



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
 REGION IX
 75 Hawthorne Street
 San Francisco, CA 94105

MEMORANDUM

SUBJECT: Five-Year Review for the Selma Pressure Treating Superfund Site, Selma CA

FROM: Tom Kremer, Superfund Policy Advisor
 Site Cleanup Branch

THRU: Loren Henning, Chief
 Site Cleanup Section 4

John Kemmerer, Chief
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TO: Keith Takata, Director
 Superfund Division

I INTRODUCTION

This is the first Five-Year Review conducted for the Selma Pressure Treating Superfund site, Selma, Fresno County, California. Attached, please find a copy of the Five-Year Review report for the site prepared by Geomatrix Consultants for EPA. The findings of the Five-Year Review report are summarized below, along with EPA's conclusions and any differences from the consultants' report.

Because contaminant levels will not allow for unlimited use and unrestricted exposure upon achieving ROD cleanup goals, this Five-Year Review is required by CERCLA (Section 121(c)) and by Section 300.430(f)(4)(ii) of the NCP.

II FIVE-YEAR REVIEW SUMMARY

The site is located approximately 15 miles south of the city of Fresno, adjacent to the city limits of Selma, California. Wood treating operations were conducted at the site from 1936 until 1994. Investigations beginning in 1981 indicated that soil and ground water were contaminated by chromium, arsenic, copper, dioxins/furans, PCP and trichlorophenols (TCPs). The site was added to the National Priority List in 1983.

The 1988 ROD set cleanup standards for arsenic and dioxins/furans in soil and for chromium in groundwater. The selected soil remedy consisted of excavating soil containing

chemicals of concern (COCs) in excess of cleanup standards, treating the soils with a fixing agent, and impounding the fixed soils on-site under a RCRA cap. The groundwater remedy called for extraction and treatment to remove chromium, with reinjection or off-site disposal. Site access and land use restrictions and institutional controls to prevent the use of contaminated groundwater were also specified. A 1993 ESD modified the arsenic in soil standard and set cleanup standards for PCP in soil and in groundwater, redefined the areas requiring excavation, clarified regulatory issues and mandated that the fixed soils be consolidated into a single impoundment covered by a single RCRA cap. A 1997 ESD modified the groundwater remedy to allow the use of percolation ponds for the disposal of treated water.

EPA has partially implemented the remedy at this site. Based on available soil data, approximately 13,000 cubic yards of soil was excavated between 1991 and 1993, fixed and placed in an on-site impoundment which was capped in accordance with ROD requirements. Additional soil data were collected from the operating area of the site, which had not been previously investigated. An additional 5000 cubic yards of soil was excavated and stockpiled on-site under temporary cover in 1999. This contaminated soil remains on site under the temporary cover and needs to be addressed. Approximately 21,000 additional cubic yards of soil with COCs at levels above cleanup standards remains on-site at depths up to 5 feet, while an estimated 30,000 additional cubic yards of contaminated soil is present at depths of up to 25 feet. EPA has conducted a Focused Feasibility Study to address the stockpiled soil and the remaining soil contamination and plans to issue a Proposed Plan and ROD Amendment in FY2002, to be followed by remedial action.

A groundwater extraction and treatment system was constructed and began operating in 1998. The treatment system has operated nearly continuously and satisfactorily in accord with design objectives since then. However, a review of groundwater monitoring data indicates that chromium contamination is not being fully contained. Levels of chromium in intermediate and deep wells as well as in wells in the shallow zone cross-gradient to the groundwater flow have shown increases. Also, the monitoring network may not adequately define plume boundaries. EPA has begun to conduct additional analyses to determine what changes if any need to be incorporated into the groundwater extraction system to meet remedial objectives.

Land use (institutional) controls which would run with the land and prevent activities which would compromise the protectiveness of the remedy have not been established and are needed to assure long-term protectiveness. EPA is addressing this deficiency through ongoing negotiations with the land owner and DTSC, and anticipates being able to reach a satisfactory agreement before the end of FY2002.

In addition to the updates noted above, the following additional updates and corrections are made to the material in the Geomatrix Consultants report: (1) Page 1. The trigger date for the 5 Year Review is the start of on-site construction, January 13, 1993, (2) Page 3. The document marking the completion of construction of the groundwater treatment system was the interim remedial action report, signed 9/29/00, not the "final closeout report". The Focused Feasibility Study is complete, the remaining soil remediation will be addressed through a Proposed Plan and ROD Amendment to be issued in FY2002, to be followed by necessary remedial design and

action, (3) Pages 13, 15 EPA disagrees that "criteria" are needed to determine when the groundwater cleanup is complete and the extraction and treatment system may be turned off EPA will determine when the cleanup standards have been demonstrated to have been reliably met in accordance with the standards in the ROD, (4) Page 15 EPA has begun its evaluation of the groundwater extraction system and will determine the details of additional analyses to be performed as this effort is carried out

III CONCLUSION PROTECTIVENESS STATEMENT

Immediate threats to human health and the environment have been adequately addressed and are under control Although the existing soil impoundment is protective of human health and the environment, the soil remedy selected for the site, as implemented to date, has not resulted in fully meeting soil cleanup standards and is not currently protective EPA will upgrade the soil remedy pursuant to a ROD Amendment to be issued in FY2002 EPA is addressing the need for institutional controls on land use through ongoing negotiations with the land owner and DTSC, and anticipates being able to reach a satisfactory agreement before the end of FY2002 The groundwater remedy may not be protective EPA will conduct additional analyses to determine what changes if any need to be incorporated into the groundwater extraction system to meet remedial objectives and to assure that private residential well users continue to be protected The analyses are expected to be completed by 3/31/2002, at which time a final protectiveness statement regarding the groundwater remedy will be made

Based on the expected continuing presence of contamination at this site at levels which preclude unlimited use and unrestricted exposure, the next Five-Year Review will be written within five years from the signature date of this review

Approved by Keith Takata — Date 9-28-01
Keith Takata, Director
Superfund Division

Attachment Geomatrix Consultants 5-Year Review report

Five-Year Review Report

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List of Documents Reviewed

Interview Reports

Site Inspection Checklist

Photographs Documenting Site Conditions

EXECUTIVE SUMMARY

Geomatrix Consultants, Inc (Geomatrix), on behalf of the United States Environmental Protection Agency (U S EPA), Region IX and the U S Army Corps of Engineers, Omaha District (USACE), has conducted a five-year review of the remedial actions implemented to date at the Selma Pressure Treating Site in Selma, California. This is the first five-year review for the site.

The purpose of a five-year review is to determine whether the remedy at a site is protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in five-year review reports. In addition, five-year review reports identify deficiencies found during the review, and make recommendations to address them.

The site is located approximately 15 miles south of the City of Fresno, adjacent to the city limits of Selma, California, and occupies approximately 40 acres, including a 14-acre former wood treatment and storage facility and a 26-acre vineyard. The site related contaminants of concern (COCs) include chromium, arsenic, copper, dioxins/furans, PCP, and trichlorophenols (TCPs).

Based on the results of remedial investigations and remedial action objectives established for the site, a remedy was adopted in the 1988 Record of Decision (ROD) issued by the U S EPA. The selected remedy for soil consisted of excavating soil containing COCs at concentrations that exceed cleanup standards, treating the soils with a fixing agent, placing the fixed soil in an on-site, unlined impoundment, and covering the impoundment with a cap that meets RCRA regulations. Based on the soil data available at the time, this solution was partially implemented between 1991 and 1993. Approximately 13,000 cubic yards of soil were excavated, fixed, placed in an on-site impoundment area, and capped.

Additional soil data were collected between 1994 and 1999. Based on the results of these soil investigations, approximately 5,000 cubic yards of additional soil were excavated in 1999. The excavated soil is currently stockpiled on-site for eventual disposal.

Approximately 21,000 cubic yards of soil remain at depths up to five feet below the ground surface, which are affected with COCs at levels above the cleanup standards. In addition, 30,000

cubic yards of soil that exceeds COC cleanup standards have been estimated to lie as much as 25 feet below grade. Proposed remedial actions for this soil are discussed in the Focused Feasibility Study.

The 1988 ROD selected a groundwater remedy that would employ a conventional precipitation, coagulation, and flocculation extraction and treatment process to remove chromium to meet the applicable drinking water standard (with either reinjection or off-site disposal of the treated effluent) and groundwater monitoring to verify contaminant removal. A groundwater extraction and treatment system was constructed in the summer of 1998 and the system went on-line on September 29, 1998. The system has been in operation since that time.

The five-year review included a review of both the implemented and proposed remedies for the site. The findings are based on a review of project documents and data, interviews with four people associated with the site, a site inspection, and a review of appropriate standards and To Be Considered (TBC) criteria¹.

The most significant deficiency identified during the five-year review is the failure of the groundwater extraction system to contain the chromium plume. We recommend that analyses be completed to further assess the effectiveness of the groundwater extraction system and recommendations be developed on appropriate changes to the groundwater extraction system. Most of the other deficiencies identified during the site inspection are fairly minor and do not affect the protectiveness of the remedies, however, the following warrant mention:

- Inadequate general site maintenance may present a fire hazard,
- Two stockpiles of contaminated soil remain on site,
- Off-site drainage is not currently controlled, and
- There are no locking caps on some of the monitoring wells.

We recommend that

- General site maintenance should be improved,

¹ TBC requirements are non promulgated advisories or guidances issued by federal or state government that are not legally binding but may provide useful information or recommended procedures for remedial action.

- The stockpiles be incorporated into the final soil remediation solution (as currently proposed in the FFS),
- The potential for site run-off/run-on be investigated and control measures, if required, be implemented, and
- Locking caps be installed on all monitoring wells

Additional issues that need to be addressed in the mid-to long- term include

- Establishment of criteria for determining when groundwater remediation is complete,
- Development of a post-closure monitoring and reporting plan for the soil impoundment area, and
- Installation of monitoring wells around the impoundment area

Recommendations that address cost effectiveness and operating efficiencies rather than deficiencies are considered to be less critical

FIVE YEAR REVIEW SUMMARY FORM

Five-Year Review Summary Form

Deficiencies

Summarize deficiencies (see chapter 3 and page A-30)

A comprehensive summary of deficiencies is presented in Table 4. Some of the more important issues are highlighted here:

- Groundwater extraction system does not contain the chromium plume
- Two stockpiles of contaminated soil are temporarily stored on-site
- General site maintenance is inadequate (trash, weeds, etc.)
- No control of off-site drainage
- Many monitoring wells do not have locks or secured lids
- No criteria for turning off groundwater treatment system
- No post-closure monitoring and reporting program established for soil impoundment

Recommendations and Follow-up Actions

Summarize recommendations and follow-up actions (see chapter 3 and page A-30)

A comprehensive list of recommendations and follow-up activities is presented in Table 5. The deficiencies highlighted above are addressed here:

- Complete analyses to assess effectiveness of groundwater extraction system. Make recommendations on appropriate changes to groundwater extraction system to meet remedial objectives
- Incorporate stockpiles into final soil remediation solution
- Improve general site maintenance by removing trash and controlling weeds
- Evaluate the potential for run-off/run-on and implement control measures, if required
- Establish criteria for turning off groundwater treatment system
- Address post-closure monitoring and reporting for soil impoundment in conjunction with implementation of final soil remediation

Protectiveness Statement(s)

Include individual operable unit protectiveness statements. For sites that have reached construction completion and have more than one OU, include an additional and comprehensive protectiveness statement covering all of the remedies at the site (see Chapter 4 and page A-30)

Because the groundwater extraction system is not containing the chromium plume, the remedy at the Site may not be protective of human health and the environment.

Other Comments

Make any other comments here

I. INTRODUCTION

Geomatrix Consultants, Inc (Geomatrix), on behalf of the United States Environmental Protection Agency (U S EPA), Region IX has conducted a five-year review of the remedial actions implemented to date at the Selma Pressure Treating Site in Selma, California Geomatrix was contracted by the U S Army Corps of Engineers (USACE) Omaha District, which was contracted by the EPA to conduct this work This review was conducted in October 2000 This report documents the results of the review and follows the recommended format of OSWER Directive 9355 7-03B-P, Comprehensive Five-Year Review Guidance ¹

The purpose of a five-year review is to determine whether the remedy at a site is protective of human health and the environment The methods, findings, and conclusions of reviews are documented in five-year review reports In addition, five-year review reports identify deficiencies found during the review and makes recommendations to address them

This review is required by statute EPA must implement five-year reviews consistent with the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP)

CERCLA 121(c), as amended, 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 than 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 "

The NCP part 300 430(f)(4)(ii) of the Code of Federal Regulations (CFR) 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 unlimited exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action "

This is the first five-year review for the Selma Pressure Treating Site The triggering action for this statutory review is the completion of Phase 1 of the soil remediation, completed in 1993 The

presence of an on-site impoundment containing soil excavated and fixed during the 1993 remedial action prevents unlimited use of the site. Additionally, the occurrence of chromium in groundwater prevents the groundwater from being used for drinking water supply.

II. SITE CHRONOLOGY

A summary of site chronology is listed in Table 1 below.

Table 1: Chronology of Site Events

Event	Date
RWQCB ¹ regulated discharge under a Waste Discharge Requirements Order	1971 to 1981
U S EPA field team conduct Uncontrolled Hazardous Site Investigation	1/31/81
RWQCB issues a Cleanup and Abatement Order to Owners requesting a timetable for clean-up	September 1981
Site placed on National Priorities List (NPL) ranked as number 195 with a Hazardous Ranking of 43 83	September 1983
RWQCB referred the Order to California Attorney General's office based on non-response of Owner regarding a timetable for clean-up	September 1984
Initiation of RI ² /FS ³ process	1984
Soil investigations carried out	1986 and 1987
RI Report issued	1988
FS Report issued	1988
ROD signature	9/24/88
<u>Soil Remediation--Phase I</u>	
Remedial Design-Start	9/21/89
Remedial Design-Completion	6/30/92
Remedial Action-Implementation	7/22/92 through 1993
ESD ⁵ 1 (revising soil cleanup standards)	10/26/93
As-built drawings issued	6/30/95

Table 1 Chronology of Site Events—continued

Event	Date
<u>Groundwater Remediation</u>	
Remedial Design Phase 1-Start	9/29/90
Remedial Design Phase 1-Completion	3/31/92
Remedial Design Phase 2-Start	9/30/92
Remedial Design Phase 2-Completion	9/30/97
ESD 2 (Specifying groundwater discharge to percolation ponds)	4/18/97
Groundwater Treatment System Construction	1/4/98 to 9/29/98
Groundwater Treatment System Online	9/29/98
Final Closeout Report-Groundwater Treatment System Construction	To be issued 2000
<u>Additional Soil Remediation</u>	
Additional soil data collected	1994, 1995, 1997, 1998, 1999
Excavation of approximately 5,000 cubic yards of soil with COCs greater than cleanup standards from office yard and vineyard	September 1999
Revised Focused Feasibility Study Issued (addressing remaining soil with COCs ⁶ above cleanup standards)	To be finalized Spring 2001
ESD3 (addressing additional soil remediation)	Projected 4Q 2000
Remedial design of final solution	Projected 4Q 2000
Remedial Action	Projected 2Q 2001

Notes

- 1 Regional Water Quality Control Board
- 2 Remedial Investigation
- 3 Feasibility Study
- 4 Record of Decision
- 5 Explanation of Significant Differences
- 6 Contaminants of Concern

III. BACKGROUND

The site is located approximately 15 miles south of the City of Fresno, adjacent to the city limits of Selma, California (Figure 1). The site occupies approximately 40 acres, including a 14-acre former wood treatment and storage facility and a 26-acre vineyard. Historical records indicate that wood treatment operations were never conducted on the vineyard, but the vineyard received some drainage from the operating area of the site. Zoned for heavy industrial use, the site is located in a transition zone between agricultural, residential, and industrial areas. Twelve residences and businesses are located within a quarter of a mile of the site. Between November 1996 and September 1997, a small transmission repair business leased the maintenance building on the operating area of the site (Figure 2).

Wood treatment operations began at the site in 1936. The wood treatment process originally involved dipping wood into a mixture of pentachlorophenol (PCP) and oil, then drying the wood on open racks. In 1965, a new pressure treating facility began operating at the same site. The pressure-treating process consisted of impregnating the wood in pressurized vessels with chemical preservatives, including fluor-chromium-arsenate-phenol, chromated copper arsenate, PCP, copper-8-quinolinolate, LST concentrate, Woodtox 140 RTU, and Heavy Oil Penta 5% solution. The pressure treated wood was placed on racks on the drip pad area, then moved to the wood storage area. The operating area and wood storage area were paved with asphalt in 1982, the asphalt remains in place. Wood treatment activities were suspended in 1994. In November 1997 all pressure vessels and tanks were removed from the site. All buildings, except the office, were demolished and the debris removed from the site. The concrete drip pad and other concrete foundations in the stormwater runoff tank area remain in place.

An Uncontrolled Hazardous site Investigation was conducted on January 31, 1981, by EPA's Field Investigation Team. This inspection raised concerns about the potential for groundwater contamination from the site. In September 1981, the RWQCB issued a Cleanup and Abatement Order to the owners of the site requiring that a timetable for cleanup be established. This was not done, and in September 1984, the Regional Water Quality Control Board (RWQCB) referred the Order to the California Attorney General's office. The site was added to the National Priorities List (NPL) in 1983.

In 1984, the EPA initiated a remedial investigation/feasibility study (RI/FS) process to identify chemicals of concern (COCs) at the site, investigate their extent, and identify appropriate remedial action alternatives. Soil investigations were performed at the site in 1986 and 1987 as part of the RI. Results of these investigations are presented in the 1988 Remedial Investigation Report for the Selma Pressure Treating Site.² These data were used to develop the 1988 FS.³

The site-related COCs include chromium, arsenic, copper, dioxins/furans, PCP, and trichlorophenols (TCPs) although not all COCs are present at levels that provide a threat to human health or the environment. Cleanup standards for arsenic and dioxins/furans in soil (50 mg/kg and 1 µg/kg respectively) and chromium in groundwater (50 µg/l) were established in the 1988 Record of Decision (ROD).⁴ The cleanup standard for arsenic in soil was modified in the 1993 ESD⁵ (25 mg/kg) and cleanup standards for PCP in soil and PCP in groundwater also were established (17 mg/kg and 1 µg/l respectively).

IV. REMEDIAL ACTIONS

Based on the results of the remedial investigations reported in the 1988 RI Report and remedial action objectives established for the site in the 1988 FS Report, a remedy was adopted in the 1988 ROD. The selected remedy consisted of excavating soil containing COCs at concentrations that exceed cleanup standards, treating the soils with a fixing agent, placing the fixed soil in an on-site, unlined impoundment, and covering the impoundment with a RCRA cap. Long term monitoring of the fixed soils for a period of approximately 30 years and long-term access and land use restrictions for fixed areas and short-term institutional controls to prevent use of contaminated groundwater until remediation is complete also were specified.

The 1988 ROD selected a groundwater remedy that would employ a conventional extraction and ex situ precipitation, coagulation, and flocculation treatment process to remove chromium to meet the applicable drinking water standard, with either reinjection or off-site disposal of the treated effluent, and groundwater monitoring to verify contaminant clean-up.

In 1993, an Explanation of Significant Differences (ESD)⁵ was issued to clarify and modify the ROD. The 1993 ESD modified the cleanup standards for the COCs in the soil and groundwater,

redefined the areas requiring excavation, clarified certain regulatory issues, and mandated that the fixed soils be consolidated into a single impoundment to be covered by a single RCRA-cap

In 1997, an ESD⁶ was issued to explain changes in certain remedial action details pertaining to the return of treated water to the aquifer as described in the ROD. Based on reconsideration of certain technical information during the design phase, and additional data gathered pursuant to the ROD, EPA modified the remedy by using percolation ponds to return the treated water to the aquifer. All other aspects of the selected groundwater remedy, as described in the ROD, remained the same.

Based on the soil data available at the time, USACE Sacramento District conducted soil cleanup activities at the site between 1991 and 1993. Approximately 13,000 cubic yards of soil were excavated, fixed, placed in an on-site impoundment area, and capped in accordance with requirements of the ROD, the impoundment was fenced. In conjunction with the soil remediation program, additional soil data were collected from the operating area of the site, which had not been investigated as part of the RI. Monitoring wells were not installed around the impoundment, so there are no monitoring data to indicate how the impoundment has performed since construction.

Additional soil data were collected by USACE in 1994,⁷ by Bechtel Environmental, Inc. in 1995,⁸ by Harza Engineering Company in 1997⁹ and 1999,¹⁰ and by IT in 1998.¹¹ Based on the results of these soil investigations, several areas of the site were excavated by IT in 1999. These areas included portions of the vineyard, the office yard, and soil from the Caltrans right-of-way on Golden State Boulevard. Approximately 5,000 cubic yards of soil were excavated. The excavated soil is currently stockpiled on-site under temporary cover for eventual disposal. The excavated areas were backfilled with clean, imported soils.

Approximately 21,000 cubic yards of soil remain at depths up to five feet below the ground surface, which are affected with COCs at levels above the cleanup standards. In addition, 30,000 cubic yards of soil that exceeds COC cleanup standards have been estimated to lie as much as 25 feet below grade. Proposed remedial actions for this soil are discussed in the Focused Feasibility Study.¹²

Based on regulatory input, the preferred remedial alternative would involve excavating contaminated soil to a maximum depth of five feet, placing the excavated soil in the existing on-site impoundment area, placing a new vegetative cap over all of the soil in the impoundment area, fencing the impoundment area, backfilling the excavated areas, and capping the excavated areas with asphalt. Contaminated soil below a depth of five feet would be left in place. Land-use restrictions would be put in place to maintain industrial use of the site, prevent excavation below a depth of five feet in the excavated areas, and prevent excavation in the impoundment area. Because the top five feet of soil at the site would be clean, excavation work (e.g., installing utilities or building foundations) could be completed within this depth zone without risking human contact with contaminated soils and without compromising the protectiveness of the remedy.

Groundwater monitoring data have been collected since the completion of the 1988 FS^{13,14,15,16}. The data continue to confirm that chromium is the only COC at elevated levels in groundwater. The absence or low concentrations (less than MCLs) of arsenic, PCP, and dioxins/furans found in the groundwater indicate that the presence of these chemicals in the overlying soils has not significantly affected groundwater quality over the operating period of the site.

A groundwater extraction and treatment system was constructed in the summer of 1998 as specified in the ROD, the system went on-line on September 29, 1998. The system has been in approximately continuous operation since this time.

Groundwater pumped from extraction wells flows into an equalization tank. The water is pumped from the equalization tank into a reactor where ferrous chloride and sodium hydroxide are added. Water from the reactor overflows into a flash tank where polymer is added for flocculation. The flocculated water stream then flows into a clarifier where the solids are separated from the liquid. The clarified water then flows into a filter feed tank where it is pumped through multi-media filters. After filtration, the water flows into the effluent tank where sulfuric acid is added for pH adjustment before being pumped to the recharge basins. The sludge that settles at the bottom of the clarifier is pumped to the sludge holding tanks, and subsequently to the filter press for dewatering. The filter cake is temporarily placed in a lined roll-off bin for off-site disposal. Liquid

filtrate from the filter press collects in a sump tank where it is pumped back to the equalization tank

The groundwater treatment plant is operated and maintained by a full-time operator (8 hours per day, 5 days per week) The operator inspects the plant and manually records flow rates, pressure readings, pH, hexavalent chromium concentrations, and other system parameters every day Filter cake is removed approximately daily from the filter press During weekends, the system parameters are accessible to the operator at his residence through a computer hook up via a phone line The operator is paged if system alarms (shutdowns) are set off by conditions outside of the set limits The backup system emergency person is Larry Hudson in Concord, California

Operating and Maintenance (O&M) costs were anticipated at the design stage to be 35,000/month Currently, these costs are lower than anticipated at approximately \$30,000/month These cost data indicate that the system is running as anticipated There are no indications of serious operating issues

V. FIVE YEAR REVIEW PROCESS

On behalf of U S EPA, Geomatrix completed the first five-year review of the remedial actions implemented to date at the Selma Pressure Treating Site in Selma, California The community notice of the five-year review was published in the Fresno Bee on November 8, 2000

On October 5, 2000, two staff from Geomatrix's Fresno office visited the site to conduct the site inspection A civil engineer/geotechnical engineer inspected the on-site impoundment, monitoring and extraction wells, the percolation ponds, and evaluated overall site conditions A process engineer completed the review of groundwater treatment system operations In preparation for the visit, design drawings, as-built drawings, and the O&M manual were reviewed

On-site interviews were carried out with a site neighbor and the on-site O&M operator Subsequently, telephone interviews were carried out with the construction contractor's Senior Project Manager for the site and with the interim City Manager for the City of Selma Records of these interviews are included with this report

In the Focussed Feasibility Study, potential federal and state requirements for the site evaluated in the 1988 Feasibility Study pertaining to the soil remediation effort were reviewed and updated For this five-year review, the Focussed Feasibility Study review was expanded to include all

potential federal and state requirements pertaining to the groundwater remediation effort. All post-1988 changes were identified, and relevant changes in standards and TBCs were noted.

VI. FIVE YEAR REVIEW FINDINGS

The five year review findings are based on a review of project documents and data, interviews with four people associated with the project, a site inspection, and a review of appropriate standards and TBCs. The findings are summarized in the following paragraphs.

Interviews

Interviews were carried out with four people associated with the Selma site. Results of those interviews are summarized below.

Interviewee Seth Abajian

Title Neighbor

Organization N/A

Interview Date 10/5/00

Mr. Abajian expressed dissatisfaction with the remediation effort. He is of the opinion that the effort has been "a waste of money" and has caused "nothing but headaches." Currently, his main concern is that the site is not generally well maintained and may present a fire hazard.

Interviewee Mike Toepfer

Title O&M Operator

Organization IT Corporation (IT)

Interview Date 10/5/00

Mr. Toepfer is the full-time operator of the groundwater extraction and treatment system at the site. He could cite no particular problems with the operation and running of the groundwater treatment system or other unusual situations at the site. With regards to possible improvements, the system parameters are not electronically logged or recorded. Adding data loggers that are accessible via a phone line may eliminate the need for the full-time operator for the plant, but daily system inspections and maintenance may still be necessary.

Interviewee Larry Hudson

Title Senior Project Manager

Organization IT

Interview Date 10/5/00

During construction of the groundwater extraction and treatment system, Mr. Hudson was the Project Manager for IT, the construction contractor. Mr. Hudson continues to be IT's Senior Project Manager for this site. Mr. Hudson's overall impression is that the project is progressing slowly towards meeting the remediation objectives. Since start-up of the groundwater treatment system, the only major maintenance issue has been the replacement of part of the extraction system electrical distribution system, replacing buried cable with electrical conduit. The

treatment system has been optimized since start-up by adjusting the chemical usage and relocating extraction wells EW-1 and EW-2

Interviewee D B Heuser

Title Interim City Manager

Organization City of Selma

Interview Date 10/10/00

Mr Heuser has worked closely with DTSC and EPA throughout the remediation process His overall impression is that the project is going well but is taking too long to complete Mr Heuser had no comments or suggestions regarding site management or operation

Site Inspection

The site inspection was completed on October 5, 2000, by Mr Howard Barlow and Ms Veen Chee Fong of Geomatrix The inspection addressed the soil impoundment cover, access and institutional controls such as gates and fences, the groundwater treatment system, monitoring and extraction wells, and the percolation ponds Observations are summarized below

General

- The site is overgrown with weeds and there are empty drums and other debris at various locations,
- Two stockpiles of contaminated soil generated in September 1999 remain on-site These stockpiles are currently covered with seamed, plastic tarpaulins, secured around the edges with earth berms,
- Fencing is in good condition,
- One gate was left open on the day of the site inspection,
- Exclusion zones are taped off and signed,
- There are no Proposition 65 warnings posted, and
- There is no control of off-site drainage

Soil Impoundment

- The soil impoundment cover looked to be in good condition There is no evidence of settlement, cracking, erosion, or holes There is one low area near the east fence line between the gate and the north fence line with evidence of ponding, the grass is sparse in some areas,
- There is no post-closure monitoring and reporting plan for the soil impoundment area, and
- Monitoring wells adjacent to the impoundment specified in the design drawings were never installed

Groundwater Extraction and Treatment Plant

- The groundwater treatment plant looked to be well kept and in good condition except for some minor leaks that the operator was already addressing,
- The O&M manual, as-built drawings and maintenance logs were readily available at the site,
- The pumps, well head plumbing, electrical systems, extraction system pipelines, valves, valve boxes, and other appurtenances associated with the groundwater extraction wells looked to be in good condition,
- Some monitoring wells do not have locks or secured lids, and
- The percolation ponds looked to be in good condition. There is no evidence of siltation or erosion.

Standards and TBCs

In the Focused Feasibility Study, potential federal and state requirements for the site evaluated in the 1988 Feasibility Study pertaining to the soil remediation effort were reviewed and updated. For this five-year review, the Focused Feasibility Study review was expanded to include all potential federal and state requirements pertaining to the groundwater remediation effort. All post-1988 changes were identified, and relevant changes in standards and TBCs were noted.

None of the potential federal and state location-specific applicable or relevant and appropriate requirements (ARARs) were identified as applicable to the site. Additionally, no relevant changes in chemical-specific standards were identified. Changes in action-specific requirements are summarized in Table 2. None of the changes identified in Table 2 require any amendment to either the implemented or proposed remediation efforts at the site.

Clean-Up Standards

A detailed review of cleanup standards for chemicals in soil was completed by Geomatrix in 1997¹⁷. The appropriateness of the cleanup standards was evaluated based on current EPA guidance and industrial land use. As there have been no pertinent changes in EPA guidance since 1997, the conclusions drawn at that time remain appropriate. The existing cleanup goals for arsenic and PCP presented in the 1993 Explanation of Significant Differences are appropriate to be protective of human health. It was also determined that limited concentrations of arsenic, PCP, and dioxins/furans (below the MCLs for drinking water) found in groundwater indicate that releases of these chemicals from the operating areas of the site have not significantly affected groundwater over the long operating period of the site. As there is no indication that this situation will change in the future, it was concluded that cleanup goals in soil to be protective of groundwater are not required for these chemicals. Additionally, at that time, the EPA

reconfirmed its commitment to a cleanup goal of 1 µg/g for dioxins/furans in soil to be protective of human health

A review of the most recent groundwater monitoring data confirms that chromium continues to be the only COC present at significantly elevated concentrations in groundwater in the site vicinity. The groundwater cleanup standard established in the ROD for chromium is the current MCL of 50 µg/l. As there has been no change in the MCL for chromium since issuance of the ROD, a review of this cleanup standard is not warranted.

Data Review

A summary of the available groundwater monitoring data is presented in Table 3. The August 1997 data are the last set of data collected prior to construction and start-up of the groundwater extraction and treatment system. There have been four additional monitoring events since system start-up in September 1998. Groundwater monitoring takes place three times a year. Residential Wells 12632, 12623 and 12635 South McCall Road are sampled monthly.

There are locations where shallow wells were dry in 1997 and could not be sampled. However, with a rise in the water table of between nine and ten feet between August 1997 and February 1999, these wells have been sampled on subsequent occasions. The April 2000 data are presented on Figure 3.

Prior to startup of the extraction and treatment system, Residential Well 12632 located east of McCall Road defined the down gradient limit of the chromium plume. We are defining "plume" to mean that region where concentrations of chromium and/or hexavalent chromium exceed the Site cleanup goal of 50 µg/l. Residential Wells 12523 and 12635 McCall Road, located west of McCall Road, did not contain detectable concentrations of hexavalent chromium. Between November 1999 and April 2000, concentrations of both hexavalent and total chromium in Residential Well 12632 dropped below the site cleanup standard of 50 µg/l for the first time. This indicates that the toe of the plume is contained by extraction well EW-7 and chromium concentrations along the leading edge of the plume are dropping.

The highest concentrations of total chromium and hexavalent chromium have been consistently noted in shallow well R23S located in the operating area of the site. Data from this well indicate that there is a general downward trend in both total and hexavalent chromium concentrations in this well over time. Additionally, chromium concentrations in shallow well R25 also have dropped over time. These data indicate that some remediation of groundwater in the shallow zone (above 40 feet below ground surface (BGS)) is occurring.

A review of data from intermediate and deep wells does not show the same decreasing trend in chromium concentrations. Concentrations of both hexavalent and total chromium have increased over time in wells P2D, P5D, P6I, P6D, and R23I. These data indicate that chromium affected groundwater is being drawn downwards.

Chromium concentrations in shallow monitoring wells P9S and UR24 are also increasing. These monitoring wells are located cross-gradient from the plume. These data indicate that the chromium plume is not contained in the cross-gradient direction. Additionally, there are no monitoring wells beyond these two points to define the lateral plume boundaries.

A review of the effluent data from the treatment system shows that the treatment system is meeting the site cleanup standard of 50 µg/l for total and hexavalent chromium. It is indicated that current operating procedures are maintaining the effectiveness of the groundwater treatment system.

VII. ASSESSMENT

Observational data indicate that the soil impoundment cover continues to operate and function as designed. However, there is no post-closure monitoring and reporting plan for the soil impoundment area and the monitoring wells adjacent to the impoundment specified in the design drawings were never installed.

There are no immediate threats to human health at the site, although there are two stockpiles of contaminated soil on the site currently covered with seamed, plastic tarpaulins, secured around the edges with earth berms. More secure, long-term containment of this material needs to be addressed, as proposed in the Focussed Feasibility Study.

Groundwater monitoring data indicate that the chromium plume is not contained vertically or in the cross-gradient direction. There are inadequate control points (e.g., monitoring wells) at the plume boundaries to ascertain plume distribution and whether it is being contained. There are no criteria established to determine when groundwater cleanup is complete and when the groundwater extraction and treatment system can be turned off. These criteria need to be established.

A review of the effluent data from the treatment system indicates that the treatment system is meeting the site cleanup standard of 50 µg/l for total and hexavalent chromium. Current operating procedures are maintaining the effectiveness of the groundwater treatment system. Currently, O&M costs are lower than anticipated at the design stage. These data indicate that the

system is running as anticipated. Breakdowns have been infrequent and there are no indications of serious operating issues.

Currently, the treatment system parameters are not electronically logged or recorded. Adding data loggers that are accessible via a phone line may eliminate the need for a full-time operator for the plant, but daily system inspections and maintenance may still be necessary. An analysis of the filter press cake may result in a reduction in disposal costs.

The site health and safety plan (HSAP) containing the contingency and emergency response plan is readily available on the site and the O&M operator has up-to-date OSHA training. Fencing was observed to be in good condition, although one gate was left open on the day of the site inspection. Exclusion zones are taped off and signed although there are no Proposition 65 warnings posted. Additionally, there are no land use restrictions to control future activities at the site and secure EPA access to the site, although EPA is currently pursuing this issue.

Based on a review of the relevant standards and TBCs, none of the changes to action specific standards and TBCs identified in the ROD bring into question the protectiveness of either the existing or proposed remedies. There have been no changes to chemical specific ARARs. Additionally, there have been no changes to either existing or expected land use (industrial) on or near the site or newly identified contaminants or contaminant sources not addressed in the FFS.¹² Physical site conditions have not changed in any way that could affect the protectiveness of the implemented or proposed remedies. No unanticipated toxic byproducts of either of the implemented remedies have been identified, and no additional information has come to light that could affect the protectiveness of either the existing or the proposed remedies.

VIII. DEFICIENCIES

A summary of the shortcomings in current site operations is presented on Table 4. The most significant deficiency identified is the failure of the groundwater extraction system to contain the chromium plume. Most of the other deficiencies identified during the site inspection are fairly minor and do not affect the protectiveness of the remedies, however, the following warrant mention:

- Inadequate general site maintenance may present a fire hazard,
- Two stockpiles of contaminated soil remain on site,
- Off-site drainage is not currently controlled, and
- There are no locking caps on some of the monitoring wells.

Additional issues that need to be addressed in the mid-to long- term include

- Establishment of criteria for determining when groundwater remediation is complete,
- Development of a post-closure monitoring and reporting plan for the soil impoundment area, and
- Installation of monitoring wells around the impoundment area

Recommendations that address cost effectiveness and operating efficiencies rather than deficiencies are considered to be less critical

IX. RECOMMENDATIONS AND FOLLOW-UP ACTIONS

Recommendations and follow-up actions are summarized in Table 5 We recommend that the following analyses be completed

- Examine the effect of extraction well EW-5 on the chromium plume Determine whether it is optimally located Make recommendations regarding the continued operation or relocation of this well
- Address increased chromium concentrations in cross gradient, intermediate, and deep monitoring wells
 - Develop maps indicating changes in plume distribution over time
 - Develop potentiometric surface maps
 - Develop hydrographs of clustered wells (e g , R23I and R23S, P-6S, P-6I, P-6D) and assess potential for vertical migration by calculating vertical gradients and flow velocities
 - Characterize influence of regional pumping on plume migration
 - Identify possible regional pumping wells through well survey
 - Identify and assess regional pumping impacts to site vertical and horizontal gradients through continuous long-term water level monitoring, especially during the growing season when regional pumping is expected to be high Monitor enough wells to adequately assess each water-bearing unit
 - Based on findings re-calculate expected capture zone (horizontally and vertically)
 - Ground-truth results to measured chromium isoconcentrations and potentiometric surface
- Determine whether the positions, depths, and density of extraction wells is sufficient to achieve plume capture and recommend appropriate changes to the extraction system If a strong regional gradient is identified, additional wells or other control mechanisms (e g extraction trench) may be required

- Evaluate the need for additional monitoring wells to assess plume migration vertically and laterally

Many of the more minor issues can also be addressed immediately, as indicated on Table 5. Other issues, such as making repairs to the groundwater treatment system and installing lockable caps on the monitoring wells, should be addressed as soon as possible. We recommend that issues pertaining to the two stockpiles of soil and the soil impoundment be addressed in conjunction with the additional soil remediation efforts to be completed at the site in 2001. Recommendations that address cost effectiveness and operating efficiencies rather than deficiencies are considered to be less critical.

X. PROTECTIVENESS STATEMENT

Based on a review of the groundwater monitoring data, it is indicated that the groundwater extraction system is not containing the chromium plume and therefore may not be protective of human health and the environment.

Based on a review of the effluent concentrations from the treatment system, the groundwater treatment system is operating as designed, is meeting the site cleanup standard of 50 µg/l for hexavalent and total chromium, and is protective of human health and the environment.

Based on visual evidence, the soil impoundment is protective of human health and the environment. However, there is no post-closure monitoring and reporting plan for the soil impoundment area and the monitoring wells adjacent to the impoundment specified in the design drawings were never installed. There are no actual data, therefore, on the effectiveness of the soil impoundment with regard to groundwater quality.

A review of the FFS indicates that the proposed additional soil remedy is expected to be protective of human health and the environment upon completion, and immediate threats have been addressed. However, there are two stockpiles of contaminated soil on the site currently covered with seamed, plastic tarpaulins, secured around the edges with earth berms. More secure, long-term containment of this material needs to be addressed. We consider the presence of the two stockpiles of contaminated soil to be a threat to the protectiveness at the site. Additionally, in order to ensure the long-term protectiveness of the existing and future remedies at the site, land

use restrictions that control future activities at the site and secure EPA access to the site need to be finalized

Because the groundwater extraction system is not containing the chromium plume, the remedy at the site may not be protective of human health and the environment at this time

XI. NEXT REVIEW

We recommend that the next five year review be completed five years from now following the implementation of the final soil remediation solution and a reconfiguration of the groundwater extraction system. The next five-year review should include all the tasks included in this five-year review plus a review of the additional soil remediation solution

XII. REFERENCES

- ¹ OSWER Directive 9355 7-03B-P, Comprehensive Five-Year Review Guidance
- ² Remedial Investigation Report for the Selma Pressure Treating Site, CDM Federal Programs Corp , March 21, 1988
- ³ Feasibility Study for the Selma Pressure Treating Site CDM Federal Programs Corp , June 3, 1988
- ⁴ Superfund Record of Decision, Selma Pressure Treating Company, CA, First Remedial Action—Final U S Environmental Protection Agency, Report No EPA/ROD/RO9-88/025, September 24, 1988
- ⁵ Selma Pressure Treating Company Superfund Site, Explanation of Significant Differences from 1988 Record of Decision, October 26, 1993
- ⁶ Selma Pressure Treating Company Superfund Site, Explanation of Significant Differences from 1988 Record of Decision, April, 18, 1997
- ⁷ Soil Sampling Report, Dioxin Soil Screening U S Army Corps of Engineers, Appendix D, Volumes 1 to 8, June 24, 1994
- ⁸ Field and Laboratory Data Summary Memorandum (Draft), Submittal #5 Bechtel Environmental, Inc , December 6, 1995
- ⁹ Harza Engineering Company, Letter from Mark Litzau to Alison Jones Re Selma Lab Data, February 9, 1998
- ¹⁰ Geomatrix Consultants, Inc , Memorandum from Alison Jones to Michelle Lau Re Results of Additional Sampling Program, Selma Pressure Treating Site, Selma, California, September 17, 1999
- ¹¹ International Technology Corporation, Preliminary data distributed by U S Army Corps of Engineers in March 1998
- ¹² Geomatrix Consultants, Inc Draft Focused Feasibility Study Report Submitted #7, September 2000
- ¹³ Report of Monitoring Well Sampling, February 1999 Selma Pressure Treating Superfund Site, Selma, California, IT Corporation
- ¹⁴ Report of Monitoring Well Sampling, July 1999 Selma Pressure Treating Superfund Site, Selma, California, IT Corporation
- ¹⁵ Report of Monitoring Well Sampling, November 1999 Selma Pressure Treating Superfund Site, Selma, California, IT Corporation
- ¹⁶ Report of Monitoring Well Sampling, April 2000 Selma Pressure Treating Superfund Site, Selma, California, IT Corporation
- ¹⁷ Literature Review and Review of Cleanup Standards for Chemicals in Soil, Submittal #1, Selma Pressure Treating Superfund Site, Selma, California, Geomatrix Consultants, Inc , December 16, 1997

TABLES

TABLE 2
CHANGES IN ACTION-SPECIFIC ARARs AND TBCs
 Selma Pressure Treating Superfund Site
 Selma, California

Action	Requirement		Prerequisite	Citation/Year
On-site impoundment of contaminated soil	Previous	The RCRA subtitle C land disposal restrictions established a timetable that restricted the burial of wastes and other hazardous materials	LDRs applied if an alternative involved burial of contaminated soil	40 CFR Part 268 k (As of 1988)
	New	LDRs apply to the placement of hazardous waste in a land-based RCRA unit. LDRs establish maximum contaminant concentration limits, or specify treatment technologies to be used prior to land disposal of specified categories of hazardous wastes	LDRs and MTRs do not apply to the consolidation and treatment of hazardous soil within an AOC or a CAMU. Because the contaminated soil will be managed within a CAMU or AOC, neither LDRs nor MTRs govern these activities	40 CFR Part 268, <i>et seq</i> (phase IV) 1998
On-site impoundment of contaminated soil	Previous	RCRA subtitle D established criteria to be used in determining which solid waste disposal facilities and practices pose a reasonable probability of adverse effects on health or the environment and thereby constitute prohibited open dumps	The Subtitle D program was principally aimed at municipal and industrial solid waste	40 CFR Part 257 (as of 1988)
	New	Like TSDFs that manage hazardous wastes, non-hazardous solid waste disposal facilities must meet MTRs. These requirements include, among other things, leachate protection and impervious liners beneath the disposal facility	As noted above, the need to meet MTRs is obviated by the AOC and CAMU policies for managing hazardous wastes. These policies provide a qualified exemption for management of hazardous wastes. These exemption policies do not specifically govern nonhazardous wastes. However, EPA established these exemptions for a more environmentally dangerous media (i.e., hazardous waste), it would then follow that the exemptions would also apply to a less harmful waste stream (i.e., nonhazardous, solid wastes) as well. Failure to honor these policies for nonhazardous wastes would generate an inconsistent result for a less hazardous waste stream	40 CFR Part 257, <i>et seq</i> (pre1991)

TABLE 2
CHANGES IN ACTION-SPECIFIC ARARs AND TBCs
 Selma Pressure Treating Superfund Site
 Selma, California

Action	Requirement		Prerequisite	Citation/Year
On-site impoundment of contaminated soil	Previous	Requirements governing treatment, storage, and disposal establish minimum national standards which define the acceptable management of hazardous waste for owners and operators of facilities which treat, store, or dispose of hazardous waste	Establishes requirements for site closure	40 CFR subpart G (as of 1988)
	New	All permitted RCRA hazardous waste management units must submit a closure and post-closure plan designed to prevent hazardous wastes from entering groundwater, surface waters, and the atmosphere. The closure/post-closure requirements establish controls to prevent releases of hazardous wastes. Requirements include decontamination of equipment, structures, and soils. Post-closure care, which includes monitoring and reporting, must continue for 30 years.	Although there have been several regulatory changes to 40 CFR subpart G since 1988, none have materially affected the substance of post-closure care described here. However, the post-closure monitoring provision requiring 30 years of monitoring and reporting was not identified as an ARAR in the 1988 RI/FS report, although it was specified in the ROD.	40 CFR subpart G (since 1988)

Abbreviations

- LDRs Land Disposal Restrictions
- MTRs Minimum Technology Requirements
- AOC Area of Contamination
- CAMU Corrective Action Management Unit
- TSDF Treatment, Storage, and Disposal Facilities
- ARAR Applicable or Relevant and Appropriate Requirements

TABLE 3
SUMMARY OF GROUNDWATER MONITORING WELL DATA^{1,2}
 Selma Pressure Treating Superfund Site
 Selma, California

Monitoring Well Location	Depth to Bottom of Well (feet)	Hexavalent Chromium					Total Chromium					Arsenic					PCP					Dioxin					
		Aug-97	Feb-99	Jul-99	Nov-99	Apr-00	Aug-97	Feb-99	Jul-99	Nov-99	Apr-00	Aug-97	Feb-99	Jul-99	Nov-99	Apr-00	Aug-97	Feb-99	Jul-99	Nov-99	Apr-00	Aug-97	Feb-99	Jul-99	Nov-99	Apr-00	
P2I	59 91	X ³	X	X	X	22	6 9	6 5	9 2	10 6	15 6	X	X	X	X	X											
P2D	115 75	140	470	515	591	654	137	473	490	6 7	665	X	X	X	X	X											
P4S	38 45	Dry	X	X	X	X	Dry	24 4	X	X	5 8	Dry	X	X	X	X											
P4D	109 81	X	X	X	X	X	X	5 3	X	X	X	X	X	X	X	X											
P5D	104 39	X	X	40	39	66	10 3	11 8	65	41 6	64	X	X	X	X	X											
P6S	38 83	Dry	X	X	X	X	Dry	11 5	6 9	5 4	7	Dry	X	X	X	X											
P6I	57 21	X	X	10	20	160	X	11 2	17 2	54 2	122	X	X	X	X	X											
P6D	110 81	330	388	472	565	543	314	397	541	572	525	X	X	X	X	X											
P8S	39 71	Dry	X	X	X	NS	Dry	10 2	X	5 7	Dry	Dry	X	X	X	Dry											
P8I	56 74	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X											
P9S	38 75	20	X	NS ⁴	37	54	X	8	NS	40 2	54 3	8 1	5 3	NS	X	5 3											
P11I	55 42	X	X	NS	X	10	X	8 2	NS	5 1	14 6	X	X	NS	X	X											
P11D	113 37	100	27	NS	10	ND	X	29 8	NS	19 9	X	X	X	NS	X	X											
P16I	66 92	X	X	10	X	10	10 1	X	12 4	10 7	6 7	X	X	X	X	X											
R25	37 68	1400	1450	1140	754	597	1110	1730	1170	805	599	15 7	X	5 7	X	X											
UR15	37 98	NS	20	X	X	NS	NS	17 1	X	X	NS	NS	X	X	X	X											
UR-17	59 27	X	180	X	X	X	9	X	X	X	X	X	X	X	X	X											
UR18	59 4	X	X	21	22	10	13 9	X	18	29 7	8	5 5	X	X	X	5 5											
R23I	57 68	650	414	789	2,400	3,990	815	408	781	2,330	3,960	X	X	X	X	X											
R23S unfiltered	39 32	N/A ⁵	30,400	25,100	12,200	17,300	N/A	32,000	26,900	12,600	17,600	N/A	<5	X	X	X		2 4	<50	1 3	X		X	X		X	
R23S filtered	39 32	N/A	N/A	N/A	N/A	N/A	N/A	32,800	26,500	12,700	17,000	N/A	<5	X	X	X											
R22	39 32	Dry	45	10	44	X	Dry	110	36 1	61 3	X	Dry	X	X	14 9	5 6											
R2I	NM	X	X	X	X		X	X	X	18 5		X	X	X	X	X											
UR24	43 05	NS	NS	NS	NS	X					58 3	X	X	X	X	11 2											
Irrigation Well	NM ⁶	X	X	X	X	X	5 9	X	X	X	X	X	X	X	X	X											
1735 Dockery Avenue	NM	X	X	NS	X	X	X	X	NS	X	X	X	X	NS	X	X											
12499 Dockery Avenue	NM	X	X	X	X	X	5 2	X	X	X	X	X	X	X	X	X											
12578 McCall Road	NM	X	X	X	X	X	X	X	5	6 4	X	X	X	X	X	X											
12623 McCall Road	NM	X	X	X	X	X	X	10 1	7 1	15 1	X	X	X	X	X	X											
12632 McCall Road	NM	66	61	34	29	20	74 7	78 4	63	49 2	40 3	X	X	X	X	X											
12635 McCall Road	NM	X	X	X	X	X	X	10 1	7 4	X	X	X	X	X	X	X											
899 So Golden State Blvd	NM	NS	X	X	X	X	NS	X	X	X	X	NS	X	X	X	X											

Notes

- ¹ All results are in µg/l except for dioxin which is recorded as ppq of 2,3,7,8 TCDD
- ² August 1997 data are the last set of data prior to start-up of extraction/treatment system
- ³ X = Not detected at or below detection limit or between PQL and MDL
- ⁴ NS = Not sampled
- ⁵ N/A = Not analyzed
- ⁶ NM = Not measured

TABLE 4
IDENTIFIED DEFICIENCIES
Selma Pressure Treating Superfund Site
Selma, California

	Deficiency	Currently Affects Protectiveness (Y/N)
<u>Documents</u>		
1	Maintenance logs not up to date	N
2	Security logs not consistently used	N
<u>Access and Institutional Controls</u>		
3	Access gate left open 10/5/00	N
4	No Proposition 65 Warnings posted	N
5	Land use restrictions to control site activities and secure access to soil impoundment and treatment system not in place	N
<u>General Site Conditions</u>		
6	Two stockpiles of contaminated soil remain on site	Y
7	General site maintenance inadequate – piles of junk, empty drums, weeds, etc	N
<u>Landfill Cover</u>		
8	Ponding in low area near east fence line	N
9	Monitoring wells around impoundment not installed as per design and specified in the ROD	N
10	No post-closure monitoring and reporting plan in place as per ROD	N
<u>Off-Site Discharge</u>		
11	No control of off-site drainage	N
<u>Groundwater Treatment System</u>		
12	Some minor repairs required	N
13	Many monitoring wells do not have locks or secured lids	N
14	Criteria for determining when groundwater remediation cleanup objectives have been met and when the groundwater treatment system can be turned off have not been established	N
<u>Groundwater Extraction System</u>		
15	Existing system does not contain chromium plume	Y
16	Monitoring well network does not adequately define plume boundaries	Y

TABLE 5
RECOMMENDATIONS AND FOLLOW-UP ACTIONS
Selma Pressure Treating Superfund Site
Selma, California

	Deficiency	Recommendations/ Follow-Up Action	Party Responsible	Oversight Agency	Milestone Date	Follow-Up Action: Affects Protectiveness (Y/N)
<u>Documents</u>						
1	Maintenance logs not up to date	Update logs	IT	EPA	asap	N
2	Security logs not consistently used	Consistent use of security logs	IT	EPA	Immediately	N
<u>Access and Institutional Controls</u>						
3	Access gate left open 10/5/00	Keep gate closed	IT	EPA	Immediately	N
4	No Proposition 65 Warnings posted	Post Proposition 65 Warnings	IT	EPA	asap	N
5	Land use restrictions to control site activities and secure access to soil impoundment and treatment system not in place	Secure land use restrictions	EPA	--	Ongoing negotiations with owner	N
<u>General Site Conditions</u>						
6	Two stockpiles of contaminated soil remain on site	Incorporate stockpiles into final soil remediation solution	EPA	--	Spring 2001	Y
7	General site maintenance inadequate – piles of junk, empty drums, weeds, etc	Improve general site maintenance	IT	EPA	Immediately	N
<u>Landfill Cover</u>						
8	Ponding in low area near east fence line	Correct in conjunction with final soil remediation solution	EPA	--	Spring 2001	N
9	Monitoring wells around impoundment not installed as per design and specified in the ROD	Install monitoring wells around impoundment in conjunction with final soil remediation solution	EPA	--	Spring 2001	N

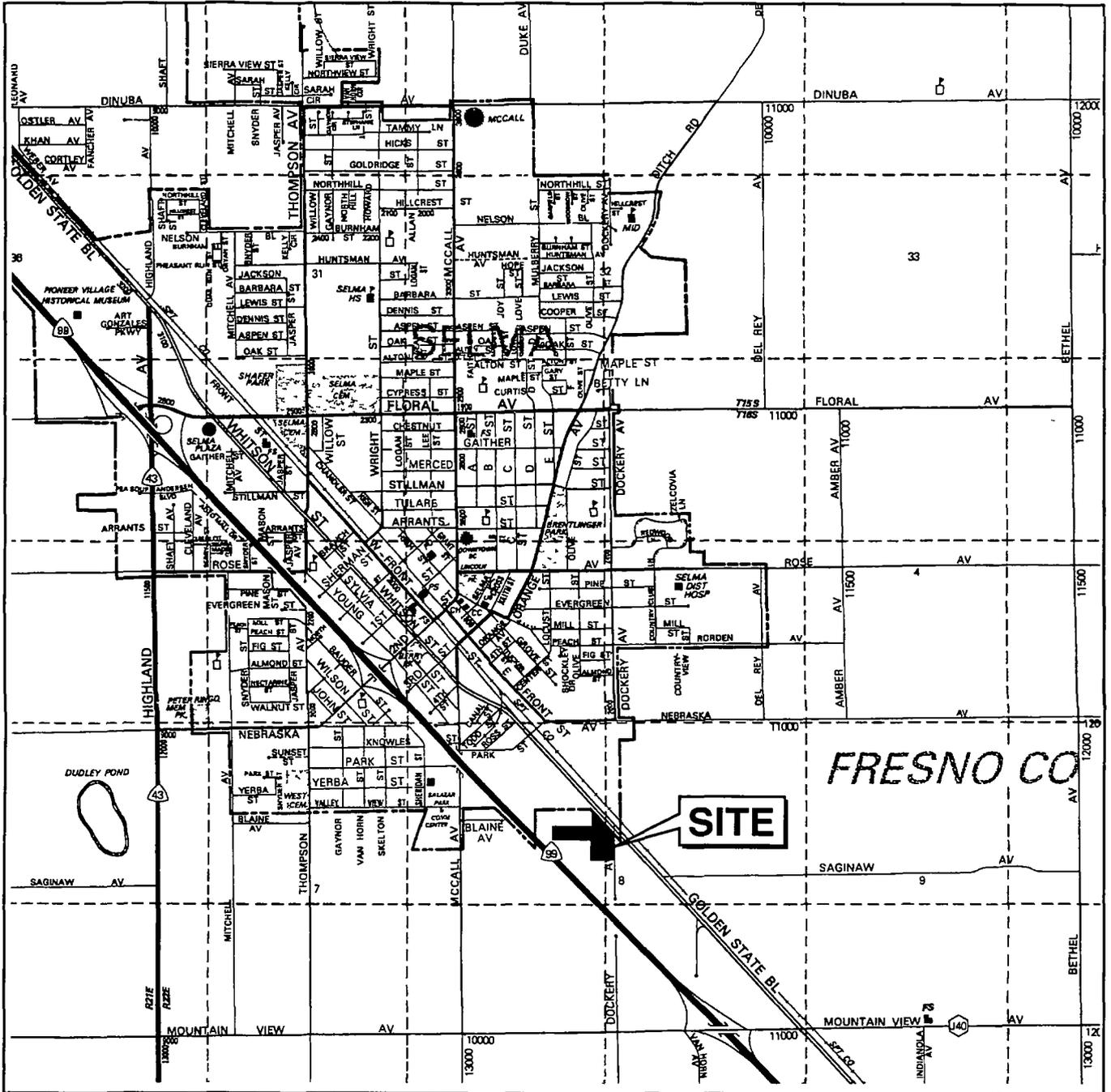
TABLE 5
RECOMMENDATIONS AND FOLLOW-UP ACTIONS
Selma Pressure Treating Superfund Site
Selma, California

	Deficiency	Recommendations/ Follow-Up Action	Party Responsible	Oversight Agency	Milestone Date	Follow-Up Action: Affects Protectiveness (Y/N)
10	No post-closure monitoring and reporting plan in place as per ROD	Develop post-closure monitoring and maintenance plan for soil impoundment area in conjunction with final soil remediation solution	EPA	--	Spring 2001	N
<u>Off-Site Discharge</u>						
11	No control of off-site drainage	Evaluate potential for run-off/run-on Implement remedial measures (e g , drainage ditches) if required	IT	EPA	asap	N
<u>Groundwater Treatment System</u>						
12	Some minor repairs required	Make repairs	IT	EPA	asap	N
13	Many monitoring wells do not have locks or secured lids	Secure all monitoring wells	IT	EPA	asap	N
14	Criteria for determining when groundwater remediation cleanup goals have been met and when the groundwater treatment system can be turned off have not been established	Establish criteria for turning off groundwater treatment system	EPA	--	Summer 2001	N
<u>Groundwater Extraction System</u>						
15	Existing system does not contain chromium plume	Complete analyses to assess effectiveness of groundwater extraction system Make recommendations on appropriate changes to the extraction system	EPA	--	January 2001	Y

TABLE 5
RECOMMENDATIONS AND FOLLOW-UP ACTIONS
 Selma Pressure Treating Superfund Site
 Selma, California

	Deficiency	Recommendations/ Follow-Up Action	Party Responsible	Oversight Agency	Milestone Date	Follow-Up Action: Affects Protectiveness (Y/N)
16	Monitoring well network does not adequately define plume boundaries	Perform hydropunch study at assumed plume edges to identify actual boundary Select additional well locations, as necessary	EPA	--	Spring 2000	Y
<u>Additional Considerations</u>						
17	None	Complete analysis to determine whether adding data loggers accessible by phone would be cost-effective in eliminating the need for a full-time O&M operator on site	EPA	--	--	N
18	None	Complete analysis of filter cake to determine if reclassification is appropriate. If so, investigate alternative, cheaper disposal options	EPA	--	--	N

FIGURES



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FRESNO CO

SITE



0 1/2 Mile

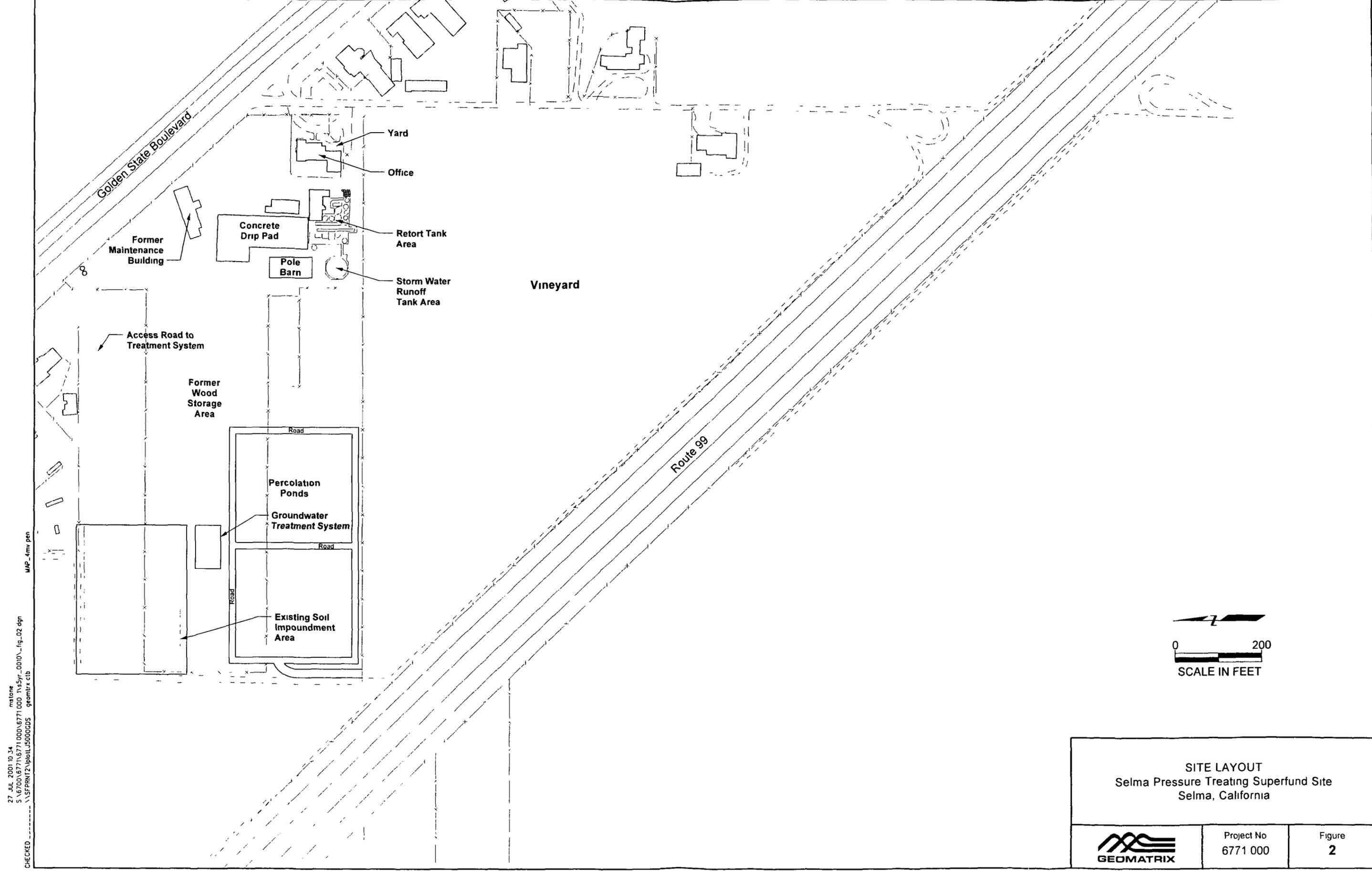
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SITE LOCATION MAP
 Selma Pressure Treating Superfund Site
 Fresno, California

Project No
 6771 000

Figure
 1

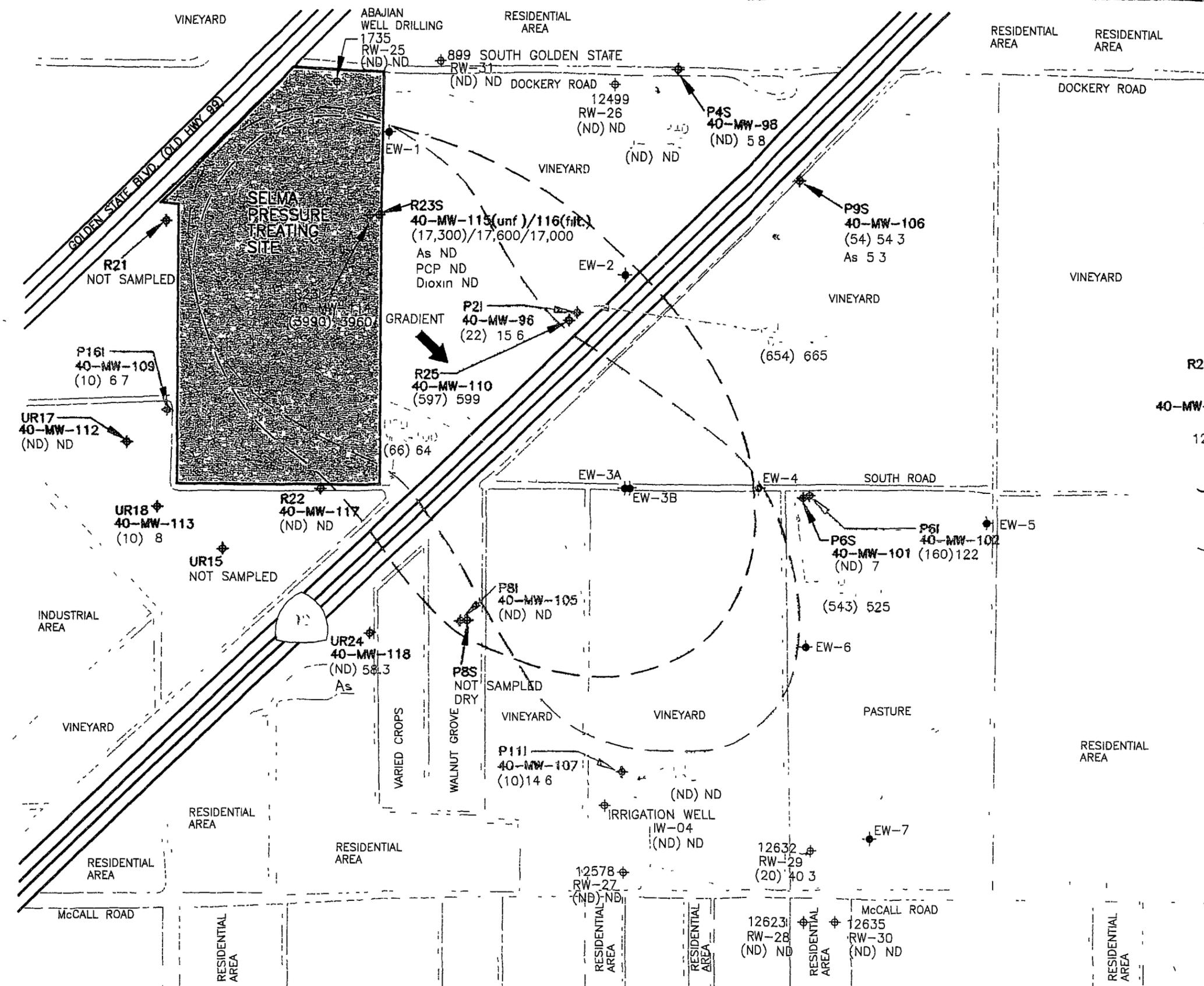


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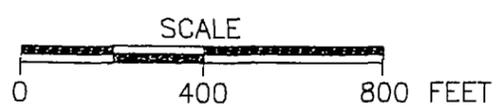
SITE LAYOUT Selma Pressure Treating Superfund Site Selma, California		
 GEOMATRIX	Project No 6771 000	Figure 2

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 X-REF
 IMAGE



LEGEND

- ◆ SHALLOW WATER-BEARING UNIT MONITORING WELL
- ◆ INTERMEDIATE WATER-BEARING UNIT MONITORING WELL
- ◆ DEEP WATER-BEARING UNIT MONITORING WELL
- ◆ PRIVATE WELL
- R24—WELL IDENTIFICATION NUMBER
- 40-MW-14—SAMPLE ID NUMBER
- 12578 INDICATES RESIDENCE ADDRESS
- ESTIMATED 50 µg/L ISOCONCENTRATION LINE FOR TOTAL CHROMIUM IN SHALLOW WATER-BEARING ZONE
- ESTIMATED 50 µg/L ISOCONCENTRATION LINE FOR TOTAL CHROMIUM IN INTERMEDIATE WATER-BEARING ZONE
- ESTIMATED 50 µg/L ISOCONCENTRATION LINE FOR TOTAL CHROMIUM IN DEEP WATER-BEARING ZONE
- (50) HEXAVALENT CHROMIUM CONCENTRATION IN µg/L (>50 µg/L SHOWN IN RED)
- 50 TOTAL CHROMIUM CONCENTRATION IN µg/L (>50 µg/L SHOWN IN RED)
- As ARSENIC CONCENTRATION IN PPB
- ND NOT DETECTED



NOTE
 PLUME BOUNDARIES ARE BASED ON HIGHEST KNOWN CONCENTRATIONS FROM PREVIOUS SAMPLE EVENTS AS WELL AS THE 1997 SAMPLE EVENT

	USACE OMAHA DISTRICT RAPID RESPONSE OFFUTT AFB, NEBRASKA SELMA, CALIFORNIA
	Figure 3 APRIL 2000 SAMPLE RESULTS

ATTACHMENT A

**LIST OF
DOCUMENTS REVIEWED**

LIST OF DOCUMENTS REVIEWED

- OSWER Directive 9355 7-03B-P, Comprehensive Five-Year Review Guidance
- Superfund Record of Decision, Selma Pressure Treating Company, CA, First Remedial Action—Final U S Environmental Protection Agency, Report No EPA/ROD/RO9-88/025, September 24, 1988
- Selma Pressure Treating Company Superfund Site, Explanation of Significant Differences from 1988 Record of Decision, October 26, 1993
- Selma Pressure Treating Company Superfund Site, Explanation of Significant Differences from 1988 Record of Decision, April, 18, 1997
- Remedial Action Design Groundwater Treatment Plant, IT Corporation, March 10, 1998
- Operation and maintenance manuals and reports, Groundwater treatment system, IT Corporation
- Safety, Health, and Emergency Response Plan, Chemical Waste Management, Inc , October 30, 1992
- Report of Monitoring Well Sampling, February 1999 Selma Pressure Treating Superfund Site, Selma, California, IT Corporation
- Report of Monitoring Well Sampling, July 1999 Selma Pressure Treating Superfund Site, Selma, California, IT Corporation
- Report of Monitoring Well Sampling, November 1999 Selma Pressure Treating Superfund Site, Selma, California, IT Corporation
- Report of Monitoring Well Sampling, April 2000 Selma Pressure Treating Superfund Site, Selma, California, IT Corporation
- Geomatrix Consultants, Inc Draft Focused Feasibility Study Report Submitted #7, September 2000

ATTACHMENT B

INTERVIEW REPORTS

INTERVIEW DOCUMENTATION FORM

The following is a list of individual interviewed for this five-year review See the attached contact record(s) for a detailed summary of the interviews

<u>SETH ABAJIAN</u>	<u>NEIGHBOR</u>	<u>N/A</u>	<u>10/5/00</u>
Name	Title/Position	Organization	Date

<u>MIKE TOEPFER</u>	<u>O&M OPERATOR</u>	<u>IT GROUP</u>	<u>10/5/00</u>
Name	Title/Position	Organization	Date

<u>LARRY HUDSON</u>	<u>SR PROJECT MANAGER</u>	<u>IT GROUP</u>	<u>10/5/00</u>
Name	Title/Position	Organization	Date

<u>D B. HEUSER</u>	<u>INTERIM CITY MANAGER</u>	<u>CITY OF SELMA</u>	<u>10/10/00</u>
Name	Title/Position	Organization	Date

_____	_____	_____	_____
Name	Title/Position	Organization	Date

_____	_____	_____	_____
Name	Title/Position	Organization	Date

INTERVIEW RECORD			
Site Name: <u>SELMA PRESSURE TREATING</u>		EPA ID No.:	
Subject: <u>ADJACENT NEIGHBOR INTERVIEW</u>		Time: <u>9:15am</u>	Date: <u>10/5/00</u>
Type: <input type="checkbox"/> Telephone <input checked="" type="checkbox"/> Visit <input type="checkbox"/> Other		<input type="checkbox"/> Incoming <input type="checkbox"/> Outgoing	
Location of Visit:			
Contact Made By:			
Name: <u>HOWARD BARLOW</u>		Title: <u>SR. ENGINEER</u>	Organization: <u>GEOMATRIX</u>
Individual Contacted:			
Name: <u>SETH ABASIAN</u>		Title: <u>NEIGHBOR</u>	Organization: <u>NA.</u>
Telephone No.:		Street Address: <u>899 S GOLDEN STATE HWY.</u>	
Fax No.:		City, State, Zip: <u>SELMA, CA 93662</u>	
E-Mail Address:			
Summary Of Conversation			
<p>MR ABASIAN INDICATED A NEGATIVE VIEW OF THE PROJECT STATING THAT HE FELT IT WAS A "WASTE OF MONEY" AND HAD CAUSED "NOTHING BUT HEADACHES". HE DID NOT FEEL THAT HE WAS WELL INFORMED OF THE PROGRESS BUT ALSO STATED "WHAT GOOD WOULD IT DO TO KNOW" MR. ABASIAN INDICATED THAT HIS WATER WAS SAMPLED ON A REGULAR BASIS, BUT HE HAS NEVER BEEN INFORMED OF THE ANALYTICAL RESULTS. HE STATED THAT THE SITE IS NOT KEPT CLEAN (PILES OF JUNK) AND IS CONCERNED THAT IT IS A FIRE HAZARD DUE TO OVERGROWN WEEDS.</p>			

INTERVIEW RECORD			
Site Name: SELMA PRESSURE TREATING		EPA ID No.:	
Subject: O&M PROGRESS/PROBLEMS		Time: 9:55 _{am}	Date: 10/5/00
Type: <input type="checkbox"/> Telephone <input checked="" type="checkbox"/> Visit <input type="checkbox"/> Other	Location of Visit:		
Contact Made By:			
Name: HOWARD BARLOW		Title: SR ENGINEER	Organization: GEOMATRIX
Individual Contacted:			
Name: MIKE TOEPPER		Title: O&M OPERATOR	Organization: IT GROUP
Telephone No.: (559) 891-7013		Street Address: 949 GOLDEN STATE HWY.	
Fax No.: (559) 891-7014		City, State, Zip: SELMA, CA 93662	
E-Mail Address:			
Summary Of Conversation			
<p>MR TOEPPER IS ON-SITE FROM 7am TO 3pm, FIVE DAYS PER WEEK AND CAN BE REACHED 24 HOURS PER DAY / 7 DAYS PER WEEK BY PAGER I CONNECTED TO AN AUTO-DIALER ON THE TREATMENT SYSTEM MR TOEPPER PREVIOUSLY RAN A SIMILAR FACILITY PRIOR TO THE START-UP OF THE TREATMENT FACILITY IN SELMA. HE PERFORMS MOST MAINTENANCE AND REPAIRS WITH OCCASIONAL HELP FROM LARRY HUDSON AND OUTSIDE CONTRACTORS.</p> <p>MR TOEPPER'S OVERALL IMPRESSION OF THE PROJECT WAS "GOOD" AND THAT THERE HAVE BEEN NO SIGNIFICANT CHANGES IN THE O&M SINCE START-UP IN SEPT./OCT. 1998.</p>			

Page 1 of 2

INTERVIEW RECORD

Site Name: SELMA PRESSURE TREATING	EPA ID No.:	
Subject: O & M PROGRESS / PROBLEMS	Time: 9:55 am	Date: 10/5/00

Summary Of Conversation (Cont.)

MR TOEFFER INDICATED THAT TWO CHANGES HAVE BEEN MADE TO THE GROUNDWATER TREATMENT SYSTEM SHORTLY AFTER START-UP:

- 1) THE CARTRIDGE FILTERS AFTER THE EFFLUENT TANK WERE REMOVED BECAUSE THE FILTERS WERE PLUGGING AFTER ABOUT ONE WEEK OF OPERATION THE FILTERS WERE DEEMED TO BE REDUNDANT FOR THE MEDIA FILTERS ANYWAY.
- 2) SCALING IN REACTOR TANK WAS CORRECTED BY REDUCING THE pH IN THE TANK AND REDUCING THE HOLDING TIME IN THE TANK.

MR TOEFFER INDICATED THAT THE WASTE FROM THE FILTER PRESS CAKE IS CURRENTLY CLASSIFIED AS AN "F" WASTE AND IS CURRENTLY DISPOSED AT THE SAFETY CLEAN FACILITY IN BUTTONWILLOW, CALIFORNIA. MR TOEFFER INDICATED THAT THE WASTE COULD POSSIBLY BE RECLASSIFIED TO LOWER DISPOSAL COSTS

INTERVIEW RECORD		
Site Name: SELMA PRESSURE TREATING		EPA ID No.:
Subject: O & M PROGRESS / PROBLEMS		Time: 2:45 pm Date: 10/5/00
Type: <input checked="" type="checkbox"/> Telephone <input type="checkbox"/> Visit <input type="checkbox"/> Other	<input type="checkbox"/> Incoming <input checked="" type="checkbox"/> Outgoing	
Location of Visit:		
Contact Made By:		
Name: HOWARD BARLOW	Title: SR. ENGINEER	Organization: GEOMATRIX
Individual Contacted:		
Name: LARRY HUDSON	Title: SR. PROJECT MANAGER	Organization: IT GROUP
Telephone No.: (925) 288-2160	Street Address: 4005 FORT CHICAGO HWY	
Fax No.: (925) 827-2148	City, State, Zip: CONCORD, CA 94520	
E-Mail Address: LHUDSON@THEITGROUP.COM		
Summary Of Conversation		
<p>MR HUDSON INDICATED THAT THE OBJECTIVES OF THE GROUNDWATER TREATMENT SYSTEM WERE:</p> <ol style="list-style-type: none"> 1) TO CONTROL MIGRATION OF Cr⁺⁶ PLUME IN GROUNDWATER; 2) DECREASE THE LEVEL OF Cr⁺⁶ IN ONE OFF-SITE RESIDENTIAL WELL TO < MCL (50 PPB); AND 3) REDUCE Cr⁺⁶ LEVELS IN GROUNDWATER TO < MCL <p>OBJECTIVE 2 WAS ACHIEVED IN MAY, 2000.</p> <p>MR. HUDSON INDICATED THAT OVERALL THE PROJECT WAS PROGRESSING SLOWLY TOWARDS MEETING THE OBJECTIVES. WHEN QUESTIONED ABOUT O & M DIFFICULTIES SINCE THE START-UP, MR HUDSON MENTIONED A REDO OF PART OF THE EXTRACTION SYSTEM ELECTRICAL DISTRIBUTION SYSTEM - REPLACING BURIED CABLE WITH ELECTRICAL CONDUIT.</p>		

Page 1 of 2

INTERVIEW RECORD

Site Name: SELMA PRESSURE TREATING	EPA ID No.:	
Subject: O&M PROGRESS / PROBLEMS	Time: 2:45 pm	Date: 10/5/00

Summary Of Conversation (Cont.)

MR HUDSON INDICATED THAT THE GROUNDWATER TREATMENT SYSTEM WAS OPTIMIZED IN TWO WAYS.

- 1) BY ADJUSTMENT OF CHEMICAL USAGE; AND
- 2) BY RELOCATING TWO EXTRACTION WELLS IN APRIL 2000 TO EXTRACT MORE Cr^{+6} -AFFECTED GROUNDWATER WELLS THAT WERE RELOCATED ARE EW-1 AND EW-2. NEW WELLS ARE DESIGNATED EW-1A AND EW-2A. ALSO CAN ADJUST FLOW RATES ON THE SEVEN EXTRACTION WELLS TO OPTIMIZE SYSTEM.

Page 2 of 2

INTERVIEW RECORD		
Site Name: SELMA PRESSURE TREATING		EPA ID No.:
Subject: LOCAL CONSIDERATIONS		Time: 10:00 AM Date: 10/10/00
Type: <input checked="" type="checkbox"/> Telephone <input type="checkbox"/> Visit <input type="checkbox"/> Other	<input checked="" type="checkbox"/> Incoming <input type="checkbox"/> Outgoing	
Location of Visit:		
Contact Made By:		
Name: HOWARD BARLOW	Title: SR ENGINEER	Organization: GEOMATRIX
Individual Contacted:		
Name: D. B. HEUSER	Title: INTERIM CITY MANAGER	Organization: CITY OF SELMA
Telephone No.: 1-800-807-3562	Street Address: 1710 TUCKER	
Fax No.:	City, State, Zip: SELMA, CA 93662	
E-Mail Address:		
Summary Of Conversation		
<p>MR HEUSER IS THE INTERIM CITY MANAGER FOR THE CITY OF SELMA AND HAS WORKED VERY CLOSELY WITH THE DTSC AND EPA DURING THE REMEDIATION PLANNING. MR HEUSER FEELS THE PROJECT IS GOING WELL, ALTHOUGH IT IS TAKING TOO LONG HE FEELS THAT HE IS AS WELL INFORMED ABOUT THE PROJECT AS HE NEEDS TO BE</p> <p>MR HEUSER IS AWARE OF ONLY ONE COMPLAINT REGARDING THE PROJECT THAT OCCURRED DURING CONSTRUCTION WHEN AN EXCAVATION WAS MADE IN A NEIGHBORING VINEYARD. THE COMPLAINT WAS ADDRESSED BY THE CONTRACTOR. MR HEUSER HAD NO COMMENTS OR SUGGESTIONS REGARDING THE SITE'S MANAGEMENT OR OPERATION.</p>		
		Page 1 of 1

ATTACHMENT C

**SITE INSPECTION
CHECKLIST**

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 CITY OF SELMA
 Contact D. B. HEUSER INTERIM CITY MANAGER 10/10/00 1-800-807-2562
 Name Title Date Phone no
 Problems, suggestions, Report attached _____

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

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

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

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

MR. SETH ABAJIAN, NEIGHBOR, 10/5/00

III. ONSITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)			
1	O&M Documents <input checked="" type="checkbox"/> O&M manual <input checked="" type="checkbox"/> As-built drawings <input checked="" type="checkbox"/> Maintenance logs Remarks <u>MAINTENANCE LOGS NOT UP TO DATE</u>	<input checked="" type="checkbox"/> Readily available <input checked="" type="checkbox"/> Readily available <input checked="" type="checkbox"/> Readily available	<input checked="" type="checkbox"/> Up to date <input checked="" type="checkbox"/> Up to date <input type="checkbox"/> Up to date <input type="checkbox"/> N/A <input type="checkbox"/> N/A <input type="checkbox"/> N/A
2	Site-Specific Health and Safety Plan <input type="checkbox"/> Contingency plan/emergency response plan Remarks <u>HEALTH + SAFETY PLAN DATED OCTOBER 6, 1997</u> <u>NO CONTINGENCY PLAN/EMERGENCY RESPONSE PLAN SEPARATE FROM H&S PLAN</u>	<input checked="" type="checkbox"/> Readily available <input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input type="checkbox"/> Up to date <input type="checkbox"/> N/A <input type="checkbox"/> N/A
3	O&M and OSHA Training Records Remarks <u>MR. TOEPPER HAS CURRENT OSHA REFRESHED TRAINING</u>	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input type="checkbox"/> N/A
4	Permits and Service Agreements <input type="checkbox"/> Air discharge permit <input type="checkbox"/> Effluent discharge <input type="checkbox"/> Waste disposal, POTW <input type="checkbox"/> Other permits _____ Remarks <u>HAZARDOUS WASTE DISPOSAL RECORDS AVAILABLE</u>	<input type="checkbox"/> Readily available <input type="checkbox"/> Readily available <input type="checkbox"/> Readily available <input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input type="checkbox"/> Up to date <input type="checkbox"/> Up to date <input type="checkbox"/> Up to date <input checked="" type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A <input checked="" type="checkbox"/> N/A
5	Gas Generation Records Remarks _____	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input checked="" type="checkbox"/> N/A
6	Settlement Monument Records Remarks _____	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input checked="" type="checkbox"/> N/A
7	Groundwater Monitoring Records Remarks <u>NOT ON-SITE</u>	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input type="checkbox"/> N/A
8	Leachate Extraction Records Remarks _____	<input type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input checked="" type="checkbox"/> N/A
9	Discharge Compliance Records <input type="checkbox"/> Air <input type="checkbox"/> Water (effluent) Remarks _____	<input type="checkbox"/> Readily available <input checked="" type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input type="checkbox"/> Up to date <input checked="" type="checkbox"/> N/A <input type="checkbox"/> N/A
10	Daily Access/Security Logs Remarks <u>NOT UTILIZED ALL THE TIME</u>	<input checked="" type="checkbox"/> Readily available	<input type="checkbox"/> Up to date <input type="checkbox"/> N/A

IV O&M COSTS																																			
1	O&M Organization	<input type="checkbox"/> State in-house <input checked="" type="checkbox"/> Contractor for State <input type="checkbox"/> PRP in-house <input type="checkbox"/> Contractor for PRP <input checked="" type="checkbox"/> Other <u>CONTRACTOR FOR EPA</u> <u>COST SHARING 90% EPA 10% STATE</u>																																	
2	O&M Cost Records	<input type="checkbox"/> Readily available <input type="checkbox"/> Up to date <input type="checkbox"/> Funding mechanism/agreement in place Original O&M cost estimate <u>\$35,000 / MONTH</u> <input type="checkbox"/> Breakdown attached <u>CURRENT O&M AVERAGING \$30,000 / MONTH</u> Total annual cost by year for review period if available <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">From _____</td> <td style="width: 20%;">To _____</td> <td style="width: 20%;"></td> <td style="width: 40%;"><input type="checkbox"/> Breakdown attached</td> </tr> <tr> <td style="text-align: center;">Date</td> <td style="text-align: center;">Date</td> <td style="text-align: center;">Total cost</td> <td></td> </tr> <tr> <td>From _____</td> <td>To _____</td> <td></td> <td><input type="checkbox"/> Breakdown attached</td> </tr> <tr> <td style="text-align: center;">Date</td> <td style="text-align: center;">Date</td> <td style="text-align: center;">Total cost</td> <td></td> </tr> <tr> <td>From _____</td> <td>To _____</td> <td></td> <td><input type="checkbox"/> Breakdown attached</td> </tr> <tr> <td style="text-align: center;">Date</td> <td style="text-align: center;">Date</td> <td style="text-align: center;">Total cost</td> <td></td> </tr> <tr> <td>From _____</td> <td>To _____</td> <td></td> <td><input type="checkbox"/> Breakdown attached</td> </tr> <tr> <td style="text-align: center;">Date</td> <td style="text-align: center;">Date</td> <td style="text-align: center;">Total cost</td> <td></td> </tr> </table>		From _____	To _____		<input type="checkbox"/> Breakdown attached	Date	Date	Total cost		From _____	To _____		<input type="checkbox"/> Breakdown attached	Date	Date	Total cost		From _____	To _____		<input type="checkbox"/> Breakdown attached	Date	Date	Total cost		From _____	To _____		<input type="checkbox"/> Breakdown attached	Date	Date	Total cost	
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Date	Date	Total cost																																	
3	Unanticipated or Unusually High O&M Costs During Review Period	Describe costs and reasons <u>NO DETAILED O&M COST RECORDS WERE AVAILABLE.</u> _____ _____ _____																																	
V. ACCESS AND INSTITUTIONAL CONTROLS <input type="checkbox"/> Applicable <input type="checkbox"/> N/A																																			
A Fencing																																			
1	Fencing damaged	<input type="checkbox"/> Location shown on site map <input type="checkbox"/> Gates secured <input type="checkbox"/> N/A Remarks <u>FENCING IN GOOD CONDITION</u> <u>ONE GATE WAS LEFT OPEN</u>																																	

B. Other Access Restrictions				
1	Signs and other security measures <input type="checkbox"/> Location shown on site map <input type="checkbox"/> N/A Remarks <u>EXCLUSION ZONES TAPED-OFF AND SIGNED</u> <u>NO PROPOSITION 65 WARNING</u>			
C. Institutional Controls				
1	Implementation and enforcement Site conditions imply ICs not properly implemented <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A Site conditions imply ICs not being fully enforced <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A Type of monitoring (e.g., self-reporting, drive by) _____ Frequency _____ Responsible party/agency _____ Contact _____			
	Name	Title	Date	Phone no
	Reporting is up-to-date		<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
	Reports are verified by the lead agency		<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
	Specific requirements in deed or decision documents have been met		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
	Violations have been reported		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
	Other problems or suggestions <input type="checkbox"/> Report attached			
	<u>CURRENTLY THERE IS A DEED RESTRICTION FOR THE</u> <u>IMPOUNDMENT AREA. ADDITIONAL DEED RESTRICTIONS</u> <u>FOR THE TREATMENT PLANT AREA ARE UNDER</u> <u>NEGOTIATION WITH THE PROPERTY OWNER.</u>			
2	Adequacy <input type="checkbox"/> ICs are adequate <input checked="" type="checkbox"/> ICs are inadequate <input type="checkbox"/> N/A Remarks <u>NO DEED RESTRICTIONS FOR THE</u> <u>TREATMENT PLANT AREA.</u>			
D General				
1	Vandalism/trespassing <input type="checkbox"/> Location shown on site map <input checked="" type="checkbox"/> No vandalism evident Remarks _____			
2	Land use changes onsite <input checked="" type="checkbox"/> N/A Remarks <u>SITE OWNER HAS PROPOSED A FUTURE</u> <u>INDUSTRIAL PARK AT THE SITE</u>			
3	Land use changes offsite <input checked="" type="checkbox"/> N/A Remarks <u>LIGHT INDUSTRIAL / AGRICULTURAL / TWO</u> <u>ADJACENT RESIDENCES.</u>			

VI. GENERAL SITE CONDITIONS			
A Roads <input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A			
1	Roads damaged <input type="checkbox"/> Location shown on site map <input checked="" type="checkbox"/> Roads adequate <input type="checkbox"/> N/A Remarks <u>MAIN ACCESS ROAD ADEQUATE</u> <u>NOT SHOWN ON SITE MAP</u>		
B Other Site Conditions			
Remarks <u>TWO STOCKPILES OF CONTAMINATED</u> <u>SOIL REMAIN ON-SITE; CURRENTLY COVERED</u> <u>WITH SECURED EDGES. CONTAMINATED SOIL</u> <u>PILES WERE GENERATED IN SEPTEMBER</u> <u>1999. VOLUME REPORTEDLY 5000 CUBIC YARDS</u> <u>PILES OF JUNK LEFT ON SITE, NUMEROUS</u> <u>EMPTY DRUMS, AND OVERGROWN WEEDS.</u>			
VII. LANDFILL COVERS <input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A			
A. Landfill Surface			
1	Settlement (Low spots) <input type="checkbox"/> Location shown on site map <input checked="" type="checkbox"/> Settlement not evident Areal extent _____ Depth _____ Remarks _____		
2	Cracks <input type="checkbox"/> Location shown on site map <input checked="" type="checkbox"/> Cracking not evident Lengths _____ Widths _____ Depths _____ Remarks _____		
3	Erosion <input type="checkbox"/> Location shown on site map <input checked="" type="checkbox"/> Erosion not evident Areal extent _____ Depth _____ Remarks _____		
4	Holes <input type="checkbox"/> Location shown on site map <input checked="" type="checkbox"/> Holes not evident Areal extent _____ Depth _____ Remarks _____		
5	Vegetative Cover <input checked="" type="checkbox"/> Grass <input type="checkbox"/> Cover properly established <input type="checkbox"/> No signs of stress <input type="checkbox"/> Trees/Shrubs (indicate size and locations on a diagram) Remarks <u>GRASS SPARSE IN AREAS -</u>		
6	Alternative Cover (armored rock, concrete, etc) <input checked="" type="checkbox"/> N/A Remarks _____		

7	Bulges Areal extent _____ Remarks _____	<input type="checkbox"/> Location shown on site map Height _____	<input checked="" type="checkbox"/> Bulges not evident
8	Wet Areas/Water Damage <input type="checkbox"/> Wet areas <input checked="" type="checkbox"/> Ponding <input type="checkbox"/> Seeps <input type="checkbox"/> Soft subgrade Remarks _____	<input type="checkbox"/> Wet areas/water damage not evident <input type="checkbox"/> Location shown on site map <input type="checkbox"/> Location shown on site map <input type="checkbox"/> Location shown on site map <input type="checkbox"/> Location shown on site map	Areal extent _____ Areal extent <u>40-FT DIA</u> Areal extent _____ Areal extent _____
9	Slope Instability Areal extent _____ Remarks _____	<input type="checkbox"/> Slides <input type="checkbox"/> Location shown on site map	<input checked="" type="checkbox"/> No evidence of slope instability
B. Benches <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> 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 Remarks _____	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> N/A or okay
2	Bench Breached Remarks _____	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> N/A or okay
3	Bench Overtopped Remarks _____	<input type="checkbox"/> Location shown on site map	<input type="checkbox"/> N/A or okay
C. Letdown Channels <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> 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 Areal extent _____ Remarks _____	<input type="checkbox"/> Location shown on site map Depth _____	<input type="checkbox"/> No evidence of settlement
2	Material Degradation Material type _____ Remarks _____	<input type="checkbox"/> Location shown on site map Areal extent _____	<input type="checkbox"/> No evidence of degradation

3	Erosion Areal extent _____ Depth _____ Remarks _____	<input type="checkbox"/> Location shown on site map <input type="checkbox"/> No evidence of erosion	
4	Undercutting Areal extent _____ Depth _____ Remarks _____	<input type="checkbox"/> Location shown on site map <input type="checkbox"/> No evidence of undercutting	
5	Obstructions Type _____ <input type="checkbox"/> Location shown on site map Size _____ Remarks _____	<input type="checkbox"/> No obstructions Areal extent _____	
6	Excessive Vegetative Growth Type _____ <input type="checkbox"/> No evidence of excessive growth <input type="checkbox"/> Vegetation in channels does not obstruct flow <input type="checkbox"/> Location shown on site map Remarks _____	Areal extent _____	
D. Cover Penetrations <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A			
1	Gas Vents <input type="checkbox"/> Properly secured/locked <input type="checkbox"/> Evidence of leakage at penetration Remarks _____	<input type="checkbox"/> Active <input type="checkbox"/> Passive <input type="checkbox"/> Functioning <input type="checkbox"/> Routinely sampled <input type="checkbox"/> Needs O&M	<input type="checkbox"/> Good condition <input type="checkbox"/> N/A
2	Gas Monitoring Probes <input type="checkbox"/> Properly secured/locked <input type="checkbox"/> Evidence of leakage at penetration Remarks _____	<input type="checkbox"/> Functioning <input type="checkbox"/> Routinely sampled <input type="checkbox"/> Needs O&M	<input type="checkbox"/> Good condition <input type="checkbox"/> N/A
3	Monitoring Wells (within surface area of landfill) <input type="checkbox"/> Properly secured/locked <input type="checkbox"/> Evidence of leakage at penetration Remarks _____	<input type="checkbox"/> Functioning <input type="checkbox"/> Routinely sampled <input type="checkbox"/> Needs O&M	<input type="checkbox"/> Good condition <input checked="" type="checkbox"/> N/A
4	Leachate Extraction Wells <input type="checkbox"/> Properly secured/locked <input type="checkbox"/> Evidence of leakage at penetration Remarks _____	<input type="checkbox"/> Functioning <input type="checkbox"/> Routinely sampled <input type="checkbox"/> Needs O&M	<input type="checkbox"/> Good condition <input type="checkbox"/> N/A

5	Settlement Monuments Remarks _____	<input type="checkbox"/> Located	<input type="checkbox"/> Routinely surveyed	<input type="checkbox"/> N/A
E. Gas Collection and Treatment		<input type="checkbox"/> Applicable	<input checked="" type="checkbox"/> N/A	
1	Gas Treatment Facilities <input type="checkbox"/> Flaring <input type="checkbox"/> Thermal destruction <input type="checkbox"/> Collection for reuse <input type="checkbox"/> Good condition <input type="checkbox"/> Needs O&M Remarks _____			
2	Gas Collection Wells, Manifolds and Piping <input type="checkbox"/> Good condition <input type="checkbox"/> Needs O&M Remarks _____			
3	Gas Monitoring Facilities (e.g., gas monitoring of adjacent homes or buildings) <input type="checkbox"/> Good condition <input type="checkbox"/> Needs O&M <input type="checkbox"/> N/A Remarks _____			
F Cover Drainage Layer		<input checked="" type="checkbox"/> Applicable	<input type="checkbox"/> N/A	
1	Outlet Pipes Inspected Remarks _____	<input type="checkbox"/> Functioning	<input checked="" type="checkbox"/> N/A	
2	Outlet Rock Inspected Remarks <u>DESIGNED TO DRAIN INTERNALLY TO A DEPTH BELOW THE WASTE</u>	<input type="checkbox"/> Functioning	<input checked="" type="checkbox"/> N/A	
G Detention/Sedimentation Ponds		<input checked="" type="checkbox"/> Applicable	<input type="checkbox"/> N/A	
1	Siltation Areal extent _____ Depth _____ <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Siltation not evident - <u>CATTAIL GROWTH IN ONE POND CURRENTLY USED.</u> Remarks <u>TWO INFILTRATION PONDS ARE USED ALTERNATELY AT ONE YEAR INTERVALS</u>			
2	Erosion Areal extent _____ Depth _____ <input checked="" type="checkbox"/> Erosion not evident Remarks _____			
3	Outlet Works Remarks _____	<input type="checkbox"/> Functioning	<input checked="" type="checkbox"/> N/A	
4	Dam Remarks _____	<input type="checkbox"/> Functioning	<input checked="" type="checkbox"/> N/A	

H. Retaining Walls <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A		
1	Deformations <input type="checkbox"/> Location shown on site map <input type="checkbox"/> Deformation not evident Horizontal displacement _____ Vertical displacement _____ Rotational displacement _____ Remarks _____	
2	Degradation <input type="checkbox"/> Location shown on site map <input type="checkbox"/> Degradation not evident Remarks _____	
I. Perimeter Ditches/Off-Site Discharge <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A		
1	Siltation <input type="checkbox"/> Location shown on site map <input type="checkbox"/> Siltation not evident Areal extent _____ Depth _____ Remarks <u>NO CONTROL OF OFF-SITE DRAINAGE</u>	
2	Vegetative Growth <input type="checkbox"/> Location shown on site map <input type="checkbox"/> N/A <input type="checkbox"/> Vegetation does not impede flow Areal extent _____ Type _____ Remarks _____	
3	Erosion <input type="checkbox"/> Location shown on site map <input type="checkbox"/> Erosion not evident Areal extent _____ Depth _____ Remarks _____	
4	Discharge Structure <input type="checkbox"/> Functioning <input type="checkbox"/> N/A Remarks _____	
VIII. VERTICAL BARRIER WALLS <input type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A		
1	Settlement <input type="checkbox"/> Location shown on site map <input type="checkbox"/> Settlement not evident Areal extent _____ Depth _____ Remarks _____	
2	Performance Monitoring Type of monitoring _____ <input type="checkbox"/> Performance not monitored Frequency _____ <input type="checkbox"/> Evidence of breaching Head differential _____ Remarks _____	

IX. GROUNDWATER/SURFACE WATER REMEDIES		<input checked="" type="checkbox"/> Applicable	<input type="checkbox"/> N/A
A. Groundwater Extraction Wells, Pumps, and Pipelines		<input checked="" type="checkbox"/> Applicable	<input type="checkbox"/> N/A
1	Pumps, Wellhead Plumbing, and Electrical <input checked="" type="checkbox"/> Good condition <input type="checkbox"/> All required wells located <input type="checkbox"/> Needs O&M <input type="checkbox"/> N/A Remarks <u>SITE MAP DOES NOT SHOW LOCATIONS OF NEW EXTRACTION WELLS EW-1A AND EW-2A.</u>		
2	Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances <input checked="" type="checkbox"/> Good condition <input type="checkbox"/> Needs O&M Remarks _____		
3	Spare Parts and Equipment <input checked="" type="checkbox"/> Readily available <input type="checkbox"/> Good condition <input type="checkbox"/> Requires upgrade <input type="checkbox"/> Needs to be provided Remarks <u>SOME AVAILABLE ON-SITE. PARTS ALSO AVAILABLE FROM LOCAL DISTRIBUTOR</u>		
B Surface Water Collection Structures, Pumps, and Pipelines		<input checked="" type="checkbox"/> Applicable	<input type="checkbox"/> N/A
1	Collection Structures, Pumps, and Electrical <input checked="" type="checkbox"/> Good condition <input type="checkbox"/> Needs O&M Remarks <u>SMALL COLLECTION AREA OUTSIDE OF TREATMENT PLANT.</u>		
2	Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances <input checked="" type="checkbox"/> Good condition <input type="checkbox"/> Needs O&M Remarks _____		

3	Spare Parts and Equipment <input checked="" type="checkbox"/> Readily available <input type="checkbox"/> Good condition <input type="checkbox"/> Requires upgrade <input type="checkbox"/> Needs to be provided Remarks <u>SPARE PUMP AVAILABLE</u>
C. Treatment System <input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A	
1	Treatment Train (Check components that apply) <input checked="" type="checkbox"/> Metals removal <input type="checkbox"/> Oil/water separation <input type="checkbox"/> Bioremediation <input type="checkbox"/> Air stripping <input type="checkbox"/> Carbon adsorbers <input checked="" type="checkbox"/> Filters <u>MEDIA FILTERS</u> <input checked="" type="checkbox"/> Additive (e.g., chelation agent, flocculent) <u>FLOCCULENT FERROUS CHLORIDE</u> <input type="checkbox"/> Others <u>CAUSTIC, SULFURIC ACID</u> <input type="checkbox"/> Good condition <input checked="" type="checkbox"/> Needs O&M - MINOR REPAIRS <input type="checkbox"/> Sampling ports properly marked and functional - NOT MARKED <input type="checkbox"/> Sampling/maintenance log displayed and up to date - NO <input checked="" type="checkbox"/> Equipment properly identified <input checked="" type="checkbox"/> Quantity of groundwater treated annually <u>ABOUT 200 GPM</u> <input checked="" type="checkbox"/> Quantity of surface water treated annually <u>RAINFALL ONLY</u> Remarks <u>LEAK ON SEAL OF ONE PUMP FOR TREATED WATER</u> <u>LEAK ON CAUSTIC LINE OUTSIDE OF CONTAINMENT AREA</u>
2	Electrical Enclosures and Panels (properly rated and functional) <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Good condition <input type="checkbox"/> Needs O&M Remarks _____
3	Tanks, Vaults, Storage Vessels <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Good condition <input checked="" type="checkbox"/> Proper secondary containment <input type="checkbox"/> Needs O&M Remarks <u>CONTAINMENT CAPACITY O.K.</u> <u>WATER LEVEL ALARM OK</u>
4	Discharge Structure and Appurtenances <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Good condition <input type="checkbox"/> Needs O&M Remarks _____
5	Treatment Building(s) <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Good condition (esp. roof and doorways) <input type="checkbox"/> Needs repair <input checked="" type="checkbox"/> Chemicals and equipment properly stored Remarks _____
6	Monitoring Wells (pump and treatment remedy) <input type="checkbox"/> Properly secured/locked <input checked="" type="checkbox"/> Functioning <input checked="" type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition <input type="checkbox"/> All required wells located <input checked="" type="checkbox"/> Needs O&M <input type="checkbox"/> N/A Remarks <u>MANY MONITORING WELLS DO NOT HAVE LOCKS</u> <u>OR SECURED LIDS.</u>

D. Monitored Natural Attenuation	
1	<p>Monitoring Wells (natural attenuation remedy)</p> <p><input type="checkbox"/> Properly secured/locked <input type="checkbox"/> Functioning <input type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition</p> <p><input type="checkbox"/> All required wells located <input type="checkbox"/> Needs O&M <input checked="" type="checkbox"/> N/A</p> <p>Remarks _____</p>
X. OTHER REMEDIES	
<p>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.</p>	
XI OVERALL OBSERVATIONS	
A.	Implementation of the Remedy
<p>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).</p> <ul style="list-style-type: none"> • <u>AFFECTED SOIL IS CONTAINED IN IMPOUNDMENT AREA — APPROX. 5000 CUBIC YARDS OF AFFECTED SOIL REMAINS IN STOCKPILES OUTSIDE OF THE IMPOUNDMENT.</u> • <u>GROUNDWATER TREATMENT IS USED TO CONTROL A HEXAVALENT CHROMIUM PLUME. PUMP AND TREAT HAS REDUCED THE LEVEL OF Cr⁺⁶ IN ONE AFFECTED RESIDENTIAL WELL TO < MCL OF 50 ppb</u> 	
B.	Adequacy of O&M
<p>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.</p> <ul style="list-style-type: none"> • <u>MONITORING WELLS FOR IMPOUNDMENT AREA ARE NOT PRESENT AS DESIGNED.</u> • <u>MONITORING WELLS FOR TREATMENT SYSTEM ARE NOT SECURED. TWO WELLS IN VINEYARD (MW-96 AND MW-110) ARE IN AT GRADE VAULTS SUBJECT TO FLOODING.</u> • <u>OFF-SITE DRAINAGE IS NOT CONTROLLED</u> 	

<p>C. Early Indicators of Potential Remedy Failure</p> <p>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</p> <ul style="list-style-type: none">• STOCKPILES OF AFFECTED SOIL REMAIN ON-SITE. ALTHOUGH THESE STOCKPILES ARE COVERED, THEY ARE NOT UNDER A RCRA COVER WITHIN THE IMPOUNDMENT AREA.• OFF-SITE DRAINAGE IS NOT CONTROLLED.• NO GROUNDWATER MONITORING WELLS HAVE BEEN INSTALLED ADJACENT TO THE IMPOUNDMENT AREA. THE EFFECTIVENESS OF THE IMPOUNDMENT CAN NOT BE ASSESSED.
<p>D Opportunities for Optimization</p> <p>Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy</p> <ul style="list-style-type: none">• GROUNDWATER MONITORING FREQUENCY MAY BE REDUCED IN THE FUTURE.• WASTE FROM THE FILTER PRESSES AT THE TREATMENT PLANT, RECLASSIFICATION SHOULD BE EVALUATED, IF POSSIBLE, TO REDUCE DISPOSAL COSTS.

ATTACHMENT D

**PHOTOGRAPHS
DOCUMENTING SITE
CONDITIONS**



Nearest neighboring residence (Abajian) south of site



View from nearest neighboring residence (Abajian) south of site

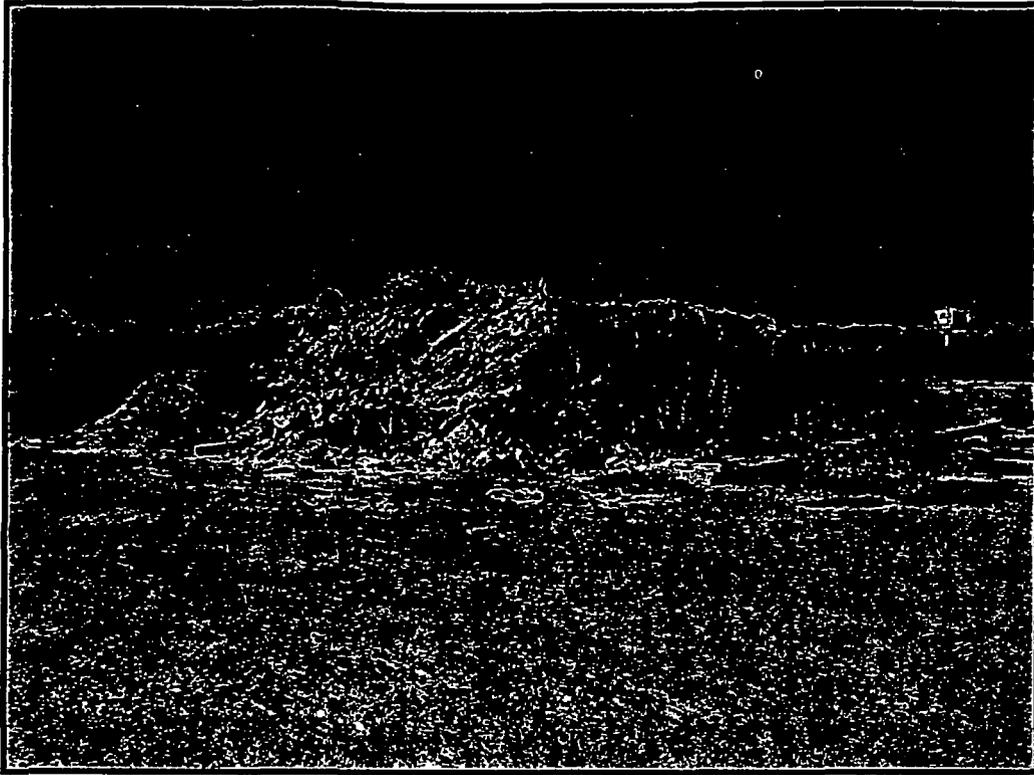


Abandoned residence on south side of site



Covered stockpile of affected soil



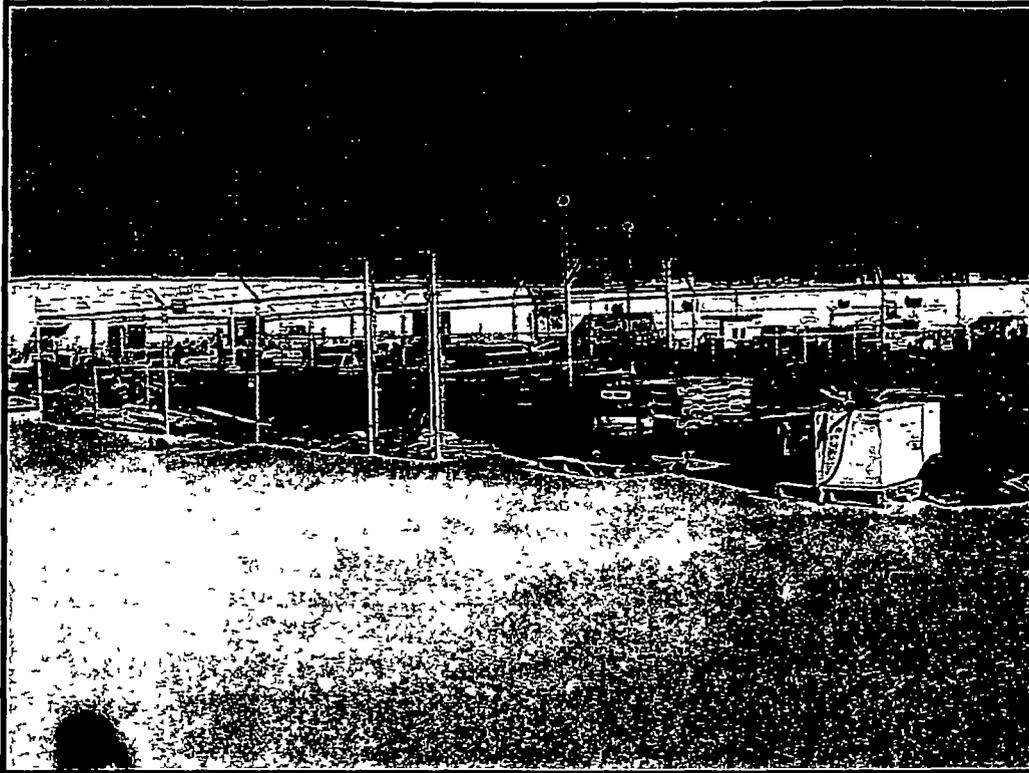


Stockpile of reportedly "clean" soil



Miscellaneous debris





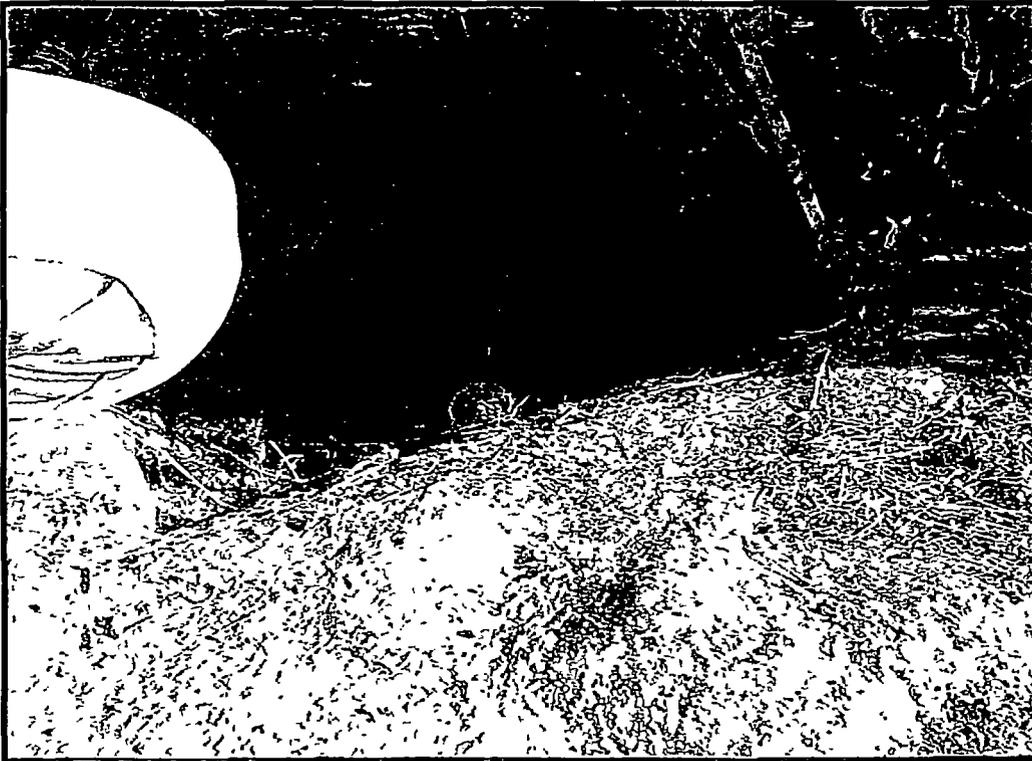
Drum storage area adjacent to impoundment area



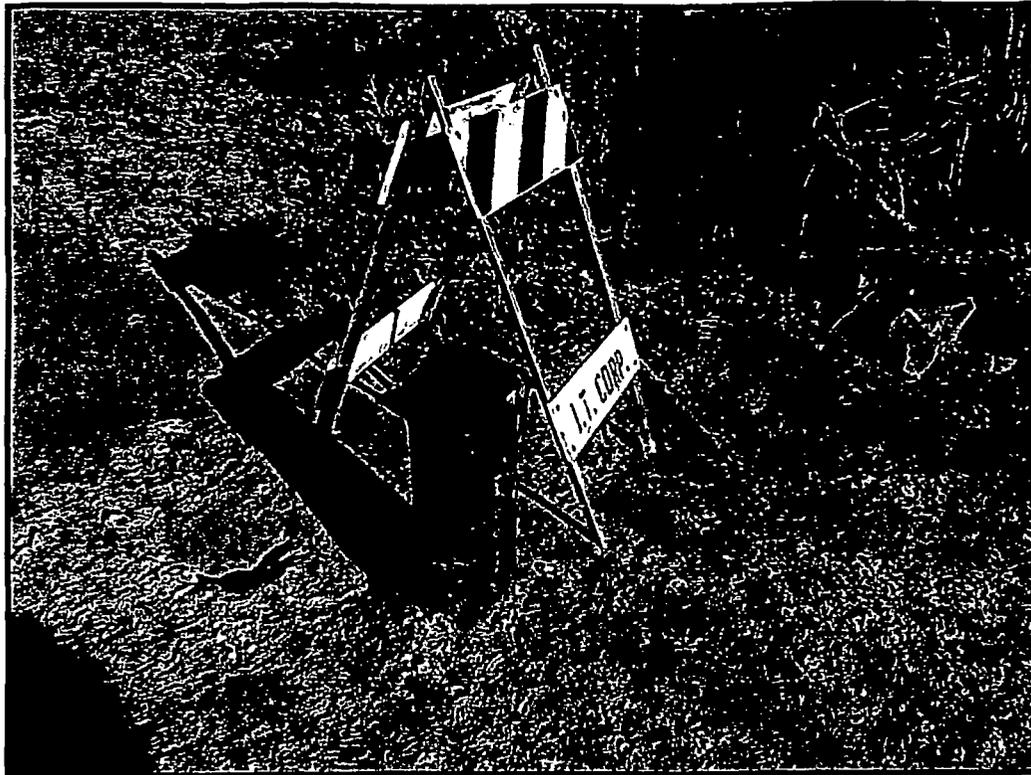
Drums within the impoundment area



Impoundment area vegetative cover



Monitoring well 110 in unsecured at grade vault



Monitoring well 114 missing locking lid



Monitoring well 115 with damaged casing and missing locking lid

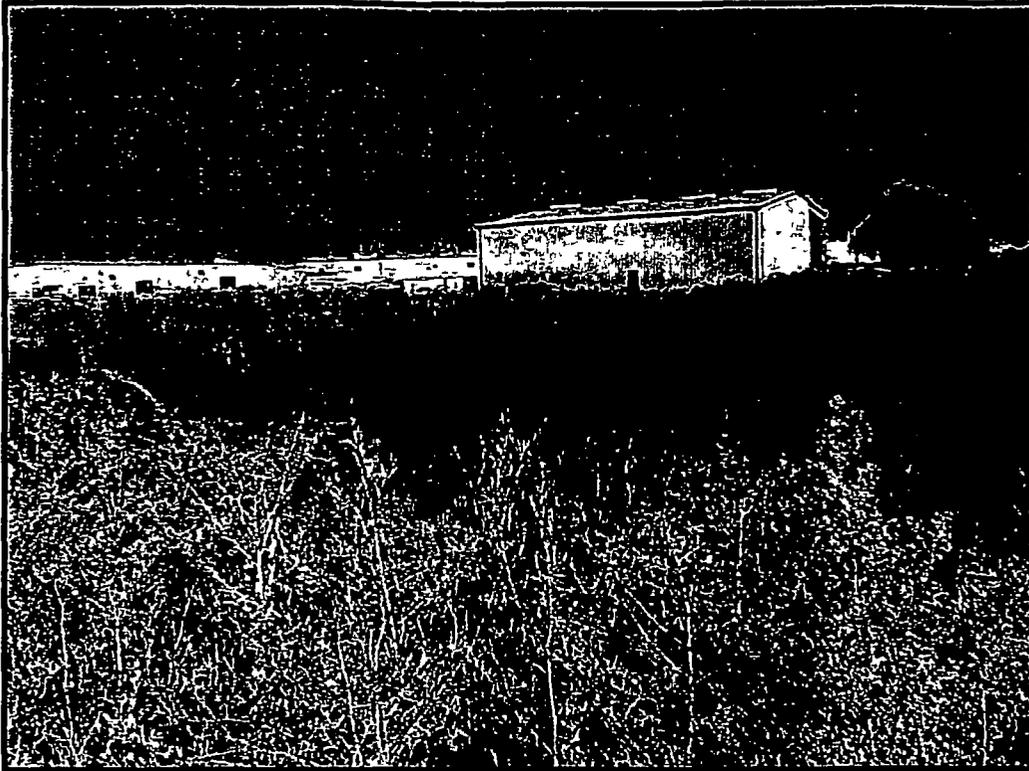




Drainage ditch south of access road



Drainage ditch north of access road leading towards impoundment area



South infiltration pond currently in use

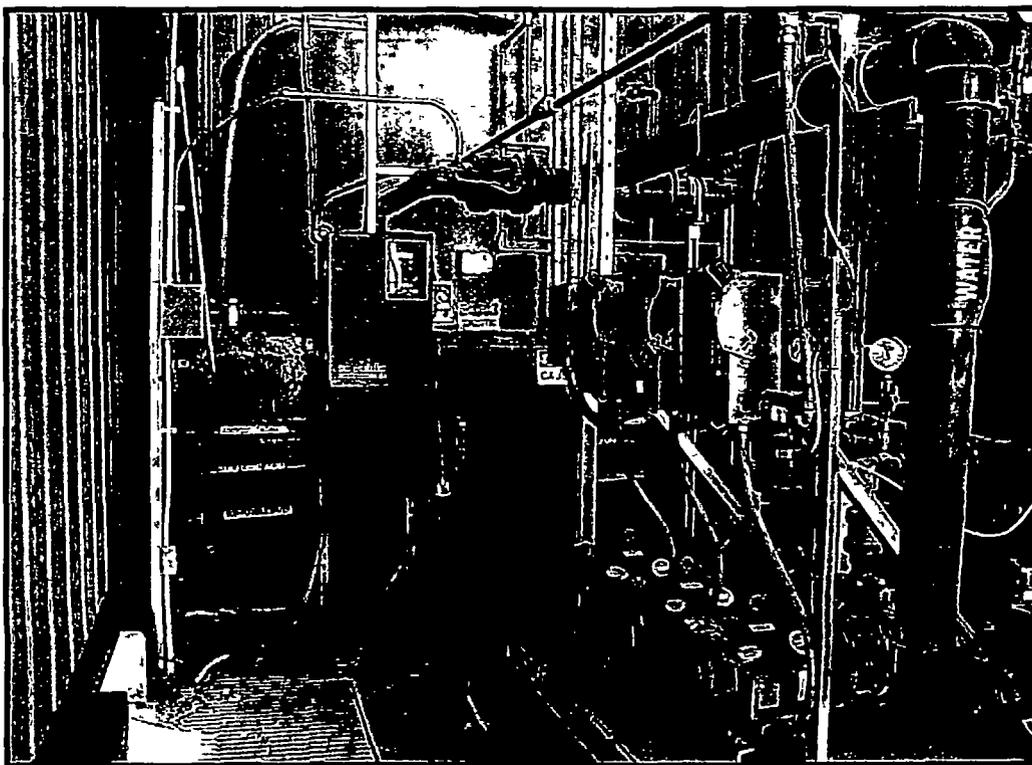


North infiltration pond currently idle



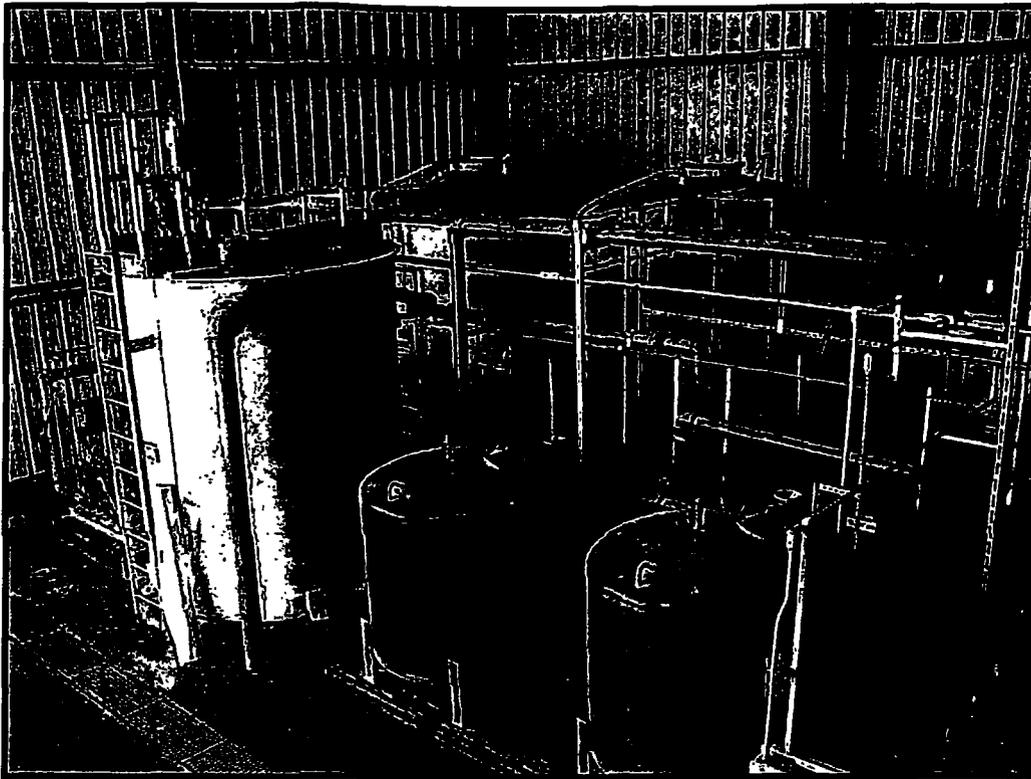


Treatment system chemical tanks

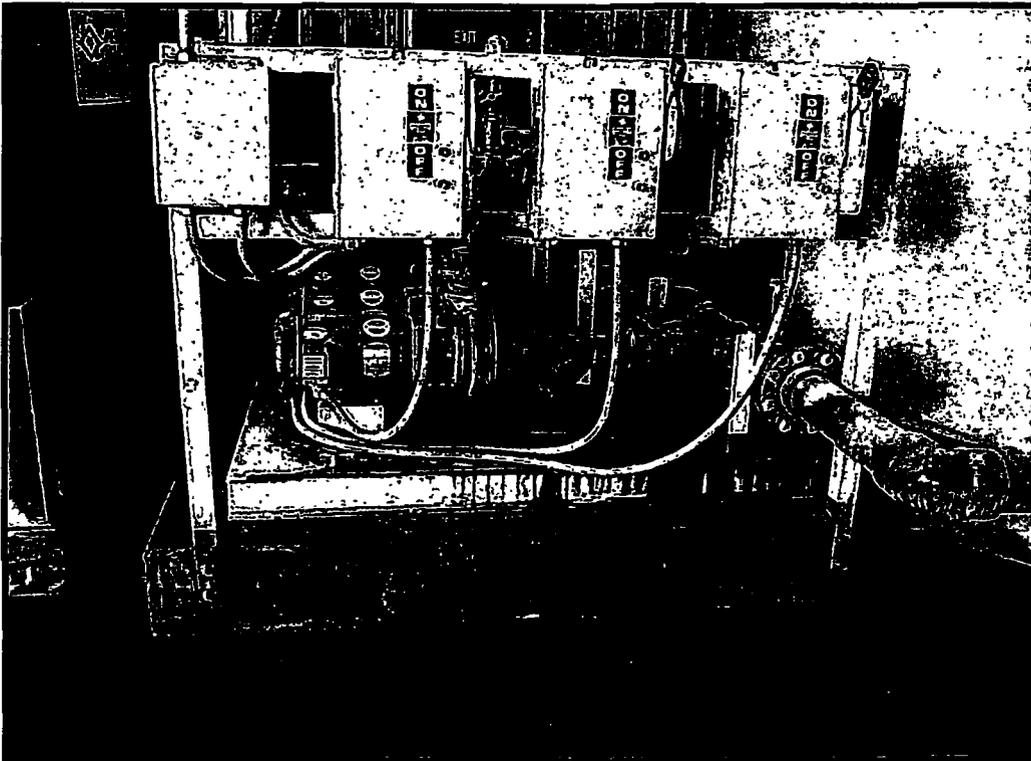


Treatment system piping

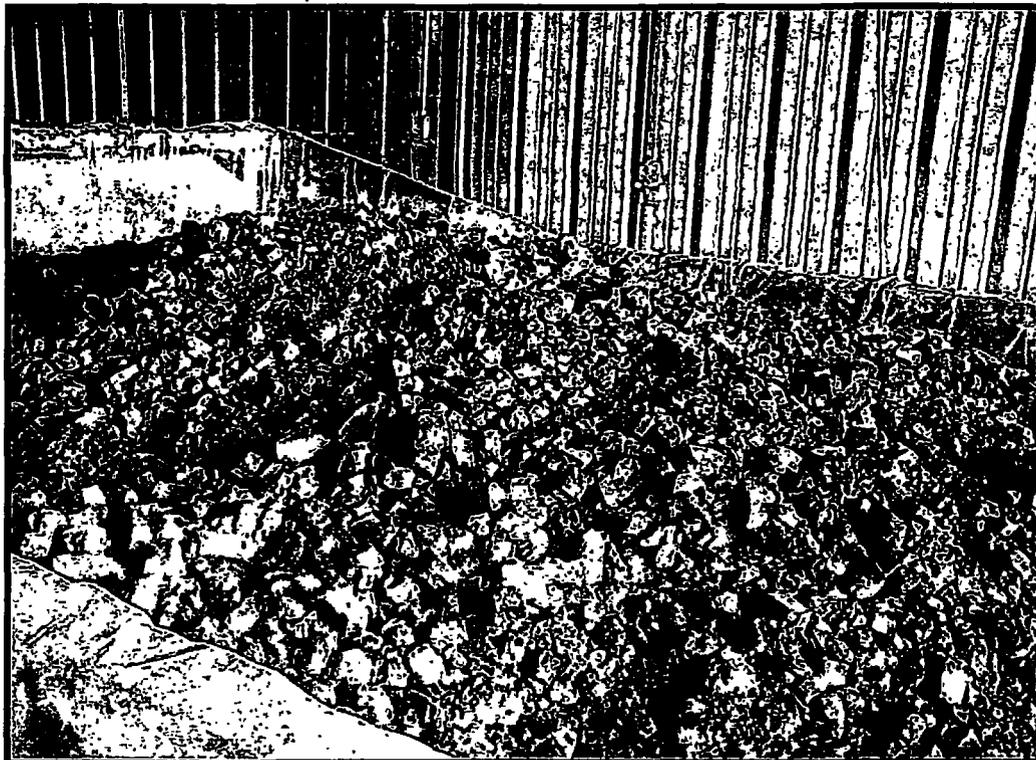




Treatment system - effluent side.



Leaking pump in treatment system.



Cake from treatment system filter press.