a on-site TSCA landfill. Treated soils cannot be placed in top foot of landfill unless concentration is less than 10 mg/kg PCBs or within the groundwater fluctuation zone.

* Groundwater fluctuation zone will be backfilled with soils containing less than 1 mg/kg PCBs. All other excavated areas will be backfilled with soils containing less than 10 mg/kg PCBs. Soils may not be stockpiled, and subsequently backfilled, in a manner which reduces the concentrations below 10 mg/kg, or to avoid treatment.

RESPONSIVENESS SUMMARY
STANDARD STEEL AND METALS
SALVAGE YARD SITE

The purpose of this responsiveness summary is to summarize and respond to public comments submitted regarding the Proposed Plan for the remedy at the Standard Steel and Metals Salvage Yard site located in Anchorage, Alaska. The public comment period for the Proposed Plan was held from March 18, 1996 through April 17, 1996.

This responsiveness summary meets the requirements of Section 117 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA).

Four verbal comments were received during the April 10, 1996 public meeting held in Anchorage, Alaska. All four comments supported the selection of stabilization/solidification as a final remedy for the site.

Six written comments were received postmarked by April 17, 1996. These comments are listed and responded to in the following text. Similar comments have been combined and the text is paraphrased due to the length of comments. All comments are included in the Administrative Record.

Two comments were received after the end of the public comment period. These comments are very similar and reflect the same concerns as those submitted by Greenpeace and the Anchorage Waterways Council. EPA will address these comments in this responsiveness summary.

Comment 1: Chugach Electric Association commented on EPA's alteration of the PCB subsurface soil cleanup level from 50 mg/kg to 10 mg/kg. Chugach commented that there was insufficient notice about the change because it was not evaluated in the feasibility study. Chugach also commented that it is concerned that EPA's proposed alteration of Alternative 6 may invalidate the results of the FS. Of particular concern to Chugach is the effect on the cost of implementing the additional excavation. Chugach also notes that there is little legal basis for selecting a 10 ppm cleanup level. Chugach mentioned that if EPA limits the extent of this alteration to the three known areas of subsurface PCB contamination that their above concerns "will not be triggered". Chugach also stated that they look forward to working with EPA on implementing the remedy.

Response: In the Proposed Plan EPA presented the preferred alternative to the public with a 10 mg/kg cleanup level for both surface and subsurface soils, instead of a 10 mg/kg surface and 50 mg/kg subsurface cleanup level, as presented in the FS. The change from the FS was

identified and explained in the Proposed Plan and during the public meeting. EPA supplied sufficient notice to the public and informed them of why the change was proposed. No other comments were received objecting to the proposed subsurface cleanup standard.

Chugach's concern with the alteration of the price is warranted and EPA did consider it in proposing the alteration from the FS. In EPA's judgment, the change in volume to be excavated will not have a significant impact on actual costs of implementing the remedy. Since soils between 10ppm and 50ppm are only required to be consolidated in the TSCA landfill, as is proposed with surface soils, and not treated with stabilization the only impact will be on costs of excavating and backfilling. The cost of excavating soils is estimated (FS estimates) at $25.00/cy and backfilling and compaction at $8.00/cy. The cost of increasing subsurface excavations by 1000 cy is estimated at $33,000. Even with an additional 3000 cy of subsurface soils requiring excavation the increase in cost will be less than $100,000, which is approximately 2% of the low-end estimation of the preferred alternative. Additionally, the small increase in costs resulting from additional excavation and backfilling would be less than the costs of monitoring and maintenance of the cap that would have been required over areas of the site that would have had 50 mg/kg in the subsurface.

Chugach's comment about the legal basis of selecting a 10 mg/kg cleanup level is noted. There is no federal or state ARAR that sets PCB soil cleanup levels. The cleanup levels at this site were based on residual risk, long-term protection, and consideration of cleanup standards contained in the TSCA Spill Policy and Superfund PCB Guidance and policies. Although the TSCA Spill Policy may not require 10 mg/kg beyond 10 inches, EPA has the discretion to select a more stringent cleanup level. We selected 10 mg/kg as the cleanup level for PCBs because commercial activities on the site and the nature of the climate in Anchorage cast doubt on the effectiveness of a one foot soil layer over soils containing 50 mg/kg at depth. EPA decided that either a substantial cap (asphalt, geomembrane) would be needed to prevent exposure to soils with up to 50 mg/kg PCBs, or an alternative was to excavate soils above the surface soil cleanup level and contain with other soils exceeding the cleanup level. Containing moderately contaminated soils with the treated soils was determined to be more cost effective and practical than capping most of the site and maintaining that cap forever.

Regarding the extent of subsurface soil excavations above 10 mg/kg PCBs. EPA anticipates, based on current data, that these areas are limited to four locations on-site. EPA's alteration is based on the need to prevent future releases from the site. Considering that subsurface characterization is limited and additional sampling may determine significant areas of subsurface contamination beyond the three areas identified in the RI/FS, EPA can not put a limit on the need for addressing these soils. However, EPA will reevaluate the remedy if very significant areas of subsurface contamination are discovered that would greatly increase volumes to be excavated and contained. In that event, EPA will work with the participating parties conducting the remedial action and the community to address these soils in a protective manner.

Comment 2: Anchorage Waterways Council (AWC) submitted substantial comments regarding

the lack of information on current stream bed conditions and hydraulic characteristics of Ship Creek in the Administrative Record. AWC does not support stabilization/solidification as the remedy at the site and can "concur only with options 9 or 10. Main points raised by AWC are listed below.

1) Degree of aggradation of Ship Creek, a study is needed to quantify and qualify the degree of aggradation.

2) Ship Creek has been channelized in some locations upstream of the site and significant urbanization may significantly alter the slug flow and flooding characteristics of Ship Creek.

3) Dams located upstream may significantly affect the stream bed condition, gradient, and elevation. AWC states that " There appears to be a significant chance of catastrophic failure of one or both of the fish hatchery dams during a flooding event." This could significantly alter the stream bed.

4) The Standard Steel site is located in an area which "will almost certainly be inundated by a 100, 500 or 1000 year flood event, just as it was in the flood of August 1989." AWC raised concerns of changes in global weather patterns and that flooding and inundation will be more frequent.

5) EPA's evaluation of remedial options may contain errors regarding which options achieve long-term permanence and that alternatives 2, 3, 5, and 6 must be included in the category of alternatives which could be effected by catastrophic events.

6) EPA's evaluation fails to adequately consider the economic and health aspects of the release of site contaminants to Ship Creek.

7) AWC recommends EPA perform an analysis of potential economic and health effects of a release of contamination from this site. Also, that leaving these wastes on-site is in effect leaving an "environmental timebomb".

Response to points 1) ,2), 3), 4) and 5): As part of Remedial Design a study of flooding potential in the Ship Creek basin will be required. This study will evaluate the impacts of a 100 and 500 event on the site. The landfill and solidification mix will be designed to resist at a minimum a 100-year flood event in accordance with TSCA landfill requirements. It should be noted that there are common engineering solutions to designing structures in flood plains. The fact that the structure contains PCBs and lead does not prevent the structure from being designed to withstand flooding, erosion or seismic events.

The stabilized mass will immobilize the waste and not allow PCBs or lead to be released

from the site. The solidified wastes and groundwater will be monitored. If monitoring shows releases of hazardous substances above drinking water standards or site cleanup levels, such releases will be addressed. It should be noted that significant transport of contaminated soils did not occur after the August 1989 flood event. This is supported by sampling data from the EPA removal actions and comparison to RI/FS sampling. The landfill will not be placed within the 100 year flood plain.

The erosion control bank along the site's border and Ship Creek will be repaired and, if necessary, improved. This erosion control structure will be maintained as long as the landfill exists.

Response to point No. 6: Concerning Long-term effectiveness and permanence, EPA stated in the Proposed Plan (March 18, 1996) that

> "Alternative 4 would require maintenance of a cap and containment measures forever, and therefore receives a low rating. Alternatives 5,6,8,9, and 10 would all have a high long term reliability because the contaminants would either be removed from the site or solidified. Although the containment cell would require monitoring, there is sufficient experience with solidification to predict that it would be reliable over time. Alternative 7 would remove most (90%) of PCBs, but would not provide as significant on-site controls (constructed mechanisms) to prevent long term releases as Alternative 6. Potential releases from Alternatives 4 and 7 would be caused by very significant site disturbances, such as earthquakes, flooding, or failure of land use controls."

EPA does not disagree with AWQ's position that "Any" waste left on-site could (EPA emphasis added) be affected by catastrophic events or improper application of land use controls. However, CERCLA states that EPA is to evaluate risk based on reasonable land use scenarios and base remedies on reasonable assumptions. Flood and seismic events can be anticipated and the landfill designed to minimize releases associated with such events. All potential effects from global warming, acts of God, or war cannot be anticipated. EPA considers the evaluation presented in the Proposed Plan as an accurate evaluation of which alternatives comply with the criteria of long-term protection and effectiveness, and that our assumptions and remedy is reasonable.

Response to point No. 7: EPA has evaluated effects of releases from the site and has determined that there are no current releases from the site. We have also determined that by implementing this remedy future releases will be highly unlikely. EPA strongly disagrees with the statement that the wastes at this site are in effect an environmental timebomb. Neither PCBs or lead are mobile in water, substantial actions have been undertaken which have eliminated risks posed by the principle threats at the site (PCB oils), and on-site containment versus offsite containment or treatment poses fewer risks due to transportation. Exposure through other pathways, such as direct contact, inhalation, ingestion will be eliminated by solidification.

Comment 3 and 4: Greenpeace and Bob French submitted the following comments (comments were separate but similar enough to address together):

1) EPA stated the life expectancy of the monolith is approximately 30 years. The commenters concern is that the short life expectancy is too short to ensure protection of environmental and human health. The commenter also states that this technology is untested in subarctic environments and that a GAO report states that EPA officials believe that technologies must be used multiple times under a variety of conditions before their cost and performance data become reliable and acceptable for cleanup decisions.

2) EPA has minimized the severity of pollution problems ensuing from the creek and that a DEC Site Summary for Standard Steel stated groundwater was contaminated with PCBs, lead, and tetrachloroethylene (not addressed in the Proposed Plan) and that sediments in Ship Creek are contaminated with PCBs. The commenter feels the scope of the investigation was too limited to address impacts to offsite drinking water sources and bioaccumulation of persistent organochlorine contaminants downstream from the site.

3) EPA has not adequately considered the endocrine disruption potential for the organochlorine chemicals in wildlife and humans. EPA has not fully discussed the fate of dioxin/furan contaminated ash, and that the containers with the dioxin/furans are not secured.

4) Greenpeace feels that with "the serious uncertainties and lack of proven technology regarding the proposed remedy, the best solution to the problem is Alternative 9- Offsite disposal.

Responses:

1) EPA stated during the public meeting that the "life expectance is at least thirty years. We say it could go on indefinitely." Stabilization (cement/concrete) technology has been employed for thousands of years and has a long history of data to draw from. The design of the containment cell will be for hundreds of years, and Institutional Controls will be required to ensure the remedy is maintained and changes in land use do not pose an unacceptable risk to human health or the environment.

Regarding the GAO report, without knowing the report referred to and its context, EPA cannot directly respond to that statement. EPA has a national policy to promote the use of innovative technologies when they have a reasonable chance of providing a cost effective, efficient, and reliable treatment solution. Stabilization/solidification has been used at other Superfund cleanups, and EPA has proposed stabilization/solidification as an alternative remedial alternative for PCBs under the Toxic Substances Control Act, Resource Conservation and Recover Act and the Comprehensive Environmental Response, Compensation and Liability Act.

EPA acknowledges the challenge of implementing this remedy in a subarctic environment. However, solidification has been implemented successfully at many Superfund Sites in the lower forty eight states which have similar climatic conditions as Anchorage, Alaska.

2) Both EPA and DEC were involved in the scoping of the RI/FS and concurred on the scope of the RI/FS investigation. EPA maintains that groundwater is not contaminated at levels which require remediation. The tetrachloroethylene contamination the commenter is referring to was located onsite and only in one well. This does not constitute a situation requiring remediation of groundwater, nor does it necessitate a different remedial alternative. The selected remedy includes monitoring of groundwater to ensure that there is no migration of contaminants off-site.

Ship Creek was evaluated by EPA, with the input by DEC and a Biological Technical Advisory Committee consisting of the U.S. Fish and Wildlife Service, Alaska Department of Fish and Game, Elmendorf AFB Natural Resource Trustee. This group concurred with the conclusion that the Standard Steel site is not currently releasing contaminants to Ship Creek. Ship Creek is a heavily impacted waterway by many point and non-point sources. There have been other PCB spills adjacent to the creek and some directly into the creek as well as urban runoff, storm sewers and other unknown sources. It was decided during scoping that correlating past releases from the Standard Steel site to Ship Creek was impractical.

3) EPA did evaluate the impacts of dioxin/furans in the Baseline Risk Assessment. The assessment determined that dioxins/furans do pose a risk. EPA is taking action to mitigate these risks by stabilizing/solidifying all soils containing dioxins/furans. These soils are collocated with PCB soils requiring excavation and treatment.

The dioxin/furan contaminated equipment is secured on site in a locked shipping container. This container is within the fence boundary and located on private property maintained by the Alaska Railroad Corporation. Ash from the incinerator was placed in the shipping container with the incinerator equipment. The equipment and ash will be properly disposed off-site as part of the selected remedy.

4) EPA feels the uncertainty related to the effectiveness and reliability of stabilization/solidification is low and that remedial design will result in a protective long-term solution for the site. EPA feels that shipping large volumes of soils from Anchorage Alaska to a disposal facility in the lower forty eight states poses greater short-term risks, does not alter the long-term risks and would simply transfer the waste to another location at a substantial cost.

Comment 5: The Municipality of Anchorage submitted a comment concerning erosion by Ship Creek along the bank of the site. The commenter does not oppose the proposed alternative in

concept.

Response: The remedy will require an assessment of Ship Creek erosion potential and mitigation requirements. The remedy will include maintenance of the erosion control structure along the site bank.

Comment 6: Sears Roebuck and Co commented that the proposed plan for remediation of the site represents an effective and pragmatic approach to remediating the subject site. However, the commenter has concerns with the selected 1000 mg/kg treatment level for lead. The commenter feels it is "excessively conservative". The commenter provided an Attachment entitled "Calculation of Lead PRG Using Bowers Et. Al. (1994) Model" This calculation results in a PRG of 7,850 mg/kg lead in soil.

Response: EPA appreciates that the commenter supports the proposed remedy. The treatment level for lead is not solely driven by risk alone. Pursuant to the Resource Conservation Recovery Act, the lead present in soils at the site is considered a characteristic RCRA hazardous waste (waste code D008) when generated (excavated). Pursuant to RCRA Land Disposal Restrictions characteristic wastes must be treated prior to land disposal or obtain at Treatability Variance. Soils at the site failed the characteristic test (SW-846, TCLP) of leaching greater than 5.0mg/kg lead when the soil concentrations was as low as 780mg/kg (Table 2-10 of FS). It was shown in the soil treatability tests that soils above 1700mg/kg lead would consistently fail the characteristic test and would be considered Hazardous Waste.

Since soils exceeding 10 mg/kg PCBs will be excavated and placed in the TSCA landfill and these soils have greater the than 1000mg/kg lead, the presence of lead forces treatment of these materials prior to land disposal.

The 1000 mg/kg cleanup level has been utilized at many other Superfund sites with an industrial land use. This level is considered protective by EPA in these circumstances. As EPA and the commenter noted an acceptable method of quantitatively evaluating the risk posed by lead to adults at industrial sites is unavailable. The Bowers Et. Al. (1994) model is being evaluated by EPA for general application in the Superfund program. However, the model has not yet been generally accepted in Superfund guidance and it was not being considered at the time the Baseline Risk Assessment was completed for this Site.

EPA utilizes the Baseline Risk Assessment to determine whether an evaluation of remedial alternatives is warranted at a site. EPA does re-evaluate risks when new information becomes available. However, unless that new information demonstrates that a significant change (either greater or lesser risk) in risk from the previous risk assessment would occur, EPA does not consider it necessary to delay cleanup and incur additional cost to revise the risk assessment or reassess alternatives.

EPA (Mark Maddaloni, EPA Lead Evaluation Workgroup, chair of the sub-committee for

non-residential exposure) did a limited evaluation of the analysis Sears submitted using the Bowers Et. Al. (1994) model and disagrees with two default assumptions used by Sear's consultant. First and foremost, EPA cannot support adjustment of the frequency of contact (FOC) to account for EPA's default industrial exposure duration divided by a lifetime (i.e., 25 years / 70 years). An elevated blood Pb level will reflect current exposure conditions and has nothing to do with the how long people tend to live. Rather than integrate the blood lead level over a lifetime, EPA is interested in exposure durations that could be limited to nine months - that duration representing the gestational period in which lead would be transferred from mother to fetus. Second, bioavailability is an issue. The value used by Sears (8%) represents a lower bound estimate in that it reflects conditions where bioavailability was measured during a fed rather than fasted state. Absorption is much greater when lead is introduced to an empty stomach. A default value employed at the Leadville Superfund Site of 12% would be recommended.

The Bowers Et. Al. (1994) model may be an appropriate tool for evaluating lead risks at non-residential sites. However, EPA does not think it would be in the best interests of the community, or the site to delay cleanup and conduct another evaluation of risks at the site, when the outcome would not likely be a significant change in cleanup level or cleanup costs. EPA considers a 1000 mg/kg cleanup level for lead appropriate at the site based on a qualitative evaluation of lead risks, previous remedial action levels at other Superfund sites, and the collocation of lead and PCBs at the site.

It would be very expensive and delay cleanup to conduct TCLP tests on all soils prior to treatment to determine whether they fail the TCLP test, and it is impractical to separate the lead contaminated soils from the PCB soils. Therefore EPA will retain the 1000mg/kg treatment level for lead contaminated soils.

Late Comments: Two comments were received from the Sierra Club, Alaska Chapter and the Downtown (Anchorage) Community Council. There concerns are that EPA does not have enough information for selecting stabilization/solidification as a final remedy and groundwater and Ship Creek Sediments are contaminated and need to be addressed. They submitted similar concerns as the above comments regarding flooding and seismic events.

Response: EPA believes there is sufficient information to assess stabilization/solidification. Treatability tests have been conducted on site soils and have determined that s/s is effective at binding the wastes in a monolith. Further testing will be conducted to determine how to address freeze/thaw process. If these tests determine that the monolith can not be constructed to withstand freeze/thaw process and maintain its goal of preventing exposure and release of the contaminants then an alternative remedy will need to be selected.

EPA does not concur that groundwater and sediments in Ship Creek require remedial action to address contamination. The data within the RI and the Risk Assessment clearly illustrate that groundwater does not pose an unacceptable risk to human health or the environment. The LNAPL is a high risk material, but is considered to be a "source" to potential

groundwater contamination and not considered to be groundwater. The LNAPL and LNAPL contaminated soils will be excavated and treated as part of the selected remedy. RI data on Ship Creek sediments show no PCB contamination is not present in sediment adjacent to the site which pose an unacceptable risk to human health or the environment and therefore does not require remedial action. Stream sediment samples adjacent to the site and downgradient did not detect PCB or lead contamination which demonstrated a release from the site. These samples were obtained in depositional areas and would indicate whether there have been recent releases. Past releases may have occurred but would be distinguishable, if detected, from non-site releases.

Flooding and seismic events will be addressed during design of the monolith. These are common engineering restraints which any activity within the Ship Creek basin and throughout most of Anchorage would have to accommodate.

STANDARD STEEL AND METALS SALVAGE YARD
ANCHORAGE, ALASKA

RECORD OF DECISION

CONCURRENCE			
INITIALS:	LLH w/changes		
SURNAME:	L. Houck	E. Kowalski	J. Fox
DATE:	7/2	7/2/96	

STANDARD STEEL AND METALS SALVAGE YARD
ANCHORAGE, ALASKA

RECORD OF DECISION

		CONCURRENCE		
INITIALS:	CC	CK	MG	
SURNAME:	C. Cora	C. Krueger	M. Gearheard	
DATE:	6/28	7/11/96	7-15-96	

Appendix B

STATEMENT OF WORK

REMEDIAL DESIGN AND REMEDIAL ACTION, STANDARD STEEL AND METALS SALVAGE YARD

ANCHORAGE, ALASKA

Table of Contents

1.0 PURPOSE. 1

2.0 REMEDIAL ACTION/PERFORMANCE STANDARDS. 1
2.1 The Selected Remedy 1
2.1.1 Scrap Debris Removal. 1
2.1.2 Regulated Material Removal. 3
2.1.3 Excavation. 3
2.1.3.1 Sampling Design 3
2.1.3.2 Contamination Levels 4
2.1.3.3 Soil Processing 4
2.1.3.4 Grading/Backfilling/Cover 4
2.1.4 Soil Pretreatment/Prescreening 4
2.1.5 S/S Process. 5
2.1.5.1 Expanded Treatability Study 5
2.1.5.2 S/S Mix Testing 6
2.1.5.3 Site Use. 7
2.1.5.4 Site Controls 7
2.1.6 Confirmation Sampling. 7
2.1.7 Treatment Equipment and Staging Area Preparation. 8
2.1.8 Consolidation of Soil from the Floodplain. . .8
2.1.9 TSCA Landfill. 8
2.1.9.1 Regulatory Requirements 9
2.1.10 Waste Shipment. 9
2.1.11 Repair of Ship Creek Erosion Control Wall . .9
2.1.12 Flood Evaluation. 9
2.1.13 Institutional Controls. 10
2.1.14 Deed Notice and Land Use Restrictions . . . 10
2.1.15 Groundwater Use Restrictions 10
2.1.16 Access Restrictions 11
2.1.17 Groundwater Monitoring 11
2.1.17.1 Groundwater Contaminant Levels . . . 11
2.1.17.2 Groundwater Testing Methods. 12
2.1.18 Storm water Management 12
2.1.19 Operation and Maintenance 12

3.0 PERFORMANCE STANDARDS 13
3.1 Soil Cleanup Standards 13
3.2 Soil Treatment Standards 13
3.3 TSCA Landfill and Stabilized Soil Performance Standards. 14
3.4 Groundwater Monitoring Compliance Standards 14

4.0 SCOPE OF REMEDIAL DESIGN AND REMEDIAL ACTION 15
4.1 Task 1: Remedial Design Work Plan 15
4.1.1 Plan Contents 16
4.1.2 Design Level Treatability Study Results . . 16
4.2 Task 2: Remedial Design Phases 16
4.2.1 Conceptual Design 17
4.2.2 Preliminary Design 17
4.2.3 Prefinal and Final Designs 18
4.3 Task 3: Remedial Action Work Plan 18
4.4 Task 4: Remedial Action Construction 19
4.4.1 Preconstruction Inspection and Meeting . . . 19
4.4.2 Prefinal Inspection 20
4.4.3 Final Inspection 20
4.4.4 Reports 20
4.4.4.1 Pre-Final Construction Report . . . 21
4.4.4.2 Final Construction Completion Report 22
4.5 Task 5: Operation and Maintenance 22
4.6 Task 6: Performance Monitoring 23
4.6.1 Performance Standard Verification Plan . . . 24
4.6.2 Performance Sampling of S/S Treated Soil . . 24
4.7 Task 7: Remedial Action Completion. 24
4.7.1 Notice of Remedial Action Completion. . . . 24
4.7.2 Draft Remedial Action Completion Report . . 24
4.7.3 Final Remedial Action Completion Report. . 25

5.0 SUMMARY OF MAJOR DELIVERABLES/SCHEDULE 25

STATEMENT OF WORK FOR
REMEDIAL DESIGN AND REMEDIAL ACTION
STANDARD STEEL AND METALS SALVAGE YARD
ANCHORAGE, ALASKA

1.0 PURPOSE

The purpose of this Statement of Work (SOW) is to set forth requirements for implementation of the remedial design (RD) and remedial action (RA) set forth in the Record of Decision (ROD), which was signed by the Regional Administrator of the United States Environmental Protection Agency (EPA), Region 10, on July 16, 1996, for the Standard Steel and Metals Salvage Yard Site (Site). The Settling Defendants and, for purposes of implementing institutional controls, the Owner Settling Defendant, shall follow the ROD, this SOW, the approved RD Work Plan, the approved RA Work Plan, EPA's Superfund Remedial Design and Remedial Action Guidance (OSWER Directive No. 9355.0-4A) and any additional guidance referred to in writing or transmitted to Settling Defendants or Owner Settling by EPA for submitting deliverables involved with designing and implementing the RA(s) at the Site.

The Settling Defendants shall coordinate with the Owner Settling Defendant to implement the ROD in accordance with the planned reuse of the property, where practicable. The coordination shall include: future development plans; siting of a Toxic Substances Control Act (TSCA) landfill; and design (dimensions and utility access corridors) of the TSCA landfill. All coordination shall occur in accordance with the performance standards set forth in the ROD and shall address input from the community, to the extent practicable.

2.0 REMEDIAL ACTION/PERFORMANCE STANDARDS

Settling Defendants shall design and implement the RA, stabilization/solidification (S/S), to meet the performance standards and specifications set forth in the ROD and this SOW. Performance standards shall include cleanup standards, standards of control, quality criteria, and other substantive requirements, criteria, or limitations including all Applicable or Relevant and Appropriate Requirements (ARARs) set forth in the ROD, this SOW, and/or Consent Decree.

2.1 The Selected Remedy

Based upon consideration of the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. § 9601 et. seq., a detailed analysis of the potential remedial alternatives, and public comments, EPA has determined that S/S is the most appropriate remedy for the Site. A summary of soil treatment and disposal standards is provided in Table 3-2 of this document. The key components of the selected remedy include:

- Removal of regulated material currently stockpiled on-site and of previously generated investigation derived wastes with disposal in a RCRA Subtitle C or D landfill or recycling of the materials, as applicable;

- Off-site disposal of remaining scrap debris by recycling or disposal in a RCRA Subtitle D landfill; or, if the debris is a characteristic hazardous waste or contains greater than 50 mg/kg PCBs or 10μg/100cm^2 PCBs by standard wipe tests, treatment (if necessary) and disposal in a RCRA Subtitle C or TSCA landfill;

- Excavation and consolidation of all soils exceeding a 10 mg/kg PCBs or exceeding 1000 mg/kg lead cleanup level;

- S/S treatment of all soils having contamination levels at or greater than 1000 mg/kg lead or at or greater than 50 mg/kg PCBs;

- On-site disposal of S/S-treated soils and of excavated soils contaminated with between 10 mg/kg and 50 mg/kg PCBs in a TSCA landfill;

- Excavation of soils contaminated above 1.0 mg/kg PCBs and 500 mg/kg lead from the Ship Creek floodplain and consolidation of these soils on the portions of the Site where use and access restrictions will be implemented;

- Repair and the continued maintenance of the erosion control structure located on the bank of Ship Creek;

- Maintenance of the landfill;

- Implementation of institutional controls to limit land uses of the Site and, if appropriate, Site access; and,

- Monitoring of groundwater at the Site to ensure the continued effectiveness of the RA.

2.1.1 Scrap Debris Disposal. Approximately 150 tons of debris

generated during the previous scrap removal action remain stockpiled on-site. All scrap and debris including that generated during soil pre-screening activities and located within the channel of Ship Creek but excluding recyclable scrap metals, shall be collected and transported off-site and disposed at a permitted Subtitle C, D, or TSCA landfill, as appropriate. Disposal shall comply with all applicable rules and regulations. Scrap metal shall be recycled through a legally permitted scrap metal recycler. Non-recyclable scrap metal may be incorporated into the on-site TSCA landfill if it will not compromise the structural integrity of the landfill.

2.1.2 Regulated Material Removal. Approximately 290 drums and other materials were stored on-site. All of the drums and other regulated material, except investigation-derived wastes, were removed in 1996 pursuant to EPA's request under the RI/FS Administrative Order on Consent. The drums contained materials collected by the EPA during previous emergency removal actions, oil and fuel salvaged during scrap removal actions, and decontamination wastes and personal protective equipment generated during the RI field work. EPA approved the final disposal report for these wastes.

2.1.3 Excavation. All soils containing PCB contamination above 10 mg/kg and all soils containing lead contamination above 1000 mg/kg shall be excavated and placed within an on-site TSCA landfill. Soils within the Ship Creek 100 year floodplain shall be excavated when contaminant levels exceed 1 mg/kg PCBs or 500 mg/kg lead and shall be placed on the Site where use and access restrictions will be implemented.

2.1.3.1 Confirmation Soil Sampling Design. The US EPA Data Quality Objective (DQO) process shall be followed to develop a statistical sampling design rationale for the number of samples required to support defensible decision making. The DQO shall be presented to the EPA prior to developing the final sampling design. Limits on false negative and false positive decision errors shall be presented during scoping of the initial sampling design. Settling Defendants shall utilize methods outlined in the EPA guidance document "Methods for Evaluating the Attainment of Cleanup Standards," along with engineering judgment, to determine the appropriate sample size, and thus the size of the sampling grids. The confidence interval approach may be used to evaluate compliance with the soil cleanup levels; the statistical test will be performed with a Type 1 level of 0.05% (95% confidence) to demonstrate that the upper confidence interval for the mean of the soil PCB and lead concentration remaining after soil excavation is less than the soil cleanup levels. The US EPA documents, EPA QA/G-4, EPA QA/G-4S, and EPA QA/G-4GEFT, provide

guidance to assist organizations plan, implement, and evaluate the DQO process.

2.1.3.2 Contamination Levels. Contaminant levels shall be determined prior to excavation by employing current test data or by additional sampling and analyses, if necessary. Soils shall not be stockpiled in a manner that will artificially reduce existing contaminant concentrations, unless the stockpiled soil will be S/S treated and the soils are blended to create a more uniform S/S feed stream.

2.1.3.3 Soil Processing. Soil having contamination above cleanup levels shall be excavated, screened, and pre-processed to remove materials not suitable for S/S. Soil containing less than 1,000 mg/kg lead and greater than 10 but less than 50 mg/kg PCBs shall be placed in the on-site TSCA landfill at a depth of greater than one foot below the finished surface and above the zone of normal seasonal groundwater fluctuation. If soils with PCB concentrations between 10 mg/kg and 50 mg/kg are placed on the top of the landfill, a cap that will prevent erosion of contaminated soil; prevent infiltration of rainwater through contaminated soil; and, prevent contact with the contaminated soils shall be designed and constructed.

2.1.3.4 Grading/Backfilling/Cover. Excavations advanced below the zone of groundwater fluctuation (zone) shall be backfilled to the top of the zone with clean fill defined as soil containing less than 1 mg/kg PCBs. The Site shall be graded to prevent surface water runoff from the Site directly into Ship Creek. Excavated areas above the zone and within the boundaries of the TSCA Landfill shall be backfilled with soils containing untreated soils having contamination levels between 10 and 50 mg/kg PCBs. Excavated areas outside of the TSCA Landfill boundary shall be backfilled with soils containing less than 10 mg/kg PCBs. The surface of the site shall be covered with a minimum of 12-inches of clean soils defined as soil containing less than 1 mg/kg PCBs which will support a vegetative cover or shall be paved to prevent erosion of surface soils.

2.1.4 Soil Pretreatment/Prescreening. All soil contaminated with greater than or equal to 50 mg/kg PCBs and/or greater than or equal to 1000 mg/kg lead shall be treated by S/S and pretreated to screen out material that is oversized and/or may interfere with the S/S treatment process. Potential material to be screened out includes, but is not limited to, wood, cardboard, wire, cobbles, and scrap debris. The scrap debris includes metal and wood. If the RD determines that metal scrap will not interfere with the performance of the final S/S monolith, then this material may be included in the treatment process. Wood and

other organic debris shall be screened out and disposed off-site pursuant to all applicable rules and regulations. Soils and debris shall be screened in such a manner to minimize dust generation and meet the requirements for dust control established for the project. Cobbles may be separated from the debris in an additional screening step. The cobbles may be combined with other fill material to backfill site excavations after they have been cleaned of exterior contamination using a high pressure, low volume spray system to levels equal to or less than untreated soils for the particular depth of disposal they are to be placed or placed in the TSCA landfill after similar cleaning of exterior surfaces or incorporated into the solidified soil after crushing, if necessary, or disposed of off-site in a permitted TSCA landfill.

2.1.5 S/S Process. The Settling Defendants or their agent (Contractor) shall develop an S/S mix design that minimizes volume increases, reduces freeze-thaw effects, and maximizes the solidified soil's long-term durability and potential as a building platform. The addition of pozzolans shall be evaluated to reduce pH changes in the solidified soils and the temperature increases during curing. A preliminary treatability study was performed by Woodward Clyde (Woodward Clyde, October 1994) that determined a mixture of 16% cement and 8% fly ash to be a possible S/S mix ratio. Light non-aqueous phase liquids (LNAPLs) excavated with the contaminated soils shall be included with the soil that is S/S if it is determined that the LNAPL will not interfere with mix curing and is not considered a liquid based on the results of paint filter testing. If the LNAPL is considered a liquid or will interfere with the curing of the monolith, then the LNAPL shall be collected and transported off-site for incineration.

2.1.5.1 Expanded Treatability Study. A Design Level Treatability Study was initiated in 1996 to further assess the stability and physical characteristics of the S/S process and to demonstrate the predicted effectiveness of the S/S process. The testing shall include:

- ANS 16.1, "American Nuclear Society Measurement of the Leachability of Solidified Low-Level Radioactive Waste by a Short Term Test Procedure" (see Section 2.1.5.2 in this SOW);

- TCLP analysis on the solidified material;

- Additional leaching test(s) on solidified samples subjected to test procedures to simulate long term weathering (freeze-thaw, etc.), compression, etc.; and,

- An evaluation of chemical/physical properties such as temperature and pH on the solidification process.

If inadequate durability is obtained, additional engineering controls (e.g., modifying the mix design, increasing the burial depth, and/or providing a low permeability liner and cover for the treated soil) shall be implemented at the discretion of EPA.

2.1.5.2 S/S Mix Testing. In order to evaluate the effectiveness of the S/S process, the following physical and chemical tests of treated, solidified soil shall be established as minimum performance standards. The RD shall also address long term performance of the S/S soils placed into the TSCA landfill (see Section 2.1.9 of this SOW). The minimum performance standards listed below shall be demonstrated in the laboratory and in the field during construction. Compliance with the performance standards during construction shall be evaluated through construction quality assurance measures implemented to ensure that the design S/S mix is properly implemented. Laboratory testing on archived samples shall be performed after construction is completed and compliance with the performance standards shall be documented in the Construction Completion Report.

- The Toxicity Characteristic Leaching Procedure (TCLP) test values for PCBs shall be 0.5 μg/L or less. For lead the values shall be 5 mg/L or less. These values reflect the maximum contaminant levels (MCL) for PCBs and the Maximum Concentration of Contaminants for the Toxicity Characteristic test, pursuant to 40 CFR 261.24, Table 1, for lead.

- The 28-day unconfined compressive strength shall be greater than 50 psi (ASTM Method D2166 or equivalent).

- The triaxial permeability of the cured S/S monolith shall be less than 1×10^{-7} cm/sec (USACE Method 1110-2-1906 or equivalent).

- ANS 16.1, "American Nuclear Society Measurement of the Leachability of Solidified Low-Level Radioactive Waste by a Short Term Test Procedure." This test shall demonstrate that the S/S monolith does not leach lead above 15 μg/L under natural pH leaching conditions. This is a change of a specific test mentioned in the ROD (PSA Mod. MCC-1 Static Leach Test [U.S. DOE-5820]) made necessary because the original test method is no longer an approved procedure. The test shall be conducted in accordance with the approved Design Level Treatability Study Work Plan and shall be modified to allow long-term analysis of leachate and for the

use of a test method designed for radioactive materials with soils that are non-radioactive in nature. A life expectancy of 1000 years shall be a design goal. Life expectancy is defined as the time before contaminants are released above design criteria from the TSCA landfill.

2.1.5.3 Site Use. An important factor in evaluating S/S is the effect of the solidified soils on the Site given future land use. The solidified soil shall not be placed within the 100-year floodplain of Ship Creek and shall be located at an elevation at least one foot above the maximum normal seasonal groundwater table elevation. The solidified soils shall be configured to accommodate future site development to the greatest extent practicable. In the event there is no planned future use of the solidified soil as a building foundation or parking area or the Site will not otherwise be capped, a cover to protect the landfill shall be placed and constructed to meet the Performance Standards contained in Paragraph 2.1.9. below. The cover shall be maintained to comply with the Performance Standards unless or until the area above the S/S monolith is used for a building foundation or covered for a parking lot or otherwise capped.

2.1.5.4 Site Controls. There are potential short-term human health and environmental impacts associated with contaminated soil excavation and the S/S treatment process. One potential impact is the generation of contaminated dust that could be inhaled by site workers, members of the community, or could migrate to surface water or adjacent properties. The Contractor shall design and implement controls after EPA review and approval to minimize dust generation. Control steps shall include the use of dust suppressants and/or other equally effective process or processes as approved by EPA and the collection and analysis of air samples as necessary to confirm that the dust control requirements for the project are being met. A second potential impact is the migration of Contaminants of Concern (COCs) to ecological receptors via surface water runoff. The Contractor shall include in the RA Work Plan measures to mitigate this migration. A third potential impact is the volatilization of PCBs during the S/S process. This potential shall be evaluated during treatability testing and appropriate measures shall be implemented to prevent volatilization of PCBs or to control the release of volatilized PCBs during treatment. A final potential impact is physical injury to workers. This impact shall be controlled by the institution of appropriate health and safety procedures.

2.1.6 Confirmation Sampling. A confirmation sampling program shall be designed and implemented to determine the amount of soil to be excavated and treated and to document that all soils above

cleanup levels are removed, contained, and/or treated. Confirmation testing shall include analysis for both lead and PCBs. If testing of an excavation indicates that the lead and/or PCB cleanup level is exceeded, additional material shall be excavated vertically and/or horizontally until statistical compliance with the Soil Remediation Verification Plan is met. Samples of the S/S soil shall be collected and archived for future evaluation and testing (see Section 4.6 of this SOW). Three sample cylinders of the S/S soil shall be prepared and archived for every 1000 cubic yards of treated soil produced.

2.1.7 Treatment Equipment and Staging Area Preparation. A soil staging area shall be set up on the Site. The area shall be lined by 30-mil thick plastic sheeting at a minimum. An area near the soil staging area shall be cleared, compacted, and bermed for equipment set up. Utility hook-ups shall be established as required for the equipment.

2.1.8 Consolidation of Soil from the 100 year Floodplain. Soils within the Ship Creek 100 year floodplain that contain lead or PCBs at concentrations at or greater than 500 mg/kg lead or at or greater then 1 mg/kg PCBs shall be excavated and consolidated within the portion of the Site where use and access restrictions will be implemented, and outside of the 100 year floodplain. A small flood plain area beyond the southwest corner of the existing fence contains soil with greater than 1 mg/kg PCBs. The area disturbed by excavations shall be restored to the original grade and revegetated with native species. The consolidation action shall not include any excavation or disposal of hazardous waste or TSCA-regulated material.

2.1.9 TSCA Landfill. Treated soil and soils at or above 10 mg/kg PCBs shall be disposed into a Contractor designed and constructed on-site TSCA landfill. The specific location and dimensions of the landfill shall be determined during the RD, but in no instance shall the landfill or any portion thereof be located within the 100-year floodplain of Ship Creek. The relevant TSCA regulations for landfill design are provided in 40 CFR § 761.75(b), except the requirements waived in the ROD pursuant to 40 CFR § 761.75(c)(4) and set forth below. S/S soils with lead or PCB concentrations at or greater than 1,000 mg/kg and/or 50 mg/kg, respectively, shall not be placed in the top foot of the landfill or within the zone of groundwater fluctuation. Surface concentrations of contaminants in soils shall be less than 10 mg/kg PCBs. Soils/fill having contaminant concentrations of greater than 1 mg/kg PCBs shall not be placed below the uppermost limit of the groundwater fluctuation zone as defined in the Remedial Investigation Report.

Routine maintenance and inspection of the TSCA landfill shall be conducted during groundwater monitoring events and after any seismic or flood event. The landfill shall be designed and located to maximize future use of the Site, preferably to utilize the solidified soils as a building foundation or parking area if possible. If use of the landfill as a foundation or parking lot does not occur, a cover consisting of an impermeable membrane, drainage layer, and erosion control layer shall be provided. Unless otherwise approved by EPA, these layers will consist of an impermeable (less than $1x10^{-6}$ cm/sec permeability) membrane, a 12-inch thick drainage layer, and 12-inch thick layer of growth media to serve for erosion control. Goals of the cover shall include allowing the landfill to function with minimal maintenance and to promote drainage from, reduce freeze thaw effects on, and minimize erosion or abrasion to the treated soils. 40 CFR 264.310(a) is relevant and appropriate for this action.

2.1.9.1 Regulatory Requirements. The following technical requirements specified in 40 CFR § 761.75(b) are waived: (1),(2),(3),(7), and (8). 40 CFR § 761.75(b)(9)(i) may be waived upon written request if the S/S soil mass is designed and used as a building foundation or is paved over for a parking lot or is otherwise capped. If the RD does not include such a future use design, a waiver for a fence, wall, or similar device around the landfill will not be considered.

2.1.10 Waste Shipment. Shipment of wastes shall be conducted as part of debris, and potentially LNAPL, disposal. Debris and wastes shall be shipped pursuant to Department of Transportation rules and regulations regarding transport of hazardous waste, if applicable. All off-site treatment, storage, and disposal (TSD) facilities shall be in compliance with the off-site Disposal Rule (40 CFR 300.440)

2.1.11 Repair of Ship Creek Erosion Control Wall. The erosion control wall constructed during a previous removal action along Ship Creek was repaired in 1996. Further repair and maintenance of this structure may be needed to meet the goals of the Floodplain and Protection of Wetlands Executive Orders, as well as, to ensure protection of the TSCA landfill once constructed. Repair of the erosion control wall, if necessary, shall comply with the substantive requirements of Section 404(b)(1) of the Clean Water Act and its implementing regulations, and of the Alaska Fish and Game Department.

2.1.12 Flood Evaluation. As part of RD, a study shall be conducted to evaluate the 100-year and 500-year flood potentials for Ship Creek and their potential impacts on the Site. This

study shall produce updated flood maps depicting the 100-year floodplain and the 500-year floodplain for the Site. The results of the study shall serve as the basis for the design of appropriate controls to prevent damage to the landfill from flooding.

2.1.13 Institutional Controls. In addition to the RAs used to treat COCs, institutional controls shall be implemented to prevent unacceptable exposure of the public to contamination remaining in source areas at concentrations above 1 mg/kg PCBs and/or above 500 mg/kg lead. Specific controls shall include restrictions limiting future land use, preventing groundwater use, and limiting site access, as appropriate and in accordance with Section IX of the Consent Decree. EPA guidance suggests selecting institutional controls for solidified PCBs based on mobility (TCLP) testing and exposure potential.

2.1.14 Deed Notice and Land Use Restrictions. A deed notice shall be recorded on the property title records for the Site and shall serve to notify any subsequent purchaser and/or successor in interest that the property is subject to a CERCLA ROD. The selected cleanup levels for the COCs are based on a future industrial land use scenario. Consequently, land use restrictions in accordance with Section IX of the Consent Decree shall be implemented at the Site to assure that no residential land uses, or commercial uses with potential chronic exposures of children (i.e., day care center) are allowed. To assure long-term protectiveness, the land use restrictions shall run with the land, bind all successors in interest, and be recorded in the public property records. The objectives of the land use restrictions are:

- Ensure that the Site use continues to be industrial or commercial and to prevent use of the Site for commercial developments that involve potential chronic exposures of children to soil (e.g., use of the site for a day care center);

- Restrict activities at the Site that could potentially impair the integrity of the TSCA landfill; and,

- Prevent movement of soil containing greater than 1,000 mg/kg lead or greater than 10 mg/kg PCBs to the surface or within the top foot of soil where chronic, long-term exposures could occur.

2.1.15 Groundwater Use Restrictions. Groundwater use restrictions are necessary to prevent the installation of groundwater supply wells at the Site. The property interest

implemented to assure acceptable future land use pursuant to Section IX of the Consent Decree shall include provisions for restricting use of groundwater underlying the Site for any purpose. In addition to the recorded restrictions, all available regulatory controls shall be undertaken by providing written notification of the restrictions and Site conditions to local, regional, and state agencies, departments, and utilities. The property owner(s) shall be responsible for providing restriction notifications in accordance with Section IX of the Consent Decree.

2.1.16 Access Restrictions. Access to all areas of the Site impacted by soil contamination shall be restricted during the RA by use of temporary security fencing or other means. Access to the landfill shall be prohibited to the general public and shall be limited to Site workers. In compliance with 40 CFR § 761.75(b)(9)(i), a six foot high woven mesh fence, wall, or similar device shall be designed, constructed, and maintained during landfill construction and maintained throughout the life time of the TSCA landfill. However, if the S/S soil mass is capped or designed and used as a building foundation or parking lot, the requirement to maintain a fence after landfill construction may be waived by EPA upon written request. Unrestricted access by the general public shall be prohibited to those areas of the site where surface contamination of more than 1 mg/kg PCBs remains after all excavation, treatment, and disposal is complete as follows: unrestricted access to areas with surface concentrations between 1 mg/kg and 10 mg/kg PCBs that are not otherwise capped or designed and used as a building foundation or parking lot shall be limited by the installation and maintenance of a six foot high fence or similar structure.

2.1.17 Groundwater Monitoring. Following completion of RA construction activities, groundwater monitoring for PCBs and metals shall be conducted twice per year for the first two years of operation and may be reduced in frequency to annually, thereafter, with the approval of EPA in consultation with Alaska Department of Environmental Conservation for a duration of at least five (5) additional years. After five years, an assessment of the groundwater data shall be performed to determine whether groundwater monitoring is still required or whether the monitoring frequency requires additional alteration.

2.1.17.1 Groundwater Contaminant Levels. Groundwater monitoring shall be conducted to assess the effectiveness of the RA for protecting groundwater. The groundwater standards that shall be achieved are the MCL and action level for PCBs and lead, 0.5 μg/L and 15 μg/L respectively, directly downgradient at the Site boundary.

2.1.17.2 Groundwater Testing Methods. Monitoring of groundwater down-gradient of the landfill for PCBs (EPA method 8080A), lead (EPA method 6000/7000), pH, specific conductance, and chlorinated organics (40 CFR § 761.75(b)(6)(iii)), or methods with equivalent detection limits and accuracy, shall be conducted to ensure the landfill is not contributing contamination to the groundwater nor altering groundwater conditions.

2.1.18 Storm water Management. The Site shall be graded to prevent surface water discharges from the Site directly into Ship Creek. Site Storm water structures shall be designed to meet the requirements of 40 CFR § 761.75(b)(4)(ii), and constructed to prevent contaminated discharges of Storm water directly into Ship Creek and prevent the transport of contaminated sediments off-site.

2.1.19 Operation and Maintenance. The RA shall be operated and maintained for as long as the S/S soils (landfill) remain on-site. Operation and maintenance of the RA shall include:

- Maintenance of the landfill to ensure that it retains its structural integrity and prevents release of PCBs and lead through erosion (including flood and seismic events), leaching, and/or excavation;

- Maintenance of the erosion control wall along Ship Creek. The erosion control wall shall be inspected once per year for each of the first five years in addition to after flood, seismic, and extreme precipitation events defined as 24-hour, 25-year storms;

- Maintenance of a six foot (minimum) woven mesh fence, wall, or similar device or other means to prevent unauthorized access to the site, if deemed necessary after EPA review of the RD and in accordance with the terms of Paragraph 2.1.16 above.

3.0 CLEANUP AND TREATMENT/DISPOSAL STANDARDS

3.1 Soil Cleanup Standards

TABLE 3-1
Soil Cleanup Standards

Contaminant	Within Fence Line	Beyond Fence Line Within 100 yr. Floodplain
PCBs	10 mg/kg	1 mg/kg
Lead	1000 mg/kg	500 mg/kg

3.2 Soil Treatment Standards

Table 3-2
Soil Treatment and Disposal Standards

Contaminant	Treatment Level	Treatment Method	Disposal Option
PCBs	< 1 mg/kg	None	Any on-site[1] location/depth
PCBs	1 to 10 mg/kg	None	On-site, 1.0 feet above the GFZ[2]
PCBs	>10 to <50 mg/kg	None	TSCA Landfill depths between 1.0 feet to the top of the GFZ
PCBs	≥50 mg/kg	S/S	TSCA Landfill depths between 1.0 feet to the top of the GFZ

Lead	≤500 mg/kg	None	Any on-site location/at depths above the top of the GFZ
Lead	>500 to <1000 mg/kg	None	On-site, TSCA Landfill depths between 1.0 feet to the top of the GFZ
Lead	≥1000 mg/kg	S/S	TSCA Landfill depths between 1.0 feet to the top of the GFZ

[1] On-site, in this context, refers to within the fence line
[2] Groundwater fluctuation zone

3.3 TSCA Landfill and Stabilized Soil Performance Standards

TSCA landfill and treated soil performance standards are presented in Sections 2.1.9 and 2.1.5.2 of this SOW.

3.4 Groundwater Monitoring Compliance Standards

Monitoring wells will be located above the Bootlegger Cove formation, in the upper aquifer, and shall be monitored to confirm groundwater meets the following standards. Monitoring wells shall be constructed to State of Alaska Department of Environmental Conservation "Recommended Practices for Monitoring Well Design, Installation, and Decommissioning" (Guidance No. 001, version 2.2, April 1992). Surface concrete pads around monitoring wells shall be substituted with a minimum depth of 12 inches, 3/4-inch minus crushed gravel to prevent frost heaving of the well casing.

Table 3-3
Groundwater Monitoring Compliance Standards

Contaminant	Compliance Level	Compliance Point
PCBs	<0.5 μg/L	Downgradient Border of Landfill

Lead	<15 μg/L	Downgradient Border of Landfill
pH	To Be Determined	Downgradient Border of Landfill
Specific Conductance	To Be Determined	Downgradient Border of Landfill
Chlorinated Organics	Not to exceed MCLs	Downgradient Border of Landfill

4.0 SCOPE OF REMEDIAL DESIGN AND REMEDIAL ACTION

The Remedial Design/Remedial Action shall consist of the following six tasks. All plans are subject to EPA approval.

- Task 1: RD Work Plan

- Task 2: Remedial Design Phases
  A. Conceptual Design.
  B. Preliminary (30%) Design. This will incorporate the conceptual design, if applicable.
  C. Prefinal (90-95%) Design/Final (100%) Design.

- Task 3: Remedial Action/Construction Work Plan

- Task 4: Remedial Action Construction
  A. Preconstruction Inspection and Meeting
  B. Prefinal Construction Completion Inspection
  C. Prefinal Construction Completion Report
  D. Final Construction Completion Inspection (if necessary)
  E. Construction Completion Report (Draft and Final)

- Task 5: Operation and Maintenance Plan

- Task 6: Performance Monitoring

- Task 7: Completion of Remedial Action
  A: RA Completion Notice
  B: Reports
  1. Draft RA Completion Report
  2. Final RA Completion Report

4.1 Task 1: Remedial Design Work Plan

The Settling Defendants shall submit a Work Plan which shall document the overall management strategy for performing the

design, construction, operation, maintenance, and monitoring of the RA for EPA to review and approve. The plan shall document the responsibility and authority of all organizations and key personnel involved with the RA implementation and shall include a description of qualifications of key personnel directing the RD, including Contractor personnel. The Work Plan shall also contain a schedule of RD activities. The Settling Defendants shall submit a RD Work Plan in accordance with Section XII, Paragraph 11 of the Consent Decree and Sections 2.0 and 5.0 of this SOW.

4.1.1 Plan Contents. The RD Work Plan shall incorporate results of pre-design studies performed pursuant to the September 1992 RI/FS Administrative Order of Consent (AOC) and shall provide information necessary to fully implement the RD and RA(s). The Plan shall include, at a minimum, a Sampling and Analysis Plan (SAP) which includes a Quality Assurance Project Plan (QAPP) and a Field Sampling Plan (FSP), a Health and Safety Plan, a Construction Quality Plan, and a schedule for implementing the RA. The RD Work Plan shall incorporate a groundwater sampling event to determine groundwater conditions prior to commencement of Remedial Action. This event shall sample for the parameters identified in Table 3-3. The RD Work Plan shall include either a conceptual design of the TSCA landfill and future use of the facility or a process to incorporate the Owner Settling Defendant's planned future use of the Site. A conceptual design shall be submitted no later than 6 months after submittal of the RD Work Plan.

4.1.2 Design Level Treatability Study Results. Soil samples for the Design Level Treatability Study were collected as part of the RI/FS Administrative Order on Consent. The Design Level Treatability Study Work Plan was finalized and approved as part of the RI/FS Administrative Order on Consent. The Design Level Treatability Study in accordance with the approved Design Level Treatability Study Work Plan shall be performed and completed under the RD/RA Consent Decree and this SOW. The available results of the Design Level treatability studies shall be included with the Preliminary (30%) Design.

4.2 Task 2: Remedial Design Phases

Settling Defendants shall prepare construction plans and specifications to implement the RAs at the Site as described in the ROD and this SOW. Plans and specifications shall be submitted in accordance with the schedule set forth in Section 5.0 of this SOW. Subject to approval of the EPA, Settling Defendants may submit more than one set of design submittals reflecting different components of the RA. The plans and specifications shall be developed in accordance with EPA's

Superfund Remedial Design and Remedial Action Guidance and shall demonstrate that the RA meets the objectives of the ROD, conceptual design, and this SOW, including all Performance Standards. Settling Defendants shall meet regularly with the EPA to discuss design issues and the schedule for design and implementation of the remedy.

4.2.1 Conceptual Design. Settling Defendants shall submit a Conceptual Design Plan for the future development of the Site. The Conceptual Design Plan must have the written concurrence of Owner Settling Defendant. Owner Settling Defendant shall coordinate with Settling Defendants to prepare the Conceptual Design Plan to ensure the RD considers future reuse of the Site. If the Owner Settling Defendant does not coordinate future use plans of the Site, or a Conceptual Design Plan cannot be prepared within six months of submittal of the RD Work Plan, in EPA's discretion, a Conceptual Design Plan may be waived. If the Conceptual Design Plan is waived the RD must consider that the Site will not be reused for any purpose. This will require alterations in the design and cover requirements of the landfill to ensure it is properly maintained and protected, and appropriate site controls are in place, as discussed in Paragraphs 2.1.5.4. and 2.1.9. above.

4.2.2 Preliminary Design. Settling Defendants shall submit the Preliminary Design when the design effort is approximately 30 percent complete. The Preliminary Design submittal shall include or discuss, at a minimum, the following:

- Preliminary plans, drawings, and sketches, including design criteria;
- Results of treatability studies and additional field sampling as available;
- Design assumptions and parameters, including design restrictions, process performance criteria, appropriate unit processes for the S/S treatment train, anticipated design duration and leachate generation of the landfill;
- Proposed cleanup and treatment verification methods, including compliance with Applicable or Relevant and Appropriate Requirements (ARARs;
- Outline of required specifications;
- Proposed siting/location of treatment equipment/construction activity;

- Expected long-term monitoring and operation requirements;
- Preliminary construction schedule, including RA contracting strategy;
- Conceptual future use of the site; and,
- Draft Health and Safety Plan for construction.

4.2.3 Prefinal and Final Designs. Settling Defendants shall submit the Prefinal Design when the design effort is 95 percent complete and shall submit the Final Design when the design effort is 100 percent complete. The Prefinal Design shall address all written comments made regarding the preceding design submittal. The Final Design shall address all written comments made to the Prefinal Design and shall include reproducible drawings and specifications suitable for RA contractor bid advertisement. The Prefinal Design shall be modified as appropriate to serve as the Final Design if the EPA has no further comments and issues the Notice to Proceed (NTP). The Prefinal and Final Design submittals shall include those elements listed for the Preliminary Design, as well as the following:

- Draft Operation and Maintenance Plan;
- Capital and Operation and Maintenance Cost Estimate. This cost estimate shall refine the Feasibility Study cost estimate to reflect the detail presented in the Final Design;
- Final project schedule for the construction and implementation of the RA which identifies timing for initiation and completion of all critical path tasks. The final project schedule submitted as part of the Final Design shall include specific dates for completion of intermediate major milestones and the project as a whole;
- Final results of the Design Level Treatability Study.

4.3 Task 3: Remedial Action Work Plan

The Settling Defendants shall submit a RA Work Plan which includes a detailed description of major remediation and construction activities, monitoring events, construction quality assurance procedures, equipment staging, compliance monitoring, schedule, and cost estimations.

RA Work Plan shall include, but is not limited to the following items:

- Draft Performance Standard Verification Plan;
- Draft Construction Quality Assurance Plan;
- Draft SAP, including the final QAPP and final FSP/Final H&S Plan/Final Contingency Plan;
- Construction Management Plan (including Project Management Plan);
- Discussion and planning of the RA work Elements, including rationale for the various tasks;
- Relevant changes in the RD work Plan;
- Identification of RA inspections, hold points, and reports;
- Identification of protocol and coordination of field oversight and inspections, where applicable;
- Response procedures and contingency plan;
- Waste Management Plan;
- Equipment Decontamination Plan;
- Performance Measurement points and rationale for their selection;
- Soil Remediation Verification Plan
- Any other procedures relevant to RA implementation;
- Construction Health and Safety Plan.

The Settling Defendants shall submit a RA Work Plan in accordance with Section XII and Paragraph 12 of the Consent Decree and Section 5.0 of this SOW.

4.4 Task 4: Remedial Action Construction

The Settling Defendants shall implement the RA as detailed in the approved Final Design. The following activities shall be completed in constructing the RA.

4.4.1 Preconstruction Inspection and Meeting. The Settling Defendants shall participate with U.S. EPA and the State in a Preconstruction Inspection and Meeting to:

- Review methods for documenting and reporting construction monitoring and QA/QC data;

- Review methods for distributing and storing documents and reports;

- Review work area security and safety protocol;

- Discuss any appropriate modifications of the construction Quality Assurance Plan (QAP) to ensure that Site-specific considerations are addressed; and,

- Conduct a Site walk-through to verify that the design criteria, plans, and specifications are understood and to review material and equipment storage locations.

The Preconstruction Inspection and Meeting shall be documented by a designated person and minutes shall be transmitted to all parties.

4.4.2 Pre-Final Construction Completion Inspection. Within 15 days after Settling Defendants make the preliminary determination that construction is complete, the Settling Defendants shall notify the EPA and the State for the purposes of conducting a Pre-Final Construction Completion Inspection. The Pre-Final Construction Completion Inspection shall consist of a walk-through inspection of the entire Site with EPA and State representatives. The inspection is to determine whether the RA construction phase is complete and consistent with the contract documents, ROD and RA Workplans. The Pre-final Construction Completion Report shall outline the outstanding construction items, actions required to resolve each item, anticipated completion date for each item, and a proposed date for a Final Construction Completion Inspection.

4.4.3 Final Construction Completion Inspection (if necessary). Within 15 days after completion of any work identified in the Pre-Final Construction Completion Report, the Settling Defendants shall notify the EPA and the State for the purposes of conducting a Final Construction Completion Inspection. The Final Construction Completion Inspection shall consist of a walk-through inspection of the Site by EPA and State representatives with the Settling Defendants. The Pre-Final Construction Completion Report shall be used as a checklist for insuring tasks identified during the Pre-Final Construction Completion Inspection have been addressed. Confirmation shall be made that outstanding items have been resolved.

4.4.4 Reports. The following reports shall be submitted by the

Settling Defendants within the time limitations noted.

4.4.4.1 Pre-Final Construction Completion Report. Within fifteen (15) days of the Pre-Final Construction Completion Inspection, Settling Defendants shall submit a Pre-Final Construction Completion Report. The Pre-Final Construction Completion report shall outline the outstanding construction items, actions required to resolve each item, anticipated completion date for each item, and a proposed date for a Final Inspection. In the report, a registered professional engineer and the Settling Defendants' Project Coordinator shall state that the RA has been constructed in accordance with the approved design and specifications. The written report shall include as-built drawings signed and stamped by a registered professional engineer. The report shall contain the following statement, signed by a responsible corporate official of a Settling Defendant or the Settling Defendants' Project Coordinator:

> "To the best of my knowledge, after thorough investigation, I certify that the information contained in or accompanying this submission is true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

If, after the Pre-Final Construction Completion Inspection and receipt and review of the Pre-Final Construction Completion Report, EPA may approve, request modifications, or disapprove the Report pursuant to Section XI(EPA Approval of Plans and Other Submissions), after reasonable opportunity to review and comment by the State. If EPA determines that construction of the Remedial Action or any portion thereof has not been completed in accordance with this Consent Decree, EPA will notify Settling Defendants, in writing, of the activities that must be undertaken by Settling Defendants pursuant to this Consent Decree to complete construction of the Remedial Action. EPA will set forth in the notice a schedule for performance of such activities consistent with the Consent Decree and the SOW and finalization of the Construction Completion Report or require the Settling Defendants to submit a schedule to EPA for approval pursuant to Section XI (EPA Approval of Plans and Other Submissions). Settling Defendants shall perform all activities described in the notice in accordance with the specifications and schedules established pursuant to this Paragraph, subject to their right to invoke the dispute resolution procedures set forth in Section XIX (Dispute Resolution). If requested by EPA, Settling Defendants shall schedule a Final Construction Completion Inspection within fifteen (15) days of completion of all activities identified by

EPA to be completed.

4.4.4.2 Final Construction Completion Report. Within ninety (90) days of (i) completion of the last activity required by to be performed by Settling Defendants pursuant to the Pre-Final Construction Completion Inspection and Report, or (ii) the Final Construction Completion Inspection, whichever is later, Settling Defendants shall submit a Final Construction Completion Report. The Final Construction Completion Report shall outline the actions taken to resolve outstanding construction items identified in the Pre-Final Construction Completion Report. The Final Construction Completion Report shall include as-built drawings signed and stamped by a professional engineer. The report shall contain the following statement, signed by a responsible corporate official of a Settling Defendant or the Settling Defendants' Project Coordinator:

"To the best of my knowledge, after thorough investigation, I certify that the information contained in or accompanying this submission is true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

4.5 Task 5: Operation and Maintenance

The Settling Defendants shall prepare a Final Operation and Maintenance (O&M) Plan to cover both implementation and long term maintenance of the RAs. The O&M Plan must meet the objectives contained in the ROD and set forth in Paragraph 2.1.19 of this SOW. An initial Draft O&M Plan shall be submitted as a Final Design Document submission. The final O&M Plan shall be submitted to the EPA with the Pre-Final Construction Completion Report and in accordance with the approved construction schedule. The plan shall be composed of the following elements:

- Description of normal operation and maintenance:
  a. Description of tasks for operation and maintenance; and,
  b. Schedule showing frequency of each O&M task.

- Description of potential operation/maintenance problems:
  a. Description and analysis of potential operation and maintenance problems; and,
  b. Common and/or anticipated remedies.

- Description of routine monitoring and laboratory testing:
  a. Description of monitoring tasks;
  b. Description of required data collection, laboratory

tests, and their interpretation;

c. Required quality assurance and quality control;

d. Schedule of monitoring frequency and procedures for a petition to the EPA to reduce the frequency of or discontinue monitoring; and,

e. Description of verification sampling procedures if cleanup or performance standards are exceeded during routine monitoring.

- Description of alternate O&M (only if and when necessary):
  a. Should the TSCA landfill system fail to achieve the Performance Standards, alternate procedures shall be proposed to prevent the release or threatened releases of hazardous substances, pollutants, or contaminants that may endanger public health and/or the environment or exceed performance standards; and,
  b. Analysis of vulnerability and additional resource requirements should a failure occur.

- Corrective Action:
  a. Description of potential corrective actions to be implemented in the event that cleanup or performance standards are exceeded; and,
  b. Anticipated schedule for implementing these corrective actions.

- Safety plan:
  a. Description of precautions, necessary equipment, etc., for Site personnel.

- Description of equipment:
  a. Equipment identification;
  b. Installation of monitoring components;
  c. Maintenance of Site equipment; and,
  d. Replacement schedule for equipment and installed components.

- Records and reporting mechanisms required:
  a. Laboratory records;
  b. Mechanism for reporting emergencies;
  c. Maintenance records; and,
  d. Annual reports to EPA and State agencies.

4.6 Task 6: Performance Monitoring

Performance monitoring shall be conducted to ensure that the Performance Standards are met.

4.6.1 Performance Standard Verification Plan. The purpose of the Performance Standard Verification Plan is to provide a mechanism to ensure that both short-term and long-term Performance Standards for the RA are met. The Draft Performance Standards Verification Plan shall be submitted with the RA Workplan. A separate Performance Standards Verification Plan will not be required if provisions for long term post-construction sampling and analysis are included in the RA QAPP and FSP. Once approved, the Performance Standards Verification Plan shall be implemented on the approved schedule. The Performance Standards Verification Plan shall include:

- a SAP including a QAPP and a FSP; and,
- a Health and Safety Plan.

4.6.2 Performance Sampling of S/S Treated Soil. At the closure of the Site TSCA landfill, two of each of the groups of three S/S archive cylinders shall be buried at the Site in an area outside the boundaries of the landfill. It shall be determined the approximate depth segment of the monolith by elevation each cylinder represents and each cylinder buried to that approximate depth. The ground surface shall be clearly and permanently marked to allow identification of the buried cylinders. At the time of the five year evaluation of landfill performance, the cylinders shall be retrieved and tested according to Section 2.1.5.2 of this SOW. Prior to initiation of the testing program identified, the loss of material from each cylinder shall be determined. Results of this performance evaluation shall be provided to the EPA and State of Alaska representatives in report format. The third of each group of S/S archive cylinders shall be maintained for possible additional testing at a later time.

4.7 Task 7, Remedial Action Completion

4.7.1 Notice of Remedial Action Completion. Upon Settling Defendants determination that the Remedial Action is operational and functional and that Performance Standards have been met, but not less than two (2) years following the Final Construction Completion Inspection, Settling Defendents shall provide notice to EPA and the State that Remedial Action is complete.

4.7.2 Draft Completion of Remedial Action Report. Within thirty (30) days of the Notice required in Section 4.7.1, Settling Defendants shall submit a Draft Completion of Remedial Action Report. This report shall be submitted by the Settling Defendants after construction is complete and performance standards have been met . In the report, a registered professional engineer and the Settling Defendants' project Coordinator shall state that the RA has been constructed in accordance with the approved

design and specifications and is operational and functional. The report shall reference all the data and supporting documentation on which Settling Defendants have determined that all Performance Standards have been met and the RA has been completed in accordance with the ROD, SOW, and this Consent Decree. The written report shall be signed and stamped by a registered professional engineer and reference as-built drawings from the Final Construction Completion Report. The report shall contain the following statement, signed by a responsible corporate official of a Settling Defendant or the Settling Defendants' Project Coordinator:

"To the best of my knowledge, after thorough investigation, I certify that the information contained in or accompanying this submission is true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

4.7.3 Final Completion of Remedial Action Report. Within thirty (30) days of receipt of EPA comments on the Draft Completion of Remedial Action Report, Settling Defendants shall submit a Final Completion of Remedial Action Report. In the report, a registered professional engineer and the Settling Defendants' Project Coordinator shall state the RA has been completed in full satisfaction of the requirements of the Consent Decree. The written report shall be signed and stamped by a registered professional engineer and reference as-built drawings from the Final Construction Completion Report. The report shall contain the following statement, signed by a responsible corporate official of a Settling Defendant or the Settling Defendants' Project Coordinator:

"To the best of my knowledge, after thorough investigation, I certify that the information contained in or accompanying this submission is true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

5.0 SUMMARY OF MAJOR DELIVERABLES/SCHEDULE

Pursuant to Section 120(e)(2) of CERCLA, substantial continuous on-site RA must commence within 15 months of the Signature of the ROD, which occurred on July 16, 1996. Due to the inappropriateness of initiating Site construction activities at the beginning of the winter season, EPA will authorize an RA start date of as late as May 1, 1998.

Table 5-1
Summary of Major Deliverables/Schedule

Item Number	Title	Due Date
1	RD Work Plan	Thirty (30) days after Notice of Authorization to proceed with RD
2	Preliminary Design (30%)	One Hundred five (105) days after U.S. EPA's approval of final RD Work Plan
3	Pre Final Design (95%)	Sixty (60) days after receipt of EPA's comments on the Preliminary Design
4	Draft O&M Plan	With Pre Final RD
5	Final Design (100%)	Thirty (30) days after receipt of EPA's comments on the Pre Final Design
6	RA Work Plan	With Pre-Final Design
7	Award RA Contract(s)	Sixty (60) days after receipt of EPA's Notice of Authorization to proceed with the RA
8	Pre-Construction Inspection and Meeting	Fifteen (15) days after award of RA contract(s)
9	Initiate RA	Within fifteen (15) days after Pre-Construction Inspection and Meeting.
10	Completion of RA Construction	As approved by EPA in the RA Construction Schedule

11	Pre-Final Construction Completion Inspection	No later than fifteen (15) days after completion of the RA Construction Phase
12	Pre-Final Construction Completion Report	Fifteen (15) days after completion of Pre-Final Construction Completion Inspection
13	Final Construction Completion Inspection (if necessary)	Fifteen (15) days after completion of work identified during the Pre-Final Construction Completion Inspection
14	Final Construction Completion Report (if necessary)	Ninety (90) days after Final Construction Completion Inspection or completion of the last activity required to be performed under Subparagraph 4.4.4.1 of this SOW, whichever is later.
15	Final O&M Plan	With Pre-Final Construction Completion Report
16	Notice of RA Completion	Upon Settling Defendants Determination that Performance Standards have been met and the RA is operating properly and successfully
17	Draft Completion of RA Report	Thirty Days after Notice of RA Completion
18	Final Completion of RA Report	Thirty (30) days after receipt of EPA comments on Draft Completion of RA Report

Appendix C

Consulting Engineering Offices Of
ARTHUR H WHITMER
A Professional Corporation

4201 Tudor Centre Drive, Suite 318
P.O. Box 141968, Anchorage AK 99514

(907) 561-1503
Fax: (907) 561-1504

August 23, 1997

ALASKA RAILROAD RESERVE
POST ROAD INDUSTRIAL LOTS
ANCHORAGE, ALASKA

STANDARD STEEL SITE CLEANUP
LEGAL DESCRIPTION

Beginning at the northwesterly corner of Lot 53; thence S 32° 30'30" E a distance of 510.00 feet; thence along Ship Creek Meanders as follows:

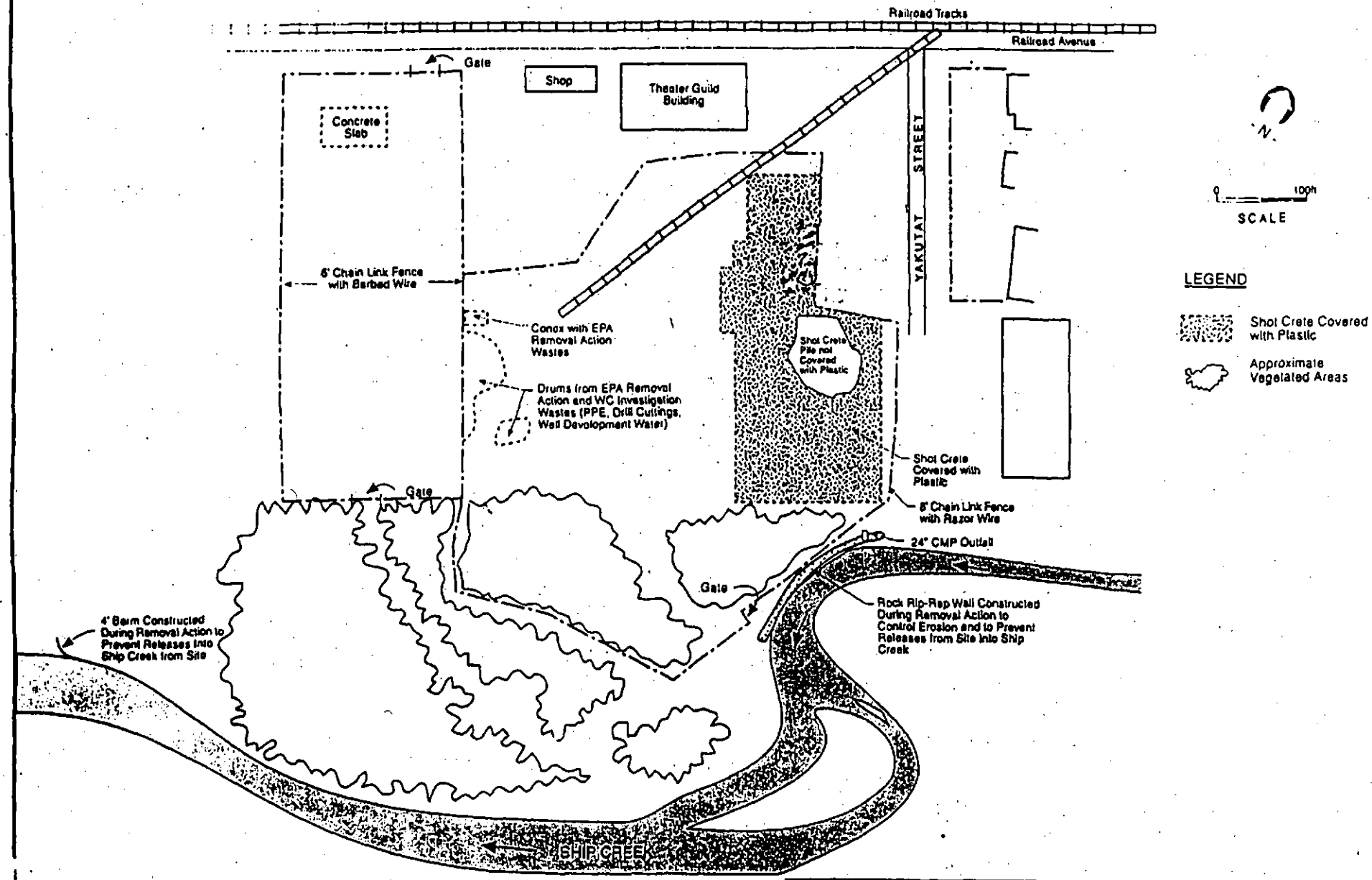
S 41° 15'25" W, 54.09'; S 19°09'22"W, 57.22 feet; S 4° 01'53"E, 96.37 feet; S 45°50'52"E, 32.76 feet; S 4° 05'54"W, 34.49 feet, S 23° 05'08"W, 85.10 feet; S 49° 36'47"W, 246.17';S 71° 18'37"W, 203.76';

thence N34° 46'19"W a distance of 277.99 feet; thence N32° 32'30"W a distance of 459.88 feet; thence N57° 27'30"E a distance of 678.95 feet to the point of beginning.

Containing an area of 484,428 square feet or 11.12 acres more or less.

STATE OF ALASKA
1997
Arthur H. Whitmer
LS 2274
REGISTERED PROFESSIONAL LAND SURVEYOR

Appendix D



APPENDIX D OF THE CONSENT DECREE FOR REMEDIAL DESIGN AND REMEDIAL ACTION FOR THE STANDARD STEEL AND METALS SALVAGE YARD SUPERFUND SITE

APPENDIX E

DECLARATION OF RESTRICTIVE COVENANTS AND NOTICE OF REMEDIAL ACTION

This Declaration of Restrictive Covenants and Notice of Remedial Action ("Deed Restrictions") is made this ____day of _____ _____ ,1997 pursuant to, and in consideration for, the terms of the prior consent agreements and the Record of Decision ("ROD") pertaining to the Standard Steel Superfund Site ("Site") issued by EPA on July 16, 1996.

1. Grantor: These Deed Restrictions are granted by the Alaska Railroad Corporation and are binding upon its successors and assigns (collectively "Grantor") with respect to a parcel of land located in Anchorage, Alaska, more particularly described in Attachment A (the "Property").

2 . Purpose: It is the purpose of these Deed Restrictions to implement the Institutional Controls required by the ROD to notify all successors-in-interest or other persons of the land and water use and access restrictions that apply to the Property to assure the Property will be used only for purposes which are compatible with the Remedial Action and the RD/RA Consent Decree entered into by Grantor, the United States, and other parties, and entered by the U.S. District Court of the District of Alaska on _____ _____, 1997, in the matter of U.S. v. Alaska Railroad Corporation, et. al., A91-0589-CV (JWS), and to ensure that the Property will not be used in a manner that will pose a threat to human health or the environment.

3 . Servitude in perpetuity: The covenants, terms, conditions and restrictions of these Deed Restrictions shall be binding upon and inure to the benefit of the Alaska Railroad Corporation, its successors and assigns, any grantee, and their successors and assigns, and shall continue as a legal and equitable servitude running in perpetuity with the Property.

4 . **Notice of Remedial Action: THE PROPERTY IS PART OF THE STANDARD STEEL AND METALS SALVAGE YARD SUPERFUND SITE, WHICH THE U.S. ENVIRONMENTAL PROTECTION AGENCY ("EPA"), PURSUANT TO SECTION 105 OF THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT ("CERCLA"), 42 U.S.C. § 9605, PLACED ON THE NATIONAL PRIORITIES LIST, SET FORTH AT 40 C.F.R. PART 300, APPENDIX B, BY PUBLICATION IN THE FEDERAL REGISTER ON AUGUST 30, 1990. 55 FED. REG. 35502. IN THE RECORD OF DECISION (ROD) FOR THE SITE DATED JULY 16, 1996, THE EPA REGION 10 REGIONAL ADMINISTRATOR SELECTED A "REMEDIAL ACTION" FOR THE SITE, WHICH PROVIDES, IN PART, FOR IMPLEMENTATION OF INSTITUTIONAL CONTROLS LIMITING FUTURE LAND USES OF THE SITE, PREVENTING GROUNDWATER USE**

AND LIMITING SITE ACCESS. ANY INTEREST IN THE PROPERTY CONVEYED OR ACQUIRED IS SUBJECT TO THE RESTRICTIVE COVENANTS CONTAINED IN THIS DECLARATION.

5. Restriction on use: The following restrictions apply to the use of the Property, run with the land and are binding upon any grantee.

(i) no residential use or activity shall be permitted on the property, and no commercial use or activity shall be permitted if it involves potential chronic exposures of children to soil (e.g., use of the property for a day care center);

(ii) no use or activity on the property shall be permitted that will disturb any of the remedial measures that have been implemented pursuant to this Consent Decree or that could potentially impair the integrity of the landfill in which contaminated soils and solidified soils have been disposed; and

(iii) except as necessary to perform the Remedial Action, no use or activity on the property shall disturb the surface or subsurface of the land by filling, drilling, excavation, or removal of topsoil, rock or minerals which could move soil containing greater than 1,000 mg/kg lead or 10 mg/kg polychlorinated biphenyl (PCB) to the surface or within the top foot of soil where chronic long-term worker exposures could occur;

(iv) groundwater underlying the property shall not be consumed or used in any way except for the limited purpose of monitoring ground water contamination levels. Ground water wells and facilities installed for such purpose shall only be installed pursuant to a plan approved by EPA;

(v) access to the Toxics Substances Control Act landfill by the general public shall be prohibited, and access by long- or short-term workers shall be restricted in compliance with 40 C.F.R. § 761.75(b)(9)(i), through maintenance of a six-foot woven mesh fence, wall, or similar device. If the solidified soil mass is capped or designed and used as a building foundation or parking lot, EPA may waive this requirement upon a written request which shall include long-term maintenance of such cap, building foundation or

parking lot in accordance with the approved O & M Plan. Unrestricted access by the general public to those areas of the Site where surface contamination of 1 mg/kg PCB or greater remains after all excavation, treatment, and disposal is complete shall be prohibited through maintenance of a six-foot fence, cap, parking lot or similar structure approved by EPA; and

(vi) during remedial design and construction of the remedial action, the public, including long and short-term workers, other than authorized representatives of EPA, the State, and Settling Defendants and Owner Settling Defendant, shall only have access to areas in or around the Site that are not affected by soil contamination.

6 . Reservation When Conveying an Interest: Any instrument conveying an interest in any portion of the Property, including but not limited to deeds, leases and mortgages, must include language that is in substantially the same form as Appendices F or G of the RD/RA Consent Decree. Within thirty (30) days of the date any such instrument of conveyance is executed, the grantor of such instrument must provide grantee with a certified true copy of said instrument and its recording reference.

7 . Administrative jurisdiction: The federal agency having administrative jurisdiction over the instrument on behalf of the United States is the EPA. The Regional Administrator of EPA Region 10 shall exercise the rights granted to the United States herein. If the United States assigns its rights created by this Declaration, unless it provides otherwise in any such assignment document, the rights referred to in this paragraph shall also be assigned.

8 . Enforcement: The grantor shall be entitled to enforce the terms of these Deed Restrictions by resort to specific performance or legal process. All remedies available hereunder shall be in addition to any and all other remedies at law or in equity.

9. Third Party Beneficiary: Any grantor and grantee of an interest in the Property must agree that the EPA and the Settling Defendants in the RD/RA Consent Decree shall be third party beneficiaries of all the benefits and rights reserved and retained by the Grantor in this Declaraciton and as contained in Appendices F and G of the RD/RA Consent Decree.

10. No forfeiture: Nothing contained herein will result in a forfeiture or revision of Grantor's title in any respect.

APPENDIX F

RESERVATION OF ACCESS EASEMENT AND RESTRICTIONS ON USE

This document contains language that shall be included in a deed or other instrument transferring a fee simple or other title interest in real property described in Appendix C of this Consent Decree. Owner Settling Defendant may propose, subject to EPA approval and in accordance with Section XI (EPA Approval of Plans and Other Submissions) of the Consent Decree, to use alternative language.

I. RECITALS

WITNESSETH:

WHEREAS, Grantor is the owner of real property located in the Municipality of Anchorage, Alaska, and legally described in ATTACHMENT A hereto (the "Property");

WHEREAS, the Property is part of the Standard Steel and Metals Salvage Yard Superfund Site ("Site") which the United States Environmental Protection Agency ("EPA") placed on the National Priorities List, 40 C.F.R. Part 300, as published in the Federal Register.

WHEREAS, in a Consent Decree by and between the United States of America and Settling Defendants and Owner Settling Defendant as those terms are defined in the Consent Decree, entered by the United States District Court of the District of Alaska on _____ _____, 1997 (the RD/RA Consent Decree), in the matter of United States v. Alaska Railroad Corporation, et al., A91-0589-CV (JWS), the Settling Defendants agreed to perform Remedial Design and Remedial Action at the Site and Owner Settling Defendant agreed to implement certain Institutional Controls and provide access to the Site set forth in the Consent Decree;

WHEREAS, the parties (Grantor and Grantee) have also agreed (a) to reserve to the Grantor a permanent right of access over the Property for the purpose of determining whether the Property is being used in a manner that is prohibited by the RD/RA Consent Decree or related agreements or easements; and (b) to impose on the Property use restrictions as covenants that the parties intend to run with the land and to be binding upon the successors, transferees and assigns of the Grantee; and

WHEREAS, Grantee intends to cooperate fully with Grantor, EPA and the Settling Defendants, in the implementation of all response actions at the Site.

II. ACCESS AGREEMENT.

Grantee agrees to provide to the U.S. EPA and any successor agency or department, the Alaska Department of Environmental Conservation and any successor (agency or department), and the Settling Defendants, access to the Property to the same extent and for the same purposes as Grantor agreed in Section VII of the Partial Consent Decree, entered on December 11, 1996 by the United States District Court for the District of Alaska in the matter of United States v. Alaska Railroad Corporation, et al., A91-0589-CV (JWS). Grantee also agrees and intends that this access obligation shall be binding on any subsequent successor, transferees, lessees, or person given interest in the Property and that it shall run with land comprising the Property.

III. RESTRICTIONS AND RESERVATIONS.

1. Purpose: It is the purpose of these restrictions and reservations to ensure that the Property will not be used in a manner that is prohibited by the RD/RA Consent Decree and to reserve and retain for the Grantor the right to access the Property for the purpose of determining that the use is not prohibited by the RD/RA Consent Decree.

2. Restrictions on Use: Grantee, on behalf of itself, its successors and assigns, in consideration of this [insert name of instrument] hereby covenants that use of the Property shall be restricted as follows:

(i) no residential use or activity shall be permitted on the property, and no commercial use or activity shall be permitted if it involves potential chronic exposures of children to soil (e.g., use of the property for a day care center);

(ii) no use or activity on the property shall be permitted that will disturb any of the remedial measures that have been implemented pursuant to this Consent Decree or that could potentially impair the integrity of the landfill in which contaminated soils and solidified soils have been disposed; and

(iii) except as necessary to perform the Remedial Action, no use or activity on the property shall disturb the surface or subsurface of the land by filling, drilling, excavation, or removal of topsoil, rock or minerals which could move soil containing greater than 1,000 mg/kg lead or 10 mg/kg polychlorinated biphenyl (PCB) to the

surface or within the top foot of soil where chronic long-term worker exposures could occur;

(iv) groundwater underlying the property shall not be consumed or used in any way except for the limited purpose of monitoring ground water contamination levels. Ground water wells and facilities installed for such purpose shall only be installed pursuant to a plan approved by EPA;

(v) access to the Toxics Substances Control Act landfill by the general public shall be prohibited, and access by long- or short-term workers shall be restricted in compliance with 40 C.F.R. § 761.75(b)(9)(i), through maintenance of a six-foot woven mesh fence, wall, or similar device. If the solidified soil mass is capped or designed and used as a building foundation or parking lot, EPA may waive this requirement upon a written request which shall include long-term maintenance of such cap, building foundation or parking lot in accordance with the approved O & M Plan. Unrestricted access by the general public to those areas of the Site where surface contamination of 1 mg/kg PCB or greater remains after all excavation, treatment, and disposal is complete shall be prohibited through maintenance of a six-foot fence, cap, parking lot or similar structure approved by EPA; and

(vi) during remedial design and construction of the remedial action, the public, including long and short-term workers, other than authorized representatives of EPA, the State, and Settling Defendants and Owner Settling Defendant, shall only have access to areas in or around the Site that are not affected by soil contamination.

(vii) At least 30 days prior to any conveyance of a title interest in the Property, the owner of the Property shall give to the grantee written notice of the RD/RA Consent Decree and of the access obligations and use restrictions therein and shall give written notice to EPA of the proposed conveyance, including the name and address of the Grantee, and the date on which notice of the RD/RA Consent Decree was given to the Grantee.

The parties intend these restrictions to run with the land and to be binding upon Grantee and its successors, transferees, and

assigns for the benefit of the Grantor, Alaska Railroad Corporation, its successors and assigns.

3. Reservation of Environmental Protection Easement: Grantor hereby reserves and retains for itself and its successors and assigns, a non-exclusive, perpetual easement to enter on the Property at reasonable times and in a reasonable manner. The purpose of such access is to verify that no action is being taken on the Property in violation of the terms of this easement.

4. No public access and Use: No right of access or use by the general public to any portion of the Property is intended by the parties or is conveyed by this [insert name of instrument].

5. Enforcement: The Grantor hereby reserves and retains for itself and its successors and assigns an irrevocable, permanent, and continuing right to enforce the terms of this [insert name of instrument] by resort to specific performance or legal process. All remedies available hereunder shall be in addition to any and all other remedies at law or in equity. Enforcement of the terms of this instrument shall be at the discretion of the Grantor, and any forbearance, delay or omission to exercise its rights under this instrument shall not be deemed to be a waiver by the Grantor or such term or any subsequent breach of the same or any other term, or of any of the rights of the Grantor under this [insert name of instrument].

6. Third Party Beneficiary: The Grantor, on behalf of itself and its successors and assigns, and the Grantee, on behalf of itself and its successors, transferees, and assigns, hereby agree that the EPA and Settling Defendants shall be third party beneficiaries of all the benefits and rights reserved and retained by the Grantor in this easement.

7. Waiver of Certain Defenses: Grantee and its successors, transferees, and assigns hereby waive any defense of laches, estoppel, or prescription.

8. Covenants: Grantor mutually covenants to and with the Grantee and its assigns that the Grantor has a good and lawful right and power to reserve and retain this [insert name of instrument].

9. Notices: Any notice, demand, request, consent, approval, or communication that either party desires or is required to give the other under this [insert name of instrument] shall be in writing and shall either be served personally or sent by first class mail, postage prepaid, addressed as follows:

To Grantor: To Grantee:

10. Controlling Law: The interpretation and performance of the Environmental Protection Easement, the Access Agreement, and Restrictions and Reservations shall be governed by the laws of the United States or, if there is no applicable federal law, by the law of the State of Alaska.

11. Liberal Construction: Any general rule of construction to the contrary notwithstanding, the Environmental Protection Easement, Access Agreement, and Restrictions and Reservations shall be liberally construed in favor of the restriction and reservations to effect the purpose of this [insert name of instrument] and the policy and purposes of CERCLA, 42 U.S.C. § 9601, et seq. If any provision of this [insert name of instrument] is found to be ambiguous, an interpretation consistent with the purpose of this [insert name of instrument] that would render the provision valid shall be favored over any interpretation that would render it invalid.

12. Severability: If any provision of this [insert name ofinstrument], or the application of it to any person or circumstance, is found to be invalid, the remainder of the provision of this [insert name of instrument], those sections, or the application of such provisions to persons or circumstances other than those to which it is found to be invalid, as the case may be, shall not be affected thereby.

13. Successors: The Grantor and Grantee intend that the covenants, terms, conditions, and restrictions of this [insert name of instrument] shall be binding upon, and inure to the benefit of, the parties hereto and their respective personal representatives, heirs, successors, and assigns and shall continue as a servitude running in perpetuity with the Property.

Appendix G

APPENDIX G

LEASE PROHIBITIONS

The following language, or such other language that EPA approves in writing pursuant to Section XI (EPA Approval of Plans and Other Submissions) of the Consent Decree, shall be included in any lease of Property described in Appendix C of the Consent Decree:

[Additional] Right of Access and Re-Entry]

[In addition to any right of access and/or re-entry described in this Lease], Lessor, the United States Environmental Protection Agency ("EPA"), the Alaska Department of Environmental Conservation ("ADEC"), and Settling Defendants, or their designees, shall have an irrevocable, permanent, and continuing right of access to the Property at reasonable times and in a reasonable manner for the purpose of implementing the Record of Decision for the Site issued by EPA on July 16, 1996 and determining whether the Property is being used in a manner that is prohibited by the Consent Decree between the United States of America and Settling Defendants and the Owner Settling Defendant, and entered by the United States District Court of the District of Alaska in the matter of, U.S. v. Alaska Railroad Corporation, et al., A91-0589-CV (JWS), entered by the court on _____ ___ ___, 1997.

Access Agreement

Lessee hereby agrees to provide Lessor, EPA, ADEC, Settling Defendants, and their authorized representatives and agents, access at all reasonable times to the Property that is covered by this Lease for the implementation of the ROD and Consent Decree to the same extent as Lessor has agreed to provide access under Section VII (Site Access and Cooperation) of the Partial Consent Decree entered on December 11, 1966 by the United States District Court in the District of Alaska in the matter of United States v. Alaska Railroad Corporation, A01-0589-CV-(JWS).

Environmental Protection Requirement

Lessee hereby covenants and agrees that Lessee, its employees, representatives, and agents, [where such is allowed under the Lease, add one or more of the following: successors, assigns, sublessees, and subtenants] shall not use or allow any licensee, or any person given a right to use, occupy, or possess

any of the Property, in violation of any of the following restrictions:

(i) no residential use or activity shall be permitted on the property, and no commercial use or activity shall be permitted if it involves potential chronic exposures of children to soil (e.g., use of the property for a day care center);

(ii) no use or activity on the property shall be permitted that will disturb any of the remedial measures that have been implemented pursuant to this Consent Decree or that could potentially impair the integrity of the landfill in which contaminated soils and solidified soils have been disposed; and

(iii) except as necessary to perform the Remedial Action, no use or activity on the property shall disturb the surface or subsurface of the land by filling, drilling, excavation, or removal of topsoil, rock or minerals which could move soil containing greater than 1,000 mg/kg lead or 10 mg/kg polychlorinated biphenyl (PCB) to the surface or within the top foot of soil where chronic long-term worker exposures could occur;

(iv) groundwater underlying the property shall not be consumed or used in any way except for the limited purpose of monitoring ground water contamination levels. Ground water wells and facilities installed for such purpose shall only be installed pursuant to a plan approved by EPA;

(v) access to the Toxics Substances Control Act landfill by the general public shall be prohibited, and access by long- or short-term workers shall be restricted in compliance with 40 C.F.R. § 761.75(b)(9)(i), through maintenance of a six-foot woven mesh fence, wall, or similar device. If the solidified soil mass is capped or designed and used as a building foundation or parking lot, EPA may waive this requirement upon a written request which shall include long-term maintenance of such cap, building foundation or parking lot in accordance with the approved O & M Plan. Unrestricted access by the general public to those areas of the Site where surface contamination of 1 mg/kg PCB or greater remains after all excavation, treatment, and disposal is

complete shall be prohibited through maintenance of a six-foot fence, cap, parking lot or similar structure approved by EPA; and

(vi) during remedial design and construction of the remedial action, the public, including long and short-term workers, other than authorized representatives of EPA, the State, and Settling Defendants and Owner Settling Defendant, shall only have access to areas in or around the Site that are not affected by soil contamination.

Enforcement

The Lessee hereby covenants and agrees that the Lessor shall have continuing right to enforce the terms and conditions of the Right of Access and Re-entry and the Environmental Protection Requirement Sections of this lease by resort to specific performance or legal process, and that the Lessee's failure to satisfy the terms and conditions of such sections shall render this Lease void. All remedies available hereunder shall be in addition to any and all other remedies at law or in equity. Enforcement of the terms of this Lease shall be at the discretion of the Lessor, and any forbearance, delay or omission to exercise its rights under this Lease shall not be deemed to be a waiver by the Lessor of such term or any subsequent breach of the same or any other term, or of any of the rights of the Lessor under this lease.

[Notice Requirements]

[Where assignment, subleases, or subtenancies are allowed, add the following: At least 30 days prior to any [sublease, subtenancy, or conveyance] of an interest in the Property, Lessee shall give written notice of the Consent Decree to the [sublessee, subtenant, or grantee] and written notice to EPA of the proposed [sublease, subtenancy, or conveyance,] including the name and address of the [sublessee, subtenant, or grantee,] and the date on which notice of the Consent Decree was given.

Third Party Beneficiary

The Lessor and the Lessee hereby agree that the EPA and Settling Defendants shall be third party beneficiaries of all the benefits and rights reserved and retained by the Lessor in the Environmental Protection Requirement and Enforcement Section of this Lease.

ATTACHMENT 19

Explanation of Significant Differences
1998

[This page intentionally left blank]

EPA/ESD/R10-99/037
1999

EPA Superfund
Explanation of Significant Differences:

STANDARD STEEL & METAL SALVAGE YARD (USDOT)
EPA ID: AKD980978787
OU 01
ANCHORAGE, AK
11/18/1998

STANDARD STEEL AND METALS SALVAGE YARD
EXPLANATION OF SIGNIFICANT DIFFERENCE

I. Introduction:

This document presents an Explanation of Significant Difference (ESD) for the Record of Decision (ROD) for the Standard Steel and Metals Salvage Yard Site in Anchorage, Alaska. The ROD was signed by the U.S. Environmental Protection Agency (EPA) on July 16, 1996.

The Standard Steel and Metals Salvage Yard (site) was listed on the National Priorities List (NPL) on August 30, 1990 under the Comprehensive Environmental Response. Compensation and Liability Act of 1980 (CERCLA) as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA). The lead agency for the Site is the EPA. This ESD, prepared in accordance with Section 117 (c) of CERCLA and 40 CFR 300.435c(2)(i), is necessary to document the waiver of 40 CFR 761.75(b)(9)(i), which requires a six foot woven mesh fence, wall, or similar device. The State of Alaska Department of Environmental Conservation supports the need for this ESD.

The selected remedy for the Site addressed the potential risks posed by Polychlorinated biphenyls and lead in soils at the site by treating the soils via stabilization and containment in an on-site Toxic Substances Control Act (TSCA) landfill. The Remedial Action Objectives of the selected remedy are:

- Prevent exposure by inhalation, ingestion, and dermal contact with contaminated soils that would result in an excess lifetime carcinogenic risk above 1E-4 for industrial use, and off-site non-industrial use;

- Prevent exposure by inhalation, ingestion. and dermal contact with contaminated soils that would result in noncarcinogenic health effects as indicated by an HI greater than 1.0,

- Prevent off-site migration of contaminants caused by mechanical transport, surface water runoff, flood events, and wind erosion;

- Prevent leaching or migration of soil contaminants into groundwater that would result in groundwater contamination in excess of regulatory standards.

The major components of the selected remedy are:

1. Removal of regulated material stockpiled on-site and investigation derived wastes with subsequent disposal in a RCRA subtitle C or D landfill, or recycling of materials;

2. Off-site disposal of remaining scrap debris by recycling or disposal in a RCRA Subtitle D or, if the debris is a characteristic hazardous waste or contains greater than 50 mg/kg PCBs or 10 ug/100 cm^2 by standard wipe tests, treatment and disposal in a RCRA Subtitle C or TSCA landfill;

3. Excavation and consolidation of all soils exceeding a 10 mg/kg PCBs or 1000 mg/kg lead cleanup level;

4. Treatment of all soils at or greater than 1000 mg/kg lead or 50 mg/kg PCBs, or greater, by stabilization/solidification;

5. On-site disposal of stabilized/solidified soils and excavated soils between 10 mg/kg and 50 mg/kg PCBs in a TSCA landfill;

6. Excavation of soils impacted above 1 mg/kg PCBs and 500 mg/kg lead from the flood plain and consolidation of these soils elsewhere on the site;

7. Maintenance and repair of erosion control structure on bank of Ship Creek;

8. Maintenance of solidified/stabilized soils and the landfill;

9. Institutional Controls to limit land uses of the site and, if appropriate, access;

10. Monitoring of groundwater at the site to ensure the effectiveness of the remedial action.

All of the major components of the selected remedy have been completed with the exception of the maintenance of the erosion control structure. This task will be completed in the Spring of 1999.

This ESD will become part of the Administrative Record file pursuant to Section 300.825(a)(2) of the National Oil and Hazardous Substance Pollution Contingency Plan (NCP).

II. Summary of Site History, Contamination Problems, and Selected Remedy

Standard Steel and Metals Salvage Yard (site) is located on a 6.2 acre parcel of land in Anchorage, Alaska. Legal title to the land is held by the Federal Railroad Administration, but the property and facilities are managed, and in the possession of the Alaska Railroad Corporation under an exclusive license. The site is situated in an industrialized area of Anchorage along the north bank of Ship Creek. The site has been used as a scrap yard since 1955. Electrical transformers and batteries are the main source of contamination at the site.

In 1986 EPA conducted a three phase removal action to address releases of Polychlorinated biphenyls (PCB) and lead. EPA removed all PCB contaminated liquids, eighty two barrels of

RCRA waste, 780,000 pounds of batteries, 185 electrical transformers, stockpiled contaminated soils, erected a security fence and erosion control wall, and dismantled and stored an on-site incinerator used for salvage operations.

On September 23, 1992 Chugach Electric Association, one of 8 PRPs, entered into a Consent Agreement to conduct a RI/FS on the site. The conclusions of the RI/FS were that site soils are contaminated primarily with PCBs and lead. Surface soils were the most contaminated area with three subsurface PCB hotspots, one of which is a light, non-aqueous phase liquid (LNAPL). Surface waters and sediments were not impacted by site releases nor is off-site groundwater. On-site groundwater was contaminated in the areas adjacent to the LNAPL, but not significantly (2 detections above MCLs).

PCB concentrations at the site varied from non-detect to 10,500 mg/kg. 212 samples were collected during the course of the RI/FS. 29 samples had concentrations above 50 mg/kg. 3 subsurface samples were above 50 mg/kg. The LNAPL located in the center of the site was very viscous and samples indicated it could be removed with conventional excavation equipment.

Lead concentrations varied from around 30 mg/kg to 24,000 mg/kg. All lead detections above 500 mg/kg were located in surface soils. All lead concentrations above 1000 mg/kg were located in areas with greater than 10 mg/kg PCBs.

Cleanup levels selected for the site were: 10 mg/kg PCBs and 1000 mg/kg lead in soils. Soils with PCB concentrations above 50 mg/kg and/or lead concentrations above 1000 mg/kg would require treatment. These levels are consistent with other industrial cleanup levels at Superfund Sites and will reduce the risk to 1 in 1,000,000 additional chance of developing cancer in exposed individuals.

A Consent Decree for Remedial Design/Remedial Action was signed by Alaska Railroad Corporation. Chugach Electric Association, Inc., Westinghouse Electric Corporation. Sears, Roebuck and Company. J. C. Penney Company, Inc., and Bridgestone/Firestone, Inc. The Consent Decree was entered on January 26, 1998. Among other requirements, the CD required the respondents to design and implement the selected remedy in the ROD.

The Selected Remedy was implemented in 1998. After the approval of the Remedial Design and Remedial Action Work Plans, the settling defendants began remedial action. Site clearing and debris disposal began in May 1998. The containment cell was constructed in June. Contaminated soils, and the LNAPL, were treated and disposed of from June through September. The containment cell was capped in October and the erosion control wall was constructed in September and October. Revegetation and removal of the original erosion control wall will be completed in 1999. Ground water monitoring and maintenance of the Landfill will continue annually for five years and be evaluated during five year reviews.

III. Description of the Significant Differences and the Basis for those Differences

This ESD was determined necessary to document the waiver of 40 CFR 761.75(b)(9)(i), fence or barrier controls at TSCA landfills, for the on-site TSCA landfill. The intent of 40 CFR 761.75(b)(9)(i) is to prevent unauthorized persons or animals from entering the landfill and being exposed to PCBs.

The ROD provided for a waiver of a 6 foot high woven mesh fence, wall, or similar device, if the site was constructed as either a budding foundation or a parking lot. The ROD required that the treated contaminated soils in the containment cell be covered with clean soil to support a vegetative cover or paved over to prevent erosion of surface soil. The ROD selected industrial cleanup levels of 10 mg/Kg PCBs and 1000mg/Kg lead for surface soils at the site and therefore required access restrictions to prevent exposure to individuals, except short or long-term workers.

The approved design was enhanced by excavating and consolidating all upland surface soils outside the limits of the TSCA landfill which exceed 1.0 mg/Kg PCBs or 500 mg/Kg lead and adding a Geomembrane cover system, consisting of a four inch foam layer, 40-mil Geomembrane impermeable liner, geonet drainage layer, geonet filter fabric and three feet of clean soil. The addition of the Geomembrane cover system and three feet of soil exceeds the design requirements of the ROD and satisfies the intent of 40 CFR 761.75(b)(9)(i). Institutional Controls in the ROD and agreed to by the Alaska Railroad Corporation in the Consent Decree provide notice of the TSCA landfill to the landowner, lessees, and local utilities, and will prevent excavation, construction. or other incompatible uses at the Site.

IV. Proposed Approach

The ROD determined that, depending upon the final design, waiving 40 CFR 761.75(b)(9)(i) would not present an unreasonable risk of injury to health or the environment from PCBs, as required by 40 CFR 761.75(c)(4). This ESD waives 40 CFR 761.75(b)(9)(i). Institutional Controls in the ROD and Consent Decree will be utilized to ensure the cover system is maintained and use of the site is consistent with the selected remedy.

V. Affirmation of the Statutory Determinations

The modified remedy continues to satisfy the requirements of CERCLA section 121. Considering the new information and results of the Pre-Final Construction Completion Inspection. EPA believes that the remedy 1) remains protective of human health and the environment, 2) complies with Federal and State requirements that were identified in the ROD as applicable or relevant and appropriate to this remedial action at the time the ROD was signed, and 3) is also c ost effective with regard to the risk imposed.

VI. Public Participation

A Community Relations Plan (CRP) was prepared in 1991 in accordance with CERCLA, as amended by SARA. The CRP includes establishing information repositories and communication pathways to disseminate information.

This ESD will become part of the Administrative Record File as required by NCP 300.825(a)(2).

Notice will be issued in the Anchorage Daily, that this ESD and contents of the Administrative Record File are available for public review. Copies of the ESD will be available to the public at the information repositories listed below:

Alaska Resources Library
U.S. Bureau of Land Management
222 W. 7th #36
Anchorage, Alaska 99513
(901) 271-5025

EPA Regional Headquarters
Seventh Floor Records Center
1200 Sixth Avenue
Seattle, Washington 98101
(206) 553-4494

Michael F. Gearheard, Associate Director
Environmental Cleanup Office

Nov. 18, 1998
Date

ATTACHMENT 20

Declaration of Restrictive Covenants and Notice of Remedial Action

[This page intentionally left blank]

DECLARATION OF RESTRICTIVE COVENANTS AND NOTICE OF REMEDIAL ACTION

This Declaration of Restrictive Covenants and Notice of Remedial Action ("Deed Restrictions") is made this 23rd day of April, 1998 pursuant to, and in consideration for, the terms of the prior consent agreements and the Record of Decision ("ROD") pertaining to the Standard Steel Superfund Site ("Site") issued by the U.S. Environmental Protection Agency ("EPA") on July 16, 1996.

1. Grantor. These Deed Restrictions are granted by the Alaska Railroad Corporation and are binding upon its successors and assigns (collectively "Grantor") with respect to a parcel of land located in Anchorage, Alaska, more particularly described on Attachment "A" attached to and for all purposes made a part of these Deed Restrictions (the "Property").

2. Purpose. It is the purpose of these Deed Restrictions to implement the Institutional Controls required by the ROD to notify all successors-in-interest or other persons of the land and water use and access restrictions that apply to the Property to assure the Property will be used only for purposes which are compatible with the Remedial Action and the RD/RA Consent Decree entered into by Grantor, the United States, and other parties, and entered by the U.S. District Court of the District of Alaska on January 26, 1998, in the matter of U.S. v. Alaska Railroad Corporation, et al., A91-0589-CV (JWS), and to ensure that the Property will not be used in a manner that will pose a threat to human health or the environment.

3. Servitude in Perpetuity. The covenants, terms, conditions and restrictions of these Deed Restrictions shall be binding upon and inure to the benefit of the Alaska Railroad Corporation, its successors and assigns, any grantee, and their successors and assigns, and shall continue as a legal and equitable servitude running in perpetuity with the Property.

4. **Notice of Remedial Action. THIS PROPERTY IS PART OF THE STANDARD STEEL AND METALS SALVAGE YARD SUPERFUND SITE, WHICH THE EPA, PURSUANT TO SECTION 105 OF THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT ("CERCLA"), 42 U.S.C. §9605, PLACED ON THE NATIONAL PRIORITIES LIST, SET FORTH AT 40 C.F.R. PART 300, APPENDIX B, BY PUBLICATION IN THE FEDERAL REGISTER ON AUGUST 30, 1990. 55 FED. REG. 35502. IN THE RECORD OF DECISION FOR THE SITE DATED JULY 16, 1996, THE EPA REGION 10 REGIONAL ADMINISTRATOR SELECTED A "REMEDIAL ACTION" FOR THE SITE, WHICH PROVIDES, IN PART, FOR IMPLEMENTATION OF INSTITUTIONAL CONTROLS LIMITING FUTURE LAND USES OF THE SITE, PREVENTING GROUNDWATER USE AND LIMITING SITE ACCESS. ANY INTEREST IN THE PROPERTY CONVEYED OR ACQUIRED IS SUBJECT TO THE RESTRICTIVE COVENANTS CONTAINED IN THIS DECLARATION.**

5. Restriction on Use. The following restrictions apply to the use of the Property, run with the land and are binding upon any grantee.

(i) no residential use or activity shall be permitted on the Property, and no commercial use or activity shall be permitted if it involves potential chronic exposures of children to soil (e.g., use of the Property for a day care center);

(ii) no use or activity on the Property shall be permitted that will disturb any of the remedial measures that have been implemented pursuant to the Consent Decree referred to in Paragraph 2 above or that could potentially impair the integrity of the landfill in which contaminated soils and solidified soils have been disposed; and

(iii) except as necessary to perform the Remedial Action, no use or activity on the Property shall disturb the surface or subsurface of the land by filling, drilling, excavation, or removal of topsoil, rock or minerals which could move soil containing greater than 1,000 mg/kg lead or 10 mg/kg polychlorinated biphenyl ("PCB") to the surface or within the top foot of soil where chronic long-term worker exposures could occur;

(iv) groundwater underlying the Property shall not be consumed or used in any way except for the limited purpose of monitoring groundwater contamination levels. Groundwater wells and facilities installed for such purpose shall only be installed pursuant to a plan approved by EPA;

(v) access to the Toxics Substances Control Act landfill by the general public shall be prohibited, and access by long- or short-term workers shall be restricted in compliance with 40 C.F.R. §761.75(b)(9)(i), through maintenance of a six-foot woven mesh fence, wall, or similar device. If the solidified soil mass is capped or designed and used as a building foundation or parking lot, EPA may waive this requirement upon a written request which shall include long-term maintenance of such cap, building foundation or parking lot in accordance with the approved O & M Plan. Unrestricted access by the general public to those areas of the Site where surface contamination of 1 mg/kg PCB or greater remains after all excavation, treatment,

and disposal is complete shall be prohibited through maintenance of a six-foot fence, cap, parking lot or similar structure approved by EPA; and

(vi) during remedial design and construction of the remedial action, the public, including long- and short-term workers, other than authorized representatives of EPA, the State, and Settling Defendants and Owner Settling Defendant, shall only have access to areas in or around the Site that are not affected by soil contamination.

6. Reservation When Conveying an Interest. Any instrument conveying an interest in any portion of the Property, including but not limited to deeds, leases and mortgages, must include language that is in substantially the same form as Appendices F or G of the above-referenced RD/RA Consent Decree. Within thirty (30) days of the date any such instrument of conveyance is executed, the grantor of such instrument must provide grantee with a certified true copy of said instrument and its recording reference.

7. Administrative Jurisdiction. The federal agency having administrative jurisdiction over the instrument on behalf of the United States is the EPA. The Regional Administrator of EPA Region 10 shall exercise the rights granted to the United States herein. If the United States assigns its rights created by this Declaration, unless it provides otherwise in any such assignment document, the rights referred to in this paragraph shall also be assigned.

8. Enforcement. The grantor shall be entitled to enforce the terms of these Deed Restrictions by resort to specific performance or legal process. All remedies available hereunder shall be in addition to any and all other remedies at law or in equity.

9. Third Party Beneficiary. Any grantor and grantee of an interest in the Property must agree that the EPA and the Settling Defendants in the above-referenced RD/RA Consent Decree shall be third party beneficiaries of all the benefits and rights reserved and retained by the Grantor in this Declaration and as contained in Appendices F and G of said RD/RA Consent Decree.

10. No Forfeiture. Nothing contained herein will result in a forfeiture or revision of Grantor's title in any respect.

11. Defined Terms. Words or terms used in this Declaration with the first letter capitalized are defined either in this document or in the RD/RA Consent Decree described in Paragraph 2.

ALASKA RAILROAD CORPORATION

By: _____
William J. Sheffield
President and Chief Executive Officer

STATE OF ALASKA)
) ss.
THIRD JUDICIAL DISTRICT)

The foregoing instrument was acknowledged before me this 23rd day of April, 1998, by William J. Sheffield, President and Chief Executive Officer, of the Alaska Railroad Corporation, a public corporation created by Alaska Statute 42.40, on behalf of the corporation.

_____
Notary Public in and for Alaska
My Commission Expires: 11/28/99

arrc/u/legal.appendix

JULIE A. BLACK
NOTARY PUBLIC
STATE OF ALASKA

PLEASE RETURN TO:

Alaska Railroad Corporation
Legal Department
P.O. Box 107500
Anchorage, Alaska 99501-7500

ATTACHMENT "A"

LEGAL DESCRIPTION

STANDARD STEEL SITE

A parcel of land located within the Alaska Railroad Anchorage Terminal Reserve, situated in the Anchorage Recording District, Third Judicial District, State of Alaska, including Lots 53 through 58-A of the Alaska Railroad Corporation Post Road Industrial Lease Lots and more particularly described as follows:

Beginning at the northwesterly corner of Lot 53; thence S 32° 30' 30" E a distance of 510.00 feet; thence along Ship Creek Meanders as follows:

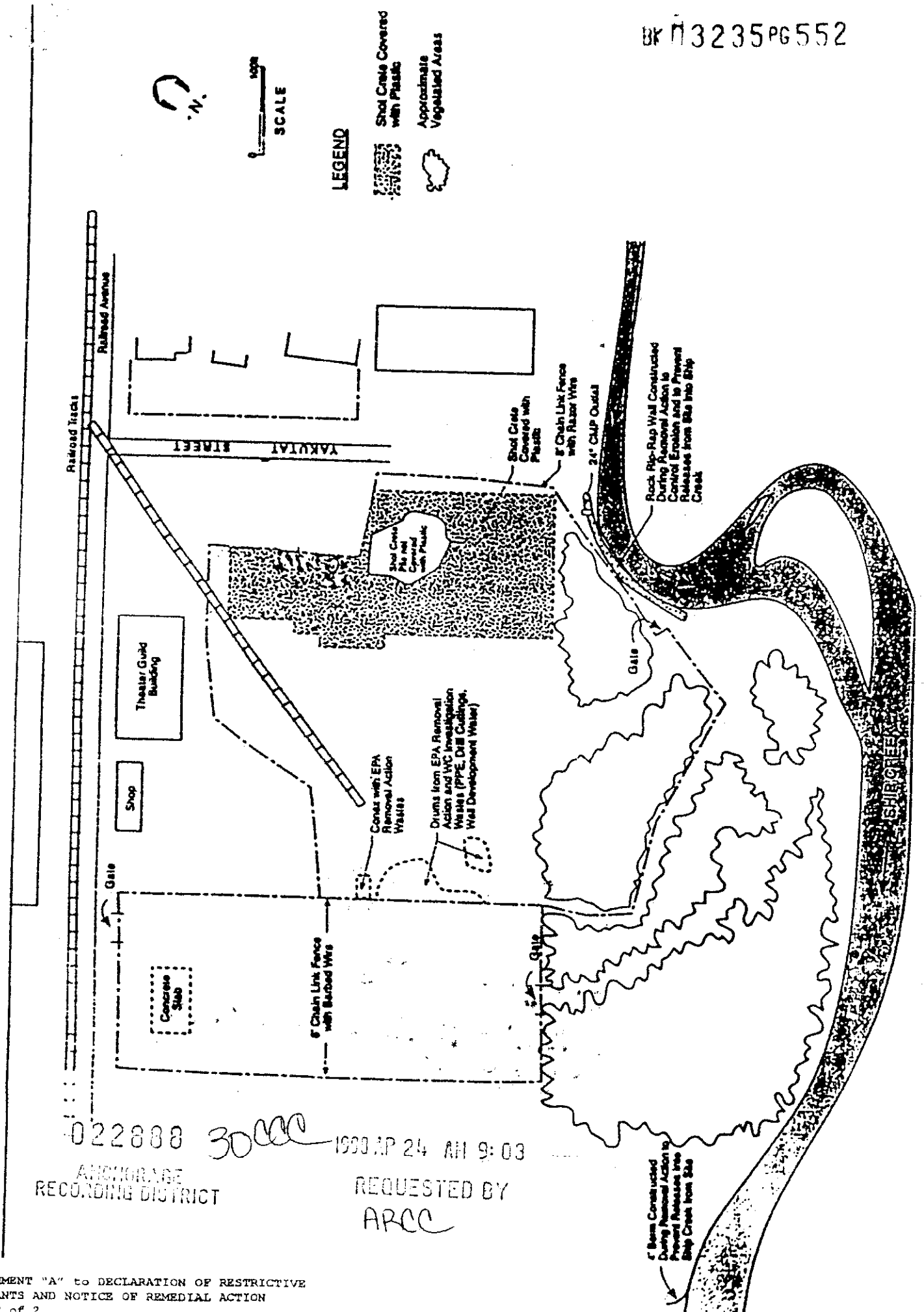
> S 41° 15' 25" W, 54.09'; S 19° 09' 22" W, 57.22 feet; S 4° 01' 53" E, 96.37 feet; S 45° 50' 52" E, 32.76 feet; S 4° 05' 54" W, 34.49 feet, S 23° 05' 08" W, 85.10 feet; S 49° 36' 47" W, 246.17'; S 71° 18' 37" W, 203.76';

thence N 34° 46' 19" W a distance of 277.99 feet; thence N 32° 32' 30" W a distance of 459.88 feet, thence N 57° 27' 30" E a distance of 678.95 feet to the point of beginning.

Containing an area of 484,428 square feet or 11.12 acres more or less, as shown on the attached drawing. In the event of any inconsistency between the attached drawing and the foregoing legal description, the latter shall govern for purposes of this Declaration of Restrictive Covenants and Notice of Remedial Action.

arrc/u/legal/ss.des

BK 3235 PG 552



022888 30 CC 1998 AP 24 AM 9:03

ANCHORAGE
RECORDING DISTRICT

REQUESTED BY
ARCC

ACHMENT "A" to DECLARATION OF RESTRICTIVE
ENANTS AND NOTICE OF REMEDIAL ACTION
e 2 of 2