

SECOND FIVE-YEAR REVIEW REPORT

**FOR
SOUTH BAY ASBESTOS SITE
SAN JOSE, CALIFORNIA**

September 2005

**Prepared for
Contract No. 68-W-98-225/WA NO. 134-FRFE-0942
U.S. Environmental Protection Agency
Region IX
75 Hawthorne Street
San Francisco, California 94105**

Approved by:

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List of Acronyms

ACSM	asbestos-containing soil material
AHERA	Asbestos Hazard Emergency Response Act
ARARs	applicable or relevant and appropriate requirements
ATSDR	Agency for Toxic Substances Control and Disease Registry
bgs	below ground surface
ACSM	asbestos-containing soil material
Cal-OSHA	California Occupational Safety and Health Administration
CCR	California Code of Regulations
CD	Consent Decree
CDM	Camp Dresser & McKee
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation and Liability Information System
CFR	Code of Federal Regulations
CIC	Community Involvement Coordinator
CWA	Clean Water Act
DHS	California Department of Health Services
DTSC	Department of Toxic Substances Control
E&E	Ecology & Environment, Inc.
EEC	Environmental Educational Center
EO	Executive Order
ESD	Explanation of Significant Differences
f/cc	fibers per cubic centimeter
FS	Feasibility Study
NESHAPs	National Emission Standards for Hazardous Air Pollutants
NPL	National Priorities List
O&M	operation and maintenance

OSHA	Occupational Safety and Health Act
OU	operable unit
LEA	Local Enforcement Agency
PCB	polychlorinated biphenyl
PEL	permissible exposure limit
PLM	polarized light microscopy
PPA	Prospective Purchaser Agreement
PRP	potentially responsible party
RA	Remedial Action
RD	Remedial Design
RI	Remedial Investigation
RI/FS	remedial investigation/feasibility study
ROD	Record of Decision
RPM	Remedial Project Manager
RWQCB	Regional Water Quality Control Board, San Francisco Bay Region
SBA	South Bay Asbestos Superfund Site
SCVWD	Santa Clara Valley Water District
SME	Summerset Mobile Estates
SMP	soil management plan
TBC	to be considered
TEM	transmission electron microscopy
UAO	Unilateral Administrative Orders
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
VOC	volatile organic compound

Five-year Review Summary Form

SITE IDENTIFICATION

Site name : South Bay Asbestos Site

USEPA ID: 0942 **CERCLIS ID :** CAD980894885

Region: IX **State:** CA **City/County:** Alviso District, San Jose/Santa Clara County

SITE STATUS

NPL status: Final Deleted Other (specify) _____

Remediation status (choose all that apply): Operating Complete

Multiple OUs? YES NO **Construction completion date:** September 23, 1998

Has site been put into reuse? YES NO

REVIEW STATUS

Reviewing agency: USEPA State Tribe Other Federal Agency _____

Author name: Eric Yunker

Author title: Remedial Project Manager **Author affiliation:** USEPA Region IX

Review period: June – September 2005

Date(s) of site inspection: June 9 and July 7, 2005

Type of review: Statutory
 Policy Post-SARA Pre-SARA NPL-Removal only
 Non-NPL Remedial Action Site NPL State/Tribe-lead
 Regional Discretion)

Review number: 1 (first) 2 (second) 3 (third) Other (specify)

Triggering action:

Actual RA Onsite Construction

Actual RA at OU #1

Previous Five-year Review Report

Construction Completion

Other (specify) _____

Triggering action date: September 2000

Due date (five years after triggering action date): September 2005

Issues and Recommendations:

Issue: Because there were no health-based standards available for asbestos in soils at the time of the 1989 Record of Decision (ROD), USEPA used a quantitative risk characterization instead of ARARs to determine exposure scenarios for the site. The quantitative studies found that the most significant risk to human health came through the inhalation pathway for asbestos from soil disturbance. Based on the then-current detection limit for asbestos, USEPA established a remediation goal for the site of less than 1 percent asbestos in soil as determined by polarized light microscopy (PLM). (See 1989 ROD [USEPA, 1989], Appendix I, for discussion.) Today there are still no health-based standards for asbestos levels in soils.

Recommendation: In order to address the issue of whether or not the 1 percent asbestos in soil screening level is sufficiently health protective at this site, additional data review and possible sampling and analysis are recommended. In accordance with the memo referenced in footnote 1, page 7-2, any future sampling at the South Bay Asbestos site is recommended to be based on techniques that generate fibers from soil. USEPA will evaluate this issue by September 2006. Also, USEPA has recently initiated a reassessment of the toxicity values used for asbestos risk assessment, although this effort is not expected to be finalized in the immediate future. Thus, it is recommended that the next five-year review consider any revised toxicity values.

Issue: The 1989 ROD requires placement of deed restrictions as institutional controls on former landfills at the site to protect the integrity of the landfill caps. Less than a year after selection of the 1989 ROD remedy, new state land use regulations were promulgated – Post-Closure Maintenance and Reuse of Disposal Sites regulations (“Landfill Closure Regulations”) at 27 California Code of Regulations (CCR) §§ 21100 *et. seq.* (“Title 27”) – which govern post-closure activities at former landfills. These Closure Regulations are currently being implemented at all site landfills. In contrast, to date only one capped landfill at the site has had the ROD-required deed restriction placed on its title – the Legacy Tech Park portion of the Santos Landfill. The Summerset Mobile Estates portion of Santos Landfill and the St. Claire Landfill do not have deed restrictions.

Recommendation: USEPA is evaluating the use of CCR Title 27 Landfill Closure Regulations for the Summerset Mobile Estates portion of Santos Landfill and the St. Claire Landfill. If it is determined that Title 27 regulations provide similar protectiveness as the proprietary control provided by the deed restrictions, USEPA may use the Title 27 regulations as governmental controls to prevent cap disturbance and exposure to asbestos-containing waste. If USEPA makes that determination it will be memorialized in an Explanation of Significant Differences (ESD).

Issue: The Marshland Landfill at the site has not had the ROD-required deed restriction placed on its title. This capped landfill has been regulated by the California Regional Water Quality Control Board, San Francisco Bay Region (RWQCB) as a Class II landfill and is subject to the closure and O&M requirements of the RWQCB as well as the requirements of the California State Integrated Waste Management Board.

Recommendation: USEPA will prepare an ESD by September 2006 that will specify that no further controls are needed at the Marshland Landfill and that the state requirements meet the deed restriction requirement in the ROD.

Protectiveness Statement:

The remedy at OU-1, the Ring Levee, is protective of human health and the environment because the major source of asbestos exposure that could result in unacceptable risks has been removed.

The remedial actions at OU-2, the Overall Site, are currently protective of human health and the environment where they were implemented because the major sources of asbestos exposure that could result in unacceptable risks are being controlled (landfill covers) or have been removed (truck yards).

A new understanding of how low concentrations of asbestos in soil translate into actual airborne exposures raises the issue of whether the soil screening level used to determine the need for cleanup activities at the site is still protective. USEPA plans to re-evaluate the soil asbestos data and re-sample, if necessary. USEPA is deferring the final protectiveness determination for this site until this analysis is completed. It is expected that these actions will take approximately one year to complete, at which time a protectiveness determination will be made.

For the remedy at OU-2 to be protective in the long term the institutional controls need to be implemented at the Santos (Summerset Mobile Estates portion) and Saint Claire Landfills.

Executive Summary

The United States Environmental Protection Agency (USEPA) conducted a five-year review of the remedial actions implemented at the South Bay Asbestos Superfund Site (SBA) in San Jose, California. The South Bay Asbestos Superfund Site is located in the Alviso district of San Jose, California, at the southern edge of San Francisco Bay. It encompasses the entire 550-acre community of Alviso where over 1,700 people live.

The five-year review was required by statute and performed because hazardous substances, pollutants, or contaminants remain at the SBA above levels that allow for unrestricted use and unlimited exposure. The triggering action for this review was the first five-year review which was signed by USEPA in September 2000 (USEPA 2000). This report evaluates the remedial objectives for the SBA, as stated in the two Records of Decision (RODs), as well as the ROD Amendment and Explanation of Significant Differences (ESD).

In evaluating the nature and extent of the asbestos contamination in Alviso, USEPA divided the remediation into two parts. USEPA addressed the Ring Levee (OU-1) as a separate operable unit from the rest of SBA (OU-2, Overall Site).

The remedial objective for the South Bay Asbestos Superfund Site is to control the release of asbestos fibers into the air from asbestos-contaminated soils and other asbestos-containing material. There were two remedies selected for SBA. The first included the removal of the asbestos-containing Ring Levee, which was completed in 1994 (and reported under the last five-year review). The second remedy covered the overall site and included actions such as: 1) the initial paving and the eventual excavation and removal of asbestos-containing soil at four truck yards; and 2) verifying the adequacy of covers and placing deed restrictions on three landfill areas where asbestos-cement pipe was buried.

In addition to the remedies listed above, in September 2003, USEPA joined the City of San Jose under an Action Memorandum to mitigate threats to human health and the environment posed by the presence of asbestos-contaminated soils located at the Environmental Educational Center (EEC) at the SBA site. Removal activities at the EEC's road berm and levee trail were completed in November 2003.

These remedies provide permanent solutions to meet the remediation objective. However, since asbestos will remain buried on-site at the landfill areas, a review is necessary every five years to ensure that human health and the environment continue to be protected.

The previous five-year review found that the removal actions at and near the Ring Levee and temporary levee were completed in accordance with the ROD and ESD requirements for OU-1. Final inspections of the Ring Levee and temporary levee removals were conducted in January 1994 and October 1996, respectively. Subsequently, the wetlands restoration project was implemented by the City of San Jose beginning in 1996 to replace and restore wetlands lost as a result of construction of the Ring Levee. The U.S. Army Corps of Engineers (USACE), in consultation with the U.S. Fish and Wildlife Service (USFWS) and USEPA, issued an approval letter to the City of San Jose determining that the mitigation and restoration was complete and no further work was necessary (USACE, 2003).

The previous review documented that soil material was effectively removed at three of the four truck yards where asbestos occurred above one percent. Excavation of the fourth truck yard area was completed in the Fall 2004. On the basis of the results of the confirmation soil sampling, USEPA concluded that the asbestos contamination was effectively removed from the property. The excavated area was backfilled with clean soil and restored to its original grade. Consequently, the need for permanent capping, maintenance requirements or deed restrictions had been eliminated at the truck yard areas.

For the landfill areas, USEPA determined that the soil covers at the Santos, Marshland, and St. Claire Landfills were acceptable and in compliance with the Clean Air Act's National Emission Standards for Hazardous Air Pollutants (NESHAPs) cover requirements. The previous review found that the cleanup continued to be protective of human health and the environment, but recommended that the components that had not been implemented – namely, the placing of deed restrictions on landfill areas – be completed. To date, only one ROD-required deed restriction has been placed on the title of one part of the Santos Landfill (Legacy Tech Park). USEPA is evaluating the use of California Code of Regulations (CCR) Title 27 Landfill Closure Regulations for the Summerset Mobile Estates (SME) portion of Santos Landfill and the St. Claire Landfill. These Closure Regulations are currently being implemented at all site landfills. If it is determined that Title 27 regulations provide similar protectiveness, USEPA is considering using the Title 27 regulations as governmental controls in lieu of deed restrictions to prevent cap disturbance and exposure to asbestos-containing waste.

The Marshland Landfill has been regulated by the California Regional Water Quality Control Board, San Francisco Bay Region (RWQCB) as a Class III landfill and is subject to the closure and operation and maintenance (O&M) requirements of the RWQCB as well as the Title 27 requirements of the California State Integrated Waste Management Board. USEPA will prepare an ESD by September 2006 that will specify that, at the Marshland Landfill, these existing state requirements provide the institutional controls to meet the deed restriction requirement in the ROD.

A new understanding of how low concentrations of asbestos in soil translate into actual airborne exposures raises the issue of whether the 1 percent soil screening level used to determine the need for cleanup activities at the site is still protective. USEPA plans to re-evaluate the soil asbestos data and re-sample, if necessary. Any future sampling at the South Bay Asbestos site is recommended to be based on techniques that generate fibers from soil. USEPA will evaluate this issue by September 2006. Also, USEPA has recently initiated a reassessment of the toxicity values used for asbestos risk assessment, although this effort is not expected to be finalized in the immediate future. Thus, it is recommended that the next five-year review consider any revised toxicity values.

The next five-year review will be conducted on or before September 2010.

1.0 Introduction

The United States Environmental Protection Agency (USEPA) conducted a five-year review of the remedial actions implemented at the South Bay Asbestos Superfund Site (SBA) in San Jose, California (Figure 1-1). This review was conducted from June to September 2005. To assist USEPA, CH2M HILL prepared this report documenting the results of the five-year review. This report has been prepared in accordance with USEPA's guidance document, *Comprehensive Five-Year Review Guidance* (USEPA, 2001).

The purpose of the five-year review process is to evaluate whether the remedy at the 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 any deficiencies found during the review and provide recommendations for addressing them.

This review is required by federal statute. USEPA must implement five-year reviews consistent with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA). CERCLA Section 121(c), as amended, states:

If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at SBA, 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.

Consequently, this five-year review report has been completed because hazardous substances, pollutants, or constituents remain at SBA above levels that allow for unrestricted use and unlimited exposure.

The South Bay Asbestos Superfund Site is located in the Alviso district of San Jose, California, at the southern edge of San Francisco Bay. It encompasses the entire 550-acre community of Alviso where over 1,700 people live. Alviso is a low-lying area subject to flooding. Figure 1-1 presents a site plan map.

This report evaluates the remedial objectives for the SBA site, as stated in the two Records of Decision (RODs), as well as the ROD amendment and Explanation of Significant Differences (ESD).

Portions of the site served as dumping areas for over 30 years. Three landfill areas within the site (Santos Landfill, Marshland Development Corporation Landfill [also known as the Leslie Salt Landfill and the Highway 237 Disposal Site], and St. Claire Corporation Landfill) are thought to have received asbestos waste from an asbestos-cement pipe manufacturing plant. In addition, some areas, such as truck yards, may have been filled with asbestos-containing soils in order to raise the elevation of their property and improve flood protection.

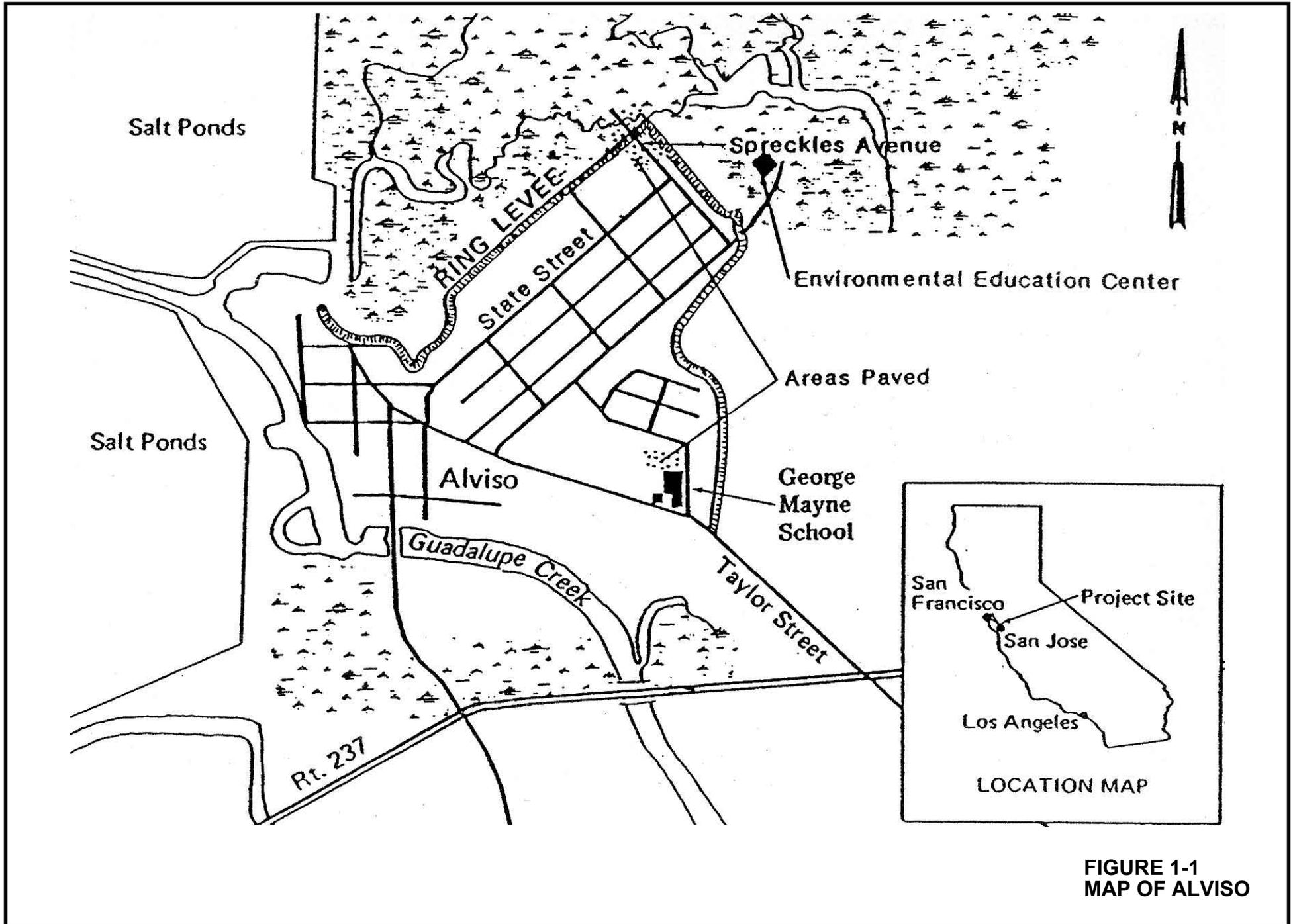
In 1983, Alviso was flooded and the City of San Jose constructed a levee around the town (which became known as the Ring Levee) in order to pump out the flood water. It was approximately two miles long, six feet high, and twenty feet wide. The levee material was taken from the Raisch Quarry and was later found to contain serpentine, an asbestos-containing rock.

The remedial objective for the South Bay Asbestos Superfund Site is to control the release of asbestos fibers into the air from asbestos-contaminated soils and other asbestos-containing material. There were two remedies selected for SBA. The first included the removal of the asbestos-containing Ring Levee, which was completed in 1994. The second remedy covered the overall site and included actions such as: 1) the initial paving and the eventual excavation and removal of asbestos-containing soil at four truck yards; and 2) verifying the adequacy of covers and placing deed restrictions on three landfill areas where asbestos-cement pipe was buried. These remedies provide permanent solutions to meet the remediation objective. However, since asbestos will remain buried on-site at the landfill areas, a review is necessary every five years to ensure that human health and the environment continue to be protected.

This is the site's second five-year review. USEPA is the lead agency for this site. The triggering action for this review was the first five-year review, which was signed by USEPA in September 2000 (USEPA 2000).

To efficiently manage the problems at SBA, USEPA identified two operable units (OUs) for remedial action activities. The term "operable unit" refers to discrete action taken at a Superfund site to address specific site problems. The two OUs at SBA pertain to the Ring Levee (OU-1) and the rest of SBA (OU-2, Overall Site). This report covers both of the OUs. The report is organized into sections that describe the history and setting of the site, remedial action decisions and implementation, and an evaluation of remedial actions. These sections are:

- Section 1.0 - Introduction
- Section 2.0 - Site Chronology (chronology of site events)
- Section 3.0 - Site Background (land use, site setting, the history of contamination, and initial response)
- Section 4.0 - Remedial Actions (the remedial actions implemented at SBA, the current status of the remedies, the operation and maintenance, and the cost)
- Section 5.0 - Progress Since Last Five-Year Review
- Section 6.0 - Five-Year Review Findings (activities performed during the five-year review process)
- Section 7.0 - Technical Assessment (assessment of the remedial action implemented at SBA)
- Section 8.0 - Issues and Recommendations (identified site issues, recommendations and follow-up actions)
- Section 9.0 - Protectiveness Statement
- Section 10.0 - Next Five-Year Review



**FIGURE 1-1
MAP OF ALVISO**

2.0 Site Chronology

Table 2-1 provides a chronology of events at SBA.

TABLE 2-1
 Chronology of Site Events
Second Five-year Review Report for South Bay Asbestos Superfund Site, San Jose, California

Event	Date
Three landfill areas within SBA receive asbestos waste (from asbestos-cement pipe manufacturing plant)	1953 - 1982
Congress enacts CERCLA	1980
Large flood occurs in Alviso; City of San Jose constructs Ring Levee for protection	Mar-1983
Presence of asbestos contamination identified in Alviso and Ring Levee	Aug-83
SBA is proposed to the National Priorities List (NPL)	Oct-84
SBA is finalized on the NPL	June-86
USEPA begins spraying Ring Levee with polymer dust suppressant	May-86
USEPA begins RI/FS	1986
OU-1 ROD (Ring Levee Capped in Place)	29-Sept-88
OU-2 ROD (Overall Site)	29-Sept-89
OU-1 Amendment (ROD Amendment, Ring Levee Removal)	26-June-91
USEPA issues RI	1988
USEPA issues FS	1989
USEPA issues Unilateral Administrative Orders (UAO) to truck yard owners	Sept-91
Remedial design plans submitted for paving truck yard areas (OU-2)	1992
Remedial action completed (paving) at truck yard areas (OU-2)	Dec-92
OU-1 ESD signed	Oct-93
Removal of Ring Levee (OU-1)	Dec-93
Removal Completion Report for temporary levee	Feb-97
Approval of remedial action (removal of ACSM) at 3 of 4 truck yard areas (OU-2)	May-98
Preliminary Close Out Report	Sept-98
First Five-Year Review	Sept-00
Removal project completed at Environmental Education Center	Nov-03
Deed restriction placed on Legacy Tech Park, Santos Landfill (OU-2)	Oct-04
Approval of remedial action (removal of ASCM) at fourth truck yard area (OU-2)	Nov-04

3.0 Site Background

The South Bay Asbestos Superfund Site is located in the Alviso district of San Jose, California, at the southern edge of San Francisco Bay. This section provides site background including the land and resource use, the physical setting, the history of contamination, and the initial response to clean up the contamination.

3.1 Land and Resource Use

The site, which includes the community of Alviso, is a mix of residential, commercial, light industrial and agricultural land uses, comprising an area of approximately 550 acres in the northernmost neighborhood or section of the City of San Jose. About 1,700 residents live in Alviso.

3.1.1 Former Land Use

Asbestos-related manufacturing began in the Alviso area in the early 1950s. The Keasby & Mattison Company operated an asbestos-cement pipe manufacturing plant about four miles south of the site at 2885 Lafayette Street, Santa Clara, from August 1953 through June 1962. CertainTeed Corporation purchased Keasby & Mattison Company on June 1, 1962 and manufactured asbestos-cement pressure and sewer pipe and fittings until June 9, 1982. Though not much is known of the Keasby & Mattison operation, several types of waste were produced at the CertainTeed plant, including broken asbestos pipe, machining and processing waste, settling tank waste and empty bags. It has been reported that numerous Alviso residents used the waste asbestos-cement pipe to drain excess water from their properties before curb and gutter were installed.

Several landfills were located within the site boundaries, including the Santos, Marshland, and St. Claire Landfills. All three landfills were thought to have received asbestos-containing wastes. In addition, some site areas, such as truck yards, may have been filled with asbestos-containing soils in order to raise the elevation of their property to improve flood protection.

3.1.2 Current Land Use

Historically, Santa Clara Valley has been a major agricultural region. With the growth of the high tech industry, residential construction and service businesses rapidly expanded on former agricultural land.

The site, which includes the community of Alviso, is zoned for a mixture of residential, commercial, light industrial and agricultural land uses. It encompasses an area of approximately 550 acres in the northernmost neighborhood or section of the City of San Jose. Specific land uses include: grammar schools, small markets, restaurants, retail businesses, recreational areas including basketball and volleyball courts, commercial buildings such as the Legacy Tech Park, paved parking lots and landscaped areas.

3.2 Physical Setting

The site is a low-lying area susceptible to flooding due to its proximity to the San Francisco Bay and to the Guadalupe River and Coyote Creek. The site area is bordered by salt ponds to the north and by some of the last remaining Bay wetlands to the south and the west. Near Alviso, a fragment of the marshland survives as the New Chicago Marsh, a National Wildlife Refuge about 300 acres in size. Extensive withdrawal of groundwater for irrigation throughout the Santa Clara Valley area caused considerable ground subsidence of about six feet between 1934 and 1967. This is significant to the site history since Alviso became more vulnerable to flooding which may have been the underlying impetus for site landfilling activities (USEPA, 1998).

SBA is located on the edge of the San Francisco Bay. The overall northeasterly wind direction pattern reflects the sea breeze and topographic effects which strongly influence winds on a day-to-day basis in the South Bay area. A weak southeasterly return flow occurs in the late night and early morning hours (CDM et al., 1988). This type of information is especially pertinent at this site because of the pathway it can create for airborne asbestos fibers.

3.2.1 Geology/Hydrogeology

Within the community of Alviso, subsurface sediments consist of clay and silty clay. In contrast, the perimeter of the Marshland Landfill consists of mainly fill material and little clay. Fill material included concrete, wood, asphalt, metal, bricks, and other types of refuse.

SBA is located adjacent to the Guadalupe River, which along with Coyote Creek, Los Gatos Creek and Llagas Creek forms a major drainage basin within the Santa Clara Valley. The Guadalupe River and Coyote Creek flow into San Francisco Bay immediately north of SBA. Tidal effects near the Bay make the Guadalupe River water brackish and unsuitable for beneficial use except for non-contact recreation (CDM et al., 1988).

Aquifers of the Santa Clara Valley are composed of unconsolidated to semi-consolidated alluvial materials derived from the surrounding mountain ranges. Tidal and marine deposits are interbedded with these alluvial materials, becoming thicker in areas near San Francisco Bay. Confined and unconfined groundwater aquifers occur in the Santa Clara Valley. In the vicinity of SBA, the native sediments are predominantly fine-grained clays, silts, and sandy clays. These beds of fine-grained material are cut by ancient stream channels at varying depths below the surface. Wells and borings drilled for the 1988 Remedial Investigation (RI) encountered only clay and silty clay in the upper 20 to 30 feet below the site. The low permeability of the sediments resulted in very low flow rates during well sampling (CDM et al., 1988). Additional data and detailed maps can be found in the 1998 RI report prepared for USEPA by Camp Dresser and McKee.

The field investigation revealed that the groundwater table occurs between 5 and 10 feet below ground surface (bgs) in Alviso. Groundwater flow direction at the site is unclear due to the flatness of the topography, the river, salt evaporation ponds, and water mounding at the Marshland Landfill. Groundwater in the Alviso area is brackish and too saline for drinking or irrigation. This is reflected in the high concentrations of constituents such as

calcium, sodium, magnesium, and potassium that were found in groundwater samples collected during the RI (CDM et al., 1988).

3.3 History of Contamination

Portions of the site served as dumping areas for over 30 years. Three landfill areas within the site (Santos, Marshland, and St. Claire Landfills) were thought to have received asbestos waste from an asbestos-cement pipe manufacturing plant from 1953 until 1982. Several types of waste that were produced at the plant were transported to the landfills, including broken asbestos/cement pipe, machine and processing waste, and asbestos fiber bags. In addition, some areas, such as a number of truck yards, may have been filled with asbestos-containing soils in order to improve flood protection.

In 1983, a large flood occurred in Alviso and the City of San Jose constructed a levee around the town (which became known as the Ring Levee) in order to pump out the flood water. It was about two miles long, six feet high, and twenty feet wide. The levee material was taken from the Raisch Quarry at 55 Hillside Avenue in San Jose and was later found to contain serpentine, which can be a source for naturally occurring asbestos.

Waste asbestos/cement pipe was discovered in August 1983 in the levee of the Guadalupe River in the City of Alviso. The discovery occurred on property owned by the City of San Jose during construction of a flood control outfall structure. An industrial hygienist from the California Occupational Safety and Health Administration (Cal-OSHA) collected samples of excavated material which were found to contain concentrations of asbestos ranging from 20 percent to 40 percent by weight. Cal-OSHA referred the situation to the California Department of Health Services (DHS). In 1986, DHS referred the site to USEPA. Since then, USEPA has served as the lead agency.

3.4 Initial Responses

Government agencies have been regulating SBA since the mid 1980s. In 1983, after confirming the presence of asbestos in the Guadalupe River levee, DHS ordered Santa Clara Valley Water District (SCVWD) to remove all the asbestos-contaminated soil. DHS then collected additional samples of soil throughout the city of Alviso. Those sample results indicated that the asbestos was randomly distributed through the community of Alviso, including the Ring Levee. The sample results indicated that there was asbestos in the Ring Levee (as high as 40 percent) and in surface soils within the town near the Ring Levee. The higher values of asbestos in soils, ranging from 5-20 percent, were found in an unpaved street and parking lot and truck yards which indicated areas where Ring Levee building material may have been stockpiled during construction. Due to these findings, USEPA proposed SBA for inclusion on the National Priorities List (NPL) in October 1984.

In June and August 1985, DHS conducted “worst case” scenario field experiments at the Ring Levee to determine if the asbestos present in the soils could pose a significant health risk. DHS forwarded the results to USEPA which in turn forwarded the result to the Department of Health and Human Services, Agency for Toxic Substances Control and Disease Registry (ATSDR). ATSDR recommended remedial measures be implemented to “stabilize those sites to prevent the asbestos from being suspended in the air where

residents may inhale the fibers.” By 1986, DHS referred SBA to USEPA for further investigation and possible remediation when DHS determined that funding was not available. The South Bay Asbestos site was placed on the final NPL in June 1986.

Based on initial results, USEPA conducted several emergency cleanup actions under removal authority to immediately reduce the potential for asbestos exposure. These actions were carried out from 1985-1987 and included:

- Paving a lot adjacent to the George Mayne School;
- Paving an unpaved section of Spreckles Avenue;
- Removing an asbestos debris pile and chip sealing the road and parking lot at the Environmental Education Center, where the City of San Jose had installed culverts in a salt pond levee to help in draining floodwaters; and
- Twice spraying the Ring Levee with a dust-suppressing polymer.

The polymer dust suppressant was sprayed in May 1986 and in 1987. The City of San Jose took over the spraying from 1988 until the levee was removed in 1993.

Also in 1986, USEPA initiated a Remedial Investigation/Feasibility Study (RI/FS) for the entire site which was completed in February 1989. The primary contaminant of concern was asbestos, a known human carcinogen.

3.5 Basis for Taking Action

USEPA began remedial investigation and feasibility study activities at SBA in 1986. The site-wide RI, as a culminating effort of those numerous studies and investigations, was completed in October 1989. The objectives of the RI were to characterize physical conditions, and to characterize the nature and extent of contamination at the site and the extent to which this contamination may pose a threat to human health and the environment. The greatest health threat to people at the site was the inhalation of airborne asbestos fibers that have the potential to cause lung disease. In order to determine the extent of asbestos contamination, USEPA conducted extensive soil and air sampling throughout the community. The soil sample results were consistent with those described above. The Ring Levee, truck yard areas and several unpaved roads and lots contained the highest levels of asbestos. Soil sample results also indicated that asbestos was randomly distributed throughout the community of Alviso, albeit at much lower levels.

Extensive ambient air sampling for asbestos was conducted during the period of July to October 1987 as part of the RI investigation. The concentrations of asbestos measured at the air sampling stations within Alviso averaged 3 to 6 times higher than those located outside the community. USEPA concluded that man-made disturbance of asbestos in soils, especially from truck traffic on unpaved yards, was the primary cause of airborne asbestos in Alviso. Based on these results, the risk assessment concluded that the ambient air in Alviso presented an elevated risk of lung cancer due to the potential for asbestos exposure. Because of the determination that these potential risks existed, USEPA decided that remedial action was necessary.

4.0 Remedial Actions

In evaluating the nature and extent of the asbestos contamination in Alviso, USEPA divided the remediation into two parts. USEPA addressed the Ring Levee (OU-1) as a separate operable unit from the rest of SBA (OU-2, Overall Site). The following section summarizes the remedial actions selected and implemented at SBA as well as the operation and maintenance of the remedies.

4.1 Remedial Action Selection

4.1.1 Remedy Selection – Ring Levee Removal (OU-1)

The original ROD dated September 29, 1988 had required the Ring Levee to be capped in place with a vegetated soil cover. The two potentially responsible parties (PRPs) were identified as the City of San Jose, which constructed the Ring Levee, and the A.J. Raisch Paving Company (Raisch Co.), which supplied the asbestos-containing soil material.

Further negotiations with the PRPs resulted in USEPA issuing a ROD Amendment dated June 26, 1991, requiring the removal of the entire Ring Levee. This provided a permanent solution by removing the largest source of asbestos-containing material entirely from SBA. The ROD Amendment also required wetlands mitigation along with the restoration of previously existing wetlands underlying the levee. In a consent decree (CD) signed with USEPA, the City of San Jose and Raisch Co. agreed to perform the remedial action as required in the ROD Amendment. The CD became effective on October 28, 1991.

Specific components of the Ring Levee OU-1 ROD Amendment included the following:

- Removal of the entire asbestos-contaminated Ring Levee following completion of the Coyote Creek Flood Control Project
- Continued spraying of the levee (semiannually or as needed) with a polymer sealant for dust control until the levee was removed
- Conducting post-removal soil sampling to confirm that the asbestos-contaminated Ring Levee material was excavated and removed to pre-existing conditions
- Off-site disposal of the levee material in compliance with state and federal requirements
- Restoration of the previously existing wetlands underlying the levee as well as mitigation for the lost wetlands values
- Implementation of stringent dust control measures prior to and during levee removal

In addition to the remedial activities described above, the CD required that a Community Outreach Plan be implemented to keep residents of Alviso informed of the Remedial Design/Remedial Action (RD/RA) progress.

An ESD was signed on October 18, 1993 to clarify certain aspects of the ROD Amendment. The ESD was issued to allow the removal of the Ring Levee in the Fall of 1993 approximately two years prior to the anticipated completion of the Coyote Creek Flood Control Project. Also, because of concerns expressed by the SCVWD and the City of San Jose that a Ring Levee around the community of Alviso is necessary to provide some degree of flood control, the ESD modified the remedy to require the following:

- Construction of an interim replacement levee, using clean material and;
- Removal of the interim levee within one year following the completion of the Coyote Creek Flood Project.

4.1.2 Remedy Selection - Overall Site (OU-2)

The selected remedy for the overall site (OU-2) was established in a separate ROD dated September 29, 1989. The OU-2 selected remedy was Alternative No. 2 as described in the 1989 ROD. The remedies and actions included the following:

- Placing of deed restrictions on landfills after assessing the adequacy of the existing cover material to meet requirements for thickness
- Paving of truck yards where asbestos is found in soils at concentrations greater than one percent and where there is significant vehicular traffic
- Establishing institutional controls to ensure maintenance of the remediation
- Wet sweeping of Alviso streets to control dust emissions
- Removal of any obvious sources of asbestos waste debris such as pipes

USEPA is evaluating the use of Post-Closure Maintenance and Reuse of Disposal Sites regulations ("Landfill Closure Regulations") at 27 CCR §§ 21100 *et. seq.* ("Title 27") for the Summerset Mobile Estates (SME) portion of Santos Landfill and the St. Claire Landfill. If it is determined that reliance on Title 27 Landfill Closure Regulations provides similar protectiveness as deed restrictions, USEPA may remove the deed restriction requirement in the original ROD from these landfills. The Marshland Landfill has been regulated by the California Regional Water Quality Control Board, San Francisco Bay Region (RWQCB) as a Class III landfill and is subject to the closure and operation and maintenance (O&M) requirements of the RWQCB as well as the requirements of the California State Integrated Waste Management Board. USEPA will prepare an ESD by September 2006 that will specify that no further controls are needed at the Marshland Landfill and that the state requirements meet the deed restriction requirement in the ROD. This is described in further detail in Section 4.2.2.1.

4.2 Remedial Action Implementation

This section will focus on the implementation of the two RODs pertaining to permanent remedies at SBA. The Ring Levee removal is designated OU-1 and the overall site area is designated as OU-2. A third removal action not associated with either ROD was conducted in late 2004, to remove asbestos-containing soil material along a road berm and levee trail at

the Environmental Educational Center at the site. The removal action was conducted to mitigate potential endangerment of human health and/or the environment.

4.2.1 Remedial Action (RA) Implementation—Ring Levee (OU-1)

In the early 1990s, there was a growing concern raised by the residents of Alviso over the potential health threat from asbestos and environmental justice issues related to the City of San Jose's response to the Ring Levee contamination. At the same time, the opportunity to use a disposal site within three miles of Alviso became available at no cost. In 1993, the City and Raisch Co. performed an expedited removal of the Ring Levee, a full two years earlier than the consent decree required. The Remedial Design for the Ring Levee removal project began in July 1993. The primary concern was the potential for increased exposure to airborne asbestos during levee excavation. To ensure that the levee was being removed safely, extensive requirements were put into the Remedial Design (RD) plan for dust control and asbestos air monitoring on the perimeter of the work zone and in adjacent residential areas. In order to verify that excavation and dust control methods were adequate, a pilot field test was undertaken on October 7 and 8, 1993. A 600-foot section of the levee was removed using the proposed construction and dust control techniques and air monitoring program outlined in the RD report. Air monitoring results from the pilot study showed asbestos levels were consistently less than the action level established by USEPA.

Based on the results of the pilot study, the RD plan was approved and the notice to proceed with the remedial action was issued to the PRPs on October 15, 1993. The remedial construction activities (Figure 4-1) were carried out in the manner described below.

4.2.1.1 Ring Levee Removal

Removal and replacement of the levee commenced on October 19, 1993. The levee was pre-wet by a water truck for dust control and cleared of any debris and vegetation. The levee material was excavated by bulldozers and a skiploader was used to prepare the final grade. The water truck sprayed water just ahead of the bulldozers in order to keep the soil moist and to reduce dust. A front-end loader was used to load the dump trucks. A second water truck was used as necessary to control visible dust emissions by manually spraying water over the soils as they were loaded into the dump trucks. Each dump truck was driven slowly to the decontamination station and secured with a tarp cover prior to being driven to the disposal site. Removal of the Ring Levee was completed in December 1993 and a final inspection was conducted on January 25, 1994.

4.2.1.2 Confirmation Soil Sampling

Ring levee soil removal was required to the pre-existing grades. After each portion of the levee was removed, soil samples at the surface and one foot deep were analyzed for asbestos to confirm that soil had been excavated to a sufficient depth. Based on the test results, an additional foot of soil had to be removed whenever 1 percent asbestos was exceeded. Imported soil material used in the construction of the temporary replacement levee was also tested for asbestos and other potentially hazardous chemicals. Test results showed that the imported soil was not contaminated and acceptable for use in the temporary levee.

4.2.1.3 Air Monitoring

There were four air monitoring methods used to ensure that dust control measures were effective and that the construction workers and nearby residents were not exposed to any significant amount of asbestos as a result of project activities:

- Visually observing the work area for any visible dust emissions.
- Personal air monitoring of workers as required by the Occupational Safety and Health Act (OSHA).
- Using three fiber-counting instruments around the work area to continuously measure the fiber concentrations in air. If the OSHA standard of 0.10 fibers per cubic centimeter (f/cc) was exceeded, an alarm bell would sound.
- Taking air samples for laboratory analysis using transmission electron microscopy (TEM), the most precise method available for measuring asbestos fibers. Five ambient air monitoring devices were used: three were placed adjacent to the work zone between the work area and the nearest residences; and two were located as background stations, one upwind at the Environmental Education Center and the other in the central Alviso community.

Air monitoring results showed that removal of the levee material posed no health threat to the project workers or residents of Alviso. The TEM test data indicated that asbestos levels in air never exceeded the 0.150 f/cc action level which would have required work stoppage. On only five occasions, asbestos levels exceeded the 0.015 f/cc action level requiring additional monitoring efforts. Test results from these additional sample analyses were below the action levels and showed that there was no extended period of exposure.

4.2.1.4 Ring Levee Material Disposal

The asbestos-containing levee soils were buried and encapsulated within a highway bridge embankment being constructed at Highway 237 and Zanker Road. A minimum of four feet of clean soil and the additional surface roadway pavement were required to cap the disposal site. The re-use of the levee material was considered a safe disposal practice and approved by USEPA and the California Department of Toxic Substances Control (DTSC). A total of approximately 25,000 cubic yards of asbestos-containing soil material were removed and permanently encapsulated under the highway embankment.

4.2.1.5 Temporary Levee Construction

Since the levee removal project was accomplished two years early, a temporary replacement levee using clean soil material had to be constructed. It was needed to provide interim flood control protection until the flood control improvements for Coyote Creek were completed. Then the temporary levee could be safely removed and the wetlands restoration work could be carried out. Construction of the temporary levee was completed in January 1994 in the same location as the original Ring Levee had been built.

4.2.1.6 Inspections and Reporting

During the design and construction of the Ring Levee removal and replacement project, oversight was provided on behalf of USEPA by the U.S. Army Corps of Engineers (USACE).

All RA work was observed, inspected and documented on a daily basis by USEPA or a representative of the USACE. A pre-final inspection was conducted on January 25, 1994 by USEPA with representatives of the City of San Jose and Raisch Co., and it was determined that the RA activities were completed according to all plans and specifications. The PRPs submitted a Remedial Action Report for removal of the asbestos-containing Ring Levee on September 23, 1996.

4.2.1.7 Removal of the Temporary Levee

Removal of the temporary levee was carried out when the Coyote Creek Flood Control Project was completed in 1996. Work began in August 1996 and the removal of the temporary levee was completed on October 1, 1996. No environmental controls were necessary since the excavated soil material had been previously tested and determined to be clean. USEPA conducted a final inspection of the Ring Levee removal project on October 2, 1996 with representatives of the PRPs (the City and Raisch Co.) and determined that the remedy was complete. A Temporary Levee Removal Completion Report was submitted to USEPA on February 19, 1997.

4.2.1.8 Wetlands Mitigation and Restoration Project

The objective of the Wetlands Mitigation and Restoration Project (wetlands project) was to replace and restore wetlands lost as a result of construction of the Ring Levee. The wetlands project was implemented by the City of San Jose once the levee was removed. The authority for the wetlands project was Section 404 of the Clean Water Act. The USACE has approval authority for the wetlands work in consultation with USEPA and United States Fish and Wildlife Service (USFWS).

The first phase of the wetlands project involved grading, which commenced in November 1996. Planting of new marsh plants (pickleweed, salt grass and alkali heath) was undertaken and the project was completed in December 1997. An inspection was conducted in August 1998 by all involved parties. Monitoring and maintenance of the wetlands by the City was required for five years until December 2002.

The USACE, in consultation with the USFWS and USEPA, conducted a final review of the *Alviso Ring Levee Wetlands Mitigation and Restoration Project Final Annual Report*, provided by Victor Chen of the City of San Jose on January 15, 2003. The report describes conditions at the mitigation and restoration sites that were established as a result of a Consent Decree between the federal government and the City of San Jose. The report provides the City's notice of project completion as required by the Consent Decree (Section XXXIV.B— Certification of Completion of Restoration and Mitigation Work).

By March 3, 2003, the USEPA Wetlands Program Office and Remedial Project Manager (RPM) had reviewed and approved the final report, providing comments to the USACE. Based on the February 19, 2003 site inspection by USEPA, all of the mitigation and restoration sites, with the exception of Restoration Reach 3 North and South, appeared to have met vegetation success criteria and were functioning as designed. Although vegetation coverage in Reach 3 North and South was below the target success criteria, USEPA stated that additional plantings are not warranted, given what appears to be high soil salinities or some other factor that is preventing the adequate establishment of vegetation (USEPA, 2003). USEPA recommended that no further action be taken. On May 13, 2003 the USACE

issued an approval letter to the City of San Jose, determining that the mitigation and restoration was complete and no further work was necessary (USACE, 2003).

4.2.2 RA Implementation—Overall Site (OU-2)

All construction activities for OU-2 at the South Bay Asbestos site have been completed (Figure 4-2). This section describes the history and plans for implementation of the remedial actions.

4.2.2.1 Landfill Areas

The ROD required that USEPA conduct the sampling portion of the RD to determine whether or not the three landfill areas met the requirements for cover material thickness. Three landfill areas (Santos, Marshland and St. Claire) were sampled in 1990. Figure 4-2 provides a site map for the landfill areas. Soil samples were taken from the top two feet of each landfill. The landfill cover requirements under the Clean Air Act's National Emission Standards for Hazardous Air Pollutants (NESHAPs) call for two feet of unvegetated soil cover or six inches of vegetated soil cover where it is known that asbestos waste has been buried. Test results showed that the soil covers at the Santos, Marshland, and St. Claire Landfills were acceptable and that the landfills were in compliance with NESHAPs cover requirements. Therefore, the only remedial action required for the landfill areas were deed restrictions (including maintenance requirements) to ensure that the cover is inspected and maintained by present and future owners and operators.

The Santos Landfill, which has been an inactive waste disposal site since the early 1960s, has two separately owned parcels. One deed restriction was placed on the portion of the Santos Landfill owned by Legacy Partners, where a commercial office development known as Legacy Tech Park was built in 1998. The area of development is shown on Figure 4-3. As part of an agreement with the developer, the deed restriction was established on October 21, 2004. Legacy Tech Park was built under a prospective purchaser agreement (PPA) with USEPA. Extensive asbestos control methods were required during construction under a Soil Management Plan (SMP). Under the SMP, soil wetting, dust suppression and asbestos ambient air monitoring were conducted. Asbestos piping that was excavated was segregated and disposed at an approved asbestos landfill site. The PPA required that the site cap be constructed, maintained, and inspected annually. The cap consists of concrete slab floors and 60-mil thick high density polyethylene liners beneath the five buildings; asphalt and concrete pavement beneath the exterior parking areas and walkways; and 18 inches of imported topsoil beneath landscaped areas.

The SMP also requires a five-year cap inspection to be conducted and report to be provided to USEPA. Review of the Five-Year Cap Inspection Report (Brown and Caldwell 2004) indicates that Legacy Tech Park is well maintained with no signs that would suggest that the integrity of the cap is compromised. The visual inspection conducted on January 20, 2004 also included accessible building base exteriors, paved surfaces and landscaped areas. The Five-Year Cap Inspection Report states that no major cracks, holes or degradation were observed in the building base exteriors, paved areas or landscaped areas. USEPA confirmed these findings during recent site inspections conducted during June and July 2005 for this Five-Year Review.

The second parcel of the Santos Landfill, which has been occupied by the Summerset Mobile Estates trailer home park since the mid 1970s, is owned by the Santos family estate. In the mid-1990s, USEPA required the owner of the SME portion of the Santos Landfill to conduct a site investigation on his property for asbestos and other soil contaminants, including metals, polychlorinated biphenyls (PCBs), pesticides, and volatile organic compounds (VOCs). Test results for asbestos, which were primarily non-detect, confirmed that the soil cover at SME met the requirement for two feet of clean fill. Additional air sampling was conducted in the crawlspaces under the mobile homes for potential VOC vapor intrusion, and test results showed levels to be under USEPA action levels. The results for all other contaminant levels were below health-based criteria. Additionally, San Jose Local Enforcement Agency (LEA) methane gas monitoring records since 1995 have shown that the state regulatory limits have not been exceeded within the mobile home structures or at the landfill perimeter boundary. There is no deed restriction on the property; however, the LEA conducts quarterly inspections of the SME property for cap integrity and maintenance.

USEPA is evaluating the use of CCR Title 27 Landfill Closure Regulations for the Summerset Mobile Estates portion of Santos Landfill and the St. Claire Landfill. Title 27 regulations address the concerns that the remedy assumed would be met through deed restrictions. If it is determined that Title 27 regulations provide similar protectiveness, USEPA is considering using the Title 27 regulations as governmental controls in lieu of deed restrictions to prevent cap disturbance and exposure to asbestos-containing waste.

The Marshland Landfill, presently known as the Legacy America Center, has been regulated by the RWQCB as a Class III landfill. The present owner, Legacy Partners, entered into a PPA with USEPA when they purchased this property for the development of a commercial office complex on the site. The PPA required that extensive asbestos control measures be implemented during construction under an SMP including soil wetting, dust suppression and asbestos ambient air monitoring. The PPA also required approval by the RWQCB of its closure and development plan prior to the start of construction in October 2000. A final closure and development plan was approved by the RWQCB in September 2000, which required over four feet of cover. This greatly exceeds the minimum NESHAPs cover requirements for asbestos waste.

The landfill closure activities, including excavation and relocation of landfill materials onsite and construction of the final landfill site cap, were completed in March 2002. Certification of the landfill closure work was provided in the Construction Quality Assurance Report, America Center prepared by Treadwell & Rollo (May 2002). The certification report was approved by the RWQCB in a September 18, 2002 letter to Legacy Partners.

The SMP also requires a five-year cap inspection to be conducted and a report to be provided to USEPA. Review of this Five-Year Update Report (Crawford Consulting Inc. 2005) indicates that the site cap is well maintained with no signs that would suggest that the integrity of the cap is compromised. The visual inspection was conducted on August 29, 2005 concurrent with the quarterly inspection under the landfill's Discharge Monitoring Program. The Five-Year Update Report states that no erosion or damage to the cover was observed and that no repairs to the cap are necessary. Also, the Five-Year Update indicates that the soil and waste management procedures as described in the SMP are still valid for any future development that may occur at this site. Legacy Partners is managing the planned redevelopment of this former landfill, although the site currently remains vacant.

Since this landfill has been regulated by the State, it is subject to the closure and O&M requirements of the RWQCB as well as the requirements of the California State Integrated Waste Management Board, which requires the LEA to conduct quarterly inspections and includes imposition of a deed record which notifies future owners of the closure plan and environmental restrictions on the property. USEPA determined that for this property the existing Title 27 regulations for closed disposal sites provided adequate long-term controls to ensure the integrity of the cap; therefore, deed restrictions were not necessary. USEPA will prepare an ESD by September 2006 that will specify the State's institutional controls meet the requirements of the ROD for a deed restriction.

4.2.2.2 Truck Yards

Eleven truck yards were sampled for asbestos in soil during 1990 and four of these properties (Figure 4-2) met the ROD criteria for paving, having greater than 1 percent asbestos in the soil and significant vehicular traffic. Paving of these four truck yards was done to control the release of asbestos into air from areas of heavy soil disturbance caused by truck traffic. Based on these results of the RD soil sampling analyses for asbestos, USEPA issued Unilateral Administrative Orders (UAOs) under Section 106 of CERCLA to each of the four truck yard owners and operators (September 30, 1991). All of the PRPs were cooperative and complied with the requirements of the UAOs throughout the RD/RA process. The truck yards needing paving were ordered to submit an RD plan. For two of the four truck yards, the design plans were approved by USEPA and paving was completed by May 1992. The remaining two paving projects were approved and completed during the Fall of 1992. Final inspections of these four truck yards were completed by December 1992. Two of the yards were paved with four inches of asphalt and one with six inches of concrete. The fourth received a double application of chip seal pavement.

During paving work at all four yards, water was applied to the soil as a dust suppressant. On three of the yards no excavation or grading was required; therefore, air monitoring was not conducted. On the one yard which was paved with chip seal, some soil excavation and grading was needed, so personal air monitors were used to sample for asbestos in the work zone. Air sampling results were below the 0.10 f/cc action level.

The RA Completion Report for the Truck Yard Areas (OU-2) was signed by USEPA Region IX on September 30, 1993. USEPA determined that the paving remedy was completed in full satisfaction of the UAOs. The orders also contained O&M requirements including annual inspections of the paving remedy and making any needed repairs. To fully implement the ROD, institutional controls (deed restrictions) were needed to ensure long-term maintenance of the paving remedy. As an alternative to deed restrictions, three of the truck yard owners proposed to excavate the areas contaminated with over 1 percent asbestos. These excavated areas would then be re-sampled for asbestos to confirm that the asbestos-contaminated soil had been removed. The plan to conduct this work dated July 3, 1997 was approved by USEPA. The excavation and soil sampling was conducted in October 1997 and the soil test results were all below 1 percent, which confirmed that the asbestos had been removed. A completion report dated January 8, 1998 was provided for this work, and USEPA concluded in a letter of May 1, 1998 that the asbestos soil contamination had been effectively removed from the three truck yards. Consequently, the need for permanent capping, maintenance requirements or deed restrictions had been eliminated at these three truck yard areas.

Only one remaining truck yard area which had not been excavated required long-term controls. This property was owned by Russell Neu. A deed restriction, including long-term O&M requirements, was planned for the property since asbestos-containing soil remained in place. Eric Yunker, USEPA Remedial Project Manager, spoke with Mr. Neu during a site visit conducted on September 20, 2000, and Mr. Neu indicated that he would voluntarily agree to placement of the deed restriction on his property. This deed restriction was going to be implemented by the DTSC. Subsequently, Mr. Neu decided to excavate and remove asbestos-containing soil material from his property. An Excavation Work Plan was submitted to USEPA on August 25, 2004 for excavation followed by confirmation sampling. Pursuant to the Work Plan, approximately 1,700 cubic yards of excavated soil material was transported and disposed of at the Nine-Par Landfill, operated by the City of San Jose. The soil material was removed where asbestos occurred above one percent. On the basis of the results of the confirmation soil sampling, USEPA concluded that the asbestos contamination was effectively removed from the property. Because of this removal, the requirements of the ROD no longer apply and deed restrictions are not necessary.

4.2.2.3 Wet Street Sweeping

Wet sweeping of Alviso streets has been conducted to control dust emissions by the City of San Jose on a monthly basis since Fall 1989, as part of a permanent city-wide street cleaning program. The practice has been ongoing in accordance with the 1989 ROD for OU-2.

4.2.2.4 Removal of Obvious Sources

The ROD also required removal of any obvious sources of asbestos waste debris. No sources were found in Alviso.

4.3 Removal Action at Environmental Education Center (EEC)

Subsequent to the removal activities at OU-1 and OU-2, in September 2003 USEPA joined the City of San Jose under an Action Memorandum to mitigate threats to human health and the environment posed by the presence of asbestos-contaminated soils located at the EEC at the SBA site. This removal project was a joint venture between the USEPA and the City of San Jose to remove asbestos-containing soil material (ACSM) and to restore the project area at the EEC, within the San Francisco Bay Wildlife Refuge. The project area included an approximately 1,200-foot road berm constructed on the eastern edge of the EEC's main access road and an approximately 400-foot levee trail, partially built over culverts and extending to the garage area to the south.

Under the Action Memorandum, removal activities that were to be performed by the USEPA included:

- Excavating approximately 4,500 cubic yards of asbestos-containing soil material from the road berm and levee trail areas (all existing culverts were to be removed)
- Complying with the South Bay Asbestos site cleanup level of 1 percent
- Collecting confirmation samples, as needed, to ensure the cleanup level is being attained

- Transporting the excavated ACSM in trucks to the Nine-Par Landfill at 705 Los Esteros Road, San Jose, provided by the City of San Jose for this project
- Implementing dust control measures to prevent visible dust emissions into the air during excavation activities by spraying ACSM with water

Once the ACSM was deposited at the Nine-Par Landfill, the City was required to restore the project area and to take responsibility for the following:

- All landfill operations with regard to the ACSM (i.e., water spraying for dust control, compaction, and placing of cover material)
- Sampling and testing the backfill material to confirm that it is clean according to the sampling plan agreed to between USEPA and the City on September 23, 2003
- Grading the clean backfill to conform to site conditions
- Implementing erosion control measures after backfilling

The *South Bay Asbestos Removal Final Letter Report* (Ecology & Environment, Inc. [E&E], 2004) dated January 9, 2004, indicates that the extent of the excavation was determined by USEPA, USFWS and City representatives during a site walk on October 1, 2003. The access road berm and the levee trail berm were excavated during late October through early November 2004. USEPA, USFWS and City representatives made the determination that approximately 450 linear feet of soil along the main access road berm and approximately 1,100 linear feet of soil along the levee trail berm would be excavated. The Final Letter Report states that approximately 2,500 cubic yards of ACSM were excavated and disposed of at the City-owned 9-Par Landfill. Since a portion of the berms served as a dike to retain the tidally influenced water of Mallard Slough from flooding New Chicago Marsh, the depth of the excavation of soil in the berms was limited by mean high tide levels. Confirmation sampling conducted by the USEPA's support contractor (E&E) documents that the asbestos-containing soil that exceeded the site action level was removed from the majority of the berm areas. While average asbestos concentrations in the lower limit of the excavations exceed the site action level in two of the decision units (B and G), the average concentration of asbestos remaining in the lower limit of each berm excavation did not exceed the action level (E&E, 2004). Sample data from Decision Unit E also document that ACSM above the action level was found in soil at the end of the levee trail. Note that the City of San Jose backfilled all excavated areas with several feet of clean soil cover.

4.4 Operation and Maintenance

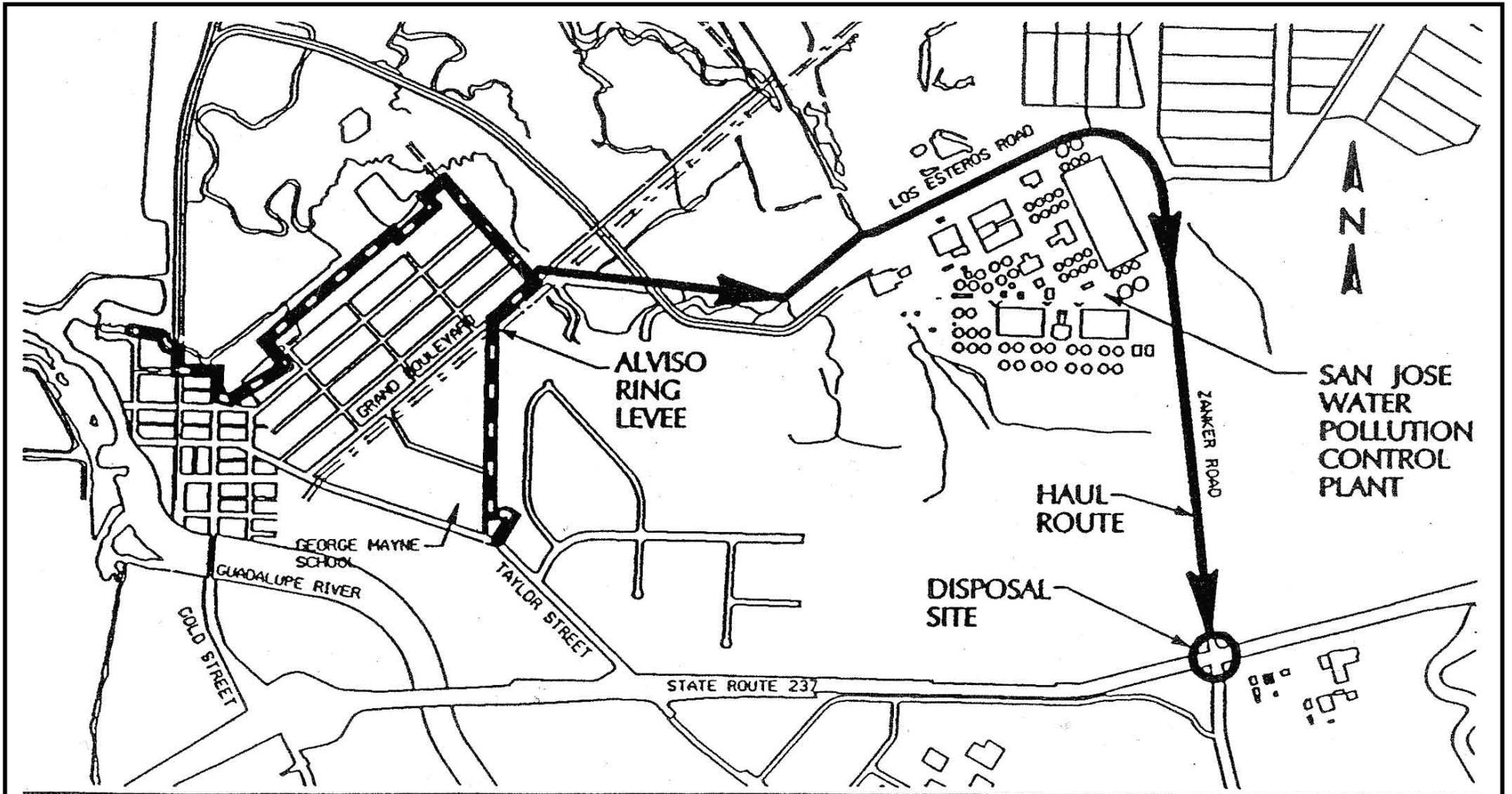
This section summarizes routine preventative maintenance for the SBA Superfund site. The operation, maintenance and monitoring activities for OU-2 are focused on institutional controls, as described below.

The institutional controls for the site landfills consist of three primary objectives:

- Prevent exposure through preventing breaching of the cap;
- Maintain the cap; and
- Provide notice to future owners and property users.

These objectives are ensured through periodic monitoring by the LEA. The City of San Jose LEA conducts quarterly inspections of these site landfills to ensure compliance with the applicable Title 27 standards. As the LEA, the City is required to inspect closed landfills quarterly until no potential threat exists to public health and safety or the environment. Also, all post-closure land uses must be designed and maintained to protect public health and safety, and must maintain the integrity of the cap. Landfill owners are required to file a detailed description of the site (including a map, boundaries of fill area, closure date, location of closure and post-closure plans, and a statement indicating how future site use is restricted) with the County Recorder and the LEA. In addition, landfill owners are required to: (1) notify prospective owners of the applicable standards, conditions of closure and compliance agreements, and (2) notify the LEA within 30 days of any property transfer.

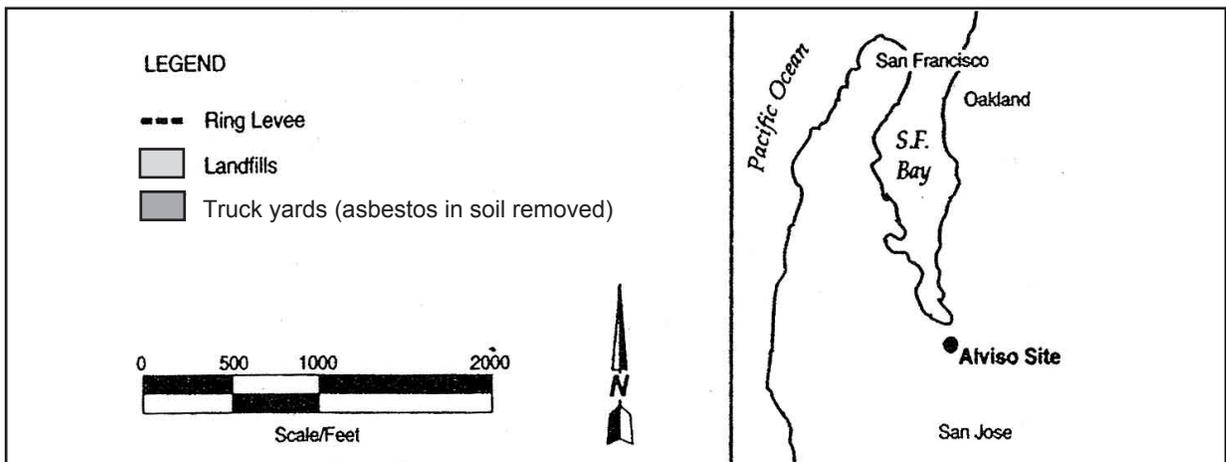
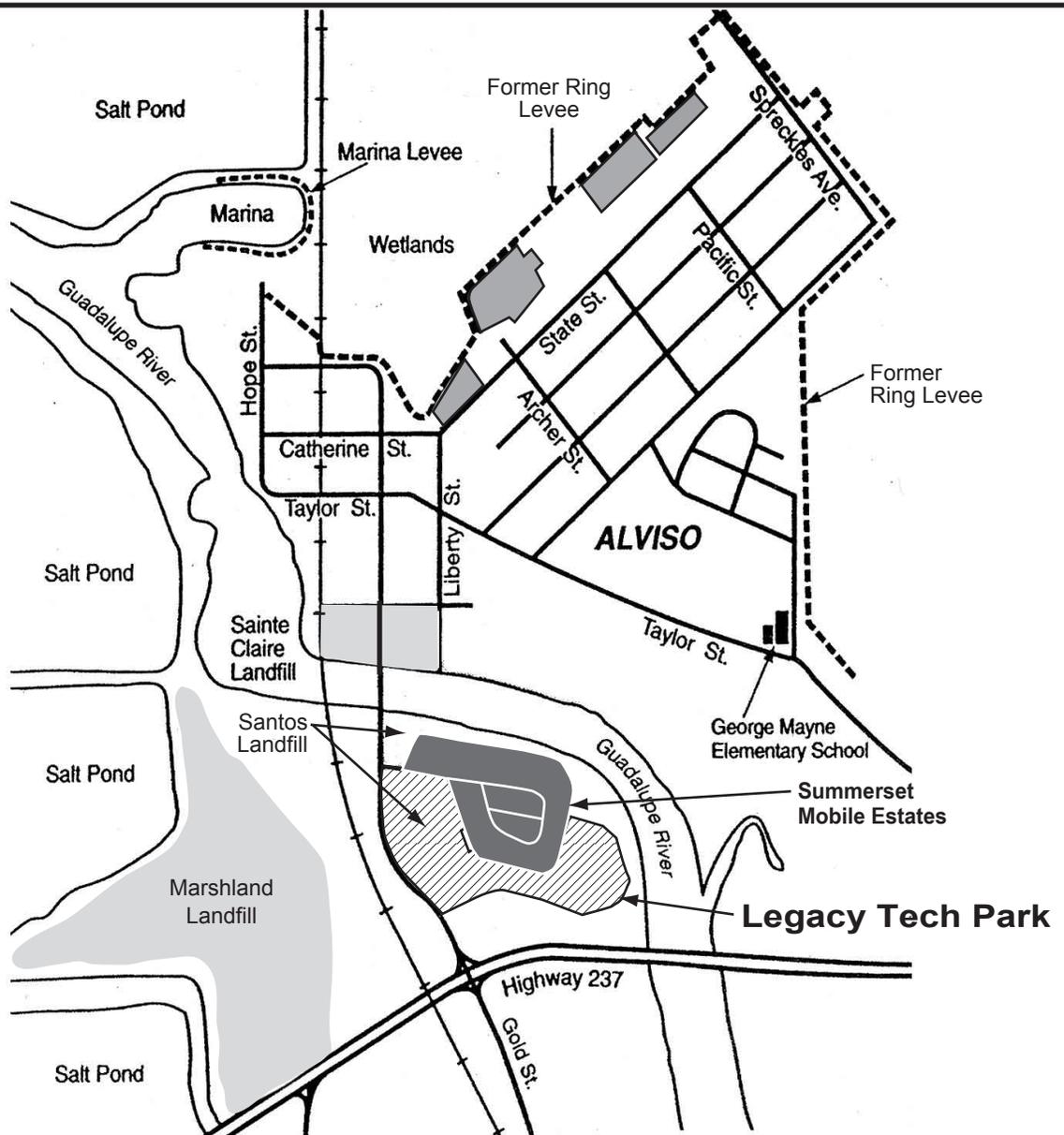
USEPA has no information regarding the project O&M costs for maintenance of the landfill caps since there have been no significant maintenance activities required during the past 5 years. All inspections have revealed the caps are in good condition with minor asphalt crack repairs conducted at a minimal cost.



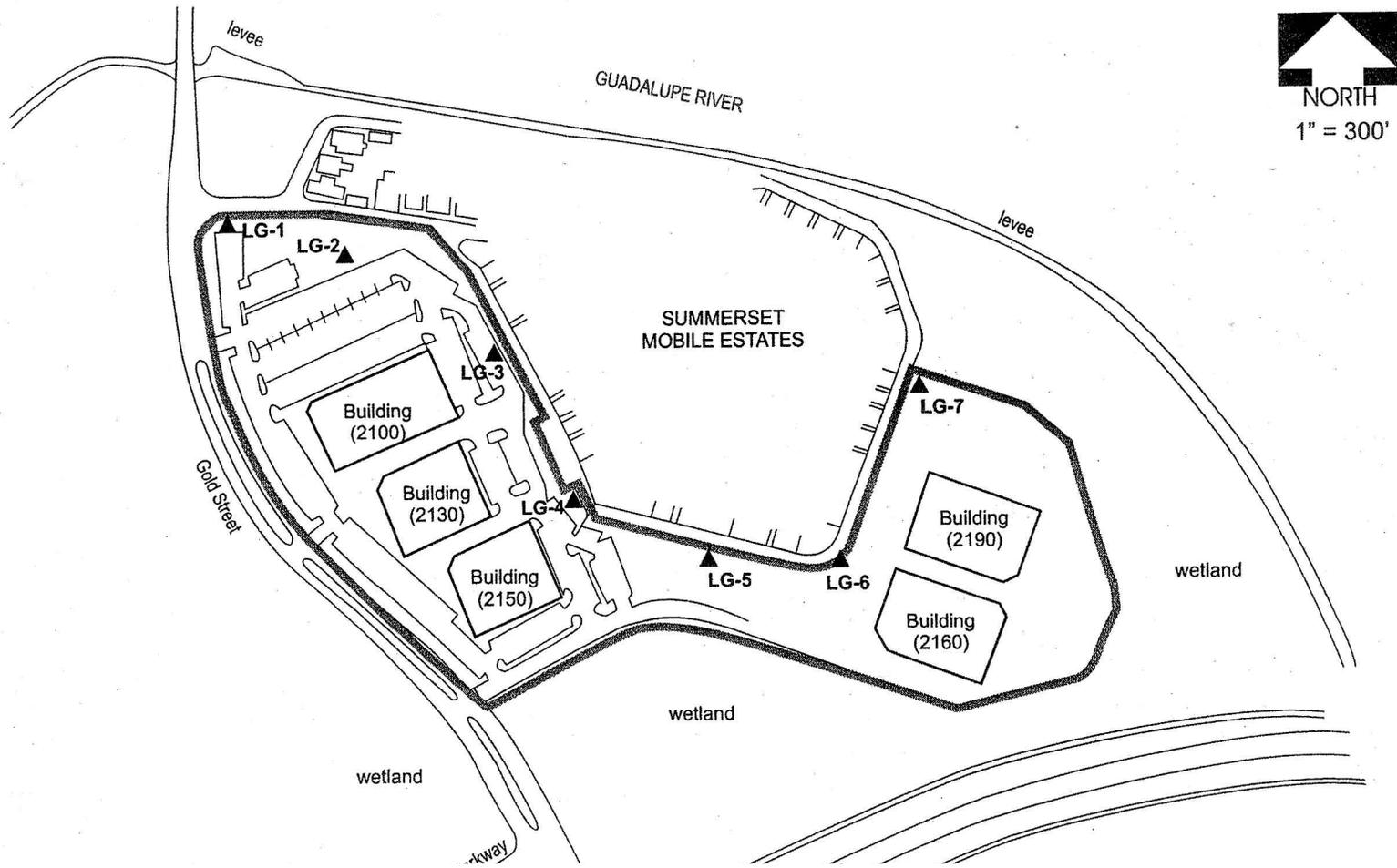
LEGEND

-  RING LEVEE
-  HAUL ROUTE

**FIGURE 4-1
ALVISO RING LEVEE
REMOVAL AND REPLACEMENT**



**FIGURE 4-2
SOUTH BAY ASBESTOS SITE**



KEY

▲ LG-2 Subsurface landfill gas monitoring probe

----- Property boundary of Legacy Techpark @ 237

(2150) Street Number

**FIGURE 4-3
LEGACY TECHPARK, PORTION OF
FORMER SANTOS LANDFILL**

5.0 Progress Since Last Five-Year Review

The last five-year review conducted at the South Bay Asbestos Site was signed and dated by USEPA on September 29, 2000. The protectiveness statement for that review was as follows:

“I certify that the remedy selected for this site remains protective of human health and the environment. Site threats have been addressed. Measures are in place to prevent exposure and are effective: soil and paved caps.”

From the time of the issuance of the previous five-year review until present, several activities have occurred at the site:

- The Wetlands Mitigation and Restoration Project
- Truck yard soil removal project
- Landfill area
- Environmental Education Center removal action

These activities are described in the subsections below.

5.1 Ring Levee

5.1.1 The Wetlands Mitigation and Restoration Project

The objective of the wetlands project was to replace and restore wetlands lost as a result of construction of the Ring Levee. The wetlands restoration project was implemented by the City of San Jose beginning in 1996, once the temporary levee was removed. The first phase of the wetlands restoration involved grading of soil and planting of new marsh plants. Monitoring and maintenance of the wetlands by the City was required for a minimum of five years.

The City of San Jose submitted their final report and notice of project completion on January 15, 2003 which described conditions at the wetlands mitigation and restoration sites that were established during the previous seven years. The USACE, in consultation with the USFWS and USEPA, conducted a final review and site inspection on February 19, 2003. On May 13, 2003 the USACE issued an approval letter to the City of San Jose determining that the mitigation and restoration was complete and no further work was necessary (USACE, 2003). See Section 4.2.1.8 of this report for a more detailed description of this project.

5.2 Overall Site

5.2.1 Truck Yard Soil Removal Project

Surface soil containing over 1 percent of asbestos was excavated and removed from a portion of the truck yard by the owner, Mr. Russell Neu. Approximately 1,700 cubic yards of asbestos-containing soil material was excavated, transported and disposed of at the Nine-Par Landfill operated and owned by the City of San Jose. In a letter to Mr. Neu dated

November 5, 2004, USEPA determined that the results of the confirmation soil sampling showed that the asbestos contamination was effectively removed from the property. The excavated area was backfilled with clean soil and restored to its original grade. See Section 4.2.2.2 of this report for a more detailed description of this project.

5.2.2 Landfill Area

A deed restriction was placed on the portion of the Santos Landfill owned by Legacy Partners, where a commercial office development known as Legacy Tech Park was built in 1998. As part of an agreement with the developer, the deed restriction was established with the County Recorder on October 21, 2004 to ensure the long-term maintenance of the cap and to prevent the potential exposure to asbestos.

A visual inspection was conducted on January 20, 2004 by the owner of Legacy Tech Park. The Five-Year Cap Inspection Report (Brown and Caldwell 2004) indicates that Legacy Tech Park is well maintained and states that no major cracks, holes or degradation were observed in the building base exteriors, paved areas or landscaped areas.

During the past five years, the LEA conducted quarterly inspections of all three landfill areas, Santos (including the Summerset Mobile Estates and Legacy Tech Park), St. Claire and Marshland, in order to ensure that there were no threats to public health and the environment. The inspection reports indicate that there were no issues reported which required any maintenance or repairs related to the landfill caps. See Section 4.2.2.1 of this report for a more detailed description of these landfills.

5.2.3 Environmental Education Center Removal Action

In September 2003, USEPA joined the City of San Jose in an agreement to remove ACSM and to restore the project area at the EEC within the San Francisco Bay Wildlife Refuge. The project components, which were used to control flood and tidal waters, included an approximately 1,100-foot road berm and an approximately 450-foot levee trail. The USFWS, which is responsible for managing the Refuge, issued a Special Use Permit for the project in October 2003.

The removal action was performed by the USEPA from October 29-November 2, 2003. Approximately 2,500 cubic yards of ACSM was excavated from the road berm and levee trail areas and all existing culverts under the levee trail were removed. The excavated ACSM was transported in trucks to the Nine-Par Landfill which was provided by the City of San Jose for this project. Dust control measures were implemented to prevent visible dust emissions into the air during excavation activities by spraying ACSM with water. The SBA Removal Final Letter Report was issued on January 9, 2004.

The City was responsible for all landfill operations with regard to the ACSM (i.e., water spraying for dust control, compaction, and placing of cover material) and for full restoration of the site (i.e., backfilling the excavated areas to original site conditions). In December 2004, the USFWS concurred with the closeout of the project. See Section 4.3 for a more detailed description of this project.

6.0 Five-year Review Findings

6.1 Administrative Components

Eric Yunker, USEPA Remedial Project Manager, led the five-year review team which included members of the Regional Technical Support Staff with expertise in soil remediation, toxicology and risk assessment and the Community Involvement Coordinator. CH2M HILL also provided technical support to the USEPA. The five-year review consisted of a review of relevant documents (see Appendix A), a regulatory review, a site inspection, and interviews with community residents.

During June 2005, the review team established the review schedule whose components included the following:

- Community Involvement
- Document Review
- Data Review
- Site Inspection
- Local Interviews
- Five-Year Review Report Development and Review

The schedule extended through September 15, 2005.

6.2 Community Involvement

Community involvement planning activities began in June 2005 when the Community Involvement Coordinator (CIC) wrote a draft outreach strategy for the five-year review. Also in June, the RPM and CIC conducted a site visit of the City of Alviso focusing on the areas where environmental remediation work has taken place. During this visit the RPM and CIC interviewed the Youth Services Librarian at the local Alviso branch of the San Jose Public Library, the On-Site Manager at SME, and the Environmental Education Center Director for the USFWS's Don Edward San Francisco Bay National Wildlife Refuge. A public notice was placed in the *San Jose Mercury News* in July 2005 announcing the five-year review. The notice was translated and was also placed in the Spanish language newspaper, *El Mensajero*. The newspaper notice was converted into a bilingual flyer and several copies were mailed to the Alviso Public Library, the Wildlife Refuge and the SME. Our contacts were asked to place the flyers where residents could access them. In August 2005, the RPM interviewed two additional people, including a resident/businessman and the CEO of the Alviso Health Center.

When the five-year review is complete, the USEPA will prepare a fact sheet announcing the completion and explaining the results and findings. USEPA will also place another notice in the same two newspapers announcing the completion of the five-year review, including the location of the information repository where the public can view the report.

6.3 Document Review

As a part of the five-year review process, CH2M HILL conducted a review of numerous documents related to site activities. The documents chosen for review ranged in publication date from 1988 to 2004. Appendix A provides a list of the documents reviewed as part of this report.

6.4 Data Review

The following sections describe the periodic reporting and/or monitoring for SBA, as required by USEPA.

6.4.1 OU-2 Landfill Areas

Review of the Five-Year Cap Inspection Report (Brown and Caldwell 2004) indicates that a portion of the former Santos Landfill (now Legacy Tech Park) is well maintained with no signs that would suggest that the integrity of the cap is compromised. The visual inspection included accessible building base exteriors, paved surfaces and landscaped areas. The Five-Year Cap Inspection Report states that no major cracks, holes or degradation were observed in the building base exteriors, paved areas or landscaped areas. Routine maintenance of the asphalt parking lot surface at Legacy Tech park was conducted in August 2003 and showed no signs of compromise.

Review of the City of San Jose LEA quarterly inspection reports indicate that there have not been any observed or reported problems or special occurrences. In general, the reports state that there were no changes to the closed landfill site. While inspecting the site during development or construction, the LEA reported that there were no significant issues. Also, the LEA's continued quarterly inspections indicate that erosion control materials are in place to protect the site from inclement weather.

6.4.2 OU-2 Truck Yard Area

For the truck yard area owned by Mr. Neu, an Excavation Work Plan was submitted to USEPA on August 25, 2004. Sampling of the property was conducted to establish boundaries for the excavation. The mean concentration of asbestos was calculated for each of the three grids (study areas) using the 51 subsurface samples (0-6 inches bgs, 6-12 inches bgs, and 12-18 inches bgs). Review of the results show that Grid A (0.69 percent) and B (0.53 percent) were both below 1 percent. Grid C, with a mean concentration over 1 percent, was excavated to a depth of 18 inches to remove the soil containing asbestos over 1 percent. Review of the confirmation sampling data indicates that the excavation met the data objectives of the project. All ten composite soil samples were below 1 percent asbestos. The excavated area was completely backfilled to a depth of 18 inches with clean imported soil.

Therefore, the potential for a release of asbestos from the soil into the air that could have presented an endangerment to public health has been mitigated. It was concluded that the asbestos contamination was effectively removed from the property. Because of this removal, the requirements of the 1989 ROD no longer apply and deed restrictions are not necessary.

6.4.3 Removal Action at the EEC

Review of the SBA Removal Final Letter Report (E&E, 2004), dated January 9, 2004, indicates that the asbestos-containing soil that exceeded the site action level was removed from the majority of the berm areas at the EEC. Approximately 2,500 cubic yards of ACSM was excavated from the road berm and levee trail areas and all existing culverts under the levee trail were removed. The excavated ACSM was transported in trucks to the Nine-Par Landfill which was provided by the City of San Jose for this project. Dust control measures were implemented to prevent visible dust emissions into the air during excavation activities by spraying ACSM with water. The City was responsible for all landfill operations with regard to the ACSM (i.e., water spraying for dust control, compaction, and placing of cover material) and for full restoration of the site (i.e., backfilling the excavated areas to original site conditions). In December 2004, the USFWS concurred with the closeout of the project.

6.5 Regulatory Review

Section 121(d) of CERCLA requires that remedial actions implemented at CERCLA sites attain any federal or more stringent state environmental standards, requirements, criteria, or limitations that are determined to be Applicable or Relevant and Appropriate Requirements (ARARs).

Applicable requirements are those cleanup standards, criteria, or limitations promulgated under federal or state law that specifically address the situation at a CERCLA site. A requirement is applicable if the jurisdictional prerequisites of the environmental standard show a direct correspondence when objectively compared with the conditions at the site.

If a requirement is not legally applicable, the requirement is evaluated to determine whether it is relevant and appropriate. Relevant and appropriate requirements are those cleanup standards, standards of control, and other substantive environmental protection requirements, criteria, or limitations promulgated under federal or state law that, while not applicable, address problems or situations sufficiently similar to the circumstances of the proposed response action and are well suited to the conditions of the site. The criteria for determining relevance and appropriateness are listed in 40 Code of Federal Regulations (CFR) 300.400(g) (2).

Pursuant to USEPA guidance, ARARs generally are classified into three categories: chemical-specific, location-specific, and action-specific requirements. These categories of ARARs are identified below:

- **Chemical-specific ARARs** include those laws and regulations that regulate the release to the environment of materials possessing certain chemical or physical characteristics or containing specified chemical compounds. These requirements generally set health- or risk-based concentration limits or discharge limits for specific hazardous substances.
- **Location-specific ARARs** are those requirements that relate to the geographical or physical location of the site, rather than the nature of the contaminants or the proposed site remedial actions. These requirements may limit the placement of remedial action, and may impose additional constraints on the cleanup action. For example, location-

specific ARARs may refer to activities in the vicinity of wetlands, floodplains, endangered species habitat, and areas of historical or cultural significance.

- **Action-specific ARARs** are requirements that apply to specific actions that may be associated with site remediation. Action-specific ARARs often define acceptable handling, treatment, and disposal procedures for hazardous substances. These requirements are triggered by the particular remedial activities that are selected to accomplish a remedy. Examples of action-specific ARARs include requirements applicable to landfill closure, wastewater discharge, hazardous waste disposal, and emissions of air pollutants.

To be considered (TBC) criteria are requirements that may not meet the definition of an ARAR as described above, but still may be useful in determining whether to take action at a site or to what degree action is necessary. This can be particularly true when there are no ARARs for a site, action, or contaminant. TBC criteria are defined in 40 CFR 300.400(g) (3). Chemical-specific TBC requirements are applied in the absence of ARARs or when the existing ARAR is not sufficiently protective to develop cleanup levels. TBCs are non-promulgated advisories or guidance issued by federal or state government that are not legally binding but may provide useful information or recommended procedures for remedial action. Although TBC criteria do not have the status of ARARs, they are considered together with ARARs to establish the required level of cleanup for protection of human health and the environment. The critical difference between a TBC and an ARAR is that one is not required to comply with or meet a TBC when deciding on a remedial action.

6.5.1 Five-Year Review of ARARs

The SBA site is approximately 550 acres located at the northern end of the Santa Clara Valley, at the southernmost extent of San Francisco Bay. SBA encompasses the community of Alviso, in the City of San Jose, California, and is a mix of residential, commercial, light industrial and agricultural land uses. Because Alviso is a low-lying area, it is susceptible to flooding. The SBA Superfund Site is comprised of two Operable Units: the Ring Levee (OU-1) and the Overall Site (OU-2).

The purpose of this ARARs review is to determine whether laws, regulations, or guidance promulgated since approval of site RODs, ROD Amendments, or ESDs alter the determination of the remedy's protectiveness of human health and the environment. The preamble to the National Contingency Plan (NCP) states that remedy selection decisions are not to be reopened unless new or modified requirements call into question the protectiveness of the selected remedy (55 CFR 8757, March 8, 1990). This is interpreted to mean generally that ARARs are frozen at the time of remedy approval. Changes to ARARs where necessary can be memorialized in ROD Amendments or ESDs.

A review of ARARs and since-promulgated laws, regulations, and guidance was conducted to determine whether the ARARs selected for the site remedies continue to be protective of human health and the environment.

These specific documents were reviewed for ARARs:

- ROD for OU-1 approved September 29, 1988 (USEPA, 1988)
- ROD for OU-2 approved September 29, 1989 (USEPA, 1989) (selecting Alternative 2)

- ROD Amendment for OU-1 approved June 26, 1991 (USEPA, 1991)
- ESD for OU-1 approved October 18, 1993 (USEPA, 1993)
- Preliminary Close Out Report for OU-1 and OU-2 (USEPA, 1998)
- Five-Year Review for OU-1 and OU-2 conducted in September 2000 (USEPA, 2000)

The remedial objective for the SBA Superfund Site is to control the release of asbestos fibers into the air from asbestos-containing soil and other materials to minimize direct or indirect exposure of humans and the environment to asbestos fibers. To meet this objective, following are the remedies selected and actions taken at the two site OUs:

- **OU-1** – In accordance with the June 1991 ROD Amendment, the Ring Levee was removed by December 1993. The Ring Levee was replaced by a Temporary Ring Levee, constructed with clean soil, which itself was removed by October 1996.
- **OU-2:**
 - **Truck Yards:** The 1989 ROD required paving or excavation of asbestos-containing soil at the four site truck yards. Three truck yards underwent excavation of asbestos-containing soil above 1 percent by May 1998 (USEPA letter, dated May 1, 1998). The final truck yard (Neu Property) underwent excavation of asbestos-containing soil above 1 percent in the Fall of 2004 (USEPA letter, dated November 5, 2004). Because all asbestos-containing soil above 1 percent has been excavated, the remedy requires no further remedial action at any of the four truck yards.
 - **Landfills:** The 1989 ROD required confirmation that site landfills are covered with NESHAPs compliant caps and establishment of deed restrictions as institutional controls to protect and maintain the integrity of the caps.

The site includes three landfills where asbestos-cement pipe was believed to have been buried: the Santos Landfill, the Marshland Landfill and the St. Claire Landfill. The Santos Landfill is currently divided into two areas: the Summerset Mobile Estates and the Legacy Tech Park. USEPA has determined that all of the former landfill properties have adequate caps. Only the Legacy Tech Park portion of the Santos Landfill has a deed restriction on the property (recorded October 21, 2004). All of the former landfill properties currently undergo quarterly inspections by the San Jose LEA pursuant to CCR Title 27 Landfill Closure Regulations.

- **Wet Street Sweeping:** The 1989 ROD requires monthly wet sweeping of Alviso streets to control dust emissions. This practice has been conducted by the City of San Jose since 1990.

6.5.2 Review of Existing and Potential ARARs

The following statutes and laws were identified as ARARs in the 1988 ROD and 1991 ROD Amendment for OU-1 and the 1989 ROD for OU-2:

- **Toxic Substances Control Act (TSCA) and Asbestos Hazard Emergency Response Act (AHERA)** – Sections relating to standards and management protocols for asbestos in schools.

- **Clean Air Act, National Emission Standard for Hazardous Air Pollutants (NESHAPS)** – Sections relating to soil cover and “no visible emissions” requirements at inactive asbestos disposal sites.
- **Bay Area Air Quality Management District** – Sections relating to soil cover and “no visible emissions” requirements at inactive asbestos disposal sites.
- **Occupational Health and Safety Act, Permissible Exposure Limits (PELs)** – Sections relating to protecting the health and safety of site and remedial action workers.
- **Endangered Species Act** – Sections relating to requirements that federal agencies ensure that their actions are not likely to jeopardize continued existence of endangered species.
- **Clean Water Act** – Sections relating to protection of wetlands and floodplains.
- **U. S. Fish and Wildlife Service, Mitigation Policy** – Sections relating to preventing net habitat loss.
- **National Historic Preservation Act, Historic Sites Act, and the Archaeological and Historic Preservation Act** – Sections relating to preserving historic areas.
- **McAteer-Petris Act** – Sections relating to establishment of the San Francisco Bay Conservation and Development Commission (BCDC).

Following are three tables listing the ARARs cited in the above-referenced site decision documents. Table 6-1 contains Chemical-Specific ARARs, Table 6-2 contains Location-Specific ARARs, and Table 6-3 contains Action-Specific ARARs. The tables provide the ARAR citations and requirements and whether any updates have occurred for the ARARs since ROD approval.

Table 6-4 includes potential ARARs that are being considered by USEPA in order to ensure the protectiveness of the remedy. The findings of the ARARs review are detailed below and summarized in Section 7.0, under Question B, “Are exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of the remedy selection still valid?”

Note that current versions of the CCR and Title 40 of the CFR were consulted (via the internet or in hardcopy) to review pertinent updates.

TABLE 6-1
 Chemical-specific ARARs
 South Bay Asbestos Superfund Site, Alviso, California

Source	Citation	Description	Findings and Comments
Toxic Substances Control Act (TSCA) and Asbestos Hazard Emergency Response Act (AHERA) regulations	TSCA Subchapter II, 40 CFR 763	AHERA final rules are protocols and standards to address structural asbestos in schools. Polarized light microscopy (PLM) is used to measure asbestos levels. Where structural material contains greater than 1% asbestos, local education agencies must determine how to remove or contain it. AHERA's 1% asbestos standard was incorporated into site decision documents.	Relevant and Appropriate. The purpose of AHERA standards and protocols is to address structural asbestos in schools. However, certain standards are potentially relevant to the SBA cleanup. The AHERA "clean" standard is based on technological limitations existing at the time the standard was adopted. Current sampling techniques use lower detection limits which allow USEPA to rely on health-based standards. Recent USEPA experience has raised concerns about reliance on the 1% standard (discussed below).
Clean Air Act and NESHAPs	40 CFR Part 61 Subpart M §§ 61.153	NESHAPs regulations for inactive disposal sites at asbestos mills and manufacturing and fabrication operations require either "no visible emissions" or cover asbestos-containing soil with six inches of clean, vegetated cover or two feet of clean, unvegetated cover. Section 61.153(a)(4) requires dust suppression techniques be utilized.	Relevant and appropriate. NESHAPs are directed at disposal sites associated with former manufacturing facilities, thus they are not directly applicable. But the standards for visible emissions and covering of former disposal sites are relevant and appropriate. There have been no significant changes in NESHAPs since remedy selection that would affect the protectiveness of the remedy.
Bay Area Air Quality Management District (BAAQMD)	BAAQMD Regulation 11, Rule 2, §§ 305.3.1 and 305.3.2	Incorporates the requirements of NESHAPs at 61.153(a)(1) requiring "no visible emissions" or cover requirements. Although the 1989 ROD did not cite section 305.3.2, it appears that this section was intended to be cited for standards for dust control.	There have been no significant changes in this BAAQMD regulation that would affect the protectiveness of the remedy.
Occupational Safety and Health Act (OSHA)	OSHA Labor Code 29 CFR §§ 1910.1000 and 1910.1001	In 1989, OSHA's Permissible Exposure Limit (PEL) for all asbestos fibers was 0.2 fibers per cubic centimeter (f/cc) for occupationally exposed workers. The PEL is now 0.1 f/cc.	The SBA ROD noted that OSHA PELs are not necessarily protective for continuous exposure, thus the 0.2 f/cc was cited as an upper limit for actual ambient exposure. The PEL has decreased since 1989. However, because the PELs are considered an upper limit, this change does not affect the protectiveness of the remedy.

TABLE 6-2

Location-specific ARARs

South Bay Asbestos Superfund Site, Alviso, California

Source	Citation	Description	Findings and Comments
Endangered Species Act – Section 7	16 USC 1531 <i>et seq.</i> ; 40 CFR § 6.302(H); 50 CFR §§ 17. 402 and 424	Section 7 of the Endangered Species Act requires that federal agencies ensure that their actions are not likely to jeopardize the continued existence of any endangered species or cause adverse modifications of critical habitat. Endangered species, including Salt Marsh Harvest Mouse and California Clapper Rail, have been identified in the wetland habitat adjacent to the site.	Substantive requirements of Section 7 are applicable to the site remedy. No significant changes in Section 7 have been made that affect the protectiveness of the remedy.
Clean Water Act (CWA) – Protection of Wetlands and Floodplains Executive Order (EO) 11988 (Floodplain Management) EO 11988 (Wetlands Protection)	CWA Section 404 (33 USC § 1344); 40 CFR § 230 <i>et seq.</i> 40 CFR § 6.302(a), (b), and Appendix A	The SBA site is located in a floodplain and adjacent to wetlands. Federal agencies are required to avoid, to the extent possible, adverse impacts from destruction of wetlands, and avoid support of new construction in wetlands if a practicable alternative exists. Dredged or fill material may not unnecessarily be discharged into aquatic ecosystems -- in this case wetlands.	The substantive requirements of these regulations are applicable to the site remedy. There have been no significant changes in the regulations affecting the protectiveness of the remedy.
U.S. Fish and Wildlife Service (USFWS) – Mitigation Policy	46 Fed. Reg. 7644-7663 (January 23, 1981).	USFWS has designated the wetlands near Alviso as Resource Category 2 for which the mitigation goal is no net loss of in-kind habitat value. Resource Category 2 guidelines require avoidance and minimizing habitat loss, immediate rectification or reduction of habitat loss, or replacement with in-kind habitat.	The substantive requirements of these regulations are applicable to the site remedy. There have been no significant changes in the regulations affecting the protectiveness of the remedy.
National Historic Preservation Act; Historic Sites Act; Archaeological and Historic Preservation Act EO 11593 (Protection and Enhancement of the Cultural Environment)	16 USC §§ 470(f), 461 <i>et seq.</i> , and 469; 40 CFR § 6.301; 36 CFR Part 800	Federal agencies are required to consider the effects of their actions upon designated or potential historic, architectural, archaeological and cultural sites and natural landmarks. The older section of Alviso is listed in the National Register of Historical Places.	The substantive requirements of these historic preservation regulations are applicable to the site remedy. There have been no significant changes in the regulations affecting the protectiveness of the remedy.
McAteer-Petris Act	Title 7.2 Cal. Government Code §§ 66600 <i>et seq.</i> ; 14 Cal. Administrative Code §§ 10110 <i>et seq.</i>	The McAteer-Petris Act established the San Francisco Bay Conservation and Development Commission (BCDC). The BCDC regulates activities adjacent to the Bay through the SF Bay Plan document.	The substantive requirements of the McAteer-Petris Act are applicable to the site remedy. There have been no significant changes in the regulations affecting the protectiveness of the remedy.

TABLE 6-3

Action-specific ARARs

South Bay Asbestos Superfund Site, Alviso, California

Source	Citation	Description	Findings and Comments
Occupational Safety and Health Act (OSHA)	OSHA Labor Code; 29 CFR §§ 1910.1000 and 1910.1001	See above under Chemical-Specific ARARs	

TABLE 6-4
 Potential ARARs
 South Bay Asbestos Superfund Site, Alviso, California

Source	Citation	Description	Findings and Comments
Title 14 California Code of Regulations – Landfill Inspections	Title 14 CCR § 18083	Local Enforcement Agency (LEA) is required to inspect closed landfills quarterly until no potential threat exists to public health and safety or the environment.	Site landfills closed prior to the enactment date of this section, thus it is relevant and appropriate. It is not an ARAR, but it is currently being implemented at site landfills.
California Code of Regulations – Post-closure Landfill Land Use	Title 27 CCR § 21190 (Previously Title 14 CCR § 17796)	All post-closure land uses must be designed and maintained to protect public health and safety and must maintain the integrity of the cap.	Same as above.
California Code of Regulations – Landfill Closure	Title 27 CCR, § 21170 (Previously Title 14 CCR § 17787)	Landfill owners are required to file a detailed description of the site (including a map, boundaries of fill area, closure date, location of closure and post-closure plans, and a statement indicating how future site use is restricted) with the County Recorder and the LEA.	Same as above.
California Code of Regulations – Landfill Property Transfer	Title 27 CCR §§ 21200(a) and 21200(b) (Previously Title 14 CCR § 17792)	Landfill owners are required to notify prospective purchasers of the applicable standards, conditions of closure and compliance agreements. Landfill owners are required to notify the LEA within 30 days of any property transfer.	Same as above.
California Code of Regulations – Post-closure Landfill Activities	Title 27 CCR §§ 21100 <i>et seq.</i> (Previously Title 14 CCR § 17760)	When new post-closure activities take place at a closed landfill that may jeopardize the integrity of the previously closed disposal site or pose a potential threat to public health and safety or the environment, these regulations are triggered. These regulations require that all construction at closed landfill sites be designed and maintained in a manner that protects public health and prevents public contact with the waste.	Same as above

6.5.3 Summary of ARARs Review Findings

A review of the current site ARARs indicates that there have been some changes to the site conditions or assumptions under which the site remedy was selected. The change in the conditions or assumptions warrant an examination of potential new ARARs and possible change in the remedy in order to ensure the remedy's protectiveness.

6.5.3.1 Asbestos

Because there were no health-based standards available for asbestos in soils at the time of the 1989 ROD, USEPA used a quantitative risk characterization instead of ARARs to determine exposure scenarios for the site. The quantitative studies found that the most significant risk to human health came through the inhalation pathway for asbestos from soil disturbance. Based on the then-current detection limit for asbestos, USEPA established a remediation goal for the site of less than 1% asbestos in soil as determined by polarized light microscopy (PLM). (See 1989 ROD [USEPA, 1989], Appendix I for discussion.)

Today there are still no health-based standards for asbestos levels in soils. However, as described in detail in Section 7 of this Five-Year Review, the assumptions on which the 1 percent threshold was based are currently being explored by USEPA. Although the 1 percent threshold is used in many regulatory schemes (including AHERA, the 1990 NESHAP revisions, and OSHA), USEPA is recommending the use of risk-based, site-specific action levels to determine the need for response actions rather than relying on the widely used 1 percent standard. At the SBA Site, such quantitative studies were conducted at the time of the ROD. However, USEPA will reexamine whether more study is required and whether a different remediation goal is necessary to ensure the protectiveness of the remedy.

6.5.3.2 Title 27 Regulations

The 1989 ROD requires placement of deed restrictions as institutional controls on former landfills at the site to protect the integrity of the landfill caps. Less than a year after selection of the 1989 ROD remedy, the new Title 27 land use regulations that govern post-closure activities at former landfills were promulgated. These Landfill Closure Regulations are currently being implemented at all site landfills by the LEA. In contrast, to date only one capped landfill at the site has had the ROD-required deed restriction placed on its title – the Legacy Tech Park portion of the Santos Landfill.

For the Marshland Landfill, USEPA has determined that the existing State regulations provide adequate long-term controls to ensure the integrity of the cap. The landfill has been regulated by the RWQCB as a Class III landfill and is subject to the waste discharge requirements of the RWQCB which address closure and O&M. The requirements of the California State Integrated Waste Management Board under Title 27 have also been implemented by the LEA at the Marshland Landfill, including a Post-Closure Land Use Plan and quarterly inspections. USEPA will prepare an ESD by September 2006 that will specify that these existing California requirements already provide the institutional controls that the site ROD was seeking with a deed restriction.

For the Summerset Mobile Estates portion of Santos Landfill and the St. Claire Landfill, USEPA is also evaluating the use of Title 27 Landfill Closure Regulations to satisfy the ROD

requirement for a deed restriction. USEPA will determine whether these governmental controls provided through Title 27 regulations are as protective of the cap as the proprietary control that would be met through deed restrictions. USEPA may select the following as ARARs in an upcoming ESD, if appropriate:

- Title 14 CCR § 18083 requires the LEA to inspect closed landfills quarterly until no potential threat exists to public health and safety or the environment.
- Title 27 CCR §§ 21100 *et seq.* are triggered when new post-closure activities take place at a closed landfill site that may jeopardize the integrity of the previously closed disposal site or pose a potential threat to public health and safety or the environment.
- Title 27 CCR § 21100 requires that all construction at LEA-regulated closed landfill sites be designed and maintained in a manner that protects public health and prevents public contact with the waste.
- Title 27 CCR § 21190 requires that all post-closure land uses at former landfills must be designed and maintained to protect public health and safety and must maintain cap integrity.
- Title 27 CCR § 21200 requires landfill owners are required to notify prospective owners of the applicable standards, conditions of closure and compliance agreements and to notify the LEA within 30 days of any property transfer.
- Title 27 CCR § 21170 requires landfill owners to file a detailed description of the site (including a map, boundaries of fill area, closure date, location of closure and post-closure plans, and a statement indicating how future site use is restricted) with the County Recorder and the LEA.

6.6 Site Inspection

Inspections at the site were conducted on June 9, and July 7, 2005, by representatives of USEPA including the RPM, the site toxicologist, and the Community Involvement Coordinator. The primary purpose of the inspections was to assess the protectiveness of the remedy for OU-2 with regard to the maintenance of the cap at the three landfill areas (the Santos, St. Claire, and Marshland Landfills) where asbestos-cement pipe is buried. A summary of the findings is presented below. The site inspection photos are provided in Appendix C.

The conditions during both days of the inspection were sunny and clear, with warm temperatures. Overall, no significant issues regarding the three landfill caps were identified during the inspections. There was no evidence of any significant breach in the integrity of the caps, including cracks, holes, or erosion of landscaped areas. There were some superficial cracks and wear in paved areas; however, none of this represented an area of concern or triggered the need for any maintenance or repairs.

The SME portion of the Santos Landfill consists of about 110 mobile homes. The foundation for each of the mobile homes is several feet above the ground on metal and concrete supports placed on top of the soil cap. Almost all of the crawlspaces under the homes are enclosed with removable skirting made of either wood or plastic foam. All of the home lots

have paved driveways and landscaped yards. All of the roadways in the SME are paved and well maintained with no significant cracks or wear showing on the surface. Appendix C contains several photos (see photos 1 and 2) taken during the inspections of SME showing conditions of the mobile homes, the landscaped areas and paved roadways.

The 24-acre Legacy Tech Park portion of the Santos Landfill is a commercial office complex consisting of five two-story buildings, paved access roads and parking lots, and landscaped areas. Overall, the site is well maintained, with no signs that the integrity of the cap is compromised or that there is a need for repairs. We also observed the adjacent wetlands, which were preserved as part of this development in 1998. The vegetation is thriving and several water birds were seen feeding in the area. Appendix C contains several photos (see photos 3 and 4) taken during the inspection of the Legacy Tech Park showing conditions of the office buildings, paved lots and landscaped areas.

The Marshland Landfill (also known as the Highway 237 Disposal Site) consists of approximately 60 acres of a closed landfill which is elevated about 50 feet above the surrounding terrain. The landfill was closed in 2002 in preparation for a new commercial development which did not occur due to the economic downturn in Silicon Valley. The property remains vacant at this time. The minimum 4-foot thick soil cover is well maintained and shows no signs of any significant cracking or erosion of the slopes, which are vegetated with grasses. Appendix C contains several photos (see photos 5 and 6) taken during the inspection of the Marshland Landfill showing conditions on the vacant property.

The Sainte Claire Landfill property consists of two lots: (1) the lot on the west of Gold Street is vacant and the surface is mostly asphalt paved with no significant holes or cracks, and (2) the lot on the east side is used for storage of old cars, trucks, trailers, and carts. The cover consists of solid compacted soil and no significant holes or cracks were observed on the surface. Appendix C contains several photos (see photos 7 and 8) taken during the inspection of the Sainte Claire Landfill showing conditions on both lots.

During the site inspection we observed many of the wetland areas that were restored after the Ring Levee was removed (see photo 9). We also inspected those properties where asbestos-containing soil had been removed during the past five years. The truck yard owned by Mr. Neu is a vacant lot and had not been altered since the excavated area was backfilled and re-graded in 2004 (see photo 10). It is our understanding that the property has been sold to be developed by a new owner, once a City of San Jose building permit is issued. The Environmental Education Center in the San Francisco Wildlife Refuge has been fully restored where asbestos had been excavated from the road berm and levee trail in 2003 (see photos 11 and 12). These areas continue to function as flood control structures. In addition, the wooden fence was replaced along the levee trail and the surface was paved with asphalt. We observed numerous water birds in the adjacent wetlands, including Canada geese and black neck stilts.

We also observed other areas in the Alviso community with a high potential for soil disturbance, such as vacant lots, a baseball field, a playground, and an unpaved parking lot. These areas may need to be assessed by additional activity-based monitoring which has recently been developed by USEPA for evaluating asbestos risks at Superfund sites.

6.7 Interviews

Interviews were conducted with the community residents and a representative from the City of San Jose and USFWS. Interview summary forms are provided in Appendix B.

During June 9-14, 2005, the following people associated with the SBA were interviewed:

- Sandra Avila-Harder, Youth Services Librarian, San Jose Public Library, Alviso Branch
- Reymondo Espinoza, Chief Executive Officer (for the Gardner Family Health Network and Alviso Health Center), St. James Health Center, San Jose.
- Genie Moore, Environmental Education Center Director, USFWS, Don Edward San Francisco Bay National Wildlife Refuge, Alviso, CA
- Daniel Aguilar, Resident and On-Site Manager, Summerset Mobile Estates

At a later date on August 12, 2005, the following person associated with SBA was interviewed:

- Richard Santos, Chairman / Director of the Santa Clara Valley Water District and Member of the Santos family which owns the Summerset Mobile Estates

In general, the interviewers expressed interest to remain updated through fact sheets and recommend that USEPA issue additional mailings or post information on a website.

Sandra Avila-Hardner, Youth Services Librarian at the San Jose Public Library, stated that in general, people no longer have concerns about the asbestos and the levee. She recommends open communication in the form of a fact sheet to update people with the most recent information. She noted that today, the community's main concern is related to affordable housing and the City's attempt to develop and build expensive housing in Alviso. Sandra also mentioned that information be made available in Spanish, citing that the local newspapers read by most community members are La Oferta and El Mensajero.

Richard Santos, a member of the Santos family which owns the Summerset Mobile Estates, relayed frustration that his family lost property and was not compensated when the USFWS reclaimed wetlands. He felt USEPA was burdening the community members.

Daniel Aguilar, resident and manager of the Summerset Mobile Estates, mentioned that he gives new tenants rules and regulations notifying them that they are on a former landfill and that there is no digging allowed on the property. He stated that they conduct stringent quarterly gas monitoring and report the results to their local enforcement agency in San Jose. Daniel feels well informed. He recommends that USEPA make information available, on a website and as flyers. He offered to give USEPA an updated mailing list for all the residents in the mobile home park after it is updated within the next two weeks.

Reymondo Espinoza, director of the local health center, had the impression that people were happy and relieved when the asbestos-containing Ring Levee was removed (in 1993). He stated that there has not been much community concern for the asbestos issue since the Ring Levee was removed. In fact, he mentioned that the community group known as OCA (the Organization for the Community of Alviso) was disbanded soon after the Ring Levee was

removed. Mr. Espinoza recommended that USEPA keep the community members informed of upcoming activities at the Superfund site and that he would like to be on the mailing list.

Genie Moore, USFWS, has been working at the Environmental Educational Center on the San Francisco Bay National Wildlife Refuge since 2001. She believes that while the remedial actions were conducted, people in the community wondered what was going on. Overall, she did not notice community concerns and generally felt people were satisfied with what was happening. She recommended having more information available to the public.

7.0 Technical Assessment

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

The review of documents, ARARs, risk assumptions, and the results of the site inspection indicates that the remedy is operating and functioning as intended by the RODs for OU-1, as modified by the ESD, and OU-2. The removal of the asbestos-containing Ring Levee for OU-1 was completed in 1993, and confirmation sampling at the time showed that the removal was successful and complete. The wetlands restoration project was deemed successful in 2003.

The capping at the three landfills has achieved the remedial objectives to prevent direct contact with asbestos-contaminated soil and debris. Operation and maintenance of the caps has been effective and is monitored by the State of California and USEPA. The Record of Decision called for the paved capping of four truck yards and long-term maintenance of the paving remedy. After the capping was complete, the truck yard owners elected to remove the asbestos-containing soil in lieu of placing deed restrictions on the properties. This was successfully completed in 1997 and in 2004. Therefore, no further action is required and the remedy for the truck yards is complete.

The ROD required institutional controls in the form of deed restrictions on the capped site landfills. A deed restriction is in place as required under the ROD at the Legacy Tech Park portion of the Santos Landfill. Deed restrictions are not in place at the remaining landfills. However, USEPA has determined that the regulations of the RWQCB and the State Integrated Waste Management Board already governing the Marshland Landfill are adequate as institutional controls. Also, USEPA is evaluating the use of State of California Title 27 regulations to satisfy the requirement for institutional controls on the Summerset Mobile Estates portion of Santos Landfill and the Saint Claire Landfill.

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

Physical Changes: There have been no changes to the physical conditions of the site that would negatively affect the protectiveness of the remedy. Changes in physical conditions that are relevant to protectiveness include the remedial actions of removing the Ring Levee and paving truck yards in Alviso. These actions either eliminated or controlled major sources of asbestos exposure for the community. In addition, commercial development (construction of the Legacy office park) of sections of the former Santos Landfill has resulted in additional control of another potential asbestos source, via asbestos-containing soils being covered with imported fill and/or asphalt.

Exposure assumptions: At the time of remedy selection, USEPA's standard-of-practice assumed that dust-generating activities on soils containing less than 1 percent asbestos would not create airborne asbestos exposures of potential health concern. At the South Bay Asbestos site, as at many other Superfund asbestos remedial and removal sites, remedial activities were concentrated primarily on those areas where soils containing greater than 1 percent asbestos had been identified, i.e., the truck yards, landfills and Ring Levee.

Although USEPA relied on the 1 percent asbestos screening rule during the remedy selection; USEPA also considered the potential for significant soil disturbance and dust generation in identifying areas of concern.

More recent experience, at Libby, Montana and other sites, has led USEPA to conclude that “the 1 percent threshold for asbestos in soil/debris as an action level may not be protective of human health in all instances of site cleanups.”¹ In addition, the understanding of the types of dust-generating activities that might result in significant exposures has been evolving. This new information is a change from the exposure assumption, made at the South Bay Asbestos site, that soils containing less than 1 percent asbestos were assumed to be sufficiently protective of human health even when disturbed. These changes do not affect the protectiveness of the remedy selected, which has resulted in removal or containment of the major sources of potential asbestos exposure in the community, but require a re-assessment of the initial evaluation of risk at the site.

Changes in Standards: A review of the current site ARARs indicates that there have been some changes to the site conditions or assumptions under which the site remedy was selected. The change in the conditions or assumptions warrant an examination of potential new ARARs and possible change in the remedy in order to ensure the remedy’s protectiveness.

The 1989 ROD requires placement of deed restrictions as institutional controls on former landfills at the site to protect the integrity of the landfill caps. Less than a year after selection of the 1989 ROD remedy, the new Title 27 land use regulations that govern post-closure activities at former landfills were promulgated. These Landfill Closure Regulations are currently being implemented at all site landfills. In contrast, to date only one capped landfill at the site has had the ROD-required deed restriction placed on its title – the Legacy Tech Park portion of the Santos Landfill.

USEPA is evaluating the use of CCR Title 27 Landfill Closure Regulations for the Summerset Mobile Estates portion of Santos Landfill and the St. Claire Landfill. These Closure Regulations are currently being implemented at all site landfills. Title 27 regulations address the concerns that the remedy assumed would be met through deed restrictions.

Toxicity Data, Cleanup Levels, And Remedial Action Objectives: USEPA has recently initiated a reassessment of the toxicity values used for asbestos risk assessment, although this effort is not expected to be finalized in the immediate future. Thus it is recommended that the next five-year review consider any revised toxicity values.

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

There were no new ecological risks that were identified during this five-year review; therefore monitoring of ecological targets is not necessary. This determination is based on the following: (1) the asbestos-containing soil sediments in the OU-1 Ring Levee were removed from the impacted wetlands in 1993, and (2) the remedy under OU-2 included the removal of asbestos-containing soil material from four truck yards and the verification of

¹ (Memo: “Clarifying Cleanup Goals and Identification of New Assessment Tools for Evaluating Asbestos at Superfund Cleanups”, M.B. Cook, Office of Superfund Remediation and Technology Innovation, August 10, 2004).

adequate landfill caps where asbestos-containing pipe was buried. The potential routes of exposure to ecological receptors, therefore, have been eliminated. No weather-related events or natural disasters, including flooding or earthquakes, have affected the protectiveness of the remedy. There is no other information that calls into question the protectiveness of the remedy.

Technical Assessment Summary

According to the data reviewed, the site inspection, and the interviews, the remedy is functioning as intended by the RODs for OU-1, as modified by the ESD, and OU-2. There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy. All of the ARARs for soil contamination cited in the ROD have been met. There has been a change in the exposure assumptions regarding the 1 percent soil screening level, and the toxicity values used for asbestos risk assessment are currently being re-evaluated. These issues will be evaluated with additional data review and possible asbestos sampling at the site to determine their effect on the protectiveness of the remedy. There is no other information that calls into question the protectiveness of the remedy.

8.0 Issues and Recommendations

Issue: Because there were no health-based standards available for asbestos in soils at the time of the 1989 ROD, USEPA used a quantitative risk characterization instead of ARARs to determine exposure scenarios for the site. The quantitative studies found that the most significant risk to human health came through the inhalation pathway for asbestos from soil disturbance. Based on the then-current detection limit for asbestos, USEPA established a remediation goal for the site of less than 1 percent asbestos in soil as determined by Polarized Light Microscopy (PLM). (See 1989 ROD (USEPA, 1989), Appendix I for discussion). Today there are still no health-based standards for asbestos levels in soils.

Recommendation: In order to address the issue of whether or not the 1 percent asbestos in soil screening level is sufficiently health protective at this site, additional data review and possible sampling and analysis are recommended. In accordance with the memo referenced in footnote 1, page 7-2 (Cook, 2004), any future sampling at the South Bay Asbestos site is recommended to be based on techniques that generate fibers from soil. USEPA will evaluate this issue by September 2006. Also, USEPA has recently initiated a reassessment of the toxicity values used for asbestos risk assessment, although this effort is not expected to be finalized in the immediate future. Thus, it is recommended that the next five-year review consider any revised toxicity values.

Issue: The 1989 ROD requires placement of deed restrictions as institutional controls on former landfills at the site to protect the integrity of the landfill caps. Less than a year after selection of the 1989 ROD remedy, new state land use regulations governing post-closure activities at former landfills (Title 27) were promulgated. These Landfill Closure Regulations are currently being implemented at all site landfills. In contrast, to date only one capped landfill at the site has had the ROD-required deed restriction placed on its title – the Legacy Tech Park portion of the Santos Landfill. The Summerset Mobile Estates portion of Santos Landfill and the St. Claire Landfill do not have deed restrictions.

Recommendation: USEPA is evaluating the use of CCR Title 27 Landfill Closure Regulations for the Summerset Mobile Estates portion of Santos Landfill and the St. Claire Landfill. If it is determined that Title 27 regulations provide similar protectiveness as the proprietary control provided by the deed restrictions, USEPA may use the Title 27 regulations as governmental controls to prevent cap disturbance and exposure to asbestos-containing waste. If USEPA makes that determination it will be memorialized in an ESD.

Issue: The Marshland Landfill at the site has not had the ROD-required deed restriction placed on its title. This capped landfill has been regulated by the RWQCB as a Class II landfill and is subject to the closure and O&M requirements of the RWQCB as well as the requirements of the California State Integrated Waste Management Board.

Recommendation: USEPA will prepare an ESD by September 2006 that will specify that no further controls are needed at the Marshland Landfill and that the state requirements meet the deed restriction requirement in the ROD.

Table 8-1 summarizes the issues, recommendations and follow-up actions identified in this report.

TABLE 8-1
Summary Table - Issues, Recommendations and Follow-Up Actions
South Bay Asbestos Superfund Site, San Jose, California

Issue	Recommendations and Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness (Y/N)	
					Current	Future
Asbestos in Soil Screening Level	1. Additional data review and possible sampling.	USEPA	-	September 2006	N	Y
	2. Evaluate the use of revised toxicity values.					
Institutional Controls	Evaluate use of Title 27 regulations in lieu of Deed Restrictions for Summerset Mobile Estates portion of the former Santos Landfill and the Saint Claire Landfill	USEPA	-	September 2006	N	Y
Institutional Controls	Issue new ESD to clarify that the Marshland Landfill is a Class II landfill regulated by the Regional Water Quality Control Board	USEPA	-	September 2006	N	Y

9.0 Protectiveness Statement

The remedy at OU-1, the Ring Levee, is protective of human health and the environment because the major source of asbestos exposure that could result in unacceptable risks has been removed.

The remedial actions at OU-2, the Overall Site, are currently protective of human health and the environment where they were implemented because the major sources of asbestos exposure that could result in unacceptable risks are being controlled (landfill covers) or have been removed (truck yards).

A new understanding of how low concentrations of asbestos in soil translates into actual airborne exposures raises the issue of whether the soil screening level used to determine the need for cleanup activities at the site is still protective. USEPA plans to re-evaluate the soil asbestos data and re-sample, if necessary. USEPA is deferring the final protectiveness determination for this site until this analysis is completed. It is expected that these actions will take approximately one year to complete, at which time a protectiveness determination will be made.

For the remedy at OU-2 to be protective in the long term, the institutional controls need to be implemented at the Santos (Summerset Mobile Estates portion) and Saint Claire Landfills.

10.0 Next Five-Year Review

The next five-year review for the SBA Superfund Site will be performed by September 2010.

Appendix A

Documents Reviewed and References List

APPENDIX A

Documents Reviewed and References List

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Appendix B
Five-year Review Interview Summary Forms

Five-Year Review Interview Record		Interviewee: Genie Moore Environmental Education Center Director USFWS Don Edward San Francisco Bay National Wildlife Refuge Alviso, CA			
Site Name		USEPA ID No.		Date of Interview	Interview Method via
South Bay Asbestos Superfund Site Alviso, San Jose, Santa Clara County, California		CAD980894885		6/9/05	Phone <input type="checkbox"/> Fax/email <input type="checkbox"/> In person <input checked="" type="checkbox"/>
Interview Contacts	Organization	Phone	Email	Address	
Eric Yunker	USEPA Region IX	(415) 972-3159	Yunker.Eric@epa.gov	75 Hawthorne Street Mail Code SFD-7-3 San Francisco, CA 94105	
Alheli Banos	USEPA Region IX	(213) 244-1808	Banos.Alheli@epa.gov	75 Hawthorne Street Mail Code SFD-7-3 San Francisco, CA 94105	
Interview Summary					
<p>In Genie's opinion, the levee removal project in the Wildlife Refuge went smoothly. She mentioned that agreeing on the work dates was the only difficulty because of USEPA, City of San Jose, and USFWS staff schedules. Genie has been working at the Refuge since 2001. She believes that while the work was taking place at the refuge, people in the community wondered what was going on. A guard standing outside of the gates was able to answer people's questions. They did not allow regular visitors during the several weeks that the work was taking place. She did not notice community concerns and generally felt people were OK with what was happening. She was glad that the public did not see the workers wearing protective suits while they were doing the cleanup because this would have caused alarm. Genie mentioned that other workers and staff sometimes ask about the site and the status of the cleanup and she feels it would be helpful to have information to hand out to update the public. They would like to have some copies of this update to keep and distribute at their offices. As a general recommendation Genie suggested having more information available to the public.</p>					

Five-Year Review Interview Record		Interviewee: Daniel Aguilar Resident and On-Site Manager Summerset Mobile Estates - Mobile Home Park - Santos Landfill			
Site Name		USEPA ID No.		Date of Interview	Interview Method via
South Bay Asbestos Superfund Site Alviso, San Jose, Santa Clara County, California		CAD980894885		6/9/05	Phone <input type="checkbox"/> Fax/email <input type="checkbox"/> In person <input checked="" type="checkbox"/>
Interview Contacts	Organization	Phone	Email	Address	
Eric Yunker	USEPA Region IX	(415) 972-3159	Yunker.Eric@epa.gov	75 Hawthorne Street Mail Code SFD-7-3 San Francisco, CA 94105	
Alheli Banos	USEPA Region IX	(213) 244-1808	Banos.Alheli@epa.gov	75 Hawthorne Street Mail Code SFD-7-3 San Francisco, CA 94105	
Interview Summary					
<p>Daniel remembers the asbestos cleanup and the testing that was done around the mobile home park. Daniel was a resident of the mobile home park at the time and not a manager. The previous manager kept them well informed of environmental issues and about them being on a former "dump site." Daniel was concerned at first but after doing his own research and reading the available documents he was relieved of worry and concerns. He and his wife had just moved there and they were concerned about rumors saying that the mobile home park would be closed. Daniel feels that everyone knew the risks and the information living there and that there was not much concern. Today, Daniel is the manager of the mobile home park. He mentioned that people don't ask about the site but he nonetheless gives them information when they move in including numbers to call to obtain reports and other information. He also gives new tenants rules and regulations notifying them that they are on a former landfill and that there is no digging allowed on the property. They conduct stringent quarterly gas monitoring and report the results to their local enforcement agency in San Jose. Daniel feels well informed and regularly does research on the internet when he has questions. He recommends that we put more information on our website. He tried to search for the site under Summerset Mobile Estates but didn't find anything. We clarified that the search needed to be under the site's name, South Bay Asbestos instead of the Summerset Mobile Home Park. He would be interested in obtaining information, reports and maps to place in his files for future reference. He also suggested that we prepare a flyer with information for residents and volunteered to make it available in their main office. He offered to give us an updated mailing list for all the residents in the mobile home park after it is updated within the next two weeks.</p>					

Five-Year Review Interview Record		Interviewee: Reymondo Espinoza Chief Executive Officer (for the Gardner Family Health Network, Inc.- including the Alviso Health Center) St. James Health Center Corporate Office 55 E. Julian St. San Jose, CA 95112			
Site Name		USEPA ID No.		Date of Interview	Interview Method via
South Bay Asbestos Superfund Site Alviso, San Jose, Santa Clara County, California		CAD980894885		6/14/05	Phone <input checked="" type="checkbox"/> Fax/email <input type="checkbox"/> In person <input type="checkbox"/>
Interview Contacts	Organization	Phone	Email	Address	
Eric Yunker	USEPA Region IX	(415) 972-3159	Yunker.Eric@epa.gov	75 Hawthorne Street Mail Code SFD-7-3 San Francisco, CA 94105	
Interview Summary					
<p>Mr. Espinoza recalls that he was surprised when Alviso was declared a Superfund site due to asbestos in the soil and that people were mainly concerned with the Ring Levee which contained asbestos. People in Alviso were concerned that the Ring Levee asbestos project was a ploy by the City of San Jose. His impression was that people were happy and relieved when the asbestos-containing Ring Levee was removed (back in 1993). He stated that there has not been so much community concern for the asbestos issue since the Ring Levee was removed - in fact the community group known as OCA (the Organization for the Community of Alviso) was disbanded soon after the Ring Levee was removed.</p> <p>Mr. Espinoza said that there are other more pressing issues impacting the Alviso area including:</p> <ul style="list-style-type: none"> • The Guadalupe River channel is silting up and needs to be dredged • The new large developments, greater than 140 acres, by high tech companies like Cisco. <p>He was aware that many Alviso residents are anti-growth and against these large commercial developments because of their negative impact to the community, which is more low income. He told us there was a local chapter of a community group named PACT (People Acting in Community Together) for Santa Clara Valley which is involved with many of these issues and how to contact them. One of their main areas of involvement was to implement the new health insurance program for kids.</p> <p>Mr. Espinoza recommended that we keep the community members informed of upcoming activities at the Superfund site and that he would like to be on the mailing list.</p>					

Five-Year Review Interview Record		Interviewee: Richard Santos <ul style="list-style-type: none"> • Member of a community group called PACT - People Acting in the Community Together - Alviso has been a part of this organization for over 2 years - they are involved with administering the children's medical health insurance program funded by the California tobacco tax. • Chairman /Director of the Santa Clara Valley Water District. • Member of the Santos family which owns the Summerset Mobile Estates portion of the Santos Landfill. 		
Site Name	USEPA ID No.	Date of Interview	Interview Method via	
South Bay Asbestos Superfund Site Alviso, San Jose, Santa Clara County, California	CAD980894885	8/12/05	Phone <input checked="" type="checkbox"/> Fax/email <input type="checkbox"/> In person <input type="checkbox"/>	
Interview Contacts	Organization	Phone	Email	Address
Eric Yunker	USEPA Region IX	(415) 972-3159	Yunker.Eric@epa.gov	75 Hawthorne Street Mail Code SFD-7-3 San Francisco, CA 94105
Interview Summary				
<p>I asked Mr. Santos about his recollections and what impact the asbestos superfund site has had on the community. Mr. Santos feels strongly that USEPA's involvement at the South Bay Asbestos Superfund site has been self-serving and not benefited the community. He emphatically stated that USEPA was a bunch of bureaucrats using scare tactics that shook up the community for no good reason other than to build a bureaucracy. He asked, "Has anyone ever died from asbestos in Alviso?" and if there is a health concern why didn't USEPA establish a health fund to be used by the residents of Alviso since they are mostly of low income and senior citizens. He repeated several times that USEPA was nitpicking about the asbestos, that USEPA harassed the community and caused people to get upset about the asbestos - he pointed out that this type of asbestos rock in soil is used everywhere and is probably no worse than what you would find on city streets from auto brake lining. He was upset about how we handled the truck yard properties along State Street by forcing some to pave and supporting those who sued the truck yard owners for damages. He mentioned that his family lost property and was not compensated when the USFWS reclaimed some wetlands behind State Street.</p> <p>Regarding the Ring Levee project, Mr. Santos did agree that removing the levee was a good thing; however, he wondered why we ever let the City of San Jose build it there in the first place and that it created more flooding problems for the town than it fixed. He was angry and</p>				

frustrated that he had asked USEPA, many years ago, to shut down the Hillsdale Rock quarry (where the asbestos-containing soil came from) but it was not done.

Concerning the Summerset Mobile Estates on the Santos Landfill, he felt that USEPA cost his family a lot of money to study the site for buried asbestos piping which isn't causing anyone any harm under the ground - that we would do better to study where asbestos piping is used to deliver drinking water, like in the Hetch Hetchy system. He said that government, like USEPA, does not understand the cost and impact of all this to the small, low income private citizens - he remembers when eminent domain was used to take part of his father's property (at the Santos Landfill) in 1963 to straighten the Guadalupe River channel without just compensation.

I asked Mr. Santos what his recommendations are for what USEPA could do for the community at this time - he said he had so many places he could show me that we should meet on site, possibly in September and he would take me on a tour and we could sit down and discuss this further.

Five-Year Review Interview Record		Interviewee: Sandra Avila-Harder Youth Services Librarian San Jose Public Library, Alviso Branch			
Site Name		USEPA ID No.		Date of Interview	Interview Method via
South Bay Asbestos Superfund Site Alviso, San Jose, Santa Clara County, California		CAD980894885		6/9/05	Phone <input type="checkbox"/> Fax/email <input type="checkbox"/> In person <input checked="" type="checkbox"/>
Interview Contacts	Organization	Phone	Email	Address	
Eric Yunker	USEPA Region IX	(415) 972-3159	Yunker.Eric@epa.gov	75 Hawthorne Street Mail Code SFD-7-3 San Francisco, CA 94105	
Alheli Banos	USEPA Region IX	(213) 244-1808	Banos.Alheli@epa.gov	75 Hawthorne Street Mail Code SFD-7-3 San Francisco, CA 94105	
Interview Summary					
<p>Sandra was very familiar with the work that was going on during the Alviso Levee removal project in 1993. She mentioned that an engineer working on the project would visit the library and update her and explain the work to her. She was aware of community concerns at the time and remembers people having meetings where they expressed their concerns about the levee. Sandra feels that for the most part, people no longer have concerns about the asbestos and the levee. She thinks it's a good time to write a fact sheet updating people to let them know the most recent information. Today, the community's main concern is related to affordable housing and the City's attempt to develop and build expensive housing in Alviso. Sandra suggested that we write an update to distribute to the public and to ensure that this update is in Spanish which is the primary language in the area. She also mentioned that the local newspapers people read the most are <i>La Oferta</i> and <i>El Mensajero</i>.</p>					

Appendix C

Site Inspection Photographs



Photograph 1: Summerset Mobile Estates located over the Santos Landfill showing paved roadways and trailer homes with driveways and landscaped areas.



Photograph 2: Summerset Mobile Estates located over the Santos Landfill showing the crawlspace under a trailer home with concrete and metal supports.



Photograph 3: View from Gold Street of Legacy Tech Park located over the Santos Landfill showing an office building, a paved entrance and landscaped areas.



Photograph 4: Legacy Tech Park located over the Santos Landfill showing paved parking areas.



Photograph 5: View from Highway 237 of Marshland Landfill (Legacy America Center) showing elevated landfill area beyond the walkway.



Photograph 6: View of the front of Marshland Landfill (Legacy America Center) showing capped landfill slope.



Photograph 7: View from Gold Street of the Sainte Claire Landfill west lot which is vacant and mostly paved.



Photograph 8: View from Gold Street of the Sainte Claire Landfill east lot which is used as a storage area.



Photograph 9 Wetlands Restoration Area near Gold and Catherine Streets where portion of the Ring Levee was located.



Photograph 10: View from Pacific Street entrance of the Neu truck yard showing chip sealed pavement in foreground. The back portion of the property was excavated and backfilled in 2004.



Photograph 11: Environmental Education Center road berm showing restored soil backfill and new concrete curb..



Photograph 12: Environmental Education Center levee trail showing asphalt paved surface and wooden fence.