RCRA FACILITY INVESTIGATION (RFI) REPORT, LOS ANGELES COUNTY DEPARTMENT OF AGRICULTURAL COMMISSIONER PICO RIVERA FACILITY 8841 EAST SLAUSON AVENUE PICO RIVERA, CALIFORNIA

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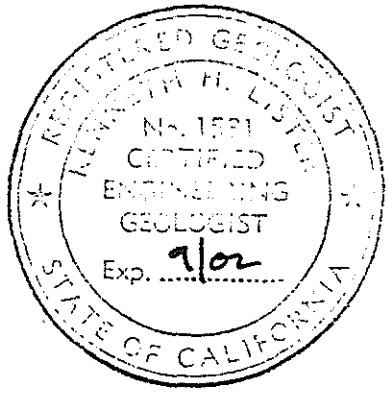

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INTRODUCTION

BACKGROUND

SCS Engineers (SCS) was retained by the Los Angeles County Department of Agricultural Commissioner (LACDAC) to conduct a RCRA Facility Investigation (RFI) at the former LACDAC Pico Rivera Facility located at 8841 East Slauson Avenue, Pico Rivera, California (Figure 1).

This report describes RFI activities conducted at the site since 1994 and has been prepared for submittal to the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) in accordance with guidelines presented in the following documents:

- RCRA Facility Investigation Guidance, Interim Final; United States Environmental Protection Agency (US EPA); May 1989.
- RCRA Ground-Water Monitoring, Draft Technical Guidance; US EPA; November 1992.
- Test Methods for Evaluating Solid Waste (SW-846); US EPA; November 1986 (and updates).
- Guidelines for Hydrogeological Characterization at Hazardous Substance Release Sites, Interim Final; DTSC; September 1994.

Information regarding investigation rationale, sampling locations, and field and laboratory protocols is contained in the following documents previously submitted to DTSC:

- RCRA Facility Investigation (RFI) Workplan Addendum II, SCS, December 2000.
- Addendum RCRA Facility Investigation (RFI) Workplan, SCS, February 1998.
- Revised Scope of Work, Cesspool Area, RCRA Facility Investigation (RFI), SCS, August 19, 1996 (letter).
- Additional Information – RFI Workplan Addendum, SCS, March 21, 1996 (letter)
- Addendum, RCRA Facility Investigation (RFI) Workplan, SCS, February 12, 1996 (letter).
- RCRA Facility Investigation (RFI) Work Plan, SCS, March 1995.
- Revised Health and Safety Plan, SCS, February 1995.
- Soil Bin Sampling/Analysis Plan, SCS, May 1994.
- Building/Interior Sampling/Analysis Plan, SCS, April 1994.

PURPOSE AND SCOPE

The purpose of the present document is to summarize the results of RFI sampling previously contained in several documents. In addition, information is provided regarding interim corrective action measures to the present.

The data contained in this RFI report was previously submitted to DTSC as part of the following documents:

- RCRA Facility Investigation (RFI) Interim Report, SCS, May 1996.
- RCRA Facility Investigation (RFI) Second Interim Report, SCS, June 1997.
- RCRA Facility Investigation (RFI) Third Interim Report, SCS, August 1999.
- RCRA Facility Investigation (RFI) Fourth Interim Report, SCS, April 2001.

In addition, quarterly groundwater monitoring reports have been submitted since the second quarter of 1997 for those quarters when groundwater samples could be collected (SCS October 1997, January 1998, March 1998, July 1999, October 1999, May 2000, July 2000, September 2000).

DESCRIPTION OF CURRENT CONDITIONS

Facility Description

The subject site is an approximately 1.7-acre parcel which has been used by LACDAC since approximately 1930 for the following purposes: offices, raising of beneficial insects, mixing of rodent and bird baits for pest control, disposal of pesticides acquired from a pesticide collection program, and incineration of plants held under quarantine for pests or disease.

The subject site is located in a mixed residential, industrial, commercial area. The site is bounded on the north, west, and east by residential properties. Industrial facilities are located to the south, immediately across Slauson Avenue. Most of the site is surrounded by an 8-foot high concrete block wall on the east, north, and west sides and an 8-foot chain-link fence with a locked gate on the south. An approximately 50 by 200 foot grassy area at the southern end of the site is unfenced.

A map showing former locations of facilities at the site is included as Figure 2. The site contains or has contained the following facilities:

- The main building, located on the central portion of the site, is constructed of concrete blocks, has a wood-framed composition-shingle roof, and contains a raised wood sub-floor. Access to the building was controlled by locked doors. Areas of the building where storage and mixing of pesticides took place were previously investigated and suspect building materials were removed and disposed off site. The RFI involved visual inspection of interior drain piping, near surface soil sampling below interior drain piping, near-surface confirmatory soil sampling below former

pesticide storage/mixing areas, and sampling of near surface soils in the vicinity of the rear building entrance. Some time following removal of suspect building materials, all interior walls, ceilings, and floors (except subfloor) were removed and disposed off site.

- A septic tank was located under a grassy area at the front of the main building. The septic tank was connected to an approximately 3 to 4 foot diameter 12 foot deep brick cesspool located approximately 10 feet east of the driveway. The areas of the septic tank and cesspool were investigated during the RFI. The septic tank and cesspool were removed and backfilled on July 9, 1996.

- A corrugated steel sheet on steel beam frame garage was formerly located on the northern portion of the site. The floor consisted of a concrete slab on grade. Access was through large sliding doors on the south side of the building and doors located on the southeast and southwest portions of the garage. Pesticides were stored in the garage in the past. The garage floor and benches within the garage were sampled during a previous investigation. The RFI included near-surface soil sampling near former entrances and confirmatory soil sampling under the former garage slab after its removal.

- An area which contained a 4,000 gallon underground storage tank (UST) is located immediately west of the northern end of the main building. The UST, which was removed from the site in September 1992, was used for storage of water from cleaning of equipment used to mix baits; this water was introduced to the UST through a drain in a sink in the building. The UST also received liquid pesticides from the LACDAC pesticide collection program and pesticide container rinse water; these were introduced to the UST through a drain located in the eastern part of the concrete pad located above the UST. The eastern part of the pad including the drain was removed in May 1992 and the remainder of the pad was removed during 1994. The RFI involved near-surface and subsurface soil sampling in the vicinity of the former 4,000 gallon UST.

- A steel 800-gallon weed oil tank was located on a concrete pad in the northeastern portion of the site. Two additional 300-gallon steel and 3 additional 700- to 1,000-gallon steel tanks were also located in the northeastern portion of the site. These tanks, except for one of the 300-gallon tanks that was reportedly an UST, were on wood blocks above unpaved soil. These tanks, all of which have been removed, contained high viscosity petroleum used for weed control along roads. The weed oil reportedly did not contain pesticides or herbicides. The concrete pad, which has been removed, was previously sampled. Near-surface and deeper subsurface soil sampling took place at the location of the former tank areas during the RFI.

- A steel cased water well with an approximately10-inch diameter surface casing was located near the concrete weed oil tank pad. This well was used to produce water for irrigation prior to development of the site in approximately 1930 and has not been used since this time. This well, of approximately 35 feet depth, was abandoned on May 4, 1995 by pressure grouting with cement under Los Angeles County Department of Health Services permit and in accordance with appropriate California well standards (Department of Water Resources, 1991).

- A cluster of 9 covered steel roll-off bins containing soil from the excavation of the 4,000 gallon UST were located in an open, unpaved area near the northwest corner of the site. Soil in the bins was sampled and analyzed prior to off site disposal. Results of analyses were previously submitted to DTSC (RFI Interim Report, SCS, May 1996). Near-surface soil sampling in the area south of the bins took place during the RFI.

- A metal sea bin container was located between the garage and soil bins. This container was used to store non-liquid pesticides in drums and lab-pack containers. These were collected during the public collection program. Near-surface soil sampling took place near the entrance to the sea bin during the RFI. Pesticides are no longer stored in the sea bin.

- An incinerator was located west of the main building on the southern portion of the site. The incinerator was used only to destroy quarantined plant matter which was infested with insects or diseased and was never used to incinerate pesticides or herbicides. The incinerator was demolished and taken off site for disposal. Near-surface soil sampling took place in this area during the RFI.

- Asphalt paved areas formerly used for parking vehicles are located north and northeast of the main building. Near-surface soil sampling took place in these areas during the RFI.

RCRA Issues

Of the above-listed facilities, the 4,000 gallon UST and the sea bin were included in the 1989 RCRA Part A permit application. In addition, a drum storage area above the 4,000 gallon UST was included in a 1991 RCRA application. Investigation took place in these areas as well as in the areas of the septic tank, cesspool, weed oil pad, garage, and open areas adjacent to the former 4,000 gallon UST.

Chemicals Used On-Site

Information provided by LACDAC indicates that the following substances were formerly stored/mixed at the subject site. These can be divided into several groups.

The following are rodenticides formerly used for mixing bait in the northwestern suite of rooms within the main building:

- Strychnine sulfate.
- Sodium monofluoroacetate.
- Thallium sulfate.
- Zinc phosphide.
- Diphacinone.
- Chlorophacinone.
- Prolin.
- Warfarin.
- Pival.

All rodenticides were received and stored in powdered or pellet form and stored in glass or metal containers. Containers may also have been temporarily stored in the garage.

The following is an organophosphate insecticide which was stored as an aqueous solution in glass bottles in the main building:

- Dibrom.

In addition, the following chlorophenoxy herbicides were formerly stored in the northwestern suite of rooms in the main building:

- 2,4 Dichlorophenoxyacetic acid; 2,4-D.
- 2-(2,4,5-Trichlorophenoxy)propionic acid; 2,4,5-TP or Silvex.
- 2,4,5-Trichlorophenoxyacetic acid; 2,4,5-T.

These herbicides were received and stored in liquid form in an aqueous or organic solution. They were stored in glass, metal or plastic containers. Some of these chemicals may also have been temporarily stored in the garage.

Areas of the main building and the former garage that had potentially been impacted by past site activities were investigated in April 1994. Building material samples (i.e., concrete, wooden floors and walls, etc.) from the two structures were selectively analyzed for pesticides and herbicides using EPA Methods 8080, 8140, and 8150 and for total recoverable petroleum hydrocarbons (TRPH) and volatile organic compounds using EPA Methods 418.1 and 8240, respectively. Selected samples were also analyzed for strychnine, thallium, zinc, copper, and arsenic. The most common compounds detected in building materials were chlordane, strychnine, and thallium, at concentrations up to 26.1, 9.76, and 51.7 mg/kg, respectively. Although these concentrations are considered relatively low, all interior fixtures, ceilings, walls, and floors were removed and selected building materials were disposed at a Class I landfill. Results of building material sampling and analysis were included in SCS's March 1995 RFI Workplan.

Other pesticides and herbicides were received at the site for temporary storage and disposal in connection with the LACDAC pesticide collection program. Compounds known to have been collected and stored on-site as part of the LACDAC pesticide collection program are listed in Appendix A. Liquid pesticides and pesticide container rinsings were collected in the 4,000 gallon UST described above. Rinse water generated by activities within the main building was also stored in the UST. Pesticides collected through this program were never handled or stored in any on-site building except for the sea bin container in which pesticides received in solid form through the collection program were stored.

Trace amounts of pesticides, which may have entered the site through the public collection program, which were previously detected in soils in the area of the 4,000 gallon UST include:

- Chlordane
- Chlorpyrifos
- Dieldrin
- DDE

- DDT
- Dursban
- Lindane
- Malathion
- Ronnnel
- 2,4-D
- 2,4,5-TP (Silvex)

High viscosity petroleum hydrocarbons were stored in the former above ground weed oil tanks. Weed oil consisted predominantly of straight-chain and normal cyclic hydrocarbons and had little or no VOCs and no trace metal content. VOCs were not stored on site except very small volumes which may have been contained in liquid pesticide formulations. Organic liquids which may have been ingredients in pesticide formulations include xylenes and kerosene.

Trace metals which may have been used on site, either as a component of pesticides used or collected on site, or as dyes for rodenticides mixed on site, include the following:

- Arsenic
- Cadmium
- Copper
- Lead
- Mercury
- Thallium
- Zinc

Thallium and zinc were components of rodenticides used on the site, copper may have been a component of rodenticide dyes. Arsenic, cadmium, mercury, zinc, and thallium have been detected in environmental samples collected during pre-RFI investigations in concentrations which may exceed commonly found background concentrations. There is no evidence that any other trace metal was used on site or would have been received as a component of a discarded pesticide.

Interim Corrective Action Measures

The following Interim Corrective Action Measures have been implemented at the site:

Interim Corrective Action Measure	Date
4,000 Gallon UST Removal	1992
Wash Pad Removal	1992/1994
Soil Bin Removal	1995
Interior Building Material Removal	1994
Weed Oil Tank Removal	1985
Garage Removal	1994
Incinerator Removal	1994
Water Well Abandonment	1995
Removal of Cesspool	1996

-- 4,000 Gallon UST Removal and Excavation

As previously indicated, a 4,000 gallon UST was formerly located immediately west of the northern end of the main building. A bermed concrete pad was located immediately above and to the west of the UST. A drain in east central portion of the pad connected to the UST through a sand trap (clarifier). The UST received water from cleaning of equipment used to mix baits, pesticide container rinse water, and waste pesticides from the LACDAC pesticide collection program. The UST, eastern portion of the pad, and sand trap were removed in September 1992 during which time an excavation was made of dimensions approximately 30 by 30 foot at the surface. The deepest portion of the excavation was approximately 12 feet below ground surface (bgs). Further information regarding the UST removal is presented in the report prepared by Alaska Petroleum Environmental Engineering titled "Tank Closure Report: 8892B, File No. 3244; 8841 Slauson Avenue, Pico Rivera", dated January 13, 1993.

-- Soil Bin Removal

Approximately 135 cubic yards of soil from the area of the 4,000 gallon UST was excavated and placed into 9 roll-off bins. Soil in the bins was sampled and, based on analytical results, disposed off site at one of three facilities - Aptus in Aragonite, Utah; Chemical Waste Management Landfill in Kettleman City, California; and BKK Landfill in Azusa, California. Soil in two of the bins was characterized as RCRA hazardous (D020) and was sent to Aptus for incineration. Soil in one bin was characterized as RCRA hazardous (D017) and was sent to Kettleman City for landfilling. Soil in the remaining six bins was characterized as non-hazardous and was sent to BKK for landfilling. Further information regarding soil bin sampling, analysis, and removal is presented in the following documents:

- SCS Engineers' report titled "Preliminary Feasibility Study, Excavated Soil, Los Angeles County Department of Agricultural Commissioner, 8841 E. Slauson Ave., Pico Rivera, California", dated July 20, 1994.

- SCS Engineers' letter titled "Information on Binned Soils, Former Agricultural Facility, 8841 E. Slauson Ave., Pico Rivera, California" dated March 3, 1995.

-- Building Material Sampling/Removal

Areas with potential to contain contaminated building materials were previously investigated, and selected areas of the building interior were removed and disposed off site at the ECDC Landfill in East Carbon, Utah during 1994. Further information on building materials sampling, analysis, and disposal is presented in the following documents:

- SCS Engineers' report titled "Building/Interior Sampling/Analysis Plan, Los Angeles County Department of Agricultural Commissioner, 8841 E. Slauson Ave., Pico Rivera, CA", dated April 1994.

- SCS Engineers' report titled "RCRA Facility Investigation (RFI) Work Plan, Los Angeles County Department of Agricultural Commissioner , Pico Rivera Facility, 8841 East Slauson Avenue, Pico Rivera, California", dated March 1995.

-- **Weed Oil Tank Removal**

A 300 gallon UST was removed from the northeast portion of the subject site in 1985. Analysis of soil samples collected following removal of the 300 gallon UST indicates that oil and grease concentrations up to 1800 mg/kg were present in soils directly beneath the tank. Analysis of a soil sample collected at a depth of 5 feet below the base of the UST (approximately 8 feet below ground surface or bgs) detected oil and grease at a concentration of 300 mg/kg. Above ground weed oil storage tanks were also removed from the site. As previously indicated, these tanks contained high viscosity petroleum used for weed control along roads. Weed oil did not contain pesticides or herbicides, but killed plants by smothering them.

-- **Garage Removal**

The on-site garage was dismantled and the roof, walls, frame, and concrete pad were removed from the site during 1994 (see Building Material Sampling/Removal above).

-- **Incinerator Removal**

The plant incinerator was dismantled and removed from the site in 1994 (see Building Material Sampling/Removal above).

-- **Water Well Abandonment**

As previously indicated, an unused steel cased water well with 10-inch diameter surface casing was located on the northeast portion of the subject site. Abandonment consisted of pressure grouting, excavating around the upper portion of the casing, cutting the casing below grade, and backfilling around the sealed well. The well was abandoned under Los Angeles County Health Department permit and in accordance with appropriate California well standards (Department of Water Resources, 1991).

-- **Removal of Cesspool**

Removal consisted of removal of sludge from within the cesspool using bucket auger, removal of the upper portion of the cesspool and surrounding soil using a backhoe, and using an open flight auger to remove the remaining portion of the cesspool. Soil and other materials were containerized and later disposed off site. These activities took place between June 1996 and January 1997 and were described in the Second Interim RFI Report (SCS, June 1997).

SITE CHARACTERIZATION

Regional Topographic, Geologic, and Hydrogeologic Information

Topographic Information

The subject site is located in Township 2 South, Range 12 West, Section 26 (San Bernardino Baseline and Meridian) at an elevation of approximately 150 feet above mean sea level [United States Geological Survey (USGS) Whittier, California 7.5 Minute Topographic Map, 1965, photorevised 1981). The site is located in the Downey Plain

approximately 4 miles southwest of the Whittier Narrows Flood Control Basin. The site is situated approximately 1.5 miles west of the San Gabriel River and approximately 0.75 miles east of the Rio Hondo River. Regional topography slopes gradually towards the southwest at about 30 feet per mile. The topography of the site is nearly flat except an approximately 10 foot wide strip near Slauson Avenue where ground slopes steeply down about 5 to the street. A detailed topographic map of the site has been included in Appendix B.

Geologic Information

Geologic maps (California Division of Water Resources, Bulletin 104, Appendix A, 1961) indicate that the surficial sediments consist of Recent age stream and floodplain deposits composed of interbedded gravel, sand, silt, and clay. Sediments below these reportedly consist of similar deposits of the Pleistocene Lakewood Formation. The Whittier fault located approximately 4 miles north of the subject site is the closest known active fault to the subject site.

Investigations conducted by SCS indicate that soils beneath the site to depths of up to 55 feet bgs generally consist of fine to coarse-grained sand interbedded with fine gravel, silts, and clay. As summarized in the First Interim RFI Report, soil samples collected from BH5(B) indicate that interbedded layers of gravel, sand, silt, and clay are present beneath the site at depths from 19 feet bgs to approximately 33 feet bgs. Within this interval, silt and clay layers up to four feet thick were encountered.

Hydrogeologic Information

The site is situated in the Montebello Forebay area of the Central Ground Water Basin. Bulletin 104 of the California Department of Water Resources indicates that the first regional aquifer in the vicinity of the subject site is the Gaspur aquifer located between depths of approximately 50 and 100 feet bgs. No surface bodies of water are present at the site.

Based on regional groundwater maps published by DPW (Costal Plain, Shallow Aquifer Groundwater Contour Map, Fall 1978 and Hydrologic Report 1992-93) and on topography, groundwater is anticipated to flow in a south to southwest direction. This is consistent with water level measurements conducted in on-site wells. The Rio Hondo Spreading (percolation) Basins located approximately 0.5 miles to the northwest may seasonally influence groundwater flow direction.

The closest active municipal water supply wells are operated by the Pico Rivera Department of Public Works and Pico Water District and are located approximately 0.35 miles east and 0.4 miles west of the subject, respectively.

Review of a hydrograph from DPW Keywell No. 1601T located approximately one mile northeast of the subject site indicates that seasonal water level fluctuations in the area can average 10 to 15 feet per year (DPW Hydrologic Report, 1992-93). On-site water level measurements have indicated a range of approximately at least 17 feet since February 1997.

During drilling, groundwater was encountered in monitoring wells MW-1, MW-2, and MW-3 at depths of approximately 38 feet bgs. Groundwater monitoring well locations are shown on Figure 3. As shown in the most recent groundwater gradient map (Figure 4), flow is in a southerly direction with a gradient of approximately 0.005 ft/ft.

OBJECTIVES

The principal objective of the RFI was to characterize soil and groundwater at the site. For this reason soil samples were taken in areas where previous site activities created a potential for spillage or leakage of potentially hazardous substances to the ground. The majority of environmental samples were collected in the upper 5 feet of soils because, in general, the potentially hazardous materials used at or brought to the site have a low potential for vertical migration through soil. Soil samples were collected from areas where binned soils were stored, above ground and underground tanks were located, the site septic system was located. Samples were collected under and near the main building, former garage, and vehicle wash down and parking areas. Samples were collected from borings in areas with a higher potential for contaminant emplacement or migration to deeper soils, including the vicinity of tanks and septic system components.

Groundwater monitoring wells were installed in areas immediately downgradient to the 4,000 gallon UST and the cesspool, as well as upgradient. Groundwater monitoring wells were used to sample the uppermost aquifer under the site.

Laboratory analyses for soil and groundwater samples focused on: (1) those substances which were used at the site, such as strychnine, thallium, and other substances used in the formulation of animal baits and poisons; (2) classes of substances which were disposed at the site, such as pesticides and herbicides; and (3) substances which might incidentally have been used, such as certain metals.

Other media sampled include soil vapor. Soil vapor samples were analyzed for volatile organic compounds (VOCs). Although only small amounts of VOCs are thought to have been used at the site, principally in pesticide carriers received on-site during the public collection program, vapor sampling and analysis was conducted during an early phase of the investigation to confirm this. The objective of the soil gas survey was to determine if there appeared to be impacts of VOCs to on-site soils and if so, to asses the extent of these impacts.

SECTION 2

FIELD AND LABORATORY PROCEDURES

SAMPLING PROTOCOLS

The following sections describe protocols employed during collection of soil vapor, soil, and groundwater samples at the site. Protocols are described in detail in the RFI work plan (SCS, March 1995).

Soil Vapor Sampling

Soil vapor sampling was conducted on March 21, and April 6, 1995, to provide an indication of whether incidental past presence of VOCs on site may have resulted in impacts to site soils. Sampling was conducted at 20 points (Figure 5). In general, adjacent points were 20 to 25 feet apart.

Probe placement consisted of driving a metal probe which contains a perforated metal point attached to nylaflow tubing into the subsurface at each sampling point. Once inserted to the desired depth, each metal probe was rotated 3 to 5 turns to expose the vapor sampling ports. After sampling, the metal probe and nylaflow tubing were retracted leaving the metal point in place. Vapor samples were analyzed immediately after collection in TEG's State certified mobile laboratory.

Soil gas probes located near the former 4,000 gallon UST (SV-4, SV-5, SV-9, and SV-10) were driven to sampling depths of 14 to 15 feet bgs. Soil gas probes located near the septic tank and cesspool (SV-1, SV-2, SV-3, and SV-20) were driven to sampling depths of 10 feet bgs. Soil gas probes at remaining locations were driven to sampling depths of 5 feet bgs.

Trenching Investigation/Sampling

Trenching was conducted at four locations in the southern portion of the site on May 4, 1995, to determine the exact location of the septic tank and to determine the existence of and location of a cesspool and a possible leach field and for soil sampling purposes. Trenches T1 and T2 were excavated to depths of 10 and 5 feet bgs, respectively, using a standard backhoe in a location where a leach field may have been present (Figure 3). No evidence of a leach field was found. Trench T-3 was located adjacent to the septic tank (soil samples T3-4-4w, T3-4-8w, ST-3, and ST-6 were collected from this trench). All trenches were backfilled with native soil.

Soil sample locations were generally accessed using a 4-inch diameter hand auger equipment with extension rods that were lowered into the trench/boring from the surface. Field personnel did not enter trenches. Samples were taken and packed into brass tubes using a drive sampler. Due to the difficulty of collecting drive samples in the wet sludge at the base of the cesspool, samples collected in May 1995 were taken directly from the hand auger and packed in clean glass jars provided by the laboratory. Tubes and jars were sealed, labeled, and handled as described in the previous section.

Near-Surface Soil Sampling

Soil samples were collected from a depth of above 1 foot bgs at 25 locations and from a depth of 3 feet bgs at three of the 25 locations using a hand auger. Initial sampling was conducted on June 15, 1995. These locations were resampled on December 19, 1995, in order to obtain additional material for laboratory analysis.

Soils were accessed using a hand auger and samples were obtained using 2.5-inch diameter by 4-inch long brass sample tubes inside an AMS bulk density sampler driven into the soils using a slide hammer. Each time the sampler was retrieved the sample sleeve was removed, recorded by the on-site geologist/engineer on the boring log, covered with an aluminum foil or Teflon sheet, sealed on both ends with tight-fitting plastic end caps, secured with non-VOC tape, and labeled.

Soil Borings

Soil borings were drilled using truck-mounted hollow-stem auger equipment on the following dates:

- In June 1995, 6 soil borings were drilled by by H-F Drilling of Orange, California (redrilled December 1995). Soil borings were located in the weed oil tank and 4,000 gallon underground tank areas. Borings were drilled to depths of 20 or 40 feet bgs. Sampling was conducted at approximately the 1-foot depth and at 5-foot depth intervals to the total depths of the borings. Additional samples were collected if significantly thick units of differing lithology were encountered. Soil samples were not collected of fill soils in the recently backfilled 4,000 gallon UST excavation.

- In January 1997, one 31.5 foot and six 6 foot soil borings were drilled in the area of the cesspool, former weed oil tank, former garage, concrete pad (wash rack), and north of the main building by Layne Christensen Drilling (Layne) of Fontana, California. Samples in the deeper boring were collected at approximately 5-foot depth intervals to total depth and in the shallow borings at 4 and 6 foot depths.

- In May 1999, two deeper borings (49.5 and 48.5 feet deep) and two 5-foot borings were drilled by Layne, in the area of the former 4,000 gallon UST and concrete pad. Samples were collected at approximately 5-foot depth intervals.

- In February 2001, three 25 foot borings were drilled by Layne, in the area of the former 4,000 gallon UST and concrete pad. Samples were collected at approximately 5-foot depth intervals to total depth.

Soil boring locations are shown on Figure 3. Boring logs are included in Appendix C.

Soil samples were collected from borings by placing 3-inch and/or 6-inch long stainless steel or brass sample sleeves inside a Modified California Split Spoon Sampler and driving the sampling device into the soils using a 140-pound hammer. Each time the sampler was retrieved, a representative sample consisting of an intact sample sleeve was removed, recorded by the on-site geologist/engineer on the boring log, covered with a Teflon sheet, sealed on both ends with tight-fitting plastic end caps, secured with non-VOC tape, and

labeled. Soil was collected from boring BH-5 (B) on December 19, 1995 using a continuous coring device; soil samples for laboratory analysis were collected in BH-5 (B) by subsampling the continuous core and placing this soil in a stainless steel or brass sample sleeve. The subsample in the metal tube was sealed and handled in the same manner as the other soil samples from these borings.

Sealed samples were placed into an ice chest as soon after acquisition as possible and kept cool with ice. Samples were transported to a State certified analytical laboratory at the end of each day's sampling under proper chain-of-custody.

Groundwater Monitoring Well Installation

Three groundwater monitoring wells were installed in the locations shown on Figure 3. Well MW-1 is an upgradient monitoring point located near the northeastern corner of the site. Wells MW-2 and MW-3 are downgradient monitoring points, with MW-2 located immediately south of the former 4,000 gallon UST and MW-3 located immediately south of the former cesspool.

The groundwater monitoring wells were installed and constructed by Layne using a CME 75 drill rig equipped with 11-inch diameter hollow stem augers. Monitoring wells were constructed on January 28 and 29, 1997. Augers were steam cleaned prior to drilling of each monitoring well. Soil samples were collected at approximately five foot intervals to the total depth of each boring in MW-1 and MW-2. Due to access limitations (overhead high-power lines), MW-3 was drilled and installed using a low-tower drill rig configuration which precluded collected of soil samples from depths greater than 20 feet bgs. Samples of aquifer material at 40 feet bgs were collected at location MW-2 for laboratory grain size analysis.

Groundwater monitoring wells were constructed in the boreholes using 4-inch diameter Schedule 40 PVC well pipe. Casing sections were joined using flush-set, threaded pipe connections; no glue was used. Factory slotted PVC casing with 0.010-inch width perforations was placed from approximately 15 feet into the aquifer to 5 feet above the top of the aquifer (at the time of well installation), with blank 4-inch diameter PVC pipe above. A flush-set, threaded end cap was placed on the bottom of the 20-foot perforated section.

During installation, the 4-inch PVC pipe was set inside the auger in order to prevent caving of the hole prior to installation of the casing. The annular space surrounding the well screen was filled with Monterey No. 2/16 sand to 4 feet above the top of the screened interval and capped off with a 4-foot thick bentonite seal. The filter sand was poured slowly into the annular space between the PVC pipe and the steel-auger casing to prevent bridging. Periodically, the depth to the top of the sand was measured with a weighted tape. Following installation, the filter pack was surged with a cylindrical surge block to settle the filter pack.

Upon completion of filter pack and bentonite seal installation, augers were removed from the boring. The remaining annular space surrounding the blank casing was filled with a bentonite grout mixture to about 1-foot below grade. The top of the well was cemented with ready mix concrete and set with a traffic-rated well box cover at ground surface. Following well box installation, a locking well cap was secured to the top of the PVC well

casing. Groundwater monitoring well specifications are shown in Table 1. Boring and well construction logs are included in Appendix B.

In order to obtain maximum well life and to assure representative samples of groundwater, monitoring wells were developed by removing the finer material from the formation and filter pack surrounding the well. Well development was conducted approximately one week after well installation. This procedure consisted of bailing, surging, and pumping the well until it produces clear water (i.e., groundwater with few observable fine materials). Each well was initially bailed using a large diameter bailer to remove sediments from the well. Bailing was followed by surging with a cylindrical surge block for about 30 minutes. The well was then bailed again to remove additional sediment and suspended material. Finally, approximately 5 well volumes was purged from each well using a 2-inch diameter Grundfos Redi-Flo 2 submersible pump.

Following installation, the groundwater monitoring wells were surveyed by Dulin and Boynton Licensed Surveyors using a benchmark of known elevation as a reference point. A reference point (RP) on each well casing was surveyed for elevation above mean sea level to within 0.01 feet. A copy of the surveyor's report is attached as Appendix D.

Groundwater Sampling

Groundwater has been monitored since February 1997. Due to fluctuations in water level, during some periods insufficient water was present in the monitoring wells to collect samples. Sampling was completed for the following calendar quarters: first, second, and third 1997; first 1998; first 1999; first, second, and third 2000; and second 2001.

Prior to sampling, static water level measurements was taken in all wells using a standard water level indicator. Readings were taken to the nearest 0.01 foot from a known reference point on the well casing. Groundwater level information is provided on Table 2. The water level indicator was cleaned between each well using a biodegradable detergent (Liquinox) and fresh water wash followed by a distilled water rinse.

Following the groundwater level measurements, the wells were purged to remove standing water. Well purging was conducted using a Grundfos Redi-Flo 2 submersible pump or by hand bailing. Wells were pumped until at three well volumes of water were removed from the well, or the well went dry, and pH, temperature, and conductivity readings stabilized. Turbidity measurements were also taken periodically during purging. Notations were made as to odor and color of the water being removed by the pump. Temperature, conductivity, turbidity, and pH readings were recorded.

After each well was purged, groundwater samples for non-volatile analyses are collected by reducing the pump flow rate to approximately 0.25 gallons per minute. Analyses for volatile organics were collected by lowering a disposable polyethylene bailer into the well following pump removal. Samples were placed into pre-cleaned sample bottles supplied by the laboratories. Immediately upon collection, samples were labeled and logged. Samples were handled as described above for soil samples. Purge water is sealed in 55-gallon drums, labeled, characterized, and properly disposed.

Decontamination Procedures

Sampling equipment was, in general, decontaminated in the following manner:

- Rinse with a solution of laboratory-grade detergent (Liquinox) and tap water. Scrub, if necessary, to remove dirt or other materials adhering to the sampling device.
- Tap water rinse.
- Double rinse with purified water

If the sampling device needed to be set down prior to sample collection, it was placed on a clean plastic sheet. If the sample needed to be removed by hand, a new disposable glove was used for each sample.

All rinse water and used disposable equipment was containerized, labeled, and retained on site until determination of proper disposal methods.

Health and Safety Procedures

Appropriate Health and Safety precautions/procedures which were followed during the RFI are outlined in SCS Engineers' Revised Health and Safety Plan (February 1995) for the subject site. All site personnel involved with the RFI read the Health and Safety Plan prior to initiation of field work. A copy of the Health and Safety Plan was on-site during RFI involving contact with potentially hazardous substances.

LABORATORY PROCEDURES

Soil Vapor Samples

Soil vapor samples were collected by withdrawing a syringe sample aliquot of gas from each sampling point and analyzed by injecting the sample directly into a gas chromatograph equipped with a photoionization detector and an electron capture (Hall) detector configured in series. Vapor samples were analyzed for VOCs using EPA Methods 8010 and 8020 by the on-site mobile laboratory.

Purge volumes versus gas concentration testing was performed in two probes prior to the start of actual sampling to determine a site-specific optimal purge volume. Based on this testing, the purge volume used was 200 ml. At the beginning of the day the analytical equipment was calibrated with several laboratory standards. Field blanks and duplicate samples were analyzed at a rate of one per every 10 samples.

Soil Samples

Selected soil samples were analyzed for pesticides and herbicides using EPA Methods 8080, 8081A, 8140, 8141A, 8150, and/or 8151A, including all near surface samples collected during the initial phases of the RFI. Selected soil samples have been analyzed for total petroleum hydrocarbons, as indicator of the presence of weed oil, using EPA Method 418.1. Selected soil samples in the weed oil area were also analyzed for semi-volatile organic compounds (SVOCs) including polyaromatic hydrocarbons (PAHs) using EPA

Method 8270. Selected subsurface samples in the weed oil and 4,000 gallon UST areas and a near-surface sample in the area of the former garage work bench were analyzed for VOCs using EPA Method 8240. Selected soil samples were also analyzed for strychnine (non-EPA standard method), metals which may have been used or stored at the site (arsenic, cadmium, copper, lead, mercury, thallium, and zinc) by appropriate EPA Methods, dioxins and furans by EPA Method 8280, and total cyanide by EPA Method 9010.

Soil samples collected in and near the cesspool have been analyzed for chlorinated pesticides using EPA Method 8080, for selected metals (arsenic, cadmium, copper, lead, mercury, thallium, and zinc), and for strychnine (non-EPA standard method). Additionally, grain size analysis by ASTM Method D 422 was conducted on aquifer material sample MW2S-5-45 collected from monitoring well MW-2 at a depth of approximately 45 feet bgs.

An initial set of samples was taken to the Los Angeles County, Department of the Agricultural Commissioner, Environmental Toxicology Laboratory in South Gate, California. The set of resamples collected on December 19, 1995 was taken to Weck Laboratories in Industry, California. Samples for dioxins and furans were analyzed by Quanterra Laboratories in West Sacramento, California. Samples for strychnine were taken to Truesdail Laboratories, Inc. in Tustin, California for analysis. The aquifer material sample was taken to Keantan Laboratories in Anaheim, California for grain size analysis.
Soil samples and water samples analyzed for all but general minerals collected subsequent to 1995 were analyzed by Quanterra Laboratories (now STL) in Sacramento, California. Water samples to be analyzed for general minerals were taken to Truesdail Laboratories in Tustin, California.

Groundwater Samples

Field Parameters

Field measurements collected during purging include pH, electrical conductivity (EC), temperature and turbidity. Measurements employ field instruments.

Laboratory Analysis

Groundwater samples have been analyzed for pesticides and herbicides using EPA Methods 8080 or 8081, 8140 or 8141, and 8150 or 8151, for volatile organics using EPA Method 8260, for selected metals (arsenic, cadmium, copper, lead, mercury, thallium, and zinc), and for strychnine (non-EPA standard method). Additionally, groundwater samples have been analyzed for general water quality parameters including cations, anions, alkalinity, hardness, and TDS.

SAMPLE LOCATIONS

Soil Vapor Survey

Three soil gas probes (SV-1, SV-2, and SV-3) were placed and sampled on March 21, 1995. Due to rain at the site, and at the request of DTSC, the survey was canceled after collection of vapor samples from these three probes and was rescheduled. On April 6, 1995, 17 probes (SV-4 through SV-20) were placed and sampled including SV-20, a duplicate of SV-2 originally sampled March 21. Sample locations are shown on Figure 5.

Trenching Investigation/Sampling

Trenches T1 and T2 were excavated to depths of 10 and 5 feet bgs, respectively, on the southwestern portion of the site in a location where a leach field may have been present. No evidence of a leach field was found.

Trench T3 was excavated in the vicinity of the septic tank located immediately south of the on-site building and soil samples T3-4-W, T3-8-W, and T3-8-S were collected on May 4, 1995, at depths of 4, 8, and 8 feet bgs, respectively. Soil samples T3-4-4W and T3-4-8W were collected near the septic tank inlet. Soil sample T3-4-8S was collected from below base of septic tank on its southern side. Soil samples were not collected from the septic tank outlet due to surface obstructions (i.e., sidewalk, driveway, and retaining wall).The septic tank area was resampled at depths of 3 and 6 feet bgs (samples ST-3 and ST-6) on December 19, 1995 using a hand auger.

Trench T4 was excavated in the vicinity of the cesspool which was determined to be located approximately 23 feet east of the septic tank. Samples T4-9-C and T4-12-C were collected at depths of 9 and 12 feet bgs, respectively from sludge within the cesspool. All trenches were backfilled with native soil.

Near-Surface Soil Sampling

Initial hand auger sampling was conducted at 25 locations on June 15, 1995. The same locations were resampled on December 19, 1995. Approximately 1-foot depth samples were collected in locations SS1 through SS25 (Figure 4). Locations SS4, SS14, and SS25 were also sampled at the 3-foot depth.

Soil Borings

Initial Phases of RFI

Six borings were drilled at the site to obtain subsurface soil samples for laboratory analysis. Borings BH-1, BH-2, and BH-3 were drilled to 21 feet bgs and borings BH-4, BH-5, and BH-6 were drilled to depths of 41 feet bgs on June 13, 1995. Due to the need to recollect soil samples for laboratory analysis, these borings were redrilled on December 19, 1995.

Additional Soil Borings

Based on results of the initial site investigation, the following areas of the site were recommended for additional shallow soil sampling and analysis in the First Interim Report (SCS, May 1996):

- Soils in the area of sample SS9-4-1 (former weed oil tank area), to further investigate elevated total recoverable petroleum hydrocarbon (TRPH) concentrations detected in near-surface samples. These samples were designated SS9-5.

- Soil in the areas of samples SS5-4-1D and SS8-4-1, to further investigate pesticides/herbicides detected in near-surface samples. These samples were designated SS5-5 and SS8-5.

- Soil in the areas of samples SS4-4-1, SS14-4-1, and SS18-4-1, to further investigate trace metal concentrations above reported background ranges detected in near-surface samples. These samples were designated SS4-5, SS14-5, and SS18-5.

Additional borings were drilled and sampled in these areas on January 30, 1997. Samples were collected at depths of 3 and 5 feet bgs at each location.

Two additional soil borings were drilled near the former UST location in May 1999. The borings were drilled to the depth at which groundwater was first encountered (approximately 47 to 48 feet below grade). Soil samples were collected at 5-foot intervals from just below the UST backfill/native soil interface (approximately 15 feet below grade in BH8 and 5 feet below grade in BH9) to the vadose zone - groundwater interface. Soil samples were collected at other depth, as appropriate, based on visual and other field indications of contamination, lithologic changes, and other field observations.

In addition, two soil samples were collected in May 1999 beneath fill soils in the area of the former wash rack/concrete pad located west of the former UST. One of the samples (BH10-6-5) was collected as close as possible to the location of the former drainpipe leading to the UST. The other sample was collected at the location shown on Figure 3. Sampling depth at both locations was approximately 5 feet below grade.

In order to provide more information on subsurface conditions at the site, three soil borings were drilled during February 2001 near the former UST location. The February 2001 borings were drilled to a depth of 25 feet below ground surface (bgs) and soil samples were collected at 5, 10, 15, 20, and 25 feet bgs. Soils encountered consisted principally of sand with silty sand and silt above 5 to 10 feet bgs and below about 20 feet bgs.

Investigation and Removal of Cesspool

As indicated above, sludge samples were collected in the cesspool area on May 4, 1995, during trenching activities. Samples collected were numbered T4-4-9C and T4-4-12C. These samples were taken at depths of 9 and 12 feet bgs, respectively.

Cesspool sludge and soil beneath the sludge were resampled on December 19, 1995 at depths of 10 and 15 feet bgs (samples CP-10 and CP-15) using a hand auger lowered into the cesspool from the surface.

Based on the results of the initial site investigation, the cesspool was determined to be an approximately 4 foot diameter cylindrical brick structure which extended to a depth of approximately 14 feet bgs. Hand augering through the center of the cesspool conducted as part of the initial site investigation indicated that an approximately 4 foot diameter, 5 foot thick layer of sludge was located at the base of the cesspool from approximately 9 feet to 14 feet bgs.

Bucket Auger Investigation/Sludge Removal (June 7, 1996)

On June 7, 1996, approximately 55% of the cesspool sludge (approximately 1.3 yd^3) was removed by H-F Drilling of Anaheim, California with oversight by SCS field personnel using a truck-mounted bucket auger drill rig. The drill rig was equipped with an approximately 3-foot diameter bucket auger that was used to drill through the center of the cesspool. Materials removed from the cesspool (soil, sludge, and brick) were placed into roll-off bins for later characterization and off-site disposal. Following sludge removal and sample collection, the cesspool and bucket-auger boring were backfilled with a sand/cement slurry.

Soil sample BACP-1(20) was collected during the bucket auger investigation from a depth of approximately 20 feet bgs (6 feet below the base of the cesspool) on June 9, 1996. Sample BACP-1(20) was collected by placing 3-inch brass sample sleeves inside a split spoon sampler and driving the sampling device into the soils using an approximately 140-pound slide hammer.

Backhoe Investigation/Cesspool Removal (July 9, 1996)

On July 9, 1996 removal of the remaining sludge and cesspool structure was attempted by United Pumping of Industry, California with direction by SCS field personnel using a backhoe. However, non-cohesive sands caused excessive caving and the excavation was terminated at approximately 8 feet bgs. No soil samples were collected during the backhoe investigation/cesspool removal effort. Following removal efforts, the backhoe excavation was backfilled with a sand/cement slurry.

Flight Auger Investigation/Cesspool Removal (December 18, 1996)

An open-flight auger drill rig was used by Barney's Hole Digging Service of Long Beach, California, to remove the remaining sludge (approximately 1 yd^3) and cesspool on December 18, 1996. An approximately 4 foot diameter open-flight auger was used to drill through the cesspool and remaining sludge to a depth of approximately 15 feet bgs.

Materials (soil, sludge, and brick) removed from the cesspool were placed into roll-off bins for characterization and off-site disposal. No soil samples were collected during the flight auger investigation/cesspool removal effort. Following sludge and cesspool removal the open-flight auger boring was backfilled with a sand/cement slurry.

Approximately 30 yd^3 of soil, sludge, and bricks were removed from the cesspool and surrounding area during the three cesspool/sludge removal efforts.

Hollow Stem Auger Investigation (January 29, 1997)

On January 29, 1997, confirmation soil samples were collected from boring BH7 drilled beneath the cesspool by Layne with oversight by SCS field personnel using a CME 750 hollow-stem auger drill rig. Soil samples BH7-5-25 and BH7-5-30 were collected from 25 and 30 feet bgs, respectively (11 and 16 feet below the base of the cesspool, respectively).

Binned Cesspool Materials

Binned cesspool materials were sampled by SCS personnel on September 4, 1996, January 5, 1997, and January 9. 1997. Four sub-samples (A through D) were collected from each 6 yd^3 soil bin. The sub-samples from each bin were composited at the laboratories and a single composite soil sample from each bin was analyzed.

QUALITY ASSURANCE/QUALITY CONTROL AND DOCUMENTATION

Field QA/AC

Sample Numbers

Samples have been designated using the following formats:

- SS*-4-x, where "SS" indicates that the sample is a surface sample, * is a number indicating the specific sampling location, 4 is a number representing this phase of site sampling, and x is the depth of the sample in feet bgs.

- T*-4-xy, where "T" indicates that the sample is a trench sample, * is a number indicating the specific sampling location, 4 is a number representing this phase of site sampling, x is the depth of the sample in feet bgs, and y is an optional letter designation for further identification (i.e., "w" for west end of trench).

- BH*-4-x, where "BH" indicates that the sample is a soil boring sample, * is a number indicating the specific boring, 4 is a number representing this phase of site sampling, and x is the depth of the sample in feet bgs.

- BH*-5-x, where "BH" indicates that the sample is a soil boring sample, * is a number indicating the specific boring, 5 is a number representing this phase of site sampling, and x is the depth of the sample in feet bgs.

- MW*S-5-x, where "MW" indicates that the sample was collected from a monitoring well, * is a number indicating the specific monitoring well, "S" indicates a soil sample, 5 is a number which indicates that the samples were collected during the 5th phase of site investigation, and x is the sample depth in feet bgs.

- SS*-5-x, where "SS" indicates that the sample is a soil boring sample at the location of a previous surface soil sample as described in the First Interim Report, * is a number indicating the specific boring, 5 is a number representing this phase of site sampling, and x is the depth of the sample in feet bgs.

Duplicate Samples

In order to check the precision and accuracy of laboratory analyses, duplicate samples were included with soil samples sent to the laboratories for analyses. These samples were collected in numbers equivalent to approximately 10 percent of the total number of soil samples during the initial phases of the RFI. Soil duplicates (co-located samples) were obtained from borings by collecting two adjacent sample sleeves.

Chain-of-Custody Documentation

Sample custody was initiated at the time of sample collection by placing a label on the sample container and filling out a chain-of-custody form. Each collected sample was entered on a line of the chain-of-custody form. It was the responsibility of the person collecting the samples to ensure that the descriptive information on the chain-of-custody form was accurate and complete. When samples left the possession of the person who collected them, the chain-of-custody form was signed by that person and the person to whom sample possession was conveyed. Each individual who subsequently took possession of the samples signed, dated, and indicated the time at which the transfer occurred. Sample condition was noted and recorded by laboratory personnel when the samples were delivered to the laboratory.

Laboratory QA/QC

The purpose of laboratory quality control is to provide a measure of the precision and accuracy of analytical methods. These controls involve checks of reagents used, the analytical methods employed, and the quantification procedures for each analytical method.

Duplicate samples taken and sent to the laboratory also serve as a check on laboratory accuracy. The laboratories performing analyses were all certified by the State of California Department of Health Services to perform the analyses identified in the project protocol.

Internal laboratory QA/QC procedures included the following:

- Laboratory chain-of-custody tracking of samples, including description of sample condition upon receipt, recording of sample receipt in the laboratory log book, documentation of steps in the analytical process, and recording of the results of analyses.
- Instrument calibration using calibration check standards and laboratory blanks.
- Use of reagent and method blanks.
- Replicates (one every 20 samples).
- QC spike samples (one every 20 samples).
- Matrix spike samples (one every 20 samples).
- Laboratory split sample duplicates (one every 20 samples).
- Laboratory check standards (one every 20 samples).

Field Documentation

Field documentation consisted of the following:

- Sample labels, properly completed.
- Chain-of-custody documentation.
- Daily log of activities performed.
- Boring and trench logs.
- Sketch maps of sample locations.
- Other documentation, as appropriate.

SECTION 3

INVESTIGATION RESULTS

SOIL VAPOR SURVEY

Results of the soil vapor survey conducted on March 21 and April 6, 1995, indicated no detectable VOCs with the exception of 1.8 ug/l (micrograms per liter) of tetrachloroethene (PCE) detected at location SV-5 (15 foot depth). When a duplicate sample was collected and analyzed at SV-5, all VOCs were non-detect. Soil vapor survey laboratory reports are included in Appendix E.

SOIL SAMPLING LOCATIONS

Trenches, Septic Tank, and Cesspool Sampling

Trenches

Soil samples were collected from four exploratory trenches (T1 through T4) in the southern portion of the site on May 4, 1995. Soils in the area of trenches T3 and T4 were resampled on December 19, 1995. Results of analyses are summarized in Table 3. Copies of laboratory reports for trench samples are included in Appendix F.

Elevated concentrations of metals and strychnine were not detected in soil samples collected from trenches T1 and T2 and no evidence of a leach field was noted. The septic tank and cesspool, encountered in trenches T3 and T4, respectively, are discussed separately below.

Septic Tank

Elevated concentrations of metals and strychnine were not detected in soil samples collected near the septic tank on May 5, 1995 (Trench T3). The only EPA 8080, 8140, 8150 compounds detected in samples collected on December 19, 1995, near the septic tank was dalapon at relatively low concentrations of 0.17 and 0.3 mg/kg.

Investigation and Removal of Cesspool

Initial Investigation --

The results of analysis indicate elevated concentrations of strychnine (6,900 mg/kg) and the following trace metals in the 12 foot bgs sludge sample collected from the cesspool:

- Arsenic (541 mg/kg)
- Cadmium (17.5 mg/kg)
- Copper (210 mg/kg)
- Lead (419 mg/kg)
- Thallium (2,190 mg/kg)
- Zinc (774 mg/kg)

A concentration of zinc above background (731 mg/kg) also occurs in the 9 foot depth sample (sludge). Strychnine was detected in the 15 foot sample (soil) at a concentration of 58.4 mg/kg. The 15 foot sample (soil) contains concentrations of metals which are generally within the range occurring in native soils, although arsenic (33.5 mg/kg), cadmium (1.52 mg/kg), and thallium (13.9 mg/kg) were detected at concentrations which appear to be somewhat higher than in most native soils.

The chlorinated pesticides 4,4-DDE (310 µg/kg) and 4,4-DDT (120 µg/kg) were detected at low (parts per billion) concentrations in the 10 foot depth sample. No other pesticides or herbicides were detected in this sample or the 15 foot bgs sample.

Cesspool Removal and Additional Soil Sampling –

Soil samples were collected in conjunction with removal activities on June 7, 1996 (BACP-1 at 20 feet bgs) and on January 29, 1997 (BH-7 to 30 feet bgs). Neither pesticides nor strychnine were detected in soil samples BACP-1(20), BH7-5-25, and BH7-5-30 collected at depths of 20, 25, and 30 feet, respectively. Trace metals were not detected in soil samples BACP-1(20), BH7-5-25, and BH7-5-30 at concentrations exceeding reported background concentrations.

Binned Cesspool Materials --

Samples were collected of containerized material resulting from cesspool removal on September 4 and November 8, 1996 and on January 7 and 9, 1997. 4,4-DDD was detected in soil bin samples SB-3 and SB-5 at concentrations of 6.0 and 3.7 µg/kg, respectively. Other chlorinated pesticides were not detected in soil bin samples SB-3 and SB-5. Pesticides were not detected in soil samples collected from other soil bins. Elevated concentrations of trace metals were not detected in soil bin samples.

Binned cesspool materials were disposed off site at the Puente Hills Landfill in Industry, California by United Pumping in November 1996 and May 1997. Binned cesspool materials were disposed in accordance with California Environmental Protection Agency, Los Angeles Regional Water Quality Control Board (LARWQCB) Waste Discharge Permit Nos. 88-57-122(96) and 88-57-038(97). Results of soil bin sample analyses are summarized in Table 7 and copies of laboratory reports for soil bin samples are included in Appendix G.

Near-Surface Sampling

Soil samples were collected at 25 locations at depths between the surface and 3 feet bgs on June 15 and December 19, 1995. Near surface soil sample analytical results are summarized in Table 3. Copies of laboratory reports are included in Appendix F.

Concentrations of trace metals detected in these samples were compared to background concentration ranges reported for native southern California soils (Table 5). Most metals detected in near surface soil samples were within concentrations ranges which have been reported for native soils, including arsenic, copper, and mercury. Concentrations above regional background were detected in two 1-foot depth samples: SS-9-4-1 (cadmium at1.6 mg/kg and lead at213 mg/kg) and SS-9-4-1 (zinc 134 mg/kg).

Pesticides and herbicides detected in near-surface soil samples include: 4,4-DDD, 4,4-DDE, 4,4-DDT, dalapon, silvex, and 2,4-D. Of these, dalapon (a herbicide) was detected with the greatest frequency. TRPH was detected in 5 near-surface soil samples at concentrations ranging from 50 to 6,300 mg/kg. Toluene was detected in one near-surface soil sample at a concentration of 0.015 mg/kg. No other VOCs and no SVOCs were detected in near-surface samples. Strychnine was not detected in near-surface samples.

Dioxin and furans detected in near-surface soil samples include the following:

- 2,3,7,8,-tetrachlorodibenzofuran (TCDF)
- 1,2,3,4,6,7,8-heptachlorodibenzofuran (HpCDF)
- 1,2,3,4,7,8,9-heptachlorodibenzofuran (HpCDF)
- octochlorodibenzofuran (OCDF)
- 1,2,3,6,7,8-hexachlorodibenzo-p-dioxin (HxCDD)
- 1,2,3,7,8,9-hexachlorodibenzo-p-dioxin(HxCDD)
- 1,2,3,4,6,7,8-heptachlorodibenzo-p-dioxin (HpCD)
- octochlorodibenzo-p-dioxin (OCDD)

Data for dioxins and furans is summarized in Table 5.

During the initial phases of the RFI, approximately 10 percent of samples were analyzed in duplicate (co-located for soil samples). Data for duplicate soil samples is summarized in Table 6. In general, duplicate soil sample analyses correlated well with primary soil sample analyses. However, primary and duplicate analyses for dalapon at location SS5-4-1 did not correlate well. Dalapon was detected at a concentration of 0.59 mg/kg in the primary sample and at a concentration of 14 mg/kg in the duplicate sample.

Soil Borings

Initial Phases of RFI

Soil samples were collected from borings on June 13 and December 19, 1995. Samples were collected to a depth of 21 feet bgs in borings BH-1, BH-2, and BH-3, and to a depth of 41 feet in borings BH-4, BH-5, and BH-6. Laboratory results are summarized in Table 3. Copies of laboratory reports are included in Appendix F.

Pesticides and herbicides detected in soil borings include relatively low concentrations (ppb range) of 4,4-DDT and dalapon. Diethylphthalate (DEHP) and benzo(a)pyrene (BAP) were detected in two borings at concentrations of up to 4.2 and 0.05 mg/kg, respectively. Other SVOCs, TRPH, VOCs, and strychnine were not detected in samples from soil borings.

Elevated concentrations of metals were not detected in these soil borings. Dioxins and furans were not detected in samples from soil borings.

Additional Soil Borings at Locations Previously Sampled

Six shallow soil borings were drilled at the site on January 30, 1997 to obtain additional subsurface soil samples for laboratory analysis to assess elevated concentrations of various constituents detected during the initial site investigation. These additional soil borings

were sampled at depths of 3 and 5 feet bgs. All additional soil boring analytical results are summarized in Table 8. Copies of laboratory reports for soil boring samples are included in Appendix F.

Soil samples collected from additional soil borings were analyzed for the following parameters:

- SS4 - zinc.
- SS5 - pesticides and herbicides using EPA Methods 8080, 8140, and 8150.
- SS8 - pesticides and herbicides using EPA Methods 8080, 8140, and 8150.
- SS9 - volatile organics and TRPH using EPA Methods 8260 and 418.1 and for cadmium and lead.
- SS14 - lead.
- SS18 - cadmium and lead.

Pesticides, herbicides, volatile organics, TRPH, total petroleum hydrocarbons, and strychnine were not detected in soil samples collected from the additional soil borings. Elevated concentrations of metals were not detected.

Four Additional Soil Borings in UST Area

Additional soil samples were collected from two borings to a depth of approximately 48 feet and in two borings to 5 feet on May 20, 1999 (Figures 3 and 6).

Trace metals were detected in some samples. Concentrations of the various metals are within the ranges previously detected at the site and within ranges, which have been detected in un-impacted, natural soils.

Pesticides and herbicides were also detected in some of the samples. Organochlorine pesticides and herbicides were detected in only one of the soil samples analyzed (BH9-6-15). Individual chemical species within these classes of substances were detected in this sample in concentrations well below residential Preliminary Remediation Goals (PRGs) determined by U.S. EPA Region IX and as modified by the California EPA (see bottom of data tables).

PRGs are risk-based concentration levels that are protective of human health and have been used at some sites as screening values to evaluate the need for remedial action. PRG concentrations correspond to fixed levels of acceptable risk under a health conservative scenario (cancer risk of one-in-one million or non-cancer hazard index of 1). Residential-scenario PRGs for soil are presented here as a gauge against which to compare on-site concentration.

Chlorinated pesticides were detected in several soil samples collected from borings BH8, BH9 and BH10. No pesticides or herbicides were detected in the sample collected from BH11. The two soil samples with the highest concentrations were collected at depths of 15 feet below ground surface (bgs) in the vicinity of the former 4,000 gallon UST: (1) DDT and dieldrin were detected in sample BH8-6-15 at concentrations above residential PRGs, and (2) DDT was also detected in sample BH9-6-15 at a concentration exceeding

the residential PRG. DDT was detected at its highest concentration in this latter sample (97 mg/kg). The only other sample in which a pesticide was detected at a concentration greater than its residential PRG was BH9-6-20, in which the dieldrin concentration exceeded this level (although it was less than the corresponding industrial PRG).

Concentrations of pesticides detected in samples collected below 20 feet bgs were very low to non-detect. Only one soil sample collected below 25 feet bgs exhibited a detectable concentration of any pesticide, DDT at the low concentration of 0.012 mg/kg in sample BH8-6-47, collected at 47 feet bgs. DDT was non-detect in the subsequent sample collected in the same boring at a depth of 48 feet.

Three Additional Soil Borings in UST Area

Three additional soil borings (BH-12, BH-13, BH-14) were drilled to a depth of 25 feet bgs on February 13, 2001 (Figures 3 and 6). Samples were analyzed for organochlorine pesticides. Results indicate detectable concentrations of chlordane, dieldrin, DDT and its breakdown product DDE, heptachlor and heptachlor epoxide, endrin, and beta, delta, and gamma isomers of hexachlorocyclohexane (also known as BHC; gamma-BHC is marketed under the trade name Lindane). The highest concentration of a single chlorinated pesticide species detected was of DDT at 110 mg/kg in the 15-foot sample from BH-13. The subsurface distribution of DDT is depicted in cross section in Figure 7.

AIR SAMPLING

Air Filter Cassettes

Air filter cassettes were collected on May 4, 1995 and December 19, 1995 as part of the site specific Health and Safety Plan. Air filter cassettes were collected upwind, downwind and within the active work area. Air filter cassettes collected on May 4, 1995 were not analyzed because laboratory holding times were exceeded before analysis could be performed. Air filter cassettes collected on December 19, 1995 were analyzed for organochlorine and organophosphorous pesticides using EPA Methods 8080 and 8140. Pesticides were not detected in any of the air filter cassettes.

GROUNDWATER MONITORING WELLS

Groundwater Monitoring Well - Environmental Soil Samples

Soil samples were collected from monitoring wells MW-1 and MW-2 at approximately five foot intervals to the total depth of each boring on January 28 and 29, 1997. Due to access limitations, soil samples were collected from monitoring well MW-3 at only depths of 15 and 20 feet bgs. Analytical results of soil samples collected during installation of groundwater monitoring wells are summarized in Table 8. Copies of laboratory reports for groundwater monitoring well soil samples included in Appendix F.

Pesticides, herbicides, and strychnine were not detected in these soil samples. Elevated concentrations of metals were not detected in these soil samples.

Groundwater Monitoring Well - Aquifer Grain Size Distribution Samples

A sample of aquifer material was collected from MW-2 at a depth of approximately 40 feet bgs for laboratory grain size analysis by ASTM Method D 422. Based on visual logging and field screening, aquifer material from other wells was similar in grain size.

Laboratory grain size analysis indicates that aquifer materials beneath the site at a depth of approximately 40 feet bgs are composed of poorly graded (well sorted) fine to medium grained sand. A copy of laboratory grain size analysis report is included in Appendix H.

Groundwater Samples

Initial Sampling –

Samples were collected on February 14, 1997 and analyzed for pesticides and herbicides, strychnine, VOCs, selected metals, and general water quality parameters (general minerals). Pesticides, strychnine, and trace metals were not detected in groundwater samples. The herbicides dicamba and dinoseb were detected in monitoring wells MW-1 (upgradient) and MW-2 at concentrations of 0.51 and 1.9 µg/l, respectively. Methyl ethyl ketone (MEK) was detected in groundwater samples collected from monitoring well MW-1 at a concentration of 13 µg/l. Other volatile organics were not detected in MW-1. Volatile organics were not detected in monitoring wells MW-2 and MW-3. Cations, anions, alkalinity, hardness, and TDS were detected at ranges generally reported for fresh water.

Subsequent Sampling Episodes –

Groundwater samples have been collected quarterly since the initial monitoring round with the exception of times when water level was too low to allow purging and sampling. Sampling episodes took place on the following dates:

- May 14, 1997
- October 29, 1997
- January 1, 1998
- April 29, 1999
- March 24, 2000
- May 26, 2000
- August 16, 2000
- May 21, 2001

The analytical program for water samples through 1998 was the same as for the initial set of samples. Samples collected in April 1999 and March 2000 were analyzed for pesticides and herbicides, selected metals, and general minerals. Samples collected in May and August 2000 were analyzed for pesticides and herbicides and selected metals. Samples collected subsequent to this were analyzed for pesticides and herbicides.

Analytical results of groundwater samples are summarized in Tables 9 and 10. Copies of laboratory reports for groundwater samples are included in Appendix I.

Dinoseb was detected at a concentration of 12 ug/l in the sample from well MW-2 collected in May 1997. No detectable concentrations of pesticides or herbicides were

noted in samples from any of the wells collected in October 1997 and subsequently. VOCs were not detected in any of the samples analyzed for these substances subsequent to the initial set of samples. Strychnine was not detected in any groundwater samples.

Concentrations of metals in groundwater samples have been below detection limits or at generally low concentrations.

SECTION 4

SUMMARY AND DISCUSSION

OVERALL SITE SUMMARY

For the purpose of this report soils at the site have been divided into two areas: (1) the area immediately surrounding the former 4,000 gallon UST and including the former concrete pad and sand trap, an area of approximate dimensions 40 by 50 feet (UST Area), and (2) the rest of the site, with an approximate area of 1.65 acres. As defined, the UST Area includes the only portion of the site at this time containing soils with elevated concentrations of substances of concern.

Summaries of soil investigation findings for these two areas are presented below. A summary of removal activities is also presented. In addition, a summary groundwater monitoring activities is included.

SUMMARY OF SOIL INVESTIGATION RESULTS FOR UST AREA

Pesticides and Herbicides

As summarized in Tables 3 and 8, the following pesticides and herbicides were detected in one or more of the soil samples collected in the UST area (with maximum concentrations detected):

- DDT (up to 110 mg/kg)
- DDE (up to 0.12 mg/kg)
- Chlordane, alpha and gamma forms (up to 15 mg/kg, gamma form)
- Dieldrin (up to 1 mg/kg)
- Heptachlor and heptachlor epoxide (up to 0.19 mg/kg)
- BHC, beta, gamma, and delta forms (up to 30 mg/kg, gamma form)
- Endrin (up to 0.0034 mg/kg)
- Fensulfothion (up to 0.017 mg/kg)
- Ronnel (up to 0.097 mg/kg)
- Chloropyrifos (up to 0.13 mg/kg)
- 2,4-D (up to 1.6 mg/kg)
- Silvex (up to 1.1 mg/kg)
- 2,4,5-T (up to 1.8 mg/kg)
- Dalapon (up to 1.1 mg/kg)

The highest concentrations of pesticides (DDT, BHC, chlordane were the species detected in the highest absolute concentrations) were generally detected at a depth of 15 feet bgs in the immediate vicinity of the former sand trap located east of the former concrete pad and west of the UST.

Total Recoverable Petroleum Hydrocarbons

TRPH was not detected in soil samples collected in the former 4,000 gallon UST area.

Volatile and Semi-Volatile Organic Compounds

A trace amount of PCE was detected in one vapor sample in the UST area. The presence of PCE was not confirmed by a duplicate sample collected in the same location. Elevated concentrations of semi-volatile organic compounds were not detected.

Polychlorinated dioxins and furans were detected in a few near-surface soil samples collected in the area of the former concrete pad and an area to the north of this where binned soils from UST excavation had been stored. The compound 2,3,7,8 TCDD, generally considered the most toxic of the dioxin species, was not detected in any sample.

Strychnine

Strychnine was not detected in soil samples collected in the UST area.

Trace Metals

Trace metals detected in the UST area were within normal background ranges for native southern California soils.

SUMMARY OF INVESTIGATION RESULTS FOR PORTION OF SITE OUTSIDE OF UST AREA

Pesticides and Herbicides

EPA 8080, 8140, and 8150 constituents were detected in low concentrations in some soil samples collected outside of the UST area. Substances detected include DDT and its breakdown products DDD and DDE, dalapon, and silvex. The maximum concentration of DDT detected was 1.5 mg/kg in a 1 foot depth sample collected near a doorway to the former garage (SS8-4-1). No pesticides were detected in 3 and 5 foot depth samples collected in the same location. Concentrations of all other pesticides/herbicides detected were below 1 mg/kg.

Total Recoverable Petroleum Hydrocarbons

Petroleum hydrocarbons were detected in a few soil samples in the area of the weed oil tanks in the northeastern portion of the site. Only one sample contained concentrations exceeding 200 mg/kg TRPH, SS9-4-1 collected at a depth of 1 foot in the vicinity of a former 800 gallon weed oil tank, where 6,300 mg/kg TRPH was detected. Samples collected at depths of 3 and 5 feet bgs in the same area did not contain detectable concentrations of petroleum hydrocarbons.

Volatile Organic Compounds

Volatile organics were not detected in soil vapor or soil samples collected during site investigation activities in the area of the site outside the UST area. Elevated concentrations of semi-volatile organic compounds were not detected.

Strychnine

Strychnine was detected in two samples, both of which were collected in the immediate

vicinity of the cesspool (T4-4-12C and T5-4-5E). The highest concentration of strychnine was 6,900 mg/kg in a sample collected from sludge within the cesspool at a depth of 12 below surrounding grade. This material was excavated and removed as discussed below.

Trace Metals

Trace metals detected were generally within the normal background ranges for native southern California soils. The notable exception to this was elevated concentrations of thallium, arsenic, lead, zinc, copper, and cadmium detected in samples of the sludge contained within the cesspool. This material was removed, as discussed below, and confirmatory samples of soils beneath the cesspool collected at depths of 25 and 30 feet indicated trace metals at background concentrations.

SUMMARY OF REMOVAL ACTIONS AND RELATED ACTIVITIES

Cesspool Removal and Disposal

The cesspool and approximately 30 yd^3 of associated sludge/soil were excavated 1n 1996. Excavated material was containerized in covered roll-off bins until it could be removed from the site. The binned material was sampled and samples analyzed for chlorinated pesticides, trace metals, and strychnine for waste characterization. Based on the characterization the binned material was transported off-site for disposal in 1997.

SUMMARY OF GROUNDWATER SAMPLING RESULTS

Pesticides and Herbicides

EPA 8080 and 8140 constituents were not detected in any groundwater samples. Two herbicide, dicamba and dinoseb, analyzed by EPA Method 8150 were detected in monitoring wells MW-1 (upgradient) and MW-2 at concentrations of 0.51 and 1.9 µg/l, respectively. During the second round of monitoring, dinoseb was detected in MW-2 at a concentration of 12 ug/l. No pesticides or herbicides have been detected in any samples from monitoring episodes subsequent to the second round.

Volatile Organic Compounds

Methyl ethyl ketone (MEK) was detected in groundwater samples collected from monitoring well MW-1 (upgradient) at a concentration of 13 µg/l during the first round of sampling in 1997. No EPA 8260 compounds were detected in monitoring wells MW-2 and MW-3. No other VOCs were detected in any other well during the first monitoring round and no VOCs have been detected in any groundwater samples subsequently.

Strychnine

Strychnine has not been detected in groundwater samples collected at the subject site.

Trace Metals

Trace metals, arsenic, cadmium, copper, lead, mercury, thallium, and zinc, have not been detected in groundwater samples collected beneath the subject site during most rounds of

monitoring. Relatively low concentrations of arsenic, copper, lead, and zinc have been detected in samples collected during a few monitoring rounds. These substances have been detected from the upgradient well and from downgradient wells.

General Water Quality Parameters

Cations, anions, alkalinity, hardness, and TDS have been detected at ranges generally reported for potable groundwater.

Aquifer Grain Size Distribution

Grain size analysis of aquifer material was conducted and indicated that the filter pack and slot size used in the groundwater monitoring well construction were appropriate.

SECTION 5

CONCLUSIONS AND RECOMMENDATIONS

Sampling and analysis of soils and other materials for pesticides, herbicides, strychnine, selected trace metals, petroleum hydrocarbons, VOCs, semi-VOCs, and dioxins took place in all areas of the site with potential for release of contaminants.

Soils in areas of this site outside the area of the former concrete pad and 4,000 gallon UST where possibly elevated concentrations of chemicals-of-concern were detected during the initial RFI investigation were subject to additional investigation and/or removal action. Soil sampling and analysis described herein confirmed removal of impacted soils in the cesspool area or defined limits of affected soil. Additional investigation and removals are not recommended in the area outside the former concrete pad and 4,000 gallon UST.

Additional sampling of subsurface soils in the pad/UST area has indicated a relatively small volume of soils impacted with pesticides below the former sand trap centered at a depth of approximately 15 feet bgs. Remedial action is recommended for these soils. Remedial alternatives will be discussed in the Closure Plan to be prepared in the near future.

Three groundwater monitoring wells were constructed and sampled. No contaminants at concentrations of potential concern have been detected since May 1997. Groundwater monitoring is continuing.

SECTION 6

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FIGURES

MAP(S)

AVAILABLE UPON REQUEST

TABLES

Table 1.
Groundwater Monitoring Well Information
LACDAC Pico Rivera Facility
8841 E. Slauson Ave., Pico Rivera, CA

Well Number	Date Installed	Depth of Well (feet bgs)	Screened Interval (feet bgs)	Casing Material	Casing Diameter (inches)	Screen Slot Size (inches)	Filter Pack Size/Material
MW1	1/28-29/97	55	35 to 55	Schedule 40 PVC	4	0.010	#2-/16 Sand
MW2	1/28-29/97	55	35 to 55	Schedule 40 PVC	4	0.010	#2-/16 Sand
MW3	1/29/97	55	35 to 55	Schedule 40 PVC	4	0.010	#2-/16 Sand

bgs = below ground surface
brp = below reference point
MSL = Mean Sea Level

Table 2.
Cumulative Groundwater Level Information
LACDAC Pico Rivera Facility
8841 E. Slauson Ave., Pico Rivera, CA

Well Number	Date	Depth of Well (feet bgs)	Screened Interval (feet bgs)	Depth To Groundwater (feet brp)	Reference Point Elevation Relative to MSL (feet)	Groundwater Elevation Relative to MSL (feet)
MW1	2/14/97	55	35 to 55	37.70	152.58	114.88
	4/11/97			39.19		113.39
	5/14/97			38.18		114.40
	6/12/97			38.64		113.94
	7/23/97			39.09		113.49
	8/14/97			39.88		112.70
	9/10/97			43.47		109.11
	10/29/97			47.40		105.18
	11/20/97			49.26		103.32
	12/9/97			50.02		102.56
	1/6/98			47.61		104.97
	4/29/99			47.63		104.95
	3/23/00			51.69		100.89
	5/26/00			47.15		105.43
	8/16/00			51.85		100.73
	12/4/00			54.64		97.94
	5/21/01			51.71		100.87
MW2	2/14/97	55	35 to 55	38.67	152.84	114.17
	4/11/97			40.22		112.62
	5/14/97			39.18		113.66
	6/12/97			39.65		113.19
	7/23/97			40.06		112.78
	8/14/97			40.87		111.97
	9/10/97			44.41		108.43
	10/29/97			48.31		104.53
	11/20/97			50.16		102.68
	12/9/97			50.94		101.90
	1/6/98			48.56		104.28
	4/29/99			48.72		104.12
	3/23/00			52.46		100.38
	5/26/00			48.24		104.60
	8/16/00			52.84		100.00
	12/4/00			54.57		98.27
	5/21/01			52.95		99.89
MW3	2/14/97	55	35 to 55	38.31	151.69	113.38
	4/11/97			39.55		112.14
	5/14/97			38.62		113.07
	6/12/97			38.99		112.70
	7/23/97			39.46		112.23
	8/14/97			40.19		111.50
	9/10/97			43.54		108.15
	10/29/97			47.41		104.28
	11/20/97			49.21		102.48
	12/9/97			50.08		101.61
	1/6/98			47.92		103.77
	4/29/99			48.01		103.68
	3/23/00			52.60		99.09
	5/26/00			47.79		103.90
	8/16/00			51.89		99.80
	12/4/00			54.04		97.65
	5/21/01			52.20		99.49

Note: All wells are constructed of 4-inch diameter schedule 40 PVC with factory slotted 0.010-inch screen
bgs = below ground surface; brp = below reference point; MSL = Mean Sea Level

TABLE 3A. L. A. CO. AGRICULTURAL COMM., PICO RIVERA, SOIL SAMPLE ANALYTICAL RESULTS, ORGANICS (mg/kg)											
SAMPLE	PESTICIDES/HERBICIDES							OTHER ORGANIC COMPOUNDS			Total Rec.
NUMBER	4,4-DDD	4,4-DDE	4,4-DDT	Dalapon	Silvex	2,4-D	Strychnine	DEHP	BAP	Toluene	Petr.Hydroc.
SS1-4-1	<0.005	<0.005	<0.005	0.32	<0.02	<0.2	<5				
SS2-4-1	<0.005	<0.005	<0.005	0.33	<0.02	<0.2	<5				
SS3-4-1	<0.005	<0.005	<0.005	0.2	<0.02	<0.2	<5				
SS4-4-1	<0.005	<0.005	<0.005	<0.1	<0.02	<0.2	<5				
SS4-4-3	<0.005	<0.005	<0.005	<0.1	<0.02	<0.2	<5				
SS5-4-1	<0.005	<0.005	<0.025	0.59	<0.02	<0.2	<5	<1.5	<0.06		190
SS6-4-1	<0.005	<0.005	<0.025	0.1	<0.02	<0.2		<1.5	<0.04	0.015	<50
SS7-4-1	<0.005	0.081	<0.05	0.12	0.21	<0.2	<5				
SS8-4-1	0.82	0.27	1.5	0.25	<0.02	<0.2	<5	<1.5	<0.05		50
SS9-4-1	<0.005	<0.005	0.0073	0.35	<0.02	<0.2		<1.5	<0.05		6300
SS10-4-1	<0.005	<0.005	<0.005	0.23	<0.02	<0.2		<1.5	<0.05		<50
SS11-4-1	<0.005	<0.005	<0.005	<0.1	<0.02	<0.2					
SS12-4-1	<0.005	<0.005	0.0064	0.26	<0.02	<0.2					50
SS13-4-1	<0.005	<0.005	<0.005	0.3	<0.02	<0.2	<5				65
SS14-4-1	<0.005	<0.005	<0.005	0.13	<0.02	<0.2	<5				
SS14-4-3	<0.005	<0.005	<0.005	0.13	<0.02	<0.2	<5				
SS15-4-1	<0.005	<0.005	<0.005	0.19	<0.02	<0.2	<5				
SS16-4-1	<0.005	<0.005	0.0074	0.21	<0.02	<0.2					
SS17-4-1	<0.005	<0.005	<0.005	0.14	<0.02	<0.2					
SS18-4-1	<0.025	<0.025	0.037	0.21	<0.02	<0.2					
SS19-4-1	<0.005	<0.005	<0.005	0.23	<0.02	0.55	<5				
SS20-4-1	<0.005	<0.005	0.007	0.12	<0.02	<0.2	<5				
SS21-4-1	<0.005	<0.005	0.053	<0.1	0.05	<0.2	<5				
SS22-4-1	<0.005	<0.005	<0.005	0.21	<0.02	<0.2					
SS23-4-1	<0.005	<0.005	<0.005	<0.1	<0.02	<0.2	<5				<50
SS24-4-1	0.0062	<0.005	0.021	0.17	<0.02	<0.2					
SS25-4-1	<0.005	<0.005	<0.005	0.13	<0.02	<0.2	<5				
SS25-4-3	<0.005	<0.005	<0.005	<0.1	<0.02	<0.2	<5				
BH1-4-1	<0.005	<0.005	0.027	<0.1	<0.02	<0.2	<5				<50
BH1-4-5	<0.005	<0.005	<0.005	0.36	<0.02	<0.2	<5			<0.0025	<50
BH1-4-10	<0.005	<0.005	<0.005	0.25	<0.02	<0.2	<5				
BH1-4-15	<0.005	<0.005	<0.005	<0.1	<0.02	<0.2					
BH1-4-20	<0.005	<0.005	<0.005	0.57	<0.02	<0.2					
BH2-4-1	<0.025	<0.005	0.032	0.31	<0.02	<0.2		1.5	0.05		<50
BH2-4-5	<0.005	<0.005	<0.005	<0.1	<0.02	<0.2		<1.5	<0.04	<0.0025	<50
BH2-4-10	<0.005	<0.005	<0.005	<0.1	<0.02	<0.2		4.2	<0.05		<20
BH2-4-15	<0.005	<0.005	<0.005								<50
BH2-4-20	<0.005	<0.005	<0.005								<50
BH3-4-1	<0.005	<0.005	<0.005	0.19	<0.02	<0.2			<0.06		<50
BH3-4-5	<0.005	<0.005	<0.005	<0.1	<0.02	<0.2		3.2	<0.05	<0.0025	<50
BH3-4-10	<0.005	<0.005	<0.005	0.34	<0.02	<0.2			<0.06		<50
BH3-4-15	<0.005	<0.005	<0.005								<20
BH3-4-20	<0.005	<0.005	<0.005								<20
BH4-4-10	<0.005	<0.005	<0.005	<0.1	<0.02	<0.2					
BH4-4-15	<0.005	<0.005	<0.005	<0.1	<0.02	<0.2					
BH4-4-20	<0.005	<0.005	<0.005	<0.1	<0.02	<0.2					
BH4-4-30	<0.005	<0.005	<0.005								
BH4-4-40	<0.005	<0.005	<0.005								
BH5-4-10	<0.005	<0.005	<0.025	0.36	<0.02	<0.2					
BH5-4-15	<0.025	<0.005	<0.025	0.14	<0.02	<0.2					
BH5-4-20	<0.025	<0.005	<0.025	<0.1	<0.02	<0.2					
BH5-4-22	<0.025	<0.005	<0.025	1.1	<0.02	<0.2					
BH5-4-30	<0.005	<0.005	<0.005								
BH5-4-40	<0.005	<0.005	<0.005								
BH6-4-10	<0.005	<0.005	0.008	0.37	<0.02	<0.2					
BH6-4-15	<0.005	<0.005	<0.005	<0.1	<0.02	<0.2					
BH6-4-20	<0.005	<0.005	<0.005	<0.1	<0.02	<0.2					
BH6-4-30	<0.005	<0.005	<0.005								
BH6-4-40	<0.005	<0.005	<0.005								
T1-4-5C											
T1-4-10C											
T2-4-3N											
T3-4-4W							<5				
T3-4-8W							<5				
T3-4-8S							<5				
T4-4-9C							<5				
T4-4-12C							6900				
T5-4-5E											
CP-4-10	<0.1	0.31	0.12	<1.0	<0.20	<2.0					
CP-4-15	<0.005	<0.005	<0.005	<0.1	<0.02	<0.2	58.4				
ST-4-3	<0.005	<0.005	<0.005	0.3	<0.02	<0.2					
ST-4-6	<0.005	<0.005	<0.005	0.17	<0.02	<0.2					

DEHP = diethylphthalate BAP = benzo(a)pyrene

TABLE 3B. L. A. CO. AG., PICO RIVERA, SOIL ANALYTICAL RESULTS, INORGANICS (mg/kg)								
SAMPLE	METAL SPECIES							OTHERS
NUMBER	As	Cd	Cu	Pb	Hg	Tl	Zn	CN
SS1-4-1								
SS2-4-1								
SS3-4-1	<5	<0.25	19.6	7.7	<0.06	<5	44.8	
SS4-4-1	<5	<0.25	19	36.3	<0.06	<5	134	<0.1
SS4-4-3	<5	<0.25	13.7	16.3	0.08	<5	41.8	<0.1
SS5-4-1								
SS6-4-1	<5	<0.25	19	18.1	<0.06	<5	66.5	
SS7-4-1								
SS8-4-1								
SS9-4-1	<5	1.6	19.9	213	<0.06	<5	100	
SS10-4-1	<5	<0.25	17.3	37.4	<0.06	<5	62.4	
SS11-4-1								
SS12-4-1								
SS13-4-1	12.1	<0.25	29.7	7.8	<0.06	<5	51.9	
SS14-4-1	<5	<0.25	13	65.9	<0.06	<5	36.5	
SS14-4-3	<5	<0.25	9.7	<2.5	0.07	<5	23.6	
SS15-4-1								
SS16-4-1	<5	<0.25	22.8	50.5	<0.06	<5	66.6	<0.1
SS17-4-1	<5	<0.25	17	18.5	<0.06	<5	45.4	<0.1
SS18-4-1	<5	0.54	27.7	61.8	0.07	<5	74.8	<0.1
SS19-4-1								
SS20-4-1								
SS21-4-1								
SS22-4-1								
SS23-4-1								
SS24-4-1	<5	<0.25	14.3	48.6	<0.06	<5	52.6	
SS25-4-1	<5	<0.25	17.2	48.4	<0.06	<5	66.3	
SS25-4-3	<5	<0.25	13.7	4.2	<0.06	<5	34	
BH1-4-1	<5	<0.25	13.5	<2.5	0.22	<5	24.6	
BH1-4-5	<5	<0.25	11.1	<2.5	<0.06	<5	18.9	
BH1-4-10	<5	<0.25	9.8	<2.5	<0.06	<5	19.7	
BH1-4-15								
BH1-4-20								
BH2-4-1	<5	<0.25	10.5	<2.5	<0.06	<5	19.4	
BH2-4-5	<5	<0.25	12.9	<2.5	<0.06	<5	23.5	
BH2-4-10	<5	<0.25	11.9	<2.5	<0.06	<5	23.8	
BH2-4-15								
BH2-4-20								
BH3-4-1	<5	<0.25	12.3	<2.5	<0.06	<5	26	
BH3-4-5	<5	<0.25	10.6	<2.5	<0.06	<5	19.4	
BH3-4-10	<5	<0.25	12.4	<2.5	<0.06	<5	19.4	
BH3-4-15								
BH3-4-20								
BH4-4-10	5.9	<0.25	10.1	<2.5	<0.06	<5	24.7	<0.1
BH4-4-15								
BH4-4-20								
BH4-4-30								
BH4-4-40								
BH5-4-10	5.3	<0.25	8.6	<2.5	<0.06	<5	23.7	<0.10
BH5-4-15								
BH5-4-20								
BH5-4-22								
BH5-4-30								
BH5-4-40								
BH6-4-10	<5	<0.25	8.3	<2.5	<0.06	<5	18.7	<0.1
BH6-4-15								
BH6-4-20								
BH6-4-30								
BH6-4-40								
T1-4-5C	<5	<2.5	18.3	14.2	<1	<5	37.8	
T1-4-10C	<5	<2.5	11.3	15.1	<1	<5	26	
T2-4-3N	6.1	<2.5	19.2	15.9	<1	<5	37.4	
T3-4-4W	<5	<2.5	15.1	17.1	<1	<5	42	
T3-4-8W	<5	<2.5	10	10	<1	<5	16.6	
T3-4-8S	13.2	<2.5	8.5	10.2	<1	<5	18.4	
T4-4-9C	30.2	3.88	92.3	54.8	<1	12.1	731	
T4-4-12C	541	17.5	210	419	<1	2190	774	
T5-4-5E	<5	<2.5	9	12.2	<1	<5	11.7	
CP-4-10								
CP-4-15	33.5	1.52	13.1	25.9	0.08	13.9	76.3	
ST-4-3								
ST-4-6								

Table 3C.
Summary of Analytical Results - Soil
Cesspool
LACDAC Pico Rivera Facility
8841 E. Slauson Ave., Pico Rivera, CA

Sample Number	Date Collected	Pesticides/Herbicides			Metals							Strychnine
		EPA 8080 All Constituents	EPA 8140 All Constituents	EPA 8150 All Constituents	As	Cd	Cu	Pb	Hg	Tl	Zn	
		µg/kg	µg/kg	µg/kg	mg/kg							mg/l
BACP-1(20)	6/9/96	ND	NA	NA	21.2	<0.50	8.6	<10.0	<0.040	<50.0	76.4	<0.1
BH7-5-25	1/29/97	ND	NA	NA	10.3	<0.50	11.1	<10.0	NA	<50.0	39.1	<0.1
BH7-5-30	1/29/97	ND	NA	NA	10.2	<0.50	8.1	<10.0	NA	<50.0	20.1	<0.1

ND = Not Detected NA = Not Analyzed

TABLE 4. L. A. CO. AG. COMM., PICO RIVERA, DUPLICATE SOIL ANALYTICAL RESULTS (mg/kg)

SAMPLE	PESTICIDES/HERBICIDES						OTHER ORGANICS		Total Rec.	METALS	
NUMBER	4,4-DDD	4,4-DDE	4,4-DDT	Dalapon	Silvex	2,4-D	BAP	Toluene	Petr.Hydroc.	Cd	Hg
SS1-4-1 D	<0.005	<0.005	<0.005	0.29	<0.02	<0.2					
SS3-4-1 D	<0.005	<0.005	<0.005	0.25	<0.02	<0.2				<0.25	<0.06
SS5-4-1 D	<0.005	<0.005	<0.025	14	<0.02	<0.2	<0.06				
BH1-4-5B	<0.005	<0.005	<0.005	0.13	<0.02	<0.2		<0.0025		<0.25	<0.06
BH2-4-1B	<0.025	<0.005	0.0059	0.15	<0.02	<0.2	<0.06			<0.25	0.14
BH2-4-10B	<0.005	<0.005	<0.005	<0.1	<0.02	<0.2	<0.06		<20	<0.25	<0.06
BH4-4-10B	<0.005	<0.005	<0.005	<0.1	<0.02	<0.2				<0.25	<0.06
BH6-4-10B	<0.005	<0.005	<0.005	<0.1	<0.02	<0.2				<0.25	<0.06

BAP = benzo(a)pyrene

Table 5. Trace Metals Concentrations of Native Soils (mg/kg)			
Metal	Average	Minimum	Maximum
Arsenic	3.5	0.6	11.0
Cadmium	0.36	0.05	1.70
Copper	28.7	9.1	96.4
Lead	23.9	12.4	97.1
Mercury	0.26	0.10	0.90
Thallium	0.56	0.17	1.10
Zinc	149	88	236

Data from Background Concentrations of Trace and Major Elements in California Soils, Bradford, et.al., March 1996

TABLE 6A. L. A. CO. AG. COMM., PICO RIVERA, SOIL ANALYTICAL RESULTS, POLYCHLORINATED DIOXINS/FURANS (pg/g)

SAMPLE NUMBER	FURANS				DIOXINS			
	2,3,7,8-TCDF	1,2,3,4,6,7,8-HpCDF	1,2,3,4,7,8,9-HpCDF	OCDF	1,2,3,6,7,8-HxCDD	1,2,3,7,8,9-HxCDD	1,2,3,4,6,7,8-HpCDD	OCDD
SS1-4-1	<0.42	<1.6	<0.47	<2.2	<0.21	<0.35	<3.7	47
SS2-4-1	<0.60	<0.27	<0.15	<0.32	<0.28	<0.31	<0.31	<2.8
SS3-4-1	<0.24	<1.6	<0.42	<2.4	<0.23	<0.36	<2.4	25
SS16-4-1	1.2	20	<1.6	53	<3.6	<3.0	79	1000
SS17-4-1	<0.70	45	5.5	94	5.3	<4.3	140	1300
SS18-4-1	1.5	20	<2.8	52	6.4	5.4	120	1100
BH4-4-10	<0.11	<0.11	<0.10	<0.24	<0.16	<0.18	<0.23	<2.4
BH5-4-10	<0.23	<0.14	<0.19	<0.36	<0.24	<0.27	<0.43	<8.7
BH6-4-10	<0.1	<0.1	<0.14	<0.28	<0.17	<0.31	<0.25	<4.4
TEF	0.1	0.01	0.01	0.001	0.1	0.1	0.01	0.001

TEF = 2,3,7,8 TCDD Toxicity Equivalency Factor (1989 USEPA Interim)
TE = Toxicity Equivalent (as above)

2,3,7,8-TCDF = 2,3,7,8-tetrachlorodibenzofuran
1,2,3,4,6,7,8-HpCDF = 1,2,3,4,6,7,8-heptachlorodibenzofuran
1,2,3,4,7,8,9-HpCDF = 1,2,3,4,7,8,9-heptachlorodibenzofuran
OCDF = octochlorodibenzofuran

1,2,3,6,7,8-HxCDD = 1,2,3,6,7,8-hexachlorodibenzo-p-dioxin
1,2,3,7,8,9-HxCDD = 1,2,3,7,8,9-hexachlorodibenzo-p-dioxin
1,2,3,4,6,7,8-HpCDD = 1,2,3,4,6,7,8-heptachlorodibenzo-p-dioxin
OCDD = octochlorodibenzo-p-dioxin

TABLE 6B. CHLORINATED DIOXINS/FURANS, TOXICITY EQUIVALENCY FACTORS (TEF)

SAMPLE NUMBER	FURANS				DIOXINS				TOTAL TE (pg/g)
	2,3,7,8-TCDF	1,2,3,4,6,7,8-HpCDF	1,2,3,4,7,8,9-HpCDF	OCDF	1,2,3,6,7,8-HxCDD	1,2,3,7,8,9-HxCDD	1,2,3,4,6,7,8-HpCDD	OCDD	
SS1-4-1								0.047	0.047
SS3-4-1								0.025	0.025
SS16-4-1	0.12	0.2		0.053			0.79	1	2.163
SS17-4-1		0.45	0.055	0.094	0.53		1.4	1.3	3.829
SS18-4-1	0.15	0.2		0.052	0.64	0.54	1.2	1.1	3.882

Table 7.

Summary of Analytical Results
Binned Cesspool Materials
LACDAC Pico Rivera Facility
8841 E. Slauson Ave., Pico Rivera, CA

Soil Bin Name	Soil Bin Number	Contents	Samples Collected	Date Samples Collected	EPA 8080* 4,4-DDD	Metals As	Cd	Cu	Pb	Hg	Tl	Zn	Strychnine
					µg/kg	mg/kg							mg/kg
SB1	R-229	Soil and Sludge	SB-1 (A-D)	9/4/96	<3.3	<10.0	0.64	17.0	50.2	0.057	<50.0	107	<0.1
SB2	R-258	Soil	SB-2 (A-D)	9/4/96	<3.3	<10.0	0.52	13.4	17.2	0.061	<50.0	43.8	<0.1
SB3	R-303	Soil	SB-3 (A-D)	9/4/96	6.0	<10.0	<0.50	12.1	21.5	<0.040	<50.0	45.9	<0.1
SB4	R-209	Soil	SB-4 (A-D)	9/4/96	<3.3	<10.0	<0.50	14.1	30.1	0.045	<50.0	52.3	<0.1
SB5	R-338	Soil	SB-5 (A-D)	1/7/97	3.7	<10.0	<0.50	10.4	10.6	<0.040	<50.0	38.5	<0.1
SB6	R-313	Soil and Sludge	SB-6 (A-D)	1/9/97	<3.3	<10.0	<0.50	14.0	15.8	0.049	<50.0	54.3	<0.1

* = Other EPA 8080 Compounds Not Detected Above Reporting Limits

Table 8.
Summary of Analytical Results - Soil, Additional Samples (1997 through 2001)
Monitoring Wells and Additional Borings
LACDAC Pico Rivera Facility
8841 E. Slauson Ave., Pico Rivera, CA

Sample Number and Depth	Date Collected	Pesticides/Herbicides			Volatile Organics	Petroleum Hydrocarbons		Metals							Strychnine
		EPA 8080 All Constituents	EPA 8140 All Constituents	EPA 8150 All Constituents	EPA 8260 All Constituents	EPA 418.1	EPA 8015 All Fractions	As	Cd	Cu	Pb	Hg	Tl	Zn	
		µg/kg	µg/kg	µg/kg	µg/kg	mg/kg	mg/kg	mg/kg							mg/l
MW1S-5-10	1/28/97	ND	ND	ND	NA	NA	NA	<10.0	<0.50	10.9	<10.0	<0.040	<50.0	21.4	NA
MW1S-5-15	1/28/97	ND	ND	ND	NA	NA	NA	<10.0	<0.50	16.3	<10.0	<0.040	<50.0	27.2	NA
MW1S-5-20	1/28/97	ND	ND	ND	NA	NA	NA	<10.0	<0.50	6.2	<10.0	<0.040	<50.0	15.5	NA
MW1S-5-20(D)	1/28/97	ND	ND	ND	NA	NA	NA	<10.0	<0.50	7.6	<10.0	<0.040	<50.0	16.1	NA
MW1S-5-30	1/28/97	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW1S-5-40	1/28/97	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW2S-5-15	1/28/97	ND	ND	ND	NA	NA	NA	<10.0	<0.50	13.9	<10.0	<0.040	<50.0	25.8	NA
MW2S-5-20	1/28/97	ND	ND	ND	NA	NA	NA	<10.0	<0.50	18.7	<10.0	0.040	<50.0	25.0	NA
MW2S-5-20(D)	1/28/97	ND	ND	ND	NA	NA	NA	<10.0	<0.50	7.6	<10.0	<0.040	<50.0	15.2	NA
MW2S-5-30	1/28/97	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW2S-5-40	1/28/97	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW3S-5-15	1/29/97	ND	NA	NA	NA	NA	NA	20.1	<0.50	6.4	<10.0	NA	<50.0	30.1	<0.1
MW3S-5-20	1/29/97	ND	NA	NA	NA	NA	NA	10.9	<0.50	11.4	<10.0	NA	<50.0	33.9	<0.1
SS4-5-3	1/30/97	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	50.7	NA
SS4-5-3(D)	1/30/97	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	45.5	NA
SS4-5-5	1/30/97	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	34.3	NA
SS5-5-3	1/30/97	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS5-5-5	1/30/97	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS8-5-3	1/30/97	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS8-5-5	1/30/97	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SS9-5-3	1/30/97	NA	NA	NA	ND	<10	ND	NA	<0.50	NA	<10.0	NA	NA	NA	NA
SS9-5-5	1/30/97	NA	NA	NA	ND	<10	ND	NA	<0.50	NA	<10.0	NA	NA	NA	NA
SS14-5-3	1/30/97	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10.0	NA	NA	NA	NA
SS14-5-5	1/30/97	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10.0	NA	NA	NA	NA
SS18-5-3	1/30/97	NA	NA	NA	NA	NA	NA	NA	<0.50	NA	<10.0	NA	NA	NA	NA
SS18-5-5	1/30/97	NA	NA	NA	NA	NA	NA	NA	<0.50	NA	<10.0	NA	NA	NA	NA

Table 8. Continued (1999 and 2001 samples)

Sample Location	Depth	Pesticides/Herbicides																	
		EPA 8081[A]											EPA 8141[B]			EPA 8151A[C]			
		gama-Chlordane	alpha Chlordane	Dieldrin	4,4' DDT	4,4' DDE	Heptachlor	gamma BHC (Lindane)	delta BHC	beta-BHC	Total Endrin	Heptachlor epoxide	Fensulfothion	Ronnel	Chlorpyrifos	2,4 D	2,4,5 TP (Silvex)	2,4,5 T
	(feet bgs)	mg/kg											mg/kg			mg/kg			
BH8-6	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	15	0.20	0 19	0.39	2.9	<0 17	<0 085	<0 085	<0.085	<0.085	<0 17	<0.085	<0 033	<0.033	<0 033	<0 080	<0 020	<0 020	
	20	0.004	0.002	0.016	0.0078	<0 0034	<0 0017	<0 0017	<0 0017	<0 0017	<0 0034	<0.0017	<0 033	<0 033	<0 033	<0 080	<0 020	<0 020	
	25	0.0017	0 002	0.0052	<0 0034	<0 0034	<0 0017	<0 0017	<0 0017	<0 0017	<0 0034	<0.0017	<0 033	<0 033	<0 033	<0 080	<0 020	<0 020	
	30	<0.0017	<0 0017	<0.0034	<0.0034	<0.0034	<0.0017	<0 0017	<0 0017	<0 0017	<0 0034	<0.0017	<0 033	<0 033	<0 033	<0 080	<0 020	<0 020	
	35	<0.0017	<0 0017	<0.0034	<0.0034	<0.0034	<0.0017	<0 0017	<0 0017	<0 0017	<0.0034	<0 0017	<0 033	<0 033	<0 033	<0 080	<0 020	<0 020	
	40	<0.0017	<0.0017	<0.0034	<0 0034	<0.0034	<0.0017	<0.0017	<0 0017	<0 0017	<0 0034	<0.0017	<0.033	<0 033	<0 033	<0 080	<0 020	<0 020	
	45	<0.0017	<0 0017	<0.0034	<0 0034	<0.0034	<0 0017	<0.0017	<0 0017	<0 0017	<0 0034	<0.0017	<0 033	<0.033	<0 033	<0.080	<0 020	<0 020	
	47	<0.0017	<0 0017	<0.0034	0.012	<0 0034	<0 0017	<0.0017	<0 0017	<0 0017	<0 0034	<0.0017	<0 033	<0 033	<0 033	<0 080	<0 020	<0 020	
	48	<0.0017	<0.0017	<0.0034	<0.0034	<0.0034	<0.0017	<0.0017	<0.0017	<0.0017	<0 0034	<0.0017	<0 033	<0 033	<0 033	<0 080	<0 020	<0 020	
BH9-6	5	0.013	0.018	<0.0034	0.015	0.0046	<0.0017	<0.0017	<0 0017	<0.0017	<0 0034	<0.0017	<0 033	<0 033	<0 033	<0 080	<0 020	<0 020	
	10	0.0063	0.0072	0.0092	<0 0034	<0.0034	<0.0017	<0.0017	<0 0017	<0 0017	<0.0034	<0.0017	<0 033	<0.033	<0 033	<0 080	<0 020	<0 020	
	15	<8.5	<8.5	<17	97	<17	<8.5	<8.5	<8 5	<8.5	<17	<8 5	0.071	0 097	0.13	1 6	1 1	1.8	
	20	0.053	0.05	0.058	0 20	<0.034	<0.017	<0 017	<0.017	<0.017	<0 034	<0.017	<0 033	<0 033	<0.033	<0 080	<0 020	<0.020	
	25	<0.0017	<0 0017	<0.0034	<0 0034	<0.0034	<0 0017	0.0023	<0.0017	<0 0017	<0 0034	0.0072	<0 033	<0 033	<0 033	<0 080	<0 020	<0 020	
	30	<0.0017	<0 0017	<0 0034	<0 0034	<0.0034	<0 0017	<0.0017	<0 0017	<0.0017	<0 0034	<0 0017	<0 033	<0 033	<0 033	<0 080	<0 020	<0 020	
	35	<0.0017	<0 0017	<0.0034	<0 0034	<0.0034	<0 0017	<0.0017	<0 0017	<0.0017	<0 0034	<0.0017	<0 033	<0 033	<0 033	<0 080	<0 020	<0 020	
	40	<0.0017	<0 0017	<0.0034	<0 0034	<0 0034	<0 0017	<0.0017	<0 0017	<0 0017	<0 0034	<0.0017	<0 033	<0 033	<0 033	<0 080	<0 020	<0.020	
	45	<0.0017	<0 0017	<0.0034	<0 0034	<0.0034	<0.0017	<0.0017	<0 0017	<0 0017	<0.0034	<0.0017	<0 033	<0 033	<0 033	<0 080	<0 020	<0 020	
	47	<0.0017	<0.0017	<0.0034	<0.0034	<0.0034	<0.0017	<0.0017	<0.0017	<0 0017	<0 0034	<0 0017	<0 033	<0 033	<0 033	<0 080	<0 020	<0 020	
BH10-6	5	0.024	0.024	0.0046	0.029	0.015	0.002	<0.0017	<0.0017	<0.0017	<0.0034	0.0024	<1.6	<1.6	<1.6	<0.080	<0.020	<0.020	
BH11-6	5	<0.0017	<0.0017	<0.0034	<0.0034	<0.0034	<0.0017	<0.0017	<0.0017	<0.0017	<0.0034	<0.0017	<0.033	<0.033	<0.033	<0.080	<0.020	<0.020	
BH12-7	5	0.2	0.18	0.084	0.62	0 12	<0 034	<0.034	<0.034	<0 034	<0.068	<0.034	NA	NA	NA	NA	NA	NA	
	10	0.02	0 016	0.045	<0.0034	<0 0034	0 0053	<0.0017	0.0055	0.0064	0.0034	0.0039	NA	NA	NA	NA	NA	NA	
	15	0.023	0 016	0.042	0.011	<0 0068	<0.0034	<0 0034	<0 0034	<0.0034	<0.0068	<0.0034	NA	NA	NA	NA	NA	NA	
	20	0.012	0 015	0.017	0.0320	0.0071	<0.0017	<0.0017	0.0019	<0 0017	<0 0034	0 0017	NA	NA	NA	NA	NA	NA	
	25	<0.0017	<0.0017	<0.0034	<0.0034	<0.0034	<0.0017	<0.0017	<0.0017	<0.0017	<0.0034	<0.0017	NA	NA	NA	NA	NA	NA	
BH13-7	5	0.11	0.098	<0.034	<0.034	<0.034	<0 017	<0.017	<0.017	<0.017	<0.034	<0.017	NA	NA	NA	NA	NA	NA	
	10	0.0046	0.0038	0.0054	0.0049	<0.0034	<0.0017	<0.0017	<0.0017	<0.0017	<0.0034	<0.0017	NA	NA	NA	NA	NA	NA	
	15	15.0	14.0	<17	110	<17	<8.5	30.0	<8.5	<8.5	<17	<8 5	NA	NA	NA	NA	NA	NA	
	20	0.075	0.064	0.079	0 21	<0.034	<0.017	30 0	<0 017	<0.017	<0 034	<0.017	NA	NA	NA	NA	NA	NA	
	25	0.045	0.044	0.059	0.55	<0.034	0.017	0.038	<0.017	<0.017	<0.034	<0.017	NA	NA	NA	NA	NA	NA	
BH14-7	5	0.75	0.68	1.0	0.77	<0.34	0.19	<0.17	<0.17	<0.17	<0.34	<0.17	NA	NA	NA	NA	NA	NA	
	10	0.11	0.092	<0.017	0.041	<0.034	<0 017	<0.017	<0.017	<0.017	<0 034	<0.017	NA	NA	NA	NA	NA	NA	
	15	0.05	0.04	0.12	<0 017	<0 017	<0.0085	<0.0085	<0.0085	<0.0085	<0 017	<0.0085	NA	NA	NA	NA	NA	NA	
	20	0.047	0.043	0.058	<0.034	<0.034	<0 017	<0.017	<0.017	<0.017	<0.034	<0 017	NA	NA	NA	NA	NA	NA	
	25	<0.0017	<0.0017	<0.0034	<0.0034	<0.0034	<0.0017	<0.0017	<0.0017	<0.0017	<0.0034	<0.0017	NA	NA	NA	NA	NA	NA	
Res.PRG		1.6	2	0.028	1.7	1.7	0.099	0.42	0.44	0.32	18	0.049		2700	160	640	440	550	

NA = Not Analyzed

A = Other EPA 8081 compounds not detected

B= Other EPA Method 8141 compounds not detected

C = Other EPA Method 8151A compounds not detected

mg/kg = milligrams per kilogram

Table 8. Continued (1999 and 2001 samples)

Sample Location	Depth	Metals					
		As	Cd	Cu	Pb	Tl	Zn
	(feet bgs)	mg/kg					
BH8-6	5	NA	NA	NA	NA	NA	NA
	10	NA	NA	NA	NA	NA	NA
	15	4.1	<0.5	9.7	7.9	4.0	45.0
	20	1.2	<0.5	4.9	1.5	<1.0	16.0
	25	6.7	<0.5	15.9	3.5	<1.0	36.8
	30	6.0	<0.5	14.2	2.6	<1.0	35.9
	35	9.0	<0.5	24.2	5.1	<1.0	50.6
	40	3.7	<0.5	19.2	3.7	<1.0	50.3
	45	4.3	<0.5	7.6	2.0	<1.0	21.1
	47	4.4	<0.5	5.7	1.7	<1.0	19.1
	48	4.0	<0.5	4.8	1.4	<1.0	14.2
BH9-6	5	6.6	0.73	35.6	73.8	<1.0	119
	10	2.3	<0.5	9.0	1.9	<1.0	26.2
	15	<1.0	<0.5	7.3	1.6	<1.0	21.2
	20	<1.0	<0.5	4.6	1.2	<1.0	14.4
	25	5.7	<0.5	15.2	3.1	<1.0	35.5
	30	6.6	<0.5	13.7	3.0	<1.0	33.5
	35	9.4	<0.5	12.4	2.7	<1.0	33.8
	40	2.7	<0.5	19.3	3.7	<1.0	51.4
	45	2.0	<0.5	4.6	1.6	<1.0	16.2
	47	1.4	<0.5	4.6	1.5	<1.0	15.1
BH10-6	5	5.9	<0.5	16.7	23.0	<1.0	59.5
BH11-6	5	2.0	<0.5	10.3	2.3	<1.0	26.5
Res.PRG		21*	9.0	2800	130	6.0	22000

Samples from BH 12, 13, 14 not analyzed for metals

As = Arsenic (* non cancer end point PRG)
Cd = Cadmium
Cu = Copper
Tl = Thalium
Pb = Lead
Zn = Zinc

Table 9.
Cumulative Groundwater Monitoring Results
General Water Quality Parameters
LACDAC Pico Rivera Facility
8841 E. Slauson Ave., Pico Rivera, CA

Sample Number	Date Collected	General Minerals																		Field Parameters*	
		Cations					Anions														
		NH_4^+	Na^+	K^+	Ca^{+2}	Mg^{+2}	HCO_3	CO_3^{-2}	Cl	SO_4^{-2}	NO_3	F	Fe	Mn	Alkalinity	Hardness	TDS	Turbidity	pH	EC	pH
		mg/l					mg/l								mg/l			NTU		mS/cm	
MW-1	2/14/97	ND	63.8	4.4	81.5	18	186.6	ND	61	156	17.8	ND	0.29	0.01	153	277.7	510	NA	NA	0.67	7.7
	5/14/97	ND	69.1	5.0	100.5	20.6	233	ND	88.0	169	17.8	0.28	0.04	ND	191	277.6	548	NA	6.6	0.75	6.79
	10/29/97	ND	67.9	4.77	120.7	24.6	298	ND	67.5	179	18.4	0.34	0.01	ND	244	385	660	NA	6.95	0.99	7.08
	1/6/98	0.15	69.3	4.69	121	24.1	298	ND	54.8	143	9.0	0.38	0.04	ND	244	380	707	NA	6.73	0.85	7.06
	4/29/99	ND	67.8	4.84	118	23.5	227	ND	76.0	206	9.17	0.48	0.08	ND	186	NA	NA	0.18	NA	1.16	7.1
	3/24/00	NA	70.9	5.64	112	23.7	264	**	65.4	154	17.80	NA	26.3	124	216	NA	672	1.02	6.87	0.98	6.74
	5/26/00	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	0.70	6.86
	8/16/00	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	0.74	7.17
	5/21/01	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	1.06	6.45
MW-2	2/14/97	ND	67.1	5	103	22.7	247.7	ND	61	152	30	ND	10.1	0.11	203	350.7	598	NA	NA	0.76	7.9
	5/14/97	0.17	68.1	5.1	109.0	23.1	262	ND	69.9	161	30.0	0.28	0.08	ND	215	350.7	590	NA	6.7	0.82	7.47
	10/29/97	ND	61.9	4.81	95.1	21.9	254	ND	50.0	139	15.1	0.35	0.02	ND	208	360	540	NA	6.95	0.77	7.06
	1/6/98	0.14	60.9	4.52	83.7	18.8	211	ND	70.5	114	12.9	0.36	0.04	ND	173	250	513	NA	6.70	0.67	7.03
	4/29/99	ND	58.3	4.64	78.5	19.3	203	ND	57.0	124	18.4	0.41	ND	ND	166	NA	NA	0.21	NA	0.77	7.03
	3/24/00	NA	52.6	5.16	92.3	22.2	227	**	65.2	143	23.8	NA	86.4	2.55	186	NA	642	1.58	6.84	0.78	6.74
	5/26/00	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	0.70	6.83
	8/16/00	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	0.72	7.26
	5/21/01	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	0.99	6.49
MW-3	2/14/97	ND	69.7	5.47	120	24.4	275.7	ND	74.5	226	13.8	ND	0.13	0.02	226	400.1	668	NA	NA	0.85	7.9
	5/14/97	ND	71.2	5.6	120.6	23.8	283	ND	90.0	216	13.8	0.48	0.16	ND	232	400.1	665	NA	6.7	0.87	7.58
	10/29/97	ND	70.3	5.26	117.9	24.0	266	ND	72.5	200	24.1	0.34	0.03	ND	218	400	640	NA	7.01	0.88	7.19
	1/6/98	ND	71.8	4.93	120.2	23.3	268	ND	62.5	153	20.7	0.37	0.04	ND	220	340	672	NA	6.77	0.87	7.04
	4/29/99	ND	44.5	3.78	89.2	15.9	216	ND	67.0	175	20	0.40	0.12	ND	177	NA	NA	1.22	NA	1.03	6.95
	3/24/00	NA	95.4	5.27	123	24.2	278	**	81.2	192	75.5	NA	74.9	1.3	228	NA	837	1.72	7.16	1.23	6.9
	5/26/00	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	0.73	7.02
	8/16/00	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	0.75	7.32
	5/21/01	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	1.08	6.39

TDS = Total Dissolved Solids
ND = Not Detected
NA = Not Analyzed
EC = Electroconductivity

** = Not expected to exist in water of this chemistry.

mS/cm = micro simmens/centimeter
NTU = nephelometric turbidity units

Table 10.
Cumulative Groundwater Monitoring Results
Pesticides, Herbicides, Volatile Organics, Metals, and Strychnine
LACDAC Pico Rivera Facility
8841 E. Slauson Ave., Pico Rivera, CA

Sample Number	Date Collected	Pesticides/Herbicides				Volatile Organics	Metals							Strychnine
		EPA 8081 All Constituents	EPA 8141 All Constituents	EPA 8151[a]		EPA 8260 All Constituents	As	Cd	Cu	Pb	Hg	Tl	Zn	
				Dicamba	Dinoseb									
		µg/l	µg/l	µg/l		µg/l	mg/l							mg/l
MW 1	2/14/97	ND	ND	**0.51**	<0.25	MEK = **13**[b]	<0.030	<0.0050	<0.025	<0.10	<0.00020	<2.0	<0.020	<0.04
	5/14/97	ND	ND	<0.10	<0.25	ND	<0.030	<0.0050	<0.025	<0.10	<0.00020	<2.0	<0.020	<0.04
	10/29/97	ND	ND	<0.10	<0.25	ND	<0.030	<0.0050	<0.025	<0.10	<0.00020	<2.0	**0.034**	<0.04
	1/6/98[c]	ND	ND	<0.10	<0.25	ND	<0.030	<0.0050	<0.025	<0.10	<0.00020	<2.0	<0.020	<0.04
	4/29/99	ND	ND	<2.0	<0.60	NA	<0.010	<0.0050	<0.025	<0.0050	<0.00020	<0.010	**0.042**	NA
	3/24/00	ND	ND	NA	NA	NA	**0.012**	<0.0050	<0.025	**0.0056**	NA	<0.010	**0.034**	NA
	3/24/00*	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	5/26/00	ND	ND	<2.0	<0.60	NA	<0.010	<0.0050	<0.025	<0.0050	<0.00020	<0.010	<0.020	NA
	8/16/00	ND	ND	<2.0	<0.60	NA	<0.010	<0.0050	<0.025	<0.0050	<0.00020	<0.010	<0.020	NA
	5/21/01	ND	ND	<2.0	<0.60	NA	<0.010	<0.0050	<0.025	<0.0050	<0.00020	<0.010	<0.020	NA
MW-2	2/14/97	ND	ND	<0.10	**1.9**	ND	<0.030	<0.0050	<0.025	<0.10	<0.00020	<2.0	<0.020	<0.04
	5/14/97	ND	ND	<0.10	**12**	ND	<0.030	<0.0050	<0.025	<0.10	<0.00020	<2.0	<0.020	<0.04
	10/29/97	ND	ND	<0.10	<0.25	ND	<0.030	<0.0050	<0.025	<0.10	<0.00020	<2.0	<0.020	<0.04
	1/6/98[c]	ND	ND	<0.10	<0.25	ND	<0.030	<0.0050	<0.025	<0.10	<0.00020	<2.0	<0.020	<0.04
	4/29/99	ND	ND	<2.0	<0.60	NA	<0.010	<0.0050	<0.025	<0.0050	<0.00020	<0.010	<0.020	NA
	3/24/00	ND	ND	<2.0	<0.60	NA	**0.043**	<0.0050	**0.093**	**0.039**	NA	<0.010	**0.18**	NA
	3/24/00*	NA	ND	<2.0	<0.60	NA	NA	NA	NA	NA	NA	NA	NA	NA
	5/26/00	ND	ND	<2.0	<0.60	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8/16/00	ND	ND	<2.0	<0.60	NA	<0.010	<0.0050	<0.025	<0.0050	<0.00020	<0.010	<0.020	NA
	5/21/01	ND	ND	<2.0	<0.60	NA	**0.012**	<0.0050	<0.025	<0.0050	<0.00020	<0.010	<0.020	NA
MW-3	2/14/97	ND	ND	<0.10	<0.25	ND	<0.030	<0.0050	<0.025	<0.10	<0.00020	<2.0	<0.020	<0.04
	5/14/97	ND	ND	<0.10	<0.25	ND	<0.030	<0.0050	<0.025	<0.10	<0.00020	<2.0	<0.020	<0.04
	10/29/97	ND	ND	<0.10	<0.25	ND	<0.030	<0.0050	<0.025	<0.10	<0.00020	<2.0	**0.022**	<0.04
	1/6/98[c]	ND	ND	<0.10	<0.25	ND	<0.030	<0.0050	<0.025	<0.10	<0.00020	<2.0	<0.020	<0.04
	4/29/99	ND	ND	<2.0	<0.60	NA	<0.010	<0.0050	<0.025	<0.0050	<0.00020	<0.010	<0.020	NA
	3/24/00	ND	ND	<2.0	<0.60	NA	**0.028**	<0.0050	**0.055**	**0.014**	NA	<0.010	**0.12**	NA
	5/26/00	ND	ND	<2.0	<0.60	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8/16/00	ND	ND	<2.0	<0.60	NA	<0.010	<0.0050	<0.025	<0.0050	<0.00020	<0.010	<0.020	NA
	5/21/01	ND	ND	<2.0	<0.60	NA	**0.012**	<0.0050	<0.025	<0.0050	<0.00020	<0.010	**0.025**	NA

ND = Not Detected
MEK = Methyl Ethyl Ketone
NA = Not Analyzed
a = All other EPA 8150 or 8151 constituents ND

* = Duplicate sample analysis.

b = All other EPA 8260 constituents ND
c = EPA 8140 and 8150 exceeded holding times re sampled 1/23/98