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Site Inspection Report
Energy Technology Engineering Center/Area IV
Simi Hills, California

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List of Acronyms

CDFG	California Department of Fish and Game
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CFR	Code of Federal Regulations
DHS	The California Department of Health Services
DOE	United States Department of Energy
DTSC	Department of Toxic Substances Control
E & E	Ecology and Environment, Inc
EPA	United States Environmental Protection Agency
ERO	USEPA Region 9 Emergency Response Office
ETEC	Energy Technology Engineering Center/Area IV
HRS	Hazard Ranking System
MCL	Maximum Contaminant Level
NASA	National Aeronautics and Space Administration
NPDES	National Pollution Discharge Elimination System
NPL	National Priorities List
NRC	Nuclear Regulatory Commission
ORISE	Oakridge Ridge Institute for Science and Education
PA/SI	Preliminary Assessment/Site Inspection
pCi/L	picoCuries per liter
PRC	PRC Environmental Management Inc.
QA	Quality Assurance
QC	Quality Control
RCRA	Resource Conservation Recovery Act of 1976
RMHF	Radioactive Materials Handling Facility
RWQCB	California Regional Water Quality Control Board
SARA	Superfund Amendments and Reauthorization Act of 1986
SI	Site Inspection
SRAM	Standardized Risk Assessment Methodology
SSFL	Santa Susana Field Laboratory
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
WDR	Waste Discharge Requirements
WESTON	Weston Solutions, Inc.

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1.0 INTRODUCTION

The U.S. Environmental Protection Agency (EPA), Region 9, under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986 (SARA), has tasked Weston Solutions, Inc. (WESTON) to complete a site inspection (SI) of the Energy Technology Engineering Center/Area IV (ETEC) site in Simi Hills, Ventura County, California.

The ETEC site was identified as a potential hazardous waste site and entered into the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) on May 1, 1988 (CA3890090001) (1). A smaller portion of the site (Area IV) was also entered into CERCLIS with a separate EPA ID Number (CA1800090010) on August 1, 1980. A Preliminary Assessment/ Site Inspection (PA/SI) of the site was completed by the U.S. Department of Energy (DOE) and reviewed by E & E for the EPA in December 1989 (1, 2). A second PA/SI review was completed for the EPA by PRC Environmental Management, Inc. (PRC) in September 1993 (CA3890090001) (3). The purpose of a PA/SI is to examine existing information on the site and its environs to assess the threat(s), if any, posed to public health, welfare, and the environment, and to determine if further action under CERCLA/SARA is warranted.

The EPA decided that further investigation of the ETEC site was necessary to more completely evaluate the site using the EPA's Hazard Ranking System (HRS) criteria. The HRS assesses the relative risk associated with actual or potential releases of hazardous substances at the site. The HRS has been adopted by the EPA to help set priorities for further evaluation and eventual remedial action at hazardous waste sites. The HRS is the primary method of determining a site's eligibility for placement on the National Priorities List (NPL). The NPL identifies sites at which the EPA may conduct remedial response actions. This report summarizes the results of the SI of the ETEC site.

More information about the Superfund program is available on the USEPA web site at http://www.epa.gov/superfund. The attached fact sheet describes USEPA's site assessment process.

1.1 Apparent Problem

The apparent problems at the site, which contributed to USEPA's determination that an SI was necessary, are presented below.

The ETEC site, as defined for this SI, consists of Area IV, which is one of four administrative areas (i.e., Area I, Area II, Area III, and Area IV) that make up the Rockwell International, Rocketdyne Division, Santa Susana Field Laboratory (SSFL). Since 1948, the principal activities in Areas I, II, and III of the SSFL have been large rocket engine research, assembly, and testing by Rocketdyne and the National Aeronautics and Space Administration (NASA). These activities

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are ongoing, with some facilities undergoing RCRA corrective action under the authority of the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC). From 1956 to 1988, Area IV was used by Rocketdyne and DOE for nuclear energy research and development. Radionuclides associated with the historic Area IV nuclear operations include tritium, plutonium-238, plutonium-239, iodine-129, strontium-90, cesium-137, cobalt-60, thorium-228, and uranium-235. These operations resulted in onsite soil and groundwater contamination, and offsite soil contamination. Work currently being conducted on site is directed toward decontamination and decommissioning of the previously used nuclear facilities and cleanup of the environmental radioactive contamination. The California Department of Health Services (DHS) and DOE have the primary regulatory responsibilities for this work (4, 5).

In 1989, community members and local elected officials requested that a group be formed to facilitate exchange of information relating to environmental activities at the SSFL. The resulting SSFL Workgroup consists of regulatory agency personnel and five community representatives. The group is chaired by the EPA Region 9 RCRA Program and, until 1996, focused on non-radioactive environmental activities at the SSFL. In response to a July 1996 letter from the community members of the SSFL Workgroup, the EPA Region 9 RCRA Corrective Action Office agreed to comment on and participate in the investigation and cleanup of radioactively contaminated buildings, soil, and groundwater in Area IV. Because EPA's authority over radioactive contamination under RCRA is limited, EPA's involvement is with the consent of Rocketdyne, DOE, and DHS (4).

As part of EPA's involvement with the investigation and cleanup of radioactive contamination on and in the vicinity of the ETEC site, and in response to a request from the SSFL Workgroup for the current CERCLIS status of the site, the EPA Region 9 RCRA Program asked the Superfund Program to re-evaluate the ETEC site using the HRS and current radionuclide analytical data.

2.0 SITE DESCRIPTION

2.1 Location

The 290-acre ETEC site is located within the boundaries of the 3,000-acre SSFL in a mountainous region near the crest of the Simi Hills in Ventura County, California (5). The geographic coordinates for the site are 34° 13' 54.38" N latitude and 118° 42' 30.00" W longitude (6). The location of the site is shown in Figure 2-1.

2.2 Site Description

Surrounding land uses are also shown in Figure 2-1. Undeveloped lands (a.k.a., buffer zones) owned by Rocketdyne lie immediately to the north and south of Area IV. The Brandeis-Barden Institute, which is a religious education center, lies immediately north of the northern buffer zone. The residential portion of Simi Valley begins approximately 1.7 miles northwest of Area

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Results of the 1992 soil/sediment sampling event are summarized in Table 3-1. Plutonium-239, iodine-129, and cobalt-60 are not included in the table because these analytes were not detected above detection limits in any of the samples collected from the Brandeis-Bardin Institute property (20). Thorium-228, uranium-235, and radium-226 are also not included in the table. These analytes are naturally occurring in soil and rocks. Their natural concentrations are highly variable and depend on several factors, including geological rock type (5, 21). It is not known if the geological formation(s) associated with the six background areas that were sampled during the 1992 investigation are comparable to the rock type(s) associated with the Brandeis-Bardin Institute property. Since the background soil sampling results from the 1992 investigation may not be representative of naturally occurring thorium, uranium, and radium-226 concentrations on the Brandies-Bardin Institute property, these analytes were not included in the SI.

Bold underlined values in Table 3-1 indicate concentrations that are significantly above background levels. For the purposes of the SI, a concentration is significantly above background if it equals or exceeds two standard deviations above the mean background concentration. For analytes that were not detected above the detection limit, a value of one-half the detection limit was used to calculate the mean and standard deviation for the background samples.

The order in which the 19 investigative sampling areas on the Brandeis-Bardin Institute property are presented in Table 3-1 is based on their proximity to Area IV. The nearest sampling area is presented first, followed by sampling areas located at increasing distances from the former nuclear research facilities. As shown in Table 3-1, the greatest number of values that are significantly above background, as well as the highest concentrations, occur in the sampling areas located nearest to Area IV, most notably the watershed areas along the northwest boundary of the site. With increasing distance from Area IV, the number of reported values that are significantly above background and the concentrations decrease. No radionuclides were detected at concentrations significantly above background in the northernmost portion of the Brandeis-Bardin Institute property (i.e., the Counselor-in-Training Area, Dormitory Area, Vegetable Garden, Main House Orchard, and Potential Development Site 3 sampling areas). The results of the 1992 sampling effort were presented in a 1993 report and at a public meeting at the Simi Valley Public Library (20, 22).

3.1.2 Brandeis-Bardin Institue Property: 1994 Soil/Sediment Sampling

In March 1994, over 100 additional soil/sediment samples were collected to confirm the presence of radionuclides on the Brandeis-Bardin Institute property, verify that reported concentrations were significantly above background levels, and resample locations where tritium samples had been withdrawn by the laboratory (see footnote "w" for Table 3-1 for an explanation of the withdrawn samples). To meet these objectives, three of the original six background areas were resampled (BG-01, BG-02, and BG-05), five new background areas were sampled (BG-09, BG-10, BG-11, BG-12, and BG-14), 12 of the original 19 investigative areas on the Brandeis-Bardin Institute property were resampled (BB-02, BB-03, BB-04, BB-05, BB-06, BB-12, BB-13, BB-14, BB-15, BB-16, BB-17, and BB-19), and one new sampling area on the Brandeis-Bardin Institute

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IV. The residential community of Bell Canyon lies approximately 0.5 mile southeast of Area IV. Adjacent properties west of Area IV are designated by the Ventura County Planning Department as open space. Land use immediately east of the site consists of the remaining three SSFL administrative areas (i.e., Areas I, II, and III). The Santa Monica Mountains Conservancy's Sage Ranch Park lies approximately 1 mile northeast of Area IV (5, 7, 8).

At least 26 facilities were associated with the nuclear energy research that was conducted in Area IV between 1956 and 1988. The locations of these facilities are shown in Figure 2-2. They consist of buildings and areas where work with radioactive materials was conducted, or where radioactive materials were stored or transported. Nuclear energy research activities included the operation of 10 experimental nuclear reactors, the operation of seven criticality test facilities, the manufacture of fuel assemblies for the nuclear reactors, the disassembly of the reactors and used fuel assemblies, small-scale laboratory work, and onsite storage of nuclear material (4, 5, 9).

As of April 2001, decontamination and decommissioning had been completed at 22 buildings and areas [i.e., cleaned up to the satisfaction of DOE, DHS and/or the Nuclear Regulatory Commission (NRC)], with the remaining buildings and areas awaiting verification surveys for unrestricted use and/or release by DOE and/or DHS (4, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19).

3.0 INVESTIGATIVE EFFORTS

3.1 Previous Sampling and Analyses

Numerous sampling events have occurred in association with the decontamination and decommissioning activities in Area IV. The sampling efforts described below are those that were conducted to determine the extent of radionuclide contaminant migration from Area IV to the surrounding properties.

3.1.1 Brandeis-Bardin Institue Property: 1992 Soil/Sediment Sampling

In 1992, a contractor to Rocketdyne collected over 100 surface soil/sediment samples (0 to 6 inches below ground surface) to determine if radionuclides associated with Area IV activities had migrated or been deposited on the Brandeis-Bardin Institute property, which is located north of Area IV. Soil/sediment samples were collected from six background areas and 19 areas on the Brandeis-Bardin Institute property. The six background soil/sediment sampling areas are shown in Figure 3-1 (BG-01 through BG-06). Two additional background areas were included in the 1992 sampling effort [Orchards near Happy Camp (BG-07) and Ralph's Supermarket (BG-08)]. Since only fruit samples were obtained from sampling areas BG-07 and BG-08, they were not included in the SI. The 19 Brandeis-Bardin Insitute sampling areas are shown in Figure 3-2. All samples were analyzed for tritium, plutonium-238, plutonium-239, iodine-129, strontium-90, and gamma emitting species (e.g., cesium-137, cobalt-60, thorium-228, uranium-235, and daughter product radium-226) (20).

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property was sampled (BB-20). The eight background sampling areas are shown in Figure 3-1. The 13 Brandeis-Bardin Insitute sampling areas are shown in Figure3-2. Samples were analyzed for one or more of the 1992 target analytes (22).

Results of the 1994 soil/sediment sampling event are presented in Table 3-2. As with the 1992 soil sampling effort, plutonium-239 and cobalt-60 were not detected above detection limits in any of the investigative samples collected from the Brandeis-Bardin property (22). These analytes are, therefore, not included in Table 3-2. Iodine-129 is not included because it was not analyzed for during the 1994 investigation. Thorium isotopes, uranium isotopes, and radium-226 are also not included in the table. The rationale for their exclusion is the same as for the 1992 soil/sediment data.

Bold underlined values in Table 3-2 indicate concentrations that are significantly above background levels (i.e., equal to or exceeding two standard deviations above the mean background concentration). For analytes that were not detected above the detection limit, a value of one-half the detection limit was used to calculate the mean and standard deviation for the background samples.

The order in which the 13 investigative sampling areas on the Brandeis-Bardin Institute property are presented in Table 3-2 is based on their proximity to Area IV, with the nearest sampling area presented first. As shown in Table 3-2, the highest tritium concentrations occur in the sampling areas located nearest to Area IV, most notably the Building 059 Watershed. Tritium was not detected above detection limits in the northern portion of the Brandeis-Bardin Institute property.

3.1.3 Santa Monica Mountains Conservancy Property: 1992 Soil Sampling

As part of the 1992 investigation to determine if radionuclides have migrated or been deposited off site, Rocketdyne's contractor also collected surface soil samples from four sampling areas (SM-01, SM-02, SM-03, and SM-04) on the Santa Monica Mountains Conservancy's Sage Ranch Park property, which is located approximately 1 mile northeast of Area IV. The four sampling areas are shown in Figure 3-1. The samples were analyzed for the same radionuclides as the Brandeis-Bardin Institute property soil samples. The results are presented in Table 3-3. The mean background concentrations and standard deviations are based on the background sampling results presented in Table 3-1. As with Table 3-1, bold underlined values in Table 3-3 indicate concentrations that are significantly above background levels (i.e., equal to or exceeding two standard deviations above the mean background concentration). Plutonium-239, iodine-129, and cobalt-60 are not included in the table because these analytes were not detected above detection limits in any of the investigative samples collected from the Santa Monica Mountains Conservancy propert (22). Thorium,-228, uranium-235, and radium-226 are also not included in the table. The rationale for their exclusion is the same as for the 1992 Brandeis-Bardin Institute property soil/sediment sampling event.

As shown in Table 3-3, cesium-137 and strontium-90 were detected at concentrations

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significantly above background in the Former Rocketdyne Employee Shooting Range sampling area (SM-03) and the Orange Groves sampling area (SM-04). No radionuclides were detected at concentrations significantly above background in the Visitor Parking Lot sampling area (SM-01) or the Existing Road System sampling area (SM-02).

3.1.4 Santa Monica Mountains Conservancy Property: 1994 Soil Sampling

Rocketdyne's contractor resampled the Former Rocketdyne Employee Shooting Range sampling area (SM-03) in 1994. The samples were analyzed for tritium only. In agreement with the results of the 1992 soil sampling effort, tritium was not detected above detection limits in any of the five samples collected from sampling area SM-03 in 1994 (22).

3.1.5 Bell Canyon: 1998 Soil Sampling

In June 1998, a contractor to Rocketdyne conducted a soil sampling effort to evaluate whether radiological contaminants associated with Area IV activities had migrated into Bell Canyon, which is located south of Area IV. The work was performed in response to a request from Bell Canyon residents. Six background soil samples were collected from undeveloped portions of the SSFL and Bell Canyon. Investigative soil samples were collected from the following 17 locations: four locations along the banks of the two drainages leading from the SSFL to form Bell Creek, seven locations along Bell Creek, and six locations in three residential yards where drainages entered or exited the properties. The six background locations and 11 of the 17 investigative sample locations are shown in Figure 3-3. The six residential sample locations are not labeled to maintain resident confidentiality. All samples were analyzed for tritium, plutonium-238, plutonium-239/240, strontium-90, and gamma emitting species (e.g., cesium-137, cobalt-60, thorium isotopes, uranium isotopes, and radium-226). No regulatory agency approved the sampling event. However, DTSC, DHS, and EPA staff were present during most of the sampling. (21).

Results of the 1998 soil sampling effort are presented in Table 3-4. Strontium-90, plutonium-238, plutonium-239/240, and cobalt-60 are not included in the table because these analytes were not detected above detection limits in any of the investigative samples collected from Bell Canyon (21). Thorium isotopes, uranium isotopes, and radium-226 are also not included in the table. Although the background locations were selected to be representative of the three bedrock types in Bell Canyon (i.e., Sandstone Member of the Chatsworth Formation, Shale Member of the Chatsworth Formation, and Detrital Sediment of the Lindero Canyon Formation), only three of these locations are on soils developed from the same bedrock formation (Sandstone Member of the Chatsworth Formation) as the residential yards. Since background soil sampling results from a limited number of locations may not be representative of naturally occurring thorium, uranium, and radium-226 concentrations in the residential yards, these analytes were not included in the SI. As shown in Table 3-4, cesium-137 and tritium were not detected at concentrations significantly above background in any of the 17 investigative soil samples collected from Bell Canyon.

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3.1.6 Brandeis Bardin Institute Property: 1992 and 1994 Surface Water Sampling

Surface water samples were collected by Rocketdyne's contractor during the 1992 and 1994 off-site investigations. A background surface water sample was collected from an intermittent creek near Rocky Peak (sampling area BG-01). The location of this background sampling area is shown in Figure 3-1 . Investigative surface water samples were collected from intermittent streams adjacent to Campsite 1 (sampling areas BB-03 and BB-20) and Campsite 2 (sampling area BB-04) on the Brandeis-Bardin Institute property. The Campsite 1 and Campsite 2 sampling areas are shown in Figure 3-2. All samples were analyzed for tritium, plutonium isotopes, iodine-129, strontium-90, and gamma emitting species (e.g., cesium-137, cobalt-60, thorium isotopes, uranium isotopes, and radium-226). No radionuclides were detected above detection limits in any of the background or investigative samples collected during either the 1992 or 1994 surface water sampling events (20, 22).

4.0 HAZARDOUS RANKING SYSTEM FACTORS

4.1 Sources of Contamination

For HRS purposes, a source is defined as an area where a hazardous substance has been deposited, stored, disposed, or placed, plus those soils that have become contaminated from migration of a hazardous substance.

As discussed in Section 3, at least 26 facilities were involved in the nuclear energy research that was conducted in Area IV between 1956 and 1988. The locations of these facilities are shown in Figure 3-2. They consist of buildings and areas where work with radioactive materials was conducted, or where radioactive materials were stored (4). Radionuclides associated with the historic nuclear energy research in Area IV include tritium, plutonium-238, plutonium-239, iodine-129, strontium-90, cesium-137, cobalt-60, thorium-228, and uranium-235 (5, 9).

4.2 Groundwater Pathway

In determining a score for the groundwater migration pathway, the HRS evaluates: 1) the likelihood that sources at a site actually have released, or potentially could release, hazardous substances to groundwater; 2) the characteristics of the hazardous substances that are available for a release (i.e., toxicity, mobility, and quantity); and 3) the people (targets) who actually have been, or potentially could be, impacted by the release. For the targets component of the evaluation, the HRS focuses on the number of people who regularly obtain their drinking water from wells that are located within 4 miles of the site. The HRS emphasizes drinking water usage over other uses of groundwater (e.g., food crop irrigation and livestock watering), because, as a screening tool, it is designed to give the greatest weight to the most direct and extensively studied exposure routes.

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Forty-five monitoring wells located in and around Area IV are used to regularly monitor radionuclide levels in groundwater beneath the site. Elevated levels of tritium have been detected in wells that are located in the northwest portion of Area IV in the vicinity of the Sodium Disposal Facility (886), the Systems for Nuclear Auxiliary Power (SNAP) Ground Prototype Test Facility (Building 059), and the Radioactive Materials Handling Facility (RMHF). Most of this groundwater contamination is reportedly attributable to the unintended production of tritium in soil surrounding the reactor test vessel in the SNAP-8 Experimental Reactor (Building 010) (5, 23).

Although groundwater beneath Area IV is contaminated with tritium, it is not currently used for drinking water, and none of the concentrations exceeded the U.S. EPA Maximum Contaminant Level (MCL) of 20,000 picoCuries per liter (pCi/L). Imported surface water is the main source of drinking water on and in the vicinity of the site. There are no active drinking water wells on the Brandeis-Bardin Institute property. All drinking water for the institute is imported municipal water. The nearest active drinking water well is located more than 4 miles from the site (5,8, 24, 25, 26).

4.3 Surfacewater Pathway

In determining the score for the surface water pathway, the HRS evaluates: 1) the likelihood that sources at a site actually have released, or potentially could release, hazardous substances to surface water (e.g., streams, rivers, lakes, and oceans); 2) the characteristics of the hazardous substances that are available for a release (i.e., toxicity, persistence, bioaccumulation potential, and quantity); and 3) the people or sensitive environments (targets) who actually have been, or potentially could be, impacted by the release. For the targets component of the evaluation, the HRS focuses on drinking water intakes, fisheries, and sensitive environments associated with surface water bodies within 15 miles downstream of the site.

Area IV is located near the crest of the Simi Hills. Most of the site slopes toward the southeast. Stormwater runoff from this portion of the site is collected by a series of drainage channels and accumulates in a retention pond (R2 Pond) in Area II. Water from the R2 Pond is eventually released to an intermittent creek (a.k.a., western drainage) that flows through the undeveloped land to the south of the SSFL. The western drainage converges with Bell Creek just south of the undeveloped land. The remainder of Area IV slopes to the northwest, with stormwater runoff flowing into the ravines along the northwest boundary of the site. The ravines flow into intermittent creeks on the Brandeis-Bardin Institute property. The creeks converge in Meier Creek and enter the Arroyo Simi approximately 3 miles downstream from their headwaters (4, 6).

The California Regional Water Quality Control Board (RWQCB) oversees surface water discharges from the SSFL, including Area IV. The Waste Discharge Requirements (WDRs) require sampling of stormwater discharge from six locations relevant to Area IV (i.e., Outfalls 002 through 007). Outfall 002, which is a National Pollution Discharge Elimination System (NPDES) discharge point located on the western drainage in the undeveloped land to the south of

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Area IV, is shown in Figure 3-3. Outfalls 003 through 007, which are stormwater runoff catch basins located in the northwest portion of Area IV, are shown in Figure 3-2 (EPA 1999b). Analytical results of 45 sampling events in 1997 indicated that permitted limits for radioactivity were not exceeded at any of the outfalls (5).

In 1992, strontium-90, at concentrations of 1.1 pCi/L and 1.8 pCi/L, and tritium, at a concentration of 1,500 pCi/L, were detected in water samples collected from RMHF runoff adjacent to the northwest boundary of Area IV (sampling area BB-16). The location of this sampling area is shown in Figure 3-2. This contamination appears to be localized; since radionuclides were not detected above detection limits in surface water samples collected from the intermittent creek that receives runoff from the RMHF watershed (sampling areas BB-03 and BB-20). Sampling areas BB-03 and BB-20 are also shown in Figure 3-2 (20, 22).

Since the ETEC site is located in a semiarid area where precipitation averages 18 inches per year, the presence of surface water in the creeks that drain Area IV is seasonal (8). For example, the upper portions of Meier Creek are dry 99 percent of the year (3). There is not sufficient water associated with the intermittent creeks that drain Area IV to support drinking water intakes or fisheries. In addition, there are no known aquatic sensitive environment habitats, as defined by the HRS, associated with these creeks (25).

4.4 Soil Exposure Pathway

In determining the score for the soil exposure pathway, the HRS evaluates: 1) the likelihood that there is surficial contamination associated with the site (e.g., contaminated soil that is not covered by pavement or at least 2 feet of clean soil); 2) the characteristics of the hazardous substances in the surficial contamination (i,e., toxicity and quantity); and 3) the people or sensitive environments (targets) who actually have been, or potentially could be, exposed to the contamination. For the targets component of the evaluation, the HRS focuses on populations that are regularly and currently present on or within 200 feet of surficial contamination. The four populations that receive the most weight are residents, students, daycare attendees, and terrestrial sensitive environments.

Area IV is located in a mountainous region and mostly surrounded by undeveloped land. All nuclear research activities were terminated in 1988. The area is completely fenced and subject to 24-hour manned security at the gates (8).

There are no residences, schools, or daycare facilities on or proximal to the site. The nearest residences are located approximately 1.5 miles from Area IV in Bell Canyon to the southeast and at the Santa Monica Mountains Conservancy's Sage Ranch Park to the northeast. The ranger's house at Sage Ranch Park is the only permanent residence on this property. The remainder of the facilities at the park are used by transient populations for hiking and camping (8, 27). In 1998, radionuclides were not detected at concentrations significantly above background in soil samples

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collected from three Bell Canyon residential yards (21). In 1992, radionuclides were not detected at concentrations significantly above background in soil samples collected from the Sage Ranch Park Visitor Center parking lot, which is located adjacent to the park ranger's house (20, 27). Two permanent residences at the Brandeis-Bardin Institute are located in the northernmost portion of the institute's property approximately 2 miles north of Area IV. The remainder of the facilities at the institute are used by transient populations for 1- to 3-week long camping sessions and weekend lecture series (5, 8, 20, 26). In 1992 and 1994, radionuclides were not detected at concentrations significantly above background in the northernmost portion of the Brandeis-Bardin Institute property (20, 22).

There are no terrestrial sensitive environment habitats, as defined by the HRS, on or in the vicinity of the site. A review of the California Department of Fish and Game (CDFG) Natural Diversity Database and results from biological field surveys that were conducted at the SSFL from 1995 to 1997 indicate that several "sensitive" terrestrial species habitats occur on and in the vicinity of the site (8, 25). However, these habitats do not meet the criteria for HRS sensitive environments. For example, the Santa Susana tarplant (*Hemizonia minthornii*), which is found throughout the SSFL, is a federal "species of special concern" and a state "rare" plant (28). However, these designations are not included in the habitats that qualify for evaluation under the HRS [i.e., habitat known to be used by a federally designated or proposed endangered/threatened species, a state designated endangered/threatened species, or a species under review as to its federal endangered/threatened status ("candidate species")].

4.5 Air Pathway

In determining the score for the air migration pathway, the HRS evaluates: 1) the likelihood that sources at a site actually have released, or potentially could release, hazardous substances to ambient outdoor air; 2) the characteristics of the hazardous substances that are available for a release (i.e., toxicity, mobility, and quantity); and 3) the people or sensitive environments (targets) who actually have been, or potentially could be, impacted by the release. For the targets component of the evaluation, the HRS focuses on regularly occupied residences, schools, and workplaces within 4 miles of the site. Transient populations, such as customers and travelers passing through the area, are not counted.

Nuclear energy research was initiated in Area IV in 1956. These operations began to be phased out in the mid-1960s, with all nuclear research being terminated in 1988. No known outdoor ambient air sampling was conducted onsite or in the surrounding residential communities during the years that Area IV was operational (5). Analytical data are, therefore, not available to document a historic release to air. The current onsite worker population consists of decontamination and decommissioning personnel and 25 to 50 Boeing-Canoga Park employees who are engaged in non-radiological research (29).

Continuous outdoor ambient air sampling for radioactivity is conducted within and along the perimeter of Area IV as part of the facilities' environmental monitoring and restoration program.

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Annual exposures measured on and off site are below the Nuclear Regulatory Commission annual dose limit to the general public of 100 millirem above natural background, as used by DOE (5).

5.0 EMERGENCY RESPONSE CONSIDERATIONS

The National Contingency Plan [40 CFR 300.415 (b)] authorizes the EPA to consider emergency response actions at those sites that pose an imminent threat to human health or the environment. For the following reasons, a referral to Region 9's Emergency Response Section does not appear to be necessary:

- All nuclear activities in Area IV were terminated in 1988 (8).
- Area IV is surrounded by a fence and subject to 24-hour manned security at the gates (8).
- Offsite soil sampling events were conducted by Rocketdyne's contractor in 1992, 1994, and 1998 (20, 22, 21). The results of these events were evaluated for the SI. The analytical data indicate that radionuclides associated with historic Area IV nuclear energy research are not present at concentrations significantly above background in surrounding residential communities.

6.0 SUMMARY

The 290-acre Energy Technology Engineering Center/Area IV (ETEC) site is located within the boundaries of the 3,000-acre Rockwell International, Rocketdyne Division, Santa Susana Field Laboratory (SSFL) in a mountainous region near the crest of the Simi Hills in Ventura County, California. From 1956 to 1988, Area IV was used by Rocketdyne and the U.S. Department of Energy for nuclear energy research and development. Nuclear operations began to be phased out in the mid 1960s, with all nuclear research being terminated in 1988. Subsequent work has been directed toward investigation and cleanup of radioactively contaminated buildings, soil, and groundwater.

The nearest residences are located in Bell Canyon approximately 0.5 mile southeast of the ETEC site, at the Santa Monica Mountains Conservancy's Sage Ranch Park approximately 1.5 miles northeast of the site, in Simi Valley approximately 1.7 miles northwest of the site, and in the northernmost portion of the Brandeis-Bardin Institute property approximately 2 miles north of the site.

The following pertinent HRS factors are associated with the site:

- Although groundwater beneath Area IV is contaminated with tritium, it is not currently used for drinking water. Imported surface water is the main source of drinking water on and in the vicinity of the site. The nearest active drinking water well is located greater

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than 4 miles from the site.

- There are no drinking water intakes, fisheries, or aquatic sensitive environment habitats, as defined by the HRS, associated with the intermittent creeks that drain Area IV.

- There are no residences, schools, daycare centers, or terrestrial sensitive environment habitats, as defined by the HRS, on or proximal to the site. Results of 1992, 1994, and 1998 offsite soil sampling efforts indicate that radionuclides associated with historic Area IV nuclear energy research are not present at concentrations significantly above background in surrounding residential communities.

- No known outdoor ambient air sampling was conducted onsite or in the surrounding residential communities during the years that Area IV was fully operational. Analytical data are, therefore, not available to document a historic release to air. The current onsite worker population consists of decontamination and decommissioning personnel and 25 to 50 Boeing-Canoga Park employees who are engaged in non-radiological research. Continuous outdoor ambient air sampling for radioactivity is conducted within and along the perimeter of Area IV as part of the environmental monitoring and restoration program. Annual exposures measured on and off site are below the Nuclear Regulatory Commission annual dose limit to the general public of 100 millirem above natural background.

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7.0 REFERENCE LIST

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Table 3-1
Brandeis-Bardin Institute Property:
1992 Rocketdyne Soil/Sediment Sampling Results[1,2]

[bold underlined investigative results indicate concentrations that are significantly above background levels (i.e., equal to or exceeding two standard deviations above the mean background concentration)]

Sample ID	Cesium-137 [pCi/g(dry)]	Plutonium-238 [pCi/g(dry)]	Strontium-90 [pCi/g(dry)]	Tritium (pCi/L)
Dormitory Area BB-02-045	<0.05	<0.01	<0.01	W
BB-02-060	<0.05	<0.02	0.01	<200
BB-02-071	0.058	<0.01	0.01	W
BB-02-075	0.048	<0.03	0.01	<200
BB-02-078	0.10	<0.05	0.02	<200
Vegetable Garden BB-11-006	0.11	<0.03	0.02	<100
BB-11-018	0.16	<0.07	0.02	<100
BB-11-032	0.20	<0.07	0.02	<100
BB-11-057	0.11	<0.06	0.02	<100
BB-11-061	<0.05	<0.05	<0.01	<100
Main House Orchard BB-12-003	<0.04	<0.08	0.01	<200
BB-12-006	0.091	<0.07	0.03	<100
BB-12-019	0.15	<0.1	0.04	<200
BB-12-020	0.15	<0.1	0.03	<200
BB-12-023	0.12	<0.07	0.02	<200
Potential Development Site 3 BB-10-023	0.16	<0.04	0.02	<100
BB-10-029	0.068	<0.04	0.02	<100
BB-10-067	0.098	<0.03	0.06	<100
BB-10-079	0.15	<0.02	0.05	<100
BB-10-081	0.093	<0.03	0.02	<100
Mean Background Concentration	0.092	0.029	0.029	308
Standard Deviation	0.058	0.036	0.020	185
2 Standard Deviations above the Mean Background Concentration	(2x0.058) + 0.092 = 0.21	(2x0.036) + 0.029 = 0.10	(2x0.020) + 0.029 = 0.07	(2x185) + 308 = 678

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Table 3-1
Brandeis-Bardin Institute Property:
1992 Rocketdyne Soil/Sediment Sampling Results[1,2]

[bold underlined investigative results indicate concentrations that are significantly above background levels (i.e., equal to or exceeding two standard deviations above the mean background concentration)]

Sample ID	Cesium-137 [pCi/g(dry)]	Plutonium-238 [pCi/g(dry)]	Strontium-90 [pCi/g(dry)]	Tritium (pCi/L)
Picnic Area BB-05-003	**0.22**	<0.01	0.02	280
BB-05-006	0.11	<0.03	0.02	200
BB-05-057	0.052	<0.006	0.03	<200
BB-05-077	0.16	<0.008	0.06	<200
BB-05-089	0.14	<0.03	0.02	<200
Avocado Grove BB-13-010	<0.05	<0.05	<0.01	<200
BB-13-011	0.098	<0.05	0.01	520
BB-13-024	<0.05	<0.09	0.01	**760**
BB-13-037	0.10	<0.03	0.01	400
BB-13-039	0.077	<0.1	0.01	<200
House of the Book BB-06-007	<0.05	<0.02	<0.01	480
BB-06-013	<0.05	<0.02	0.01	<300
BB-06-017	<0.03	<0.01	0.01	D
BB-06-066	<0.04	<0.01	<0.01	<300
BB-06-092	<004	<0.006	<0.01	190
Counselor-in-Training Area BB-07-012	0.044	<0.06	0.01	210
BB-07-035	0.095	<0.06	0.02	<200
BB-07-036	0.095	<0.08	0.02	<200
BB-07-038	0.13	<0.2	0.02	<100
BB-07-058	0.099	<0.06	0.01	190
Mean Background Concentration	0.092	0.029	0.029	308
Standard Deviation	0.058	0.036	0.020	185
2 Standard Deviations above the Mean Background Concentration	(2x0.058) + 0.092 = 0.21	(2x0.036) + 0.029 = 0.10	(2x0.020) + 0.029 = 0.07	(2x185) + 308 = 678

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Table 3-1
Brandeis-Bardin Institute Property:
1992 Rocketdyne Soil/Sediment Sampling Results[1,2]

[bold underlined investigative results indicate concentrations that are significantly above background levels (i.e., equal to or exceeding two standard deviations above the mean background concentration)]

Sample ID	Cesium-137 [pCi/g(dry)]	Plutonium-238 [pCi/g(dry)]	Strontium-90 [pCi/g(dry)]	Tritium (pCi/L)
Old Well Campsite BB-14-004	0.20	<0.07	0.05	<200
BB-14-037	0.17	<0.01	0.02	D
BB-14-041	**0.27**	<0.06	0.06	D
BB-14-079	<0.04	**0.12**	0.03	140
BB-14-094	<0.04	<0.05	0.02	W
Potential Development Site 1 BB-08-003	0.16	<0.1	0.02	280
BB-08-022	0.14	<0.1	0.01	210
BB-08-034	0.15	<0.06	<0.01	<100
BB-08-035	0.17	<0.1	<0.01	200
BB-08-038	0.094	<0.05	0.02	420
Potential Development Site 2 BB-09-031	0.062	<0.07	0.02	180
BB-09-051	0.11	<0.5	0.02	<200
BB-09-070	0.092	<0.09	0.01	<200
BB-09-092	0.069	<0.1	0.02	220
BB-09-100	0.066	<0.1	0.02	<200
Playground BB-01-001	0.060	<0.1	<0.01	<100
BB-01-027	<0.03	<0.03	<0.01	<200
BB-01-038	0.085	<0.02	0.02	<100
BB-01-041	0.10	<0.06	0.02	<200
BB-01-56	<0.04	<0.1	0.04	190
Mean Background Concentration	0.092	0.029	0.029	308
Standard Deviation	0.058	0.036	0.020	185
2 Standard Deviations above the Mean Background Concentration	(2x0.058) + 0.092 = 0.21	(2x0.036) + 0.029 = 0.10	(2x0.020) + 0.029 = 0.07	(2x185) + 308 = 678

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Table 3-1
Brandeis-Bardin Institute Property:
1992 Rocketdyne Soil/Sediment Sampling Results[1,2]

[bold underlined investigative results indicate concentrations that are significantly above background levels (i.e., equal to or exceeding two standard deviations above the mean background concentration)]

Sample ID	Cesium-137 [pCi/g(dry)]	Plutonium-238 [pCi/g(dry)]	Strontium-90 [pCi/g(dry)]	Tritium (pCi/L)
Sodium Reactor Experiment (SRE) Watershed				
BB-19-001	**0.30**	<0.05	**0.08**	D
BB-19-002	**0.24**	<0.06	**0.09**	<100
BB-19-003	<0.04	<0.07	0.02	200
BB-19-004	0.18	<0.04	0.03	<100
RD-51 Watershed				
BB-15-001	0.045	**0.22**	0.01	W
BB-15-002	0.044	0.067	<0.01	<200
BB-15-003	0.039	<0.05	0.01	<200
BB-15-004	0.043	<0.05	<0.01	W
BB-15-005	0.052	0.055	<0.01	D
Campsite 1				
BB-03-005	0.20	<0.08	0.06	<200
BB-03-017	0.085	<0.007	0.05	<300
BB-03-025	0.20	<0.2	**0.09**	340
BB-03-079	<0.04	<0.01	0.03	<200
BB-03-092	**0.38**	<0.1	0.04	<200
Campsite 2				
BB-04-021	<0.05	<0.02	0.03	390
BB-04-023	0.099	<0.01	0.02	310
BB-04-026	0.15	<0.009	0.03	660
BB-04-082	<0.03	<0.02	0.01	510
BB-04-097	<0.03	<0.02	0.01	<200
Mean Background Concentration	0.092	0.029	0.029	308
Standard Deviation	0.058	0.036	0.020	185
2 Standard Deviations above the Mean Background Concentration	(2x0.058) + 0.092 = 0.21	(2x0.036) + 0.029 = 0.10	(2x0.020) + 0.029 = 0.07	(2x185) + 308 = 678

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Table 3-1
Brandeis-Bardin Institute Property:
1992 Rocketdyne Soil/Sediment Sampling Results[1,2]

[bold underlined investigative results indicate concentrations that are significantly above background levels (i.e., equal to or exceeding two standard deviations above the mean background concentration)]

Sample ID	Cesium-137 [pCi/g(dry)]	Plutonium-238 [pCi/g(dry)]	Strontium-90 [pCi/g(dry)]	Tritium (pCi/L)
Investigative Soil/Sediment Sample Locations				
Sodium Burn Pit Watershed BB-18-001	0.085	0.017	0.02	<100
BB-18-001A	0.11	0.043	0.02	120
BB-18-001B	<0.03	<0.02	0.01	260
BB-18-002	0.057	<0.02	<0.01	<100
BB-18-002A	0.063	<0.03	0.02	<100
BB-18-002B	<0.05	<0.02	0.02	440
BB-18-003	<0.03	<0.1	0.01	<100
BB-18-003A	<4	<0.02	<0.01	D
BB-18-003B	0.060	<0.02	<0.01	200
Building 59 Watershed BB-17-001	0.077	**0.19**	0.01	130
BB-17-002	0.16	0.055	0.02	<100
BB-17-003	0.13	0.055	0.01	**10,800**
BB-17-004	**0.23**	<0.04	0.03	**9,810**
Radioactive Materials Handling Facility (RMHF) Watershed BB-16-001A	0.070	<0.04	**0.08**	**990**
BB-16-001B	<0.04	<0.03	0.03	<200
BB-16-002	<0.04	0.066	**0.09**	**1,100**
BB-16-003	<0.03	<0.02	0.02	**1,300**
BB-16-004	**0.34**	<0.07	**0.15**	**1,300**
BB-16-005	<0.04	<0.02	0.04	**1,500**
Mean Background Concentration	0.092	0.029	0.029	308
Standard Deviation	0.058	0.036	0.020	185
2 Standard Deviations above the Mean Background Concentration	(2x0.058) + 0.092 = 0.21	(2x0.036) + 0.029 = 0.10	(2x0.020) + 0.029 = 0.07	(2x185) + 308 = 678

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Table 3-1
Brandeis-Bardin Institute Property:
1992 Rocketdyne Soil/Sediment Sampling Results[1,2]

[bold underlined investigative results indicate concentrations that are significantly above background levels (i.e., equal to or exceeding two standard deviations above the mean background concentration)]

Sample ID	Cesium-137 [pCi/g(dry)]	Plutonium-238 [pCi/g(dry)]	Strontium-90 [pCi/g(dry)]	Tritium (pCi/L)
Background Soil Sample Locations				
Rocky Peak BG-01-005	0.092	<0.07	0.03	220
BG-01-008	<0.04	<0.04	0.01	<100
BG-01-100	0.18	<0.02	0.05	380
Santa Susana Park BG-02-007	0.17	<0.02	0.02	360
BG-02-074	<0.04	<0.01	<0.01	W
BG-02-076	0.099	<0.02	0.03	420
Bell Canyon BG-03-001	<0.07	<0.03	<0.01	D
BG-03-019	<0.07	0.066	0.02	<200
BG-03-059	<0.05	0.10	0.01	<200
Western Sampling Site BG-04-025	0.15	<0.009	0.02	220
BG-04-029	0.14	<0.008	0.02	750
BG-04-090	0.19	<0.01	0.05	120
Happy Camp BG-05-016	0.74	<0.02	0.05	260
BG-05-026	0.067	<0.03	0.08	380
BG-05-074	0.10	<0.02	0.05	490
Santa Monica Mountains National Recreation Area BG-06-033	0.097	<0.08	0.03	330
BG-06-089	<0.06	<0.07	0.03	440
BG-06-096	0.14	0.13	0.02	D
Mean Background Concentration	0.092	0.029	0.029	308
Standard Deviation	0.058	0.036	0.020	185
2 Standard Deviations above the Mean Background Concentration	(2x0.058) + 0.092 = 0.21	(2x0.036) + 0.029 = 0.10	(2x0.020) + 0.029 = 0.07	(2x185) + 308 = 678

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Notes:

1 = The 1992 soil/sediment samples were analyzed for additional radionuclides, other than those presented in Table 3-1 (e.g., plutonium-239, iodine-129, cobalt-60, thorium-228, uranium-235, and daughter product radium-226). Plutonium-239, iodine-129, and cobalt-60 are not included in the table because they were not detected above detection limits in any of the investigative samples collected from the Brandeis-Bardin Institute property. Thorium-228, uranium-235, and radium-226 are not included in the table because background soil sampling results from the 1992 investigation may not be representative of naturally occurring levels of these three analytes on the Brandeis-Bardin Institute property.

2 = Representatives from the EPA, DHS, and Brandeis-Bardin Institute were provided with split samples for independent laboratory analyses. Overall completeness (i.e., percentage of blind field duplicate, interlaboratory split duplicate, and split sample results that are consistent or in agreement) was 97 percent. The split sample results are not included in Table 3-1.

< = Analyte not detected above the specified detection limit.

PCi/g = picoCuries per gram

pCi/L = picoCuries per liter

W = The laboratory was unable to meet quality assurance and quality control guidelines for tritium in some samples, causing the results for tritium in these samples to be withdrawn.

D = Sample was inadvertently dried by the laboratory and could not be analyzed.

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Table 3-2
Brandeis-Bardin Institute Property:
1994 Rocketdyne Soil/Sediment Sampling Results[1,2]

[bold underlined investigative results indicate concentrations that are significantly above background levels (i.e., equal to or exceeding two standard deviations above the mean background concentration)]

Sample ID	Cesium-137 [pCi/g(dry)]	Plutonium-238 [pCi/g(dry)]	Strontium-90 [pCi/g(dry)]	Tritium (pCi/L)
Background Soil Sample Locations				
Rocky Peak BG-01-016	<0.04	<0.03	<0.09	<100
BG-01-034	0.1	<0.01	<0.1	<100
BG-01-082	<0.04	<0.01	<0.08	<200
BG-01-087	0.158	<0.007	<0.07	<200
BG-01-090	0.175	<0.009	<0.1	<200
Santa Susana Park BG-02-007	<0.06	<0.007	0.13	<100
BG-02-017	0.213	<0.007	0.12	<200
BG-02-074	<0.05	<0.01	<0.08	<200
BG-02-076	<0.04	<0.01	<0.09	<200
BG-02-085	<0.04	<0.007	0.13	<200
Happy Camp BG-05-017	0.147	<0.02	0.088	<200
BG-05-027	0.099	<0.01	0.1	<200
BG-05-050	0.101	<0.02	0.069	<200
BG-05-056	0.148	<0.01	0.097	<200
BG-05-074	0.153	<0.02	0.084	<500
Wildwood Regional Park BG-09-003	<0.05	<0.008	0.13	<200
BG-09-005	0.188	<0.01	<0.1	<200
BG-09-013	0.198	<0.008	0.12	<200
BG-09-057	<0.06	<0.008	0.11	<200
BG-09-096	0.079	<0.02	0.12	<200
Wildwood Regional Park Ravine BG-10-001	0.245	<0.01	0.098	<100
BG-10-002	0.276	<0.008	<0.09	<100
BG-10-003	0.257	<0.007	<0.09	<100
BG-10-004	0.215	<0.009	<0.04	<100

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Table 3-2
Brandeis-Bardin Institute Property:
1994 Rocketdyne Soil/Sediment Sampling Results[1,2]

[bold underlined investigative results indicate concentrations that are significantly above background levels (i.e., equal to or exceeding two standard deviations above the mean background concentration)]

Sample ID	Cesium-137 [pCi/g(dry)]	Plutonium-238 [pCi/g(dry)]	Strontium-90 [pCi/g(dry)]	Tritium (pCi/L)
BG-10-005	0.456	<0.01	<0.09	<100
Tapia County Park BG-11-010	0.158	<0.01	0.089	<200
BG-11-011	0.109	<0.006	<0.1	<100
BG-11-031	0.059	<0.007	<0.09	<1,000
BG-11-036	0.067	<0.008	<0.1	<100
BG-11-075	0.113	<0.006	<0.09	<200
Tapia County Park Ravine BG-12-001	<0.03	<0.006	<0.08	W
BG-12-002	0.031	<0.02	<0.09	<100
BG-12-003	0.042	<0.007	<0.09	<100
BG-12-004	0.097	<0.008	<0.09	<100
BG-12-005	<0.03	<0.007	<0.05	W
Rocky Peak Ravine BG-14-001	<0.04	<0.009	0.082	<100
BG-14-002	0.085	<0.01	<0.09	<100
BG-14-003	0.080	<0.007	<0.08	<300
BG-14-004	<0.03	<0.008	<0.07	W
BG-14-005	<0.04	<0.008	<0.05	W
Mean Background Concentration	0.108	0.005	0.065	96
Standard Deviation	0.096	0.003	0.034	80
2 Standard Deviations above the Mean Background Concentration	(2x0.096) + 0.108 = 0.3	(2x0.003) + 0.005 = 0.01	(2x0.034) + 0.065 = 0.13	(2x80) + 96 = 256

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Table 3-2
Brandeis-Bardin Institute Property:
1994 Rocketdyne Soil/Sediment Sampling Results[1,2]

[bold underlined investigative results indicate concentrations that are significantly above background levels (i.e., equal to or exceeding two standard deviations above the mean background concentration)]

Sample ID	Cesium-137 [pCi/g(dry)]	Plutonium-238 [pCi/g(dry)]	Strontium-90 [pCi/g(dry)]	Tritium (pCi/L)
Investigative Soil/Sediment Sample Locations				
Building 59 Watershed BB-17-005	0.218	<0.01	Not analyzed	<100
BB-17-005A	0.148	<0.02	Not analyzed	<100
BB-17-005B	**0.385**	<0.04	Not analyzed	<100
BB-17-006	0.193	<0.02	Not analyzed	**3,500**
BB-17-006A	0.164	<0.01	Not analyzed	180
BB-17-006B	0.23	<0.02	Not analyzed	<100
BB-17-007	0.22	<0.02	Not analyzed	**2,900**
BB-17-007A	0.123	<0.01	Not analyzed	230
BB-17-007B	0.299	<0.02	Not analyzed	220
BB-17-008	0.124	<0.03	Not analyzed	**5,400**
BB-17-008A	0.249	<0.02	Not analyzed	**300**
BB-17-008B	0.242	<0.04	Not analyzed	<100
BB-17-009	0.149	<0.03	Not analyzed	**3,900**
BB-17-009A	0.187	<0.01	Not analyzed	<200
BB-17-009B	**0.36**	<0.008	Not analyzed	Not analyzed or data missing
BB-17-010	0.116	<0.01	Not analyzed	<100
BB-17-B001/0.0	0.115	<0.01	Not analyzed	<200
BB-17-B002/0.0	0.13	<0.01	Not analyzed	<200
BB-17-B003/0.0	<0.05	<0.01	Not analyzed	<200
Radioactive Materials Handling Facility (RMHF) Watershed BB-16-006	**0.46**	Not analyzed	0.08	<100
BB-16-007	<0.04	Not analyzed	0.11	230
Mean Background Concentration	0.108	0.005	0.065	96
Standard Deviation	0.096	0.003	0.034	80
2 Standard Deviations above the Mean Background Concentration	(2x0.096) + 0.108 = 0.3	(2x0.003) + 0.005 = 0.01	(2x0.034) + 0.065 = 0.13	(2x80) + 96 = 256

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Table 3-2
Brandeis-Bardin Institute Property:
1994 Rocketdyne Soil/Sediment Sampling Results[1,2]

[bold underlined investigative results indicate concentrations that are significantly above background levels (i.e., equal to or exceeding two standard deviations above the mean background concentration)]

Sample ID	Cesium-137 [pCi/g(dry)]	Plutonium-238 [pCi/g(dry)]	Strontium-90 [pCi/g(dry)]	Tritium (pCi/L)
BB-16-008	<0.04	Not analyzed	**0.15**	<100
BB-16-009	0.199	Not analyzed	**0.24**	<100
BB-16-010	0.075	Not analyzed	**0.14**	<100
BB-16-B001/0.0	0.147	Not analyzed	<0.05	<200
BB-16-B002/0.0	0.109	Not analyzed	<0.08	<100
BB-16-B003/0.0	0.087	Not analyzed	<0.07	<100
BB-16-B004/0.0	<0.04	Not analyzed	<0.1	<100
BB-16-B005/0.0	<0.05	Not analyzed	<0.05	<100
Sodium Reactor Experiment (SRE) Watershed BB-19-005	0.056	Not analyzed	<0.08	Not analyzed
BB-19-006	0.051	Not analyzed	0.12	Not analyzed
BB-19-007	<0.04	Not analyzed	<0.1	Not analyzed
BB-19-008	0.045	Not analyzed	<0.1	Not analyzed
BB-19-009	<0.03	Not analyzed	0.061	Not analyzed
RD-51 Watershed BB-15-001	Not analyzed	<0.01	Not analyzed	<200
BB-15-002	Not analyzed	Not analyzed	Not analyzed	<200
BB-15-003	Not analyzed	Not analyzed	Not analyzed	<200
BB-15-004	Not analyzed	Not analyzed	Not analyzed	<200
BB-15-005	Not analyzed	Not analyzed	Not analyzed	<200
BB-15-006	Not analyzed	<0.01	Not analyzed	Not analyzed
BB-15-007	Not analyzed	<0.01	Not analyzed	Not analyzed
BB-15-008	Not analyzed	<0.01	Not analyzed	Not analyzed
BB-15-09	Not analyzed	<0.009	Not analyzed	Not analyzed
Mean Background Concentration	0.108	0.005	0.065	96
Standard Deviation	0.096	0.003	0.034	80
2 Standard Deviations above the Mean Background Concentration	(2x0.096) + 0.108 = 0.3	(2x0.003) + 0.005 = 0.01	(2x0.034) + 0.065 = 0.13	(2x80) + 96 = 256

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Table 3-2
Brandeis-Bardin Institute Property:
1994 Rocketdyne Soil/Sediment Sampling Results[1,2]

[bold underlined investigative results indicate concentrations that are significantly above background levels (i.e., equal to or exceeding two standard deviations above the mean background concentration)]

Sample ID	Cesium-137 [pCi/g(dry)]	Plutonium-238 [pCi/g(dry)]	Strontium-90 [pCi/g(dry)]	Tritium (pCi/L)
BB-15-010	Not analyzed	<0.009	Not analyzed	Not analyzed
Campsite 1 BB-03-003	Not analyzed	Not analyzed	Not analyzed	<200
BB-03-005	Not analyzed	Not analyzed	Not analyzed	<200
BB-03-017	Not analyzed	Not analyzed	Not analyzed	<200
BB-03-025	Not analyzed	Not analyzed	Not analyzed	<200
BB-03-026	Not analyzed	Not analyzed	Not analyzed	<100
BB-03-029	Not analyzed	Not analyzed	Not analyzed	<100
BB-03-079	Not analyzed	Not analyzed	Not analyzed	<100
BB-03-081	Not analyzed	Not analyzed	Not analyzed	<100
BB-03-096	Not analyzed	Not analyzed	Not analyzed	<100
BB-03-097	Not analyzed	Not analyzed	Not analyzed	<100
Campsite 1 Drainage BB-20-001	0.11	Not analyzed	<0.1	<100
BB-20-002	<0.04	Not analyzed	<0.09	<100
BB-20-003	<0.04	Not analyzed	<0.06	<100
BB-20-004	<0.04	Not analyzed	**0.18**	<100
BB-20-005	<0.03	Not analyzed	<0.06	<100
BB-20-006	<0.05	Not analyzed	<0.05	<100
BB-20-007	<0.05	Not analyzed	<0.05	<100
BB-20-008	<0.05	Not analyzed	<0.06	<100
BB-20-009	0.076	Not analyzed	<0.06	<100
BB-20-010	<0.05	Not analyzed	<0.1	<100
Campsite 2 BB-04-021	Not analyzed	Not analyzed	Not analyzed	<100
Mean Background Concentration	0.108	0.005	0.065	96
Standard Deviation	0.096	0.003	0.034	80
2 Standard Deviations above the Mean Background Concentration	(2x0.096) + 0.108 = 0.3	(2x0.003) + 0.005 = 0.01	(2x0.034) + 0.065 = 0.13	(2x80) + 96 = 256

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Table 3-2
Brandeis-Bardin Institute Property:
1994 Rocketdyne Soil/Sediment Sampling Results[1,2]

[bold underlined investigative results indicate concentrations that are significantly above background levels (i.e., equal to or exceeding two standard deviations above the mean background concentration)]

Sample ID	Cesium-137 [pCi/g(dry)]	Plutonium-238 [pCi/g(dry)]	Strontium-90 [pCi/g(dry)]	Tritium (pCi/L)
BB-04-023	Not analyzed	Not analyzed	Not analyzed	<100
BB-04-026	Not analyzed	Not analyzed	Not analyzed	<100
BB-04-049	Not analyzed	Not analyzed	Not analyzed	<100
BB-04-062	Not analyzed	Not analyzed	Not analyzed	<100
BB-04-078	Not analyzed	Not analyzed	Not analyzed	<100
BB-04-079	Not analyzed	Not analyzed	Not analyzed	<100
BB-04-082	Not analyzed	Not analyzed	Not analyzed	<100
BB-04-084	Not analyzed	Not analyzed	Not analyzed	<100
BB-04-097	Not analyzed	Not analyzed	Not analyzed	<100
Old Well Campsite BB-14-004	Not analyzed	Not analyzed	Not analyzed	<200
BB-14-037	Not analyzed	Not analyzed	Not analyzed	<100
BB-14-041	Not analyzed	Not analyzed	Not analyzed	<100
BB-14-079	Not analyzed	Not analyzed	Not analyzed	<100
BB-14-094	Not analyzed	Not analyzed	Not analyzed	<100
Picnic Area BB-05-003	Not analyzed	Not analyzed	Not analyzed	<100
BB-05-006	Not analyzed	Not analyzed	Not analyzed	<100
BB-05-057	Not analyzed	Not analyzed	Not analyzed	<100
BB-05-077	Not analyzed	Not analyzed	Not analyzed	<100
BB-05-089	Not analyzed	Not analyzed	Not analyzed	<100
Avocado Grove BB-13-010	Not analyzed	Not analyzed	Not analyzed	<200
BB-13-011	Not analyzed	Not analyzed	Not analyzed	<200
BB-13-024	Not analyzed	Not analyzed	Not analyzed	<200
Mean Background Concentration	0.108	0.005	0.065	96
Standard Deviation	0.096	0.003	0.034	80
2 Standard Deviations above the Mean Background Concentration	(2x0.096) + 0.108 = 0.3	(2x0.003) + 0.005 = 0.01	(2x0.034) + 0.065 = 0.13	(2x80) + 96 = 256

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Table 3-2
Brandeis-Bardin Institute Property:
1994 Rocketdyne Soil/Sediment Sampling Results[1,2]

[bold underlined investigative results indicate concentrations that are significantly above background levels (i.e., equal to or exceeding two standard deviations above the mean background concentration)]

Sample ID	Cesium-137 [pCi/g(dry)]	Plutonium-238 [pCi/g(dry)]	Strontium-90 [pCi/g(dry)]	Tritium (pCi/L)
BB-13-037	Not analyzed	Not analyzed	Not analyzed	<200
BB-13-039	Not analyzed	Not analyzed	Not analyzed	<200
House of the Book BB-06-007	Not analyzed	Not analyzed	Not analyzed	<100
BB-06-013	Not analyzed	Not analyzed	Not analyzed	<200
BB-06-017	Not analyzed	Not analyzed	Not analyzed	<200
BB-06-066	Not analyzed	Not analyzed	Not analyzed	<200
BB-06-092	Not analyzed	Not analyzed	Not analyzed	<100
Dormitory Area BB-02-045	Not analyzed	Not analyzed	Not analyzed	<200
BB-02-060	Not analyzed	Not analyzed	Not analyzed	<200
BB-02-071	Not analyzed	Not analyzed	Not analyzed	<200
BB-02-075	Not analyzed	Not analyzed	Not analyzed	<200
BB-02-078	Not analyzed	Not analyzed	Not analyzed	<200
Main House Orchard BB-12-003	Not analyzed	Not analyzed	Not analyzed	<200
BB-12-006	Not analyzed	Not analyzed	Not analyzed	<200
BB-12-019	Not analyzed	Not analyzed	Not analyzed	<200
BB-12-020	Not analyzed	Not analyzed	Not analyzed	<200
BB-12-023	Not analyzed	Not analyzed	Not analyzed	<200
Mean Background Concentration	0.108	0.005	0.065	96
Standard Deviation	0.096	0.003	0.034	80
2 Standard Deviations above the Mean Background Concentration	(2x0.096) + 0.108 = 0.3	(2x0.003) + 0.005 = 0.01	(2x0.034) + 0.065 = 0.13	(2x80) + 96 = 256

Notes:

1 = The 1994 soil/sediment samples were analyzed for additional radionuclides, other than those presented in Table 3-2 (e.g., plutonium-239, cobalt-60, thorium isotopes, uranium isotopes, and daughter product radium-226). Plutonium-239 and cobalt-60 are not included in the table because they were not detected above detection limits in any of the investigative samples collected from the Brandeis-Bardin Institute property. Thorium isotopes, uranium isotopes, and radium-226 are not included in the table because background soil sampling results from the 1994 investigation may not be representative of naturally occurring levels of these analytes on the Brandeis-Bardin Institute property.

2 = Representatives from the EPA, DHS, and Brandeis-Bardin Institute were provided with split samples for independent laboratory analysis. Ninety-six percent of the Quality Assurance/Quality Control (QA/QC) samples, including the split

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samples, were in agreement with the respective scheduled sample. The split sample results are not included in Table 3-2.

< = Analyte not detected above specified detection limit.

pCi/g = picoCuries per gram

pCi/L = picoCuries per liter

W = Sample results could not be verified by the laboratory and subsequently were withdrawn.

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Table 3-3
Santa Monica Mountains Conservancy:
1992 Rocketdyne Soil Sampling Results[1]

[bold underlined investigative results indicate concentrations that are significantly above background levels (i.e., equal to or exceeding two standard deviations above the mean background concentration)]

Sample ID	Cesium-137 [pCi/g(dry)]	Plutonium-238 [pCi/g(dry)]	Strontium-90 [pCi/g(dry)]	Tritium (pCi/L)
Background Soil Sample Locations				
Mean Background Concentration	0.092	0.029	0.029	308
Standard Deviation	0.058	0.036	0.020	185
2 Standard Deviations above the Mean Background Concentration	(2x0.058) + 0.092 = 0.21	(2x0.036) + 0.029 = 0.10	(2x0.020) + 0.029 = 0.07	(2x185) + 308 = 678
Investigative Soil Sample Locations				
Visitor Center Parking Lot SM-01-004	0.038	0.082	0.02	<100
SM-01-007	<0.04	<0.05	0.02	<100
SM-01-008	0.073	<0.06	0.04	<100
SM-01-020	<0.04	<0.02	0.01	<200
SM-01-021	0.12	<0.04	0.02	<100
Existing Road System SM-02-004	<0.06	<0.04	0.03	<100
SM-02-019	0.12	<0.01	0.05	<100
SM-02-021	0.052	<0.01	0.03	<100
SM-02-032	<0.04	<0.02	0.02	<100
SM-02-044	<0.04	<0.02	0.02	<100
Former Rocketdyne Employee Shooting Range SM-03-001	0.19	<0.02	**0.07**	<100
SM-03-009	0.13	<0.02	0.03	<100
SM-03-012	0.13	<0.02	0.02	<100
SM-03-014	0.10	<0.02	0.02	<100
SM-03-015	**0.27**	<0.04	0.05	<200
Orange Groves SM-04-003	0.17	<0.02	0.04	380
SM-04-024	**0.42**	<0.03	0.1	460
SM-04-026	<0.05	<0.02	0.03	280
SM-04-028	0.12	<0.02	0.03	460
SM-04-041	**0.29**	<0.06	**0.14**	230

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Notes:

1 = The 1992 soil samples were analyzed for additional radionuclides, other that those presented in Table 3-3. (e.g., plutonium-239, iodine-129, cobalt-60, thorium-228, uranium-235, and daughter product radium-226). Plutonium-239, iodine-129, and cobalt-60 are not included in the table because they were not detected above detection limits in any of the investigative samples collected from the Santa Monica Mountains Conservancy property. Thorium-228, uranium-235, and radium-226 are not included in the table because background soil sampling results from the 1992 investigation may not be representative of naturally occurring levels of these three analytes on the Santa Monica Mountains Conservancy property.

< = Analyte not detected above the specified detection limit.

pCi/g = picoCuries per gram

pCi/L = picoCuries per liter

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Table 3-4
Bell Canyon: 1998 Rocketdyne Soil Sampling Results (pCi/g)[1,2]

[bold underlined investigative results indicate concentrations that are significantly above background levels (i.e., equal to or exceeding two standard deviations above the mean background concentration)]

Sample ID	Cesium-137	Tritium
Background Soil Sample Locations		
BCSS11S01/RH033 (southern Bell Canyon)	0.08	<0.08
BCSS13S01/RH041 (western Bell Canyon)	0.1	<0.08
BCBS09S01/RH046 (eastern Bell Canyon)	0.18	<0.09
BCSS14S01/RH047 (southeastern SSFL undeveloped land)	0.036	<0.08
BCSS14D01/RH048 (Field duplicate)	0.10	<0.09
BCSS09S01/RH026 (south-central SSFL undeveloped land)	<0.033	*0.24J*
BCSS09S01/RH026RE (south-central SSFL undeveloped land)	Not analyzed	<0.11
BCSS12S01/RH036 (southern boundary SSFL undeveloped land)	0.15	<0.09
Mean Background Concentration	0.095	0.044
Standard Deviation	0.058	0.005
2 Standard Deviations above the Mean Background Concentration	(2x0.058) + 0.095 = 0.21	(2x0.005) + 0.044 = 0.054
Investigative Soil Sample Locations		
BCSS08S01/RH021 (SSFL eastern drainage)	<0.016	*0.30J*
BCSS08S01/RH021RE (SSFL eastern drainage)	Not analyzed	<0.13
BCBS07S01/RH030 (SSFL eastern drainage)	<0.02	<0.09
BCBS08S01/RH031 (SSFL western drainage)	<0.025	<0.09
BCSS10S01/RH032 (SSFL western drainage)	<0.022	<0.09
BCBS05S01/RH016 (Bell Creek)	<0.025	*0.26J*
BCBS05S01/RH016RE (Bell Creek)	Not analyzed	<0.12
BCSS07S01/RH015 (Bell Creek)	<0.015	<0.09
BCSS06S01/RH014 (Bell Creek)	0.034	*0.30J*
BCSS06S01/RH014RE (Bell Creek)	Not analyzed	<0.13
BCBS04S01/RH013 (Bell Creek)	<0.023	*0.17J*
BCBS04S01/RH013RE (Bell Creek)	Not analyzed	<0.12
BCSS05S01/RH012 (Bell Creek)	<0.029	*0.23J*
BCSS05S01/RH012RE (Bell Creek)	Not analyzed	<0.17
BCBS03S01/RH011 (Bell Creek)	0.026	<0.08

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Table 3-4
Bell Canyon: 1998 Rocketdyne Soil Sampling Results (pCi/g)[1,2]

[bold underlined investigative results indicate concentrations that are significantly above background levels (i.e., equal to or exceeding two standard deviations above the mean background concentration)]

Sample ID	Cesium-137	Tritium
BCBS06S01/RH025 (Bell Creek)	<0.013	<0.08
BCSS01S01/RH002 (Residence 1)	0.045	*0.15J*
BCSS01S01/RH002RE (Residence 1)	Not analyzed	*0.36J*
BCSS02S01/RH003 (Residence 1)	<0.031	*0.10J*
BCSS02S01/RH003RE (Residence 1)	Not analyzed	<0.11
BCBS01S01/RH004 (Residence 2)	<0.020	<0.1
BCBS02S01/RH005 (Residence 2)	<0.018	*0.14J*
BCBS02S01/RH005RE (Residence 2)	Not analyzed	<0.12
BCSS03S01/RH006 (Residence 3)	0.15	*0.15J*
BCSS03S01/RH006RE (Residence 3)	Not analyzed	<0.12
BCSS04S01/RH007 (Residence 3)	0.089	*0.16J*
BCSS04S01/RH007RE (Residence 3)	Not analyzed	<0.12
Mean Background Concentration	0.095	0.044
Standard Deviation	0.058	0.005
2 Standard Deviations above the Mean Background Concentration	(2x0.058) + 0.095 = 0.21	(2x0.005) + 0.044 = 0.054

Notes:

1 = The 1998 soil samples were analyzed for additional radionuclides, other than those presented in Table 3-4 (e.g., plutonium-238, plutonium 239/240, strontium-90, cobalt-60, thorium isotopes, uranium isotopes, and radium-226). Plutonium-238, plutonium 239/240, strontium-90, and cobalt-60 are not included in the table because they were not detected above detection limits in any of the investigative samples collected from Bell Canyon. Thorium isotopes, uranium isotopes, and radium-266 are not included in the table because background soil sampling results from the 1998 investigation may not be representative of naturally occurring levels of these analytes in soils at the Bell Canyon investigative sample locations.

2 = Regulatory agency representatives were provided with split samples for independent laboratory analyses. Validated results for the split samples were not available at the time that the SI report was prepared.

< = The analyte was analyzed for, but not detected above the reported sample specific method detection activity (MDA).

J = The value is an estimated quantity because the reported result is above the MDA, but below the required detection limit activity (RDA). The RDA for tritium is 0.5 pCi/g. These data were not considered to be significantly above background for the SI.

RE = Tritium was originally detected in 11 samples. These detects were above the sample specific MDAs but below the RDA. The 11 samples were reextracted and reanalyzed. Only the reanalyzed results were included in the SI.

pCi/g = picoCuries per gram

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Base map source: Figure 1-2, *Location Map, Santa Susana Field Laboratory*, Ogden; *SRAM Work Plan*, June 1998

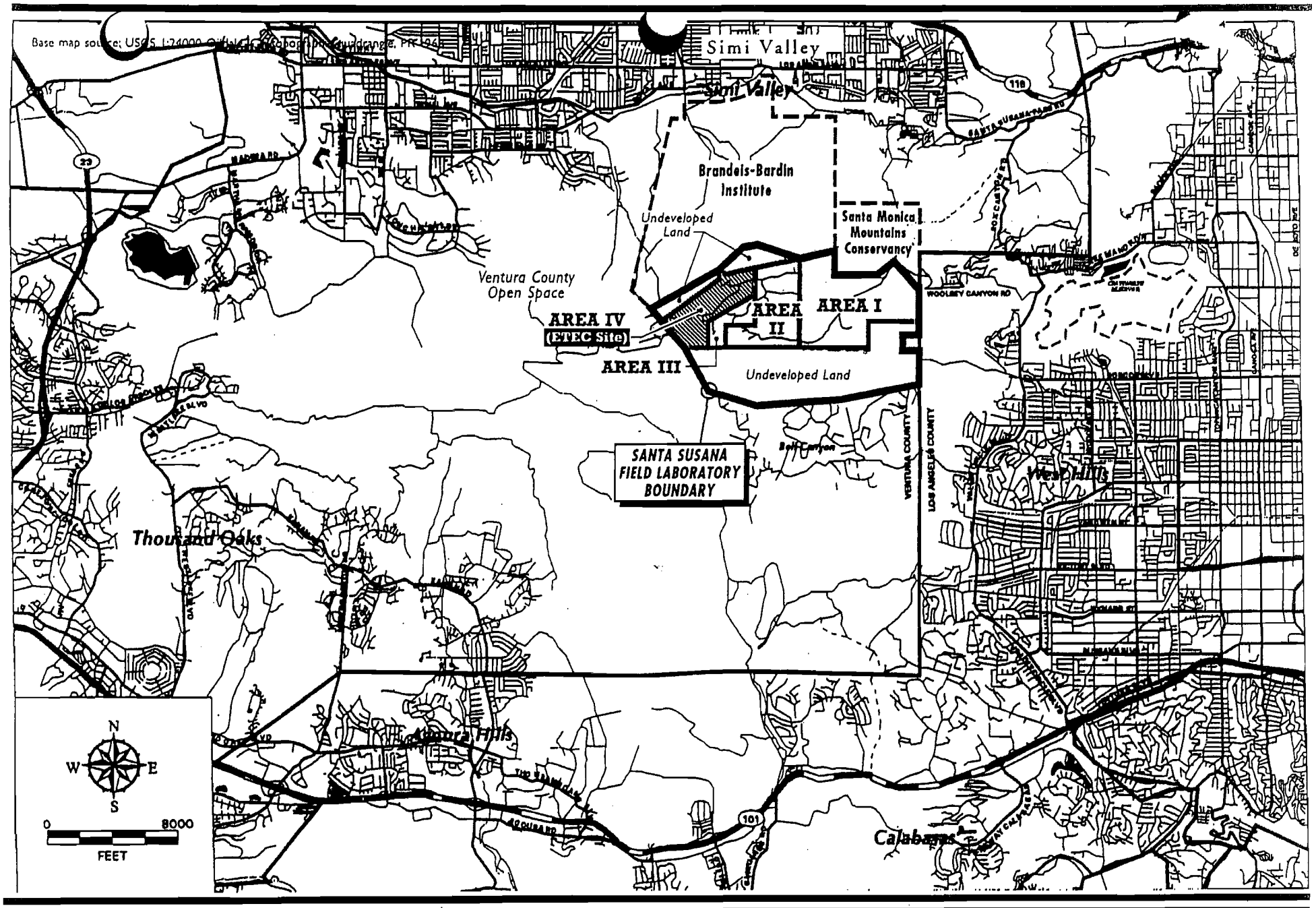

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Figure 2-1 **Site Location Map**
Energy Technology Engineering Center/Area IV (ETEC) Site
Simi Hills, California

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Base map source: Figure 2, *Sites Where Nuclear Activities Were Carried Out at the SSFL*, Rockwell; *Nuclear Operations at Rockwell's Santa Susana Field Laboratory – A Factual Perspective*, May 1991

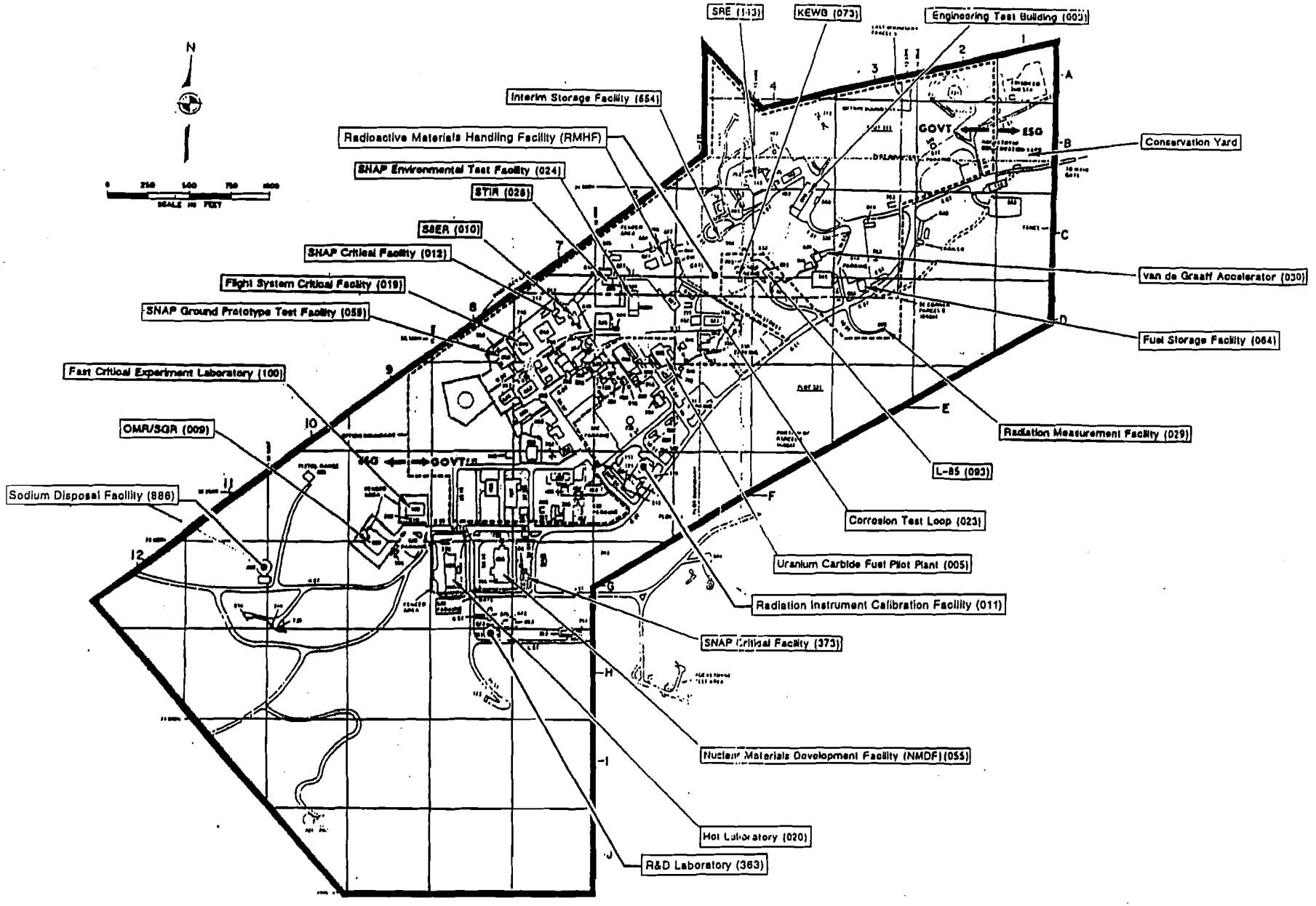

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Figure 2-2 **Building and Areas Associated with Historic Area IV Nuclear Energy Research Energy Technology Engineering Center/Area IV (ETEC) Site**
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Base map source: Figure 3, *Previous and Additional Background Sample Areas*, McLaren/Hart; *Additional Soil and Water Sampling at the BBI and SMMC*, November 1994

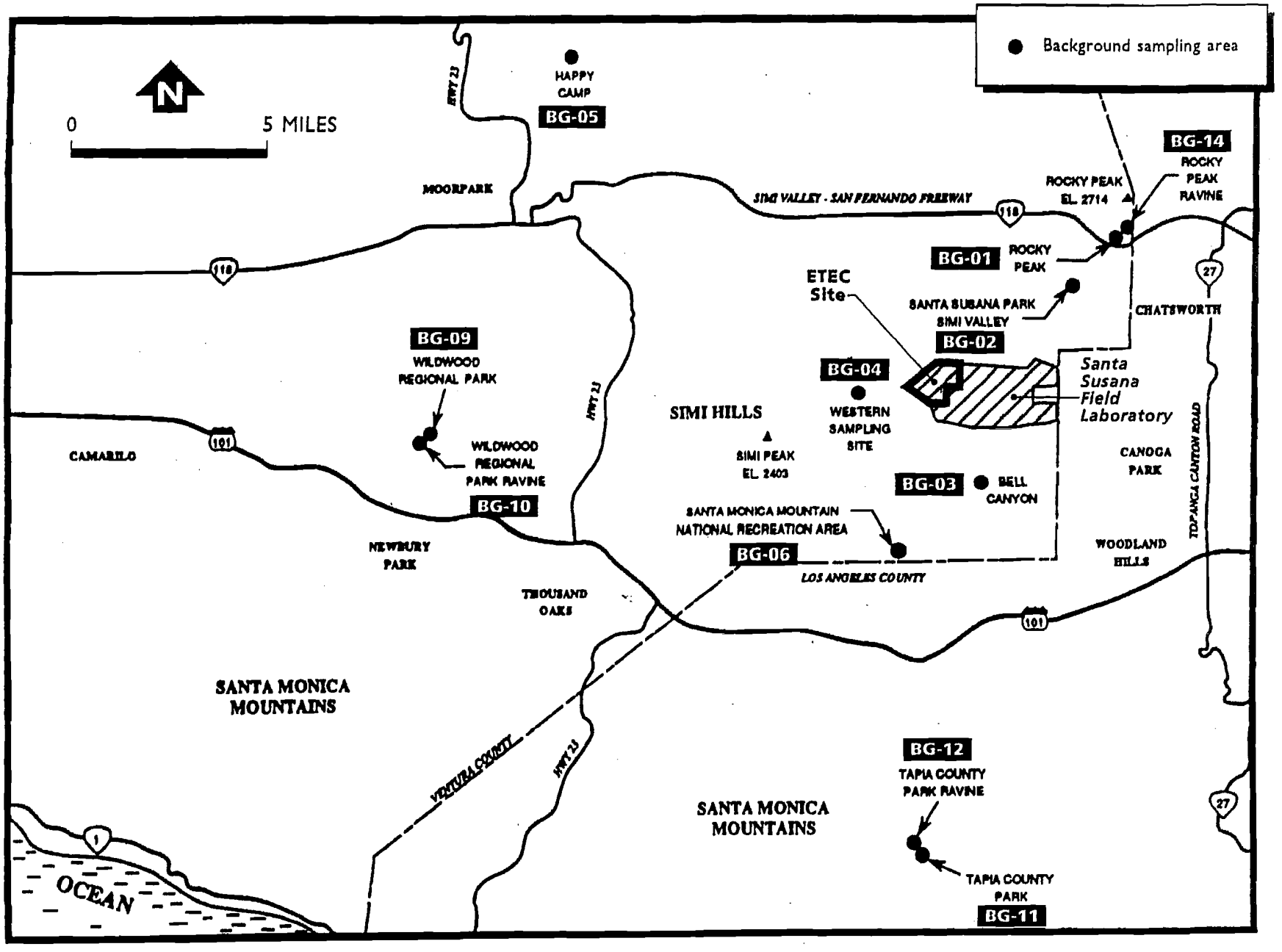

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Figure 3-1 **1992/1994 Background Soil Sampling Area**
Energy Technology Engineering Center/Area IV (ETEC) Site
Simi Hills, California

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Base map source: Figure 1, Summary of Multi-Medic ling, McLaren/Hart; Additional Soil and Water Sampling at BBI and SMMC, ember 1994

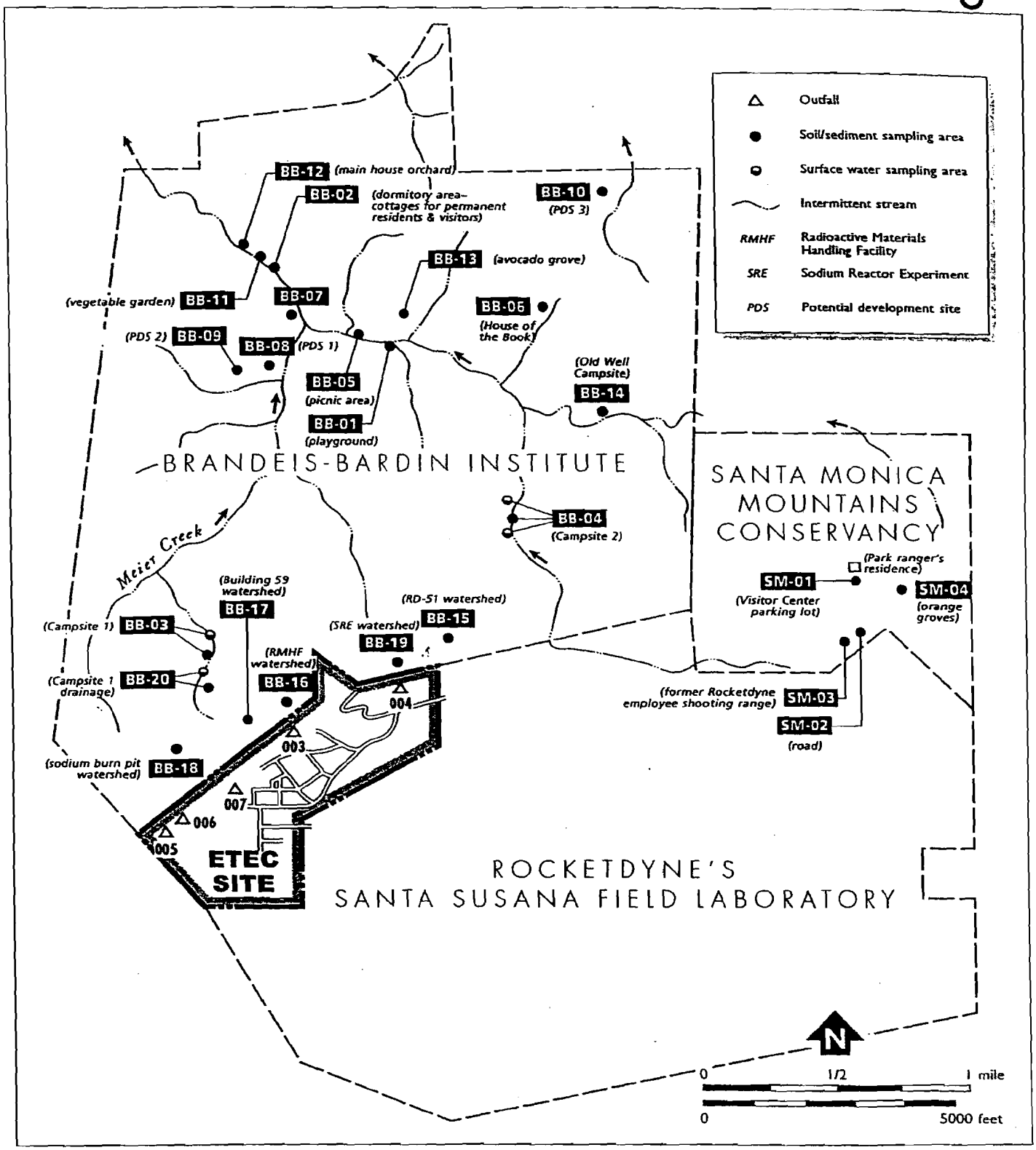

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Figure 3-2

Brandeis-Bardin Institute and Santa Monica Mountains Conservancy: 1992/1994 Surface Water and Soil/Sediment Sampling Areas
Energy Technology Engineering Center/Area IV (ETEC) Site
Simi Hills, California

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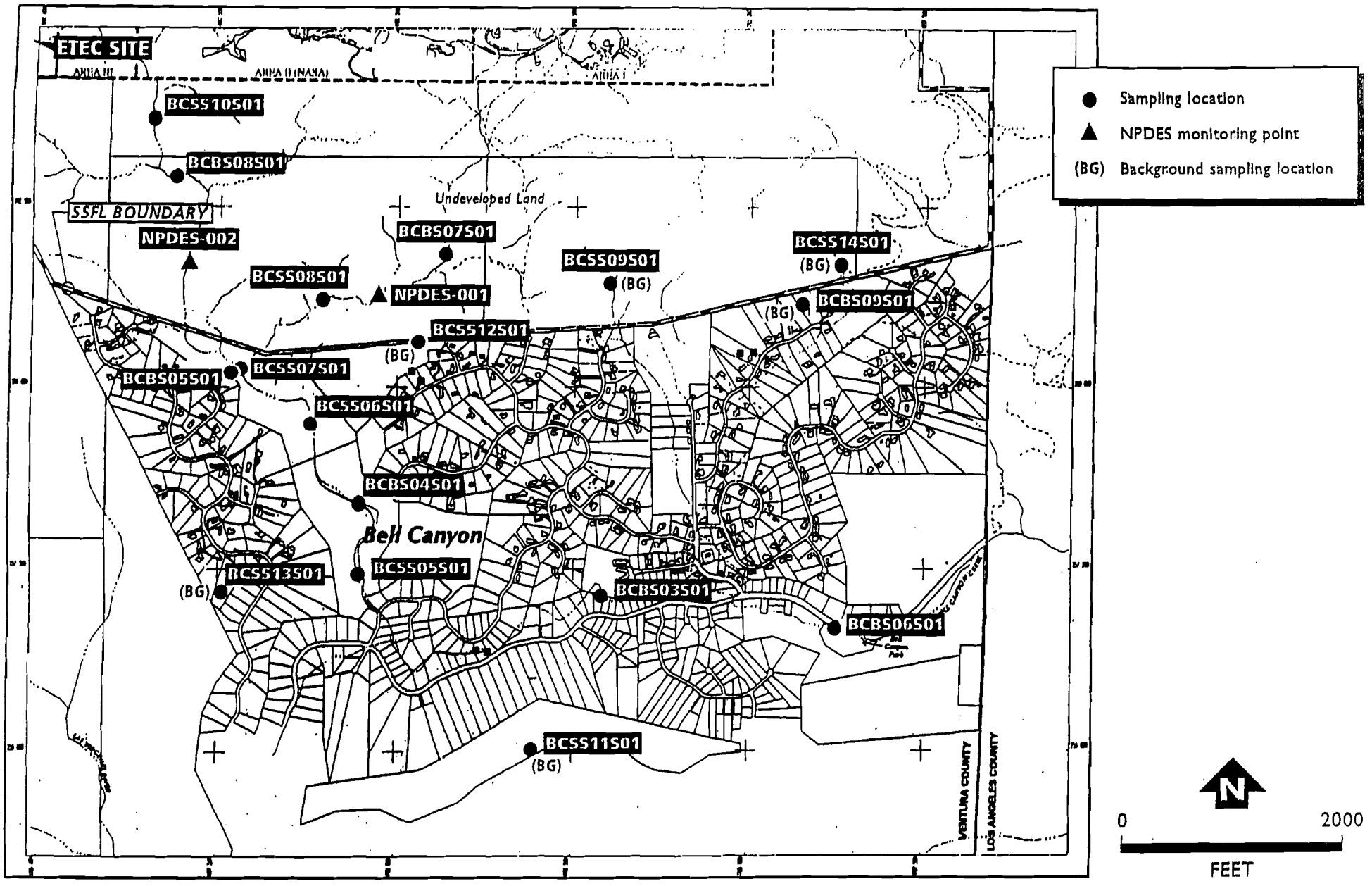
http://www.RocketdyneWatch.org

Base map source: Figure 2, Bell Canyon Area Soil Sampling Locations, Ogden; Bell Canyon Area Soil Sampling Report, October 1998



Source: Ecology and Environment, Inc.
Reproduced for the ETEC/Area IV Site by:

WESTON SOLUTIONS

Figure 3-3 **Bell Canyon: 1998 Soil Sampling Locations**
Energy Technology Engineering Center/Area IV (ETEC) Site
Simi Hills, California

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APPENDIX A:
Transmittal List

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ENERGY TECHNOLOGY ENGINEERING CENTER/AREA IV
TRANSMITTAL LIST

California State University, Northridge
Urban Archives Center
Oviatt Library, Room 4
18111 Nordhoff Streeet
Northridge, California 91330
Attention: Mr. Robert Marshall

Los Angeles Public Library
Platt Branch
23600 Victory Boulevard
Woodland Hills, California 91367
Attention: Janet Metzler

Simi Valley Library (Primary Repository for Reference Docuements)
2969 Tapo Canyon Road
Simi Valley, California 93063
Attention: Ms. Ellen Allen

Mike Lopez
Oakland Operations Office
Department of Energy
1301 Clay Street N825
Oakland, California 94612

Steve Lafflam
Propulsions & Power
Safety, Health & Env. Affairs
6633 Canoga Avenue (T487)
P.O. Box 7922
Canoga Park, California 91309-7922

Hsu, Steve
Department of Health Services
PO Box 942732 MS 178
Sacramento, California 94234-7320

Gerard Abrams
Department of Toxic Substances Control, Region 1
California Environmental Protection Agency
8800 Cal Center Drive
Sacramento, California 95826-3200

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ENERGY TECHNOLOGY ENGINEERING CENTER/AREA IV
TRANSMITTAL LIST

Los Angeles Regional Water Quality Control Board
Ms. Cassandra Owens
320 West 4th Street
Suite 200
Los Angeles, California 90013

Dan Hirsch
Committee to Bridge the Gap
2-1185 E. Cliff Drive
Santa Cruz, California 95062

Barbara Johnson
Santa Susana Knolls Homeowners Association
6714 Clear Springs Road
Susana Knolls, California 93063

Sheldon Plotkin, PhD
Southern California Federation of Scientists
3318 Colbert Avenue
Los Angeles, California 90066

Jerome Raskin, PhD
Rocketdyne Cleanup Coalition
18350 Los Alamos Street
Northridge, California 91326

Jonathan Parfrey
Executive Director
Physicians for Social Responsibility-Los Angeles
3250 Wilshire Boulevard, Suite 1400
Los Angeles, California 90010-1604

Deborah Glik
UCLA School Public Health
P.O. Box 951772
Los Angeles, California 90095-1772

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ENERGY TECHNOLOGY ENGINEERING CENTER/AREA IV
TRANSMITTAL LIST

Mr. Allen Elliot (AD-10)
National Aeronautical and Space Administration
Marshall Space Flight Center
MSFC, Alabama 35812

Mr. Karl Krause
Ventura County Air Pollution Control Division
669 County Square Drive, Second Floor
Ventura, California 93003

Burt Cooper
Agency for Toxic Substances and Disease Registry
U.S. Public Health Service
1600 Clifton Road
Atlanta, GA 30333

Brian Miller
Chief of Staff for Congressman Elton Gallegly
300 Esplanade Drive
Suite 1800
Oxnard, California 93030

Johannah Williams
Field Representative for U.S. Senator Barbara Boxer
312 N. Spring Street
Suite 1748
Los Angeles, California 90012

Haleh Khavari
Field Representative for U.S. Senator Dianne Feinstein
11111 Santa Monica Boulevard
Suite 915
Los Angeles, California 90025

Laura Plotkin
Chief Deputy for Senator Sheila James Kuehl
10951 W. Pico Boulevard #202
Los Angeles, California 90064

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ENERGY TECHNOLOGY ENGINEERING CENTER/AREA IV
TRANSMITTAL LIST

Elizabeth Crawford
Executive Aide to Supervisor Linda Parks
2100 E. Thousand Oaks Boulevard, Suite C
Thousand Oaks, California 91362

John Magness
Chief of Staff for Supervisor Judy Mikels
3855-F Alamo Street
Simi Valley, California 93063

Stan Bauer
CEMRO-MD-HA
U.S. Army Corp of Engineers
Omaha District Office
215 North 17th Street
Omaha, Nebraska 68102

Sara Amir
CA Environmental Protection Agency
Department of Toxic Substances Control
Southern California Cleanup Operations Branch
Southern California Region
1011 N. Grandview Avenue
Glendale, CA 92101

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APPENDIX B:
Site Reconnaissance Interview and Observation Report/ Photographic Documentation

(No Site Reconnaissance Interview or Observations was necessary for the preparation of this report.)

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APPENDIX C:
Contact Log and Contact Reports

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Appendix C

CONTACT LOG & CONTACT REPORTS
ENERGY TECHNOLOGY ENGINEERING CENTER/AREA
EPA ID NO.: CA3890090001 and CAD000629972

Name	Affiliation	Phone	Date	Information
1. Tammy Jones	Brandeis-Bardin Institute	(805)582-4450	10/28/99	See Contact Report
2. Mike Anderson	California Environmental Protection Agency, Department of Toxic Substances Control (DTSC)	(916)323-3703	11/30/99	See Contact Report
3. Michael Lopez	U.S. Department of Energy (DOE), ETEC Environmental Restoration Program	(510)637-1633	12/2/99	See Contact Report
4. Carolann Booze	Tradewinds Mobile Home Park	(805)526-2754	12/13/99	See Contact Report
5. Tim Miller	Santa Monica Mountains Conservancy, Sage Ranch Park	(310)858-7272	12/14/99	See Contact Report
6. Tammy Jones	Brandeis-Bardin Institute	(805)582-4450	11/20/01	See Contact Report

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CONTACT REPORT 1

AGENCY/AFFILIATION: Brandeis Bardin Institute		
DEPARTMENT: N/A		
ADDRESS/CITY: 1101 Peppertree Lane/Brandeis		
COUNTY/STATE/ZIP: Orange/CA/93064		
CONTACT(S)	TITLE	PHONE
Tammy Jones	Receptionist	(805) 582-4450
E&E PERSON MAKING CONTACT: Kate Dragolovich		DATE: October 28, 1999
SUBJECT: Uses of the Brandeis-Bardin Institute Property		
SITE NAME: Energy Technology Engineering Center/Area IV		EPA ID#: CA3890090001 and CAD000629972

There are two permanent residences on the property. These are cottages that are occupied by year-round residents. They are located in the northernmost portion of the property near the administration building.

The remaining areas of the property are used by transient populations. The institute is a religious education center that runs a 1-week Winter camp, four 1- to 3-week Summer camps, a 1-week Elder Hostel program, and weekend lecture series. Participants in these programs stay in cottages in the northernmost portion of the property near the administration building. Nine of the cottages are like dormitories with four to six rooms per cottage. The "campsite" areas in the southern portion of the property are used for campfire gatherings.

Ms. Jones provided the attached map via FAX. The map shows the locations of the cottages in the northernmost portion of the property.

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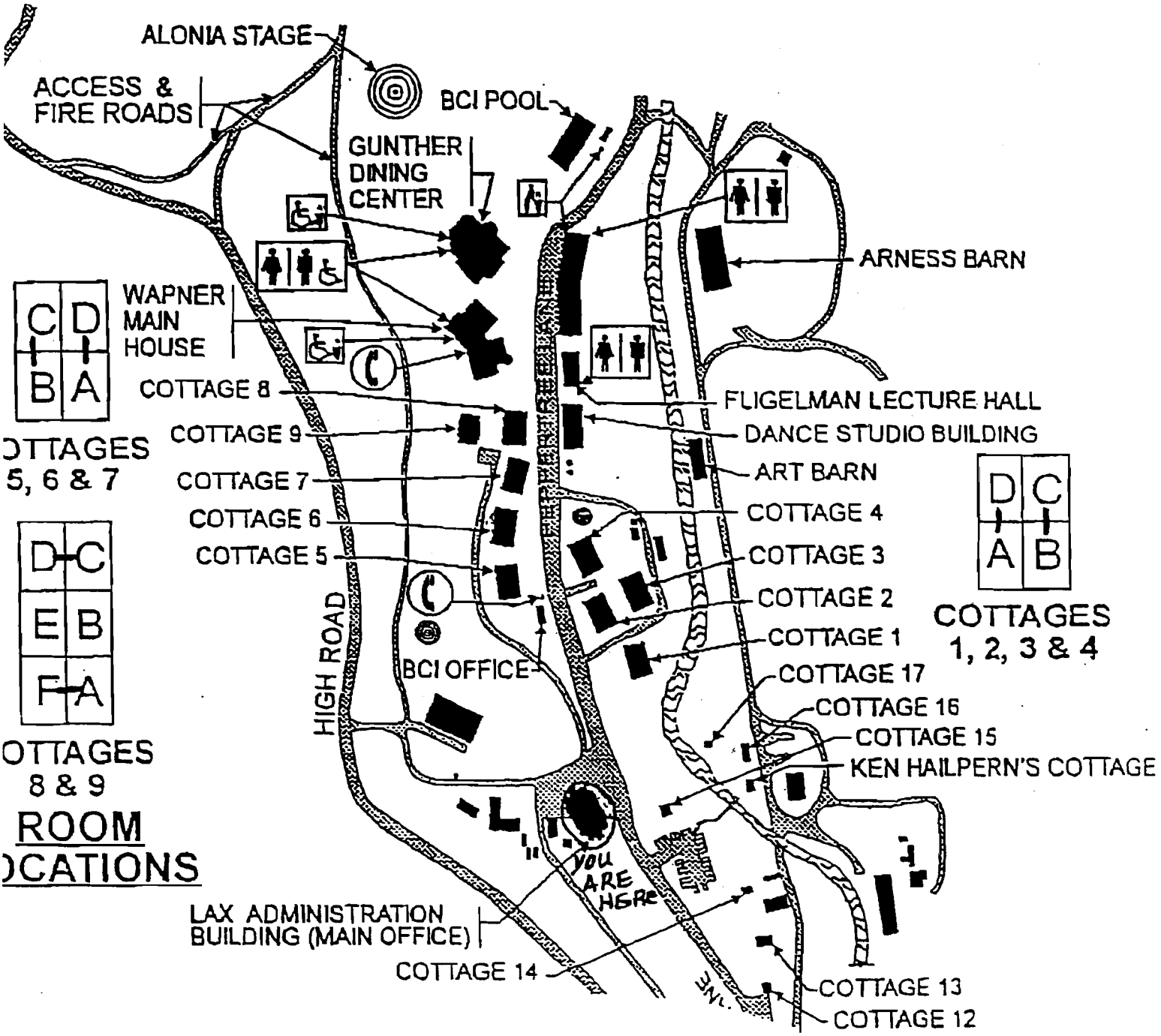
http://www.RocketdyneWatch.org

MAP FAXED TO E&E FROM TAMMY JONES



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CONTACT REPORT 2

AGENCY/AFFILIATION: California Environmental Protection Agency		
DEPARTMENT: Department of Toxic Substances Control (DTSC)		
ADDRESS/CITY: Sacramento		
COUNTY/STATE/ZIP: Yolo County, CA		
CONTACT(S)	TITLE	PHONE
Mike Anderson	Ecotoxicologist	(916) 323-3703
E&E PERSON MAKING CONTACT: Kate Dragolovich		DATE: November 30, 1999
SUBJECT: DTSC Comments on the Standardized Risk Assessement Methodology (SRAM) Work Plan, Santa Susana Field Laboratory		
SITE NAME: Energy Technology Engineering Center/Area IV		EPA ID#: CA3890090001 and CAD000629972

DTSC's comments focus on insufficiences such as inadequate presentation of chemical data, justification for the selection of the contaminants of concern, and evaluation of cumulative risk. Appendix D (Biological Conditions Report) appears to be complete, with the coverage of sensitive environments being acceptable.

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CONTACT REPORT 3

AGENCY/AFFILIATION: U.S. Department of Energy		
DEPARTMENT: ETEC Environmental Restoration Program		
ADDRESS/CITY: 1303 Clay Street, N700/Oakland		
COUNTY/STATE/ZIP: Alameda/CA/94612		
CONTACT(S)	TITLE	PHONE
Michael Lopez	ETEC Environmental Restoration Program Manager	(510) 637-1633
E&E PERSON MAKING CONTACT: Kate Dragolovich		DATE: December 2, 1999
SUBJECT: Current Onsite Worker Population		
SITE NAME: Energy Technology Engineering Center/Area IV		EPA ID#: CA3890090001 and CAD000629972

The current worker population in Area IV consists of decontamination and decommissioning personnel and 25 to 50 Boeing-Canoga Park employees who are engaged in non-radiological research (i.e., seismic and space work) for the National Aeronautics and Space Administration (NASA).

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CONTACT REPORT 4

AGENCY/AFFILIATION: Tradewinds Mobile Home Park		
DEPARTMENT:		
ADDRESS/CITY: 5150 East Los Angeles Ave./Simi Valley		
COUNTY/STATE/ZIP: Ventura/CA/93063		
CONTACT(S)	TITLE	PHONE
Carolann Booze	Manager	(805) 526-2754
E&E PERSON MAKING CONTACT: Kate Dragolovich		DATE: December 13, 1999
SUBJECT: Drinking Water Well		
SITE NAME: Energy Technology Engineering Center/Area IV		EPA ID#: CA3890090001 and CAD000629972

The Tradewinds Mobile Home Park drinking water well is no longer active. The entire mobile home park is now connected to the municipal drinking water supply system.

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http://www.RocketdyneWatch.org

CONTACT REPORT 5

AGENCY/AFFILIATION: Santa Monica Mountains Conservancy (SMMC)		
DEPARTMENT: Sage Ranch Park		
ADDRESS/CITY: 1 Black Canyon Road./Santa Susana		
COUNTY/STATE/ZIP: Ventura/CA/93063		
CONTACT(S)	TITLE	PHONE
Tim Miller	Deputy Chief Ranger and Resident	(310) 858-7272, Ext. 202 (SMMC office in Malibu)
E&E PERSON MAKING CONTACT: Kate Dragolovich		DATE: December 14, 1999
SUBJECT: Location of Sage Ranch Park Ranger's Residence		
SITE NAME: Energy Technology Engineering Center/Area IV		EPA ID#: CA3890090001 and CAD000629972

There is only one structure at Sage Ranch Park. It houses the Visitor Center and Tim Miller's residence. It is adjacent to the Visitor Center parking lot.

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http://www.RocketdyneWatch.org

CONTACT REPORT 6

AGENCY/AFFILIATION: Brandeis-Bardin Institute		
DEPARTMENT: N/A		
ADDRESS/CITY: 1101 Peppertree Lane/Brandeis		
COUNTY/STATE/ZIP: Orange/CA/93064		
CONTACT(S)	TITLE	PHONE
Tammy Jones	Receptionist	805-582-4450
PERSON MAKING CONTACT: Cheryl LeCompte		DATE: 11/20/01
SUBJECT: Source of drinking water for the Brandeis-Bardin Institute Property		
SITE NAME: Energy Technology Engineering Center/Area IV		EPA ID#: CA380090001 and CAD000629972

Ms. Jones stated that all drinking water for the institute is municipal water. There are no active groundwater wells on the site.

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APPENDIX D:
Latitude and Longitude Calculations Worksheet

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http://www.RocketdyneWatch.org

Latitude and Longitude Calculation Worksheet (7.5' quads)
Using an Engineer's Scale (1/50)

Site Name Energy Technology Engineering Center/Area IV

CERCLIS # CA3890090001 / CAD006299972

AKA

Address Rockwell International Santa Susana Field Lab

City Simi Hills **State** CA **ZIP**

Site Reference Point Center of Area IV

USGS Quad Name Calabasas **Scale** 1:24,000

Township N/S **Range** E/W **Section** ¼ ¼ ¼

Map Datum ☐ 1927 ☐ 1983 **(Check one)** **Meridian**

Map coordinates at southeast corner of 7.5' quadrangle (attach photocopy)

Latitude 34° 07' 30" N **Longitude** 118° 37' 30" W

Map coordinates at southeast corner of 2.5' grid cell

Latitude 34° 12' 30" N **Longitude** 118° 42' 30" W

Calculations

LATITUDE(x)

A) Number of ruler graduations between 2.5' (150") grid lines ☐ **(a)**

B) Number of ruler graduations between south grid line and the site reference point ☐ **(b)**

C) Therefore, a/150 = b/x, where **x= Latitude in decimal seconds, north of the south grid line**

Expressed as minutes and seconds (1' = 60") = ☐ ° ☐ ' ☐ "N

Add to grid cell latitude = ☐ ° ☐ ' ☐ "N + ☐ ° ☐ ' ☐ "N

Site latitude = 34° 13' 54" N

LONGITUDE(y)

A) Number of ruler graduations between 2.5' (150") grid lines 80 **(a)**

B) Number of ruler graduations between south grid line and the site reference point 0 **(b)**

C) Therefore, a/150 = b/x, where **x= Longitude in decimal seconds, west of the east grid line**

Expressed as minutes and seconds (1" = 60") = ☐ ° ☐ ' ☐ "W

Add to grid cell longitude = ☐ ° ☐ ' ☐ "N + ☐ ° ☐ ' ☐ "N

Site longitude = 118° 42' 30" W

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APPENDIX E:
References

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See Section 7, pages 13 - 15, of report for list of references

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APPENDIX F:
USEPA Quick Reference Fact Sheet

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Uni. States Environmental Protection Agency

Office of Solid Waste and Emergency Response

Publication 9345.4-03FS

September 1993

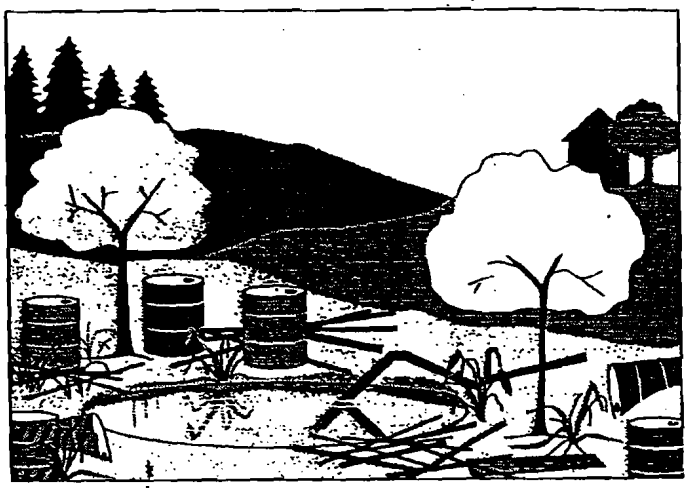
EPA

SITE ASSESSMENT:
Evaluating Risks at Superfund Sites

Office of Emergency and Remedial Response
Hazardous Site Evaluation Division 5204G

Quick Reference Fact Sheet

The Challenge of the Superfund Program



A series of headline-grabbing stories in the late 1970s, such as Love Canal, gave Americans a crash course in the perils of ignoring hazardous waste. At that time, there were no Federal regulations to protect the country against the dangers posed by hazardous substances (mainly industrial chemicals, accumulated pesticides, cleaning solvents, and other chemical products) abandoned at sites throughout the nation. And so, in 1980 Congress passed the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), commonly known as Superfund, to address these problems.

The major goal of the Superfund program is to protect human health and the environment by cleaning up areas, known as "sites," where hazardous waste contamination exists. The U.S. Environmental Protection Agency (EPA) is responsible for implementing the Superfund program.

At the time it passed the Superfund law, Congress believed that the problems associated with uncontrolled releases of hazardous waste could be handled in five years with $1.6 billion dollars. However, as more and more sites were identified, it became apparent that the problems were larger than anyone had originally believed. Thus, Congress passed the Superfund Amendments and Reauthorization Act (SARA) in 1986. SARA expanded and strengthened the authorities given to EPA in the original legislation and provided a budget of $8.5 billion over five years. Superfund was extended for another three years in 1991.

What is EPA's Job at Superfund Sites?

For more than 10 years, EPA has been implementing the Superfund law by:

- Evaluating potential hazardous waste sites to determine if a problem exists;
- Finding the parties who caused the hazardous waste problems and directing them to address these problems under EPA oversight or requiring them to repay EPA for addressing these problems; and
- Reducing immediate risks and tackling complex hazardous waste problems.

The Superfund site assessment process generally begins with the discovery of contamination at a site and ends with the completion of remediation (i.e., cleaning up the waste at a site) activities. This fact sheet explains the early part of the process, called the *site assessment* phase.

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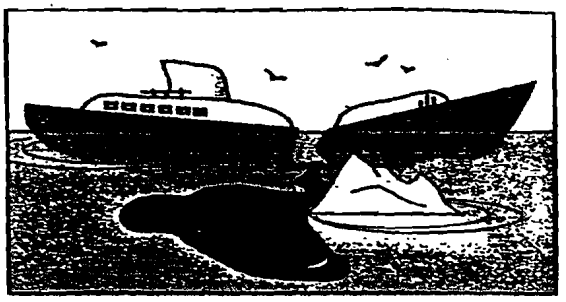
The National Response Center



The National Response Center (NRC), staffed by Coast Guard personnel, is the primary agency to contact for reporting all oil, chemical, and biological discharges into the environment anywhere in the U.S. and its territories. It is responsible for:

- Maintaining a telephone hotline 365 days a year, 24 hours a day;
- Providing emergency response support in specific incidents; and
- Notifying other Federal agencies of reports of pollution incidents.

To report a pollution incident, such as an oil spill, a pipeline system failure, or a transportation accident involving hazardous material, call the NRC hotline at **800-424-8802.**

1 Site Discovery

Hazardous waste sites are discovered in various ways. Sometimes concerned residents find drums filled with unknown substances surrounded by dead vegetation and call the NRC, EPA, or the State environmental agency; or an anonymous caller to the NRC or EPA reports suspicious dumping activities. Many sites come to EPA's attention through routine inspections conducted by other Federal, State, or local government officials. Other sites have resulted from a hazardous waste spill or an explosion. EPA enters these sites into a computer system that tracks any future Superfund activities.

2 Preliminary Assessment

After learning about a site, the next step in the site assessment process is to gather existing information about the site. EPA calls this the *preliminary assessment*. Anyone can request that a preliminary assessment be performed at a site by petitioning EPA, the State environmental agency, local representatives, or health officials.

During the preliminary assessment, EPA or the State environmental agency:

- Reviews available background records;
- Determines the size of the site and the area around it;
- Tries to determine whether hazardous substances are involved;
- Identifies actual or potential pollution victims, such as the nearby population and sensitive environments;
- Makes phone calls or interviews people who may be familiar with the site; and
- Evaluates the need for early action using EPA's removal authority.

By gathering information and possibly visiting the site, EPA or the State environmental agency is able to determine if major threats exist and if cleanup is needed. Many times, the preliminary assessment indicates that no major threats exist.

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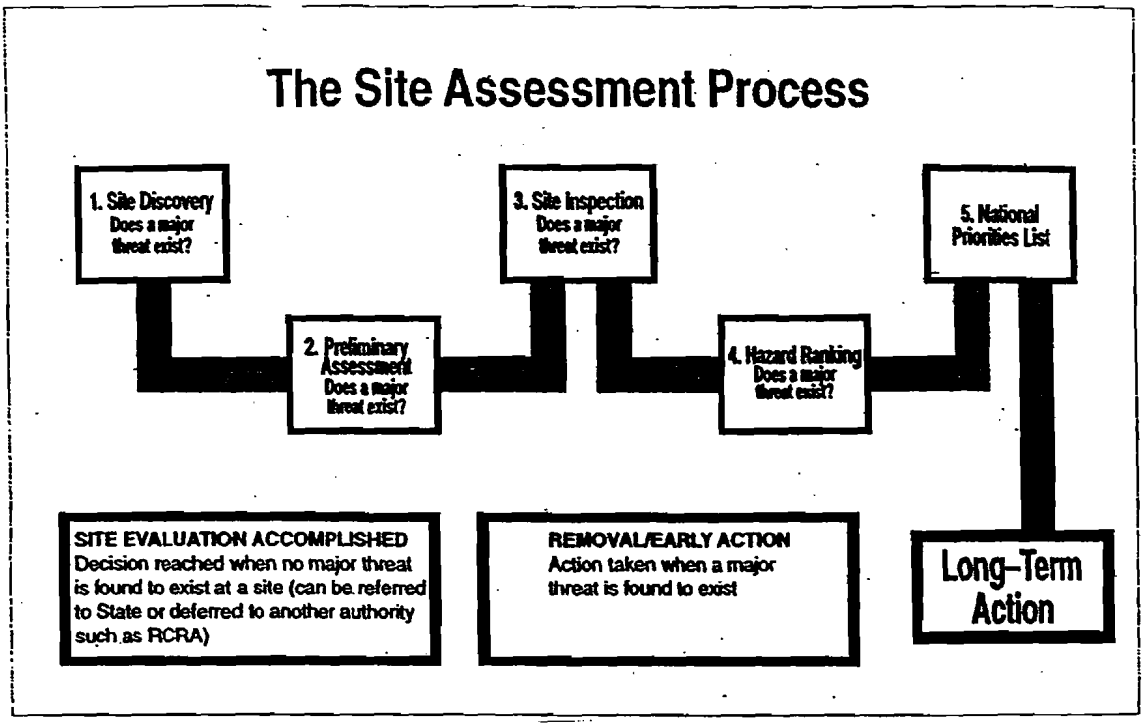

However, if hazardous substances do pose an immediate threat, EPA quickly acts to address the threat. When a site presents an immediate danger to human health or the environment—for example, there is the potential for a fire or an explosion or the drinking water is contaminated as a result of hazardous substances leaking out of drums—EPA can move quickly to address site contamination. This action is called a *removal* or an *early action*. Additional information on early actions can be found on page 4.

EPA or the State environmental agency then decides if further Federal actions are required. Of the more than 35,000 sites discovered since 1980, only a small percentage have needed further remedial action under the Federal program.

A report is prepared at the completion of the preliminary assessment. The report includes a description of any hazardous substance release, the possible source of the release, whether the contamination could endanger people or the environment, and the pathways of the release. The information outlined in this report is formed into hypotheses that are tested if further investigation takes place. You can request a copy of this report once it becomes final— just send your name and address to your EPA regional Superfund office. See page 8 for further information on these contacts.

Sometimes it is difficult to tell if there is contamination at the site based on the initial information gathering. When this happens, EPA moves on to the next step of the site assessment, called the *site inspection*.

Making Polluters Pay

One of the major goals of the Superfund program is to have the responsible parties pay for or conduct remedial activities at hazardous waste sites. To accomplish this goal, EPA:

- Researches and determines who is responsible for contaminating the site;
- Issues an order requiring the private parties to perform cleanup actions with EPA oversight; and
- Recovers costs that EPA spends on site activities from the private parties.

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Removals/Early Actions

EPA can take action quickly if hazardous substances pose an immediate threat to human health or the environment. These actions are called *removals* or *early actions* because EPA rapidly eliminates or reduces the risks at the site. EPA can take a number of actions to reduce risks, including:

- Fencing the site and posting warning signs to secure the site against trespassers;
- Removing, containing, or treating the source of the contamination;
- Providing homes and businesses with safe drinking water; and, as a last resort,
- Temporarily relocating residents away from site contamination.

"EPA can take action quickly if hazardous substances pose an immediate threat to human health or the environment."

3 Site Inspection

If the preliminary assessment shows that hazardous substances at the site may threaten residents or the environment, EPA performs a site inspection. During the site inspection, EPA or the State collects samples of the suspected hazardous substances in nearby soil and water. EPA may initiate a concurrent SI/remedial investigation at those sites that are most serious and determined early as requiring long-term action. Sometimes, wells have to be drilled to sample the ground water. Site inspectors may wear protective gear, including coveralls and respirators, to protect themselves against any hazardous substances present at the site. Samples collected during the site inspection are sent to a laboratory for analysis to help EPA answer many questions, such as:

- Are hazardous substances present at the site? If so, what are they, and approximately how much of each substance is at the site?
- Have these hazardous substances been released into the environment? If so, when did the releases occur, and where did they originate?
- Have people been exposed to the hazardous substances? If so, how many people?
- Do these hazardous substances occur naturally in the immediate area of the site? At what concentrations?
- Have conditions at the site gotten worse since the preliminary assessment? If so, is an early action or removal needed? (See box above.)

Often, the site inspection indicates that there is no release of major contamination at the site, or that the hazardous substances are safely contained and have no possibility of being released into the environment. In these situations, EPA decides that no further Federal inspections or remedial actions are needed. This decision is referred to as *site evaluation accomplished*. (See page 5 for more details on the *site evaluation accomplished* decision.)

At the completion of the site inspection, a report is prepared. This report is available to the public–call your EPA regional Superfund office for a copy. See page 8 for the phone numbers of these offices.

"During the site inspection, EPA or the State collects samples of the suspected hazardous substances in nearby soil and water."

At sites with particularly complex conditions, EPA may need to perform a second SI to obtain legally defensible documentation of the releases.

Because EPA has limited resources, a method has been developed to rank the sites and set priorities throughout the nation. That method, known as the *Hazard Ranking System*, is the next step in the site assessment process.

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4 Hazard Ranking System

EPA uses the information collected during the preliminary assessment and site inspection to evaluate the conditions at the site and determine the need for long-term remedial actions. When evaluating the seriousness of contamination at a site, EPA asks the following questions:

- Are people or sensitive environments, such as wetlands or endangered species, on or near the site?
- What is the toxic nature and volume of waste at the site?
- What is the possibility that a hazardous substance is in or will escape into ground water, surface water, air, or soil?

Based on answers to these questions, each site is given a score between zero and 100. Sites that score 28.5 or above move to the next step in the process: listing on the *National Priorities List*. Sites that score below 28.5 are referred to the State for further action.

Site Evaluation Accomplished

In many instances, site investigators find that potential sites do not warrant Federal action under the Superfund program. This conclusion can be attributed to one of two reasons:

- The contaminants present at the site do not pose a major threat to the local population or environment; or
- The site should be addressed by another Federal authority, such as EPA's Resource Conservation and Recovery Act (RCRA) hazardous waste management program.

When investigators reach this conclusion, the site evaluation is considered accomplished. A site can reach this point at several places during the site assessment process, namely at the conclusion of the preliminary assessment or the site inspection, or once the site is scored under the Hazard Ranking System.

5 National Priorities List

Sites that are listed on the *National Priorities List* present a potential threat to human health and the environment, and require further study to determine what, if any, remediation is necessary. EPA can pay for and conduct remedial actions at NPL sites if the responsible parties are unable or unwilling to take action themselves. There are three ways a site can be listed on the National Priorities List:

- It scores 28.5 or above on the Hazard Ranking System;
- If the State where the site is located gives it top priority, the site is listed on the National Priorities List regardless of the HRS score; or
- EPA lists the site, regardless of its score, because all of the following are true about the site:
  - The Agency for Toxic Substances and Disease Registry (ATSDR), a group within the U.S. Public Health Service, issues a health advisory recommending that the local population be *dissociated* from the site (i.e., that the people be temporarily relocated or the immediate public health threat be removed);
  - EPA determines that the site poses a significant threat to human health; and
  - Conducting long-term remediation activities will be more effective than addressing site contamination through early actions.

The list of proposed sites is published in the *Federal Register*, a publication of legal notices issued by Federal agencies. The community typically has 60 days to comment on the list. After considering all comments, EPA publishes a list of those sites that are officially on the National Priorities List. When a site is added to the National Priorities List, the site assessment is completed. Long-term actions take place during the next phase. See page 6 for more details on long-term actions.

As a Concerned Citizen, How Can I Help ?

- Read this fact sheet.
- Call EPA with any potential sites in your area.
- Provide EPA with site information.
- Comment on proposed listing of sites on the National Priorities List.
- If the site is listed on the NPL, work with your citizens' group to apply for a technical assistance grant.

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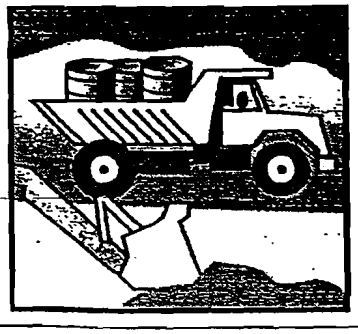
Addressing Sites in the Long Term

Once a site is placed on the National Priorities List, it enters the long-term or remedial phase. The stages of this phase include:

- ✓ Investigating to fully determine the nature and extent of contamination at the site, which can include a public health assessment done by the ATSDR;
- ✓ Exploring possible technologies to address site contamination;
- ✓ Selecting the appropriate technologies—also called remedies;
- ✓ Documenting the selected remedies in a record of decision (ROD);
- ✓ Designing and constructing the technologies associated with the selected remedies;
- ✓ If necessary, operating and maintaining the technologies for several years (e.g., long-term treatment of ground water) to ensure safety levels are reached; and
- ✓ Deleting the site from the National Priorities List, completing Superfund's process and mission.



Some Commonly Asked Questions

Q: What exactly is a site?

A: EPA designates the area in which contamination exists as the "site." Samples are taken to define the area of contamination. At any time during the cleanup process the site may be expanded if contamination is discovered to have spread further.

Q: How long will it take to find out if a threat exists?

A: Within one year of discovering the site, EPA must perform a preliminary assessment. The preliminary assessment allows EPA to determine if there is an immediate danger at the site; if so, EPA takes the proper precautions. You will be notified if you are in danger. EPA may also contact you to determine what you know about the site.

Q: What is the State's role in all these investigations?

A: The State can take the lead in investigating and addressing contamination. It also provides EPA with background information on (1) immediate threats to the population or environment, and (2) any parties that might be responsible for site contamination. The State shares in the cost of any long-term actions conducted by the Superfund program, comments on the proposal of sites to the National Priorities List, and concurs on the selected remedies and final deletion of sites from the National Priorities List.

Q: Why are private contractors used to assess sites?

A: EPA has a limited workforce. By using private contractors, EPA is able to investigate more sites. Also, EPA is able to draw on the expertise of private contracting companies.

Q: Why are there so many steps in the evaluation process? Why can't you just take away all the contaminated materials right now, just to be safe?

A: When EPA assesses a site, it first determines if contamination poses any threats to the health of the local population and the integrity of the environment. Dealing with worst sites first is one of Superfund's national goals. By evaluating contamination in a phased approach, EPA can quickly identify sites that pose the greatest threats and move them through the site assessment process. Once EPA understands the conditions present at a site, it searches for the remedy that will best protect public health and the environment. Cost is only one factor in weighing equally protective remedies. Many sites do not warrant actions because no major threat exists. However, if a significant threat does exist, EPA will take action.

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about Superfund Sites

Q: If a site is added to the National Priorities List, how will we know when EPA has completed the cleanup efforts?

A: EPA notifies the public and requests their comments on the actions proposed to treat site contaminants. In addition, the community is notified when a site will be deleted from the National Priorities List. The entire process can take as long as 7 years; at sites where ground water is contaminated, it can take even longer.

Q: I live next door to a site and I see EPA and contractor personnel wearing "moon suits." Am I safe?

A: EPA and contractor personnel wear protective gear because they might actually be handling hazardous materials. Also, these people are regularly exposed to contaminants at different sites and do not always know what contaminants they are handling. EPA takes steps to protect the public from coming in contact with the site contamination. If a dangerous situation arises, you will be notified immediately.

Q: If a site is added to the National Priorities List, who pays for the activities?

A: EPA issues legal orders requiring the responsible parties to conduct site cleanup activities under EPA oversight. If the parties do not cooperate, Superfund pays and files suit for reimbursement from responsible parties. The sources of this fund are taxes on the chemical and oil industries; only a small fraction of the fund is generated by income tax dollars.

Q: How can I get more information on any health-related concerns?

A: Contact your EPA regional Superfund office for more information. The ATSDR also provides information to the public on the health effects of hazardous substances. Ask your EPA regional Superfund office for the phone number of the ATSDR office in your region.

Q: How can I verify your findings? What if I disagree with your conclusions?

A: You can request copies of the results of the site assessment by writing to your EPA regional Superfund office. The public is given the opportunity to comment on the proposal of a site to the National Priorities List and the actions EPA recommends be taken at the site. If a site in your community is listed on the National Priorities List, a local community group may receive grant funds from EPA to hire a technical advisor. Call your EPA regional Superfund office (see page 8) for the location of an information repository and for information on applying for a **technical assistance grant.**

Q: How can I get further information? How can I get a list of the sites EPA has investigated?

A: Contact your EPA regional Superfund office (see page 8) for more information and a list of sites in your area.

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Important Phone Numbers

For information on the Superfund program or to report a hazardous waste emergency, call the national numbers below.

U.S. EPA Headquarters Hazardous Site Evaluation Division

- Site Assessment Branch
  703-603-8860

Federal Superfund Program Information

- EPA Superfund Hotline
  800-424-9346

Emergency Numbers:

Hazardous Waste Emergencies

- National Response Center
  800-424-8802

ATSDR Emergency Response Assistance

- Emergency Response Line
  404-639-0615

For answers to site-specific questions and information on opportunities for public involvement, contact your region's Superfund community relations office.

EPA Region 1: *Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont*

- Superfund Community Relations Section
  617-565-2713

EPA Region 2: *New Jersey, New York, Puerto Rico, Virgin Islands*

- Superfund Community Relations Branch
  212-264-1407

EPA Region 3: *Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, West Virginia*

- Superfund Community Relations Branch
  800-438-2474

EPA Region 4: *Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee*

- Superfund Site Assessment Section
  404-347-5065

EPA Region 5: *Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin*

- Office of Superfund
  312-353-9773

EPA Region 6: *Arkansas, Louisiana, New Mexico, Oklahoma, Texas*

- Superfund Management Branch, Information Management Section
  214-655-6718

EPA Region 7: *Iowa, Kansas, Missouri, Nebraska*

- Public Affairs Office
  913-551-7003

EPA Region 8: *Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming*

- Superfund Community Involvement Branch
  303-294-1124

EPA Region 9: *Arizona, California, Hawaii, Nevada, American Samoa, Guam*

- Superfund Office of Community Relations
  800-231-3075

EPA Region 10: *Alaska, Idaho, Oregon, Washington*

- Superfund Community Relations
  206-553-2711

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