REVISED CLOSURE PLAN
FOR RCRA PERMITTED UNITS

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SUBMITTED TO:

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EXECUTIVE SUMMARY

The AMVAC facility occupies approximately 3 1/2 acres of land in a heavily industrialized area of the City of Commerce, located in Los Angeles County. Maps of the facility vicinity and of the facility itself are attached as Figures 1 and 2, respectively.

AMVAC received a Resource Conservation and Recovery Act (RCRA) Hazardous Waste Facility Permit in 1983 to operate two hazardous waste management units: a hazardous waste container storage pad (Pad) and an above-ground hazardous waste storage tank (Tank), shown on Figure 3. AMVAC operated both units from 1983 until 1988.

AMVAC took both RCRA-permitted units out of service in 1988. At that time, AMVAC conducted certain closure activities, including decontamination of the Tank; demolition and off-site disposal of the Pad; and off-site disposal of all hazardous waste contained within the Pad and Tank, including Tank decontamination wastes.

AMVAC conducted subsurface sampling of soil and soil gas at the former Pad and Tank during two phases between December 2002 and January 2005. These areas are referred to as "AOC12" during subsequent discussions of subsurface sampling. Low levels of metals, volatile organic compounds, organochlorine pesticides, and total petroleum hydrocarbons (TPHs) were detected in soil samples located around the perimeter of the former Pad and low level metal and TPHs were detected beneath the pad. Volatile organic compounds were detected in soil gas samples at both the former Pad and Tank.

Additional soil sampling for total petroleum hydrocarbons and polynuclear aromatic hydrocarbons and additional soil gas sampling for volatile organic compounds will be conducted as described in this Closure Plan.

To achieve closure of the RCRA-permitted units, AMVAC will conduct a focused health-based risk assessment under a commercial/industrial scenario to ensure that closure activities have met the risk-based performance criteria specified in the Focused Baseline Health Risk Assessment Work Plan.

1.0 INTRODUCTION AND OBJECTIVE

1.1 INTRODUCTION

AMVAC received a Resource Conservation and Recovery Act (RCRA) Hazardous Waste Facility Permit in 1983 to operate two hazardous waste management units: a hazardous waste container storage pad (Pad) and an above-ground hazardous waste storage tank (Tank), shown on Figure 3. AMVAC operated both units from 1983 until 1988. In 1988, AMVAC submitted to the State Department of Health Services, DTSC's predecessor agency, a permit renewal application, which proposed taking the Pad and Tank out of operation and installing a new Pad and a larger Tank in new locations. AMVAC received no response from the State, and proceeded with the changes as detailed in the permit application. AMVAC constructed a new process unit south and east of the former Pad and placed the new storage tank within the containment of this process unit. AMVAC's water treatment activated carbon beds have been installed over the location of the former Tank.

In 1994 AMVAC determined that it was no longer necessary to store hazardous waste at the facility for longer than 90 days. As a result, AMVAC decided to switch its status to hazardous waste generator.

At the time AMVAC took the permitted Pad and Tank out of service in 1988, all hazardous wastes contained within the Pad and Tank were removed from these units and properly disposed at an off-site facility. The Pad was demolished and the Tank was emptied. Details of these closure activities are provided in Section 5.0.

AMVAC conducted subsurface soil and soil gas sampling in two phases under DTSC supervision, also described in Section 5.0.

1.2 OBJECTIVE

The objectives of this Closure Plan are to describe the past activities and investigations conducted by AMVAC and to also describe the steps required to complete closure of the former RCRA-permitted hazardous waste management units. These pending steps include tank decontamination, soil and soil gas sampling, and a risk assessment in accordance with the attached Focused Baseline Risk Assessment Work Plan. This Closure Plan also includes an updated closure cost estimate.

2.0 FACILITY IDENTIFICATION AND CERTIFICATION

2.1 FACILITY IDENTIFICATION

Facility:
AMVAC Chemical Corporation
EPA ID No. CAD 056446388

Facility Address:
4100 E. Washington Blvd.
Los Angeles CA 90023

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Preparer of Closure Plan:
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Environmental Mediation Inc.
4695 MacArthur Court, Suite 1250
Newport Beach, CA 92660
(949) 476-9109

Nature of Business:
AMVAC Chemical Corporation (AMVAC) manufactures, formulates, and packages agricultural chemicals.

Environmental Permits:
AMVAC possesses various environmental permits, however past closure activities did not involve any operations covered by these permits.

2.2 CERTIFICATION:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Dr. William A. Feiler, Vice President, Director of Technology
AMVAC Chemical Corporation

3.0 SITE DESCRIPTION AND ENVIRONMENTAL SETTING

The AMVAC facility occupies approximately 3 1/2 acres of land in a heavily industrialized area of the City of Commerce, located in Los Angeles County. Maps of the facility vicinity and of the facility itself are attached as Figures 1 and 2, respectively. Note that there are no drinking water wells located within 1/4 mile of the facility. The nearest drinking water well is located over 1 mile from the facility.

3.1 REGIONAL GEOLOGIC/HYDROGEOLOGIC CONDITIONS:

The Site lies within the Los Angeles basin in Los Angeles County, California. The Los Angeles Basin has a northwest trend and is 50 miles long and about 20 miles wide. The basin is bounded to the northeast by the Puente Hills, on the east and southeast by the Santa Ana Mountains and San Joaquin Hills, and on the southwest by the Palos Verdes Hills and the Pacific Ocean. The basin was a deep marine trough at the beginning of Pliocene time and the basins central floor contains at least 20,000 feet of Miocene and later sedimentary rocks (California Department of Natural Resources, 1954).

Geologic units beneath the Site include a thin veneer of recent alluvium underlain by the upper Pleistocene Lakewood Formation, the lower Pleistocene San Pedro Formation, and the Pliocene Pico Formation (California Department of Water Resources, 1961). Recent alluvium in the Site vicinity is composed primarily of sand, silt, and sandy silt. These sediments are thought to have been deposited as over-bank deposits from the ancient Los Angeles River.

The upper Pleistocene Lakewood Formation underlies the recent alluvium and is generally composed of clay, silt, and sand terrace deposits to a depth of approximately 180 feet. The upper Pliocene to lower Pleistocene San Pedro Formation underlies the Lakewood Formation. The sediments of the San Pedro Formation extend from a depth of approximately 200 to 750 feet and are composed of stratified sand, inter-bedded with fine gravel, silty-sand, and silt. Five aquifers are contained within the sandy units in the San Pedro Formation. These aquifers from shallow to deep include: the Hollydale, Jefferson, Lynwood, Silverado, and Sunnyside aquifers. The aquifers are separated by silty or sandy clays.

Based on the California Department of Water Resources (DWR), California's Groundwater: Bulletin 118, the Site overlies the Coastal Plain of Los Angeles Groundwater Basin, Central Subbasin, Number 4-11.04 (DWR, 2003). The following hydrologic description of the area is taken from the DWR Bulletin 118:

Throughout the Central Basin, groundwater occurs in Holocene and Pleistocene age sediments at relatively shallow depths. The Los Angeles and San Gabriel Rivers drain inland basins and pass across the surface of the Central Basin on their way to the Pacific Ocean. Average precipitation throughout the subbasin ranges from 11 to 13 inches with an average of around 12 inches.

The Central Basin is historically divided into forebay and pressure areas. The Site overlies the pressure area. The Central Basin pressure area is the largest of the four divisions, and contains many aquifers of permeable sands and gravels separated by semi-permeable to impermeable sandy clay to clay, that extend to about 2,200 feet below the surface (DWR 1961). The main productive freshwater-bearing sediments are contained within Holocene alluvium and the Pleistocene Lakewood and San Pedro Formations (DWR 1961). Throughout most of the subbasin, the near surface Bellflower aquiclude restricts vertical percolation into the Holocene age Gaspur aquifer and other underlying aquifers, and creates local semi-perched groundwater conditions. The main additional productive aquifers in the subbasin are the Gardena and Gage aquifers within the Lakewood Formation and the Silverado, Lynwood and Sunnyside aquifers within the San Pedro Formation (DWR 1961).

According to the Watermaster for the Central and West Coast Basins, most groundwater production in the Coastal Plain comes from the Lynwood, Silverado and Sunnyside Aquifers. Water produced from these wells is blended with Metropolitan Water District water at a 3:2 ratio.

3.2 LOCAL GEOLOGIC/HYDROGEOLOGIC CONDITIONS:

The Site is immediately underlain by inter-bedded sand, sandy-silt, silt, clayey-silt, and silty-sand deposits (with minor beds of gravelly-sand) from the surface to a depth of approximately 70 feet below ground surface. Perched groundwater was encountered at the Site in the vicinity of Buildings 1, 4, 5, and 10 and on the adjacent railroad right-of-way at a depth of approximately 60 feet. Three monitoring wells were installed at the facility during December 2002 and January 2003 (located in Buildings 1 and 5 and between Buildings 4 and 10) and two monitoring wells were installed in December 2004 (located in Building 4). The following summarizes the flow directions and gradients calculated for the Site since January 2003.

Date	Flow Direction	Gradient (feet per foot)
January 15, 2003	S 60 E	0.011
November 30, 2004	S 67 E	0.015
July 14, 2005	S 66 E	0.014

An offsite monitoring well was installed in April 2000 adjacent to the facility by a neighboring company. Perched groundwater was reportedly encountered at a depth of approximately 100-feet below ground surface and the water table was measured at 127-feet below ground surface.

3.3 WEATHER AND CLIMATIC CONDITIONS:

High temperatures in this area average between 68° F and 85° F, with July and August being the warmest months. Low temperatures average between 48° F and 66° F with December and January being the coldest months. Annual average rainfall in the area is 15.14 inches, with the heaviest rainfall occurring in January, February and March.

4.0 RCRA UNIT DESIGN AND CONTENTS

AMVAC operated two RCRA-permitted hazardous waste management units: a hazardous waste container storage pad (Pad) and an above-ground hazardous waste storage tank (Tank). AMVAC operated the two units from 1983 until 1988.

4.1 PERMITTED WASTE CAPACITY (1988)

The combined maximum permitted waste capacity of the Tank and Pad was 8,000 gallons. The former Pad had a capacity of one hundred 55-gallon and 30-gallon containers. The maximum amount of hazardous waste stored on the Pad would have been one hundred 55-gallon containers, or a total of 5,500 gallons of hazardous waste. The former Tank had a maximum capacity of 2,500 gallons.

4.2 WASTE GENERATION AREAS (1988)

AMVAC had several hazardous waste satellite storage areas at certain locations where hazardous waste was generated. Waste was accumulated and stored in appropriate containers at the satellite areas before being consolidated into hazardous waste containers and stored on the former Pad. A maximum of approximately 400 gallons/pounds of hazardous waste could have been managed at satellite storage areas.

4.3 FORMER HAZARDOUS WASTE CONTAINER STORAGE PAD

The Pad was located near the center of the facility, at the northwest corner of the present-day metam sodium process unit, as shown on Figure 3. The concrete storage pad measured 25 ft. x 25 ft., and was used for the temporary storage of 55-gallon and 30-gallon steel or polyethylene drums containing hazardous waste. The Pad had a concrete dike with a 2,000- gallon capacity. There was no ancillary equipment associated with the Pad. There was no leak detection or monitoring system associated with the Pad.

Hazardous wastes stored at the Pad included pesticide manufacturing/ formulating waste, container rinseouts, oils contaminated with pesticides, solvent wastes, off-specification raw materials, floor sweep and debris, spent carbon, and contaminated personal protective equipment.

The following types of waste were stored on the former Pad:

CA Waste Code	EPA Waste Code	Description	Physical State	Disposal Site	Disposal Method
232	U034, U044, U045, U154, U220, U239	95% floor sweep, gloves, etc.	solid	Chem. Waste Kettleman City, CA	landfill
232	D001	Empty pesticide containers	solid	Rollins, Deerpark, TX	incineration

CA Waste Code	EPA Waste Code	Description	Physical State	Disposal Site	Disposal Method
232	U002, U034, U044, U045, U154, U220, U239	Pesticide mfg. wastes	liquid	Chem. Waste Kettleman City, CA	landfill
232	U044, U045, U154, U220, U239, F002	Pesticide mfg. wastes	liquid	Cecos, Odessa, TX	deepwell injection
232	U002, U034, U044, U045, U154, U220, U239	Pesticide mfg. wastes	liquid	BKK, West Covina, CA	landfill
123	D002	Pesticide mfg. wastes; corrosive	liquid	Chem. Waste Kettleman City, CA	landfill
181	U044	Pesticide mfg. wastes; inorganics	solid	Chem. Waste Kettleman City, CA	landfill

4.4 FORMER HAZARDOUS WASTE STORAGE TANK

The Tank was located near the southwestern corner of Building 7, west of the utility area, at the location of the present-day activated carbon units, as shown on Figure 3. The Tank had a maximum capacity of 2,500-gallons and was 6 1/2-feet in diameter and 10 feet high with a shell thickness of 1/4 inch. The Tank was unlined and constructed of mild steel. The Tank was raised 4 feet above the ground and was located within a 4,000 square foot containment area constructed with a 4-inch concrete floor and a 4 1/2-inch to 5-inch concrete curb. Three quarters of the containment area was covered with roof and had a capacity of approximately 10,000 gallons of liquid.

Hazardous wastes stored in the tank included pesticide manufacturing/ formulating waste, pesticides container rinseouts, contaminated oils, and spent scrubber solutions.

The following types of waste were stored in the former Tank:

CA Waste Code	EPA Waste Code	Description	Physical State	Disposal Site	Disposal Method
232	U044, U045, U154, U220, U239, F002	Pesticide mfg. wastes	liquid	Cecos, Odessa, TX	deepwell injection
134	D002	Pesticide mfg. wastes; corrosive	liquid	Chem. Waste Kettleman City, CA	stabilization, landfill

5.0 PAST CLOSURE ACTIVITIES AND INVESTIGATIONS

AMVAC conducted closure activities when the permitted Pad and Tank were taken out of service in 1988. In addition, subsurface investigation occurred in two phases as detailed below.

5.1 MANAGEMENT OF MAXIMUM INVENTORY

All hazardous wastes contained in the former Pad and the Tank were removed from these units and from the AMVAC facility in 1988. Waste from the Tank was pumped into a waste tank truck using vacuum pumps and the waste shipped by an authorized hauler under hazardous waste manifest for disposal at a permitted off-site facility. Containers stored on the Pad were segregated by waste type and also properly shipped under hazardous waste manifest to an appropriate disposal site. See the table in Section 4.0, above, for details on disposal facilities for the various types of hazardous waste.

The Tank was emptied and was stored in the tank farm (as shown on Figure 2) for a few years until it was decontaminated and moved to an off-site warehouse. The former Tank is currently stored at the warehouse and has not been used since it was emptied in 1988.

5.2 DECONTAMINATION PROCEDURES FOR TANKS, STRUCTURES AND BUILDINGS

The former Pad was demolished and a new process unit was built in its former location. There are no indications that the pad was hydroblasted or decontaminated prior to the demolition and disposal of the former Pad.

Pumps associated with the Tank and forklifts utilized to transport wastes to the Pad were not decontaminated, because they were not taken out of service. AMVAC continued to use these items in association with the replacement pad and tank. AMVAC stored the same types of waste within the former Pad and Tank and the replacement Pad and Tank; therefore, there was no cross-contamination of the pumps and forklifts.

Decontamination Procedures for Tank: Waste was drained from the former Tank by using a vacuum pump to pump the waste into a waste truck. The Tank was then rinsed with water, cleaned with isopropanol (both the exterior and interior of the tank), and rinsed again with water. All wash solutions were collected in 55-gallon drums, labeled as hazardous waste, stored on-site for less than 90-days and properly transported under hazardous waste manifest by an authorized hauler to a permitted disposal site. Decontamination occurred within the tank farm containment and no accidental releases occurred during decontamination activities.

However, no confirmation samples were taken from the former Tank after it was decontaminated to confirm that the Tank is not contaminated. Confirmation sampling of the former Tank is proposed in Section 7.0, below.

5.3 SOIL AND SOIL GAS SAMPLING AT FORMER PAD AND TANK

Closure investigations for the former Pad and Tank areas were incorporated into the facility-wide Site Investigation Plan (SIP). DTSC-approved SIP-related field activities were conducted by Pacific Edge Engineering and occurred in two phases. Phase I occurred from December 2002 to January 2003. Phase II occurred from December 2004 to January 2005.

Phase I - The first phase of site investigation was conducted in December 2002 and January 2003. At the former Pad, borings were drilled on all four sides of the perimeter of the former Pad, for a total of four borings. Two samples were obtained from each boring, for a total of eight samples from the area of the former Pad.

At the former Tank, borings were drilled to the north and south of the former Tank location, for a total of two borings. Two samples were obtained from each boring, for a total of four samples from the area of the former Tank. Borings could not be drilled directly below the former Tank due to the presence of existing facility equipment. Angle borings were considered; however, the sample depth directly below the Tank would exceed the desired depth interval of 2- to 8- feet below ground surface.

Seven soil samples were obtained from other areas of the AMVAC facility and were analyzed for their physical soil parameters.

Phase II - The second phase of investigation was conducted in December 2004. One boring was drilled through the center of the former Pad. Two soil samples and one soil gas sample was obtained from this boring.

Duplicate Samples - During the first phase of investigation and under DTSC supervision, Pacific Edge Engineering collected three duplicate samples for the purpose of evaluating the precision of the data collected during the confirmation sampling. No split samples were collected by Pacific Edge Engineering or DTSC during either phase of site investigation. Analytical results of the duplicate samples can be found on Tables 1 through 11; duplicate samples are indicated by the notation "(D)"after the sample identification number.

Soil samples from each boring were obtained at depths of approximately two feet and eight feet below ground surface, with the exception of the samples obtained for physical soil parameters, which were obtained from depths ranging from two feet to 69 feet below ground surface. Soil gas samples were obtained from boring AOC12-07 at a depth of five feet below ground surface and from boring AOC09-03 at depths of five feet and 13 feet below ground surface. Soil and soil gas

sampling was conducted in accordance with DTSC-approved field protocol and quality assurance/quality control (QA/QC) methods.

Boring locations are shown on Figures 2 and 3. Boring logs are provided in Appendix A. Results of the confirmation soil and soil gas sampling are discussed in Section 5.4, below, and provided in Tables 1 through 11.

A summary of the analytical methods and number of analyses performed in samples from the former Pad and Tank for each method is provided below:

- Method 131, Methylisothiocyanate - 14 analyses
- Method 150.1/9045C, pH - 16 analyses
- EPA Method 6010B/7471A, Metals - 2 analyses
- EPA Method 8011, 1, 2-Dibromo-3-chloropropane - 2 analyses
- EPA Method 8015, Total Petroleum Hydrocarbons - 17 analyses
- EPA Method 8081A, Organochlorine Pesticides - 17 analyses
- EPA Method 8141, Organophosphorous Pesticides - 17 analyses
- EPA Method 8151A, Chlorinated Herbicides - 16 analyses
- EPA Method 8260B, Volatile Organic Compounds (soil) - 20 analyses
- EPA Method 8260B, Volatile Organic Compounds (soil gas) - 3 analyses
- EPA Method 8270C, Semi-Volatile Organic Compounds - 3 analyses
- EPA Method 8321, Carbamates - 14 analyses

Seven soil samples were obtained from other areas of the AMVAC facility and were analyzed for the following physical soil parameters:

- Moisture Content by American Society for Testing and Materials (ASTM) D2216
- Total Organic Carbon by Walkley-Black
- Specific Gravity by ASTM D854
- Effective Hydraulic Conductivity by ASTM D5084
- Bulk Density by ASTM D2937
- Grain Size: Sieve & Laser by ASTM D4464

Analytical laboratory reports and chain of custody forms are provided in Appendix B.

5.4 RESULTS OF SOIL AND SOIL GAS SAMPLING

Results of soil and soil gas sampling have been provided in the attached Tables which correspond to each analytical method. A discussion of the results by analytical method is provided below.

Method 131 – Methylisothiocyanate

Methylisothiocyanate was not detected at AOC12. Characterization of methylisothiocyanate at the former Pad and Tank is considered complete.

EPA Method 150.1/9045C - pH

The pH values at the former Pad and Tank range from 4.84 to 8.41, which are outside the levels for hazardous waste characterization (i.e. <2 pH units and >12 pH units). Since pH is not a risk driver, no further characterization is recommended for pH.

EPA Method 6010B/7471A - Metals

The following presents a summary of the maximum metal concentrations detected at the former Pad and Tank.

Metals	Maximum Site Concentration (mg/Kg)
Antimony	<3.0 to <10.0
Arsenic	<0.5 to <2.0
Barium	116
Beryllium	0.632
Cadmium	<0.5
Chromium	20.3
Cobalt	12.3
Copper	16.3
Lead	6.89
Mercury	<0.02 to <0.14
Molybdenum	<1.0 to <2.0
Nickel	12.3
Selenium	3.65
Silver	<0.5 to <1.0
Thallium	<1.0 to <10.0
Vanadium	46.4
Zinc	773

Metals are not a substance of concern at the former Tank or Pad based on former AMVAC operations. Metals were analyzed at AOC12 as part of the facility-wide Site Investigation due to the location of the former Pad and Tank areas within the property boundaries of a paint manufacturing company that pre-dated AMVAC's occupation. One sample analyzed for metals at each of the former Pad and Tank is considered sufficient due to the relatively small areal extent of the former Pad and Tank and because metals were not stored in elevated concentrations at either the former Pad or Tank.

EPA Method 8011/EPA Method 8260B – 1,2-Dibromo-3-chloropropane (DBCP) only

1,2-Dibromo-3-chloropropane (DBCP) was not detected by EPA Method 8011 or EPA Method 8260B. Characterization of DBCP at the former Pad and Tank is considered complete.

Method 8015M – Total Petroleum Hydrocarbons (TPH)

Total petroleum hydrocarbons (TPH) were detected above 100 mg/kg only at AOC12-03 at a depth of 2 feet below ground surface and at a concentration of 250 mg/kg (Carbon Chain C22 - C32). TPH was detected at AOC12-03 at a depth of 8 feet below ground surface and at a concentration of 51 mg/kg (Carbon Chain C22 - C32).

The vertical definition of TPH is considered complete at the former Pad and Tank. Additional borings south and west of AOC12-03 are recommended to characterize the lateral extent of TPH at AOC12. Analysis of samples for PAH at all locations where TPH was detected with a Carbon Chain of C10 or greater is also recommended at the request of the DTSC. Volatile constituents such as benzene, toluene, ethylbenze, and xylenes are not a concern at AOC12 since TPH was not detected with a Carbon Chain below C10. Therefore, additional samples for volatile constituents are not proposed.

The additional TPH sampling and PAH analyses are discussed below in the Summary/Conclusion Section 6.2.

EPA Method 8081A – Organochlorine Pesticides (OCPs)

The following presents a summary of the maximum organochlorine pesticide (OCPs) concentrations detected at the former Pad and Tank.

OCPs	Maximum Site Concentration (mg/Kg)
4,4-DDD	0.008
4,4-DDE	0.006
4,4-DDT	0.018
Chlordane	0.01
Dieldrin	0.02

A total of 17 OCP analyses were performed at AOC12. Characterization of OCPs in soil at the former Pad and Tank is considered complete due to the large number of analyses performed on samples collected within a relatively small areal extent represented by the former Pad and Tank and because the detected OCP concentrations are low.

EPA Method 8141 – Organophosphorous Pesticides

Organophosphorous pesticides were not detected at the former Pad and Tank. Characterization of organophosphorous pesticides is considered complete.

EPA Method 8151 – Chlorinated Herbicides

Chlorinated herbicides were not detected at the former Pad and Tank. Characterization of chlorinated herbicides is considered complete.

EPA Method 8260B – Volatile Organic Compounds (Soil Only, Excluding DBCP)

The following summarizes the maximum concentration of Volatile Organic Compounds (VOCs) detected at the former Pad and Tank.

VOCs	Maximum Site Concentration (mg/Kg)
Acetone	0.141
Bromodichloromethane	0.0022
Chloroform	0.035
Hexachlorobutadiene	0.00081
Tetrachloroethene	0.0021
Toluene	0.0057

A total of 20 VOC analyses were performed at AOC12. Characterization of VOCs in soil at the former Pad and Tank is considered complete due to the large number of analyses performed on samples collected within a relatively small areal extent represented by the former Pad and Tank and because the detected VOC concentrations are low.

EPA Method 8260B – Volatile Organic Compounds (Soil Gas)

The following summarizes the maximum concentration of VOCs detected in soil gas at the former Pad and Tank:

VOCs	Maximum Site Concentration (ug/L)
Benzene	0.7
Bromodichloromethane	0.47
Chloroform	11.3
Ethylbenzene	1.3
Methylene chloride	0.053
Tetrachloroethene	1.3
Toluene	1.7
Xylenes, total	1.92

Soil gas samples were collected at one location directly below the former Pad (AOC12-07) and one location adjacent to the former Tank (AOC09-03) as required by DTSC. Additional evaluation of the soil gas data is required before any further soil gas sampling is performed at the Site with the exception of the EPA TO15 analyses required by DTSC as part of the data validation. The additional EPA TO15 analyses are discussed below in the Summary/Conclusion section.

Evaluation of data from outdoor sample points will include modeling using the numerical code VLEACH (Ravi and Johnson, 1997) and an analytical mixing cell ("box") model. The evaluation will follow procedures presented in our November 16, 2005 Focused Baseline Health Risk Assessment Work Plan. Recommendations for additional soil gas sampling will be provided if necessary to identify the presence of hot spots and determine if site remediation is necessary.

EPA Method 8270C – Semi-Volatile Organic Compounds

Semi-volatile organic compounds were not detected at the former Pad and Tank. Characterization of semi-volatile organic compounds is considered complete.

EPA Method 8321 – Carbamates

Carbamates were not detected at the former Pad and Tank. Characterization of carbamates is considered complete.

Physical Soil Parameters

Physical property data for soils was collected from other areas at the AMVAC facility. A similar lithology was observed at these other areas; therefore, physical property data from the other areas is considered representative of the former Pad and Tank locations (also known as AOC12).

5.5 WASTE GENERATED DURING PAST CLOSURE INVESTIGATIONS

A small amount of soil and water waste was generated during recent subsurface sampling activities. Excess soil in the push probe sampler was generated, for a total of less than one cubic foot of soil. Decontamination water was also generated, for a total of approximately 5 gallons of water. The soil and decontamination water were consolidated with other soil and water wastes that were generated during the facility-wide sampling project. The waste was profiled and was stored on-site for less than 90 days then shipped by an authorized hauler under hazardous waste manifest for disposal at a permitted off-site facility.

5.6 QUALITY ASSURANCE/QUALITY CONTROL (QA/QC) PROCEDURES

To ensure the quality of the data obtained from the confirmation sampling and for proper sample identification and tracking, standard quality

assurance/quality control (QA/QC) procedures were followed in accordance with EPA's "Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans" (EPA, 1983). Each of the samples was labeled, placed in a plastic bag, placed in a chilled ice chest, and transported under chain-of-custody to the selected laboratory for analysis. Both the sample label and chain-of-custody form included the date of sampling, name of sampler, sample identification number, sample type and depth, analysis method requested and type of preservation used. The chain-of-custody form also included the name of the persons receiving and relinquishing the samples, the name and address of the analytical laboratory, and noted any DTSC duplicates or special analysis requests. The sampler kept one copy of the chain-of-custody form, which was added to the project file.

5.7 HEALTH AND SAFETY PLAN

The DTSC-approved Health and Safety Plan for confirmation sampling is included in Appendix C.

5.8 SUMMARY/CONCLUSIONS

Characterization of all analytes is considered complete at the former Pad and Tank (also known as AOC12), with the exception of the following:

Total Petroleum Hydrocarbons (TPH)
The vertical definition of TPH is considered complete at AOC12. Additional borings south and west of AOC12-03 are recommended to characterize the lateral extent of TPH at AOC12.

Polynuclear Aromatic Hydrocarbons (PAH)
PAH sampling is recommended in areas where TPH were detected during previous sampling at AOC12. These locations include AOC12-01 at 2 ft. 3 in., AOC12-03 at 2 ft. and 8 ft., AOC12-05 at 2 ft. and 8 ft., AOC12-06 at 2 ft., and AOC 12-07 at 1.5 ft. and 7.5 ft.

Soil Gas
AMVAC proposes to collect one soil gas sample at the former Pad and one soil gas sample at the former Tank. The two soil gas samples will be collected in suma canisters and will be analyzed for VOCs by EPA Method TO-15. These samples will be co-located at the previous soil gas sample locations analyzed for VOCs by EPA Method 8260.

6.0 PENDING CLOSURE ACTIVITIES

The following activities will be conducted to achieve closure of the permitted Pad and Tank:

6.1 CONFIRMATION SAMPLING FOR TANK

Wipe samples will be taken from the former Tank to confirm that the Tank is not contaminated. The samples will be analyzed for the presence of organophosphorous pesticides, carbamates, and polynuclear aromatic hydrocarbons. Steel tanks are internally coated with oils to help prevent corrosion; therefore proposed wipe sampling does not include analysis for total petroleum hydrocarbons.

A total of three samples will be collected from the Tank in accordance with DTSC's October 2002 Permit Writer Manual for Closure of Storage and Treatment Facilities. No true criteria exist for determining the appropriate number of samples. However, three samples are considered statistically significant and appropriate based on the following:

Size of Tank
Historic use
Decontamination activities completed to date
Professional experience

Filter paper or a gauze pad will be held by stainless steel forceps and moistened with isopropanol. Tape will be used to mark off a 100 sq. cm. area, which will be thoroughly swabbed with the moistened filter paper and placed in a clean glass jar provided by the laboratory.

Each jar will be labeled, placed in a plastic bag, placed in a chilled ice chest, and transported under chain-of-custody to the selected laboratory for analysis. Both the sample label and chain-of-custody form will include the date of sampling, name of sampler, sample identification number, sample type and depth, analysis method requested and type of preservation used. The chain-of-custody form will also include the name of the persons receiving and relinquishing the samples, the name and address of the analytical laboratory, and will note any DTSC duplicates or special analysis requests. The sampler will keep one copy of the chain-of-custody form, which will be added to the project file.

To prevent cross-contamination, the forceps will be cleaned by rubbing them with a clean piece of filter paper or a gauze pad soaked with isopropanol after each sample has been taken. Used papers/pads will be collected and placed in a properly labeled hazardous waste drum for disposal. All hazardous waste generated at the site is stored for less than 90 days and is properly transported under manifest to an appropriate disposal site. Hazardous waste manifests and disposal records will be retained and provided to DTSC.

One equipment blank will also be analyzed as a quality control sample to ensure proper decontamination procedures. After the last wipe sample is taken, the forceps will be decontaminated as usual. A clean piece of filter paper or gauze pad will be moistened with solvent, placed in a clean jar, and labeled in a similar manner. Field notes will indicate the identification number of the equipment blank.

6.2 SOIL SAMPLING AND ANALYSIS

Drilling and sample collection will be in accordance with the DTSC-approved Field Protocols detailed in Section 5.7, above.

Total Petroleum Hydrocarbons (TPH)
The vertical definition of TPH is considered complete at AOC12. One additional boring approximately 20-feet south and one additional boring approximately 20-feet west of sample AOC12-03 will be drilled to obtain soil samples at 2 feet and 8 feet below ground surface to characterize the lateral extent of TPH at AOC12. The soil samples will be analyzed by EPA Method 8015M.

Polynuclear Aromatic Hydrocarbons (PAH)
PAH sampling will be conducted in areas where TPH were detected during previous sampling at AOC12. These locations include AOC12-01 at 2 ft. 3 in., AOC12-03 at 2 ft. and 8 ft., AOC12-05 at 2 ft. and 8 ft., AOC12-06 at 2 ft., and AOC 12-07 at 1.5 ft. and 7.5 ft. PAH sampling will also be performed if TPH is detected at the proposed borings to characterize the lateral extent of TPH at AOC12. PAH samples will be analyzed by EPA Method 8310.

6.2.1 Field Protocol

Drilling Procedures: A Geoprobe will be utilized for the confirmation soil sample locations. A Geoprobe employs hydraulic power to push a probe unit into the subsurface soil. The hydraulic mechanism is assisted by a drive hammer, which provides additional force to penetrate dense or hard soil materials.

The probe unit consists of a 2-foot long, 1 3/4 inch diameter California-modified solid-spoon soil sampler and one to five-feet long threaded push rod. The sampler holds an acetate, brass, or stainless steel liner utilized to contain the soil sample. Acetate liners were used for collection of all soil samples.

The Probe-Drive Sampler remains completely sealed while it is pushed or driven to the desired sampling depth. Once the target depth is reached, a retractable point which previously sealed the sampler is removed and the sampler is pushed an additional 28-inches. The rods and sampler are then retrieved, the sampler is disassembled, the sample tubes removed for identification and analysis, and the apparatus decontaminated prior to reuse. This method will allow the collection of discrete, relatively undisturbed soil samples from the Site. If poor sample recovery is realized, the boring will be moved approximately 0.5 to 1 foot and the area will be re-sampled.

Sample Collection: Various soil sample depths are selected to identify soil contamination at the former permitted units. The laboratory will be consulted to verify that a sufficient sample volume is achieved at each sample location for the proposed analyses. Upon retrieval of the sampler, the acetate sample liners from the desired sampling depths will be capped with Teflon™ sheets and plastic end caps. The top and bottom of the sample tube will be marked. The sample tubes will be labeled, placed in a cooler chilled to approximately 4°C and shipped to the analytic laboratory under chain-of-custody documentation. A sample label will be attached to each sample tube.

All soil samples will be sent via courier or shipped under chain-of-custody procedures to a Department of Health Services Environmental Laboratory Accreditation Program laboratory.

A portion of the sample not wrapped for analysis will be placed in a zip-loc bag and allowed to sit for a minimum of 5 minutes. Head space readings will be collected with a portable photo-ionization detector by placing the tip of the detector inside the plastic bag. Head space readings will be recorded on the boring log. This soil will also be inspected for texture, color, moisture content, and other distinguishing characteristics. Soil lithology will be described using the Unified Soil Classification System and recorded on a soil boring log. The drilling log will include the sample depth, geologic observations, head space readings, and other details as outlined in California EPA's "Drilling, Coring, Sampling and Logging at Hazardous Substance Release Sites" (EPA, 1995). Field activities will be documented in a field logbook. All activities will be performed under the oversight of a California Registered Geologist.

Because samples will be obtained by driving the sampling equipment into the subsurface rather than drilling, minimal drill cuttings will be generated; thus minimizing the waste resulting from this operation. The boreholes will be backfilled with cement grout or hydrated bentonite.

Chain-of-custody procedures will be followed to ensure field sample integrity and tracking of sample custody. Each time a sample changes hands, both the sender and the receiver will sign and date a chain-of-custody form. When a sample shipment is sent to the laboratory, the top signature copy will be enclosed in plastic and secured to the inside of the sample shipment containers. The second copy of the chain-of-custody form will be retained in the project files. A chain-of-custody record will be completed for each shipping container.

The following information will be included on each chain-of-custody form:

- Sample number
- Signature of sampler
- Date and time of collection
- Place of collection
- Type of sample
- Number and type of container

- Inclusive dates of possession
- Signature of receiver
- Analyses requested

6.3 SOIL GAS SAMPLING AND ANALYSIS

AMVAC will collect one soil gas sample at the former Pad and one soil gas sample at the former Tank at depths of 5-feet below ground surface. The two soil gas samples will be collected in suma canisters and will be analyzed for VOCs by EPA Method TO-15. These samples will be co-located at the previous soil gas sample locations analyzed for VOCs by EPA Method 8260.

6.3.1 Field Protocol

Soil samples will be collected in general accordance with the DTSC/RWQCB's January 28, 2003 "Advisory – Active Soil Gas Investigations" (DTSC/RWQCB, 2003). The following steps will be followed in the field for collection of soil gaples:

1) A Geoprobe is utilized to push a 1.25-inch diameter probe rod assembly into the ground until the desired depth is reached. The rod assembly is extracted and the open borehole is sounded to verify that caving has not occurred.
2) A vapor implant consisting of a porous stone is attached to the end of 1/4" O.D. x 0.17" I.D. poly tubing and the tubing/implant are threaded to the bottom of the open borehole.
3) A measured amount of sand filter pack is poured into the hole to cover the implant to an elevation approximately 6-inches above the implant.
4) Approximately 3-inches of powdered bentonite are placed into the borehole on top of the sand.
5) Temporary 1/4" O.D. x 0.17" I.D. poly tubing is threaded to the bottom of the borehole hole (top of powdered bentonite installed in Step 4). The tubing is connected to a water reservoir and is utilized to tremie water into the borehole for hydration of the bentonite.
6) Granular bentonite is slowly added to fill the remaining annulus of the borehole. The bentonite is hydrated through the tremie tube which is slowly removed as the granular bentonite is added.
7) A minimum of 30 minutes are allowed after setting the probe before collecting soil gas samples.
8) Immediately prior to sampling, laboratory grade Isopropyl Alcohol (IPA) is placed over the granular bentonite at the surface of the seal. The IPA serves as a tracer gas for surface leakage. Due to rapid volatization, additional IPA is added if the soil gas sample is not collected within 15-minutes of the initial placement of IPA.
9) The tubing/formation annuluses are purged with a low-flow air sampling pump or a calibrated syringe. The number of purge volumes is based on purge volume testing performed in accordance with the "Advisory – Active Soil Gas Investigation" (DTSC/RWQCB, 2003). The purge volume is calculated based on the following:

- 0.25-inch Tubing (0.17-inch inside diameter) = 0.0045 liters/foot (l/f)

- Open Formation - (assumes use of 1.25" diameter probe rods and 6-inch coarse sand pack with 39% porosity) = 0.046 l

Example - One purge volume for a 15-foot probe depth with 1-foot of tubing extending above ground = 0.0045 l/ft x 16 ft + 0.046 l = 0.118 l

10) A laboratory certified clean suma canister is connected to the tubing and the suma canister is set to fill continuously at a flow rate consistent with DTSC/RWQCB guidance of between 100 to 200 milliliters per minute (ml/min).

6.4 RISK ASSESSMENT

To achieve closure of the RCRA-permitted units, AMVAC will conduct a focused health-based risk standard under a commercial/industrial scenario. The risk assessment process is discussed in detail in the Focused Baseline Health Risk Assessment Work Plan, attached as Appendix D.

7.0 CLOSURE PERFORMANCE STANDARDS

For closure of the RCRA-permitted units, AMVAC proposes a focused health-based risk standard under a commercial/industrial scenario. Data obtained from the previous and subsurface sampling at the locations of the former Pad and Tank will be incorporated into a focused risk assessment to evaluate health risks associated with residual chemical concentrations at the Pad and Tank. Risk based cleanup levels will be calculated if the estimated incremental lifetime cancer risks exceed the proposed site risk goal of 1×10^{-5}. A Focused Baseline Health Risk Assessment Work Plan is attached as Appendix D for DTSC's review and approval.

AMVAC proposes a non-detect cleanup level for the Tank, as determined by wipe sampling. If wipe sampling indicates the interior of the Tank is contaminated, the Tank will be decontaminated and wipe sampling will be performed again as described in Section 6.1, above. In the event that a non-detect cleanup level for the Tank cannot be achieved, the Tank will be disposed in accordance with applicable regulations for waste disposal.

8.0 CLOSURE COST ESTIMATE

SAMPLING AND ANALYSIS

Tank Wipe Sampling:

Number of wipe samples – 4 samples
Geologist cost (2 people) – 16 hours x $130/hour = $2,080
Confined Space Entry = $750
Laboratory analysis cost 4 sample x $593/sample = $2,372

Soil and Soil Gas Sampling:

Soil samples – 7 borings, 12 samples
Soil gas samples – 2 borings, 2 samples (suma canisters)
Geologist cost (field) – 12 hours x $130/hour = $1,560
Geoprobe cost – 12 hours x $200/hour = $2,400

Laboratory analysis cost:
TO-15 (Soil Gas) $250 x 2 samples = $500
EPA 8015M $70 x 4 samples = $280
EPA 8310 $150 x 8 samples = $1,200
Lab Analysis Cost total = $1,980

Report Preparation – 20 hours x $130/hour = $2,600

Total Confirmation Sampling Cost = $13,740

CERTIFICATION OF CLOSURE

PE prep/review of Closure Report – 20 hours x $130/hour = $2,600
Inspections – 8 hours x $130/hour = $1,040
Documentation – 12 hours x $130/hour = $1,560

Total Certification of Closure Cost = $5,200

RISK ASSESSMENT

Focused Risk Assessment Workplan

Professional Engineer cost – 4 hours x $130/hour = $520
Toxicologist cost – 4 hours x $160/hour = $640

Risk Assessment Report

Draft Report:
Professional Engineer cost – 24 hours x $130/hour = $3,120
Toxicologist cost – 40 hours x $160/hour = $6,400

Final Report:
Professional Engineer cost – 4 hours x $130/hour = $520
Toxicologist cost – 8 hours x $160/hour = $1,280

Total Risk Assessment Cost = $12,480

SUBTOTAL CLOSURE COST ESTIMATE	**$31,420**
Contingency (20%)	**$6,280**
TOTAL CLOSURE COST ESTIMATE	**$37,700**

9.0 FINANCIAL RESPONSIBILITY

AMVAC provides DTSC with closure and post/closure financial assurance documentation on an annual basis. AMVAC's most recent financial assurance documentation submittal was dated May 18, 2006.

AMVAC utilizes the Financial Test/Corporate Guarantee for financial assurance. The annual financial assurance package also includes a copy of AMVAC's liability insurance policy in the amount of $2 million for each loss and $4 million total for all losses.

On October 5, 2004, DTSC reviewed AMVAC's financial responsibility submittal and found that it meets the requirements for financial assurance and liability coverage.

10.0 CLOSURE CERTIFICATION REPORT

Upon completion of closure implementation, AMVAC will submit to DTSC a Closure Certification Report that will contain, at minimum, the following:

- Certification by an independent registered professional engineer;
- Supervisory personnel description;
- Summary of Closure Activities;
- Field Engineer Observation Reports;
- Sampling Data and Analyses (i.e., sampling locations, soil boring logs, chain of custody, analytical results, etc.);
- Discussion of analytical results;
- Manifests showing disposition of waste inventory;
- Modifications and Amendments to Closure Plan (if applicable);
- Photographs

11.0 REFERENCES

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California Department of Toxic Substances Control (DTSC). 2004. *Guidance Document for the Implementation of United States Environmental Protection Agency Method 5035: Methodologies for Collection, Preservation, Storage, and Preparation of Soils to be Analyzed for Volatile Organic Compounds*. November

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California Department of Water Resources (DWR), 1961 (reprinted 1990). *Planned Utilization of the Ground Water Basins of the Coastal Plain of Los Angeles County, Appendix A, Ground Water Geology. Bulletin No. 104.*

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United States Environmental Protection Agency (EPA). 1983. *Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans*. February

Pacific Edge Engineering, Inc., 2002, *Site Investigation Plan, Amvac Chemical Corporation, 4100 East Washington Boulevard, Commerce, California*. August

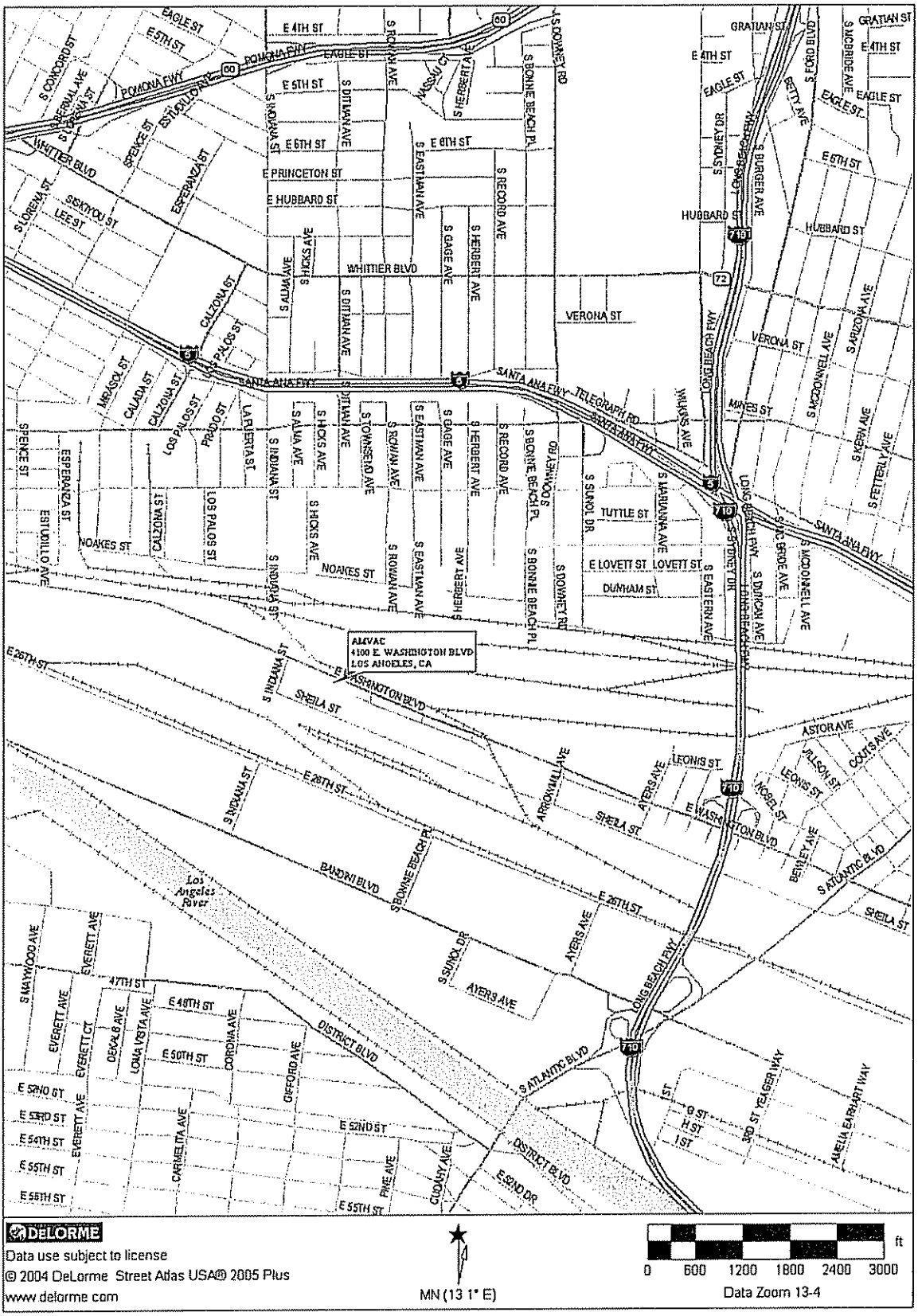
Ravi and Johnson, 1997. *A One-Dimensional Finite Difference Vadose Zone Leaching Model*

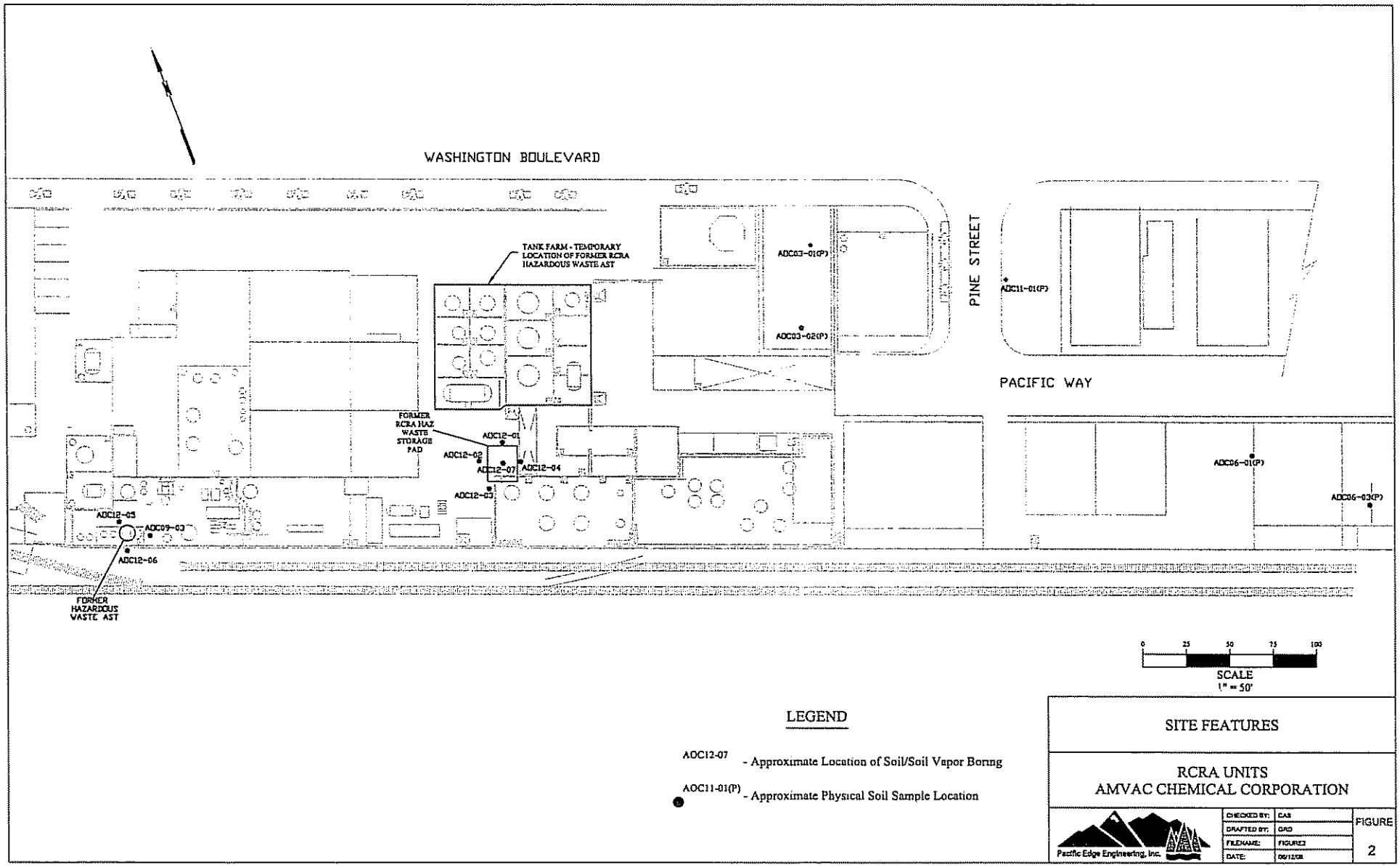
12.0 ACRONYMS

ASTM	American Society for Testing and Materials
DBCP	1,2-Dibromo-3-chloropropane
DTSC	California Department of Toxic Substances Control
DWR	California Department of Water Resources
EPA	United States Environmental Protection Agency
IPA	Isopropyl Alcohol
OCP	Organochlorine Pesticides
PAH	Polynuclear Aromatic Hydrocarbons
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
SIP	Site Investigation Plan
TPH	Total Petroleum Hydrocarbons
VOC	Volatile Organic Compound

FIGURES

FIGURE 1
SITE LOCATION MAP





LEGEND

AOC12-07 - Approximate Location of Soil/Soil Vapor Boring

AOC11-01(P) - Approximate Physical Soil Sample Location

SITE FEATURES

RCRA UNITS
AMVAC CHEMICAL CORPORATION

Pacific Edge Engineering, Inc.

CHECKED BY:	CAS
DRAFTED BY:	CAD
FILENAME:	FIGURE2
DATE:	06/12/08

FIGURE 2

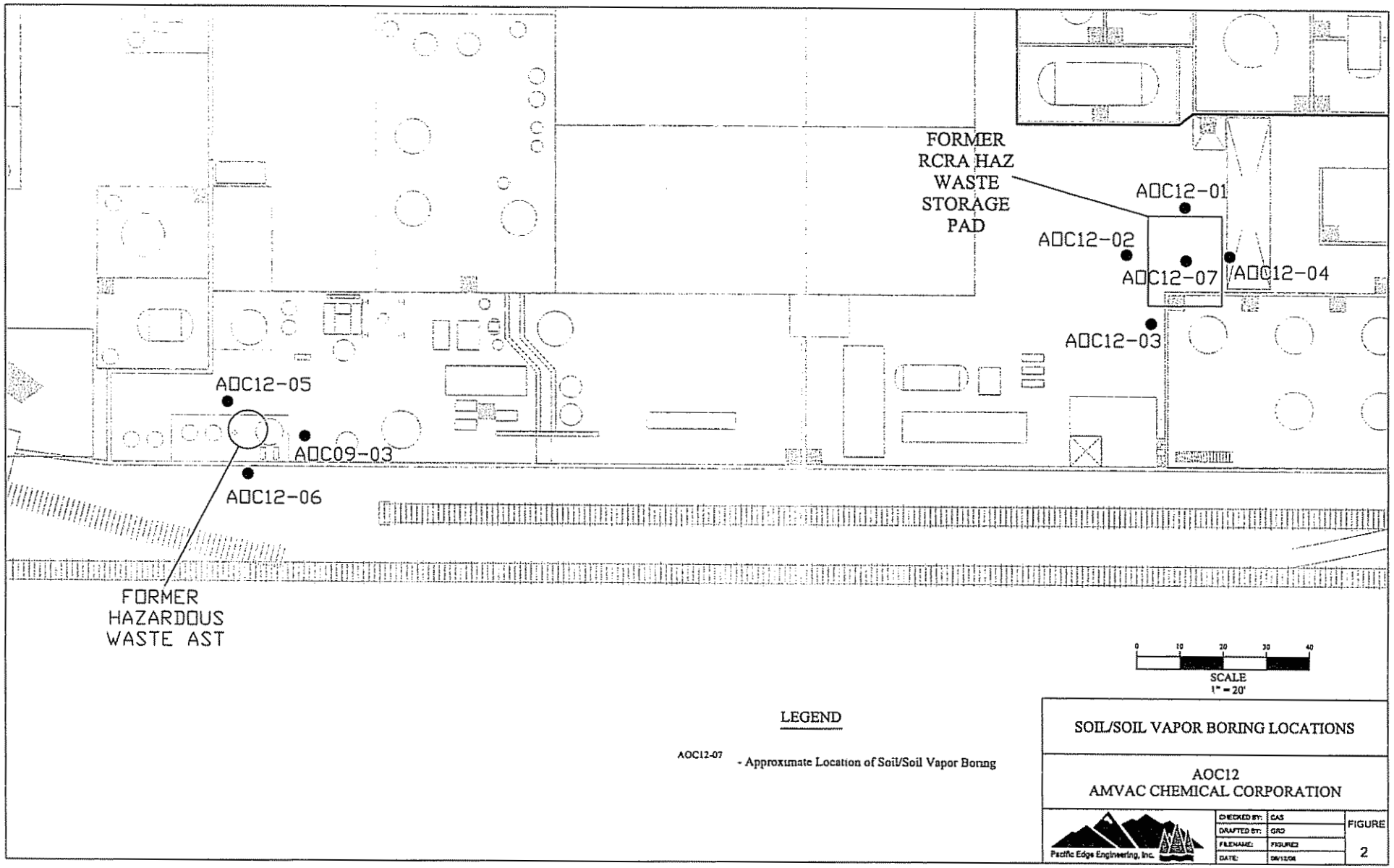

FORMER
RCRA HAZ
WASTE
STORAGE
PAD
AOC12-01
AOC12-02
AOC12-07
AOC12-04
AOC12-03
AOC12-05
AOC09-03
AOC12-06
FORMER
HAZARDOUS
WASTE AST
0
10
20
30
40
SCALE
1" = 20'
LEGEND
AOC12-07 - Approximate Location of Soil/Soil Vapor Boring
SOIL/SOIL VAPOR BORING LOCATIONS
AOC12
AMVAC CHEMICAL CORPORATION
Pacific Edge Engineering, Inc.
CHECKED BY: CAS
DRAFTED BY: GRD
FILENAME: FIGURE2
DATE: 06/12/06
FIGURE
2

Table 1 - 6010B Soil Quality Summary (mg/kg)
Amvac Chemical Corporation, Los Angeles, California

Sample ID	Date Sampled	*Sb*	*As*	*Ba*	*Be*	*Cd*	*Cr*	*Co*	*Cu*	*Pb*	*Hg*	*Mo*	*Ni*	*Se*	*Ag*	*Th*	*V*	*Zn*
	PRG:	410	1.6	67,000	1,900	450	450	1,900	41,000	750	NA	5,100	NA	5,100	5,100	67	7,200	100,000
AOC12																		
AOC12-05-2'	12-23-02	< 3.0	< 0.5	116.0	0.632	< 0.5	20.3	12.3	16.3	6.89	< 0.14	< 1.0	12.3	3.65	< 0.5	< 1.0	46.4	773.0
AOC12-07-1.5'	12-17-04	< 10.0	< 2.0	88.0	< 0.5	< 0.5	9.7	4.8	11.0	3.6	< 0.02	< 2.0	6.5	< 2.0	< 1.0	< 10.0	22.0	55.0

KEY

Sb - Antimony
As - Arsenic
Ba - Barium
Be - Beryllium
Cd - Cadmium
Cr - Chromium
CR VI - Hexavalent Chromium
Co - Cobalt
Cu - Copper
Pb - Lead
Hg - Mercury
Mo - Molybdenum
Ni - Nickel
Se - Selenium
Ag - Silver
Th - Thallium
V - Vanadium
Zn - Zinc

TABLES

Table 2 - 8011 Soil Quality Summary (ug/kg)
Amvac Chemical Corporation, Los Angeles, California

Sample ID	Date Sampled	Parameter	Value	Units
AOC12				
AOC12-07-1 5'	12-17-04	1,2,3-Trichloropropane	< 10 0	ug/kg
	12-17-04	1.2-Dibromo-3-Chloropropane (DBCP)	< 10 0	ug/kg
	12-17-04	1,2-Dibromoethane (EDB)	< 10.0	ug/kg
AOC12-07-7 5'	12-17-04	1.2,3-Trichloropropane	< 10 0	ug/kg
	12-17-04	1,2-Dibromo-3-Chloropropane (DBCP)	< 10.0	ug/kg
	12-17-04	1,2-Dibromoethane (EDB)	< 10.0	ug/kg

Table 3 - 8015 Soil Quality Summary (mg/kg)
Amvac Chemical Corporation, Los Angeles, California

	AOC12-01-2' 3"	AOC12-01-2' 3"(D)	AOC12-01-8' 3"	AOC12-02-2' 3"	AOC12-02-7' 3"	AOC12-03-2'	AOC12-03-2'(D)	AOC12-03-8'	AOC12-04-2' 2"	AOC12-04-8' 2"	AOC12-05-2'	AOC12-05-8'	AOC12-06-2'	AOC12-06-2'(D)	AOC12-06-8'	AOC12-07-1.5'	AOC12-07-7.5'
Date Sampled:	1/03/03	1/03/03	1/03/03	1/03/03	1/03/03	12/23/02	12/23/02	12/23/02	1/03/03	1/03/03	12/23/02	12/23/02	1/06/03	1/06/03	1/06/03	12/17/04	12/17/04
Analyte:																	
C6 - C7																< 1.8	< 1.8
C8 - C9																< 1.8	< 1.8
C10 - C11																< 1.8	< 1.8
C06 - C10	< 20.		< 20.	< 20.	< 20.	< 20.		< 20.	< 20.	< 20.	< 20.	< 20.	< 20.		< 20.		
C06 - C12		< 1.					< 1.							< 1.			
C12 - C13																< 1.8	< 1.8
C14 - C15																< 1.8	< 1.8
C16 - C17																< 1.8	< 1.8
C18 - C19																< 1.8	< 1.8
C20 - C21		-														< 1.8	< 1.8
C22 - C23																< 1.8	< 1.8
C10 - C22	< 30.		< 30.	< 30.	< 30.	< 30.		< 30.	< 30.	< 30.	< 30.	< 30.	< 30.		< 30.		
C10 - C28		33.					< 5.							11.			
C24 - C25																< 1.8	3.8
C26 - C27																< 1.8	< 1.8
C28 - C29																< 1.8	< 1.8
C30 - C31																1.8	< 1.8
C18 - C30		65.					230.							26.			
C22 - C32	< 50.		< 50.	< 50.	< 50.	250.		51.	< 50.	< 50.	56.	54.	< 50.		< 50.		
C32 - C35																4.	< 1.8
C36 - C40																4.4	< 1.8
C6 - C40																14.	< 5.
Cyclosol	< 10.		< 10.	< 10.	< 10.	< 10.		< 10.	< 10.	< 10.	< 10.	< 10.	< 10.		< 10.		

Table 4 - 8081A Soil Quality Summary (mg/Kg)
Amvac Chemical Corporation, Los Angeles, California

		AOC12-01-2' 3"	AOC12-01-2' 3"(D)	AOC12-01-8' 3"	AOC12-02-2' 3"	AOC12-02-7' 3"	AOC12-03-2'	AOC12-03-2'(D)	AOC12-03-8'	AOC12-04-2' 2"	AOC12-04-8' 2"	AOC12-05-2'	AOC12-05-8'	AOC12-06-2'	AOC12-06-2'(D)	AOC12-06-8'	AOC12-07-1.5'	AOC12-07-7.5'
Date Sampled:	*PRG*	1/03/03	1/03/03	1/03/03	1/03/03	1/03/03	12/23/02	12/23/02	12/23/02	1/03/03	1/03/03	12/23/02	12/23/02	1/06/03	1/06/03	1/06/03	12/17/04	12/17/04
Analyte:																		
4,4-DDD	*10*	< 0.004	< 0.05	< 0.004	< 0.004	**0.004**	< 0.004	< 0.05	**0.008**	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.05	< 0.004	< 0.005	< 0.005
4,4-DDE	*7*	**0.004**	< 0.05	**0.004**	< 0.003	< 0.003	< 0.003	< 0.05	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	**0.006**	< 0.05	< 0.003	< 0.005	< 0.005
4,4-DDT	*7*	**0.012**	< 0.05	**0.006**	**0.006**	**0.008**	< 0.003	< 0.05	**0.018**	**0.006**	**0.006**	< 0.003	< 0.003	**0.006**	< 0.05	< 0.003	< 0.005	< 0.005
a-Chlordane	*6.5*		< 0.05					< 0.05							< 0.05			
Aldrin	*0.1*	< 0.002	< 0.05	< 0.002	< 0.002	< 0.002	< 0.002	< 0.05	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.05	< 0.002	< 0.005	< 0.005
Alpha BHC	*0.36*	< 0.002	< 0.05	< 0.002	< 0.002	< 0.002	< 0.002	< 0.05	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.05	< 0.002	< 0.005	< 0.005
Beta BHC	*1.3*	< 0.003	< 0.05	< 0.003	< 0.003	< 0.003	< 0.003	< 0.05	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.05	< 0.003	< 0.005	< 0.005
Chlordane	*6.5*	< 0.008		< 0.008	**0.01**	< 0.008	< 0.008		< 0.008	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008		< 0.008	< 0.05	< 0.05
Delta BHC		< 0.005	< 0.05	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05	< 0.005	< 0.01	< 0.01
Dieldrin	*0.11*	**0.02**	< 0.05	< 0.003	< 0.003	< 0.003	< 0.003	< 0.05	< 0.003	< 0.003	< 0.003	**0.015**	**0.005**	< 0.003	< 0.05	< 0.003	< 0.005	< 0.005
Endosulfan I	*3700*	< 0.004	< 0.05	< 0.004	< 0.004	< 0.004	< 0.004	< 0.05	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.05	< 0.004	< 0.005	< 0.005
Endosulfan II	*3700*	< 0.003	< 0.05	< 0.003	< 0.003	< 0.003	< 0.003	< 0.05	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.05	< 0.003	< 0.005	< 0.005
Endosulfan sulfate		< 0.003	< 0.05	< 0.003	< 0.003	< 0.003	< 0.003	< 0.05	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.05	< 0.003	< 0.01	< 0.01
Endrin	*180*	< 0.004	< 0.05	< 0.004	< 0.004	< 0.004	< 0.004	< 0.05	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.05	< 0.004	< 0.005	< 0.005
Endrin aldehyde		< 0.004	< 0.05	< 0.004	< 0.004	< 0.004	< 0.004	< 0.05	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.05	< 0.004	< 0.005	< 0.005
Endrin ketone			< 0.05					< 0.05							< 0.05		< 0.005	< 0.005
g-Chlordane	*6.5*		< 0.05					< 0.05							< 0.05			
Heptachlor	*0.38*	< 0.002	< 0.05	< 0.002	< 0.002	< 0.002	< 0.002	< 0.05	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.05	< 0.002	< 0.005	< 0.005
Heptachlor epoxide	*0.19*	< 0.003	< 0.05	< 0.003	< 0.003	< 0.003	< 0.003	< 0.05	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.05	< 0.003	< 0.005	< 0.005
Lindane	*1.7*	< 0.003	< 0.05	< 0.003	< 0.003	< 0.003	< 0.003	< 0.05	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.05	< 0.003	< 0.005	< 0.005
Methoxychlor	*3100*	< 0.025	< 0.05	< 0.025	< 0.025	< 0.025	< 0.025	< 0.05	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.05	< 0.025	< 0.005	< 0.005
Toxaphene	*1.6*	< 0.25	< 1.	< 0.25	< 0.25	< 0.25	< 0.25	< 1.	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 1.	< 0.25	< 0.2	< 0.2

Table 5 - 8141 Soil Quality Summary (mg/Kg)
Amvac Chemical Corporation, Los Angeles, California

	AOC12-01-2' 3"	AOC12-01-2' 3"(D)	AOC12-01-8' 3"	AOC12-02-2' 3"	AOC12-02-7' 3"	AOC12-03-2'	AOC12-03-2'(D)	AOC12-03-8'	AOC12-04-2' 2"	AOC12-04-8' 2"	AOC12-05-2'	AOC12-05-8'	AOC12-06-2'	AOC12-06-2'(D)	AOC12-06-8'	AOC12-07-1.5'	AOC12-07-7.5'
Date Sampled:	1/03/03	1/03/03	1/03/03	1/03/03	1/03/03	12/23/02	12/23/02	12/23/02	1/03/03	1/03/03	12/23/02	12/23/02	1/06/03	1/06/03	1/06/03	12/17/04	12/17/04
Analyte:																	
Azinophos Methyl (Guthion)	< 1.	< 0.1	< 1.	< 1.	< 1.	< 1.	< 0.1	< 1.	< 1.	< 1.	< 1.	< 1.	< 1.	< 0.1	< 1.	< 0.1	< 0.1
Bolstar	< 0.1	< 0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.1	< 0.05	< 0.05
Chlorpyrifos(Dursban)	< 0.2	< 0.05	< 0.2	< 0.2	< 0.2	< 0.2	< 0.05	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.05	< 0.2	< 0.05	< 0.05
Coumaphos	< 1.	< 0.25	< 1.	< 1.	< 1.	< 1.	< 0.25	< 1.	< 1.	< 1.	< 1.	< 1.	< 1.	< 0.1	< 1.	< 0.1	< 0.1
Def		< 0.1					< 0.1							< 0.05		< 0.05	< 0.05
Demeton (Total)		< 0.1					< 0.1							< 0.1		< 0.1	< 0.1
Demeton(Systox)-O	< 0.17		< 0.17	< 0.17	< 0.17	< 0.17		< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17		< 0.17		
Demeton(Systox)-S	< 0.17		< 0.17	< 0.17	< 0.17	< 0.17		< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17		< 0.17		
Diazinon	< 0.4	< 0.05	< 0.4	< 0.4	< 0.4	< 0.4	< 0.05	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.05	< 0.4	< 0.05	< 0.05
Dichlorvos	< 0.07	< 0.1	< 0.07	< 0.07	< 0.07	< 0.07	< 0.1	< 0.07	< 0.07	< 0.07	< 0.07	< 0.07	< 0.07	< 0.1	< 0.07	< 0.1	< 0.1
Dimethoate		< 0.1					< 0.1							< 0.1		< 0.1	< 0.1
Disulfoton (Disyston)	< 0.13	< 0.05	< 0.13	< 0.13	< 0.13	< 0.13	< 0.05	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.05	< 0.13	< 0.05	< 0.05
EPN		< 0.05					< 0.05							< 0.05		< 0.05	< 0.05
Ethion		< 0.05					< 0.05							< 0.05		< 0.05	< 0.05
Ethoprop	< 0.17	< 0.05	< 0.17	< 0.17	< 0.17	< 0.17	< 0.05	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.05	< 0.17	< 0.05	< 0.05
Fensulfothion	< 1.	< 0.25	< 1.	< 1.	< 1.	< 1.	< 0.25	< 1.	< 1.	< 1.	< 1.	< 1.	< 1.	< 0.25	< 1.	< 0.25	< 0.25
Fenthion	< 0.07	< 0.05	< 0.07	< 0.07	< 0.07	< 0.07	< 0.05	< 0.07	< 0.07	< 0.07	< 0.07	< 0.07	< 0.07	< 0.05	< 0.07	< 0.05	< 0.05
Malathion	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.05	< 0.05
Merphos	< 0.17	< 0.1	< 0.17	< 0.17	< 0.17	< 0.17	< 0.1	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.05	< 0.17	< 0.05	< 0.05
Mevinphos (Phosdrin)	< 0.2	< 0.35	< 0.2	< 0.2	< 0.2	< 0.2	< 0.35	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.35	< 0.2	< 0.35	< 0.35
Naled (Dibrom)	< 0.07	< 0.25	< 0.07	< 0.07	< 0.07	< 0.07	< 0.25	< 0.07	< 0.07	< 0.07	< 0.07	< 0.07	< 0.07	< 0.25	< 0.07	< 0.25	< 0.25
Parathion Ethyl	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.05	< 0.05
Parathion Methyl	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.05	< 0.05
Phorate (Thimet)	< 0.1	< 0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.1	< 0.05	< 0.05
Prowl (Pendimethalin)		< 0.05					< 0.05							< 0.05		< 0.05	< 0.05
Ronnel	< 0.2	< 0.05	< 0.2	< 0.2	< 0.2	< 0.2	< 0.05	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.05	< 0.2	< 0.05	< 0.05
Stirophos (Tetrachlorvinphos)	< 3.35	< 0.1	< 3.35	< 3.35	< 3.35	< 3.35	< 0.1	< 3.35	< 3.35	< 3.35	< 3.35	< 3.35	< 3.35	< 0.05	< 3.35	< 0.05	< 0.05
Sulfotep		< 0.05					< 0.05							< 0.05		< 0.05	< 0.05
Tokuthion (Protothiofos)	< 0.33	< 0.05	< 0.33	< 0.33	< 0.33	< 0.33	< 0.05	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.05	< 0.33	< 0.05	< 0.05
Trichloronate	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.1	< 0.05	< 0.05
Trifluralin		< 0.05					< 0.05							< 0.05		< 0.05	< 0.05

Table 6 - 8151A Soil Quality Summary (mg/Kg)
Amvac Chemical Corporation, Los Angeles, California

Sample ID	Date Sampled	2,4,5-T	2,4,5-TP	2,4-D	2,4-DB	2,4-DP	Dalapon	Dicamba	Dinoseb	MCPA	MCPP
AOC12											
AOC12-01-2' 3"	01-03-03	< 0.13	< 0.11	< 0.8	< 0.61	< 0.44	< 3.89	< 0.18	< 0.05	< 167.0	< 129.0
AOC12-01-2' 3"(D)	01-03-03	< 40.0	< 40.0	< 0.2	< 0.4	< 0.2	< 2.0	< 40.0	< 0.1	< 40.0	< 40.0
AOC12-01-8' 3"	01-03-03	< 0.13	< 0.11	< 0.8	< 0.61	< 0.44	< 3.89	< 0.18	< 0.05	< 167.0	< 129.0
AOC12-02-2' 3"	01-03-03	< 0.13	< 0.11	< 0.8	< 0.61	< 0.44	< 3.89	< 0.18	< 0.05	< 167.0	< 129.0
AOC12-02-7' 3"	01-03-03	< 0.13	< 0.11	< 0.8	< 0.61	< 0.44	< 3.89	< 0.18	< 0.05	< 167.0	< 129.0
AOC12-03-2'	12-23-02	< 0.13	< 0.11	< 0.8	< 0.61	< 0.44	< 3.89	< 0.18	< 0.05	< 167.0	< 129.0
AOC12-03-2'(D)	12-23-02	< 40.0	< 40.0	< 0.2	< 0.4	< 0.2	< 2.0	< 40.0	< 0.1	< 40.0	< 40.0
AOC12-03-8'	12-23-02	< 0.13	< 0.11	< 0.8	< 0.61	< 0.44	< 3.89	< 0.18	< 0.05	< 167.0	< 129.0
AOC12-04-2' 2"	01-03-03	< 0.13	< 0.11	< 0.8	< 0.61	< 0.44	< 3.89	< 0.18	< 0.05	< 167.0	< 129.0
AOC12-04-8' 2"	01-03-03	< 0.13	< 0.11	< 0.8	< 0.61	< 0.44	< 3.89	< 0.18	< 0.05	< 167.0	< 129.0
AOC12-05-2'	12-23-02	< 0.13	< 0.11	< 0.8	< 0.61	< 0.44	< 3.89	< 0.18	< 0.05	< 167.0	< 129.0
AOC12-05-8'	12-23-02	< 0.13	< 0.11	< 0.8	< 0.61	< 0.44	< 3.89	< 0.18	< 0.05	< 167.0	< 129.0
AOC12-06-2'	01-06-03	< 0.13	< 0.11	< 0.8	< 0.61	< 0.44	< 3.89	< 0.18	< 0.05	< 167.0	< 129.0
AOC12-06-2'(D)	01-06-03	< 40.0	< 40.0	< 0.2	< 0.4	< 0.2	< 2.0	< 40.0	< 0.1	< 40.0	< 40.0
AOC12-06-8'	01-06-03	< 0.13	< 0.11	< 0.8	< 0.61	< 0.44	< 3.89	< 0.18	< 0.05	< 167.0	< 129.0
AOC12-07-1.5'	12-17-04	< 0.04	< 0.04	< 0.2	< 0.4	< 0.2	< 2.0	< 0.04	< 0.1	< 40.0	< 40.0

Table 7-8260B (Detected Soil/Soil Gas Analytes Only) Soil Quality Summary (ug/kg)
Amvac Chemical Corporation, Los Angeles, California

	AOC12-01-2' 3"	AOC12-01-2' 3"(D)	AOC12-01-8' 3"	AOC12-02-2' 3"	AOC12-02-7' 3"	AOC12-03-2'	AOC12-03-2'(D)	AOC12-03-8'	AOC12-04-2' 2"	AOC12-04-8' 2"	AOC12-05-2'	AOC12-05-8'	AOC12-05A-2'	AOC12-05A-7.5'
Date Sampled:	1/03/03	1/03/03	1/03/03	1/03/03	1/03/03	12/23/02	12/23/02	12/23/02	1/03/03	1/03/03	12/23/02	12/23/02	12/10/03	12/10/03
1,1,1-Trichloroethane	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 41.	< 1.7
1,1,2-Trichlorotrifluoroethane		< 10.					< 10.							
1,1-Dichloroethane	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 41.	< 1.7
1,1-Dichloroethene	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 100.	< 4.3
1,2,3-Trichlorobenzene	< 5.		< 5.	< 5.	< 5.	< 5.		< 5.	< 5.	< 5.	< 5.	< 5.	< 100.	< 4.3
1,2,4-Trichlorobenzene	< 5.		< 5.	< 5.	< 5.	< 5.		< 5.	< 5.	< 5.	< 5.	< 5.	< 100.	< 4.3
1,2,4-Trimethylbenzene	< 5.		< 5.	< 5.	< 5.	< 5.		< 5.	< 5.	< 5.	< 5.	< 5.	< 41.	< 1.7
1,2-Dibromo-3-Chloropropane	< 5.		< 5.	< 5.	< 5.	< 5.		< 5.	< 5.	< 5.	< 5.	< 5.	< 100.	< 4.3
1,3,5-Trimethylbenzene	< 5.		< 5.	< 5.	< 5.	< 5.		< 5.	< 5.	< 5.	< 5.	< 5.	< 41.	< 1.7
2-Butanone (MEK)	< 100.		< 100.	< 100.	< 100.	< 100.		< 100.	< 100.	< 100.	< 100.	< 100.		
Acetone	< 5.		< 5.	< 5.	55.	< 5.		< 5.	< 5.	< 5.	141.	< 5.		
Benzene	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 41.	< 1.7
Bromodichloromethane	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 41.	< 1.7
Bromomethane		< 10.					< 10.						< 100.	< 4.3
Carbon tetrachloride	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 100.	< 4.3
Chlorobenzene	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 41.	< 1.7
Chloroethane		< 5.					< 5.						< 100.	< 4.3
Chloroform	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	35.	< 5.	< 41.	3.6
Chloromethane	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 100.	< 4.3
Dichlorodifluoromethane		< 10.					< 10.						< 100.	< 4.3
Di-isopropyl Ether													< 100.	< 4.3
Ethyl benzene	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 41.	< 1.7
Hexachlorobutadiene	< 5.		< 5.	< 5.	< 5.	< 5.		< 5.	< 5.	< 5.	< 5.	< 5.	< 100.	< 4.3
Isopropylbenzene	< 5.		< 5.	< 5.	< 5.	< 5.		< 5.	< 5.	< 5.	< 5.	< 5.	< 41.	< 1.7
m and p-Xylene	< 5.		< 5.	< 5.	< 5.	< 5.		< 5.	< 5.	< 5.	< 5.	< 5.	< 41.	< 1.7
Methylene chloride	< 5.	< 50.	< 5.	< 5.	< 5.	< 5.	< 50.	< 5.	< 5.	< 5.	< 5.	< 5.	< 410.	< 17.
Naphthalene	< 5.		< 5.	< 5.	< 5.	< 5.		< 5.	< 5.	< 5.	< 5.	< 5.	< 100.	< 4.3
n-Propylbenzene	< 5.		< 5.	< 5.	< 5.	< 5.		< 5.	< 5.	< 5.	< 5.	< 5.	< 41.	< 1.7
o-Xylene	< 5.		< 5.	< 5.	< 5.	< 5.		< 5.	< 5.	< 5.	< 5.	< 5.	< 41.	< 1.7
p-Isopropyltoluene	< 5.		< 5.	< 5.	< 5.	< 5.		< 5.	< 5.	< 5.	< 5.	< 5.	< 41.	< 1.7
sec-Butylbenzene	< 5.		< 5.	< 5.	< 5.	< 5.		< 5.	< 5.	< 5.	< 5.	< 5.	< 100.	< 4.3
Tetrachloroethene	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 41.	< 1.7
Toluene	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	5.7	< 5.	< 41.	< 1.7
Trichloroethene	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 41.	< 1.7
Trichlorofluoromethane	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 100.	< 4.3
Xylenes, total	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.		

Table 7-8260B (Detected Soil/Soil Gas Analytes Only) Soil Quality Summary (ug/kg)
Amvac Chemical Corporation, Los Angeles, California

	AOC12-05B-2'	AOC12-06-2'	AOC12-06-2'(D)	AOC12-06-8'	AOC12-07-1.5'	AOC12-07-7.5'
Date Sampled:	12/22/03	1/06/03	1/06/03	1/06/03	12/17/04	12/17/04
1,1,1-Trichloroethane	< 2.	< 5.	< 5.	< 5.	< 2.	< 2.
1,1,2-Trichlorotrifluoroethane			< 10.			
1,1-Dichloroethane	< 2.	< 5.	< 5.	< 5.	< 2.	< 2.
1,1-Dichloroethene	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.
1,2,3-Trichlorobenzene	< 5.	< 5.		< 5.	< 5.	< 5.
1,2,4-Trichlorobenzene	< 5.	< 5.		< 5.	< 5.	< 5.
1,2,4-Trimethylbenzene	< 2.	< 5.		< 5.	< 2.	< 2.
1,2-Dibromo-3-Chloropropane	< 5.	< 5.		< 5.	< 5.	< 5.
1,3,5-Trimethylbenzene	< 2.	< 5.		< 5.	< 2.	< 2.
2-Butanone (MEK)		< 100.		< 100.		
Acetone		< 5.		< 5.		
Benzene	< 2.	< 5.	< 5.	< 5.	< 2.	< 2.
Bromodichloromethane	2.2	< 5.	< 5.	< 5.	< 2.	< 2.
Bromomethane	< 5.		< 10.		< 5.	< 5.
Carbon tetrachloride	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.
Chlorobenzene	< 2.	< 5.	< 5.	< 5.	< 2.	< 2.
Chloroethane	< 5.		< 5.		< 5.	< 5.
Chloroform	31.	< 5.	< 5.	< 5.	< 2.	< 2.
Chloromethane	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.
Dichlorodifluoromethane	< 5.		< 10.		< 5.	< 5.
Di-isopropyl Ether	< 5.				< 5.	< 5.
Ethyl benzene	< 2.	< 5.	< 5.	< 5.	< 2.	< 2.
Hexachlorobutadiene	0.81	< 5.		< 5.	< 5.	< 5.
Isopropylbenzene	< 2.	< 5.		< 5.	< 2.	< 2.
m and p-Xylene	< 2.	< 5.		< 5.	< 2.	< 2.
Methylene chloride	< 20.	< 5.	< 50.	< 5.	< 20.	< 20.
Naphthalene	< 5.	< 5.		< 5.	< 5.	< 5.
n-Propylbenzene	< 2.	< 5.		< 5.	< 2.	< 2.
o-Xylene	< 2.	< 5.		< 5.	< 2.	< 2.
p-Isopropyltoluene	< 2.	< 5.		< 5.	< 2.	< 2.
sec-Butylbenzene	< 5.	< 5.		< 5.	< 5.	< 5.
Tetrachloroethene	2.1	< 5.	< 5.	< 5.	< 2.	< 2.
Toluene	< 2.	< 5.	< 5.	< 5.	< 2.	< 2.
Trichloroethene	< 2.	< 5.	< 5.	< 5.	< 2.	< 2.
Trichlorofluoromethane	< 5.	< 5.	< 5.	< 5.	< 5.	< 5.
Xylenes, total		< 5.	< 5.	< 5.		

Table 8 - 8270C Soil Quality Summary (ug/kg)
Amvac Chemical Corporation, Los Angeles, California

Parameter	*AOC12-05-2*	*AOC12-07-1.5*	*AOC12-07-7.5*
1,2,4-Trichlorobenzene	< 999	< 330	< 330
1,2-Dichlorobenzene	< 999	< 330	< 330
1,2-Diphenylhydrazine		< 330	< 330
1,3-Dichlorobenzene	< 999	< 330	< 330
1,4-Dichlorobenzene	< 999	< 330	< 330
2,4,5-T	< 4,995	< 330	< 330
2,4,6-Trichlorophenol	< 4,995	< 330	< 330
2,4-Dichlorophenol	< 999	< 330	< 330
2,4-Dimethylphenol	< 999	< 330	< 330
2,4-Dinitrophenol	< 4,995	< 660	< 660
2,4-Dinitrotoluene	< 999	< 330	< 330
2,6-Dinitrotoluene	< 999	< 330	< 330
2-Chloronaphthalene	< 999	< 330	< 330
2-Chlorophenol	< 999	< 330	< 330
2-Methylnaphthalene	< 999	< 330	< 330
2-Methylphenol	< 999	< 330	< 330
2-Nitroaniline	< 4,995	< 330	< 330
2-Nitrophenol	< 999	< 330	< 330
3,3-Dichlorobenzidine	< 999	< 830	< 830
3-Methylphenol	< 999		
3-Nitroaniline	< 4,995	< 330	< 330
4,6-Dinitro-2-methylphenol	< 4,995	< 420	< 420
4-Bromophenyl-phenylether	< 999	< 330	< 330
4-Chloro-3-methylphenol	< 999	< 330	< 330
4-Chloroaniline	< 999	< 330	< 330
4-Chlorophenyl-phenylether	< 999	< 330	< 330
4-Methylphenol	< 999	< 330	< 330
4-Nitroaniline	< 4,995	< 830	< 830
4-Nitrophenol	< 4,995	< 830	< 830
Acenaphthene	< 999	< 330	< 330
Acenaphthylene	< 999	< 330	< 330
Aniline		< 420	< 420
Anthracene	< 999	< 330	< 330
Benzidine		< 660	< 660
Benzo(a)anthracene	< 999	< 330	< 330
Benzo(a)pyrene	< 999	< 330	< 330
Benzo(b)fluoranthene	< 999	< 330	< 330
Benzo(g,h,i)perylene	< 999	< 330	< 330
Benzo(k)fluoranthene	< 999	< 330	< 330
Benzoic Acid	< 999	< 830	< 830
Benzyl alcohol	< 999	< 330	< 330
bis(2-Chloroethoxy)methane	< 999	< 330	< 330
bis(2-Chloroethyl)ether	< 999	< 170	< 170
bis(2-Chloroisopropyl) ether	< 999	< 330	< 330
bis(2-Ethylhexyl)phthalate	< 999	< 330	< 330

Table 9 - ph/MITC Soil Quality Summary
Amvac Chemical Corporation, Los Angeles, California

Sample ID	Date Sampled	*pH*	*Methyl isothio-cyanate(ug/kg)*
AOC12			
AOC12-01-2' 3"	01-03-03	6 23	< 20 0
AOC12-01-2' 3"(D)	01-03-03	6 6	
AOC12-01-8' 3"	01-03-03	7.16	< 20 0
AOC12-02-2' 3"	01-03-03	7 06	< 20 0
AOC12-02-7' 3"	01-03-03	7.01	< 20 0
AOC12-03-2'	12-23-02	7 36	< 20 0
AOC12-03-2'(D)	12-23-02	6 7	
AOC12-03-8'	12-23-02	7.52	< 20 0
AOC12-04-2' 2"	01-03-03	6 01	< 20 0
AOC12-04-8' 2"	01-03-03	6 9	< 20 0
AOC12-05-2'	12-23-02	8 41	< 20 0
AOC12-05-8'	12-23-02	7.93	< 20 0
AOC12-06-2'	01-06-03	4.84	< 20 0
AOC12-06-8'	01-06-03	7 27	< 20 0
AOC12-07-1.5'	12-17-04	7.49	< 20 0
AOC12-07-7.5'	12-17-04	7 51	< 20 0

Table 10 - 8321 Soil Quality Summary (ug/Kg)
Amvac Chemical Corporation, Los Angeles, California

	AOC12-01-2' 3"	AOC12-01-8' 3"	AOC12-02-2' 3"	AOC12-02-7' 3"	AOC12-03-2'	AOC12-03-8'	AOC12-04-2' 2"	AOC12-04-8' 2"	AOC12-05-2'	AOC12-05-8'	AOC12-06-2'	AOC12-06-8'	AOC12-07-1.5'	AOC12-07-7.5'
Date Sampled:	1/03/03	1/03/03	1/03/03	1/03/03	12/23/02	12/23/02	1/03/03	1/03/03	12/23/02	12/23/02	1/06/03	1/06/03	12/17/04	12/17/04
Analyte:														
Aldicarb	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.
Aminocarb	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.
Barban	< 70.	< 70.	< 70.	< 70.	< 70.	< 70.	< 70.	< 70.	< 500.	< 70.	< 70.	< 70.	< 70.	< 70.
Benomyl/Carbenda	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.
Bromacil	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.
Carbaryl	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.
Carbofuran	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.
Chloroxuron	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.
Chlorpropham	< 70.	< 70.	< 70.	< 70.	< 70.	< 70.	< 70.	< 70.	< 70.	< 70.	< 70.	< 70.	< 70.	< 70.
Diuron	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.
Fenuron	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.
Fluometuron	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.
Linuron	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.
Methiocarb	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.
Methomyl	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.
Mexacarbate	< 70.	< 70.	< 70.	< 70.	< 70.	< 70.	< 70.	< 70.	< 70.	< 70.	< 70.	< 70.	< 70.	< 70.
Monuron	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.
Neburon	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.
Oryzalin	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.
Oxamyl	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.
Propachlor	< 70.	< 70.	< 70.	< 70.	< 70.	< 70.	< 70.	< 70.	< 70.	< 70.	< 70.	< 70.	< 70.	< 70.
Propham	< 70.	< 70.	< 70.	< 70.	< 70.	< 70.	< 70.	< 70.	< 70.	< 70.	< 70.	< 70.	< 70.	< 70.
Propoxur	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.
Siduron	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.
Tebuthiuron	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.	< 20.

A.P. A

PROJECT/#:	0102.0006.001.002	DRILLING METHOD/DIAMETER:	Geoprobe
LOCATION:	AOC-12	DRILLING COMPANY:	Coreprobe
LOGGED BY:	G. DICKINSON	MONITORING EQUIPMENT:	PID
DATE:	1/3/03	DROP/WEIGHT:	
ELEVATION:	UNKNOWN	NOTES:	

SOIL BORING LOG - AOC-12-01

DEPTH (FEET)	BLOW COUNT	SAMPLE INTERVAL	USCS SYMBOL	PID READING	SOIL DESCRIPTION		WELL CONSTRUCTION/ ABANDONMENT DETAILS
		X	SM	0.8	1' - 2'9"	10YR 5/3 (brown), dry, SILTY VERY FINE TO FINE SAND, abundant medium to coarse sand and gravel @ 1'3" - becomes 10YR 3/4 (dark yellowish brown), damp, trace medium to coarse sand and fine gravel	
5							
		X	SM		7' - 8'2"	2.5Y 5/4 (light olive brown), damp to moist, SILTY VERY FINE TO FINE SAND, trace fine gravel	
		X	SP	0.3	8'2" - 8'9"	2.5Y 5/4 (light olive brown), damp to moist, VERY FINE TO FINE SAND, abundant silt	
10					T.D. - 8'9" NO GROUNDWATER		
15							
20							
25							
30							

PACIFIC EDGE ENGINEERING, INC.

PROJECT/#:	0102.0006.001.002	DRILLING METHOD/DIAMETER:	Geoprobe
LOCATION:	AOC-12	DRILLING COMPANY:	Coreprobe
LOGGED BY:	G. DICKINSON	MONITORING EQUIPMENT:	PID
DATE:	1/3/03	DROP/WEIGHT:	
ELEVATION:	UNKNOWN	NOTES:	

SOIL BORING LOG - AOC-12-02

DEPTH (FEET)	BLOW COUNT	SAMPLE INTERVAL	USCS SYMBOL	PID READING	SOIL DESCRIPTION	WELL CONSTRUCTION/ ABANDONMENT DETAILS
		X	SM	13.3	1' - 2'9" 10YR 6/3 (pale brown), dry, SILTY VERY FINE TO FINE SAND, scattered medium to coarse sand and gravel @ 1'2" - becomes 10YR 6/2 @ 1'5" - becomes 10YR 3/4 (dark yellowish brown), damp, trace medium and coarse sand	
5						
		X	SP	2.5	7' - 8'9" 2.5Y 6/4 (light yellowish brown), damp, VERY FINE TO FINE SAND, abundant silt, trace medium sand, some orange mottling	
10					T.D. - 8'9" NO GROUNDWATER	
15						
20						
25						
30						

PACIFIC EDGE ENGINEERING, INC.

PROJECT/#:	0102.0006.001 002	DRILLING METHOD/DIAMETER:	Geoprobe
LOCATION:	AOC-12	DRILLING COMPANY:	Coreprobe
LOGGED BY:	G. DICKINSON	MONITORING EQUIPMENT:	PID
DATE:	12/23/02	DROP/WEIGHT:	
ELEVATION:	UNKNOWN	NOTES:	

SOIL BORING LOG - AOC-12-03

DEPTH (FEET)	BLOW COUNT	SAMPLE INTERVAL	USCS SYMBOL	PID READING	SOIL DESCRIPTION	WELL CONSTRUCTION/ ABANDONMENT DETAILS
		X	SM		1' - 2'6" 7.5YR 3/2 (dark brown), damp, SILTY FINE SAND, scattered medium sand, trace coarse sand	
5						
		X	SM		7' - 8'6" 2.5Y 4/4 (olive brown), moist, SILTY VERY FINE TO FINE SAND	
10					T.D. - 8'6" NO GROUNDWATER	
15						
20						
25						
30						

PROJECT/#:	0102.0006.001 002	DRILLING METHOD/DIAMETER:	Geoprobe
LOCATION:	AOC-12	DRILLING COMPANY:	Coreprobe
LOGGED BY:	G. DICKINSON	MONITORING EQUIPMENT:	PID
DATE:	1/3/03	DROP/WEIGHT:	
ELEVATION:	UNKNOWN	NOTES:	

SOIL BORING LOG - AOC-12-04

DEPTH (FEET)	BLOW COUNT	SAMPLE INTERVAL	USCS SYMBOL	PID READING	SOIL DESCRIPTION	WELL CONSTRUCTION/ ABANDONMENT DETAILS
		X	SM	1.4	1' - 2'8" 10YR 6/2 (light brownish gray), dry, SILTY FINE SAND, abundant medium to coarse sand and gravel @ 1'4" - becomes 10YR 3/3 (dark brown), damp, SILTY VERY FINE TO FINE SAND, trace medium to coarse sand	
5						
		X	SP/SM	1.4	7' - 8'8" 2.5Y 5/4 (light olive brown), damp, VERY FINE TO FINE SAND/SILTY SAND, some orange mottling @ 7'6" - becomes VERY FINE TO FINE SAND, abundant silt	
10					T.D. - 8'8" NO GROUNDWATER	
15						
20						
25						
30						

PROJECT/#:	0102.0006 001.002	DRILLING METHOD/DIAMETER:	Geoprobe
LOCATION:	AOC-12	DRILLING COMPANY:	Coreprobe
LOGGED BY:	G. DICKINSON	MONITORING EQUIPMENT:	PID
DATE:	12/23/02	DROP/WEIGHT:	
ELEVATION:	UNKNOWN	NOTES:	

SOIL BORING LOG - AOC-12-05

DEPTH (FEET)	BLOW COUNT	SAMPLE INTERVAL	USCS SYMBOL	PID READING	SOIL DESCRIPTION	WELL CONSTRUCTION/ ABANDONMENT DETAILS
		X	SM		1' - 2'6" 7.5YR 3/2 (dark brown), damp, SILTY FINE SAND, scattered medium sand, trace coarse sand, gravel size pieces of concrete	
5						
		X	SM		7' - 8'6" 2.5Y 4/4 (olive brown), moist, SILTY VERY FINE TO FINE SAND	
10					T.D. - 8'6" NO GROUNDWATER	
15						
20						
25						
30						

PROJECT/#:	0102.0006.001.002	DRILLING METHOD/DIAMETER:	Geoprobe
LOCATION:	AOC-12	DRILLING COMPANY:	Coreprobe
LOGGED BY:	G. DICKINSON	MONITORING EQUIPMENT:	PID
DATE:	1/6/03	DROP/WEIGHT:	
ELEVATION:	UNKNOWN	NOTES:	

SOIL BORING LOG - AOC-12-06

DEPTH (FEET)	BLOW COUNT	SAMPLE INTERVAL	USCS SYMBOL	PID READING	SOIL DESCRIPTION		WELL CONSTRUCTION/ ABANDONMENT DETAILS
		X	SM		1' - 3'	2.5Y 5/4 (light olive brown), moist, SILTY VERY FINE TO FINE SAND, trace coarse sand and fine gravel @ 1'2" - 1'9" - scattered coarse sand and gravel	
5							
		X	SM/SP		7' - 8'10"	2.5Y 5/4 (light olive brown), moist, SILTY VERY FINE SAND/VERY FINE SAND @ 8'6" - becomes SILTY VERY FINE SAND @ 8'10" - becomes SILTY VERY FINE SAND/VERY FINE SAND	
10					T.D. - 8'10" NO GROUNDWATER		
15							
20							
25							
30							

PROJECT/#:	0103.004.001.003	DRILLING METHOD/DIAMETER:	Geoprobe
LOCATION:	4100 East Washington Boulevard	DRILLING COMPANY:	Coreprobe
LOGGED BY:	G. DICKINSON	MONITORING EQUIPMENT:	PID
DATE:	12/10/03	DROP/WEIGHT:	
ELEVATION:	UNKNOWN	NOTES:	

SOIL BORING LOG - AOC09-03

DEPTH (FEET)	BLOW COUNT	SAMPLE INTERVAL	USCS SYMBOL	PID READING	SOIL DESCRIPTION	GRAPHIC LOG	WELL CONSTRUCTION/ ABANDONMENT DETAILS
		X	XX		1' - 2' 10YR 4/4 (dark yellowish brown), moist, VERY FINE TO FINE SAND		
5							
		X	XX		6' - 7' 2.5Y 7/2 (light gray), dry, SILTY VERY FINE TO COARSE SAND - fill? 7' - 7'6" 2.5Y 5/4 (light olive brown), moist, VERY FINE TO FINE SAND, scattered silt		
10							
		X	XX		14' - 15' 10YR 5/6 (yellowish brown), moist, FINE SANDY SILT, scattered medium to coarse sand, trace fine gravel and clay		
15							
		X	XX		19' - 20'6" 2.5Y 4/4 (olive brown), moist, FINE TO MEDIUM SANDY SILT, scattered coarse sand and clay, trace fine gravel, interbedded lenses of black soil		
20							
					T.D. - 20'6" No Groundwater		
25							
30							

PROJECT/#:	0199.004.001.001	DRILLING METHOD/DIAMETER:	Geoprobe
LOCATION:	4100 East Washington Boulevard	DRILLING COMPANY:	Coreprobe
LOGGED BY:	G. DICKINSON	MONITORING EQUIPMENT:	PID
DATE:	12/17/04	DROP/WEIGHT:	
ELEVATION:	UNKNOWN	NOTES:	

SOIL BORING LOG - AOC12-07

DEPTH (FEET)	BLOW COUNT	SAMPLE INTERVAL	USCS SYMBOL	PID READING	SOIL DESCRIPTION	GRAPHIC LOG	WELL ABANDONMENT-BENTONITE DETAILS
		X	SM	2.7	1' - 2'2" 10YR 3/2 (very dark grayish brown), SILTY VERY FINE TO FINE SAND, trace medium sand		
5					@5' soil vapor sample collected	Bent. Grout	
		X	SP	1.4	7' - 8'2" 2.5Y 6/6 (olive yellow), VERY FINE TO FINE SAND, scattered to abundant silt		
10					T.D. - 9' No Groundwater		
15							
20							
25							
30							

PACIFIC EDGE ENGINEERING, INC

A.P. B

PTS Laboratories
ENVIRONMENTAL SERVICES

March 14, 2003

Mr. Greg Dickinson
Pacific Edge Engr.
22772 Centre Dr. St. 230
Lake Forest, CA 92630

Re: AMVAC
PTS File: 33047

Dear Mr. Dickinson:

Enclosed are final data for samples submitted from your AMVAC, Project No. 0102.0004.001.002. All analyses were performed by applicable ASTM, EPA or API methodology. Samples will be retained for 30 days before disposal unless other arrangements are made.

We appreciate the opportunity to be of service and trust these data will prove beneficial in the development of this project. Please call me at (562) 907-3607 with any questions or if you require additional information.

Sincerely,
PTS Laboratories, Inc.

Larry Kunkel
District Manager

LAK:vk

Encl.

8100 Secona Way - Santa Fe Springs, CA 90670
Phone 562 907 3607 Fax 562 907 3610

PHYSICAL PROPERTIES DATA

PROJECT NAME: AMVAC
PROJECT NO: 0102.0004.001.002

METHODOLOGY:	ASTM D2216	ASTM D2937	ASTM D854	WALKLEY-BLACK	ASTM D5084	
					25.0 PSI CONFINING STRESS	
SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENT. (1)	MOISTURE CONTENT (% wt)	BULK DENSITY (g/cc)	SPECIFIC GRAVITY	TOTAL ORGANIC CARBON mg/kg	NATIVE STATE EFFECTIVE PERMEABILITY TO WATER (4,5) (millidarcy)	NATIVE STATE EFFECTIVE HYDRAULIC CONDUCTIVITY (4,5) (cm/s)
AOC11-01	30.5-31	V	12.6	1.88	2.70	5990	0.645	6.23E-07
AOC11-01	69.8-70	V	19.0	1.74	2.65	4180	0.304	2.93E-07
AOC06-03	104-108	V	15.8	1.62	2.65	6600	0.723	6.98E-07
AOC06-01	2-2.4	V	8.5	1.57	2.66	16500	220	2.13E-04
AOC06-01	74-78	V	3.7	1.58	2.66	7620	1591	1.53E-03
AOC03-02	41-41.3	V	22.2	1.64	2.65	2860	1.51	1.47E-06
AOC03-01	68.5-69	V	18.7	1.69	2.52	4160	0.574	5.55E-07

(1) Sample Orientation: H = horizontal; V = vertical (4) Native State = As received with pore fluids in place (5) Permeability to water and conductivity measured at saturated conditions Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS Laboratories, Inc.

Pacific Edge Engineering
PTS File No: 33047

PARTICLE SIZE SUMMARY

(METHODOLOGY: ASTM D422/D4464M)

PROJECT NAME: AMVAC
PROJECT NO: 01020004.001.002

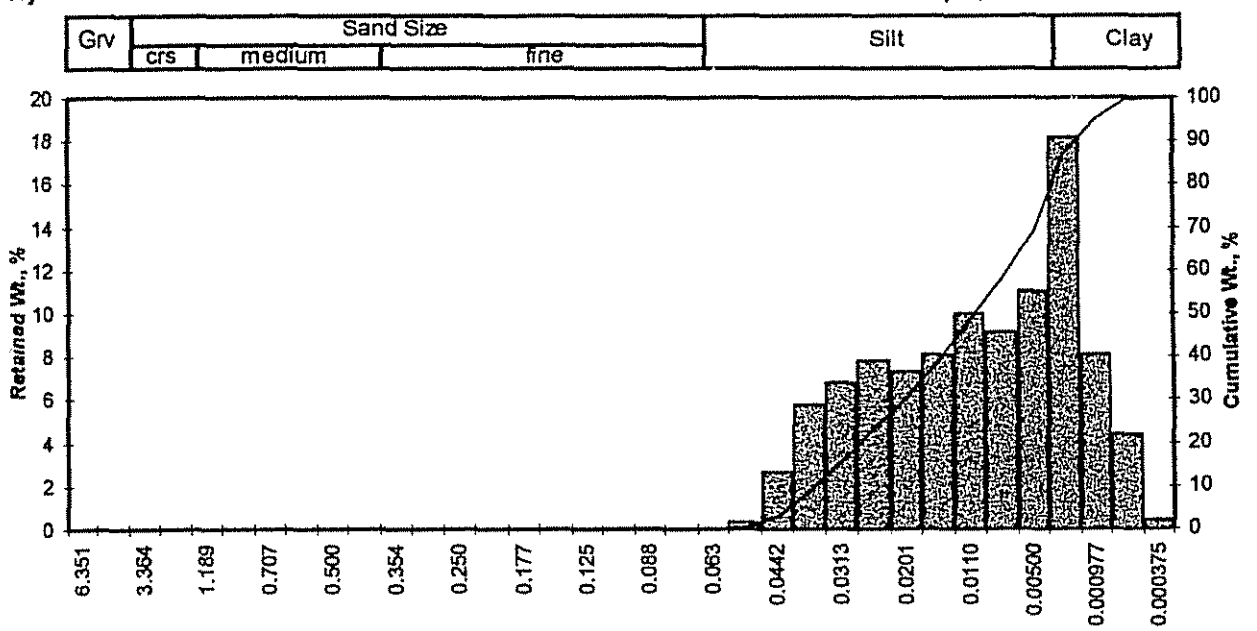
Sample ID	Depth, ft.	*Description* USCS/ASTM (1)	*Median* Grain Size mm	Particle Size Distribution, wt. percent						Silt & Clay
				Gravel	Sand Size			Silt	Clay	
					Coarse	Medium	Fine			
AOC 11-01-30.5	30.5-31' 0"	Silt	0.011	0.00	0.00	0.00	0.00	68.85	31.15	100.00
AOC 11-01-69' 8"	69' 8"-70' 0"	Silt	0.007	0.00	0.00	0.00	7.23	52.77	40.00	92.77
AOC06-01-2'0"	2' 0"-2'-4"	Medium sand	0.507	0.87	4.41	68.15	24.43	(2)	(2)	2.13
AOC06-03-10'4"	10'4"-10'8"	Medium sand	0.439	0.00	3.48	49.00	40.70	(2)	(2)	6.83
AOC06-01-7'4"	7'4"-7'8"	Medium sand	0.482	0.00	1.39	69.46	28.79	(2)	(2)	0.36
AOC 03-02-41' 0"	41' 0"-41' 3"	Silt	0.013	0.00	0.00	0.25	10.67	61.31	27.76	89.07
AOC 03-01-68. 5	68.5-69' 0"	Silt	0.007	0.00	0.00	0.00	6.19	52.53	41.28	93.81

(1) based on Mean from Trask
(2) mechanical sieve does not differentiate silt/clay fraction

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D4464M

Client:	Pacific Edge Engineering	**PTS File No:**	33047
Project:	AMVAC	**Sample ID:**	AOC 11-01-30.5
Project No:	01020004.001.002	**Depth, ft:**	30.5-31' 0"



Opening Inches	Opening Millimeters	Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	0.00	0.00	0.00
0.0331	0.841	0.25	20	0.00	0.00	0.00
0.0278	0.707	0.50	25	0.00	0.00	0.00
0.0234	0.595	0.75	30	0.00	0.00	0.00
0.0197	0.500	1.00	35	0.00	0.00	0.00
0.0166	0.420	1.25	40	0.00	0.00	0.00
0.0139	0.354	1.50	45	0.00	0.00	0.00
0.0117	0.297	1.75	50	0.00	0.00	0.00
0.0098	0.250	2.00	60	0.00	0.00	0.00
0.0083	0.210	2.25	70	0.00	0.00	0.00
0.0070	0.177	2.50	80	0.00	0.00	0.00
0.0059	0.149	2.75	100	0.00	0.00	0.00
0.0049	0.125	3.00	120	0.00	0.00	0.00
0.0041	0.105	3.25	140	0.00	0.00	0.00
0.0035	0.088	3.50	170	0.00	0.00	0.00
0.0029	0.074	3.75	200	0.00	0.00	0.00
0.0025	0.063	4.00	230	0.01	0.01	0.01
0.0021	0.053	4.25	270	0.36	0.36	0.37
0.00174	0.0442	4.50	325	2.63	2.63	3.00
0.00146	0.0372	4.75	400	5.74	5.74	8.74
0.00123	0.0313	5.00	450	6.85	6.85	15.59
0.000986	0.0250	5.32	500	7.82	7.82	23.41
0.000790	0.0201	5.64	635	7.29	7.29	30.70
0.000615	0.0156	6.00		8.10	8.10	38.80
0.000435	0.0110	6.50		9.96	9.96	48.76
0.000308	0.00781	7.00		9.10	9.10	57.85
0.000197	0.00500	7.65		11.00	11.00	68.85
0.000077	0.00195	9.00		18.20	18.20	87.05
0.000038	0.000977	10.00		8.12	8.12	95.17
0.000019	0.000488	11.00		4.37	4.37	99.54
0.000015	0.000375	11.38		0.46	0.46	100.00
TOTALS				100.00	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	4.59	0.0016	0.042
10	4.80	0.0014	0.036
16	5.02	0.0012	0.031
25	5.39	0.0009	0.024
40	6.06	0.0006	0.015
50	6.57	0.0004	0.011
60	7.13	0.0003	0.007
75	8.10	0.0001	0.004
84	8.77	0.0001	0.002
90	9.36	0.0001	0.002
95	9.98	0.0000	0.001

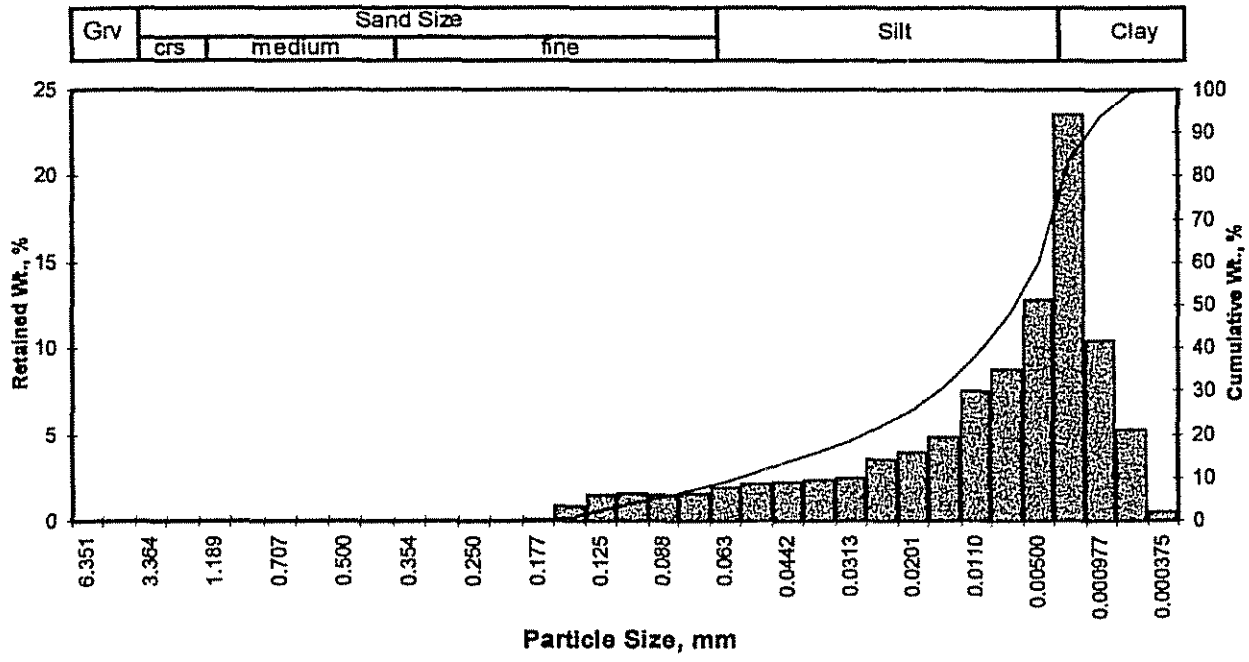
Measure	Trask	Inman	Folk-Ward
Median, phi	6.57	6.57	6.57
Median, in.	0.0004	0.0004	0.0004
Median, mm	0.011	0.011	0.011
Mean, phi	6.19	6.89	6.79
Mean, in	0.0005	0.0003	0.0004
Mean, mm	0.014	0.008	0.009
Sorting	2.560	1.878	1.756
Skewness	0.884	0.174	0.219
Kurtosis	0.293	0.436	0.815
Grain Size Description (ASTM-USCS Scale)		Silt (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	0.00
Fine Sand	200	0.00
Silt	>0.005 mm	68.85
Clay	<0.005 mm	31.15
	Total	100

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D4464M

Client:	Pacific Edge Engineering	**PTS File No:**	33047
Project:	AMVAC	**Sample ID:**	AOC 11-01-69' 8"
Project No:	01020004.001.002	**Depth, ft:**	69' 8"-70' 0"



Opening Inches	Opening Millimeters	Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	0.00	0.00	0.00
0.0331	0.841	0.25	20	0.00	0.00	0.00
0.0278	0.707	0.50	25	0.00	0.00	0.00
0.0234	0.595	0.75	30	0.00	0.00	0.00
0.0197	0.500	1.00	35	0.00	0.00	0.00
0.0166	0.420	1.25	40	0.00	0.00	0.00
0.0139	0.354	1.50	45	0.00	0.00	0.00
0.0117	0.297	1.75	50	0.00	0.00	0.00
0.0098	0.250	2.00	60	0.00	0.00	0.00
0.0083	0.210	2.25	70	0.01	0.01	0.01
0.0070	0.177	2.50	80	0.15	0.15	0.16
0.0059	0.149	2.75	100	0.87	0.87	1.03
0.0049	0.125	3.00	120	1.50	1.50	2.53
0.0041	0.105	3.25	140	1.57	1.57	4.10
0.0035	0.088	3.50	170	1.48	1.48	5.58
0.0029	0.074	3.75	200	1.65	1.65	7.23
0.0025	0.063	4.00	230	1.98	1.98	9.21
0.0021	0.053	4.25	270	2.20	2.20	11.41
0.00174	0.0442	4.50	325	2.27	2.27	13.68
0.00146	0.0372	4.75	400	2.32	2.32	16.00
0.00123	0.0313	5.00	450	2.47	2.47	18.47
0.000986	0.0250	5.32	500	3.52	3.52	22.00
0.000790	0.0201	5.64	635	4.01	4.01	26.01
0.000615	0.0156	6.00		4.81	4.81	30.82
0.000435	0.0110	6.50		7.50	7.50	38.32
0.000308	0.00781	7.00		8.87	8.67	47.20
0.000197	0.00500	7.65		12.80	12.81	60.00
0.000077	0.00195	9.00		23.60	23.61	83.61
0.000038	0.000977	10.00		10.50	10.50	94.12
0.000019	0.000488	11.00		5.33	5.33	99.45
0.000015	0.000375	11.38		0.55	0.55	100.00
TOTALS				**100.00**	**100.00**	**100.00**

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	3.40	0.0037	0.095
10	4.09	0.0023	0.059
16	4.75	0.0015	0.037
25	5.56	0.0008	0.021
40	6.59	0.0004	0.010
50	7.14	0.0003	0.007
60	7.64	0.0002	0.005
75	8.51	0.0001	0.003
84	9.04	0.0001	0.002
90	9.61	0.0001	0.001
95	10.17	0.0000	0.001

Measure	Trask	Inman	Folk-Ward
Median, phi	7.14	7.14	7.14
Median, in.	0.0003	0.0003	0.0003
Median, mm	0.007	0.007	0.007
Mean, phi	6.38	6.89	6.98
Mean, in.	0.0005	0.0003	0.0003
Mean, mm	0.012	0.008	0.008
Sorting	2.776	2.144	2.097
Skewness	1.078	-0.116	-0.111
Kurtosis	0.161	0.578	0.941
Grain Size Description (ASTM-USCS Scale)			Silt (based on Mean from Trask)

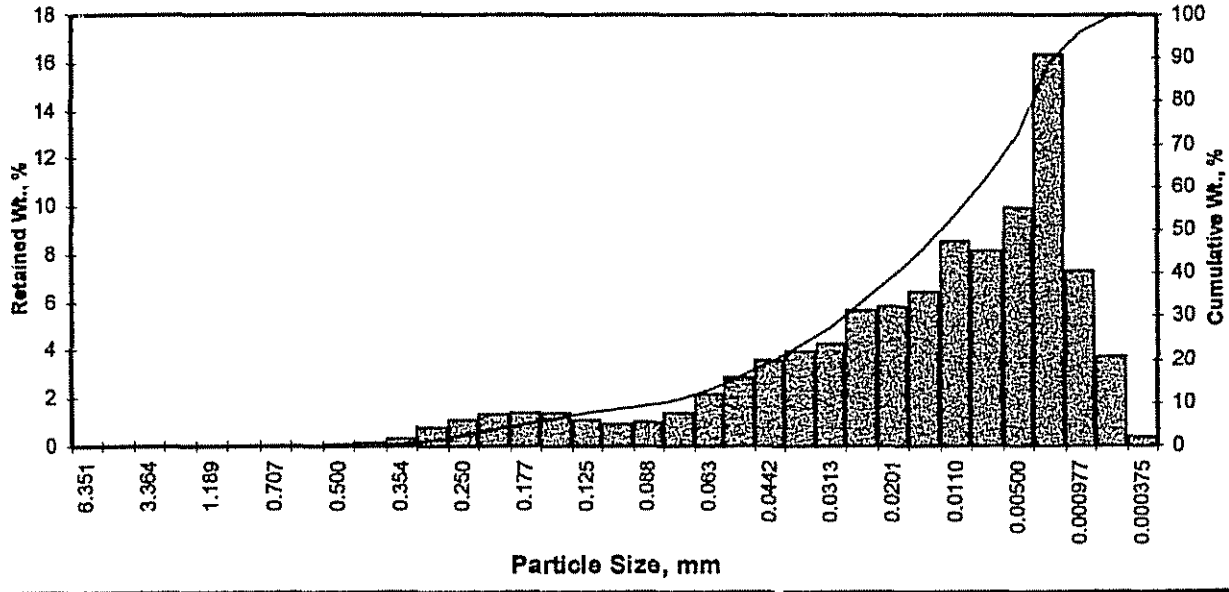
Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	0.00
Fine Sand	200	7.23
Silt	>0.005 mm	52.77
Clay	<0.005 mm	40.00
	Total	100

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D4464M

Client:	*Pacific Edge Engineering*	**PTS File No:**	33047
Project:	AMVAC	**Sample ID:**	AOC 03-02-41' 0"
Project No:	01020004 001.002	**Depth, ft:**	41' 0"-41' 3"

Grv	Sand Size			Silt	Clay
	crs	medium	fine		



Opening Inches	Opening Millimeters	Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	0.00	0.00	0.00
0.0331	0.841	0.25	20	0.00	0.00	0.00
0.0278	0.707	0.50	25	0.00	0.00	0.00
0.0234	0.595	0.75	30	0.03	0.03	0.03
0.0197	0.500	1.00	35	0.08	0.08	0.10
0.0166	0.420	1.25	40	0.15	0.15	0.25
0.0139	0.354	1.50	45	0.28	0.28	0.53
0.0117	0.297	1.75	50	0.80	0.80	1.33
0.0098	0.250	2.00	60	1.05	1.05	2.38
0.0083	0.210	2.25	70	1.31	1.31	3.70
0.0070	0.177	2.50	80	1.43	1.43	5.13
0.0059	0.149	2.75	100	1.38	1.38	6.51
0.0049	0.125	3.00	120	1.12	1.12	7.63
0.0041	0.105	3.25	140	0.90	0.90	8.53
0.0035	0.088	3.50	170	0.97	0.97	9.50
0.0029	0.074	3.75	200	1.43	1.43	10.93
0.0025	0.063	4.00	230	2.14	2.14	13.07
0.0021	0.053	4.25	270	2.89	2.89	15.96
0.00174	0.0442	4.50	325	3.53	3.53	19.49
0.00146	0.0372	4.75	400	3.97	3.97	23.46
0.00123	0.0313	5.00	450	4.23	4.23	27.69
0.000986	0.0250	5.32	500	5.65	5.65	33.34
0.000790	0.0201	5.64	635	5.85	5.85	39.19
0.000615	0.0156	6.00		6.40	6.40	45.59
0.000435	0.0110	6.50		8.50	8.50	54.09
0.000308	0.00781	7.00		8.18	8.18	62.27
0.000197	0.00500	7.65		9.96	9.96	72.24
0.000077	0.00195	9.00		16.40	16.40	88.64
0.000038	0.000977	10.00		7.29	7.29	95.93
0.000019	0.000488	11.00		3.70	3.70	99.63
0.000015	0.000375	11.38		0.37	0.37	100.00
TOTALS				100.00	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	2.48	0.0071	0.179
10	3.59	0.0033	0.083
16	4.25	0.0021	0.052
25	4.84	0.0014	0.035
40	5.69	0.0008	0.019
50	6.26	0.0005	0.013
60	6.86	0.0003	0.009
75	7.87	0.0002	0.004
84	8.62	0.0001	0.003
90	9.19	0.0001	0.002
95	9.87	0.0000	0.001

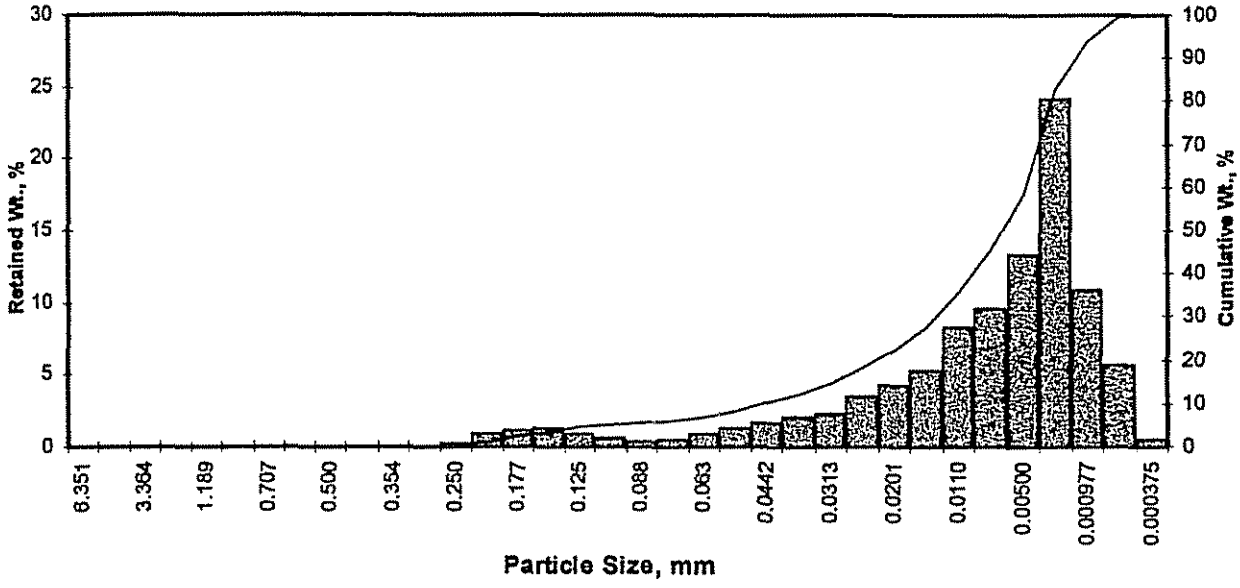
Measure	Trask	Inman	Folk-Ward
Median, phi	6.26	6.26	6.26
Median, in.	0.0005	0.0005	0.0005
Median, mm	0.013	0.013	0.013
Mean, phi	5.87	6.43	6.38
Mean, in.	0.0008	0.0005	0.0005
Mean, mm	0.020	0.012	0.012
Sorting	2.860	2.182	2.211
Skewness	0.934	0.081	0.029
Kurtosis	0.188	0.694	0.999
Grain Size Description (ASTM-USCS Scale)		Silt (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	0.25
Fine Sand	200	10.67
Silt	>0.005 mm	61.31
Clay	<0.005 mm	27.76
	Total	100

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D4464M

Client:	Pacific Edge Engineering	**PTS File No:**	33047
Project:	AMVAC	**Sample ID:**	AOC 03-01-68.5
Project No:	01020004 001.002	**Depth, ft:**	68.5"-69' 0"



Opening Inches	Opening Millimeters	Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	0.00	0.00	0.00
0.0331	0.841	0.25	20	0.00	0.00	0.00
0.0278	0.707	0.50	25	0.00	0.00	0.00
0.0234	0.595	0.75	30	0.00	0.00	0.00
0.0197	0.500	1.00	35	0.00	0.00	0.00
0.0166	0.420	1.25	40	0.00	0.00	0.00
0.0139	0.354	1.50	45	0.00	0.00	0.00
0.0117	0.297	1.75	50	0.04	0.04	0.04
0.0098	0.250	2.00	60	0.30	0.30	0.34
0.0083	0.210	2.25	70	0.84	0.84	1.18
0.0070	0.177	2.50	80	1.22	1.22	2.40
0.0059	0.149	2.75	100	1.23	1.23	3.63
0.0049	0.125	3.00	120	0.96	0.96	4.59
0.0041	0.105	3.25	140	0.64	0.64	5.23
0.0035	0.088	3.50	170	0.44	0.44	5.67
0.0029	0.074	3.75	200	0.52	0.52	6.19
0.0025	0.063	4.00	230	0.87	0.87	7.06
0.0021	0.053	4.25	270	1.33	1.33	8.39
0.00174	0.0442	4.50	325	1.74	1.74	10.13
0.00146	0.0372	4.75	400	2.04	2.04	12.18
0.00123	0.0313	5.00	450	2.34	2.34	14.52
0.000986	0.0250	5.32	500	3.55	3.55	18.07
0.000790	0.0201	5.64	635	4.27	4.27	22.35
0.000615	0.0156	6.00		5.26	5.26	27.61
0.000435	0.0110	6.50		8.24	8.25	35.86
0.000308	0.00781	7.00		9.54	9.55	45.41
0.000197	0.00500	7.65		13.30	13.31	58.72
0.000077	0.00195	9.00		24.10	24.12	82.84
0.000038	0.000977	10.00		10.90	10.91	93.75
0.000019	0.000488	11.00		5.66	5.67	99.42
0.000015	0.000375	11.38		0.58	0.58	100.00
TOTALS				99.90	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	3.16	0.0044	0.112
10	4.48	0.0018	0.045
16	5.13	0.0011	0.028
25	5.82	0.0007	0.018
40	6.72	0.0004	0.010
50	7.22	0.0003	0.007
60	7.72	0.0002	0.005
75	8.56	0.0001	0.003
84	9.11	0.0001	0.002
90	9.66	0.0000	0.001
95	10.22	0.0000	0.001

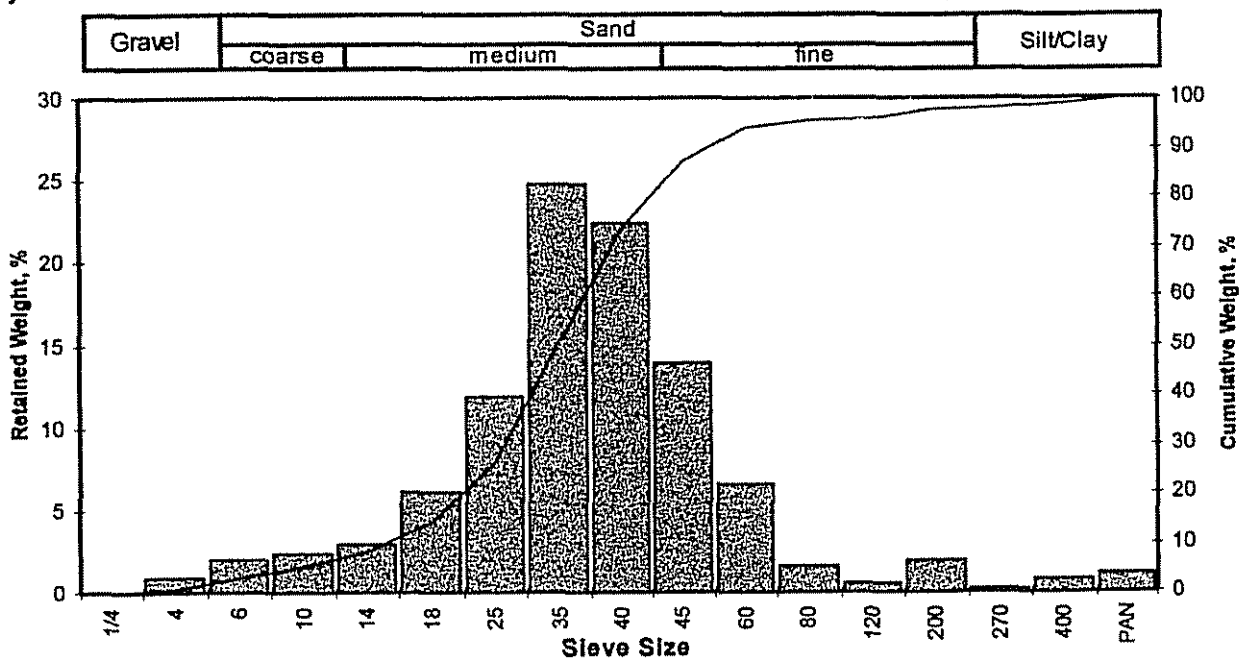
Measure	Trask	Inman	Folk-Ward
Median, phi	7.22	7.22	7.22
Median, in.	0.0003	0.0003	0.0003
Median, mm	0.007	0.007	0.007
Mean, phi	6.62	7.12	7.15
Mean, in.	0.0004	0.0003	0.0003
Mean, mm	0.010	0.007	0.007
Sorting	2.583	1.986	2.063
Skewness	1.022	-0.052	-0.101
Kurtosis	0.173	0.777	1.057
Grain Size Description (ASTM-USCS Scale)		Silt (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	0.00
Fine Sand	200	8.19
Silt	>0.005 mm	52.53
Clay	<0.005 mm	41.28
	Total	100

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D422

Client:	Pacific Edge Engineering.	**PTS File No:**	33047
Project:	AMVAC	**Sample ID:**	AOC06-01-2'0"
Project No:	0102.0004.001.002	**Depth, ft:**	2'0"-2'4"



Opening Inches	Opening Millimeters	Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.18	0.87	0.87
0.1324	3.364	-1.75	6	0.43	2.08	2.96
0.0787	2.000	-1.00	10	0.48	2.33	5.28
0.0557	1.414	-0.50	14	0.60	2.91	8.19
0.0394	1.000	0.00	18	1.27	6.16	14.35
0.0278	0.707	0.50	25	2.46	11.92	26.27
0.0197	0.500	1.00	35	5.11	24.77	51.04
0.0166	0.420	1.25	40	4.62	22.39	73.44
0.0139	0.354	1.50	45	2.87	13.91	87.35
0.0098	0.250	2.00	60	1.35	6.54	93.89
0.0070	0.177	2.50	80	0.32	1.55	95.44
0.0049	0.125	3.00	120	0.11	0.53	95.98
0.0029	0.074	3.75	200	0.39	1.89	97.87
0.0021	0.053	4.25	270	0.05	0.24	98.11
0.0015	0.037	4.75	400	0.16	0.78	98.89
			PAN	0.23	1.11	100.00
TOTALS				20.63	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	-1.09	0.0839	2.131
10	-0.35	0.0503	1.277
16	0.07	0.0375	0.953
25	0.45	0.0289	0.734
40	0.78	0.0230	0.584
50	0.98	0.0200	0.507
60	1.10	0.0184	0.467
75	1.28	0.0162	0.412
84	1.44	0.0145	0.369
90	1.70	0.0121	0.307
95	2.36	0.0077	0.195

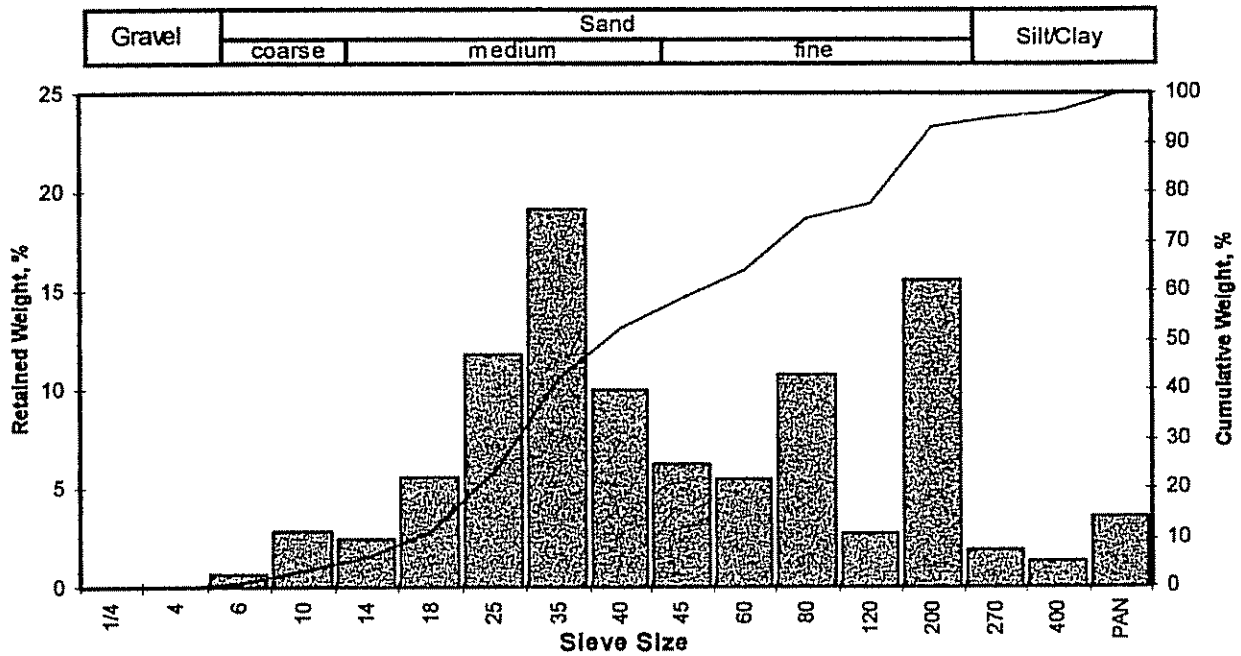
Measure	Trask	Inman	Folk-Ward
Median, phi	0.98	0.98	0.98
Median, in.	0.0200	0.0200	0.0200
Median, mm	0.507	0.507	0.507
Mean, phi	0.80	0.75	0.83
Mean, in.	0.0226	0.0233	0.0222
Mean, mm	0.573	0.593	0.563
Sorting	1.334	0.685	0.865
Skewness	1.084	-0.327	-0.264
Kurtosis	0.166	1.516	1.700
Grain Size Description (ASTM-USCS Scale)		Medium sand (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.87
Coarse Sand	10	4.41
Medium Sand	40	68.15
Fine Sand	200	24.43
Silt/Clay	<200	2.13
	Total	100

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D422

Client:	Pacific Edge Engineering	**PTS File No:**	33047
Project:	AMVAC	**Sample ID:**	AOC06-03-10'4"
Project No:	0102.0004.001.002	**Depth, ft:**	10'4"-10'8"



Opening Inches	Opening Millimeters	Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.15	0.67	0.67
0.0787	2.000	-1.00	10	0.63	2.81	3.48
0.0557	1.414	-0.50	14	0.55	2.45	5.93
0.0394	1.000	0.00	18	1.24	5.53	11.47
0.0278	0.707	0.50	25	2.65	11.83	23.29
0.0197	0.500	1.00	35	4.29	19.14	42.44
0.0166	0.420	1.25	40	2.25	10.04	52.48
0.0139	0.354	1.50	45	1.39	6.20	58.68
0.0098	0.250	2.00	60	1.23	5.49	64.17
0.0070	0.177	2.50	80	2.40	10.71	74.88
0.0049	0.125	3.00	120	0.61	2.72	77.60
0.0029	0.074	3.75	200	3.49	15.57	93.17
0.0021	0.053	4.25	270	0.42	1.87	95.05
0.0015	0.037	4.75	400	0.30	1.34	96.39
			PAN	0.81	3.61	100.00
TOTALS				22.41	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	-0.69	0.0635	1.614
10	-0.13	0.0432	1.096
16	0.19	0.0345	0.876
25	0.54	0.0270	0.686
40	0.94	0.0206	0.523
50	1.19	0.0173	0.439
60	1.62	0.0128	0.325
75	2.52	0.0069	0.174
84	3.31	0.0040	0.101
90	3.60	0.0033	0.083
95	4.24	0.0021	0.053

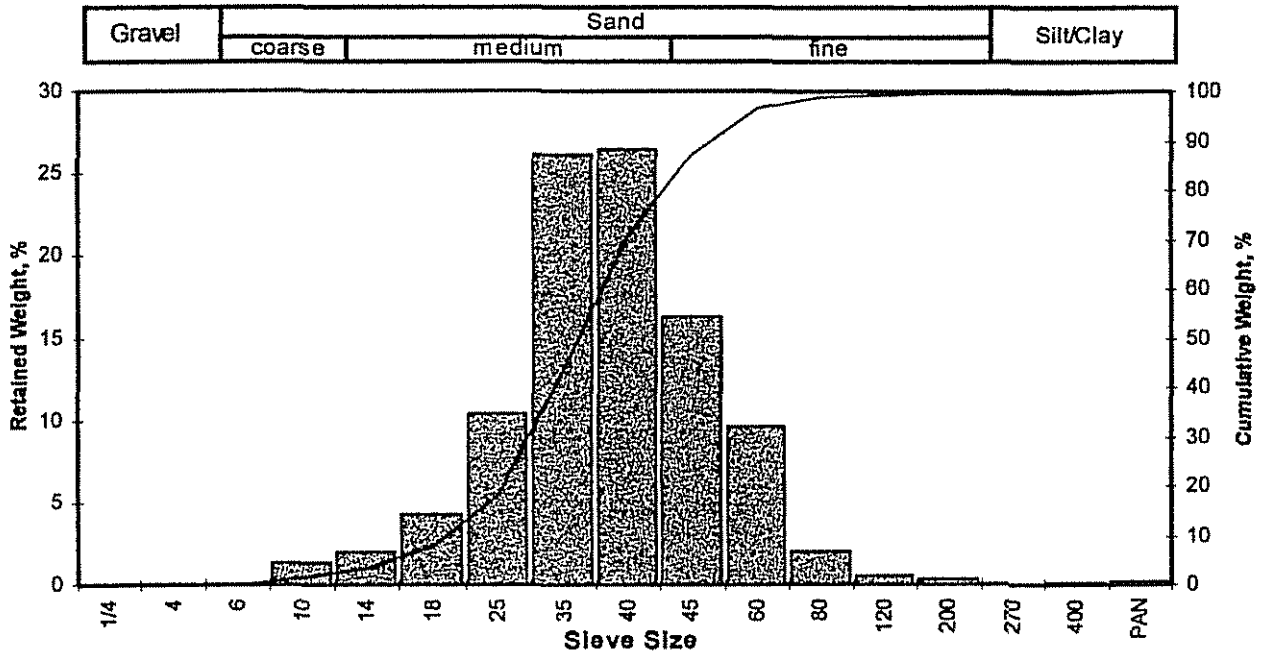
Measure	Trask	Inman	Folk-Ward
Median, phi	1.19	1.19	1.19
Median, in	0.0173	0.0173	0.0173
Median, mm	0.439	0.439	0.439
Mean, phi	1.22	1.75	1.56
Mean, in	0.0169	0.0117	0.0133
Mean, mm	0.430	0.297	0.339
Sorting	1.985	1.558	1.526
Skewness	0.787	0.360	0.299
Kurtosis	0.252	0.581	1.021
Grain Size Description (ASTM-USCS Scale)		Medium sand (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	3.48
Medium Sand	40	49.00
Fine Sand	200	40.70
Silt/Clay	<200	6.83
	Total	100

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D422

Client:	*Pacific Edge Engineering*	**PTS File No:**	33047
Project:	AMVAC	**Sample ID:**	AOC06-01-7'4"
Project No:	0102.0004.001.002	**Depth, ft:**	7'4"-7'8"



Opening Inches	Opening Millimeters	Phi of Screen	U.S. Sieve No.	Sample Weight grams	Incremental Weight, percent	Cumulative Weight, percent
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.54	1.39	1.39
0.0557	1.414	-0.50	14	0.81	2.08	3.47
0.0394	1.000	0.00	18	1.68	4.32	7.79
0.0278	0.707	0.50	25	4.03	10.36	18.15
0.0197	0.500	1.00	35	10.18	26.17	44.32
0.0166	0.420	1.25	40	10.32	26.53	70.85
0.0139	0.354	1.50	45	6.32	16.25	87.10
0.0098	0.250	2.00	60	3.76	9.67	96.76
0.0070	0.177	2.50	80	0.78	2.01	98.77
0.0049	0.125	3.00	120	0.21	0.54	99.31
0.0029	0.074	3.75	200	0.13	0.33	99.64
0.0021	0.053	4.25	270	0.01	0.03	99.67
0.0015	0.037	4.75	400	0.05	0.13	99.79
			PAN	0.08	0.21	100.00
TOTALS				38.90	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	-0.32	0.0492	1.251
10	0.11	0.0366	0.929
16	0.40	0.0299	0.760
25	0.63	0.0254	0.646
40	0.92	0.0208	0.529
50	1.05	0.0190	0.482
60	1.15	0.0178	0.451
75	1.31	0.0158	0.402
84	1.45	0.0144	0.365
90	1.65	0.0125	0.319
95	1.91	0.0105	0.266

Measure	Trask	Inman	Folk-Ward
Median, phi	1.05	1.05	1.05
Median, in.	0.0190	0.0190	0.0190
Median, mm	0.482	0.482	0.482
Mean, phi	0.93	0.92	0.97
Mean, in.	0.0206	0.0207	0.0201
Mean, mm	0.524	0.527	0.511
Sorting	1.267	0.528	0.602
Skewness	1.058	-0.245	-0.239
Kurtosis	0.200	1.113	1.339
Grain Size Description (ASTM-USCS Scale)		Medium sand (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	1.39
Medium Sand	40	69.46
Fine Sand	200	28.79
Silt/Clay	<200	0.36
	Total	100