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Remedial Action Completion Report for Operable Unit 2 Purity Oil Sales Superfund Site

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October 14, 2008

Project No. 06-113

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Purity Oil Sales Superfund Site
Malaga, California
OU-2 Remedial Action Completion Report

Dear Mr. Riley:

Enclosed are two copies of the Remedial Action Completion Report for Operable Unit No. 2 for the Purity Oil Sales Superfund Site in Malaga, California.

Please do not hesitate to call or email me if you have any questions at (714) 388-1804 or tzeier@projectnavigator.com.

Sincerely,

Tamara Zeier

Tamara Zeier, P.E.
Purity Oil Sales Superfund Site Project Coordinator

TZ:tz

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Remedial Action Completion Report
for Operable Unit 2
Purity Oil Sales Superfund Site

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1.0 Introduction

1.1 PURPOSE

This document serves as the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Final Remedial Action Completion Report (Final RA Report) for Operable Unit 2 (OU-2) at the Purity Oil Sales Superfund Site in Malaga, California (Site). The remedial action requirements for OU-2 were defined in the United States Environmental Protection Agency (USEPA) Record of Decision Amendment (ROD Amendment), dated June 30, 2006. This document has been prepared to meet the USEPA guidelines for CERCLA site closeout as described in EPA OSWER Directive No. 9320.2-09A-P, *Closeout Procedures for National Priorities List Sites* (January 2000).

1.2 SITE BACKGROUND

The Site encompasses approximately seven acres in the township of Malaga in Fresno County, California. The Site is a former used-oil recycling facility in an area zoned for heavy industrial use. The location of the Site is shown on Figure 1-1.

Between 1934 and 1975, several different owners recycled waste oil at the Site. The waste oil and byproducts of the recycling process, including acidic sludges and clay- and oil-containing filter cake, were disposed in several unlined waste pits. In 1975, the waste pits were filled with construction debris; however, there is no data available indicating whether the waste oil was emptied from the pits at that time.

1.3 SITE HYDROLOGY AND HYDROGEOLOGY

Geologic units in the Fresno area are comprised of consolidated rock and unconsolidated deposits. Consolidated strata consist of basement complex pre-Tertiary-age rocks and marine and continental rocks of Cretaceous and Tertiary age. The basement rocks also form most of the foothills region east of Fresno. The consolidated rock averages 13,000 feet thick and is approximately 3,000 feet below ground surface (bgs).

The consolidated marine and continental rocks consist mostly of sandstone, siltstone, and shale and occur at depths greater than 1,000 feet. The unconsolidated deposits are comprised of deep continental deposits of Tertiary and Quaternary age and the overlying exposed deposits of Quaternary age. The unconsolidated materials in the Malaga area were deposited by thick alluvial fans (Great Valley fan deposits) formed by the drainage of the Kings River off the Sierra Nevada Mountains to the northeast. A portion of the drainage area 24 miles northeast of

Malaga consists of iron- and manganese-rich Mesozoic ultrabasic intrusive and metavolcanic rocks.

Quaternary deposits are divided into older alluvium, lacustrine, and marsh deposits, younger alluvium, floodplain alluvium, and sand dunes. At the Site, the younger alluvium is the sedimentary deposits of fluvial arkosic beds that are interbedded with flood plain deposits. The younger alluvium makes up the fine silty sand and is 0 to 70 feet thick. The younger alluvium is similar to the underlying older alluvium and is highly lithologically variable and contains lenses of poorly-sorted and well-sorted sandy silt, silty sand, and clayey sand. The deposits may also contain lenses of sand and some gravel deposits. These are typical meandering river sedimentary deposits of an alluvial plain facies model.

The Site is located in the San Joaquin River Basin and consists of unconsolidated floodplain and alluvial deposits formed by the San Joaquin and Kings Rivers. Based upon an investigation in 2003, the soil types encountered at the Site generally range from clay to poorly sorted, fine grained sand to depths of 170 feet. A dense, well-cemented sand layer is encountered between a depth of 10 to 15 feet bgs over most of the Site. This dense layer does not represent a hydraulic barrier.

The current hydrogeological site conceptual model assumes two primary water-bearing intervals impacted by contamination from Site sources: the shallow interval, groundwater approximately 55 to 75 feet bgs; and the intermediate interval, groundwater approximately 80 to 100 feet bgs. The interval characterized as the deep interval, groundwater at depths greater than 100 feet bgs, does not appear to be significantly impacted by Site contamination, although concentrations of several volatile organic compounds (VOCs) have sporadically been detected at, or near, their respective ROD, maximum contaminant level, or remediation goal (ROD/MCL/RG) levels in samples collected from wells MW-6D and MW-34I. Aquifer testing indicates that even though the aquifer contains identifiable intervals, these intervals may act as one hydrostratigraphic unit. The silt separating the intervals only impedes downward migration of containments, but does not stop the migration. This conclusion is supported by the ongoing water level and water quality monitoring results.

A summary of the hydrogeologic system as of May 2008 is as follows:

- Groundwater measured in the shallow, intermediate, and deep intervals is encountered at a depth ranging from 60.82 to 80.00 feet below ground surface across the Site.
- Based on hydraulic testing performed at the Site, the hydraulic conductivity ranges from 0.39 to 270 feet per day (ft/day) with a geometric mean hydraulic conductivity of 8 ft/day.
- Groundwater flow is generally to the northwest.

- The hydraulic gradient for the Site is 0.0021 in the shallow and intermediate interval and 0.0020 in the deep interval. The groundwater flow direction is to the northwest for both intervals.

- Pertaining to the shallow and intermediate intervals: Based on the mean hydraulic conductivity of 8 ft/day, a hydraulic gradient of 0.0021, and an effective porosity of 0.20, the average horizontal groundwater velocity is 31 feet per year (ft/year).

- Pertaining to the deep interval: Based on the mean hydraulic conductivity of 8 ft/day, a hydraulic gradient of 0.0020, and an effective porosity of 0.20, the average horizontal groundwater velocity is 29 ft/year.

- No drinking water wells are located within 1 mile downgradient of the Site. Currently there are no production wells in the area, with the exception of irrigation production well MW-35P, near the corner of Cedar and North Avenues, which operates periodically. A private production well, identified as "Well X" in the Remedial Investigation Report (Harding and Lawson, 1986), is located approximately 350 feet upgradient of the Site on property designated as Cal-Sandblasting, formerly Vangas Propane Company.

- Groundwater levels at the Site (and in the Fresno area in general) have been steadily decreasing since 1921, according to historical water levels recorded from Site monitoring wells documented in the 1986 Harding Lawson Remedial Investigation Report and subsequent Quarterly Groundwater Monitoring Reports (1984-1987 and 1995-2008). The groundwater levels have been decreasing at an annual average rate of 0.61 feet from 1921 to 2002. Over the past 20 years, the average groundwater elevation has decreased approximately 20.8 feet (1.04 ft/year) in the shallow to intermediate zone. More specifically, historical trend analysis of the wells indicate that the groundwater elevation in the shallow to intermediate zone has decreased approximately 7.6 feet on average over the past 5 years (1.52 ft/year). These rates are based on the average water level across the entire Site.

1.4 SURROUNDING PROPERTIES

The Site is located in an industrial area of Malaga, Fresno County. The surrounding properties include: a moving van storage facility and a sandblasting facility to the east; a metal recycling facility and former residential trailer park to the north; a former convenience market to the northeast; a composting facility to the west; and an automotive wrecking facility to the south. The locations of the Site and surrounding properties are shown on Figure 1-1.

2.0 Operable Unit 2 Background

2.1 REGULATORY OVERVIEW

The Purity Oil Sales Site was included on the National Priority List (NPL) in September 1983 following soil, groundwater, and air quality investigations conducted by the USEPA, Department of Health Services and the Regional Water Quality Control Board. The USEPA is addressing Site remediation with the designation of two Operable Units (OUs): OU-1 Groundwater and Tanks; and OU-2 Soil Remediation. Detailed discussion of the OU-1 remedy can be found in the March 2004 *OU-1 Improvement Alternative Evaluation Work Plan* and the October 2003 *OU-1 Improvement Evaluation.*

In 1992, the USEPA signed the ROD for containment of contaminated soils on the Site. Chevron Environmental Management Corporation (CEMC) initiated the implementation of the ROD in 2000. Acidic sludges were encountered during construction activities that were conducted at the Site in 2001. The USEPA presented seven conceptual remedial alternatives to CEMC that were designed to address the acidic sludges. One of the alternatives consisted of neutralizing the entire waste layer (typically consisting of sludge, soil and debris of various amounts) with calcium carbonate. CEMC decided to further evaluate this alternative by conducting a field scale pilot study at the Site.

In April 2003, CEMC initiated a neutralization pilot test, in accordance with the USEPA conditionally-approved document; *Neutralization Pilot Test Work Plan for OU-2 Closure, Purity Oil Sales Superfund Site, Malaga, Fresno County, California* dated January 22, 2003. The purpose of the pilot test was to identify and define procedures that would be included in the final work plan so that the sludge neutralization remedy could be implemented in a manner that is protective of human health and the environment. Procedures investigated during the pilot test included neutralization activities, backfill and material handling scenarios, quality assurance testing, health and safety oversight, and air monitoring and sampling. The neutralization pilot testing was completed in June 2003.

In August 2003, the *Neutralization Remedial Action Work Plan for OU-2 Closure, Purity Oil Sales Superfund Site*, was submitted to USEPA to detail the full-scale sludge neutralization process CEMC proposed to implement for OU-2. The *Neutralization Remedial Action Work Plan Addendum for OU-2 Closure Cap, Purity Oil Sales Superfund Site* was submitted to the USEPA in January 2004 to detail the final design components of the closure cap.

In April 2005, the USEPA issued the Proposed Plan for the Site to address changes to the scope of work in the ROD. In October 2005, the draft *Remedial Action Work Plan* (RAWP) for OU-2 was submitted to the USEPA. In July 2006, the USEPA issued the ROD Amendment for

OU-2. On October 19, 2006 and February 2, 2007, the USEPA conditionally approved the final RAWP for on-site and off-site activities, respectively.

2.2 CLEANUP GOALS

The objective of Site remediation is to protect human health and the environment. The remedial action objectives (RAOs) listed in the ROD Amendment are included below:

On-Site Objectives

- Prevent contact of acidic sludge and acid liquids with the cap liner to increase the remedy's overall protection of human health and the environment.
- Prevent human exposure (through direct contact) with contaminated soils containing chemicals of concern (COCs) at concentrations exceeding applicable or relevant and appropriate requirements (ARARs) and to be considered (TBC) criteria for soil.
- Prevent or minimize further migration of contaminants from source material to groundwater.
- Prevent migration of contaminated groundwater to local domestic or irrigation wells.

Off-Site Objectives

- Prevent acidic sludge and other site-related contaminants from coming in contact with industrial workers on properties adjacent to the site (Pick-A-Part Auto Wrecking, Bruno's Iron and Metal, and Tall Trees Mobile Home Park) and residents on the Golden State Market (GSM) property.
- Remove acidic sludge and contaminated soil containing COCs at concentrations exceeding health-based action levels at properties adjacent to the Site.
- Prevent or minimize further migration of contaminants from source material to groundwater.
- Prevent migration of contaminated groundwater to local domestic or irrigation wells.
- Remediate COCs in soil and groundwater to drinking water standards and other health-based action levels to reduce risks from potential exposure to indoor air contaminants whose source is site-related contamination.
- Prevent further migration of soil vapor containing COCs at concentrations exceeding ARARs and TBC criteria.

2.3 COMPONENTS OF OU-2 REMEDY

The OU-2 remedy focused on impacts of Purity Oil's historic operations on the soil at the Site from ground level to the water table and consisted of neutralization of the sludge, capping the Site, and installation of a soil vapor extraction (SVE) system.

Neutralization consisted of excavating overburden soil and sludge, mixing the excavated sludge with calcium carbonate, if needed, and backfilling the neutralized sludge/soil mixture. Sludge from off-site stemming from Purity Oil's historic operations was also excavated and brought on-site for neutralization, if necessary, and subsequent backfilling. Additionally, some impacted soils from off-site were excavated and brought to the Site for placement under the cap. Neutralization of the acidic sludge removed residual sulfuric acid from the sludge and eliminated the formation of sulfur dioxide gas.

A cap was installed above the neutralized material. The closure cover system prevents direct contact with neutralized materials and limits infiltration of water through the cap. The closure cover system consists of a 6-inch thick cushion layer, a geosynthetic clay liner (GCL), a geocomposite drainage layer (GDL), and a 2-foot thick imported vegetative cover layer.

The final phase of the OU-2 remedy will be the installation of an SVE system to address potential VOC impacts in the soil from approximately 14 feet bgs to the groundwater level. The SVE system has not been installed at this time, and will be documented in a separate report upon completion.

3.0 Construction Activities

This section provides a summary of the construction activities conducted to implement the ROD and ROD Amendment for OU-2 at the Site. The activities included a pilot study in 2003 and the full-scale implementation of the scope of work required by the ROD Amendment from July 2006 through June 2008. The full-scale implementation activities were conducted in accordance with the RAWP. Deviations from the RAWP were documented in Field Change Requests (FCRs) and Problem Identification and Corrective Measures Reports (PI&CMRs) which are summarized in Section 3.10. The quality control testing and procedures are summarized in Section 6.0.

3.1 NEUTRALIZATION PILOT STUDY

In April 2003, CEMC initiated the neutralization pilot study, in accordance with the USEPA conditionally-approved document; *Neutralization Pilot Test Work Plan for OU-2 Closure, Purity Oil Sales Superfund Site, Malaga, Fresno County, California*. The purpose of the pilot study was to identify and define procedures that would be included in the final work plan so the sludge neutralization remedy could be implemented in a manner that is protective of human health and the environment. The pilot study was completed in June 2003.

The following sections provide a summary of the activities conducted during the pilot study.

3.1.1 Neutralization Activities

The pilot study neutralization activities began on April 22, 2003. The Site was divided into 30-foot by 30-foot grids to create neutralization areas containing approximately 430 cubic yards (CY) of material. A total of approximately 5,485 CY of sludge material was excavated and neutralized on-site during the neutralization pilot study, as summarized on Table 3-1. The extent of the excavations is shown on Figure 3-1.

Neutralization was completed in a two-step process; calcium carbonate was initially mixed with waste layer material to provide maximum reagent contact with the sludge, and then overburden soils were added and the entire batch was mixed again. The amount of calcium carbonate required to neutralize the sludge-impacted materials was calculated as a percent (by weight) of sludge-impacted material for each batch. The required reagent was determined by field titrations. The weight percentage of calcium carbonate to sludge ranged from 2.2 to 15.6 percent during the pilot study. Approximately 840 tons of calcium carbonate were used in the pilot neutralization process, representing approximately 6.7 percent by weight of the total neutralization recipe. Neutralized batch pHs ranged from 5.0 to 9.2, with an average pH of 6.2. All batches met the 5.0 pH criteria for neutralization. Upon obtaining the desired pH, each batch was removed from the mixing area and stockpiled for placement and compaction. A summary of the pH testing procedures is included in Section 6.0.

The sludge was neutralized in batches ranging from 150 to 757 CY with an average volume of 299 CY of material (sludge, calcium carbonate, and overburden soil). A total of 57 batches of sludge were neutralized during the pilot study with a total volume of approximately 17,032 CY, as summarized on Table 3-1. The total batch volume of 17,032 CY consisted of approximately 5,485 CY of sludge material, 10,944 CY of overburden material, and 603 CY of calcium carbonate.

3.1.2 Backfilling and Material Handling

The wetted calcium carbonate fines were delivered to the Site by trucks and the material was staged near the ex-situ mixing area. Volumes of calcium carbonate delivered and used were logged and tabulated. Water was added as necessary during placement to reduce dusting, although the particle size of the carbonate fines was large enough to minimize dusting even without water.

During placement of calcium carbonate fines into the gridded areas, large debris (greater than two feet in diameter) were removed and set aside so it would not interfere with mixing operations. Calcium carbonate was added in small percentages until neutralization goals were achieved, based on the field pH testing. Volumes of calcium carbonate and the results of the pH testing are summarized on Table 3-1.

The acidic sludge and soils were excavated from the grid and mixed with calcium carbonate ex-situ using an excavator bucket until a somewhat homogeneous material was formed. Visual observation provided the best qualitative measurement of adequate mixing because the material gradually blended to appear like a dark, humic topsoil which indicated complete mixing (when lesser amounts of sludge are present, the final mix did not appear as dark). However, samples tested for pH provided the quantitative indicator of adequate mixing (if a sample failed the pH test, additional dosing and mixing of calcium carbonate were performed). The one-point Proctor test was also used to verify the material exhibited consistent density and water content parameters.

Neutralization during the first three weeks of pilot testing was conducted using an excavator to blend the sludge-impacted material, calcium carbonate, and soils. After the third week, an excavator-mounted mixing head was used to mix the excavated materials. The mixing head was a toothed drum attachment that could be rotated at 100 revolutions per minute (rpm) to blend the neutralized materials. Operating with the excavator-mounted mixing head increased batch sizes and decreased mixing times without sacrificing mix quality. The only limitation encountered with the mixing head occurred in debris-laden material where excessive concrete would damage the attachment. In this case, mixing was completed with the excavator bucket. Additional soil and water was added, as necessary, to achieve the appropriate soil-to-sludge ratio and to increase the moisture content of the material to approximately 10 percent. Mixing

was conducted in a designated area, with the excavator lifting, placing, and turning the mixture until a consistent texture was observed and all components appeared to be well mixed.

Debris larger than two feet in size was separated from the excavated material and placed in lifts during the backfill process. Large pieces of concrete were broken into manageable sizes and lifts of concrete and debris were placed in the center of the backfill footprint (inside the perimeter slopes) and surrounded by a minimum of one foot of compacted neutralized soil. Concrete was placed using the excavator bucket to minimize void space and neutralized material was placed and compacted directly above each lift. Approximately 300 tons of concrete debris was placed within the footprint of the excavated material.

3.1.3 Quality Assurance Testing

Various mix recipes were also evaluated during the pilot study neutralization activities. Initial batches were prepared at a volume ratio of three parts overburden soil to one part waste layer material, as prescribed by initial bench scale testing results. However, due to the presence of significant amounts of soil and debris in the waste layer (often as high as 50 percent), lower mix ratios were examined. Batches were reduced to a mix ratio of two parts soil to one part waste layer material for the majority of the pilot test and successful batches were completed at ratios as low as one to one. All batch recipes conducted during the pilot test exhibited sufficient strength properties to support the slope stability analysis. A detailed summary of the quality control testing is provided in Section 6.0, and a brief summary is presented below:

Neutralization Batch Mixes

Prior to mixing a batch of sludge, a sample was collected from the sludge material to determine the average initial pH. Samples were analyzed using an on-site laboratory in accordance with SW846 Method 9045D. Based on the initial pH and the volume of sludge, the volume of calcium carbonate required to neutralize the sludge to a pH greater than 5.0 was calculated. A total of 57 batches of sludge were neutralized with an average calcium carbonate dosage of 6.7 percent. Table 3-1 provides a summary of the mix batches including: the batch number; the date completed; the volumes of sludge, calcium carbonate, and soil in the batch; and the initial and final pH of each batch. A detailed summary of quality control testing for the pilot study neutralization batch mixes is included in Section 6.1.

Compaction Density Testing

After the sludge material was neutralized, the neutralized material was placed as backfill in the excavation. The material was placed in lifts and compacted using a vibratory roller. Compaction tests were conducted on the placed, compacted material for quality control purposes. A detailed summary of the quality control compaction testing from the pilot study is included in Section 6.2. A brief summary is provided below:

During the first two weeks of backfill and compaction, sand cone, drive cylinder, and nuclear density gauge testing were conducted to determine which of these tests (if any) could be used to verify the density of the neutralized material during the full scale neutralization. Nuclear gauge results provided accurate wet density measurements, but inaccurate water content readings due to the presence of sludge in the material. Sand cone tests provided reliable density and water content measurements, but the results were consistently higher than those for the drive cylinder. Of the three tests, the drive cylinder provided the most conservative and consistent measurements for compacted soil density and water content.

Approximately 4,000 CY of neutralized material were placed and compacted on the west end of the Site. Neutralized material was placed in 12-inch lifts and compacted with a sheep's-foot compactor. Density testing was completed in random areas to ensure the compacted material met or exceeded the 107 pounds per cubic foot (pcf) wet density criteria required to support the slope stability analysis. A summary of the pilot study density testing is included in Table 3-2.

3.2 TEST PIT INVESTIGATION

In order to estimate the extent of sludge within the proposed cap footprint and to evaluate any impacted soils near the GSM backyard, a series of test pits were excavated between June 14 and June 27, 2006. The investigation was conducted in accordance with the comments provided by the USEPA in a letter dated January 10, 2006, and discussions during a subsequent conference call on January 19, 2006, the *Test Pit Investigation Work Plan* dated June 7, 2006, and a June 7, 2006 letter responding to the USEPA's comments on the work plan. A letter summarizing the test pit investigation was previously submitted to the USEPA in August 2006. A brief summary of the test pit investigation is provided below:

A total of 18 test pits (TP-1 through TP-7, TP-10 through TP-19 and TP-21) were excavated on the eastern portion of the Site and in the GSM backyard to delineate the extents of sludge impacts at the locations shown on Figure 3-2. The test pits were excavated to a depth of 15 feet bgs, except TP-21. TP-21 was originally terminated at a depth of 13 feet bgs because of an obstruction. The area near TP-21 was re-excavated during the full-scale neutralization activities to a depth of 15 feet bgs, and the previous obstruction was determined to be a hardened caliche layer. Test pits TP-13 through TP-16 and TP-17 through TP-19 were completed by continuously excavating through each test pit location to a depth of 15 feet bgs. Photographs of the test pit investigation activities are included as Appendix A.

The subsurface soils in the area of the test pits generally consisted of brown silty sand in the upper 5 to 10 feet, underlain by gray silty sand that extended to a minimum depth of 15 feet bgs. No debris was encountered during the test pit investigation. No visual evidence of acidic sludge was observed in any of the test pits during the excavation activities. In addition, large pieces of concrete or other debris were not encountered during the investigation.

During excavation of the test pits, soil samples were collected from various depths and analyzed for pH using SW846 EPA Method 9045D by Stantec's on-site laboratory. A summary of the pH sample results is included in Table 3-3. The pH values of all of the test pit samples ranged from 3.97 to 9.22. The pH data was evaluated against two pH values previously collected at the Site. Those two values included:

- A pH of 2.0 which correlates to the pH value of material at the Site which have in the past exhibited visual characteristics of acidic sludge.
- A pH of 5.0 which is the conservative definition used in the ROD Amendment and the post-neutralization requirement for the treatment of acidic sludge.

As the data in Table 3-3 indicates, all pH values from the test pit samples were greater than 2.0 and only three test pit locations (TP-1, TP-13 and TP-14) contained pH results (4.50, 3.97 and 4.96, respectively) that were less than 5.0. These pH samples were collected from a seam of black stained soils in the upper 2 feet of these test pits. The soils consisted of silty sand and did not exhibit any physical or visual characteristics of acidic sludge. Several other test pits contained stained soils in the upper 2 feet, but did not exhibit pH values below 5.0. The probable causes for the stained soils and the stained soils with pH values less then 5.0 are waste oils being spilled on the ground surface or being placed on the ground surface for dust control during previous operations at the Site. Based on the results of the investigation, it was determined that no acidic sludges were present in the test pit areas.

Following completion of the test pit activities, the test pits were backfilled by placing soils removed from the test pit excavation into the excavation in 12-inch lifts as agreed upon with USEPA prior to beginning the work. Each 12-inch lift of backfill was compacted using an excavator-mounted compactor or in one case with the excavator bucket. Once the excavations were backfilled to a depth of 4 feet bgs, density samples were collected to verify the compaction standards of 90% of the modified Proctor density and within 3 percent of the optimum moisture content were met. The results of the density tests are summarized in Table 3-4.

Once the test pits were backfilled and compacted, the areas were graded to match existing grades using a bulldozer.

3.3 SITE PREPARATION

3.3.1 Post-Pilot Study Concrete Segregation

During the pilot study conducted from April 2003 through June 2003, a significant amount of concrete and other debris was encountered in the west end of the Site. The presence of concrete and debris created difficulties in neutralizing the excavated sludge, therefore, the concrete and debris had to be segregated from the excavated sludge. From August 2003 through December 2003, a post-pilot study test was conducted to evaluate different methods of

segregating the concrete and other debris to make neutralization more efficient. The goals for the post-pilot study concrete segregation activities were to:

- Assess different methods to remove large concrete and debris;
- Determine an approximate percentage of concrete and debris for planning purposes; and
- Evaluation of the impact that screening the material would have on the neutralization activities.

The post-pilot study activities were conducted in the western portion of the Site from approximately gridline F through gridline L, as indicated on Figure 3-1. The first phase of the post-pilot study concrete segregation activities was to excavate the overburden material and screen the material using a mechanical screen to remove concrete and debris larger than 12 inches. The screened overburden material was stockpiled for use as backfill and to mix with excavated sludge during the neutralization activities. The concrete and debris was broken down into pieces smaller than 12 inches in diameter using an excavator bucket and an excavator mounted hammer. The debris was stockpiled for use as backfill during the full-scale neutralization activities.

Once the overburden was removed, sludge material was excavated and screened to remove concrete and debris larger than 12 inches in diameter. Prior to excavation of the sludge material, a small amount of calcium carbonate (< 5% by weight) was spread over the area to be excavated to control odors during the excavation and screening process. The screened sludge material was placed in a temporary stockpile location and covered daily with overburden material to minimize the amount of exposed sludge. The concrete and debris was placed on the concrete/debris stockpile for later use as backfill.

During the post-pilot study concrete segregation activities, a total of approximately 21,000 CY of overburden, sludge material, impacted soil, and concrete was excavated. The screened sludge material and impacted soils were placed in the western end of the excavation. The material was covered with overburden to minimize exposure to the neutralized sludge. The concrete and debris remained in a stockpile until the full-scale implementation of the ROD Amendment that began in 2006.

Based on the post-pilot study activities, it was determined that screening excavated material with a mechanical screen was the most effective and efficient way to remove large pieces of concrete and debris prior to neutralization. The post-pilot study activities also provided an estimate for the amount of concrete which would be encountered during the full scale neutralization activities. It was estimated that concrete and debris would comprise approximately 5 to 10 percent of the excavated material.

3.3.2 2006 Concrete Segregation

As part of the Site preparation activities, concrete segregation was also conducted from July 2006 through October 2006. The excavation extended from approximately gridline I to gridline W within the Site boundaries, as indicated on Figure 3-3. The area under the former calcium carbonate piles (approximate gridlines northing 2+25 by 5+25, easting T+35 by V+26) was not excavated based on the results of the test pit investigation indicating that sludge was not present under the calcium carbonate pile area. This is documented in Attachment A in the *Definable Features of Work Completion Report for Sludge Neutralization Activities* dated October 4, 2007.

Excavation of the overburden and sludge during this phase of site preparation was conducted in north to south segments from west to east. The overburden material was excavated and screened using a mechanical screen to remove concrete and debris larger than 12 inches. The screened overburden material was stockpiled at the west end of the Site for use as backfill and to mix with excavated sludge during the neutralization activities. Once the overburden material was excavated, a small amount of calcium carbonate was spread over the exposed area to control odors during the excavation and screening process of sludge impacted material. The screened sludge material was placed in a temporary stockpile location and covered daily with overburden material to minimize the amount of exposed sludge.

The concrete and debris were screened through a mechanical screen and broken into pieces smaller than approximately 12 inches in the longest dimension, with at least one dimension smaller than 8 inches. The concrete and debris was broken down using an excavator bucket and an excavator mounted hammer. Approximately 2,110 CY of concrete was segregated from the excavated material during site preparation activities, as indicated on Table 3-5. The processed concrete was stockpiled until it was placed between lifts of neutralized material. Some of the non-concrete debris, such as tires and metal, was stockpiled and disposed of at an appropriate disposal facility. When necessary, a small amount of calcium carbonate was spread over the excavated materials to control potential odors from residual sludge exposed on the concrete and debris.

3.4 FULL-SCALE NEUTRALIZATION ACTIVITIES

The sludge neutralization activities were conducted to comply with the June 30, 2006 ROD Amendment, and in accordance with the approved RAWP.

The sludge neutralization activities included the following tasks:

- Excavation of the overburden material at the Site;
- Excavation of the sludge materials at the Site;

- Segregation of concrete and other debris from the excavated materials;
- Neutralization of the sludge materials by the addition of overburden material and calcium carbonate;
- Placement of the neutralized sludge material in lifts;
- Placement of concrete and debris material in alternating lifts where applicable; and
- Grading of the placed material to meet the design grades.

The RAWP, the Construction Quality Assurance Plan/Construction Quality Control Plan (CQAP/CQCP), and the Sampling and Analysis Plan/Quality Assurance Project Plan (SAP/QAPP) included the following requirements for quality control testing which were conducted during the sludge neutralization activities:

- pH analysis of the excavated material;
- pH analysis of the sludge material to determine the volume of calcium carbonate addition required for the mix batches;
- Two, one-point Proctor analyses on the sludge material to determine the volume of overburden material required for the mix batches and to ensure the batches meet the specified density requirements;
- Three pH analyses of mixed batches to ensure the batches meet the specified pH requirements;
- Density and moisture content analyses conducted on the placed, compacted lifts;
- Surveying of the placed lifts;
- Confirmation pH sampling from the completed excavation; and
- Perimeter confirmation sampling.

The full-scale neutralization activities began on October 23, 2006 following two pilot mix batches of sludge material. A summary of the full-scale neutralization activities completed is provided in the following sections. A summary of the quality control testing is provided in Section 6.0.

3.4.1 Well Decommissioning

Several wells were located within the footprint of the full-scale neutralization activities and would have presented complications to the construction activities. In October of 2006, the wells were

decommissioned in accordance with the approved "On-Site Well Destruction Work Plan" dated July 28, 2006. A total of eight monitoring wells (MW-3, MW-5S, MW-5D, MW-6S, MW-6D, MW-7S, MW-7I, and MW-8), two groundwater extraction wells (EW-1 and EW-2), and two wells presumed to be soil vapor extraction wells (AE-1 and AE-2) were decommissioned between October 16 and October 19, 2006. The locations of the wells are shown on Figure 3-4. The wells were decommissioned in conformance with the California Well Standards Bulletin 74-90 (Supplement to Bulletin 74-81) and in accordance with Fresno County requirements.

A detailed summary of the well decommissioning was provided in a letter submitted to the USEPA titled "Well Destruction – Operable Unit 1 (OU-1)" dated November 30, 2006, and a brief summary is provided in this section. Decommissioning of the wells was accomplished using a CME-95 hollow-stem auger drilling rig. The wells were overdrilled and the empty boreholes were filled with a 5% bentonite/95% cement grout using a tremie pipe. Wells MW-3, MW-5S and MW-5D were completed with a concrete cap. The remaining wells were not completed with a concrete cap because the areas were to be excavated during subsequent work. A copy of the November 30, 2006 letter is provided in Appendix B.

3.4.2 Summary of Excavation

The excavation of sludge impacted material on-site included the area excavated during the Site preparation activities, as described in Section 3.3.2, and extended to the eastern portion of the property. The extent of the excavation is included on Figure 3-5. A total of approximately 30,000 CY of sludge impacted material and 11,000 CY of overburden was excavated from the Site during the 2006 Site preparation and full-scale neutralization activities. The depth of the excavation ranged between approximately 2 feet bgs and 16 feet bgs. The elevations of the excavation floor ranged between 280.8 feet above mean sea level (amsl) and 291.0 feet amsl. The on-site excavation was generally conducted from the west to the east. As necessary, the excavated material was stockpiled in the western portion of the Site such that it would not impede placement of the neutralized material and other Site activities.

During the excavation activities, overburden material was removed and stockpiled in the west end of the Site for use as cover and as a stabilizing agent during the sludge neutralization process. Once the overburden material was removed from an area small amounts of calcium carbonate were spread over the open area to control potential odors. Sludge impacted material was excavated until no sludge material was visibly present in the excavation floor or sidewalls. Confirmation pH samples were collected to verify no sludge material was present, as described in Section 3.4.3. The sludge impacted material was temporarily stockpiled until it was subjected to neutralization activities. Stockpiled sludge impacted material was covered daily with overburden material to minimize the possibility of exposure to the sludge.

The volumes of excavated material are indicated on Table 3-5. The extent of the excavations is shown on Figure 3-5.

3.4.3 Summary of Confirmation pH Sampling

Confirmation pH sampling was conducted in areas of completed on-site excavations between October 20, 2006 and August 22, 2007, in accordance with the RAWP. During the on-site excavation process, pH confirmation samples were collected at a rate of one sample for every 25 linear feet (LF) of excavation sidewall and one sample for every 625 square feet of excavation floor. The samples were analyzed using an on-site laboratory for pH in accordance with SW846 Method 9045D, as described in Section 6.0. Confirmation pH samples were also conducted in areas of additional on-site test pits. These test pits (TP-08, TP-09, and PUR-TP-24 through PUR-TP-53) were conducted in the sludge excavation area to a minimum depth of 4 feet below the excavation floor to verify the sludge excavation was complete and of sufficient depth. The additional test pits were conducted at the request of the USEPA as part of FCR-03. A minimum of one pH sample was conducted per test pit.

A total of 372 pH samples (including re-sampling events, and not including perimeter confirmation samples) were collected during the sludge excavation and neutralization activities. The on-site pH samples consisted of 228 excavation floor samples (PUR-EF-01 to PUR-EF-202, PUR-EF-232, and PUR-EF-233), 68 excavation sidewall samples (PUR-SW-01 to PUR-SW-29, PUR-SW-38 to PUR-SW-67, SWFIDESMT-S1, and SWFIDESMT-S2), and 76 test pit samples (TP-08-SW-02 to TP-09-EF-12, and PUR-TP24-SW-02 to PUR-TP53-EF-01). A summary of the pH sample results is included on Table 3-6. The locations of the pH samples are included on Figures 3-6 and 3-7.

The pH data was evaluated against two pH values previously collected at the Site. Those two values included:

- A pH of 2.0 which correlates to the pH value of material at the Site which have in the past exhibited visual characteristics of acidic sludge.
- A pH of 5.0 which is the conservative definition used in the ROD Amendment and the post-neutralization requirement for the treated acidic sludge.

A total of 72 of the samples exhibited a pH value less than 5.0. Two samples (PUR-SW-12 and PUR-TP25-SW-4.5) exhibited a pH value less than 2.0. The area in the vicinity of sample PUR-SW-12 was over excavated and re-sampled due to visible evidence of sludge. The area of sample location PUR-TP25-SW-4.5 did not show evidence of visible sludge, however in accordance with the RAWP, the area was over excavated and re-sampled verifying that soils with a pH of less than 2.0 were removed. The subsequent samples exhibited pH values above 2.0.

Headspace readings were also conducted on some of the on-site samples using a photo-ionization detector (PID), as indicated on Table 3-6. The PID readings ranged from 0.0 ppm to 92.9 ppm (PUR-EF-181).

Sampled areas were further excavated if there was visible evidence of sludge present. If no visible evidence of sludge was present in the area of a sample location, then no further excavation was conducted in accordance with the RAWP as modified by FCR-03.

Table 3-6 provides a summary of the pH sampling performed on-site. The locations of pH samples are shown on Figures 3-6 and 3-7. Field logs of the samples collected on-site are included as Appendix C.

3.4.4 Summary of Perimeter Confirmation Sampling

In accordance with the RAWP and SAP/QAPP as modified by FCR-03 or FCR-04 where applicable, confirmation samples were collected along the Site perimeter at a frequency of one sample per 100 LF. The samples were submitted to a laboratory and analyzed for VOCs, semi-volatile organic compounds (SVOCs), metals, cyanide, polychlorinated biphenyls (PCBs), pesticides, and total petroleum hydrocarbons (TPH). Samples were also collected for on-site pH analysis and PID readings.

The perimeter sample locations were pre-staked at the approximate locations depicted in the SAP/QAPP. Test pits were excavated at the sample locations utilizing a track mounted excavator. The test pits were excavated to a minimum of 4 feet bgs and with a relatively small dimension of approximately 4 feet wide by 10 feet long. The perimeter confirmation samples were then collected from sidewall and/or the excavation floor of each test pit.

Laboratory Analytical Results

Perimeter confirmation sampling was conducted between April 28 and August 9, 2007. A total of nineteen confirmation samples, consisting of two excavation floor samples (PUR-EF-230 and PUR-EF-231) and seventeen sidewall samples (BR-SW-13, BR-SW-14, BR-SW-24, BR-SW-25, PUR-SW-30 to PUR-SW-37, and PUR-SW-70 to PUR-SW-74) were collected from perimeter excavations and submitted for laboratory analyses. Additionally, three duplicate samples (PUR-SWD-33, PUR-SWD-71, and PUR-EFD-230), two matrix spike (MS) and matrix spike duplicate (MSD) samples (BR-SWMS-24 and BR-SWMSD-24, and PUR-SWMS-71 and PUR-SWMSD-71, respectively), and two USEPA sample splits (conducted with samples BR-SW-15 and PUR-SW-32) were collected for field quality control (QC) purposes. The locations of the perimeter confirmation samples are included on Figures 3-6 and 3-7. A detailed summary of the sampling procedures and quality control in included in Section 6.0.

The analytical results of the nineteen perimeter confirmation samples indicated detections of ROD target constituents above their respective industrial preliminary remediation goal (PRG) concentrations and/or ROD cleanup criteria in two samples (PUR-SW-34 and PUR-SW-35). A total of two detections of TPH, a single detection of the PCB compound Aroclor 1254, and a detection of lead were reported above the ROD cleanup criteria and/or the industrial PRGs. TPH was detected at concentrations of 31,000 milligrams per kilogram (mg/kg) and 23,000

mg/kg in samples PUR-SW-34 and PUR-SW-35, respectively. Lead and Aroclor 1254 were detected in sample PUR-SW-35 at concentrations of 882 mg/kg and 6.7 mg/kg, respectively. Although there were no detections above the method reporting limits (MRLs) for the SVOC compound benzo(k)flouranthene and PCBs, samples PUR-SW-34 and PUR-SW-35 did report the MRLs above industrial PRGs for these constituents. A summary of the laboratory analytical results is included in Table 3-7.

On-site pH, PID, and Visual Results

Results of the on-site pH analyses reported five perimeter confirmation samples with a pH of less than 5.00 and ranged between 3.89 and 9.19. Samples with a pH result of less than 5.00 were reported in PUR-EF-231 (3.94), PUR-SW-71 (4.37), PUR-SW-72 (3.99), BR-SW-24 (4.11), and BR-SW-25 (3.89). None of the perimeter confirmation samples exhibited a pH value of less than 2.00. A summary of the pH analyses are included on Table 3-6.

Dark brown to black staining and hard, well consolidated soil matrices were noted in sidewall samples PUR-SW-34 and PUR-SW-35. PID readings from the perimeter samples ranged between 0.0 ppm and 6.3 ppm. The highest PID reading was also noted in sample PUR-SW-34. A summary of the PID readings are included on Table 3-6.

Conclusion

With the exception of sidewall samples PUR-SW-34 and PUR-SW-35, none of the remaining perimeter confirmation samples exhibited a visual confirmation of impacted soils or sludge. These two impacted sidewall samples were collected at the eastern property line along the South Maple Avenue public right-of-way. In accordance with the RAWP and the SAP/QAPP, samples PUR-SW-34 and PUR-SW-35 were further excavated and re-sampled with samples SMA-SW-02 and SMA-SW-04, respectively. This excavation and confirmation sampling are detailed in Section 3.5.5. With the exception of these two sidewall samples, further excavation and sampling along the perimeter of the Site were not required in accordance with the RAWP as modified by FCR-03 and FCR-04, as applicable.

Table 3-7 provides a summary of the perimeter confirmation sample results. The locations of the perimeter confirmation samples are shown on Figures 3-6 and 3-7. Field logs of on-site pH analyses from the perimeter confirmation samples are included as Appendix C. Laboratory analytical reports are included as Appendix D.

Four soil samples were also collected within the proposed footprint of the southwest infiltration pond to verify that concentrations of target constituents in the area were below the industrial PRGs. The samples (PUR-EF-232, PUR-EF-233, SWFIDESMT-S1, and SWFIDESMT-S2) were submitted to a laboratory and analyzed for VOCs, SVOCs, metals, cyanide, PCBs,

pesticides, and TPH. None of these four samples reported detections or MRLs of target constituents above their respective industrial PRG concentrations.

3.4.5 Summary of Neutralization

Neutralization activities of sludge materials began with test mixing of two pilot mix batches on October 16 and 17, 2006. The pilot mix batches (batches Pilot-A and Pilot-B) were mixed to test the effectiveness of the mix-head's ability to thoroughly mix and neutralize batches of sludge material (excavated sludge and sludge impacted soils, excavated overburden, and applied calcium carbonate), verify the mixed batch material met the pH, density, and compaction requirements specified in the RAWP, and evaluate the mix recipe. The pilot batches were mixed in pre-designated 20-foot by 15-foot (Pilot-A) and 30-foot by 30-foot (Pilot-B) grids and the batch material was placed approximately 3 feet in height inside the grids. All mixed and placed pilot material was removed and stockpiled. Results from the pilot mix batches were consistent with the pilot study and the pilot batches met the requirements specified in the RAWP and CQAP/CQCP.

Following approval of the pilot batches and USEPA approval to proceed with the OU-2 remedial action, full scale neutralization of on and off-site sludge and sludge impacted soils was conducted between October 23, 2006, and July 16, 2007. A total of 256 batches (Pilot-A, Pilot-B, and MB-01 to MB-254) were neutralized with a total volume of approximately 59,412 CY, as indicated on Table 3-8. The sludge was neutralized in batches with an approximate average of 232 CY of total material (sludge and sludge impacted soils, calcium carbonate, and overburden). The total approximated batch volume of 59,412 CY consisted of approximately 49,699 CY of sludge and sludge impacted soil material, 9,399 CY of overburden material, and 314 CY of calcium carbonate. The batches were mixed at an approximate rate of 1.6 batches and 369 CY per work day.

The batches were mixed in pre-designated grids ranging from 30-foot by 30-foot, to 30-foot by 60-foot, to 40-foot by 60-foot and ranged approximately 2 feet to 4 feet in height. Prior to mixing a batch of sludge, a composite sample collected from three separate worst case locations of the batched sludge material was used to determine the average initial pH. The composite sample was analyzed on-site using SW846 Method 9045D, as described in Section 6.0. Based on the initial pH and the estimated volume of sludge, the volume of calcium carbonate required to neutralize the sludge to a pH greater than 5.0 was calculated. The initial pH of the batches ranged from 0.86 to 8.37 with an average pH of 5.72. A total of 51 batches exhibited an initial pH of less than 5.0, and required a total of 314 CY of calcium carbonate for neutralization. This corresponded to an average calcium carbonate dosage of 4.1 percent by weight for these 51 batches.

Two, one-point Proctor analyses were conducted for each mixed batch to verify the material met the wet density requirements specified in the RAWP and CQAP/CQCP. A detailed summary of

the quality control process for neutralization is included in Section 6.0. The average wet density and moisture content of the mix batches was 128.8 pcf and 9.1 percent, respectively. The average one-point Proctor wet densities and moisture contents ranged from 119.5 pcf to 135.4 pcf and from 6.2 percent to 11.6 percent, respectively.

Three final pH analyses were conducted for each mixed batch to verify the material met the pH requirement of a final pH greater than 5.0 as specified in the RAWP and CQAP. A detailed summary of the quality control process for neutralization is included in Section 6.0. The averaged final pH samples ranged between a pH of 5.47 and a pH of 7.97 with an average pH of 6.91 for the mixed batches.

Table 3-8 provides a summary of the mix batches including: the batch number; the date completed; the volumes of sludge, calcium carbonate, and soil in the batch; the initial and final pH of each batch; and the Proctor analysis results for each batch. Field neutralization logs for each mix batch are included in Appendix E.

3.4.6 Backfill and Compaction

Backfill and compaction of the neutralized material was conducted on-site between October 23, 2006 and October 18, 2007. This section provides a summary of the backfilling and compaction activities. Section 6.0 provides a detailed summary of the quality control testing conducted during the backfilling and compaction. The neutralized material was placed in stockpiles before being placed as backfill in the on-site excavation. The neutralized backfill was placed in a maximum of 12-inch loose lifts prior to compaction. When applicable, backfilling of the on-site excavation would alternate between a layer of neutralized material and a layer of processed concrete debris. A typical cross-section of the backfilled excavation is included on Figure 3-8. To prevent neutralized and impacted material from placement outside of the engineered cap, imported clean backfill was typically placed around the perimeter of the on-site excavation. The imported clean backfill was placed with a maximum 8-inch lift after compaction. Approximately 63,484 CY of neutralized backfill, impacted and over-excavated soils, overburden, and clean backfill was placed at the Site. A total of 2,872 CY of concrete and debris have been placed in 13 separate lifts at the Site. Table 3-5 provides a summary of the approximated volumes of placed and compacted material at the Site.

During placement of the neutralized sludge material, each lift was compacted using a vibratory compactor whenever possible. For certain instances, such as test pits and small excavations, the material was placed and compacted using an excavator bucket or auxiliary compactor mounted on the excavator arm until the depth of the excavations were shallow enough to allow for the use of a vibratory roller. Moisture content and density analyses of the neutralized backfill were conducted on each lift at a rate of 1 test per 1,000 CY with a minimum of 1 test per day, when practical. Moisture content and density analyses of the clean backfill and overburden backfill were conducted at a rate of 4 tests per 1,000 CY with a minimum of 4 tests per day,

when practical. The moisture content and density analyses were conducted by collecting a drive cylinder (ASTM International Method 2937) in accordance with the CQAP/CQCP. Field compaction verifications were also performed on the clean backfill at a rate of 1 test per 5,000 CY placed. Field compaction verification analyses were conducted by performing a sand cone (ASTM International Method 1556) in accordance with the CQAP/CQCP.

A total of 269 moisture content and density analyses were performed on the neutralized backfill with an average wet density result of 123.8 pcf at an average water content of 9.1 percent. A total of 17 failures were reported on the neutralized backfill resulting in a 93.7 percent pass rate. Failed areas were corrected in the field and retested until the area passed the moisture/density requirements. Portions of the Site were backfilled with imported clean fill material or clean overburden material. A total of 73 moisture content and density analyses were performed on the clean fill with an average percent compaction of 93.4 percent at an average moisture content of 8.1 percent. A total of 4 failures were reported on the clean backfill placed on-site resulting in a 94.5 percent pass rate. A total of 5 moisture content and density tests were performed on the placed overburden material with an average percent compaction of 91.0 percent at an average moisture content of 7.7 percent.

Table 3-9 provides a summary of the moisture content and density analyses performed during placement of the neutralized sludge material, clean backfill material, and overburden material on-site. The locations of the moisture content and density analyses performed on-site are shown on Figures 3-9 and 3-10. Field moisture content and density logs are included as Appendix F.

3.5 SURROUNDING PROPERTIES

The ROD Amendment required that all acidic sludge stemming from Purity Oil's historic operations be excavated from the surrounding off-site properties. The excavated sludges would be neutralized and managed under the on-site cap. Impacted soils located in the upper four feet of soil in the surrounding properties would also be excavated and managed under the on-site cap. The off-site properties affected by the remediation activities were Pick-A-Part Auto Wrecking (Pick-A-Part), Bruno's Iron and Metal Recycling (Bruno's), the Former Tall Trees Mobile Home Park (Tall Trees), the former GSM, and the South Maple Avenue (SMA) public right-of-way. The objectives of the off-site remediation activities, as specified in the June 2006 ROD Amendment, are as follows:

- Prevent acidic sludge and other Site-related contaminants from coming in contact with industrial workers on properties adjacent to the Site (Pick-A-Part, Bruno's, and Tall Trees) and workers and residents on the GSM property.

- Remove acidic sludge and contaminated soil containing COCs at concentrations exceeding health-based action levels at properties adjacent to the site.

- Prevent or minimize further migration of contaminants from source material to groundwater.
- Prevent migration of contaminated groundwater to local domestic or irrigation wells.
- Remediate COCs in soil and groundwater to drinking water standards and other health-based action levels to reduce risks from potential exposure to indoor air contaminants whose source is Site-related contamination.
- Prevent further migration of soil vapor containing COCs at concentrations exceeding ARARs and TBC criteria.

The off-site remediation activities were conducted to comply with the June 2006 ROD Amendment, and in accordance with the RAWP approved by the USEPA in a letter dated February 2, 2007.

The off-site remediation activities included the following tasks:

- Excavation of the overburden material and transport of the excavated material to the Site for neutralization, as needed, as specified in the RAWP;
- Excavation of the sludge materials and transport of the excavated material to the Site for neutralization as required;
- Placement of clean backfill material in a maximum of 8-inch compacted lifts; and
- Grading the placed material to meet the design grades.

The RAWP, the CQAP/CQCP, and the SAP/QAPP include requirements for quality control testing to be conducted during the off-site remediation activities. A detailed summary of the quality control testing conducted is included in Section 6.0, and a brief description is included below.

- pH analysis of the excavated material;
- Density and moisture content analyses conducted on the placed and compacted lifts;
- Surveying of the placed lifts;
- Remediation of soils under the GSM structures; and
- Confirmation soil sampling from the completed excavations.

Excavations on the surrounding properties were conducted in accordance with the RAWP. The extent of the off-site excavation areas was determined by collecting confirmatory sidewall samples. The depth of the off-site excavation areas was determined by visual evidence of sludge in accordance with FCR-04, confirmatory excavation floor samples, and a prescribed maximum depth of 4 feet bgs for industrial properties when material in-place exceeded industrial PRGs and no sludge was observed.

In accordance with the RAWP and SAP/QAPP, confirmation samples were collected from the off-site excavations at frequencies of 1 sample per 25 LF of sidewall, and 1 sample per 625 square feet of excavation floor. The samples were submitted to a laboratory and analyzed for VOCs, SVOCs, metals, cyanide, PCBs, pesticides, and total TPH. In addition to laboratory analysis, the samples were analyzed for pH in the field using SW846 Method 9045D to verify the pH was greater than 2.0. Furthermore, each sample was described in accordance with the Unified Soil Classification System (USCS), and logged in accordance with the SAP/QAPP.

During placement of the clean fill material in the excavated areas, each lift was compacted using a vibratory compactor, or equivalent method (excavator using bucket or auxiliary compactor). The lifts were placed in a maximum of 8-inch compacted lifts. Density tests were conducted at a rate of four tests per 1,000 CY with a minimum of four tests per day, when practical. The density tests were conducted by collecting a drive cylinder in accordance with the CQAP/CQCP. Field compaction verifications were also performed on the clean backfill at a rate of 1 test per 5,000 CY placed. Field compaction verification analyses were conducted by performing a sand cone in accordance with the CQAP/CQCP.

The following sections summarize the remedial activities and compliance testing performed at each of the surrounding properties.

3.5.1 Former Tall Trees Mobile Home Park

Excavation

Two excavations were conducted on the Tall Trees property along the property line adjoining the GSM backyard and Tall Trees, and the property line adjoining the Purity Oil Site and Tall Trees. The locations of the excavations conducted at Tall Trees are shown on Figure 3-11. The depths of the excavations ranged between 2.9 feet bgs (288.1 amsl) and 5.4 feet bgs (284.6 amsl). Nine test pits (TT-TP-01 to TT-TP-09) were also conducted to depths ranging between 9.7 feet bgs (280.3 amsl) and 11.2 feet bgs (279.3 amsl). The total area of the excavations was approximately 4,815 square feet and the total volume of impacted material removed was approximately 976 cubic yards.

During work activities on Tall Trees property, a section of transite pipe from the former trailer park was encountered on October 26, 2006. The pipe was believed to include asbestos

containing materials and was disposed of at a licensed facility. PI&CMR-01, submitted to the USEPA on November 8, 2006, documented the transite pipe discovery.

Confirmation Sampling

Confirmation sampling of Tall Trees was conducted between February 2 and March 15, 2007. A total of 27 confirmation samples, consisting of ten excavation floor samples (TT-EF-01 to TT-EF-10), sixteen sidewall samples (TT-SW-01 to TT-SW-16), and one test pit sidewall sample (TT-TP02-SW-01) were collected from the Tall Trees excavation area and submitted for laboratory analyses. The locations of the confirmation samples are shown on Figure 3-13. Additionally, three duplicate samples (TT-EFD-03, TT-SWD-07, and TT-SWD-14), three MS and MSD samples (TT-SWMS-03 and TT-SWMSD-03, TT-SWMS-09 and TT-SWMSD-09, and TT-TP02-SWMS-01 and TT-TP02-SWMSD-01, respectively), and three USEPA sample splits (TT-EF-06, TT-SW-01, and TT-SW-16) were collected for field QC purposes.

Analytical results of the 27 samples reported no detections of ROD target constituents above their respective industrial PRG concentrations and/or ROD cleanup criteria. However, four samples (TT-EF-03, TT-EF-06, TT-SW-16, and TT-TP02-SW-01) did report MRLs of target constituents above the industrial PRGs. MRLs for eight SVOC compounds and the two pesticides (aldrin and dieldrin) were reported above the industrial PRGs in sample TT-EF-03. Sample TT-EF-06 only reported the MRL of dieldrin above the respective industrial PRG. The MRLs for PCBs were reported above the industrial PRGs in samples TT-SW-16 and TT-TP02-SW-01. No other samples reported constituents above the industrial PRGs. A summary of the analytical results is included on Table 3-10. Field logs of the off-site sample analyses are included as Appendix C. Laboratory analytical reports are included as Appendix D.

pH, PID, and Visual Results

A total of 36 pH analyses consisting of the 27 confirmation samples (TT-EF-01 to TT-EF-10, TT-SW-01 to TT-SW-16, and TT-TP02-SW-01) and nine additional test pit samples (TT-TP01-EF-01, TT-TP02-EF-01, and TT-TP-03-EF-01 to TT-TP09-EF-01) were conducted from the Tall Trees excavations at the locations shown on Figure 3-12. Results of the pH analyses indicated pH values ranging from 4.59 to 8.57 with two samples with a pH of less than 5.00. The samples with a pH result of less than 5.00 were TT-EF-06 (4.61) and TT-TP07-EF-01 (4.59). None of the samples exhibited a pH value of less than 2.00. PID readings from the 27 confirmation samples ranged between 0.6 ppm and 4.1 ppm and readings from the additional test pit samples ranged between 0.0 ppm and 778 ppm. The highest PID reading was reported in test pit sample TT-TP08-EF-01 (778 ppm). This sample was collected approximately 4.5 feet deeper than the deepest confirmation sample collected (TT-EF-01). A summary of the pH samples and PID readings is included on Table 3-11.

Conclusion

No visual evidence of sludge (tar-like material with a black, oily appearance or a black, hardened asphalt appearance) was noted in any of the final confirmation samples collected from the Tall Trees excavation and test pit excavations. Two of the samples with MRLs greater than the PRGs were collected from the excavation floor of the test pits at depths greater than 4 feet bgs, while the other two samples were confirmatory excavation floor samples (TT-EF-03 and TT-EF-06) collected at a depth greater than four feet bgs. The USEPA collected a split sample of confirmatory sidewall sample TT-SW-16. The USEPA results did not report MRLs above the industrial PRGs for PCBs. On May 2, 2007 the USEPA discussed these results and agreed that further excavation was not required in the location of sample TT-SW-16. Therefore, further excavation of Tall Trees was not required in accordance with the RAWP as modified by FCR-04.

Backfill/Compaction

Placement of clean backfill in the Tall Tree's excavations and test pit areas was conducted between February 2 and March 22, 2007. The backfill was placed using between five and seven consecutive lifts per excavation area. A total of 46 moisture content and density analyses (TT-DC-01-01 through TT-DC-16A-06, and TT-TP01-DC-01-01 through TT-TP09-DC-01-01) were performed on the backfill. A total of five samples did not meet the minimum requirement of 90 percent of the maximum dry density, which resulted in a passing rate of 89.1 percent. The failed areas were corrected in the field and retested until the areas passed the moisture/density requirements. The percent compactions and moisture contents ranged between 90.0 percent and 97.2 percent compaction and 6.1 percent and 9.1 percent moisture content for areas meeting the minimum requirements. The average percent compaction and moisture content was reported at 93.3 percent compaction at 7.7 percent moisture. The average dry density was reported at 118.2 pcf and ranged between 105.8 pcf and 123.2 pcf.

Table 3-12 provides a summary of the moisture content and density analyses performed during placement of the clean backfill material at the Tall Tree's excavation areas. The locations of the moisture content and density analyses are shown on Figure 3-15. Field logs of the moisture content and density analyses are included as Appendix F.

3.5.2 Pick-A-Part

The remedial activities conducted on the Pick-A-Part property were conducted in two main excavation areas as specified in the RAWP and the SAP/QAPP. The excavation areas are described as Pick-A-Part East and Pick-A-Part West.

3.5.2.1 Pick-A-Part East

Excavation

The excavations in the Pick-A-Part East area were conducted along the property line adjoining the Site and the Pick-A-Part parking lot area. A relatively small portion of the Pick-A-Part parking lot was also excavated as a consequence of the results from the confirmation sampling. The depth of the excavation ranged between 4.6 feet bgs (286.1 amsl) and 5.8 feet bgs (284.8 amsl). One test pit (PAPe-TP01) was also excavated to an approximate depth of 12.4 feet bgs (278.3 amsl). The excavations encompassed an area of approximately 2,500 square feet and removed approximately 594 CY of material. The locations of the excavations at the Pick-A-Part East area are shown in Figure 3-11.

Confirmation Sampling

Confirmation sampling of the Pick-A-Part East excavations was conducted between March 1 and June 19, 2007. A total of 41 confirmation samples, consisting of 15 hand auger locations (PAPe-SB-01 to PAPe-SB-15), 9 excavation floor samples (PAPe-EF-01 to PAPe-EF-09A), and 17 sidewall samples (PAPe-SW-01 to PAPe-SW-11), were collected from the Pick-A-Part East excavation areas and submitted for laboratory analyses. Of the 41 total samples, seven sidewall samples (PAPe-SW-02A, PAPe-SW-03A, PAPe-SW-07A, PAPe-SW-07B, PAPe-SW-09, PAPe-SW-09A, and PAPe-SW-09B) were collected from locations that required further excavation and re-sampling. Additionally, two duplicate samples (PAPe-EFD-01 and PAPe-EFD-05), two MS and MSD samples (PAPe-EFMS-02 and PAPe-EFMSD-02, and PAPe-SWMS-04 and PAPe-SWMSD-04, respectively), and one USEPA sample split (collected from sample location PAPe-SW-02) were collected for field QC purposes.

Analytical results of the 41 confirmation samples reported detections of ROD target constituents above their respective industrial PRG concentrations and/or ROD cleanup criteria in six samples (PAPe-EF-05, PAPe-EF-07, PAPe-SW-02, PAPe-SW-03, PAPe-SW-07, and PAPe-SW-09). A total of four detections of lead, four detections of the PCB compound Aroclor 1260, and three detections of TPH were reported above the industrial PRGs and/or ROD Amendment cleanup criteria. Lead was detected above the industrial PRG in samples PAPe-SW-02 (7,740 mg/kg), PAPe-SW-03 (2,340 mg/kg), PAPe-SW-07 (926 mg/kg), and PAPe-SW-09 (2,205 mg/kg). Aroclor 1260 was detected above the industrial PRG in samples PAPe-EF-05 (1.0 mg/kg), PAPe-EF-07 (1.3 mg/kg), PAPe-SW-02 (1.8 mg/kg), and PAPe-SW-09 (2.7 mg/kg). Detections of TPH at or above the ROD Amendment cleanup criteria were reported in samples PAPe-EF-05 (18,000 mg/kg), PAPe-EF-07 (10,000 mg/kg), and PAPe-SW-09 (34,000 mg/kg).

The remainder of the 41 confirmation samples did not report detections of target constituents above their respective industrial PRGs. However, nine samples (PAPe-EF-03, PAPe-EF-05, PAPe-EF-07, PAPe-EF-09A, PAPe-SW-01, PAPe-SW-02, PAPe-SW-03, PAPe-SW-07, and PAPe-SW-09) did report the MRLs for some constituents above their respective industrial PRG

concentrations. In these cases, the analytical laboratory did not report detections above the MRLs. Target constituents with MRLs above the industrial PRGs were reported for seven SVOC compounds, five PCB compounds, and five pesticide compounds. Floor sample PAPe-EF-09A was collected at a depth of approximately 2.4 feet bgs and reported MRLs, via Method 8270C, above industrial PRGs for SVOCs. However, these analytes were also analyzed via Method 8270C SIM, and were not detected above the MRLs of which were reported below the industrial PRGs. A summary of the confirmation sample results is included as Table 3-10. Locations of the confirmation samples are included on Figure 3-13.

pH, PID, and Visual Results

A total of 45 pH analyses were performed from the 41 confirmation samples (PAPe-SB-01 to PAPe-SB-15, PAPe-EF-01 to PAPe-EF-09A, and PAPe-SW-01 to PAPe-SW-11) and one test pit sample (PAPe-TP01-EF-01). The results of the pH analyses indicated pH values ranging from 3.66 to 8.64 with four samples exhibiting a pH less than 5.0. The samples with a pH result of less than 5.00 were PAPe-EF-05 (3.61), PAPe-EF-09A (4.57), PAPe-SW-06 (4.90), and PAPe-SW-09A (4.60). None of the 45 pH samples collected from the Pick-A-Part East excavations exhibited a pH value of less than 2.00. A summary of the pH sample results and the locations of the samples are included in Table 3-11 and Figure 3-13.

Staining was noted in samples PAPe-SW-02A, and PAPe-SW-07 thru PAPe-SW-11. Wood and glass debris was also noted in samples PAPe-SW-09 thru PAPe-SW-11. Sample PAPe-SW-07 reported the sample location impacted with an asphaltic-like material with black staining, but was excavated further at a later time. Sample PAPe-SW-09 was the only sample location with a reported visual of sludge-like material, but was excavated further at a later time. A hydrocarbon odor was noted in floor samples PAPe-EF-05 and PAPe-EF-07. PID readings ranged between 0.1 ppm and 5.2 ppm. The highest PID reading was reported from floor sample PAPe-EF-07.

Conclusion

The five sidewall samples PAPe-SW-01, PAPe-SW-02, PAPe-SW-03, PAPe-SW-07, and PAPe-SW-09 which exhibited analytical results or MRLs greater than the industrial PRGs and/or ROD cleanup criteria, were collected in the upper 4 feet, and required further excavation in accordance with the RAWP as modified by FCR-04. Sample PAPe-SW-09 represents the re-sample of sample PAPe-SW-01. The sample location for PAPe-SW-09 was further excavated until no further visual evidence of sludge was noted and subsequently re-sampled with PAPe-SW-09A and PAPe-SW-09B. Locations PAPe-SW-02 and PAPe-SW-03 were further excavated towards the Pick-A-Part parking lot and then re-sampled with locations PAPe-SW-02A and PAPe-SW-03A, respectively. Sample location PAPe-SW-07 was further excavated into the Pick-A-Part parking lot area until no further asphaltic-like material (other than the asphalt parking lot) was noted and subsequently re-sampled with PAPe-SW-07A and PAPe-SW-07B.

The three excavation floor samples that exhibited analytical results or MRLs greater than the industrial PRGs were collected at a depth greater then the prescribed maximum depth of 4 feet bgs, and did not exhibit visible evidence of sludge (tar-like material with a black, oily appearance or a black, hardened asphalt appearance). No further excavation was required in accordance with the RAWP as modified by FCR-04.

Tables 3-10 and 3-11 provide a summary of the laboratory analytical data and the pH results, respectively. The sample locations collected from the Pick-A-Part East excavations are shown on Figure 3-13. Field logs of the off-site sample analyses are included as Appendix C. Laboratory analytical reports are included as Appendix D.

Backfill/Compaction

Placement of clean backfill in the Pick-A-Part East excavation areas was conducted between April 13 and June 22, 2007. The backfill was placed in the three separate excavations and one test pit and ranged between five and seven consecutive lifts per excavation area. A total of 32 moisture content and density analyses (PAPe-DC-01-01 thru PAPe-DC-24-07, and PAPe-TP01-DC-01-01) were performed on the backfill using a drive cylinder, in accordance with the RAWP. A total of seven samples did not meet the minimum requirement of 90 percent of the maximum dry density, which resulted in a passing rate of 78.1 percent. The failed areas were corrected in the field and retested until the areas passed the moisture/density requirements. Of the analyses passing requirements, the percent compactions and moisture contents ranged between 90.3 percent and 96.6 percent compaction and 6.0 percent and 8.7 percent moisture. The average percent compaction and moisture content were reported at 91.6 percent compaction at 7.1 percent moisture. The average dry density was reported at 115.8 pcf and ranged between 113.8 pcf and 124.0 pcf.

Table 3-12 provides a summary of the moisture content and density analyses performed during placement of the clean backfill material at the Pick-A-Part East excavation area. The locations of the moisture content and density analyses are shown on Figure 3-15. Field logs of the moisture content and density analyses are included as Appendix F.

3.5.2.2 Pick-A-Part West

Excavation

The excavation at Pick-A-Part West was conducted along the property line adjoining the Site and Pick-A-Part and within the Fresno Irrigation District (FID) easement. The FID conduit was not damaged during the excavation and was only partially exposed. The extent of the excavation was approximately 160 feet long by 7 to 10 feet wide. The depth of the excavation ranged between 4.4 feet bgs (285.1 above mean sea level [amsl]) and 4.6 feet bgs (284.9 amsl). One test pit (PAPw-TP-01) was also conducted to an approximate depth of 10.6 feet bgs

(278.9 amsl). The excavation encompassed an area of approximately 308 square feet and removed approximately 51 CY of material.

The location of the excavation conducted at the Pick-A-Part West location is included in Figure 3-11.

Confirmation Sampling

Confirmation sampling of the completed Pick-A-Part West excavation was conducted between April 22 and April 28, 2007. A total of sixteen confirmation samples, consisting of two excavation floor samples (PAPw-EF-01 and PAPw-EF-02), and fourteen sidewall samples (PAPw-SW-01 to PAPw-SW-14) were collected from the Pick-A-Part west excavation area and submitted for laboratory analyses. Additionally, two duplicate samples (PAPw-SWD-03 and PAPe-SWD-12), one MS and MSD sample (PAPw-EFMS-02 and PAPw-EFMSD-02), and two USEPA sample splits (collected from sample locations PAPw-SW-01 and PAPw-SW-14) were collected for field QC purposes.

Laboratory analytical results reported no detections above industrial PRG concentrations and/or the ROD cleanup criteria for ROD target constituents from the samples collected at the Pick-A-Part West excavation. Furthermore, none of the samples reported the MRLs for target constituents above the industrial PRG concentrations. A summary of the confirmation sampling results is included in Table 3-10. The locations of the confirmation samples are included on Figure 3-12.

pH, PID, and Visual Results

A total of seventeen pH analyses were performed from the sixteen confirmation samples (PAPw-EF-01 to PAPw-EF-02, and PAPw-SW-01 to PAPw-SW-14) and one test pit sample (PAPw-TP01-EF-01). Results of the off-site pH analyses reported only two samples with a pH of less than 5.00, with a range between 3.88 and 8.39. A pH result of less than 5.00 was reported in samples PAPw-EF-01 (4.42), and PAPw-EF-02 (3.88). None of the 17 samples collected from the Pick-A-Part West excavation and test pit exhibited a pH value of less than 2.00. PID readings ranged between 0.0 ppm and 1.7 ppm. A summary of the pH results is included in Table 3-11 and locations are shown on Figure 3-12.

Conclusion

None of the seventeen samples collected from the Pick-A-Part West excavation and test pit exhibited any visual evidence of sludge. Samples were collected in accordance of the RAWP as modified by FCR-04.

Tables 3-10 and 3-11 provide a summary of the laboratory analytical data and the pH results, respectively. The sample locations collected from the Pick-A-Part West excavation and test pit

are shown on Figure 3-12. Field logs of the off-site sample analyses are included as Appendix C. Laboratory analytical reports are included as Appendix D.

Backfill/Compaction

Placement of clean backfill in the Pick-A-Part West excavation area was conducted between April 6 and April 24, 2007. The backfill was placed in the primary excavation in six consecutive lifts. The backfill was also placed in the test pit with a minimum of five lifts. A total of eight moisture content and density analyses (PAPw-DC-01-01 thru PAPw-DC-06-06, PAPw-TP01-DC-01-01, and PAPw-TP01-DC-01A-01) were performed on the backfill using a drive cylinder in accordance with the RAWP. One test failed to meet the minimum requirement of 90% of the maximum dry density resulting in a passing rate of 87.5 percent. The failed area was corrected in the field and retested until the area passed the moisture/density requirements. The percent compactions and moisture contents ranged between 91.8 percent and 98.4 percent compaction and 5.6 percent and 8.1 percent moisture for the tests meeting the minimum requirements. The average percent compaction and moisture content were reported at 94.0 percent compaction at 7.0 percent moisture. The average dry density was reported at 119.1 pcf and ranged between 112.9 pcf and 124.7 pcf.

Table 3-12 provides a summary of the moisture content and density analyses performed during the placement of clean backfill material at the Pick-A-Part West excavation area. The locations of the moisture content and density analyses are shown on Figure 3-14. Field logs of the moisture content and density analyses are included as Appendix F.

3.5.3 Bruno's Recycling

Excavation

Three areas were excavated on Bruno's property along the Site's northern property line. Additional areas were also excavated along the Site perimeter for confirmation sampling, as described in Section 3.4.3. The depth of the Bruno's excavations ranged from approximately 4.4 feet bgs (284.6 amsl) to 6.0 feet bgs (283.0 amsl). The total area of the excavations was approximately 2,987 square feet resulting in a total of 571 CY of excavated material. In addition, four test pits (BR-TP01 to BR-TP04) were excavated on Bruno's property. The depth of the test pits ranged between approximately 10.6 feet bgs (278.4 amsl) and 11.5 feet bgs (277.5 amsl). The locations of the excavations conducted at Bruno's' are included in Figure 3-11.

Confirmation Sampling

Confirmation sampling of the Bruno's excavation areas was conducted between April 22 and April 28, 2007. A total of 35 confirmation samples, consisting of nine excavation floor samples (BR-EF-01 to BR-EF-09) and 26 sidewall samples (BR-SW-01 to BR-SW-25), were collected

from the Bruno's excavation areas and submitted for laboratory analyses. Of the 35 total samples, only one sidewall sample (BR-SW-05A) was collected from a location that required further excavation and re-sampling. Additionally, three duplicate samples (BR-EFD-09, BR-SWD-10, and BR-SWD-18), two MS and MSD sample (BW-SWMS-19 and BR-SWMSD-19, and BR-SWMS-24 and BW-SWMSD-24, respectively) and three USEPA sample splits (collected from sample locations BW-SW-01, BW-SW-05, and BR-SW-15) were collected for field QC purposes.

Analytical results of the 35 confirmation samples reported only two samples (BR-EF-03 and BR-SW-07) with detections of ROD target constituents above their respective industrial PRG concentrations and/or ROD cleanup criteria. A single detection of TPH and the PCB compound Aroclor 1254 were reported above the ROD Amendment cleanup criteria and/or the industrial PRGs. TPH was detected at the ROD Amendment cleanup criteria in sample BR-EF-03 at a concentration of 10,000 mg/kg. A detection of Aroclor 1254 was detected above the industrial PRG in sample BR-SW-07 at a concentration of 0.98 mg/kg.

The remainder of the 35 samples did not report detections of target constituents above their respective industrial PRGs. However, three samples (BR-SW-05, BR-SW-09, and BR-SW-10) did report the MRLs for certain constituents above the industrial PRGs. Target constituents with MRLs above their respective PRG concentrations were reported for four SVOC compounds and the pesticide Dieldrin. A summary of the confirmation sampling results is included in Table 3-10, and locations of the samples are included in Figures 3-12 and 3-13.

pH, PID, and Visual Results

A total of 39 pH analyses were performed from the 35 confirmation samples (BR-EF-01 to BR-EF-09, and BR-SW-01 to BR-SW-25) and four test pit samples (BR-TP01-EF-01, BR-TP02-EF-01, BR-TP03-EF-01, and BR-TP04-EF-01). The results of the off-site pH analyses indicated pH values ranging from 3.89 to 8.17 with two samples with a pH of less than 5.00. Samples BR-SW-24 (4.11) and BR-SW-25 (3.89) exhibited pH values less than 5.00. None of the 27 samples collected from the Bruno's excavations and test pits exhibited a pH value of less than 2.00. A summary of the pH test results is included in Table 3-11, and locations of the samples are included on Figures 3-12 and 3-13.

Dark brown and slight grey staining were noted in samples BR-SW-07 and BR-EF-03, respectively. Also, trace brick and other debris were noted in sample BR-SW-05. PID readings ranged between 0.0 ppm and 3.5 ppm. The highest PID reading was reported from the sample BR-SW-05.

Conclusion

Sample locations BR-SW-05 and BR-SW-07 reported detections or MRLs of target constituents above industrial PRGs and/or ROD cleanup criteria and were further excavated and re-sampled

with sample BR-SW-05A. Sidewall location BR-SW-05 was excavated to the east extending into the excavation area of Bruno's test pit (BR-TP-01) investigation area, an area previously backfilled with clean fill. Sidewall location BR-SW-07 was excavated to the south extending past the property line adjoining Bruno's and Purity Oil, and onto the on-site main excavation area. Samples BR-SW-09 and BR-SW-10 reported MRLs above industrial PRG concentrations for some SVOCs, however on May 2, 2007 the USEPA indicated these locations would not require further excavation because neither sample reported TPH above 10,000 mg/kg. Floor sample BR-EF-03 was excavated at a depth exceeding the maximum prescribed depth of four feet bgs for industrial PRGs, and did not require further excavation. Furthermore, the remainder of the 35 samples did not show any visual evidence of sludge and were conducted in accordance of the RAWP as modified by FCR-04.

Tables 3-10 and 3-11 provide a summary of the laboratory analytical data and the pH results, respectively. The sample locations collected from the Bruno's excavations are shown on Figures 3-12 and 3-13. Field logs of the off-site sample analyses are included as Appendix C. Laboratory analytical reports are included as Appendix D.

Backfill/Compaction

Placement of clean backfill in the Bruno's excavation areas was conducted between March 14 and July 25, 2007. The backfill was placed in the seven separate excavations and ranged between five and seven consecutive lifts per excavation area. A total of 30 moisture content and density analyses (BR-DC-01-01 through BR-DC-22-05, and BR-TP01-DC-01-01 through BR-TP04-DC-01-01) were performed on the backfill using a drive cylinder in accordance with the RAWP. Two tests failed to meet the minimum requirement of 90% of the maximum dry density resulting in a passing rate of 93.3 percent. The failed areas were corrected in the field and retested until the areas passed the moisture/density requirements. The percent compaction and moisture content ranged between 90.3 percent and 100 percent compaction and 5.9 percent and 9.1 percent moisture for the tests meeting the minimum requirements. The average percent compaction and moisture content was reported at 93.5 percent compaction at 7.6 percent moisture. The average dry density was reported at 118.2 pcf and ranged between 112.7 pcf and 127.2 pcf.

Table 3-12 provides a summary of the moisture content and density analyses performed during the placement of the clean backfill material at Bruno's. The locations of the moisture content and density analyses are shown on Figure 3-14 and 3-15. Field logs of the moisture content and density analyses are included as Appendix F.

3.5.4 Golden State Market

The remedial activities conducted on the GSM property were conducted in two main excavation areas as specified in the RAWP. The excavation areas are described as the GSM backyard and the GSM front yard.

3.5.4.1 Golden State Market Backyard

Excavation

The GSM backyard was previously excavated in 2002 to a depth of approximately 4 feet bgs and backfilled with clean fill material. During the full-scale neutralization activities, portions of the GSM backyard were re-excavated to remove sludge material deeper than 4 feet bgs. The depth of the new excavation ranged between 4.3 feet bgs (285.7 amsl) and 7.7 feet bgs (283.3 amsl) and encompassed an area of approximately 5,740 square feet. The location of the GSM backyard excavation is included on Figure 3-11.

A total of five test pits (GSMb-TP-01 to GSMb-TP-04, and TP-21) were also excavated in the GSM backyard area. The depths of the test pits ranged between 9.8 feet bgs (280.2 amsl) and 13.5 feet bgs (276.5 amsl).

Confirmation Sampling

Confirmation sampling of the GSM backyard was conducted between March 29 and April 5, 2007. A total of twelve confirmation samples, consisting of six excavation floor samples (GSMb-EF-01 to GSMb-EF-06) and six sidewall samples (GSMb-SW-01 to GSMb-SW-06), were collected from the GSM backyard excavation area and submitted for laboratory analyses. Additionally, one duplicate sample (GSMb-EFD-01) was collected for field QC purposes.

Analytical results of the twelve samples reported five samples (GSMb-EF-03, GSMb-EF-05, GSMb-EF-06, GSMb-SW-05, and GSMb-SW-06) with ROD target constituents detected above their respective industrial PRG concentrations and/or ROD cleanup criteria. The target constituents with detectable concentrations above the ROD Amendment cleanup criteria and/or the industrial PRGs consisted of five detections of TPH, two detections of the VOC compound trichloroethene (TCE), and one detection of the SVOC compound 2-methylnaphthalene. Detections above the ROD cleanup criteria for TPH were reported in samples GSMb-EF-03 (35,000 mg/kg), GSMb-EF-05 (70,000 mg/kg), GSMb-EF-06 (24,000 mg/Kg), GSMb-SW-05 (70,000 mg/kg), and GSMb-SW-06 (24,000 mg/kg). TCE was detected above the industrial PRGs in samples GSMb-EF-06 (0.12 mg/kg) and GSMb-SW-06 (1.3 mg/kg). A detection of 2-methylnaphthalene above the industrial PRG concentration was reported in sample GSMb-EF-05 (19 mg/kg).

The remainder of the twelve samples did not report detections of target constituents above their respective ROD Amendment cleanup criteria and/or industrial PRGs. However, the five samples (GSMb-EF-03, GSMb-EF-05, GSMb-EF-06, GSMb-SW-05, and GSMb-SW-06) did report the MRLs for certain constituents above the industrial PRGs. Target constituents with MRLs above their respective ROD Amendment cleanup criteria and/or industrial PRG concentrations are the VOC compound TCE, eight SVOC compounds, five PCB compounds,

and the pesticide Dieldrin. A summary of the confirmation sampling results is included in Table 3-10, and the locations of the samples are included on Figure 3-13.

pH, PID, and Visual Results

Results of the off-site pH analyses from the twelve confirmation samples (GSMb-EF-01 to GSMb-EF-06, and GSMb-SW-01 to GSMb-SW-06) and the seven test pit samples (GSMb-TP01-EF-01 to GSMb-TP04-01, and TP-21-05') reported only four samples with a pH of less than 5.00 and ranged between 3.66 and 8.64. Samples with a pH result of less than 5.00 were reported in GSMb-EF-03 (4.10), GSMb-EF-05 (3.66), GSMb-EF-06 (4.22), and GSMb-SW-05 (3.75). Furthermore, none of the samples exhibited a pH value of less than 2.00.

Traces of black staining were noted in samples GSMb-SW-05 and TP-21-05', however, no visible evidence of sludge was observed. A hydrocarbon odor was also noted in samples GSMb-EF-05, GSMb-EF-06, GSMb-SW-05, GSMb-SW-06, and TP-21-05'. PID readings ranged between 0.0 ppm and 419 ppm. High PID readings greater than 100 ppm were reported in samples GSMb-SW-06 (180 ppm), GSMb-TP01-SW-01 (139 ppm), GSMb-TP03-EF-01 (419 ppm), and GSMb-TP04-EF-01 (230 ppm).

Conclusion

No visual evidence of sludge (tar-like material with a black, oily appearance or a black, hardened asphalt appearance) was noted in the any of the samples collected from the GSM backyard excavation. The five confirmation samples with analytical results or MRLs greater than the PRGs were collected at a depth greater than four feet bgs. Therefore, further excavation of the GSM backyard was not required in accordance with the RAWP as modified by FCR-04.

Field logs of the off-site sample analyses are included as Appendix C. Laboratory analytical reports are included as Appendix D.

Backfill/Compaction

Placement of clean backfill within the GSM backyard was conducted between April 2 and July 17, 2007. The primary excavation area was backfilled with 16 consecutive lifts. Test pits (GSMb-TP-01 thru GSMb-TP-04, and TP-21) were backfilled with a minimum of five lifts. A total of 28 moisture content and density analyses (GSMb-DC-01-01 thru GSMb-DC-17-16, GSMb-TP01-DC-01 thru GSMb-TP04-DC-01-01, and TP21-DC-01-01) were performed on the backfill using a drive cylinder in accordance with the RAWP. Six tests failed to meet the minimum requirement of 90 percent of the maximum dry density resulting in a passing rate of 81.5 percent. The failed areas were corrected in the field and retested until the areas passed the moisture/density requirements. The percent compaction and moisture content ranged between 90.1 percent and 99.0 percent compaction and 5.3 percent and 9.8 percent moisture for the tests meeting the minimum requirements. The average percent compaction and moisture

content was reported at 92.0 percent compaction at 7.2 percent moisture. The average dry density was reported at 116.4 pcf and ranged between 110.3 pcf and 125.5 pcf. Also, a field verification moisture content and density analysis using a sand cone (GSMb-SC-01-12) was performed within the vicinity of drive cylinder test (GSMb-DC-14-12) during the placement of clean backfill in the GSM backyard excavation area.

Table 3-12 provides a summary of the moisture content and density analyses performed during placement of the clean backfill material at the GSM backyard excavation area. The locations of the moisture content and density analyses performed are shown on Figure 3-15. Field logs of the moisture content and density analyses are included as Appendix F.

3.5.4.2 Golden State Market Front Yard

The GSM front yard and backyard properties were purchased by CEMC in May 2007. The ROD Amendment specified that the GSM front yard area was a residential property and the confirmation samples would need to meet the PRGs for residential properties if Alternative 3 was implemented or PRGs for industrial properties if Alternative 4 was implemented. Because CEMC purchased the property, Alternative 4 was implemented per the ROD Amendment, and the property is now considered an industrial property; therefore, the confirmation samples were compared to the PRGs for industrial properties.

Soil Boring Investigation

As part of the remediation for the GSM front yard, a soil boring investigation was conducted on February 12 and 13, 2007 to delineate the extent of potentially impacted soils on the property. The results indicated that the impacted soils extended beneath the structures and therefore, demolition of the structures would be required. A summary of the test pit investigation is included in the *Golden State Market Front Yard Investigation Report* which was submitted to the USEPA on March 20, 2007.

Building Demolition

The first phase of the GSM remediation activities included an asbestos survey and a lead paint survey of the existing market structures. The asbestos survey was conducted on March 8, 2007 by Leon Environmental Services. The results of the survey indicated that friable asbestos containing materials (ACMs) were present in the structure. A copy of the asbestos survey report is included in Appendix G.

A lead paint survey was conducted on March 27, 2007 by Leon Environmental Services. The results of the survey indicated that lead based paint was present on some of the painted surfaces of the existing structure. A copy of the lead based paint survey report is included as Appendix G.

The asbestos and lead based paint abatements were conducted from June 20 to June 22, 2007 by PARC Environmental Construction (PARC). The ACMs were removed from the structure, containerized, and disposed of in accordance with all federal, state, and local regulations. The pieces of the structure containing lead based paint were removed, saw-cut to manageable sizes, and containerized. The containers were disposed off-site by Waste Management, Inc. (WMI) on September 6, 2007. Copies of the waste manifests are included in Appendix H.

Prior to demolition of the structures on the GSM property, all the utilities were disconnected within the right-of-way by the appropriate utility company with the exception of a sewer lateral which was disconnected by Stantec after the water and sewer services were turned off at the GSM property. The GSM structures were demolished on July 2, 2007. The demolition debris was disposed off-site by WMI on July 2 and 3, 2007. The concrete footer and foundation were removed after the building was demolished and disposed off-site by WMI. Copies of the waste manifests are included in Appendix H.

Excavation

The excavation of the GSM front yard extended east approximately 125 feet from the GSM backyard excavation towards South Maple Avenue. The excavation also extended approximately 85 feet north from the Purity Oil groundwater treatment pad. The depth of the excavation ranged between 4.3 feet bgs (286.7 amsl) and 4.6 feet bgs (286.4 amsl). The excavation encompassed an area of approximately 10,470 square feet. The location of the GSM front yard excavation is included in Figure 3-11.

Confirmation Sampling

Confirmation sampling of the GSM front yard was conducted between July 7 and July 12, 2007. A total of 26 confirmation samples, consisting of 17 excavation floor samples (GSMf-EF-01 to GSMf-EF-17) and nine sidewall samples (GSMf-SW-01 to GSMf-SW-09), were collected from the GSM front yard excavation area. Of the 26 samples collected, four QC field samples were also collected consisting of three duplicates (GSMf-EFD-12, GSMf-EFD-17, and GSMf-SWD-04), and one MS and MSD (GSMf-EFMS-14 and GSMf-EFMSD-14, respectively).

Laboratory analytical results reported no detections above industrial PRG concentrations and/or ROD cleanup criteria for ROD target constituents in the nine sidewall samples (GSMf-SW-01 to GSMf-SW-09) collected from the GSM front yard excavation. Only one constituent (TPH) was detected above the ROD Amendment cleanup criteria in 4 of the 17 excavation floors samples collected. Detections of TPH above the ROD Amendment cleanup criteria were reported in samples GSMf-EF-04 (58,000 mg/Kg), GSMf-EF-11 (33,700 mg/Kg), GSMf-EF-13 (63,000 mg/Kg), and GSMf-EF-14 (37,000 mg/Kg). However, no visual evidence of sludge was noted in these samples, and furthermore; they were collected at a depth greater than four feet bgs. A summary of the confirmation sampling results is included in Table 3-10, and locations of the samples are included on Figure 3-13.

pH, PID, and Visual Results

Results of the off-site pH analyses from the confirmation samples reported that only two samples exhibited a pH of less than 5.00 and ranged between 4.20 and 8.21. Samples with a pH result of less than 5.00 were reported in GSMf-EF-09 (4.42) and GSMf-EF-11 (4.20). Furthermore, none of the samples exhibited a pH value less than 2.00. PID readings ranged between 0.0 ppm and 15.4 ppm. A hydrocarbon odor was noted in sample GSMf-EF-13 (15.4 ppm), which also exhibited the highest PID reading from the GSM front yard excavation. A summary of the pH results is included in Table 3-11, and locations of the samples are included on Figure 3-13.

Conclusion

No visual evidence of sludge (tar-like material with a black, oily appearance or a black, hardened asphalt appearance) was noted in any of the samples collected from the GSM front yard excavation and therefore met the requirements of the RAWP as modified by FCR-04. Similarly, the four samples with a detectable concentration of TPH above the ROD Amendment cleanup criteria were collected at a depth greater than four feet bgs and no further excavation was required in accordance with the RAWP as modified by FCR-04.

Field logs of the off-site sample analyses are included as Appendix C. Laboratory analytical reports are included as Appendix D.

Backfill/Compaction

Placement of clean backfill within the GSM front yard was conducted between June 29, and July 19, 2007. The clean backfill was placed in seven consecutive lifts in the excavated area of the GSM front yard. A total of 22 moisture content and density analyses (GSMf-DC-01-01 thru GSMf-DC-17-07) were performed on the clean backfill using a drive cylinder in accordance with the RAWP. Four tests failed to meet the minimum requirements resulting in a passing rate of 81.0 percent. The failed areas were corrected in the field and retested until the areas passed the moisture/density requirements. The percent compaction and moisture content results ranged between 90.1 percent and 100.0 percent compaction and 5.8 percent and 10.2 percent moisture for the tests meeting the minimum requirements. The average percent compaction and moisture content was reported at 93.8 percent compaction at 8.0 percent moisture. The average dry density was reported at 115.6 pcf and ranged between 109.0 pcf and 122.7 pcf. Also, a field verification moisture content and density analysis was conducted using a sand cone (GSMf-SC-01-04) within the vicinity of drive cylinder test (GSMf-DC-12-04) during the placement of clean backfill in the GSM front yard excavation area.

Table 3-12 provides a summary of the moisture content and density analyses performed during placement of the clean backfill material at the GSM front yard excavation area. The locations of

the moisture content and density analyses performed are shown on Figure 3-15. Field logs moisture content and density analyses are included as Appendix F.

3.5.5 South Maple Avenue

The results from the perimeter confirmation samples PUR-SW-34 and PUR-SW-35, as described in Section 3.4.4 provided evidence for shallow impacted soils potentially extending eastward of the Site property line adjoining the SMA public right-of-way. Therefore, further excavation and confirmation sampling was conducted in accordance with the RAWP as modified by FCR-04 in an attempt to delineate potentially impacted soils along SMA in the area of samples PUR-SW-34 and PUR-SW-35.

Excavation

The excavation area was located just south of the existing groundwater treatment system parking lot and extended approximately 150 feet along the eastern property line of the Site adjoining the SMA public right-of-way, at the location indicated on Figure 3-11. The excavation also extended approximately 7 feet onto the SMA public right-of-way and was not excavated further eastward due to obstructions from public utility lines. A public utility pole and anchor strap located within the excavation area was left undamaged during the excavation processes. Because the visual impacts did not extend deeper than two feet bgs, the depth of the excavation ranged between approximately 2.3 feet (288.2 amsl) and 4 feet bgs (286.5 amsl). The excavation encompassed an area of approximately 616 square feet.

Confirmation Sampling

Confirmation sampling of the SMA was conducted between May 8 and September 10, 2007. A total of nine confirmation samples, consisting of two excavation floor samples (SMA-EF-01 and SMA-EF-02) and seven sidewall samples (SMA-SW-01 to SMA-SW-07), were collected from the SMA excavation area. Additionally, one duplicate sample (SMA-EFD-01) and one USEPA sample split from sample location SMA-SW-02 were collected for field QC purposes.

Analytical results from the nine confirmation samples reported detections of ROD target constituents above their respective ROD Amendment cleanup criteria and/or industrial PRG concentrations in five sidewall samples (SMA-SW-01, SMA-SW-02, SMA-SW-03, SMA-SW-06, and SMA-SW-07). A total of three detections of the PCB compound Aroclor 1254, and three detections of TPH were reported above the ROD Amendment cleanup criteria and/or industrial PRGs. Aroclor 1254 was detected above the industrial PRG in samples SMA-SW-01 (0.88 mg/kg), SMA-SW-02 (0.81 mg/kg), and SMA-SW-06 (2.2 mg/kg). Detections of TPH above the ROD Amendment cleanup criteria were reported in samples SMA-SW-03 (10,000 mg/kg), SMA-SW-06 (60,000 mg/kg), and SMA-SW-07 (57,000 mg/kg).

The remainder of the nine samples did not report detections of target constituents above their respective PRGs. However, sample SMA-SW-06 did report the MRLs for four SVOC constituents above the PRGs. A summary of the confirmation sampling results is included in Table 3-10, and locations of the samples are included on Figure 3-13.

pH, PID, and Visual Results

Results of the off-site pH analyses from the nine confirmation samples (SMA-EF-01 and SMA-EF-02, and SMA-SW-01 to SMA-SW-07) reported three samples with a pH of less than 5.00 and ranged between 4.43 and 8.41. Samples with a pH result of less than 5.00 were reported in SMA-EF-02 (4.73), SMA-SW-01 (4.43), and SMA-SW-02 (4.62). None of the samples exhibited a pH value of less than 2.00 collected from the SMA right-of-way. A summary of the pH results is included in Table 3-11, and locations of the samples are included on Figure 3-13

Dark brown to black staining was noted in sidewall samples SMA-SW-01 to SMA-SW-04, SMA-SW-06, and SMA-SW-07. Wood or glass debris was also noted in samples SMA-SW-02 to SMA-SW-04, and SMA-SW-06. Asphaltic fragments (other than the asphalt from the SMA right-of-way) were noted in sample SMA-SW-07. PID readings ranged between 1.0 ppm (SMA-SW-07) and 3.2 ppm (SMA-SW-01).

Conclusion

The seven soil samples (SMA-SW-01 through SMA-SW-07) were collected in an attempt to delineate the extent of impacted soils extending eastward from the Site towards the SMA public right-of-way. The results of five sidewall samples exhibited values for at least one constituent exceeding the industrial PRGs and/or the ROD cleanup criteria for TPH. The horizontal extent of the impacts to the north of sample location SMA-SW-07 may be determined during the potential future demolition of the existing groundwater treatment system. To address potential impacts extending along and under the SMA right-of-way, Terradex, Inc. and the local one-call service will be utilized as an institutional control to notify CEMC if any work (i.e., excavation) is planned along the SMA public right-of-way adjoining the eastern property line of the Site. Parties planning potential work along this section of SMA will be notified by CEMC or the USEPA of the potential for encountering impacted soils during any type of excavation or intrusive activities.

The excavation floor samples and two sidewall samples (SMA-SW-05 and SMA-SW-06) did not exhibit any visual evidence of sludge and are in compliance with the RAWP as modified by FCR-04.

Field logs of the off-site sample analyses are included as Appendix C. Laboratory analytical reports are included as Appendix D.

Backfill/Compaction

Placement of clean backfill in the SMA excavation area was conducted between May 9 and May 10, 2007. The backfill was placed in four consecutive lifts. A total of four moisture content and density analyses (SMA-DC-01-01 thru SMA-DC-04-04) were performed on the backfill using a drive cylinder in accordance with the RAWP. No tests failed to meet the minimum requirements. The percent compactions and moisture contents ranged between 93.3 percent and 99.1 percent compaction and 7.8 percent and 9.5 percent moisture. The average percent compaction and moisture content were reported at 95.8 percent compaction at 8.8 percent moisture. The average dry density was reported at 118.5 pcf and ranged between 114.5 pcf and 123.4 pcf.

Table 3-12 provides a summary of the moisture content and density analyses performed during placement of the clean backfill material at the SMA excavation area. The locations of the moisture content and density analyses are shown on Figure 3-15. Field logs of the moisture content and density analyses are included as Appendix F.

3.5.6 Additional Stained Soils

During borehole clearance activities for the installation of a replacement monitoring well for MW-5S conducted on March 11, 2008, some stained soil was encountered at a depth of approximately 12 inches to 24 inches bgs. The area where the soil was encountered was in an area that was previously excavated and backfilled with clean material. The area had been used as an access road for heavy equipment and haul trucks. It is believed that the stained soil was spilled from the haul trucks and loaders during the transportation of soils from the mixing area to the backfill and stockpile locations. The stained soil was excavated and disposed of at an approved off-site disposal facility upon USEPA approval. From March 21, 2008 through June 6, 2008, a total of 935 tons of soil was excavated with approximately 20 percent (187 tons) being stained soil. A PI&CMR form (PI&CMR-03C) was submitted to the USEPA to document the activities related to the stained soil. A figure identifying the location of the excavation is included in PI&CMR-03C in Appendix I. Copies of the waste manifests are included in Appendix H.

3.6 ENGINEERED CAP

The closure cover system was designed to prevent direct contact with neutralized materials and limit infiltration of water through the cap. The closure cover system covers the entire area shown on Figure 3-16. The closure cover system consists of a six-inch cushion layer, a GCL, a GDL, and a two foot imported vegetative cover layer. A typical cross-section of the as-constructed engineered cap is provided on Figure 3-16. In the area of the existing treatment system, the treatment system pad is utilized as the direct contact barrier. In the event the treatment system pad is removed in the future, additional investigation may be conducted to evaluate soil quality below the system pad. Excavation may be required to remove possible sludge material. Impacted soils with COCs above ROD Amendment cleanup goals would be

removed to a maximum depth of 4 feet bgs. Should excavation be required, the area would be backfilled with clean soil. Any impacted soils will be disposed at an appropriate off-site disposal facility. The final surface of the closure system was graded to promote storm water run-off and to prevent erosion. A description of each cap component is presented in the following sections:

3.6.1 Cushion Layer

A 6-inch cushion layer was installed above the neutralized sludge material to provide a buffer between the neutralized sludge and the GCL, and to provide a smooth surface free of debris, sharp stones and rocks. The cushion layer material consisted of a sandy material imported from an off-site borrow source. To ensure the material was clean and suitable for use as backfill, soil samples were collected for analytical and geotechnical analysis prior to use. A summary of the quality control testing, including the analytical and geotechnical testing of the cushion layer material, is included in Section 6.4.1. The borrow source was approved by the USEPA prior to use as backfill material for the Site and the surrounding properties. The gradation specification for the cushion layer was modified by FCR-15 to allow a higher percentage of fines in the material.

The cushion layer was placed from September 2007 to November 2007 in a single lift and was compacted using a vibratory compactor. Density tests were conducting using a drive cylinder to ensure that the cushion layer met the compaction requirements of the RAWP. Areas which did not meet the compaction requirements were re-compacted and re-tested until they met the minimum requirements in the RAWP. A total of 61 density tests were conducted on the compacted cushion layer material using a drive cylinder as indicated in Table 3-13. In addition, 2 density tests were conducted using the sand cone method to verify the drive cylinder results, as indicated on Table 3-13. The locations of the density tests are included on Figures 3-17 and 3-18. A detailed summary of the density testing quality control procedures is included in Section 6.2.4. The original specifications for the moisture content of the compacted cushion material were modified by FCR-17 to adjust the acceptable moisture content range to within minus 2 percent and plus 4 percent of the optimum.

Once the cushion layer was placed, compacted, and graded the cushion layer was surveyed by a surveyor licensed in the State of California. The survey data was compared to the subgrade survey data to verify that the cushion layer met the minimum thickness requirements. Any areas which did not meet the minimum thickness requirement were re-graded and re-surveyed until the minimum requirements were met. A summary of the cushion layer survey is provided in Section 6.3.

3.6.2 Geosynthetic Clay Liner

The ROD Amendment required that a GCL be placed over the footprint of the placed neutralized sludge material. The GCL used for the project was Bentomat ST, manufactured by CETCO Lining Technologies (CETCO). The GCL met the requirements in the RAWP and specifications,

and was tested prior to use. The test results are described in Section 6.5, and copies of the data are included in Appendix J.

The GCL was placed over the entire footprint of placed and compacted neutralized sludge, as indicated on Figure 3-19. The total amount of GCL that was placed at the Site is approximately 4.6 acres. The GCL was placed with overlapping edges in accordance with the manufacturer's recommendation for installation.

The GCL terminated in an anchor trench located at the bottom of the sloped area of the cap, as indicated on Figure 3-20. A typical cross-section of the anchor trench is located on Figure 3-20.

3.6.3 Geocomposite Drainage Layer

The ROD Amendment required that a GDL be placed over the footprint of the placed neutralized sludge material. The GDL used for the project was Texdrain 250 DS, manufactured by CETCO. The RAWP originally specified the GDL be a Texdrain 200 material, however, the manufacturer had replaced the Texdrain 200 product with an updated Texdrain 250 DS material. FCR-11 was submitted to allow the use of Texdrain 250 DS. In addition, the requirement for a UV stability test was removed from the specification by FCR-13 because the GDL material would not be subjected to direct sunlight after installation. The FCRs are described in Section 3.10 and copies of the FCRs are included in Appendix I.

The manufacturer of the GDL, CETCO, provided a Manufacturer Quality Assurance Data Package that certified that that the GDL material for the Purity Oil project met the requirements of the specifications. In addition, six samples of the finished product were submitted to an independent laboratory for testing. The results of the testing indicated that the GDL met the requirements in the RAWP and specifications. A summary of the testing is included in Section 6.5, and copies of the laboratory reports are included in Appendix J.

The GDL was placed over the entire footprint of placed and compacted neutralized sludge, as indicated on Figure 3-19. The total amount of GDL that was placed at the Purity Site is approximately 4.6 acres. The GDL was placed with overlapping edges in accordance with the manufacturer's recommendation for installation.

The GDL terminated in an anchor trench located at the bottom of the sloped area of the cap, as indicated on Figure 3-20. A typical cross-section of the anchor trench is located on Figure 3-20.

3.6.4 Vegetative Layer

A 2-foot minimum thickness vegetative layer was installed above the GDL to provide a suitable base for sustaining vegetative growth. The bottom 20 inches of vegetative material consisted of a sandy material imported from an off-site borrow source. The top 4 inches of material consisted of a topsoil material capable of sustaining healthy plant life immediately after receiving

seed. The vegetative layer materials were provided by an off-site borrow source and were tested in accordance with the RAWP. A summary of the quality control testing including the analytical and geotechnical testing of the cushion layer material is included in Section 6.4.1.

The first layer of the vegetative layer was placed in a 12-inch minimum loose lift to protect the GDL and GCL. The lift was compacted using a vibratory compactor in accordance with the RAWP. The next layer was placed in an 8-inch lift and compacted in the same manner as the first lift. The final lift consisted of 4 inches of un-compacted topsoil. In some areas more than 24 inches of vegetative material were required to meet the final drainage plan, as modified by FCR-10, Revision 1. The first lift in these areas was a 12-inch lift, and subsequent lifts did not exceed 8 inches in thickness after compaction. The top lift remained a 4-inch minimum layer of un-compacted topsoil.

Density tests were conducted on the placed material in accordance with the RAWP using a drive cylinder to ensure the cushion layer met the compaction requirements of the RAWP. Areas which did not meet the compaction requirements were re-compacted and re-tested until they met the minimum requirements in the RAWP. A total of 257 density tests were conducted on the compacted vegetative layer material using a drive cylinder as indicated in Table 3-14. In addition, four density tests were conducted using the sand cone method to verify the drive cylinder results, as indicated on Table 3-16. The locations of the density tests are included on Figures 3-17 and 3-18. A summary of the density testing quality control procedures is included in Section 6.2.5.

Prior to final grading, the proposed final topsoil design grades were compared to the third party survey data of the as-built cushion layer, to verify that the vegetative layer met the required thickness. Once the final topsoil layer was placed, compacted, and graded to meet the final design grades, the final surface was surveyed by a surveyor licensed in the State of California. The survey data was compared to the design grades to verify that the vegetative layer was installed correctly. If an area differed from the design grade by more than 0.10 feet, the area was double-checked, and was corrected as necessary, or if no re-grading was necessary, an explanation was submitted to the USEPA for approval. A summary of the vegetative layer survey is provided in Section 6.3.

3.7 SITE DRAINAGE FEATURES

The original surface water management design for the Site was provided in the RAWP, drawings, and specifications. The original design included concrete v-ditches around the top perimeter of the cap and concrete toe berms or v-ditches around the Site perimeter to divert surface water runoff to existing surface water features. The surface water management program was redesigned in 2007 and was submitted to the USEPA as FCR-10 and FCR-10, Revision 1. A copy of FCR-10, Revision 1 is included in Appendix I.

The engineered cap design incorporated several measures to promote surface water runoff and to prevent erosion of the cap. These measures included the following items which are described in detail in the following sections:

- The final surface of the cap was graded so that the minimum slope would be two percent, and would direct surface water runoff to flow off the top of the cap and into the drainage swales located at the bottom of the steep slopes.
- Grass seed was applied to the final surface to reduce surface water runoff and promote transpiration.
- Drainage swales were constructed around the perimeter of the capped area to divert surface water runoff to an evapotranspiration basin located in the southeast corner of the Site, or to an infiltration basin located in the southwest corner of the Site.
- An evapotranspiration basin was constructed in the southeast corner of the Site to collect surface water runoff.
- An infiltration basin was constructed in the southwest corner of the Site to collect surface water runoff.
- An earthen berm was installed along the southern, northern, and western Site perimeter property lines to prevent surface water runoff from leaving the Site.
- A concrete curb was installed along the eastern Site property line to prevent surface water runoff from leaving the Site.
- Surface water runoff calculations were based on a 100-year, 24-hour rainfall event.

Copies of the storm water management program calculations are included in FCR-10, Revision 1 in Appendix I.

3.7.1 Surface Grading

The final surface of the cap was graded so that the minimum slope would be two percent, and would direct surface water runoff to flow off the top of the cap and into the drainage swales located at the bottom of the steeper slopes. The final as-constructed topography of the Site is shown on Figure 3-21. Typical cross-sections and details of the as-constructed engineered cap are included on Figure 3-22. The steeper slopes (>7:1) were covered with erosion control blankets (ECBs) to prevent erosion of the soil. The ECB materials installed on the slopes were North American Green model SC150 and were installed in accordance with the manufacturer's recommendations. The locations of the ECBs are shown on Figure 3-23.

3.7.2 Drainage Swales/Perimeter Berms

The drainage swales were constructed with an approximate slope of 0.5% and direct water into either a catch basin (CB-1) or the southeast evapotranspiration basin. In the northern swale, water collected west of approximately gridline T is directed to CB-1, while water collected east of gridline T is directed to the southeast evapotranspiration basin, as indicated on Figure 3-21. In the southern drainage swale water collected west of approximately gridline R+25 is directed to CB-1, while water collected east of gridline R+25 is directed to the southeast evapotranspiration basin. Profile views of the northern and southern drainage swales are included on Figure 3-24. ECB material was installed in the drainage swales to prevent erosion of the soil and to promote vegetative growth. The ECB materials used in the drainage swales were North American Green model C125. The ECBs were installed in accordance with the manufacturer's recommendations. The locations of the ECBs are shown on Figure 3-23.

To allow for future access to the capped areas of the Site, a concrete swale crossing and an access road were constructed at the location shown on Figure 3-21. The swale crossing was constructed in accordance with FCR-22, Revision 1 to allow vehicular traffic to safely drive over the swale in the eastern portion of the Site without damaging the sidewalls of the swale or the swale bottom. Details of the swale crossing and access road are included on Figure 3-21. A copy of FCR-22, Revision 1 is included in Appendix I.

Along the site perimeter, drainage features, including small berms, ditches and/or curbing, were installed to prevent surface water runoff from leaving the Site. Figure 3-21 shows the locations and details of the perimeter drainage features.

3.7.3 Catch Basin

As mentioned in the previous section, surface water runoff from the Site is directed into two drainage swales. Surface water runoff collected from the western portion of the Site is directed along the swales to catch basin CB-1. The catch basin is a 30-inch by 30-inch by 24-inch deep pre-cast concrete structure with a 30-inch by 30-inch bee-hive grate. To protect the ground surface around the catch basin from erosion, rip-rap was placed in an approximate 15 foot by 13 foot area around the catch basin. The locations of the catch basin and rip-rap are shown on Figure 3-21.

The water collected in the catch basin is directed to the southwest infiltration basin via a 12-inch high-density polyethylene (HDPE) pipe. The 12-inch pipe crosses a FID pipeline. Details of the FID pipeline crossing are included on Figure 3-25. Rip-rap was placed around the outfall of the pipe to protect the sidewall of the basin from erosion. The locations of the pipe and rip-rap are shown on Figures 3-21, 3-22, and 3-25.

3.7.4 Retention Basins

An evapotranspiration basin was constructed in the southeast corner of the Site and an infiltration basin was constructed in the southwest corner of the Site to manage surface water runoff from the Site. As previously mentioned, surface water runoff is directed to the basins by drainage swales. The basins are designed to retain surface water runoff until it either infiltrates or evaporates or transpires. Each basin is described below:

Southwest Infiltration basin
The southwest infiltration basin was designed to handle approximately 153,000 gallons of water, which is more than 1.7 times the volume of surface water runoff required based on a 100-year storm event. The basin also provides an additional 1.5 feet of freeboard above the HDPE pipe inlet. The basin is triangular in shape and is approximately 144 feet by 88 feet with a depth of approximately 5 feet. The sidewalls were constructed with a 2:1 slope and were covered with ECBs (SC-150). The eastern portion of the basin, at the tip, was also covered with rip-rap to prevent erosion. The location of the southwest infiltration basin is shown on Figure 3-21. The estimated dewatering time for the southwest infiltration basin is 32 hours. Copies of the surface water runoff, basin design, and dewatering calculations are included in FCR-10, Revision 1 in Appendix I.

Southeast Evapotranspiration Basin
The southeast evapotranspiration basin was designed to handle approximately 138,000 gallons of water (more than two times the volume of surface water runoff required based on a 100-year storm event). The basin also provides an additional 6 inches of freeboard. The basin is square with dimensions of approximately 90 feet by 90 feet with a depth of 3.5 feet. The sidewalls were constructed with a slope of 2.5 to 1 and were covered with ECBs (SC-150). A polyvinyl chloride (PVC) liner was also placed over the entire basin to prevent infiltration. The PVC liner was anchored in a trench around the perimeter of the basin, as indicated on Figure 3-22. The liner manufacturer provided a certification that documented the material met the requirements of the specifications, as revised by FCR-10, Revision 1. Because no field seaming was necessary, no samples were collected of the material for analysis. Two-feet of vegetative material were placed on top of the liner prior to seeding. Rip-rap was installed in two energy dissipation areas located at the outfalls of the drainage swales to protect the sidewalls of the basin. The locations of the energy dissipation areas are shown on Figure 3-21. The estimated dewatering time for the southeast evapotranspiration basin is less than 6 months based on a 100-year, 24-hour rainfall event. Copies of the surface water runoff, basin design, and dewatering calculations are included in FCR-10, Revision 1 in Appendix I.

3.8 SITE RESTORATION

The following sections provide a summary of the site restoration activities conducted after the closure cover was completed. In general the site restoration activities included seeding,

installation of a temporary security fence as well as permanent fencing, and installation of settlement markers.

3.8.1 Seeding

The RAWP required that vegetation be established on the completed cap and in other areas disturbed by construction, as appropriate, to generally match the surrounding undisturbed areas and to provide erosion protection and to enhance the aesthetic quality of the project area. The affected areas were seeded with a native wildflower seed mix in accordance with FCR-21. The native seed mix was applied at a rate of 27 pounds per acre using a hydroseeder. The hydroseed mix included a mulch and fertilizer, as recommended by the seed supplier. A copy of FCR-21 is included in Appendix I.

After the construction activities were completed and the capped areas were seeded, a temporary irrigation system was installed to provide the recommended amount of water to establish the seeded areas. The irrigation system consists of a mobile water cannon and several fixed impact sprinklers around the perimeter of the Site. The irrigation system components and operation are detailed in the Operation and Maintenance Manual included as Appendix K.

3.8.2 Perimeter Fence

To ensure Site security, a permanent chain link fence will be maintained around the Site's perimeter, encompassing the entire closure cover system. The permanent fence installation included replacement of existing temporary fencing in some locations, replacement of existing permanent fencing in some locations, and relocation of permanent fencing in some locations. Figure 3-21 shows the locations of as-constructed permanent fencing around the Site perimeter. Along the northern, eastern, and western Site perimeters the fence is a 6-foot high chain link fence with three strands of barbed wire along the top. Along the southern perimeter the fence was constructed using steel panels instead of chain link to match the existing permanent Pick-A-Part perimeter fence.

3.8.3 Settlement Markers

To enable monitoring of the stability of the closure cover system, 20 settlement markers were installed across the capped area at the locations shown on Figure 3-26 in accordance with FCR-23, Revision 1. The markers were constructed by setting a PK nail in a concrete base. The bases were 8 inches in diameter and 15 inches deep. A survey stake was placed adjacent to each marker to locate and identify the marker. The markers were surveyed based on benchmarks at the Site by a surveyor licensed in the State of California. A copy of the survey data is included in Appendix L.

3.9 FINAL SURVEY

Once the engineered cap, drainage features, and site restoration activities were completed, a final topographic survey was conducted on July 24, 2008 by a surveyor licensed in the State of California. The survey included the as-built site topography, the site drainage features, and the settlement markers. A copy of the independent third party surveyor's final gradation drawing is included in Appendix L.

3.10 DEVIATIONS FROM WORK PLANS

During implementation of the OU-2 ROD Amendment, the procedures and testing requirements listed in the RAWP, SAP/QAPP, CQAP/CQCP, and technical specifications required modifications to adjust for conditions encountered in the field. For each instance a deviation from the quality control procedures was required, an FCR form was completed and submitted to the USEPA for approval. A summary of the FCRs are presented in Section 3.10.1. In addition to FCRs, PI&CMRs were completed when other issues arose that did not require an FCR. A summary of the PI&CMRs completed during the project is included in Section 3.10.2. For minor changes in the construction methods not affecting the quality control testing, a FCR form or a PI&CMR form were not required. A summary of these other deviations from the RAWP is presented in Section 3.10.3. Copies of the FCRs and PI&CMRs are included in Appendix I.

3.10.1 Field Change Requests

A total of 23 FCRs were submitted and approved during implementation of the OU-2 ROD Amendment. A summary of each FCR is provided below:

FCR-01: FCR-01 addressed the neutralized material to be compacted. The neutralized material differed from the material encountered during the pilot study and consisted of more soil and less sludge than encountered in the pilot study. The density and backfill compaction testing resulted in wet densities greater than the upper limit of 120 pcf specified. FCR-01 modified the density requirements of the neutralized material being placed from between 107 and 120 pcf to between 115 and 135 pcf. FCR-01 was approved on November 2, 2006.

FCR-02: The RAWP specified a minimum overburden to sludge mix ratio of 1 part overburden to 1 part sludge and target ratio of 1.5 parts overburden to 1 part sludge. The excavated sludge material encountered contained a lower percentage of acidic sludge than the pilot study materials and did not require as much overburden material to stabilize. FCR-02 allowed for the option of conducting a one-point Proctor test on the sludge material prior to mixing with overburden. The one-point Proctor tests were collected after the batch of material had been neutralized with calcium carbonate to verify the material met the wet density standard of 115 to 135

pcf. Overburden was added as necessary to achieve the required density. FCR-02 was approved on November 22, 2006.

FCR-03: FCR-03 modified the RAWP, SAP/QAPP, and CQAP/CQCP to state that visible evidence of sludge, instead of pH, would be used to determine when all the sludge material has been excavated from the Site. FCR-03 also presented the USEPA's request for additional test pits on-site to verify no sludge was present in the specified areas. FCR-03 was approved on December 13, 2006.

FCR-04: FCR-04 modified the RAWP, SAP/QAPP, and CQAP/CQCP to state that visible evidence of sludge and pH of 2 or less, instead of pH less than 5, would be used to determine when all the sludge material had been excavated from off-site excavations. Material with a pH less than 2 would have been excavated and neutralized on-site per FCR-04. During the implementation of the OU-2 remedy, no off-site samples exhibited a pH of less than 2.0. FCR-04 was approved with conditions on February 9, 2007.

FCR-05: FCR-05 allowed the use of Severn Trent Laboratory (STL) facilities in Pittsburgh, PA; Denver, CO; North Canton, OH; or Los Angeles, CA to complete sample testing within the recommended project turnaround time, as needed. FCR-05 was approved on February 2, 2007.

FCR-06: FCR-06 added the use of USEPA Method 8270C PAH (SIM) for benzo(a)pyrene and dibenz(a,h)anthracene to obtain detection limits lower than the respective industrial PRGs for these constituents. FCR-06 was approved on February 9, 2007.

FCR-07: FCR-07 provided compaction testing requirements for small excavations and test pits in areas not located under the proposed cap footprint. FCR-07 required two compaction tests (at 2 feet and 4 feet bgs) for excavations deeper than 4 feet bgs, and one compaction test for excavations shallower than 4 feet bgs. FCR-07 was approved on March 19, 2007.

FCR-08: FCR-08, Revision 1 reduced the number of perimeter air sampling locations from four to two stations. FCR-08, Revision 1 also modified the stop work and operational procedures based on Level 1 air monitoring criteria. FCR-08, Revision 1 was approved via e-mail on May 23, 2007 and was signed by the USEPA on May 30, 2007.

FCR-09: FCR-09 modified the sampling/removal technique for soil located under the Pick-A-Part asphalt parking lot in the vicinity of a failed confirmation soil sample (PAPe-SW-07). This FCR was approved by the USEPA, however was not implemented. The area in question was excavated and new confirmation samples were collected in

accordance with the RAWP and SAP/QAPP. FCR-09 was approved via e-mail on May 23, 2007 and was signed by the USEPA on May 30, 2007.

FCR-10: FCR-10 and FCR-10, Revision 1 modified the surface water management program for the Site. Significant changes included using erosion control blankets instead of perimeter v-ditches at the top of the cap and using a perimeter swale to re-direct surface water runoff to an evapotranspiration basin in the southeast corner of the Site or to an infiltration basin in the southwest corner of the Site. FCR-10, Revision 1 was approved on October 17, 2007.

FCR-11: FCR-11 modified the specification for the GDL to utilize the manufacturer's updated version of the material. FCR-11 was approved on June 29, 2007.

FCR-12: FCR-12 allowed the use of the STL facility in Tacoma, WA to complete sample testing within the recommended project turnaround time, as needed. FCR-12 was approved on June 19, 2007.

FCR-13: FCR-13 modified the testing requirements for the GDL to remove UV stability as a test. The reason for removal of the test is that the GDL would not be subject to UV rays because it would be covered daily. FCR-13 was approved on July 12, 2007.

FCR-14: FCR-14 allowed the use of an excavator to perform the mixing activities if any additional sludge material was encountered. FCR-14 was approved on July 24, 2007.

FCR-15: FCR-15 modified the acceptance gradation criteria for the imported cushion layer and off-site backfill material. FCR-15 was approved on October 17, 2007.

FCR-16: FCR-16 allowed any concrete debris encountered as the subgrade is being prepared to be disposed of off-site at a licensed disposal facility. FCR-16 was approved on August 28, 2007.

FCR-17: FCR-17 modified the moisture content of the cushion layer during placement to within 2% less or 4% greater than the optimum moisture content. The FCR also modified the thickness of the cushion layer from 0.5 feet to 0.6 feet to allow a drive cylinder to be used for density testing. FCR-17 was approved on October 17, 2007.

FCR-18: FCR-18 modified the surveying requirements to no longer require a third party survey of the top of the GCL and GDL. FCR-18 was approved on September 19, 2007 and signed by the USEPA on September 20, 2007.

FCR-19: FCR-19 modified the wording of the last sentence in Part 3.1.b of Specification Section 313400 to state "No wheel ruts, footprints or other irregularities greater than

1-inch deep shall exist in the subgrade (cushion layer) prior to placement of the GCL." FCR-19 was approved on October 26, 2007.

FCR-20: FCR-20 clarified the requirements for placement and compaction of fill material while constructing the drainage swales. Clean backfill material would be placed and compacted to 90% of maximum dry density in 0.7 foot lifts in the same manner as other clean backfill operations at the Site. These level lifts would be placed from the current Site grades to within 1 to 2 feet of the bottom of the swale to establish a stable subgrade for the drainage swales. When the upper lifts are within 1 to 2 feet of the swale bottom, material would be placed in one-foot lifts to 85% of maximum dry density in the same manner as described for establishment of the vegetative cover. For areas where less than 2 feet of fill was required to establish swale grades, fill was placed in one-foot lifts to 85% of maximum dry density. FCR-20 was approved on January 24, 2008.

FCR-21: FCR-21 modified the seed mixture and application method specified in Specification Section 319000 (Site Restoration). The seed mixture was modified based on topsoil testing. The application method was modified to a one-step process using a hydro-seeder to apply the seed, mulch and nutrients. FCR-21 was approved on March 5, 2008.

FCR-22: FCR-22, Revision 1 presented a plan to modify the surface water management plan to allow for modifications to the perimeter berms along the northern, southern, eastern and western property lines, including the placement of a concrete curb along the eastern property line to prevent surface water runoff from exiting the property. FCR-22 also provided for a concrete swale crossing in the eastern portion of the Site to allow vehicular traffic to cross the northern/eastern drainage swale without damage to the swale. FCR-22, Revision 1 was approved on June 19, 2008.

FCR-23 FCR-23 Revision 1 reduced the number of settlement markers to 20 from the original number of 24. The change was implemented because the original settlement marker locations were chosen prior to finalization of the site grading plan and revision of the storm water management design. The original storm water design included v-ditches to intercept overland flow near the top of the slopes while the revised design directs sheet flow to the slopes and the perimeter drainage swale. FCR-23 removed the settlement marker locations from the 3:1 slope areas to remove the potential for concentrated flow and erosion around the settlement markers, and increased the number of locations on the top of the cap. FCR-23 Revision 1 was approved on July 22, 2008.

3.10.2 Problem Identification and Corrective Measures Reports

A total of three PI&CMRs were completed during implementation of the OU-2 ROD Amendment activities.

PI&CMR-01: PI&CMR-01 was completed when a 3-inch diameter by 12 inch long section of transite pipe was discovered while excavating an exposed pipe in the Tall Trees property. The excavation was immediately backfilled and the pipe was later removed and disposed of properly.

PI&CMR-02: PI&CMR-02 was completed when approximately 180 CY of placed, clean backfill material was discovered to be out of specification. The material was removed and stockpiled with an additional 200 CY of the material which had been delivered to the Site. The material was not used and was transported off-site.

PI&CMR-03C: PI&CMR-03C was completed when stained soils were observed while installing a replacement monitoring well (MW-5) along the northern property line. The stained soil was in an area previously excavated and backfilled with clean material, and is believed to be material which had spilled from haul vehicles when the area was used as a haul road. The stained material was excavated and disposed off-site at a properly licensed facility upon approval from the USEPA.

3.10.3 Other Deviations from Work Plans

During the implementation of the OU-2 ROD Amendment activities, other minor changes to the procedures in the RAWP were made based on field conditions. The minor changes are summarized below:

The RAWP (Section 3.2) states that the sludge excavations will proceed from the western portion of the Site to the eastern portion in 15- to 20-foot wide strips from the north to the south. The actual excavations were larger, and during portions of the neutralization, proceeded from the east to the west to accommodate placement of the sludge stockpile on top of the post-pilot study material in the western portion of the Site. This change in excavation methodology did not impact any quality control testing or the mixing operation and a formal FCR was not required.

The RAWP (Section 3.3.1) states that the volume of each mix batch will be verified by surveying and/or the use of a laser level. The mix batches were initially calibrated for volume estimates by laying out a specific area with stakes. The batch would then be flattened and measured for height with survey equipment to estimate the batch volumes. After the initial estimated batch volumes were calibrated with the load counts of placed material, the remaining mix batches

were estimated using load counts. Throughout the duration of the neutralization activities, mix batches were chosen at random to be surveyed to check the volume.

Additionally, the actual mix batches were mixed in a manner different than stated in the RAWP. The RAWP stated that the mix batches would be mixed by laying out sludge on bottom, mixing in calcium carbonate, adding overburden material at the specified ratios, and then mixing of neutralized sludge and overburden. During the mixing operations, overburden material was added one load at a time during mixing operations, instead of being placed as stated previously. A track mounted excavator and an agricultural disc were also used occasionally to pre-mix the batch to help "loosen" the material for the mix-head.

4.0 Air Monitoring and Sampling Program

4.1 PILOT AND POST-PILOT STUDY AIR MONITORING AND SAMPLING PROGRAM

During the neutralization pilot study and post-pilot study activities, a receptor-based air monitoring and sampling program was implemented. The pilot study air program consisted of real-time air monitoring and the collection of perimeter air samples. In addition, five days of background sampling were conducted prior to the pilot study. A summary of the pilot study air program is provided in the following sections.

4.1.1 Air Monitoring

Real-time air monitoring was conducted during the pilot study to ensure worker safety during the construction activities. During the pilot study real-time air monitoring was conducted at two locations: one in the construction zone and one at the downwind Site perimeter. During the post-pilot study activities, real-time air monitoring was conducted in the construction zone only because the activities were less intrusive and did not disturb as much non-neutralized sludge.

A portable dust monitor was used to measure the respirable particulates. A PID was used to monitor for VOCs. A multi-gas meter was used to monitor sulfur dioxide and hydrogen sulfide. The multi-gas meter also monitored for lower explosive limit, carbon dioxide, and oxygen levels.

The real-time monitoring data was compared against three tiers of risk-based concentrations. If a parameter was measured at a concentration above a tier level for 15 minutes, it would be considered an exceedance of that tier. If a parameter was measured at a concentration above a tier level for less than 15 minutes it would be considered a spike, and not an exceedance. If a tier 1 level was exceeded, certain actions (increase monitoring frequency, conduct colorimetric tube measurement, etc.) would be required based on the parameter. If tier level 2 was exceeded, then best management practices (BMPs) would be implemented depending on the parameter (don respirator, add water to reduce dust, etc). If tier level 3 was exceeded, work would be stopped until the cause of the exceedance was identified and mitigated.

During the pilot study and post-pilot study activities, no exceedances of the three tiers were identified. A few spikes were recorded, however, the durations were less than 15 minutes and they were not considered exceedances. The data from the pilot and post-pilot study air monitoring were used to develop the air monitoring program for the full-scale neutralization activities. Summaries of the pilot and post-pilot study air monitoring were submitted weekly during the pilot study, and summarized in a letter dated July 26, 2004 titled "Full-Scale Neutralization Air Monitoring and Sampling Program".

4.1.2 Air Sampling Methodology

During the pilot study, air samples were collected on days when yet-to-be-neutralized sludge was excavated or neutralization activities were conducted. Air samples were collected for the following parameters: total suspended particulates (TSP); metals (aluminum, antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, iron, lead, manganese, nickel, selenium, silver, thallium, vanadium, and zinc); particulate matter 10 microns in size or less (PM10); VOCs; SVOCs; and sulfur compounds.

The VOC air samples were collected and analyzed in accordance with the USEPA Compendium Method TO-14A, *Determination of Volatile Organic Compounds (VOCs) in Ambient Air Using Specially Prepared Canisters with Subsequent Analysis by Gas Chromatography* [January 1999, EPA/625/R-96/010b]. The samples were collected using stainless steel canisters with regulators to sample continuously over the entire work day.

The SVOC samples were collected and analyzed in accordance with the USEPA Compendium Method TO-13A, *Determination of Polycyclic Aromatic Hydrocarbons (PAHs) in Ambient Air Using Gas Chromatography/Mass Spectrometry (GC/MS)* [January 1999, EPA/625/R-96/010b]. The SVOC samples were collected continuously over the entire work day using a high volume air sampler.

The PM10 samples were collected in accordance with USEPA Compendium Method IO-2.3, *Sampling Ambient Air for PM10 Concentration Using Rupprecht and Patashnick (R&P) Low Volume Partisol Sampler*, [June 1999]. The PM10 samples were collected continuously over the entire work day using a low volume sampler through week seven of the pilot study. The sampling for PM10 was discontinued after week seven because the original intent of the sampling was to develop a ratio between PM10 and TSP. Once the ratio was developed, there was not a need for PM10 sampling.

The TSP samples were collected in accordance with USEPA Compendium Method IO-2.1, *Sampling of Ambient Air for Total Suspended Particulate Matter (SPM) and PM10 Using High Volume (HV) Sampler,* [June 1999]. The TSP samples were collected continuously over the entire work day using a high volume air sampler with a filter to collect the sample.

The metals samples were analyzed in accordance with USEPA SW-846 Methods. The metal samples were collected from the TSP sample filters.

The sulfur compound samples were analyzed in accordance with USEPA SW-846 Method 16M and ASTM Method 5504. The sulfur compound samples were collected continuously over the entire work day using a low volume pump and a tedlar bag.

In addition, a meteorological station was used to record the wind direction, barometric pressure, and temperature during working hours.

4.1.3 Pilot and Post-Pilot Study Air Sampling

Prior to commencement of the pilot study activities, air samples were collected for five days to provide background concentrations for comparison to the samples collected during the pilot study. The background samples were collected between March 21, 2003 and March 28, 2003. The samples were submitted to a laboratory and analyzed for TSP, metals (aluminum, antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, iron, lead, manganese, nickel, selenium, silver, thallium, vanadium, and zinc), PM10, VOCs, SVOCs, and sulfur compounds.

During the pilot study and post-pilot study activities, air samples were collected from four stations (S1, S2, S5 and S6) during working hours when non-neutralized sludge material was handled or neutralization activities were being conducted. During the pilot study, conducted from April 2003 through June 2003, air samples were collected using the equipment listed in Section 4.1.2. The air samples were analyzed for TSP; metals (aluminum, antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, iron, lead, manganese, nickel, selenium, silver, thallium, vanadium, and zinc); PM10; VOCs; SVOCs; and sulfur compounds. During the pilot study, the results of the air sampling were compared to the three tier trigger concentrations used for the real-time air monitoring. This comparison was for informational purposes only. During the post-pilot study period from August 2003 through November 2003, air samples were collected and analyzed for TSP and lead only. This reduction in parameters was deemed acceptable because the post-pilot study activities were less intrusive than the pilot study activities. During the post-pilot study activities no sludge neutralization activities were conducted and the amount of exposed sludge material was minimized.

4.1.4 Air Sample Risk Evaluation

Upon completion of the post-pilot study, a risk evaluation was conducted on the pilot and post-pilot study air data to determine if the USEPA's target excess cancer risk range and target hazard index were exceeded. The risk evaluation was summarized in a July 26, 2004 letter submitted to the USEPA, and is summarized below.

The risk evaluation was conducted for the COCs for two cases: central tendency exposure (CTE) and reasonable maximum exposure (RME). The CTE case was based on mean exposure point concentrations (EPCs), and the RME case was based on 95% upper confidence level (UCL) EPCs. Each case was evaluated using two exposure scenarios. The first scenario used 12 hours per day for 217 days to represent the actual pilot study/post-pilot study activities. The second scenario used the likely conditions of the full-scale neutralization of 6 hours per day for 90 days. The results of the pilot/post-pilot study risk evaluation are summarized below:

- For the CTE case, with the first scenario of exposure assumptions (12 hours/day for 217 days), the estimated excess cancer risk was 7.7E-06 and the hazard index was 1.2. The main contributors to the hazard index were aluminum, hydrogen sulfide, and bromomethane.

- For the RME case, with first scenario of exposure assumptions (12 hours/day for 217 days), the estimated excess cancer risk was 8.7E-06 and the hazard index was 1.3. The main contributors to the hazard index were hydrogen sulfide, aluminum, and bromomethane.

- For the CTE case, with the second scenario of exposure assumptions (6 hours/day for 90 days), the estimated excess cancer risk was 1.6E-06 and the hazard index was 0.2.

- For the RME case, with the second scenario of exposure assumptions (6 hours/day for 90 days), the estimated excess cancer risk was 1.8E-06 and the hazard index was 0.3.

For each case and exposure scenario, the estimated excess cancer risks were at the low end of the USEPA's established target excess cancer range from 1.0E-06 to 1.0E-04. For the CTE and RME cases with exposure scenario 1 (12 hours/day for 217 days), the hazard index exceeded the USEPA target hazard index of 1.0. For the CTE and RME cases with exposure scenario 2 (6 hours/day for 90 days), the hazard indices were below 1.0.

A target organ hazard evaluation was conducted to verify that the potential hazard estimates were acceptable. Estimating hazards by target organs is a USEPA-recommended approach when a cumulative hazard index exceeds 1.0. This approach demonstrates that for noncarcinogens affecting the same target organ, the hazard index does not exceed 1.0. The target organ hazard evaluation was conducted for the CTE and RME cases using the first exposure scenario (12 hours/day for 217 days). The evaluation used the chemical EPCs and the following hierarchy of sources for toxicity criteria: 1) Cal/EPA RELs; 2) IRIS; 3) PPRTV; 4) HEAST; 5) NCEA; 6) ORNL (RfCs or RfDs only); and 7) NIOSH (target organs only).

The target organ hazard indices ranged from 0.0001 to 0.7 for the CTE case, and from 0.0001 to 0.8 for the RME case. No target organ hazard index exceeded 1.0, therefore, the target organ evaluation demonstrated that the USEPA target hazard index was not exceeded during the pilot and post-pilot study activities.

Based on the results of the pilot and post-pilots activities risk evaluation, the full-scale neutralization air program was based on the following assumptions:

- The reasonable maximum exposure-based approach using 95% UCL EPCs;

- Use of USEPA-proposed equations;

- Use of site-specific exposure assumptions, such as exposure time and frequency;
- Use of toxicity criteria, i.e., subchronic inhalation reference conditions (RfCs) and inhalation unit risks (IURs);
- Comparison of estimated risks against the USEPA target hazard index of 1.0; and
- Application of the target organ approach if the cumulative hazard index exceeds 1.0.

4.2 FULL-SCALE NEUTRALIZATION AIR MONITORING AND SAMPLING PROGRAM

The full-scale neutralization air monitoring and sampling program began with background/practice sampling in April and May of 2006 and came to conclusion upon the completion of the cushion layer in October 2007. The following summarizes the air monitoring and sampling program activities.

The complete air monitoring and sampling program defined by this section was implemented when yet-to-be neutralized sludge was managed. The air sampling program parameters were reduced during construction activities not involving yet-to-be neutralized sludge. The air program for the Site and off-site properties was developed in conjunction with the USEPA based on the results of the pilot and post-pilot study air program and comments from the USEPA. The full-scale air program follows similar protocols for off-site receptors and on-site workers, except for on-site worker hydrogen sulfide levels. Perimeter air sampling was conducted to verify that off-site receptor exposure limits were not exceeded. A receptor-based air monitoring and sampling program was instituted for the remedial activities. The air program consisted of the following:

- Real-time air monitoring for protection of on-site workers;
- Real-time perimeter monitoring for protection of off-site receptors;
- Action levels for protection of on-site workers and off-site receptors based on USEPA exposure standards and methodologies, except for on-site worker hydrogen sulfide levels and on-site and off-site sulfur dioxide levels;
- Perimeter air sampling for documentation that off-site receptor exposure limits were not exceeded; and
- Modifications to the air monitoring program were made based on a review and comparison of the real-time air monitoring data and the analytical data.

During sludge management, excavation, and selected earth moving activities, a health and safety officer was present to conduct real-time air monitoring and perimeter air sampling. Additional personnel assisted with air monitoring and/or sampling if and only if they were properly trained by the health and safety officer or other qualified and experienced personnel.

4.2.1 Background Air Monitoring and Background Air Sampling

Background real-time air monitoring was conducted, per USEPA request, on April 24, April 26, April 28, May 1, May 3, and May 5, 2006. The USEPA requested updated background monitoring because: the original data from the pilot study was over 3 years old; the equipment proposed for the full-scale neutralization was different from equipment used during the pilot study; consensus evaluation of real-time air monitoring was requested; and the monitoring would familiarize the Site personnel with equipment usage, completion of field forms, downloading data from the instruments, and production of the weekly air monitoring reports, as well as provide background data. A summary report discussing the background air monitoring sessions was submitted to the USEPA on June 1, 2006.

Five sets of background air samples were collected over a six day period (April 24, April 26, April 28, May 1, May 3, and May 5, 2006) prior to initiation of construction activities to evaluate ambient concentrations of airborne chemicals. To obtain background data for timeframes similar to those construction activities, background samples were collected during weekdays, rather than on weekends, since construction work activities were primarily conducted on weekdays. Samples were collected and analyzed according to the methods and sampling times specified in subsequent sections. A memorandum presenting the results of the background sampling period was submitted to the USEPA on June 13, 2006, upon receipt and evaluation of the laboratory analytical results. A copy of the memorandum is provided in Appendix M. In general, sulfur was not detected in any background samples, VOCs were detected in most of the samples, metals were detected in all of the samples, and TSP was detected in all of the samples.

4.2.2 Real-Time Air Monitoring

Real-time air monitoring was conducted for both on-site worker and off-site receptor protection. Two sets of monitoring instruments were used. One set was located in the construction area breathing zone and the other was located at the downwind Site perimeter. For off-site activities, the downwind "perimeter" location was within 100 feet of the construction activities. The perimeter location was adjusted as needed to accommodate wind direction shifts and the location of work activities. Real-time air monitoring was conducted on days when earth moving activities were being implemented. The monitoring generally began a maximum of one hour prior to commencement of earth moving activities and ceased within one hour of the end of earth moving activities. The following constituents were monitored in the real-time air monitoring program:

- Total VOCs;
- Hydrogen sulfide;
- Sulfur dioxide; and
- PM10.

In compliance with the National Institute for Occupational Safety and Health (NIOSH) and the California Occupational Safety and Health Administration (CalOSHA) values, the real-time hydrogen sulfide and sulfur dioxide monitoring data obtained in the on-site work area were compared to the criteria indicated in the following table. In addition, in compliance with the USEPA-proposed values, the real-time air monitoring data obtained in the construction area breathing zone for total VOCs and PM10 were compared to the criteria in the following table. The values in the table are equal to or are more protective than the worker protection levels included in the health and safety plan (HASP):

Construction Zone Criteria			
Parameter	**Level 1**	**Level 2**	**Level 3**
Total VOCs	5 ppm	20 ppm	20 ppm
PM10	2.5 mg/m^3	5 mg/m^3	5 mg/m^3
Sulfur dioxide	1 ppm	2 ppm	5 ppm
Hydrogen sulfide	5 mg/m^3 (3 ppm)	10 mg/m^3 (7 ppm)	14 mg/m^3 (10 ppm)

The real-time monitoring data obtained at the property boundary was compared to the criteria contained in the following table:

Perimeter Criteria			
Parameter	**Level 1**	**Level 2**	**Level 3**
Total VOCs	5 ppm	20 ppm	20 ppm
PM10	2.5 mg/m^3	5 mg/m^3	5 mg/m^3
Sulfur dioxide	1 ppm	2 ppm	5 ppm
Hydrogen sulfide	30 µg/m^3 (0.02 ppm)	60 µg/m^3 (0.04 ppm)	90 µg/m^3 (0.06 ppm)

In May 2007, after approval of FCR-08, Revision 1 for the reduction of air sampling, the USEPA requested that air monitoring screening criteria be changed. The level 2 and level 3 construction zone and perimeter criteria were deleted and the more stringent Level 1 criteria were used as the basis for the 15-minute exceedance period. A copy of FCR-08, Revision 1 is included in Appendix I.

If a parameter exceeded one of the criteria for more than 15 consecutive minutes, it was considered an exceedance and actions would be taken as described below:

- If the Level 1 criteria were exceeded for any parameter (as indicated by preset alarm signal for instantaneous readings) at either the on-site work area or the property boundary, the appropriate instrument readings were observed continuously for 15 consecutive minutes. If the levels remained below Level 1 criteria for the 15 consecutive minute interval, the continuous observations ceased. If the levels were greater than Level 1 criteria, but less than Level 2 criteria, the BMPs currently being used were implemented.

- If the Level 2 criteria were exceeded for 15 consecutive minutes, additional BMPs were implemented. The additional BMPs may have included additional wetting of calcium carbonate, increased use of water as dust suppressant, increased addition of calcium carbonate to reduce hydrogen sulfide or sulfur dioxide emissions, limiting the amount of exposed sludge, or covering exposed sludge with overburden soil.

- If the Level 3 criteria were exceeded for 15 consecutive minutes, then the work would be stopped and efforts made to modify operational procedures to reduce exposure or emissions. USEPA approval would be obtained before work resumed.

During the concrete segregation and full-scale neutralization, there were no 15 minute exceedances of the screening criteria. There was one instance that approached the 15 minute exceedance threshold. Active communication between field staff and the implementation of BMPs caused monitoring levels to drop below Level 1 criteria.

Real-time monitoring was documented on real-time air monitoring logs. Separate forms were used for construction zone monitoring and perimeter monitoring. Field activities requiring real-time monitoring were documented on the field activity daily logs. Copies of the completed air monitoring field forms can be found in Appendix N.

Weekly summaries of real-time air monitoring data were submitted to the USEPA and included the complete datalogs for all monitoring instruments, summary pages for the datalogs, calibration logs, real-time air monitoring logs, meteorological station data, field activity daily logs, and a summary of the air sampling activities.

Stantec utilized the following instruments for real-time air monitoring:

Two SentryRAE Units - The SentryRAE units were equipped with five sensors. The sensors included a PID, percent lower explosive limit (LEL), percent oxygen, sulfur dioxide level, and hydrogen sulfide level. One SentryRAE unit was utilized at the downwind Site perimeter to monitor VOCs and sulfur dioxide. One SentryRAE unit was utilized in the construction breathing zone to monitor VOCs, percent LEL, percent oxygen, sulfur dioxide level, and hydrogen sulfide level.

One Jerome 631-X Unit – A Jerome 631-X hydrogen sulfide analyzer, or equivalent, was used at the downwind Site perimeter to monitor hydrogen sulfide levels. The Jerome 631-X offered a detection range of 0.003 to 50 ppm.

Two Thermo Electron ADR-1200S Units – Thermo Electron ADR-1200S units were used to monitor PM10 at the downwind Site perimeter and in the construction area breathing zone.

The two SentryRAE units were programmed to read continuously and record the data during construction activities in 1-minute and 15-minute averages. The two Thermo Electron units were programmed to read continuously and record the data during construction activities as 1 minute averages. The Jerome 631-X was programmed to display and record hydrogen sulfide readings on 1-minute intervals. The internal clocks of all the instruments were synchronized to Pacific Standard Time (PST), with no daylight savings adjustments, so all the readings were consistent. The data from all the instruments was downloaded to a personal computer daily and all data was maintained and available on-site. In addition to automatic datalogging, readings were manually recorded onto the field forms every 15 minutes during the duration of monitoring.

During the full-scale neutralization activities, the real-time air monitoring instruments occasionally failed. When an instrument failed, the following contingency procedures were implemented until the faulty instrument was repaired or replaced. If the faulty instrument could not be repaired on-site within one day, rental instruments were used until the faulty instrument was repaired or replaced. A MultiRAE 5-gas meter was used to monitor VOCs and sulfur dioxide, and a pDR-1000AN was used to monitor PM10, as part of the contingency plan when the approved primary air monitoring equipment failed. However, if the primary equipment, or an equivalent instrument, was not available by the close of business on the second day, Site work requiring air monitoring was stopped until a replacement instrument was obtained. The contingency procedures that were used for faulty instruments are listed below:

Real-Time Air Monitoring Contingency Plan	
Failed Equipment	**Contingency Procedure**
Perimeter SentryRAE 5-Gas Meter	Used backup RAE (MultiRAE) to record VOC and SO_2.
Construction Zone SentryRAE 5-Gas Meter	Used perimeter SentryRAE in Construction Zone and followed procedure for failure of perimeter SentryRAE. The use of the SentryRAE in the Construction Zone allowed proper implementation of BMPs.
Perimeter Jerome H_2S Analyzer	Used the SentryRAE to monitor for H_2S.
Perimeter Thermo Electron ADR 1200S Particulate Monitor	Used a Thermo MIE pDR-1000AN meter to monitor for particulates.

Construction Zone Thermo Electron ADR 1200S Particulate Monitor	Used perimeter Thermo ADR 1200S instrument in the Construction Zone and use Thermo MIE pDR-1000AN at the perimeter.
Note: All instruments used in contingency measures (as described above) were successfully used during the pilot study.	

4.2.3 Air Sampling

Air sampling was conducted during excavation activities when yet-to-be neutralized sludge was excavated, mixed, or transported. Air samples were collected initially at sampling stations situated at four locations on the perimeter of the working area. Two sampling stations were at fixed positions and two stations were mobile and were re-located based on work activities and wind direction. The following constituents were included for analysis in the air sampling program:

- VOCs;
- Sulfur compounds;
- TSP;
- Aluminum;
- Chromium;
- Lead; and
- Nickel.

The basis for selecting these parameters is summarized in the "Technical Memorandum Evaluation of USEPA-Proposed Real-time Perimeter Air Monitoring Program for the Purity Oil Sales Superfund Site", and amending correspondence. A copy of these documents is included Appendix G of the RAWP.

A meteorological station positioned at the Site recorded temperature, barometric pressure, wind speed and direction, precipitation, and standard deviation of the horizontal wind direction (sigma-theta). A humidity sensor was added to the meteorological station to correlate relative humidity effect on air monitoring equipment. The data was recorded in 15-minute intervals and the recording times were correlated with the time used for the real-time monitoring equipment. A wind rose was generated on a daily basis to provide a graphical representation of the frequency distribution of the measured wind speed and direction. Meteorological data was collected from June 7, 2006 through May 6, 2008.

During construction activities that involved the excavation, mixing, or transportation of acidic sludges, perimeter air sampling included collecting and analyzing samples for TSP, aluminum, chromium, lead, nickel, VOCs, and sulfur compounds. During construction activities involving the excavation or movement of potentially contaminated soils, or concrete/debris removal and breakup of large pieces of concrete/debris with no acidic sludges, the perimeter air sampling included analysis for TSP, aluminum, chromium, lead and nickel. After the 6-inch cushion layer

was installed over the neutralized sludge/soil mixture, perimeter air sampling was not conducted in accordance with the approved RAWP.

FCR-08, Revision 1 was approved on May 23, 2007. This allowed the reduction of perimeter air sampling locations from four stations to two stations, and changed the stop work and modified operational procedures to Level 1 air monitoring criteria.

Sampling for VOCs and sulfur compounds concluded on September 14, 2007 when the last of the acidic sludge was neutralized. Air sampling for TSP, including metals, concluded on October 26, 2007 when the cushion layer placement was complete.

4.2.3.1 Air Sampling Procedures

TSP, Aluminum, Chromium, Lead, and Nickel

TSP was sampled using high-volume volumetric flow-controlled samplers, in accordance with USEPA Inorganic Compendium Method IO-2.1, *Sampling of Ambient Air for Total Suspended Particulates Matter (SPM) and PM10 Using High Volume (HV) Sampler* (June 1999, EPA/625/R-96/010a). The TSP filters were also analyzed for aluminum, chromium, lead, and nickel. Samples were collected over 10-hour sample periods (morning to evening). The sample time periods were adjusted to be consistent with construction work activity timeframes.

VOCs

VOCs were sampled using cleaned, evacuated SUMMA polished stainless steel canisters. Sampling and analysis of VOCs were conducted in accordance with USEPA Toxic Organic Compendium Method TO-14A, *Determination of VOCs in Ambient Air Using Specially Prepared Canisters with Subsequent Analysis by Gas Chromatography* (January 1999, EPA/625/R-96/010b). Integrated samples for VOC analysis were collected over 10-hour time periods. The sample time periods were adjusted to be consistent with construction work activity timeframes.

Sulfur Compounds

Sulfur compounds were sampled using gas sampling bags (i.e., Tedlar), as requested by USEPA, and lung samplers (sample bag container and pump). Samples were analyzed using ASTM D5504. Samples were collected for analysis of sulfur compounds over 10-hour periods. The sample time periods were adjusted to be consistent with construction work activity timeframes.

4.2.3.2 Laboratory Procedures

During excavation activities, sulfur samples were shipped (for next-day delivery) to the laboratory on the same day they were collected to meet the required 24 to 48 hour hold times.

VOC samples were also shipped (for next-day delivery) to the laboratory on the day of collection. When it was not possible to ship a sample on the day of collection, the sample was shipped the following day. The TSP and metals samples were shipped to the laboratory on a weekly basis.

A standard turnaround time (TAT), 14 to 21 days, was requested for all analyses. However, if conditions in the field, such as nuisance complaints or unexpected sustained real-time monitoring results, warranted expedited analysis, the RAWP stipulated that samples would be shipped to the laboratory on the day of collection and a quick turn-around protocol would be requested. In addition, expedited laboratory analysis protocol would be requested for the appropriate parameters should Level 3 criteria be exceeded twice during any given workday. During the remedial action, no expedited sample results were required.

4.2.3.3 Air Sampling Documentation and Data Collection

All sampling activities were recorded in the field on air sampling field logs, and the collected information was transferred to electronic forms for presentation. For TSP and metals, the field data collected was transferred to electronic sample forms to calculate the volumes of air sampled over the sample collection period. The air sample volumes were provided to the laboratory, which, in turn, provided results in concentration form (rather than mass). Copies of the air sampling field logs are included in Appendix N.

4.2.3.4 Air Sampling Data Screening

Upon receipt, the laboratory analytical results were compared to a site-specific short-term screening criteria developed by the USEPA and CEMC. Copies of the laboratory analytical reports are included in Appendix O. The short-term screening criteria values are included in Table 4-1. If a concentration exceeded a short-term screening criteria value for an analyte, the USEPA was notified within 48 hours of identifying the exceedance. The field notes and associated forms were reviewed for the day(s) with the exceedance and the potential cause for the exceedance was investigated. Once the potential cause was identified, BMPs were implemented, where applicable, to minimize the chance for future exceedances. These exceedance investigations were summarized and submitted to the USEPA. A summary of the site-specific short-term screening criteria and copies of the summaries submitted to the USEPA are included in Appendix P.

4.2.3.5 Air Sampling Risk Evaluation

During the implementation of the air sampling program, risk evaluations were performed using the 95% UCL EPCs. Meteorological data was used to determine which stations were upwind or downwind for each day, but all air sampling data was included in the EPC calculations. The EPCs were summarized on a monthly basis and compared with the pilot study EPCs. Copies of the monthly risk evaluations are included in Appendix Q. In addition to the monthly risk

evaluations, a risk evaluation was conducted using the analytical results from the entire full-scale neutralization time frame. A summary of the risk evaluation for the entire project length is provided below.

A RME approach was used for the risk evaluation, and the 95% UCL EPCs were calculated for each air sampling station using ProUCL version 3.00.02. No data were excluded from the calculations based on wind direction. One-half of the sample quantitation limit (SQL) was used in calculating 95% UCL EPCs for constituents that were non-detects. The 95% UCL EPCs are summarized by station in Tables 4-2 through 4-5.

Table 4-6 summarizes a comparison of the 95% UCL EPCs for the full-scale neutralization against the 95% UCL EPCs determined from the air sampling results of the pilot study. A summary of the full-scale 95% UCL EPCs exceedances of the pilot study 95% UCL EPCs for each station is presented below:

- Station S1 – bromomethane
- Station S2 – benzene, bromomethane, chromium, lead, nickel, and trichlorofluoromethane
- Station S3 – benzene and bromomethane
- Station S4 - bromomethane

The risk evaluation was performed using the USEPA-proposed equations shown below:

$$Risk_C = C_{air} \cdot \frac{(ET \times EF \times ED)}{AT_C} \cdot IUR$$

$$HQ = C_{air} \cdot \frac{(ET \times EF \times ED)}{AT_{NC}} \cdot \frac{1}{RfC}$$

The averaging time for carcinogens (AT_C) is a lifespan of 70 years while the averaging time for noncarcinogens (ATN_C) is one year. The concentration in air (C_{air}) is equal to the 95% UCL EPC for each constituent. IURs and subchronic inhalation RfCs, based on the Online Toxicity Criteria Database and Reference Exposure Levels (RELs) from the California Environmental Protection Agency (Cal-EPA), 2007 and the USEPA Region 9 PRGs, are used to determine the excess cancer risk ($Risk_C$) and noncarcinogenic hazard quotients (HQs)/hazard index (HI), respectively. Subchronic RfCs were not established by USEPA for select sulfur compounds (carbonyl sulfide, diethyl sulfide, n-butyl mercaptan, propyl mercaptan, and tetrahydrothiophene). The subchronic RfCs used in the risk evaluation for these compounds are based on surrogate chemicals (carbon disulfide and hydrogen sulfide) and may be conservative.

Two different exposure scenarios (assumed and actual) for off-site receptors were used to evaluate the potential health risks. The assumed exposure scenario consists of a 12-hour

exposure time (ET), 250-day exposure frequency (EF) [5 days per week for 50 weeks based on the USEPA's 1991 "Risk Assessment Guidance for Superfund, Human Health Evaluation Manual: Standard Default Exposure Factors." OSWER Directive 9285.6-03], and a one year exposure duration (ED) [based on the USEPA's December 2003 "Supplemental Guidance for Developing Soil Screening Level for Superfund Sites". OSWER 9355.4-24.] The actual exposure scenario was determined from an ET based on Off-Site Receptor Exposure Logs completed daily in the field. These logs are included in Appendix N and summarized in Table 4-7. From these logs, a daily exposure average (the totals of the maximum daily exposures for all stations divided by the number of active construction days) was calculated and rounded to the nearest hour. Therefore, the actual exposure scenario consists of a 3-hour ET, 250-day EF (5 days per week for 50 weeks), and one-year ED.

Exposure Scenario: Assumed

Results of the risk evaluation using the assumed exposure scenario are shown in Tables 4-8 through 4-11 and are summarized below:

- Station S1: the estimated excess cancer risk was 5E-07, and the estimated HI was 0.5, as shown in Table 4-8;
- Station S2: the estimated excess cancer risk was 1E-06, and the estimated HI was 0.7, as shown in Table 4-9;
- Station S3: the estimated excess cancer risk was 4E-06, and the estimated HI was 0.8, as shown in Table 4-10; and
- Station S4: the estimated excess cancer risk was 5E-07, and the estimated HI was 0.6, as shown in Table 4-11.

Exposure Scenario: Actual

Results of the risk evaluation using the actual exposure scenario are shown in Tables 4-12 through 4-15 and are summarized below:

- Station S1: the estimated excess cancer risk was 2E-07, and the estimated HI was 0.2, as shown in Table 4-12;
- Station S2: the estimated excess cancer risk was 4E-07, and the estimated HI was 0.2, as shown in Table 4-13;
- Station S3: the estimated excess cancer risk was 1E-06, and the estimated HI was 0.3, as shown in Table 4-14; and

- Station S4: the estimated excess cancer risk was 2E-07, and the estimated HI was 0.2, as shown in Table 4-15.

Conclusions

For all stations and exposure scenarios, the estimated excess cancer risks were at the low end or below USEPA's established target excess cancer risk range from 1E-06 to 1E-04 and below the target risk of 1E-05 for this Site. The main contributor to the risk was trichloroethene (2.6E-06 at Station S3 for Assumed Exposure Scenario).

The estimated HQs for all stations and exposure scenarios were below USEPA's target HQ of 1.0; therefore, no target organ analysis was required. The main contributor to the HQs was bromomethane (2.8E-01, at Stations S2 and S4 for Assumed Exposure Scenario).

These results indicate human health was not adversely impacted during the full-scale neutralization activities conducted from June 2006 through October 2007.

Copies of all the air sample laboratory analytical reports were submitted to the USEPA throughout the project, and are included in Appendix O.

5.0 Site Chronology

The following table presents a timeline for significant events related to Operable Unit 2 at the Site.

Date	Event
1980 - 1981	California Regional Water Quality Control Board – Central Valley Region (CVRWCB) conducts surface water and groundwater sampling
February 1982	USEPA, Department of Health Services (DHS), and CVRWCB perform site investigation
September 1983	Site placed on National Priorities List
April to May 1985	USEPA implements emergency response to "tarry" soil removal
January 1986	USEPA became lead agency for Site and commenced a Remedial Investigation and Feasibility Study (RI/FS)
May 1986	USEPA issues RI/FS report
October 1988	USEPA issues a supplemental RI/FS report
April 1989	USEPA issues completed FS report and a proposed plan to address OU-1 and OU-2
April 1989	Consent Decree and Statement of Work submitted to United States Federal Court
June 1992	USEPA issues proposed plan for OU-2
September 1992	USEPA issues Record of Decision for OU-2
January 1994	USEPA signed Administrative Order of Consent for OU-2
June 1994	"Pre-Design Summary and Conceptual Design for Operable Unit Two (Soils)" was completed.
February to March 1995	SVE pilot test conducted.
May 1996	"Final 100% Design Report for Operable Unit Two (soils)" was completed.
July 1996	USEPA issues Explanation of Significant Differences (ESD) for OU-2 to revise design requirements
February 1998	Portions of North Central Canal abutting the Site were enclosed within a reinforced concrete pipe
August 1998	"Remedial Action Work Plan for Operable Unit Two (Soils)" was completed (RAWP)
December 1998	Consent Decree entered
September 2000	"Remedial Action Work Plan for Operable Unit Two (soils)" was re-submitted
October 2000	Construction Activities to implement OU-2 remedy begin
December 2000	Revision 1 to the "Remedial Action Work Plan for Operable Unit Two (Soils)" was completed

March 2001	USEPA issues a second ESD to temporarily relocate residents of the Tall Trees Mobile Home Park during construction of the OU-2 remedy
September 2001	USEPA completed a five year review of the remedies selected for the Purity Site
October 2001	Residents of the Tall Trees Mobile Home Park were re-located
May 2002	The following addenda to the 2000 RAWP were submitted: • Remedial Action Work Plan Addendum • Construction Quality Control Plan Addendum • Perimeter Air Monitoring and Sampling Plan Addendum • Health and Safety Plan Addendum
July 2002	Draft Sampling and Analysis Plan/Quality Assurance Project Plan (SAP/QAPP) was completed
July 2002	Bench scale testing completed to determine most effective solidification and neutralization agents. Calcium carbonate deemed most effective
December 2002	USEPA confirms that contamination from the Site has migrated to adjacent properties
January 2003	Work plans for a soil neutralization pilot study completed
February 2003 to April 2003	Demolition of the Tall Trees Mobile Home Park
April 2003 to June 2003	Pilot scale testing conducted on-site to determine the most effective procedures for neutralizing the sludge materials and to backfill/compact the neutralized material
August 2003 to December 2003	Conducted extended pilot testing to include concrete and debris segregation activities
August 2003	"Draft Neutralization Remedial Action Work Plan" was completed
December 2003	Non-essential field personnel demobilized from Site
January 2004	"Draft Neutralization Remedial Action Work Plan Addendum for OU-2 Closure Cap" was completed
April 2005	USEPA publishes proposed plan for OU-2
September 2005	"Operable Unit 2 – Remedial Action Work Plan" was completed
May 2006	Mobilization for the implementation of the OU-2 remedy begins
June 2006	Test pits were excavated to determine extents of acidic sludges and off-site contamination
June 2006	Site preparation activities begin including concrete and debris segregation
July 2006	USEPA issues a ROD Amendment for OU-2
August 2006	Addenda to the RAWP are completed to address Alternatives 3 and 4 for the Golden State Market (GSM) property
October 2006	Revised RAWP and SAP/QAPP were completed
October 2006	Neutralization activities begin
January 2007	Final RAWP and SAP/QAPP were completed and conditionally approved by USEPA
February 2007	Revised work plan for Alternative 3 for the GSM was completed

February 2007	Soil borings were completed to investigate the GSM property
March 2007	GSM Front Yard Investigation Report was completed
April 2007	Revised work plan for Alternative 4 for the GSM was completed
August 2007	Field Change Request 10, Revision 1 to revise the storm water management program for the Site is completed
October 2007	"Definable Features of Work Completion Report for Sludge Neutralization Activities" is completed
October 2007	"Definable Features of Work Completion Report for Off-Site Remediation Activities" is completed
June 2008	OU-2 construction activities related to sludge neutralization/site restoration are complete
October 2008	Remedial Action Completion Report for OU-2 is completed

6.0 Performance Standards and Quality Control

6.1 SLUDGE NEUTRALIZATION

6.1.1 pH Testing

During the pilot study and full-scale neutralization activities, samples were collected for pH analysis. The samples were analyzed in an on-site laboratory in accordance with SW846 EPA Method 9045D, Section 7.2, the RAWP and the SAP/QAPP. The procedure for conducting the pH analysis is summarized below:

1. Placed 20 grams of material into a 50-milliliter beaker with 20 milliliters of reagent water (0.01 M calcium chloride [$CaCl_2$]).
2. Mixed substance with a mechanical mixer for five minutes.
3. Allowed mixture to stand for one hour to allow the majority of solids to settle.
4. Measured the pH of the clear supernatant solution.

6.1.2 Pilot Study Neutralization

During the pilot study, samples of yet-to-be-neutralized sludge material were collected prior to mixing a batch of sludge to determine the average initial pH. The samples were analyzed using the on-site laboratory in accordance with SW846 Method 9045D as described in Section 6.1.1. Based on the initial pH and the volume of the batch of sludge, the volume of calcium carbonate required to neutralize the sludge to a pH greater than 5.0 was calculated. During the pilot study, a total of 57 batches of sludge were neutralized. The initial pH of the batches ranged from 0.0 to 4.2. A total of 56 batches exhibited an initial pH of less than 5.0 ranging from 0.0 to 4.2. The pH of one batch was not available for reporting. A total of 603 CY of calcium carbonate was utilized to neutralize 5,485 CY of sludge material during neutralization, which corresponded to an average calcium carbonate dosage of 6.7 percent per batch. Once a batch of sludge material was mixed with calcium carbonate and overburden material, three samples were collected for pH analysis to verify the batch was neutralized to a pH above 5.0. If all three pH samples were above 5.0, the batch was considered neutralized and could be used as backfill material once the minimum density requirements were met. The density testing procedures are described in Section 6.2.

A summary of the pilot study neutralization batches including the batch numbers, dates, volumes of sludge material, initial pH values, calcium carbonate dosages, and the final pH

values is included as Table 3-1. Copies of the neutralization log forms are included in Appendix E.

6.1.3 Full-Scale Neutralization

The quality control procedures followed during the full-scale neutralization activities are generally the same as the procedures used during the pilot study. The full-scale quality control procedures are described in detail in the RAWP and the SAP/QAPP. During the full-scale neutralization, samples of yet-to-be-neutralized sludge material were collected from each batch of sludge prior to mixing to determine the average initial pH. The pH samples were analyzed using the on-site laboratory in accordance with SW846 Method 9045D as described in Section 6.1.1. Based on the initial pH value and the volume of the sludge material in the batch, the volume of calcium carbonate required to neutralize the sludge to a pH greater than 5.0 was calculated. After the calcium carbonate and overburden material were mixed into the sludge material, three samples were collected for pH analysis to verify that the batch was neutralized to a pH above 5.0. If all three pH samples were above 5.0, the batch was considered neutralized and could be used as backfill material once the minimum density requirements were met. The density testing procedures are described in Section 6.2.

During the full-scale neutralization, a total of 256 batches of sludge were neutralized, including 2 pilot batches. The initial pH of the batches ranged from 0.86 to 8.37. A total of 51 batches (20 percent) exhibited an initial pH of less than 5.0. A total of 314 CY of calcium carbonate was utilized to neutralize approximately 49,700 CY of sludge material during neutralization, which corresponded to an average calcium carbonate dosage of 0.6 percent per batch ranging from 0 to a maximum of 26.4 percent during the first pilot batch. Once a batch of sludge material was mixed with calcium carbonate and overburden material three pH samples were collected from three worst case locations of the mixed batch to determine the final pH. Each final pH sample was analyzed on-site using SW846 Method 9045D. The results of the three final pH samples were recorded and averaged. The three individual final pH samples and their calculated averages met the required final pH specified. A summary of the full-scale neutralization batches including the batch numbers, dates, volumes of sludge material, initial pH values, calcium carbonate dosages, and the final pH values is included as Table 3-8. Copies of the neutralization log forms are included in Appendix E.

6.2 GEOTECHNICAL AND DENSITY TEST RESULTS

As part of the construction quality control, density tests were conducted during the 2003 pilot study and during the full-scale remediation activities. Density tests were conducted on the neutralized sludge and after compaction of placed materials. To verify that backfilled areas met the compaction requirements, the density tests were compared to Proctor curves to determine the percent compaction for each test. A detailed description and summary of the density testing conducted including the methods and procedures used is included in the following sections.

6.2.1 Pilot Study

During the pilot study, a total of 96 field density tests were conducted using a drive cylinder, sand cone, and/or a nuclear density gauge in accordance with the following procedures:

ASTM D 698 Standard Test Method Laboratory Compaction Characteristics of Soil Using Standard Effort

ASTM D 1556 Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method

ASTM D 1557 Standard Test Method Laboratory Compaction Characteristics of Soil Using Modified Effort

ASTM D 2922 Standard Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)

ASTM D 2937 Standard Test Method for Density of Soil in Place by the Drive-Cylinder Method

Of the 96 field density tests conducted, 65 field density tests were conducted using a drive cylinder on the compacted backfill, as indicated on Table 3-2. The average density of the compaction tests was 115 pcf with an average water content of 11.9 percent. Fifteen one-point compaction tests were also conducted during the pilot study with an average wet density of 118.7 pcf at an average moisture content of 10.7 percent.

6.2.2 Full-Scale Neutralization

During the mixing process for each batch of sludge to be neutralized, a 1-point Proctor analysis was conducted on the batch to verify the final mixture would meet the wet density requirements. A second 1-point Proctor was conducted following completion of the mixing processes. Both 1-point Proctors and their average met the wet density and moisture content requirements specified in the RAWP, CQAP/CQCP and FCR-02.

During placement of the neutralized sludge material, each lift was compacted using a vibratory compactor whenever possible. Moisture content and density analyses of the neutralized backfill were conducted on each lift at a rate of 1 test per 1,000 CY with a minimum of 2 tests per day, when practical. Moisture content and density analyses of the clean backfill and overburden backfill were conducted at a rate of 4 tests per 1,000 CY with a minimum of 4 tests per day, when practical. The moisture content and density analyses were conducted by collecting a drive cylinder sample in accordance with ASTM Method D2937 and the CQAP/CQCP.

A total of 269 moisture content and density analyses were performed on the neutralized backfill with an average wet density result of 123.8 pcf at an average water content of 9.1 percent. The

required wet density of the placed and compacted neutralized backfill, as modified by FCR-01, was between 115 and 135 pcf at a moisture content ranging between 7 and 13 percent. A total of 17 tests failed to meet the minimum requirements resulting in a passing rate of 92.6 percent. Failed areas were corrected in the field and retested until the area passed the moisture/density requirements.

Portions of the Site were backfilled with imported clean fill material or clean overburden material. A total of 73 moisture content and density analyses were performed on the clean fill with an average percent compaction of 93.4 percent at an average moisture content of 8.9 percent. The clean fill material was required to be compacted to greater than 90 percent of the maximum dry density. A total of four failures were reported on the clean backfill placed on-site resulting in a 94.5 percent pass rate. A total of five moisture content and density tests were performed on the placed overburden material with an average percent compaction of 91.0 percent at an average moisture content of 7.7 percent.

As part of the quality control testing, field compaction verifications were performed on the clean backfill at a rate of 1 test per 5,000 CY placed. Field compaction verification analyses were conducted by performing a sand cone test in accordance with ASTM Method D1556 and the CQAP/CQCP. Two samples were collected and analyzed for moisture content and wet density using a sand cone. The relative percent difference (RPD) was calculated for the moisture content and wet density results and indicated RPDs of 1.08 and 1.2 percent for the moisture content and 0.50 and 0.54 for the wet density. A summary of the RPD calculations are included in Table 6-1.

Table 3-9 provides a summary of the moisture content and density analyses performed during the placement of the neutralized sludge material, clean backfill material, and overburden material on-site. The locations of the moisture content and density analyses performed on-site are shown on Figures 3-9 and 3-10. Field moisture content and density logs are included as Appendix F.

6.2.3 Off-Site Excavations

As described in Section 3.0, clean fill material was utilized to backfill excavations located on the surrounding properties. Each lift was compacted using a vibratory compactor, or equivalent method (excavator using bucket or auxiliary compactor). Density tests were conducted on each lift at a rate of four tests per 1,000 CY with a minimum of four tests per day, when practical. The density tests were conducted by collecting drive cylinder samples in accordance with ASTM Method D2937 and the CQAP/CQCP. A total of 170 moisture content and density analyses were performed on the clean backfill material with an average wet density result of 126.0 pcf at an average water content of 7.5 percent. The off-site excavations were required to be compacted to greater than 90 percent of the maximum dry density. A total of 25 failures were reported on the clean backfill resulting in an 85.3 percent pass rate. Failed areas were

corrected in the field and retested until the area passed the moisture/density requirements. Table 3-12 provides a summary of the density and moisture content analyses performed during placement of the clean backfill material.

As part of the quality control testing, field compaction verifications were performed on the off-site excavations at a rate of 1 test per 5,000 CY placed. Field compaction verification analyses were conducted by performing a sand cone test in accordance with ASTM Method D1556 and the CQAP/CQCP. Two samples were collected and analyzed for moisture content and wet density using a sand cone. The RPD was calculated for the moisture content and wet density results and indicated RPDs of 0.0 and 2.9 percent for the moisture content and 0.09 and 0.98 for the wet density. A summary of the RPD calculations are included in Table 6-1.

6.2.4 Cushion Layer

The cushion layer consisted of clean fill material and was placed in a single lift. The cushion layer was compacted using a vibratory compactor, or equivalent method (excavator using bucket or auxiliary compactor). Density tests were conducted on this lift at a rate of four tests per 1,000 CY with a minimum of four tests per day, when practical. The density tests were conducted by collecting drive cylinder samples in accordance with ASTM Method D2937 and the CQAP/CQCP. A total of 61 moisture content and density analyses were performed on the clean backfill material with an average wet density result of 125.1 pcf at an average water content of 8.6 percent. The cushion layer was required to be compacted to 90 percent of the maximum dry density. A total of 16 density tests of the cushion layer did not meet the compaction requirements resulting in a 73.8 percent passing rate. The failed areas were corrected in the field and retested until the areas passed the requirements.

A total of two sand cone moisture content and density analyses were performed on the cushion layer for field compaction verification purposes. The RPD was calculated for the moisture content and wet density results and indicated RPDs of 2.63 and 0.52 percent for the moisture content and 0.10 and 0.40 for the wet density. A summary of the RPD calculations are included in Table 6-1.

6.2.5 Vegetative Layer

The vegetative layer consisted of clean fill material placed in lifts and graded to match the final grading plan. The compaction requirements for the vegetative layer required a compaction of 85 percent of the maximum dry density to allow for the vegetation root structure to grow, with the following exception. As part of the surface water management plan, drainage swales were constructed to divert surface water runoff to the ponds. In certain areas of the Site the swale construction required more than 24-inches of backfill material to meet the design grades. The top 2 feet of backfill for the swales was compacted to 85 percent of the maximum dry density. However, the portions deeper than 2 feet below the swale were compacted to a minimum of 90 percent of the maximum dry density to provide a stable foundation for the swales.

The vegetative layer was compacted using a vibratory compactor, or equivalent method (excavator using bucket or auxiliary compactor). Density tests were conducted on each lift at a rate of four tests per 1,000 CY with a minimum of four tests per day, when practical. The density tests were conducted by collecting drive cylinder samples in accordance with ASTM Method D2937 and the CQAP/CQCP. A total of 257 moisture content and density analyses were performed on the vegetative layer (not including swale foundation) with an average wet density result of 125.1 pcf at an average water content of 8.6 percent. The vegetative layer (not including swale foundation) was required to be compacted to 85 percent of the maximum dry density. A total of 28 density tests from the vegetative layer did not meet the compaction requirements resulting in an 89.1 percent passing rate. The failed areas were corrected in the field and retested until the areas passed the requirements. A total of 23 moisture content and density analyses were performed on the swale foundation areas with an average wet density result of 125.8 pcf at an average moisture content of 8.0 percent. Four tests did not meet the minimum compaction requirement of 90 percent of the maximum dry density resulting in a 82.6 percent passing rate. The failed areas were corrected in the field and retested until the area passed the requirements.

A total of four sand cone moisture content and density analyses were performed on the vegetative layer for field compaction verification purposes. The RPD was calculated for the moisture content and wet density results and indicated RPDs ranging from 0.00 to 6.41 percent for the moisture content and 0.43 to 2.04 for the wet density. A summary of the RPD calculations are included in Table 6-1.

6.3 SURVEYING

During installation of the engineered cap Stantec personnel performed surveys as necessary to place grading stakes for the contractor. As a quality control check to verify the accuracy of the internal surveys, a third party surveyor licensed in the State of California was utilized to survey certain key portions of the cap. The third party survey data was then submitted to the USEPA to provide an additional check of the data. The third party survey information is described in the following sections.

6.3.1 Subgrade

The neutralized sludge and impacted soil materials were placed and compacted in lifts within the footprint of the engineered cap, as described in Section 3.0. The top surface of the placed and compacted neutralized sludge was graded to match the design slopes and served as the subgrade for the engineered cap. The subgrade was surveyed by the third party surveyors in September and October 2007. The data was compared to the design elevations and was submitted to the USEPA for approval. A comparison of the third party survey and the subgrade design elevations is provided in Table 6-2. For points with a discrepancy between the design and survey data, the resolution is provided in Table 6-2. For a few locations, the area around

the location was re-graded and the points were re-surveyed by Stantec. The elevations for those points were approved in the field by the on-site USEPA representative (TetraTech EM, Inc.). The USEPA approved the third party survey of the subgrade on October 25, 2007. An electronic copy of the third party survey data is included in Appendix L.

6.3.2 Cushion Layer

Once the subgrade was completed and the USEPA approved the survey data, a six-inch minimum layer of sandy material was placed as a cushion layer for the GCL and GDL. The as-built top of the cushion layer was surveyed by a third party surveyor in October and November 2007. The survey data was compared to the USEPA approved subgrade survey data to verify that the cushion layer met the minimum thickness requirements in the RAWP. The cushion layer survey data was submitted to the USEPA in three batches. The USEPA approved the first batch of data on October 26, 2007, the second batch of data on November 6, 2007, and conditionally approved the final batch of data on November 21, 2007. The conditions noted for the conditional approval of the final batch of survey data were met on November 27, 2007. Electronic copies of the third party survey data are included in Appendix L.

The survey data from the cushion layer was compared to the survey data from the subgrade to verify that the cushion layer met the minimum thickness requirements in the RAWP. Table 6-3 provides a comparison of the cushion layer survey data to the subgrade survey data with an explanation for any points which were outside the RAWP parameters.

6.3.3 Vegetative Layer

Once the GCL and GDL were installed, the vegetative cap was constructed. A third party survey was conducted of the final, as-constructed surface of the vegetative cap. Design points for the final surface elevations were submitted to the USEPA prior to construction of the vegetative cap. The design grades were compared to the survey data from the as-constructed cushion layer to verify that the vegetative cap would meet the minimum thickness requirements in the RAWP, as amended by FCR-10, Revision 1. After the vegetative cap was constructed to the design grades, a third party survey was conducted. The vegetative cap survey data was submitted to the USEPA in seven batches. The USEPA approved the batches between March 4, 2008 and May 30, 2008. Electronic copies of the third party survey data are included in Appendix L.

The survey data from the vegetative cap was compared to the design points to verify that the vegetative layer met the minimum thickness requirements in the RAWP. Table 6-4 provides a comparison of the vegetative cap survey data to the design data with an explanation for any points which were outside the RAWP parameters.

6.3.4 Final As-Built Topographic Map

Once all the construction components of the engineered cap and surface water management program were constructed, the third party prepared a topography map of the as-constructed final gradation of the Site. The final topographic map also included the locations and elevations of the surface water drainage features and other site features. The final topographic map was used to create the drawing set for this RA Completion Report. A copy of the original final topographic map is included in Appendix L.

6.4 ANALYTICAL SOIL SAMPLING

6.4.1 Borrow Material

To ensure that the borrow material was clean, a total of 12 soil samples were collected from the borrow source area in accordance with the RAWP. The samples were submitted to a laboratory and analyzed for the following parameters:

- VOCs (EPA Method 8260B);
- SVOCs (EPA Method 8270C);
- Metals - arsenic, barium, beryllium, cadmium, cobalt, chromium, copper, molybdenum, nickel, lead, mercury, antimony, selenium, silver, thallium, vanadium, and zinc (EPA Methods 6010B, 7471A);
- Pesticides (EPA Method 8041A);
- Organochlorine pesticides (EPA Method 8141A);
- Chlorinated herbicides, except for BS-1000-060829-A and BS-1000-061010-A4 (EPA Method 8151A);
- PCBs (EPA Method 8082);
- Sulfate (Methods for Chemical Analysis of Water and Wastes [MCAWW] 300.0A);
- Cyanide (EPA Method 9012A); and
- pH (EPA Method 9045C).

Organophosphorous compound and chlorinated herbicide analyses were not requested for sample BS-1000-060829-A. The sample container for sample BS-1000-061010-A4 organophosphorous compound and chlorinated herbicide analyses was broken during shipment to the analytical laboratory. Copies of the laboratory analytical reports are included in Appendix D.

The results of the laboratory samples were screened against the PRGs for residential soils via direct contact. The only analyte detected in any of the soil samples at a concentration in excess of its respective PRG was arsenic. All the soil samples exceeded the Region 9 residential PRG for arsenic of 0.062 mg/kg. The borrow source arsenic concentrations ranged from 0.95 mg/kg to 2.5 mg/kg. The average arsenic concentration for the borrow source is 1.7 mg/kg, which can

be attributed to background arsenic levels in the region. The mean statewide arsenic concentration in soil based on California Benchmark Soil data is from 1.4 to 2.2 mg/kg. The range of arsenic concentrations in soil for the four California Benchmark Soil samples collected in Fresno County is 1.8 to 4.4 mg/kg with an average of 3.1 mg/kg. The USEPA approved the borrow source on January 19, 2007.

6.4.2 Confirmation Soil Sampling

Once all visual sludge was removed from an excavated area, confirmation soil sampling was conducted. On-site confirmation soil sampling was conducted in accordance with the RAWP and the SAP/QAPP as modified by FCR-03. Off-site confirmation soil sampling was conducted in accordance with the RAWP and the SAP/QAPP as modified by FCR-04. Confirmation sampling was conducted at a minimum rate of one excavation floor sample per 625 SF of excavation, with a minimum of 2 samples per excavation, and one sidewall sample per 25 LF of excavation sidewall, with a minimum of one sidewall sample per excavation. Sidewall samples were collected from areas which exhibited discoloration when present, and were collected from random locations when no discoloration was present.

Confirmation soil samples were collected from the perimeter of the Site to confirm that no impacts extended off-site in the upper four feet of soil. The samples were collected at a rate of 1 sample per 100 LF of excavation. In areas where excavation limits did not extend to the perimeter of the Site, confirmation samples were collected on 100-foot spacing along the Site perimeter. Perimeter confirmation soil sampling was conducted in accordance with the RAWP and SAP/QAPP as modified by FCR-03 or FCR-04 as applicable.

Confirmation samples were collected from on-site and off-site test pit investigations at a minimum rate of one sample per test pit. The samples were collected in areas of discoloration or odor, if observed. Otherwise, the sample was collected from a random location from either the sidewall or the excavation floor.

All confirmation samples collected were analyzed on-site for pH in accordance with SW-846 Method 9045D. Also, the soil samples were examined using visual and manual methods for parameters included on the soil sample log, of which contained the following information:

- Sample number and location
- Sample depth or elevation
- Sample color
- Descriptive comments
- Oversight engineer printed name and signature

Soil samples were logged by the oversight engineer according to the USCS, and examined using visual and manual methods for parameters including odor, staining and color.

Samples collected from off-site excavations, perimeter sample locations, some on-site sample locations, and one off-site test pit location were submitted for laboratory analyses. Confirmation samples submitted for laboratory analyses were analyzed for the following:

- VOCs using Method 8260B;
- SVOCs using Method 8270C;
- Benzo(a)pyrene and Dibenz(a,h)anthracene using Method 8270C SIM (some samples);
- Pesticides and PCBs using Method 8081A/8082;
- Antimony, Arsenic, Barium, Beryllium, Cadmium, Lead, Mercury, Selenium, Silver, Vanadium, and Zinc (metals) using Method 6010B; and
- Total Petroleum Hydrocarbons using Method 8015B.

The confirmation samples collected for VOC analysis were collected using closed-system purge and trap methods in accordance with USEPA Method 5035. The method involved used an En Core sampler and the sample was collected by pushing the barrel of the En Core sampler into the soil surface. After the sample was obtained, the exterior of the barrel was wiped with a clean disposable towel and the cap was placed on the En Core sampler, taking care to ensure an airtight seal was formed. The sampler was then placed in the foil bag, placed in an iced cooler, and sent to the laboratory under proper chain of custody records in accordance with the SAP/QAPP.

The confirmation samples collected for SVOC, pesticides, PCBs, metals, and TPH were collected by filling 8 ounce to 12 ounce jars, supplied by the laboratory, with soil using disposable scoops. The filled jars were placed in an iced cooler and sent to the laboratory under proper chain of custody records in accordance with the SAP/QAPP.

The samples were submitted to Test America Laboratories, Inc. for analysis. The laboratory used several locations for conducting the analyses. One location was unable to achieve detection limits below the cleanup criteria for benzo(a)pyrene and dibenz(a,h)anthracene, therefore, samples were analyzed using EPA method 8270C SIM for these two parameters. The other laboratory location was able to achieve detection limits for these parameters below the cleanup criteria using EPA method 8270C, therefore EPA method 8270C SIM was not always required. The methods used by the laboratory are included in the laboratory data in Appendix D.

Duplicate samples were collected in accordance with the RAWP and the SAP/QAPP at a rate of 1 duplicate per 10 samples collected.

6.4.2.1 Perimeter Confirmation Samples

Discrete soil samples were collected from the perimeter of the Site for laboratory and on-site pH analyses to confirm that no impacts extended off-site in the upper four feet of soil. The samples were collected at a rate of 1 sample per 100 LF of excavation. In areas where excavation limits did not extend to the perimeter of the Site, confirmation samples were collected on 100-foot spacing along the Site perimeter.

The perimeter confirmation samples were analyzed on-site for pH as described in Section 6.1.1, and were submitted for laboratory analyses for the parameters listed in Section 6.4.2. Additionally, three duplicate samples, two MS and MSD samples, and two USEPA sample splits were collected and submitted for laboratory analyses for field QC purposes.

The RPDs were calculated for all the perimeter confirmation sample results greater than the MRLs for each analyte. The RPDs ranged from 0.0 percent to 29.38 percent with an average RPD of 1.48 percent indicating acceptable precision by the analytical laboratory for each given method and analytical batch. A summary of the RPDs for the perimeter confirmation samples is included in Table 6-5.

6.4.2.2 Off-Site Confirmation Samples

Confirmation soil samples conducted from the off-site excavations were collected at a minimum rate of one excavation floor sample per 625 square feet of excavation, and one sidewall sample per 25 LF of excavation sidewall. Confirmation sampling was also conducted from off-site test pit excavations at a minimum rate of one sample per test pit. Off-site confirmation soil sampling was conducted in accordance with the RAWP and the SAP/QAPP as modified by FCR-04.

The off-site confirmation samples were analyzed on-site for pH as described in Section 6.1.1, and were submitted for laboratory analyses for the parameters listed in Section 6.4.2. Additionally, three duplicate samples, two MS and MSD samples, and two USEPA sample splits were collected and submitted for laboratory analyses for field QC purposes.

The RPDs were calculated for all the off-site confirmation sample results greater than the MRLs for each analyte. The RPDs ranged from 0.0 percent to 46.85 percent with an average RPD of 0.002 percent, indicating acceptable precision by the analytical laboratory for each given method and analytical batch. A summary of the RPDs for the perimeter confirmation samples is included in Table 6-5

6.4.3 Data Validation

The analytical data from a 15 of the 35 sampling reports (44 percent) were validated in accordance with the USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Data Review (June 1990, revised June 2001). This corresponds to a total of 144 samples validated out of the 267 samples analyzed (53.9 percent), which exceeds the minimum requirements in the SAP/QAPP of 10 percent. The analytical results were reviewed in compliance with the Data Quality Objective (DQO) requirements set forth in the SAP/QAPP. The laboratory project numbers for this sample delivery groups are G7B230152, G7C010150, G7C020179, G7C070220, G7C080154, G7C090146, G7C150178, G7C160155, G7C300183, G7D040177, G7D060175, G7D130140, G7E090199, G7F010283 and 580-6311-1. The analytical data was evaluated based upon the following criteria:

- Analyte identification and quantification;
- Blanks;
- Calibration;
- Data completeness;
- Holding times;
- Matrix spikes;
- Quality assurance/quality control measures; and
- System monitoring compound recovery.

The data validation concluded that the analytical data is usable and valid with the data qualifiers discussed in the data validation report. Copies of the data validation summary and validation checklists are included in Appendix R.

6.5 GEOSYNTHETICS

6.5.1 Geosynthetic Clay Liner

The RAWP and technical specifications required the GCL material meet certain requirements for use at the Site. The manufacturer of the GCL, CETCO, provided a Manufacturer Quality Assurance Data Package which certified the GCL material for the project met the requirements of the specifications. A copy of the Manufacturer Quality Assurance Data Package is included in Appendix J.

In addition to the manufacturer's certification, five samples of the GCL material were collected at the job site and analyzed by an independent laboratory for the following parameters:

- Mass/Unit Area (ASTM D 5993);
- Bentonite – Fluid Loss (ASTM D 5891);
- Bentonite – Swell Index (ASTM D 5890);
- Grab Tensile Properties (ASTM D 4632, mod);
- Peel Strength (ASTM D 4632, mod); and
- Index Flux (ASTM D 5887).

The results of the five samples indicated that the GCL material did meet the requirements in the specifications and was suitable for use at the Site. A copy of the test results in included in Appendix J. The test results were submitted to the USEPA prior to installation of the GCL.

6.5.2 Geocomposite Drainage Layer

The RAWP and technical specifications required the GDL material meet certain requirements for use at the Site. The manufacturer of the GDL, CETCO, provided a Manufacturer Quality Assurance Data Package which certified the GDL material for the project met the requirements of the specifications. A copy of the Manufacturer Quality Assurance Data Package is included in Appendix J.

The GDL consists of a geonet and geotextile components which were sampled individually. The RAWP required that a sample of GDL material be collected and tested for each 50,000 square feet of material. A total of six samples were collected of the GDL material and submitted to an independent testing facility for analysis of the following tests:

- Transmissivity (ASTM D 4716);
- Peel Strength (ASTM D 7005);
- Thickness (ASTM D 5199);
- Density (ASTM D 1505);
- Carbon Content (ASTM D 1603, mod.);
- Strip Tensile Properties (ASTM D 5035);
- Mass/Unit Area (ASTM D 5261);
- Grab Tensile (ASTM D 4632);
- Puncture Strength (ASTM D 4833);
- Trapezoidal Tear (ASTM D 4533);
- Apparent Opening Size (ASTM D 4751); and
- Permittivity (ASTM D 4491).

Each of the six samples was analyzed multiple times for each test method listed above. The six GDL samples passed the requirements in the specifications for nine of the 12 test methods. For three of the test methods: [peel strength (ASTMD7005); thickness (ASTMD5199); and grab tensile (ASTMD4632)], some individual replicate tests did not meet the specifications. However, the average values for the replicate samples in each of the six GDL samples passed the requirements in the specifications. Because the average for all six samples met the

requirements of the specifications, the GDL material was approved by the QC Engineer. A copy of the test results was submitted to the USEPA and a copy is also included in Appendix J.

An example of a sample which passed the specification, but contained individual replicate test numbers below the requirement is the thickness test for sample C2-6-2.5-07-2400-175. The individual replicate test results were: 248, 252, 256, 257, 248, 269, 237, 240, 256, and 259 with an average of thickness 252 mils. Two of the replicate samples were below the requirement of 250 mils, but the average value of 252 mils was above the requirement of 250 mils, therefore the material was acceptable.

6.5.3 Polyvinyl Chloride Liner

A PVC liner was installed in the southwest evapotranspiration basin in accordance with FCR-10, Revision 1. The liner manufacturer provided a certification that documented the material met the requirements of the specifications, as revised by FCR-10, Revision 1. A copy of the certification is included in Appendix J. Because no field seaming was necessary, no samples were collected of the material for analysis.

6.6 AIR SAMPLING

The quality control program for air sampling activities included collecting duplicate air samples at a rate of 1 duplicate per 10 samples collected, in accordance with the RAWP and the SAP/QAPP. A separate sampling station was set up adjacent to one of the sampling stations to collect the duplicate samples. Field blanks were collected at a rate of 1 sample per 20 samples collected. The duplicate and field blank samples were analyzed at the laboratory for the same list of parameters. Copies of the laboratory analytical reports are included in Appendix O.

The RPDs were calculated for the air data and reported on a monthly basis. Table 6-6 provides a summary of the RPD calculations. The average monthly RPDs ranged from 3.37 percent to 24.54 percent with an overall average of 11.39 percent, indicating acceptable precision by the analytical laboratory for each given method and analytical batch.

6.6.1 Data Validation

This section summarizes the data verification performed in association with the July 5, 2006 to October 26, 2007 Purity Air Evaluation sampling events. The laboratory analytical results for VOC, sulfur, and metals were validated. The data validation is summarized below and copies of the validation reports are included in Appendix R.

The analytical data generated by AAC was validated in accordance with the USEPA CLP *National Functional Guidelines for Organic Data Review* (June 1990, revised June 2001) and *National Functional Guidelines for Inorganic Data Review* (June 1990, revised June 2001. The

analytical results were reviewed in compliance with the DQO requirements set forth in the QAPP.

The analytical data presented in this report were evaluated based upon the following criteria:

- Analyte identification and quantification;
- Blanks;
- Data completeness;
- Holding times;
- Calibration;
- Matrix Spike/ Matrix Spike Duplicate; and
- Quality assurance/quality control measures.

The data validation concluded that the analytical data is usable and valid with the data qualifiers discussed in the data validation report. Copies of the data validation summaries are included in Appendix R.

7.0 Final Inspection and Certification

In order to document that the construction activities associated with OU-2 for the Site have been completed in accordance with the ROD Amendment and the RAWP, a pre-final inspection was conducted and a final inspection was conducted with representatives of the USEPA, Tetra Tech EMI (USEPA's on-site representative), Stantec, RECON, CEMC, and Project Navigator, Ltd. A certificate of completion was also submitted to the USEPA. A summary of each of these tasks is provided in the following sections. The construction activities associated with the SVE system, as described in the RAWP, are not complete at the time of this report. A separate documentation report and certificate of completion will be submitted for the SVE system after construction activities have been completed.

7.1 PRE-FINAL INSPECTION

The pre-final inspection was conducted on May 21, 2008, and included representatives from CEMC, the USEPA, Tetra Tech EMI, Stantec, RECON, and Project Navigator, Ltd. During the inspection, a punch list of items to be completed was developed, and included the following items:

1. Installation of a concrete pad at the east access gate to allow for long-term stability.
2. Complete installation of erosion control measures on the top deck to prevent erosion and fugitive dust.
3. Complete construction of an access road on the top deck.
4. Replace the perimeter fence on the southeast portion of the Site along the Pick-A-Part property line.
5. A) Replace the perimeter fence along the northern property line near Bruno's. B) Replace fencing along perimeter of former GSM property and remove the temporary fence on the northern Tall Trees property line.
6. Install settlement markers as specified in the RAWP.
7. Restore the Tall Trees property to its original condition.
8. Restore the Bruno's property to its original condition.
9. Restoration of the former GSM property (removal of equipment, bins, etc).
10. Complete construction of the drainage swales and perimeter berms.
11. Complete the site-wide irrigation system.
12. Install locks on the new perimeter fence gates to restrict access.
13. Demobilization of the temporary site trailers and equipment.

7.2 FINAL INSPECTION

The final inspection was conducted on June 19, 2008, and included representatives of CEMC, the USEPA, Tetra Tech EMI, Stantec, RECON, and Project Navigator Ltd. The punch list from

the pre-final inspection was updated and items 1, 2, 3, 5A, 7, 8, 9, and 10 were documented as complete. The USEPA considered the remaining items to be operation and maintenance (O&M) issues and removed them from the punch list.

7.3 CERTIFICATION

A certification of completion for OU-2 was submitted to the USEPA on August 27, 2008 to document that the construction activities associated with the implementation of the ROD Amendment for OU-2 were complete and in accordance with the RAWP. The only exception is the activities associated with the SVE system. These activities are not complete as of the date of this report. The SVE system activities will be documented and certified as complete under separate cover once construction of the system has been completed. A copy of the certificate of completion for OU-2 is included in Appendix S.

8.0 Operation and Maintenance

Based on Title 22, Section 6624.310 of the California Code of Regulations, inspections of the closure system are necessary to ensure that the closure system is effective. The closure system O&M requirements will include periodic inspections of the closure cap system and performance of any maintenance necessary. An O&M manual has been developed for the closure cap components of the Site and is included in Appendix K. The *Operation and Maintenance Manual – Operable Unit 2* provides provisions for periodic inspections of the cap and surface water management features, temporary irrigation of the cap, and repairs and maintenance of the cap and surface water management features.

The inspections will include the following tasks:

- Visual inspection of the entire cap area, noting any areas of erosion, ponding, cracking or vegetation growth problems.
- Visual inspection of the drainage swales noting any erosion, ponding or other deficiencies.
- Visual inspection of the settlement markers noting any cracks or damage.
- Visual inspection of the southwest infiltration basin, inlet pipe, and energy dissipation area. Note any erosion problems, water level, or problems with the inlet pipe.
- Visual inspection of the southeast evaporation/transpiration basin and energy dissipation areas noting any erosion problems and the water level.
- Visual inspection of the southwest area catch basin noting any erosion problems or sediment buildup.
- Visual inspection of the perimeter fence noting any holes or damage.
- On an annual basis, the settlement markers will be surveyed to document if any settlement is occurring in the capped area.

A report summarizing the O&M activities for the closure system will be submitted on an annual basis. The report will include a summary of the inspections conducted, any repairs conducted and the survey information. Copies of all field notes will be included in the report.

9.0 Summary of Project Costs

The ROD Amendment for OU-2 provided an estimate of the cost to implement the selected remedy at the time of its selection. This section provides a comparison of the estimated cost with the actual cost to implement the ROD Amendment for OU-2. The ROD Amendment included costs for installation of an SVE system and additional soil vapor sampling. These items have not been implemented at the time of this report, and will be documented in a separate report, therefore, no cost comparison for these items is provided in this report. The total estimated capital cost in the ROD Amendment for implementing the portions of the selected remedy documented in this report was $ 6.2 million. This cost included an adjustment of costs from 2005 to 2006, administrative costs (15 percent of total capital costs), and a 15 percent contingency.

The actual cost to implement the portions of the selected remedy documented in this report was $16.7 million. The USEPA's guidelines request an explanation when the actual costs fall outside the range of -30 to +50 percent of the estimated cost. An explanation of the cost difference is provided below.

The primary reason for the difference in cost is the extended duration of the project. The original estimates for the implementation of the ROD Amendment were based on a construction schedule of approximately 64 weeks (5 working days per week). The actual duration of construction was over 111 weeks (6 working days per week), more than double the estimated duration.

The extended duration of the project required the air sampling and monitoring activities to also be conducted for a longer duration. Air monitoring and sampling was required during the concrete segregation, sludge/impacted soil excavation (on-site and off-site), sludge neutralization, placement of neutralized sludge, and placement of the cushion layer. The original estimate in the ROD Amendment for the duration of air monitoring/sampling was approximately 44 weeks compared to the actual duration of 73 weeks, resulting in an actual cost of $2,460,000 compared to the original estimate of approximately $867,000.

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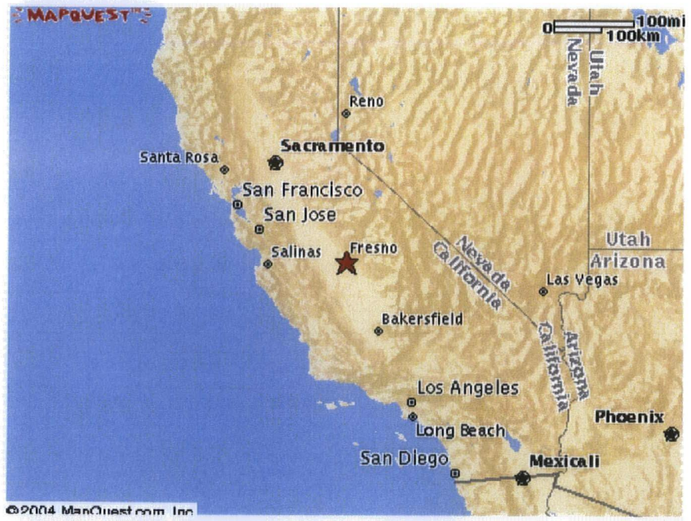
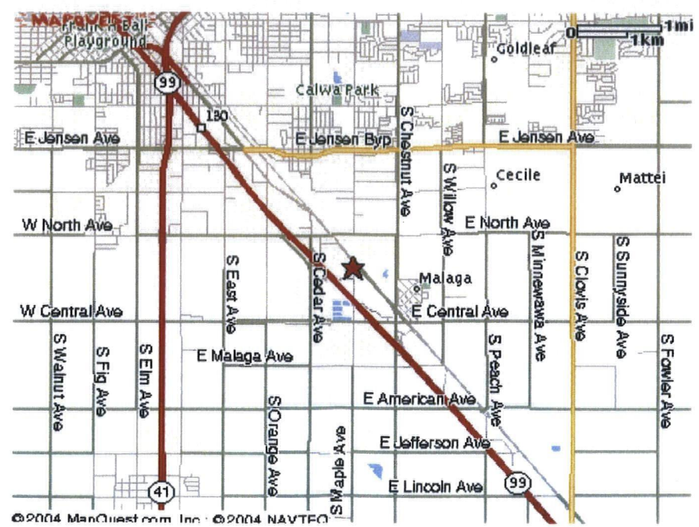
REMEDIAL ACTION COMPLETION REPORT

PURITY OIL SALES SUPERFUND SITE

MALAGA, CALIFORNIA





SITE LOCATION MAPS

Submitted by:
Chevron
Purity Oil Sales Superfund Site
3281 South Maple Avenue
Malaga, California

Prepared by:

Stantec Inc.
2321 Club Meridian Drive, Suite E
Okemos, Michigan 48864

October 14, 2008

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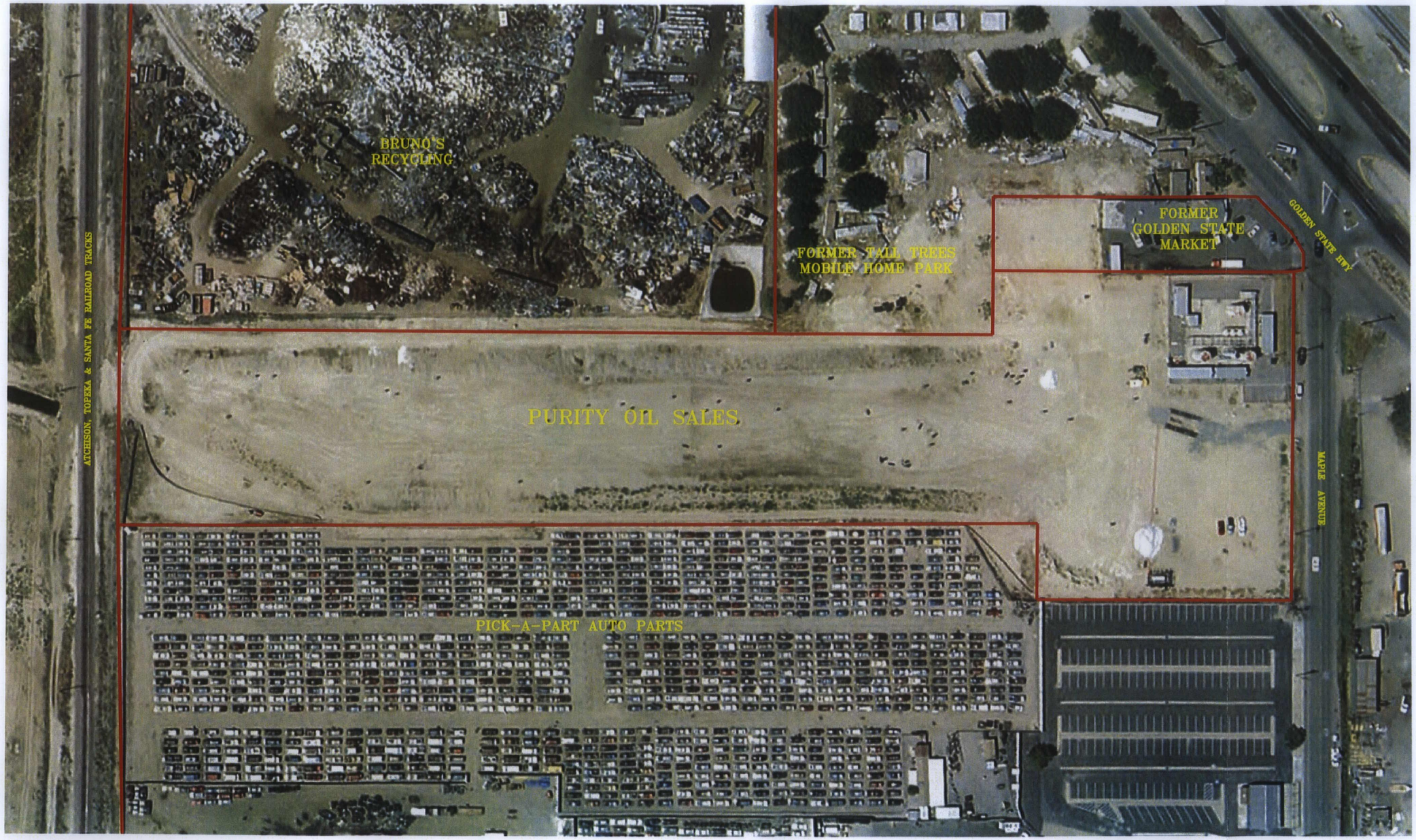
REGISTERED PROFESSIONAL ENGINEER
JERGEN M. RASMUSSEN
C81494
CIVIL
STATE OF CALIFORNIA

Stantec



0 50 100
SCALE: 1"=50'

REV	DATE	DESCRIPTION	DSN	CHK	AP
A		ISSUED FOR REVIEW			
B		ISSUED FOR REVIEW			
0		ISSUED FOR CONSTRUCTION			
1		ISSUED FOR CONSTRUCTION			

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FOR:

CHEVRON
PURITY OIL SALES SUPERFUND SITE
3281 SOUTH MAPLE AVENUE
MALAGA, CALIFORNIA

TITLE:

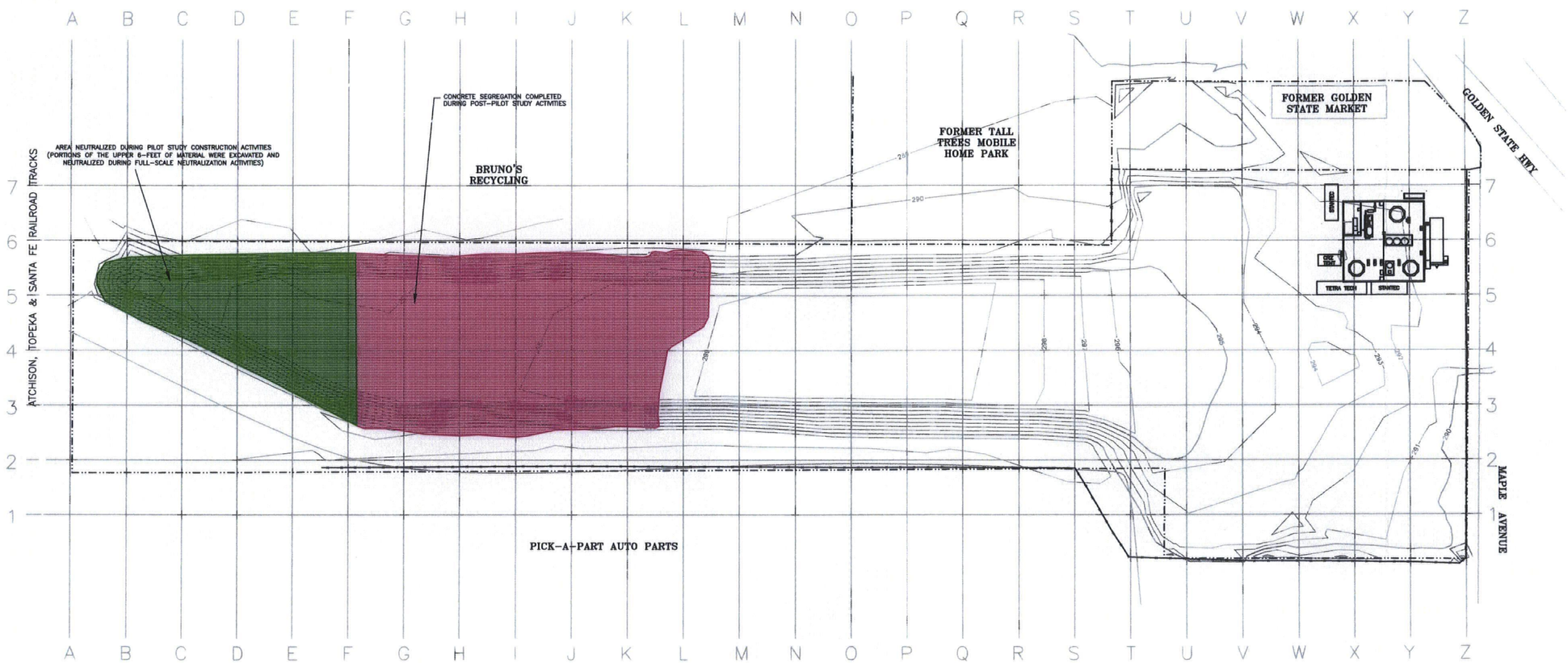
SITE LOCATION MAP

REGISTERED PROFESSIONAL ENGINEER
JEREMY M. RASMUSSEN
C61494
6/20/01
CIVIL
STATE OF CALIFORNIA
10/16/08

DRAWN BY: SRW	DESIGNED BY: DRB
CHECKED BY: DRM	APPROVED BY: JMF
PROJECT NUMBER: 24CH.67006.03	SCALE: PLOT SCALE: 1" = 1
DATE: 10/14/08	FILE PATH: Basemap OU2.dwg

FIGURE:

1-1



LEGEND

- PROPERTY LINE
- RAILROAD TRACK
- FENCE
- EXTENT OF AREA EXCAVATED, NEUTRALIZED AND BACKFILLED DURING PILOT STUDY CONSTRUCTION ACTIVATES
- CONCRETE SEGREGATION COMPLETED DURING POST-PILOT STUDY ACTIVITIES.
- 280 SURFACE CONTOUR

0 50 100
SCALE: 1"=50'

REV	DATE	DESCRIPTION	DSN	CHK	AP
A		ISSUED FOR REVIEW			
B		ISSUED FOR REVIEW			
0		ISSUED FOR CONSTRUCTION			
1		ISSUED FOR CONSTRUCTION			

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FOR:

CHEVRON
PURITY OIL SALES SUPERFUND SITE
3281 SOUTH MAPLE AVENUE
MALAGA, CALIFORNIA

TITLE:

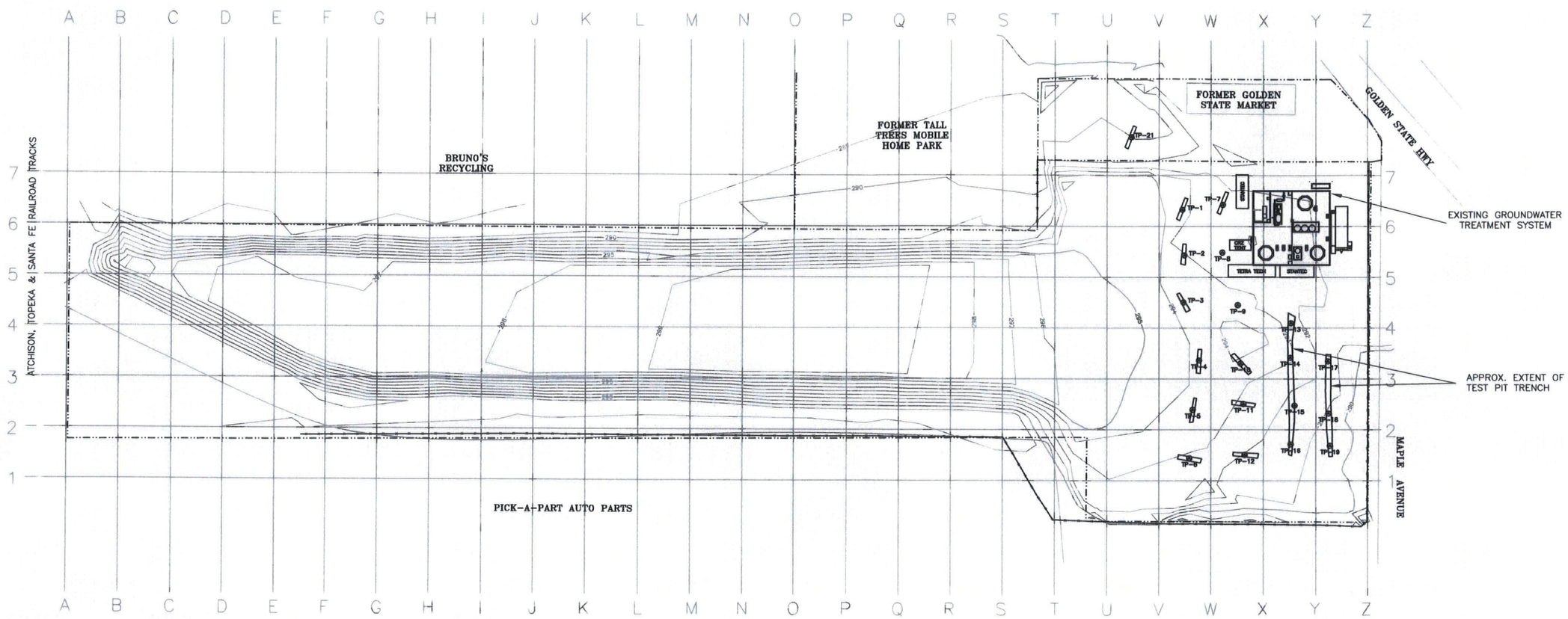
APPROXIMATE LIMITS OF PILOT STUDY AND POST-PILOT STUDY ACTIVITIES

REGISTERED PROFESSIONAL ENGINEER
JEREMY M. RASMUSSEN
C61494
10/20/08
CIVIL
STATE OF CALIFORNIA

DRAWN BY: SRW	DESIGNED BY: DRM
CHECKED BY: DRM	APPROVED BY: JMR
PROJECT NUMBER: 24CH.67006.03	SCALE: PLOT SCALE: 1" = 1
DATE: 10/14/08	FILE PATH: Basemap OU2.dwg

FIGURE:

3-1



LEGEND

- PROPERTY LINE
- RAILROAD TRACK
- FENCE
- PROPOSED TEST-PIT LOCATION NOT COMPLETED (JUNE 2006)
- COMPLETED TEST-PIT LOCATION (JUNE 2006)
- 290 SURFACE CONTOUR

0 50 100
SCALE: 1"=50'

REV	DATE	DESCRIPTION	DSN	CHK	A
A		ISSUED FOR REVIEW			
B		ISSUED FOR REVIEW			
0		ISSUED FOR CONSTRUCTION			
1		ISSUED FOR CONSTRUCTION			

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FOR:

CHEVRON
PURITY OIL SALES SUPERFUND SITE
3281 SOUTH MAPLE AVENUE
MALAGA, CALIFORNIA

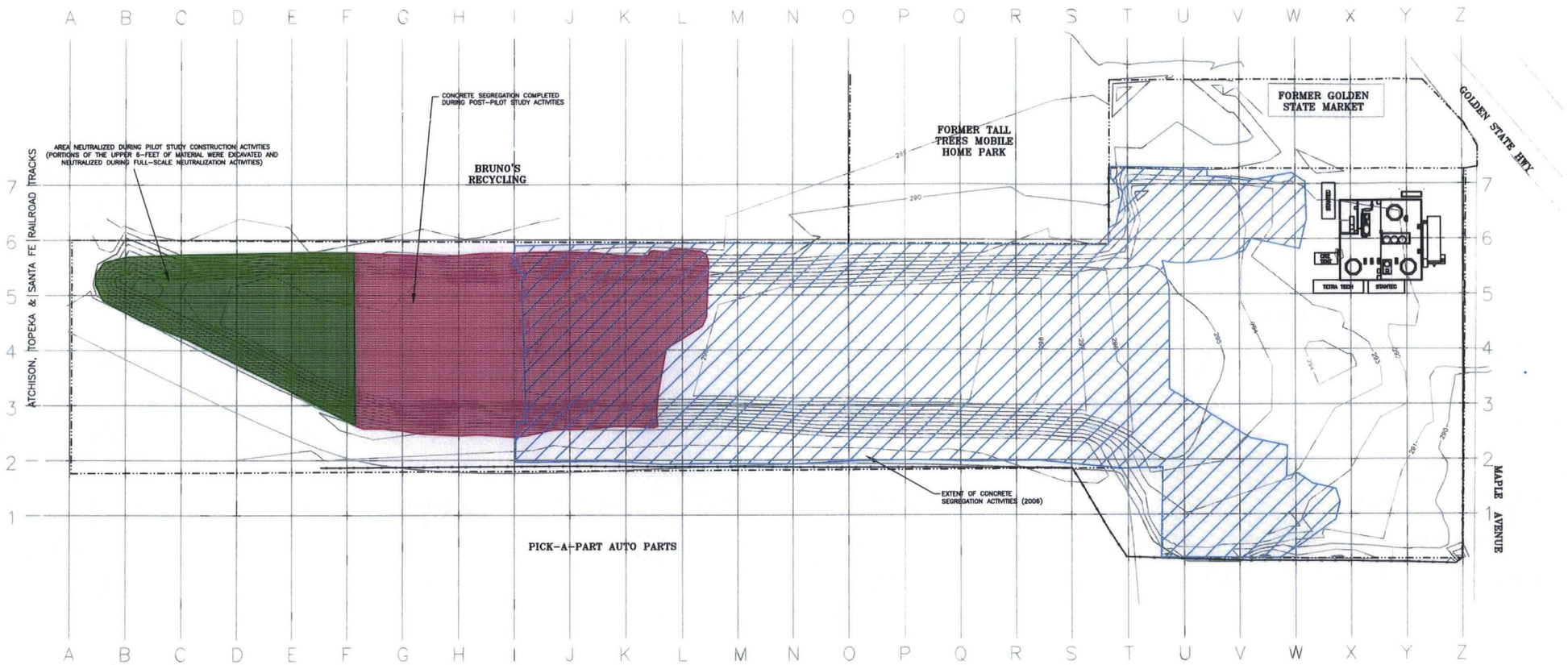
TITLE:

TEST PIT LOCATION MAP

REGISTERED PROFESSIONAL ENGINEER
JEREMY M. RASMUSSEN
C61494
6/30/09
CIVIL
STATE OF CALIFORNIA
10/10/08

DRAWN BY: SRW	DESIGNED BY: DR
CHECKED BY: DRM	APPROVED BY: JIv
PROJECT NUMBER: 24CH.67006.03	SCALE: PLOT SCALE: 1" =
DATE: 10/14/08	FILE PATH: Basemap OU2.dv

FIGURE: **3-2**



LEGEND

- PROPERTY LINE
- RAILROAD TRACK
- FENCE
- EXTENT OF CONCRETE SEGREGATION (2006)
- EXTENT OF AREA EXCAVATED, NEUTRALIZED AND BACKFILLED DURING PILOT STUDY CONSTRUCTION ACTIVATES
- CONCRETE SEGREGATION COMPLETED DURING POST-PILOT STUDY ACTIVITIES
- 290 SURFACE CONTOUR

0 50 100
SCALE: 1"=50'

REV	DATE	DESCRIPTION	DSN	CHK	AP
A		ISSUED FOR REVIEW			
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0		ISSUED FOR CONSTRUCTION			
1		ISSUED FOR CONSTRUCTION			

PREPARED BY:

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FOR:

CHEVRON
PURITY OIL SALES SUPERFUND SITE
3281 SOUTH MAPLE AVENUE
MALAGA, CALIFORNIA

TITLE:

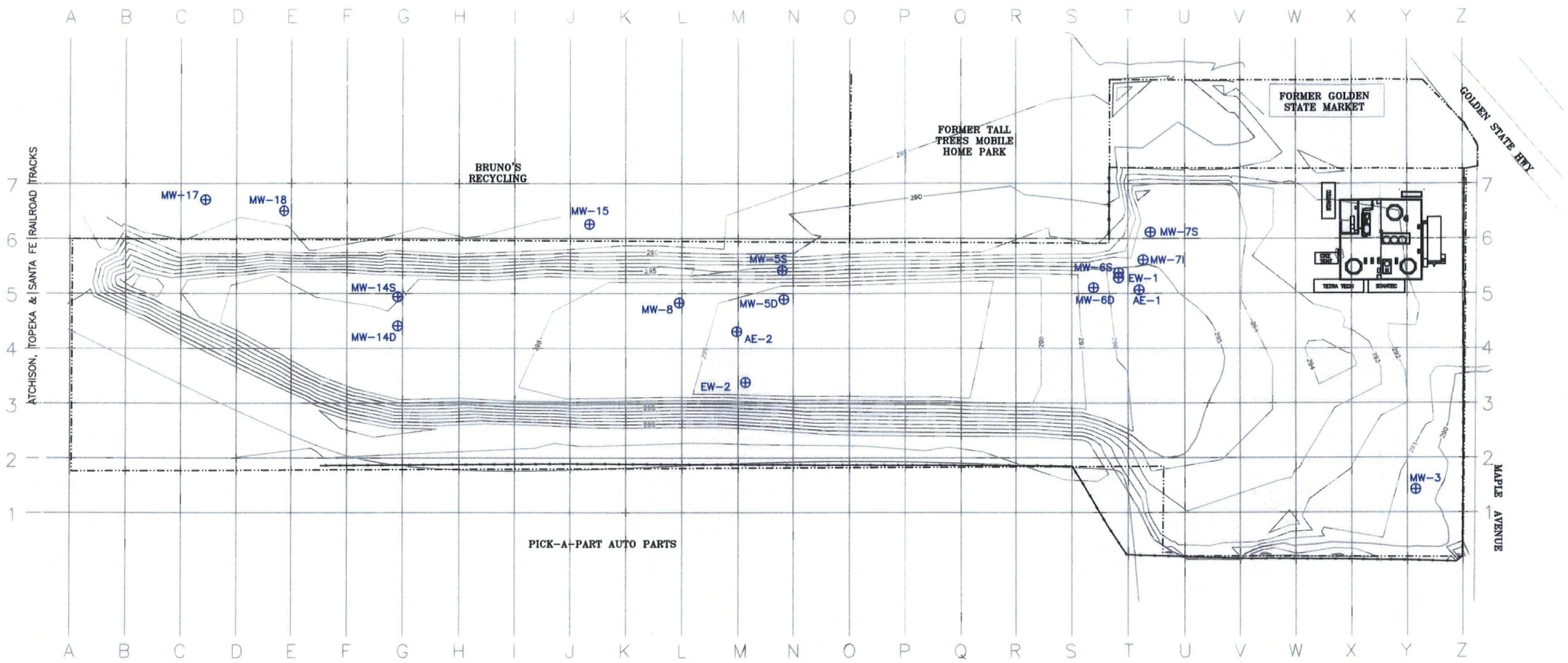
LIMITS OF CONCRETE SEGREGATION ACTIVITIES

REGISTERED PROFESSIONAL ENGINEER
JEREMY M. RASMUSSEN
C61494
CIVIL
STATE OF CALIFORNIA
10/14/08

DRAWN BY: SRW	DESIGNED BY: DRI
CHECKED BY: DRM	APPROVED BY: JM
PROJECT NUMBER: 24CH.67006.03	SCALE: PLOT SCALE: 1" =
DATE: 10/14/08	FILE PATH: Basemap OU2.dw

FIGURE:

3-3



LEGEND

- PROPERTY LINE
- RAILROAD TRACK
- FENCE
- DECOMMISIONED WELL
- SURFACE CONTOUR

0 50 100
SCALE: 1"=50'

REV	DATE	DESCRIPTION	DSN	CHK	A
A		ISSUED FOR REVIEW			
B		ISSUED FOR REVIEW			
0		ISSUED FOR CONSTRUCTION			
1		ISSUED FOR CONSTRUCTION			

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FOR:

CHEVRON
PURITY OIL SALES SUPERFUND SITE
3281 SOUTH MAPLE AVENUE
MALAGA, CALIFORNIA

TITLE:

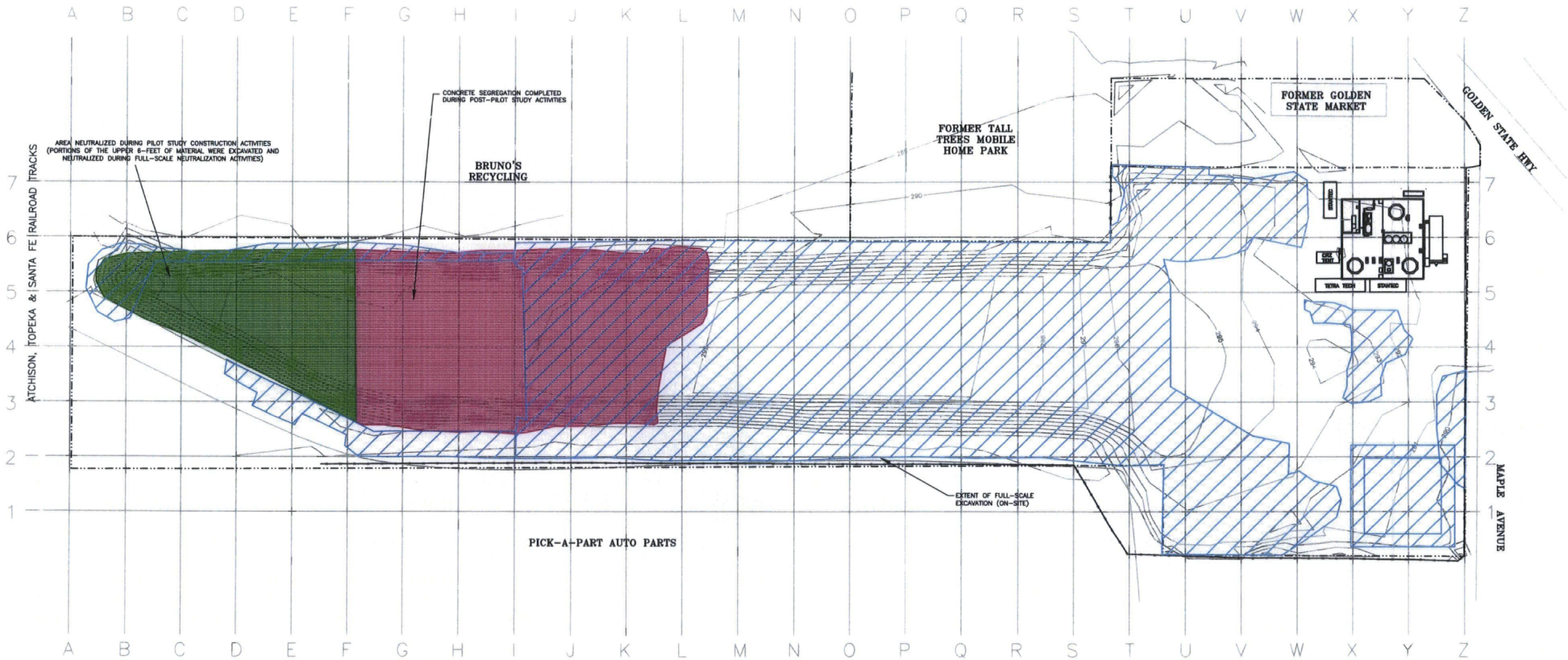
DECOMMISSIONED WELLS LOCATION MAP

REGISTERED PROFESSIONAL ENGINEER
JEREMY M. RASMUSSEN
061494
CIVIL
STATE OF CALIFORNIA
10/14/08

DRAWN BY: SRW	DESIGNED BY: DF
CHECKED BY: DRM	APPROVED BY: JR
PROJECT NUMBER: 24CH.87003.08	SCALE: PLOT SCALE: 1" =
DATE: 10/14/08	FILE PATH: Basemap OU1.dw

FIGURE:

3-4



LEGEND

- PROPERTY LINE
- RAILROAD TRACK
- FENCE
- ON-SITE EXCAVATION LIMITS
- EXTENT OF AREA EXCAVATED, NEUTRALIZED AND BACKFILLED DURING PILOT STUDY CONSTRUCTION ACTIVITIES
- CONCRETE SEGREGATION COMPLETED DURING POST-PILOT STUDY ACTIVITIES
- 290 SURFACE CONTOUR

0 50 100
SCALE: 1"=50'

REV	DATE	DESCRIPTION	DSN	CHK	AI
A		ISSUED FOR REVIEW			
B		ISSUED FOR REVIEW			
0		ISSUED FOR CONSTRUCTION			
1		ISSUED FOR CONSTRUCTION			

PREPARED BY:

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FOR:

CHEVRON
PURITY OIL SALES SUPERFUND SITE
3281 SOUTH MAPLE AVENUE
MALAGA, CALIFORNIA

TITLE:

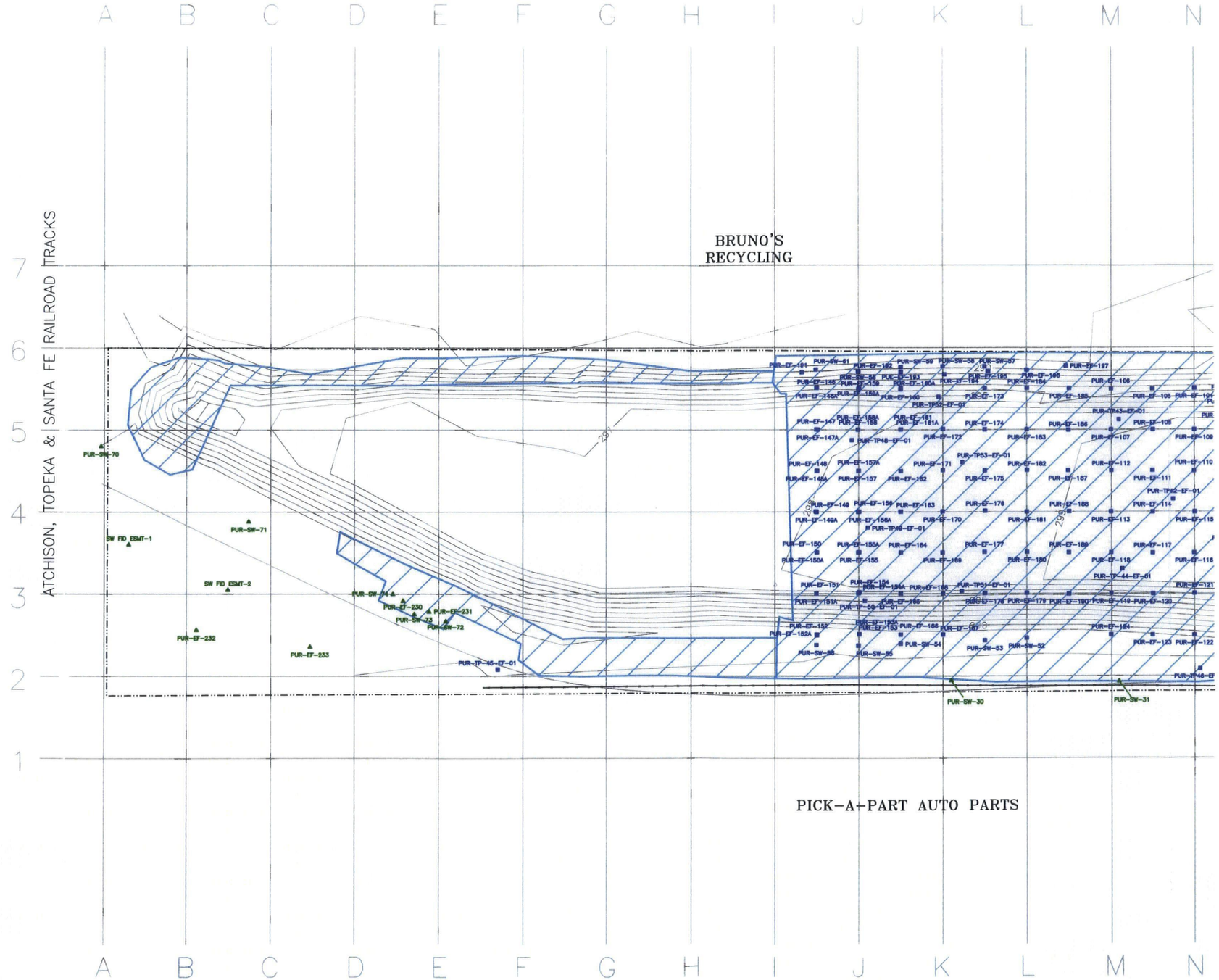
ON-SITE EXCAVATION LIMITS

REGISTERED PROFESSIONAL ENGINEER
JEREMY M. RASMUSSEN
C61494
6/24/61
CIVIL
STATE OF CALIFORNIA
10/14/08

DRAWN BY: SRW	DESIGNED BY: DRI
CHECKED BY: DRM	APPROVED BY: JM
PROJECT NUMBER: 24CH.67006.03	SCALE: PLOT SCALE: 1" =
DATE: 10/14/08	FILE PATH: Basemap OU2.dw

FIGURE:

3-5



LEGEND

- PROPERTY LINE
- RAILROAD TRACK
- FENCE
- SAMPLE ID — CONFIRMATION pH SAMPLE
- SAMPLE ID — CONFIRMATION pH SAMPLE AND ANALYTICAL SAMPLE
- 280 — SURFACE CONTOUR
- APPROXIMATE LIMIT OF ON-SITE EXCAVATION

0 30 60
SCALE: 1"=30'

REV	DATE	DESCRIPTION	DSN	CHK	AI
A		ISSUED FOR REVIEW			
B		ISSUED FOR REVIEW			
0		ISSUED FOR CONSTRUCTION			
1		ISSUED FOR CONSTRUCTION			

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FOR:

CHEVRON
PURITY OIL SALES SUPERFUND SITE
3281 SOUTH MAPLE AVENUE
MALAGA, CALIFORNIA

TITLE:

ON-SITE CONFIRMATION SAMPLE LOCATION MAP (WEST)

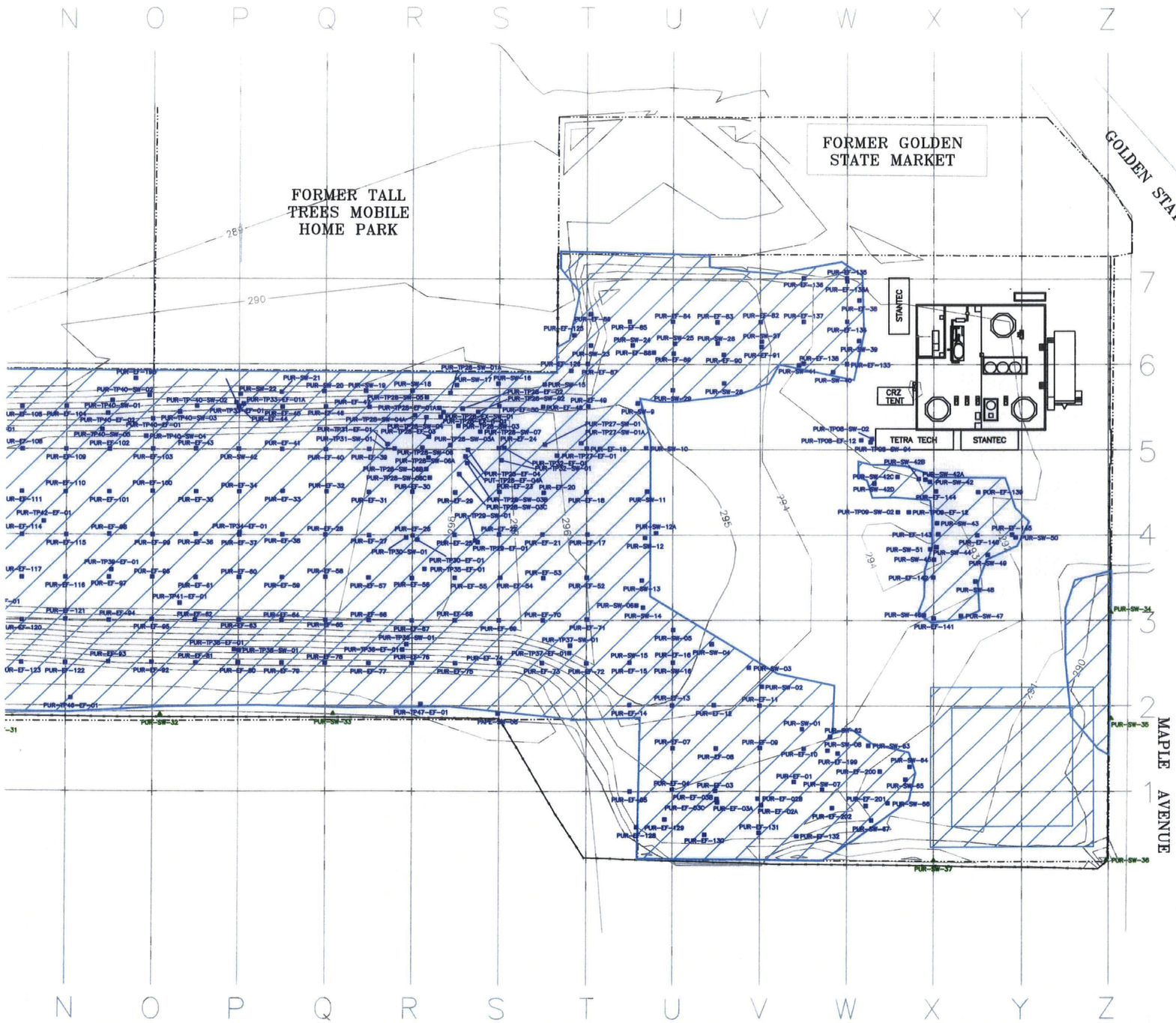
REGISTERED PROFESSIONAL ENGINEER
JEREMY M. RASMUSSEN
C61494
CIVIL
STATE OF CALIFORNIA
10/14/08

DRAWN BY: SRW	DESIGNED BY: DR
CHECKED BY: DRM	APPROVED BY: JM
PROJECT NUMBER: 24CH.67006.03	SCALE: PLOT SCALE: 1" =
DATE: 10/14/08	FILE PATH: Basemap OU2.dw

FIGURE:

3-6

FILEPATH:P:\Chevron\Purity\Operable Unit 2\Drawings\RA Report\Basemap OU2.dwg\swhitaker\Oct 14, 2008 at 9:36\Layout: 3-6



LEGEND

- PROPERTY LINE
- RAILROAD TRACK
- FENCE
- SAMPLE ID — CONFIRMATION pH SAMPLE
- SAMPLE ID — CONFIRMATION pH SAMPLE AND ANALYTICAL SAMPLE
- 290 — SURFACE CONTOUR
- APPROXIMATE LIMIT OF ON-SITE EXCAVATION

0 30 60
SCALE: 1"=30'

REV	DATE	DESCRIPTION	DSN	CHK	A
A		ISSUED FOR REVIEW			
B		ISSUED FOR REVIEW			
0		ISSUED FOR CONSTRUCTION			
1		ISSUED FOR CONSTRUCTION			

PREPARED BY:

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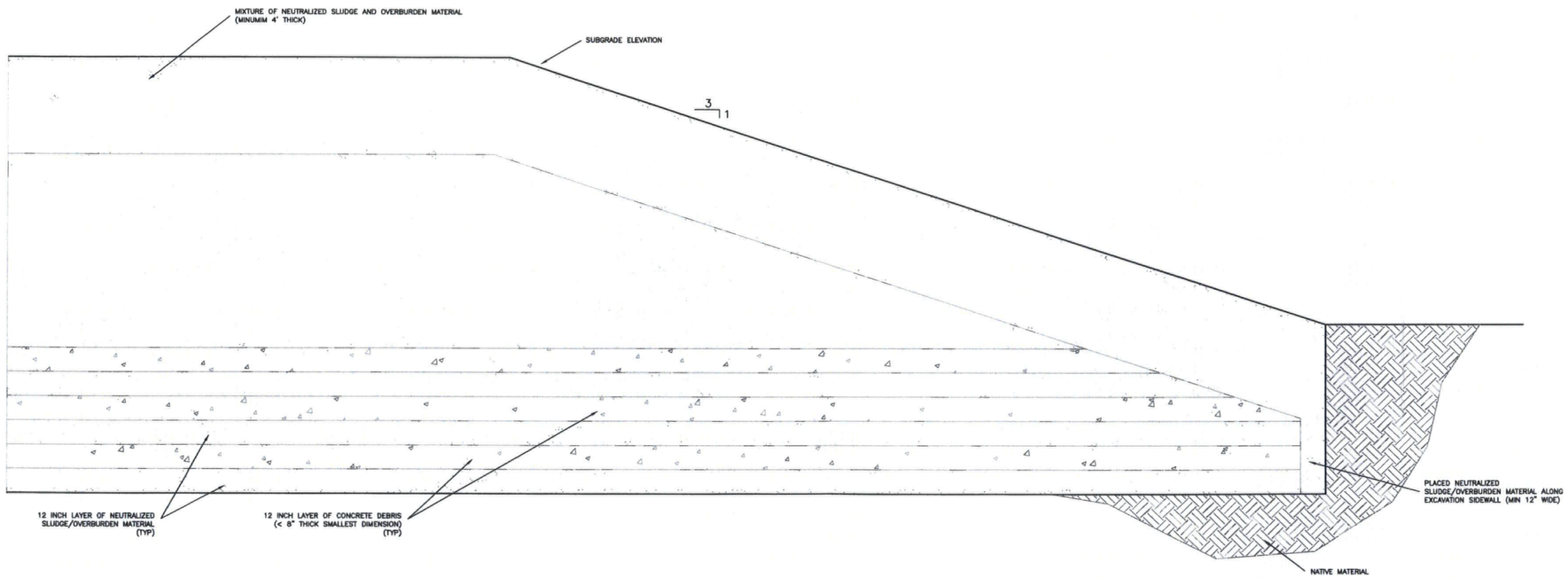
FOR:
CHEVRON
PURITY OIL SALES SUPERFUND SITE
3281 SOUTH MAPLE AVENUE
MALAGA, CALIFORNIA

TITLE:
ON-SITE CONFIRMATION SAMPLE LOCATION MAP (EAST)

REGISTERED PROFESSIONAL ENGINEER
JEREMY M. RASMUSSEN
C61484
6/20/07
CIVIL
STATE OF CALIFORNIA
10/16/08

DRAWN BY: SRW	DESIGNED BY: DR
CHECKED BY: DRM	APPROVED BY: JR
PROJECT NUMBER: 24CH.67006.03	SCALE: PLOT SCALE: 1" =
DATE: 10/14/08	FILE PATH: Basemap OU2.dv

FIGURE: **3-7**



TYPICAL CROSS-SECTION OF PLACED NEUTRALIZED SLUDGE

NOT TO SCALE

LEGEND

- PLACED NEUTRALIZED SLUDGE MATERIAL
- PLACED CONCRETE DEBRIS
- NATIVE MATERIAL

REV	DATE	DESCRIPTION	DSN	CHK	A
A		ISSUED FOR REVIEW			
B		ISSUED FOR REVIEW			
0		ISSUED FOR CONSTRUCTION			
1		ISSUED FOR CONSTRUCTION			

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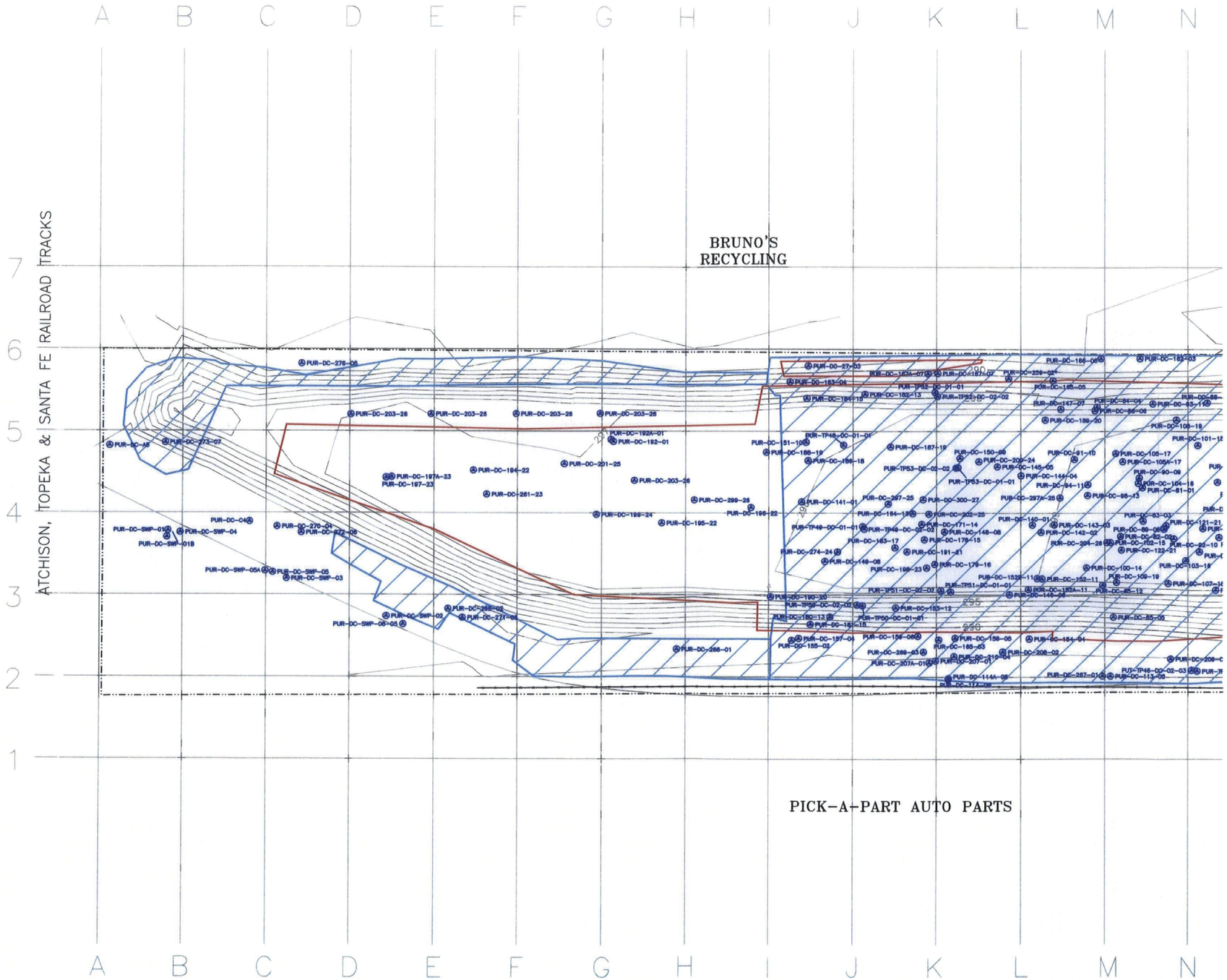
FOR:
CHEVRON
PURITY OIL SALES SITE
3281 SOUTH MAPLE AVENUE
MALAGA, CALIFORNIA

TITLE:
TYPICAL CROSS-SECTION OF PLACED NEUTRALIZED MATERIAL

REGISTERED PROFESSIONAL ENGINEER
JEREMY M. RASMUSSEN
C61494
6/30/09
CIVIL
STATE OF CALIFORNIA

DRAWN BY: SRW	DESIGNED BY: DR
CHECKED BY: DRM	APPROVED BY: JIV
PROJECT NUMBER: 24CH.67006.03	SCALE: PLOT SCALE: 1" =
DATE: 10/14/08	FILE PATH: CROSS-SECTIONS-V2.dw
FIGURE: 3-8	



LEGEND

- PROPERTY LINE
- RAILROAD TRACK
- FENCE
- ON-SITE EXCAVATION LIMITS (71,875 CUBIC YARDS)
- LIMITS OF PLACED NEUTRALIZATION MATERIAL
- PUR-DC — ON-SITE DRIVE CYLINDER TEST LOCATION
- 290 — SURFACE CONTOUR

0 30 60
SCALE: 1"=30'

REV	DATE	DESCRIPTION	DSN	CHK	A
A		ISSUED FOR REVIEW			
B		ISSUED FOR REVIEW			
0		ISSUED FOR CONSTRUCTION			
1		ISSUED FOR CONSTRUCTION			

PREPARED BY:

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2321 Club Meridian Drive, Suite E
Okemos, Michigan
PHONE: (517) 349-9499 FAX: (517) 349-6863

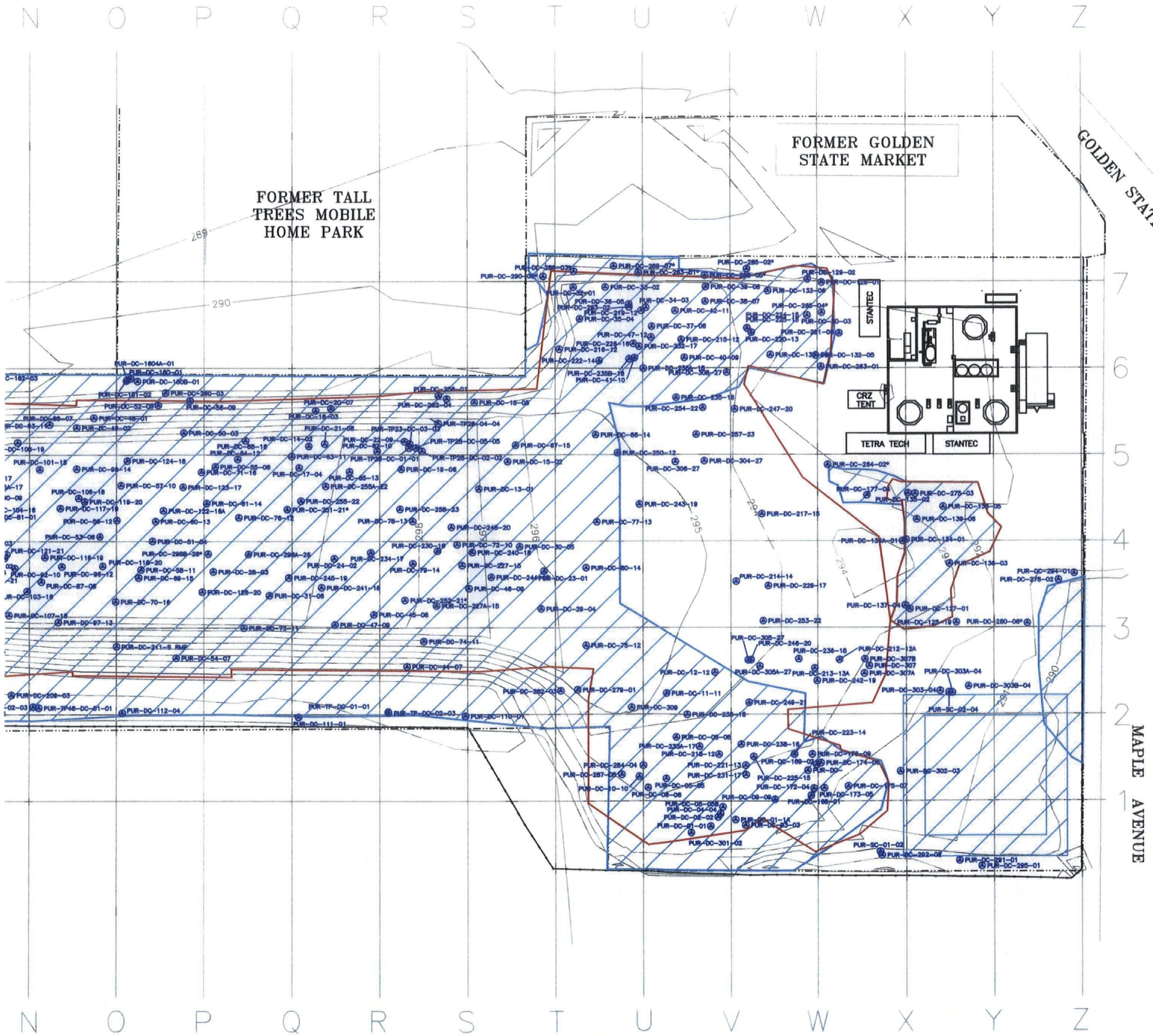
FOR:
CHEVRON
PURITY OIL SALES SUPERFUND SITE
3281 SOUTH MAPLE AVENUE
MALAGA, CALIFORNIA

TITLE:
PLACED NEUTRALIZATION MATERIAL DENSITY TEST LOCATION MAP (WEST)

REGISTERED PROFESSIONAL ENGINEER
JEREMY M. RASMUSSEN
C61494
CIVIL
STATE OF CALIFORNIA
10/14/08

DRAWN BY: SRW	DESIGNED BY: DR
CHECKED BY: DRM	APPROVED BY: JJv
PROJECT NUMBER: 24CH.67006.03	SCALE: PLOT SCALE: 1" =
DATE: 10/14/08	FILE PATH: Basemap OU2.dv

FIGURE: **3-9**



LEGEND

- PROPERTY LINE
- RAILROAD TRACK
- FENCE
- ON-SITE EXCAVATION LIMITS (71,875 CUBIC YARDS)
- LIMITS OF PLACED NEUTRALIZATION MATERIAL
- PUR-DC — ON-SITE DRIVE CYLINDER TEST LOCATION
- 290 — SURFACE CONTOUR

0 30 60
SCALE: 1"=30'

REV	DATE	DESCRIPTION	DSN	CHK	A:
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B		ISSUED FOR REVIEW			
0		ISSUED FOR CONSTRUCTION			
1		ISSUED FOR CONSTRUCTION			

PREPARED BY:

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FOR:

CHEVRON
PURITY OIL SALES SUPERFUND SITE
3281 SOUTH MAPLE AVENUE
MALAGA, CALIFORNIA

TITLE:

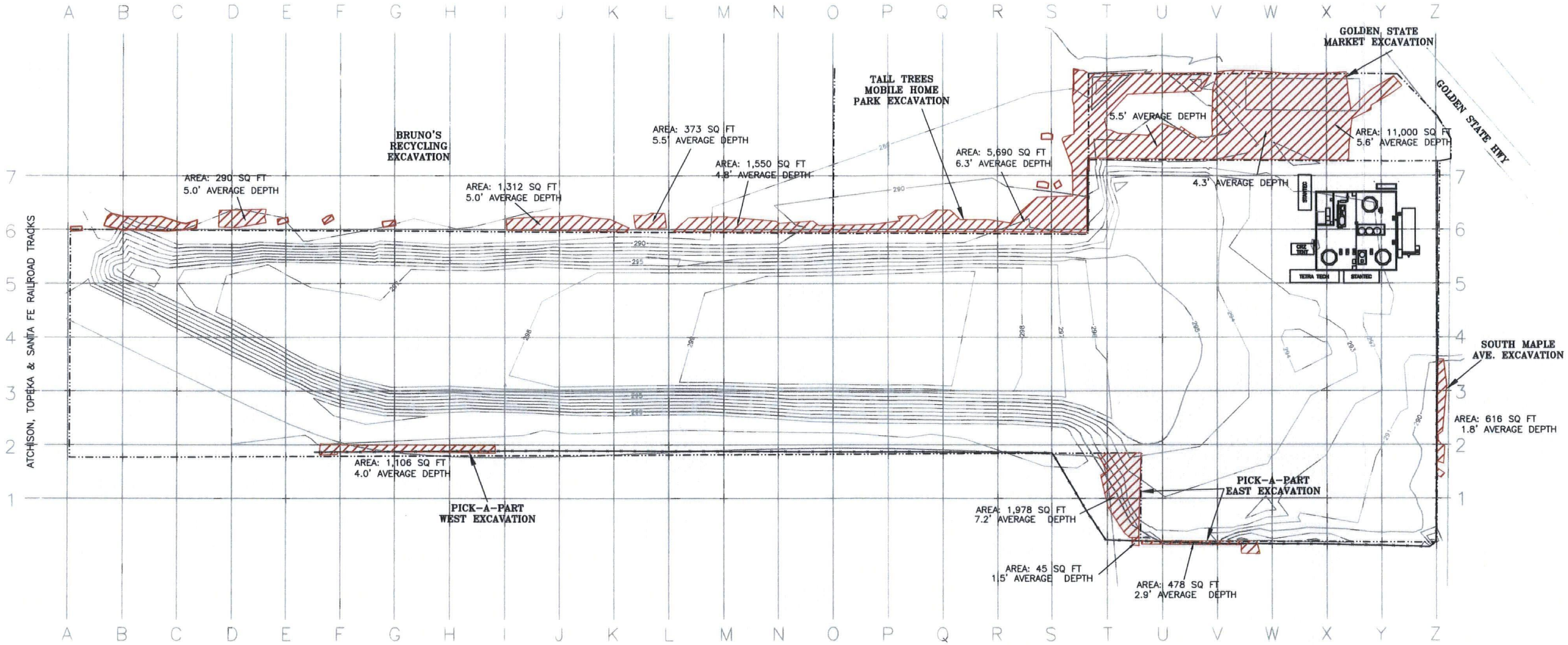
PLACED NEUTRALIZATION MATERIAL DENSITY TEST LOCATION MAP (EAST)

REGISTERED PROFESSIONAL ENGINEER
JEREMY M. RASMUSSEN
C61464
CIVIL
STATE OF CALIFORNIA
10/14/08

DRAWN BY: SRW	DESIGNED BY: DR
CHECKED BY: DRM	APPROVED BY: JM
PROJECT NUMBER: 24CH.67006.03	SCALE: PLOT SCALE: 1" =
DATE: 10/14/08	FILE PATH: Basemap OU2.dv

FIGURE:

3-10



LEGEND

- PROPERTY LINE
- RAILROAD TRACK
- FENCE
- OFF-SITE EXCAVATION LIMITS
- SURFACE CONTOUR

0 50 100
SCALE: 1"=50'

REV	DATE	DESCRIPTION	DSN	CHK	A
A		ISSUED FOR REVIEW			
B		ISSUED FOR REVIEW			
0		ISSUED FOR CONSTRUCTION			
1		ISSUED FOR CONSTRUCTION			

PREPARED BY:

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FOR:

CHEVRON
PURITY OIL SALES SUPERFUND SITE
3281 SOUTH MAPLE AVENUE
MALAGA, CALIFORNIA

TITLE:

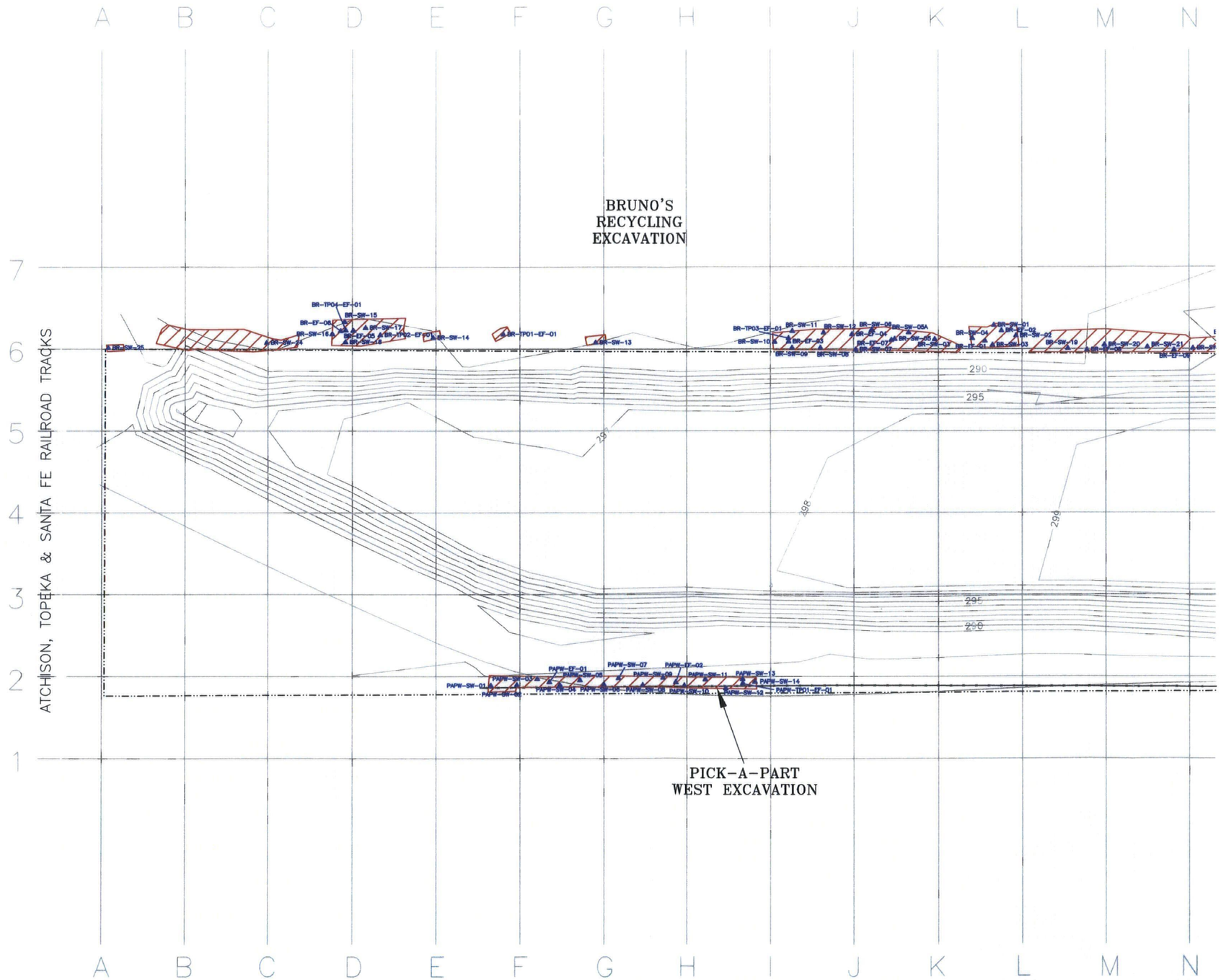
OFF-SITE EXCAVATION LIMITS

REGISTERED PROFESSIONAL ENGINEER
JEREMY M RASMUSSEN
C61494
CIVIL
STATE OF CALIFORNIA

DRAWN BY: SRW	DESIGNED BY: DF
CHECKED BY: DRM	APPROVED BY: JM
PROJECT NUMBER: 24CH.67006.03	SCALE: PLOT SCALE: 1" =
DATE: 10/14/08	FILE PATH: Basemap OU2.dw

FIGURE:

3-11



LEGEND

- PROPERTY LINE
- RAILROAD TRACK
- FENCE
- APPROXIMATE LIMITS OF OFF-SITE EXCAVATION
- SAMPLE ID — CONFIRMATION SAMPLE LOCATION
- 290 — SURFACE CONTOUR

0 30 60
SCALE: 1"=30'

REV	DATE	DESCRIPTION	DSN	CHK	A
A		ISSUED FOR REVIEW			
B		ISSUED FOR REVIEW			
0		ISSUED FOR CONSTRUCTION			
1		ISSUED FOR CONSTRUCTION			

PREPARED BY:

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FOR:

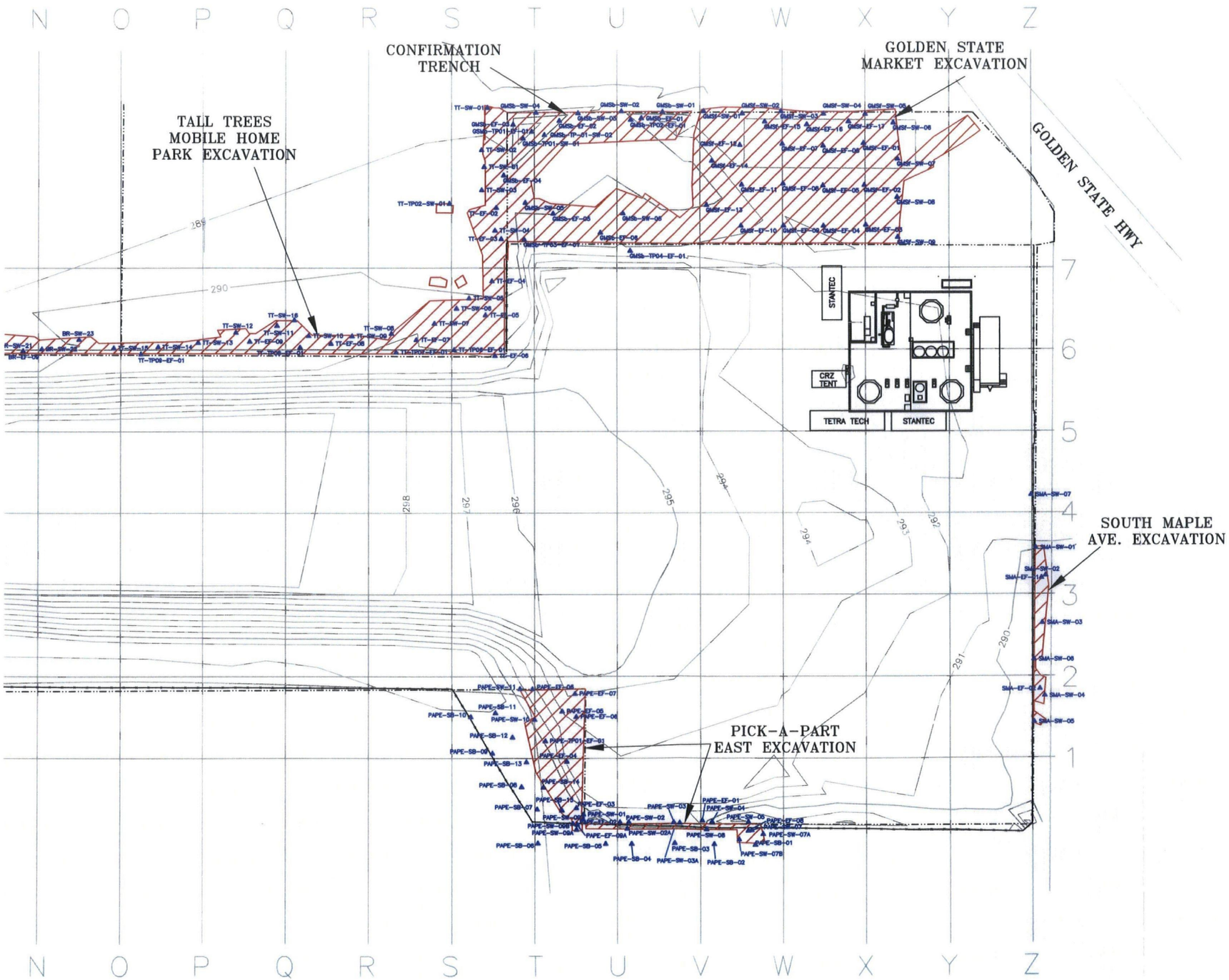
CHEVRON
PURITY OIL SALES SUPERFUND SITE
3281 SOUTH MAPLE AVENUE
MALAGA, CALIFORNIA

TITLE:

OFF-SITE CONFIRMATION SAMPLE LOCATION MAP (WEST)

REGISTERED PROFESSIONAL ENGINEER
JEREMY M. RASMUSSEN
C61494
CIVIL
STATE OF CALIFORNIA

DRAWN BY: SRW	DESIGNED BY: DR
CHECKED BY: DRM	APPROVED BY: JM
PROJECT NUMBER: 24CH.67006.03	SCALE: PLOT SCALE: 1" =
DATE: 10/14/08	FILE PATH: Basemap OU2.dv
FIGURE: 3-12	



LEGEND

- PROPERTY LINE
- RAILROAD TRACK
- FENCE
- APPROXIMATE LIMITS OF OFF-SITE EXCAVATION
- SAMPLE ID — CONFIRMATION SAMPLE LOCATION
- 290 — SURFACE CONTOUR

0 30 60
SCALE: 1"=30'

REV	DATE	DESCRIPTION	DSN	CHK	A
A		ISSUED FOR REVIEW			
B		ISSUED FOR REVIEW			
0		ISSUED FOR CONSTRUCTION			
1		ISSUED FOR CONSTRUCTION			

PREPARED BY:

Stantec
2321 Club Meridian Drive, Suite E
Okemos, Michigan
PHONE: (517) 349-9499 FAX: (517) 349-6863

FOR:

CHEVRON
PURITY OIL SALES SUPERFUND SITE
3281 SOUTH MAPLE AVENUE
MALAGA, CALIFORNIA

TITLE:

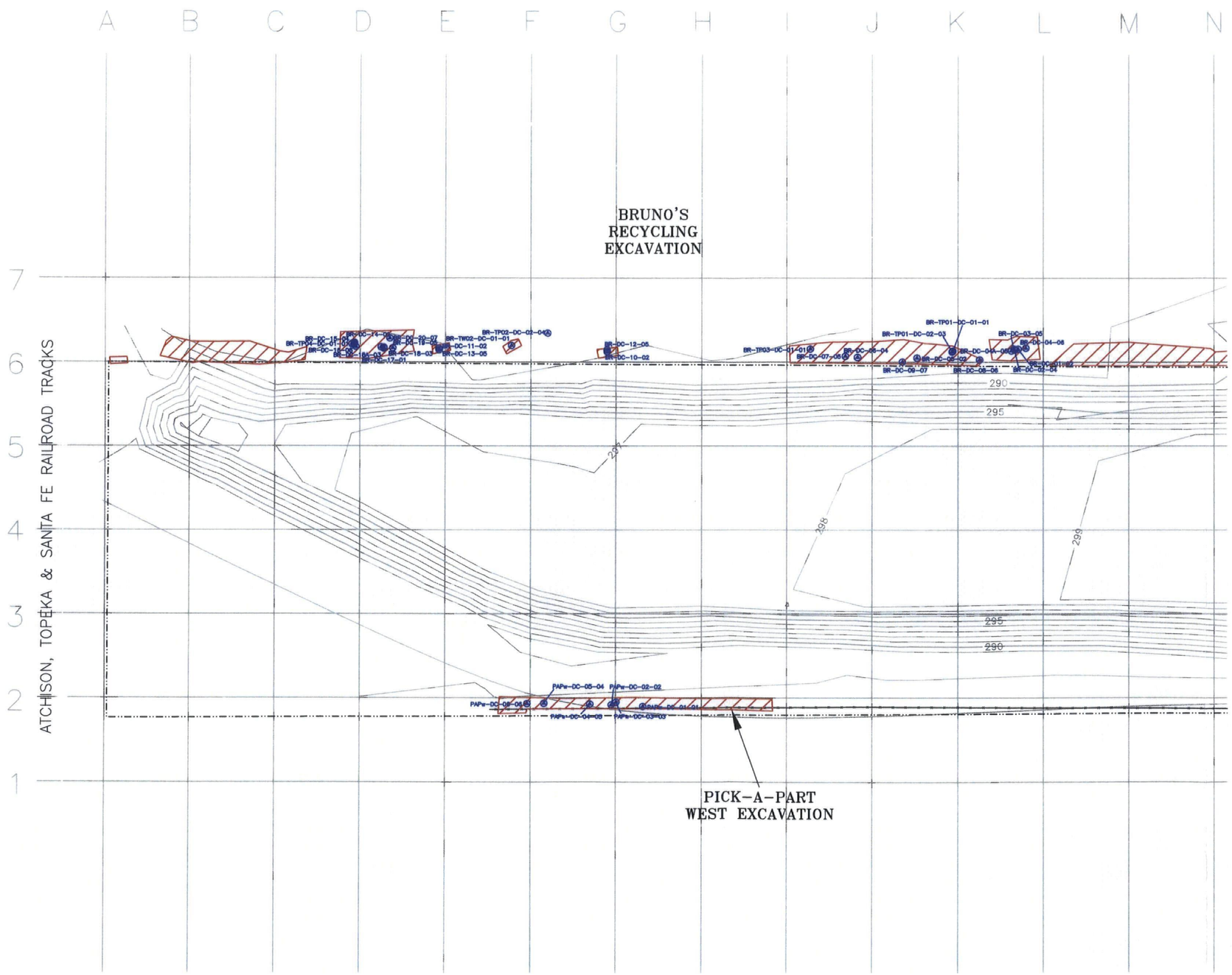
OFF-SITE CONFIRMATION SAMPLE LOCATION MAP (EAST)

REGISTERED PROFESSIONAL ENGINEER
JEREMY M. RASMUSSEN
C61494
6/30/09
CIVIL
STATE OF CALIFORNIA
7/14/08

DRAWN BY: SRW	DESIGNED BY: DR
CHECKED BY: DRM	APPROVED BY: JR
PROJECT NUMBER: 24CH.67006.03	SCALE: PLOT SCALE: 1" =
DATE: 10/14/08	FILE PATH: Basemap OU2.dv

FIGURE:

3-13



LEGEND

- PROPERTY LINE
- RAILROAD TRACK
- FENCE
- APPROXIMATE LIMITS OF OFF-SITE EXCAVATION
- SAMPLE ID — OFF-SITE DRIVE CYLINDER TEST LOCATION
- 290 — SURFACE CONTOUR

0 30 60
SCALE: 1"=30'

REV	DATE	DESCRIPTION	DSN	CHK	A
A		ISSUED FOR REVIEW			
B		ISSUED FOR REVIEW			
0		ISSUED FOR CONSTRUCTION			
1		ISSUED FOR CONSTRUCTION			

PREPARED BY:

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FOR:

CHEVRON
PURITY OIL SALES SUPERFUND SITE
3281 SOUTH MAPLE AVENUE
MALAGA, CALIFORNIA

TITLE:

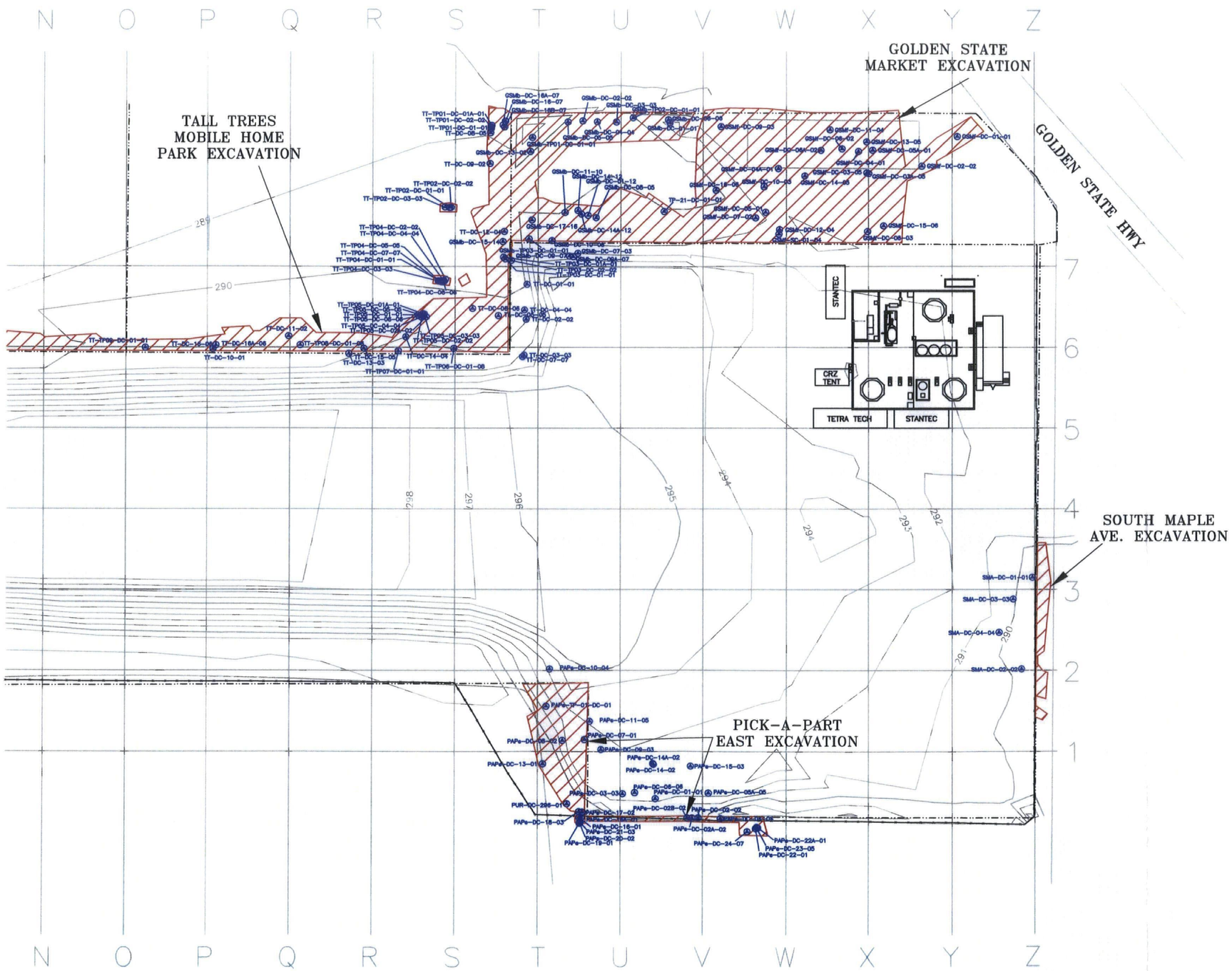
OFF-SITE DENSITY TEST LOCATION MAP (WEST)

REGISTERED PROFESSIONAL ENGINEER
JEREMY M. RASMUSSEN
C61484
10/14/08
CIVIL
STATE OF CALIFORNIA

DRAWN BY: SRW	DESIGNED BY: DR
CHECKED BY: DRM	APPROVED BY: JM
PROJECT NUMBER: 24CH.67006.03	SCALE: PLOT SCALE: 1" =
DATE: 10/14/08	FILE PATH: Basemap OU2.dv

FIGURE:

3-14



LEGEND

- PROPERTY LINE
- RAILROAD TRACK
- FENCE
- OFF-SITE EXCAVATION LIMITS
- SAMPLE ID — OFF-SITE DRIVE CYLINDER TEST LOCATION
- 290 — SURFACE CONTOUR

0 30 60
SCALE: 1"=30'

REV	DATE	DESCRIPTION	DSN	CHK	A
A		ISSUED FOR REVIEW			
B		ISSUED FOR REVIEW			
0		ISSUED FOR CONSTRUCTION			
1		ISSUED FOR CONSTRUCTION			

PREPARED BY:

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FOR:

CHEVRON
PURITY OIL SALES SUPERFUND SITE
3281 SOUTH MAPLE AVENUE
MALAGA, CALIFORNIA

TITLE:

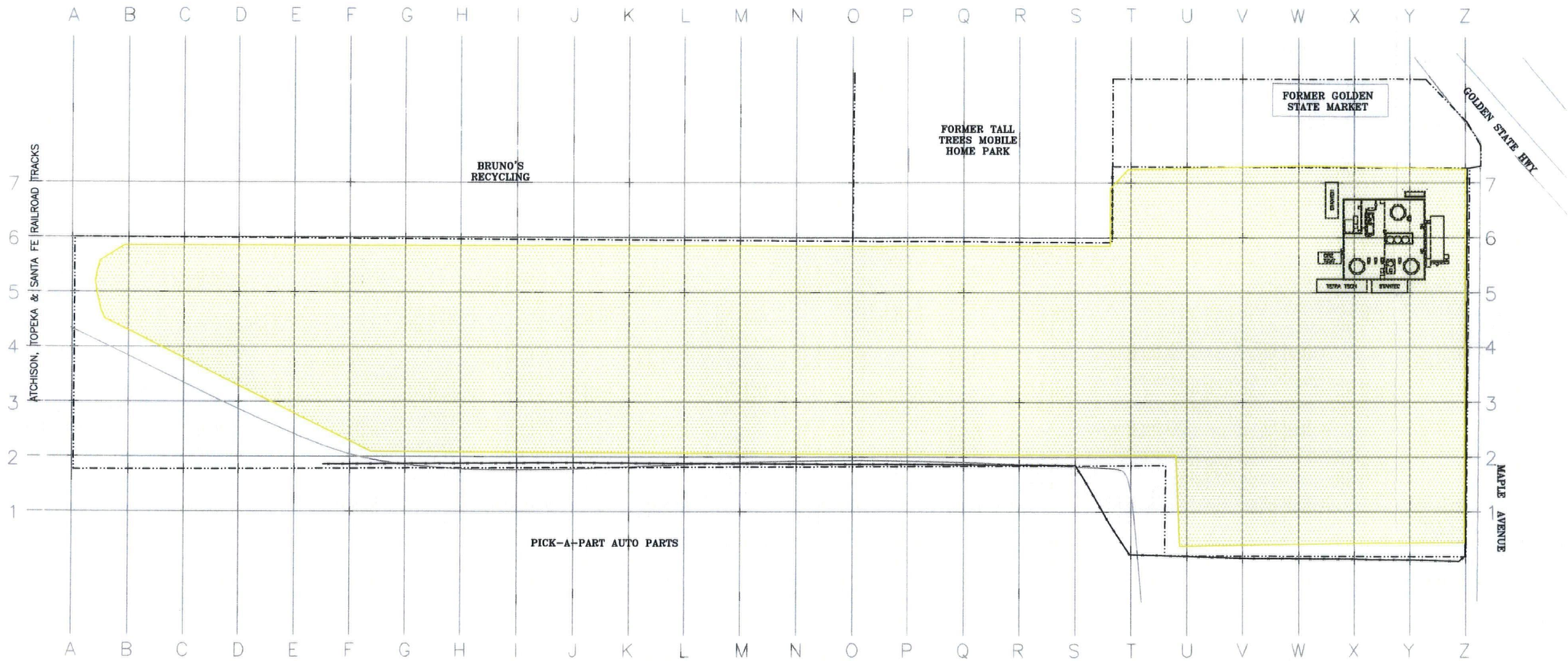
OFF-SITE DENSITY TEST LOCATION MAP (EAST)

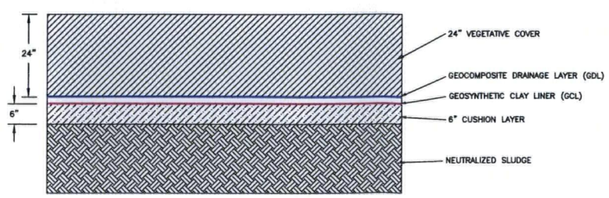
REGISTERED PROFESSIONAL ENGINEER
JEREMY M. RASMUSSEN
C61494
6/20/01
CIVIL
STATE OF CALIFORNIA
10/10/08

DRAWN BY: SRW	DESIGNED BY: DR
CHECKED BY: DRM	APPROVED BY: JM
PROJECT NUMBER: 24CH.67006.03	SCALE: PLOT SCALE: 1" =
DATE: 10/14/08	FILE PATH: Basemap OU2.dv

FIGURE:

3-15





TYPICAL CAP CROSS-SECTION

NOT TO SCALE

LEGEND

- PROPERTY LINE
- RAILROAD TRACK
- FENCE
- EXTENT OF ENGINEERED CAP

0 50 100

SCALE: 1"=50'

REV	DATE	DESCRIPTION	DSN	CHK	AF
A		ISSUED FOR REVIEW			
B		ISSUED FOR REVIEW			
0		ISSUED FOR CONSTRUCTION			
1		ISSUED FOR CONSTRUCTION			

PREPARED BY:

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FOR:

CHEVRON
PURITY OIL SALES SUPERFUND SITE
3281 SOUTH MAPLE AVENUE
MALAGA, CALIFORNIA

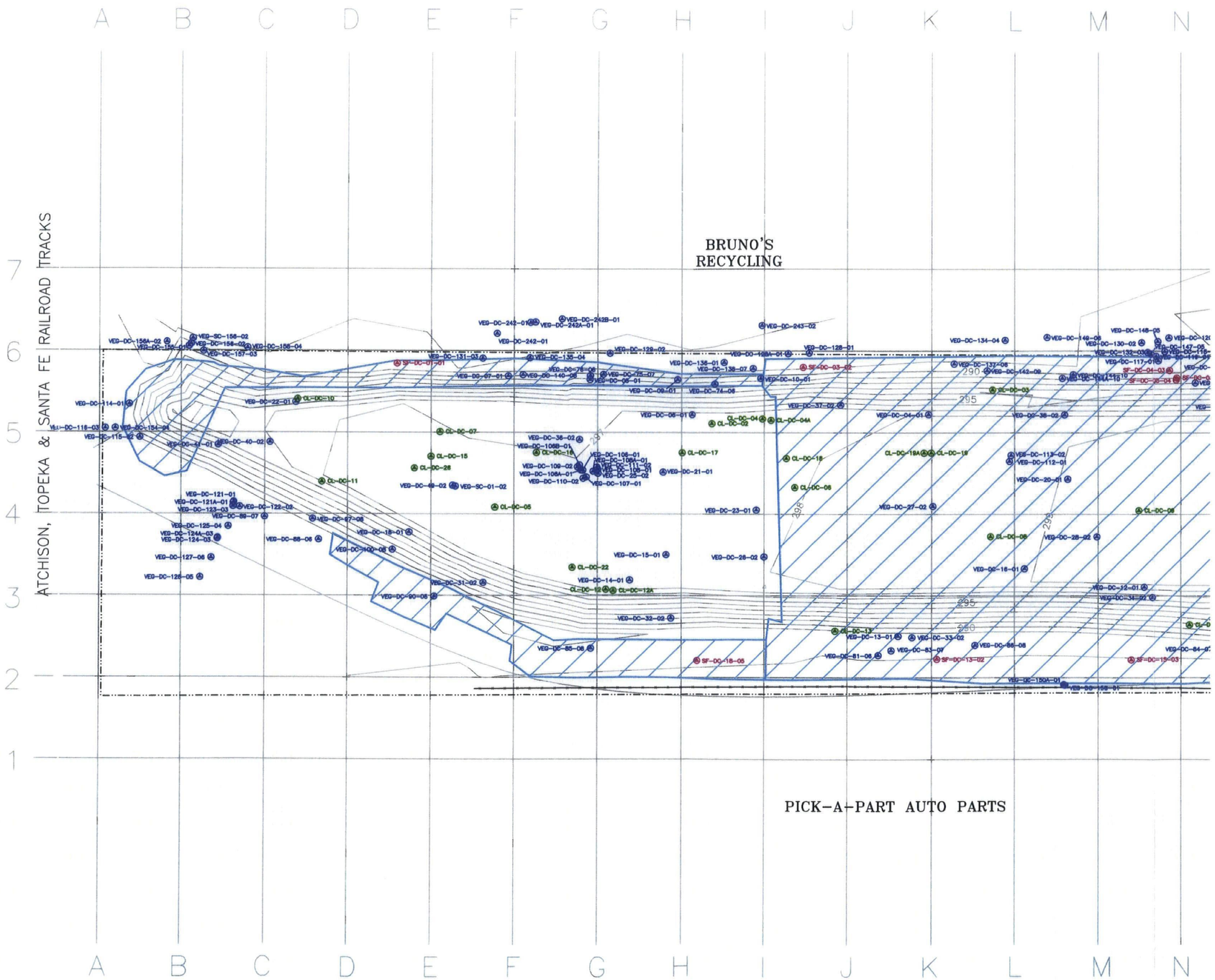
TITLE:

APPROXIMATE EXTENT OF AS-CONSTRUCTED ENGINEERED CAP

REGISTERED PROFESSIONAL ENGINEER
JERGEN M. RASMUSSEN
C61494
CIVIL
STATE OF CALIFORNIA
10/14/08

DRAWN BY: SRW	DESIGNED BY: DRI
CHECKED BY: DRM	APPROVED BY: JM
PROJECT NUMBER: 24CH.67006.03	SCALE: PLOT SCALE: 1" = '
DATE: 10/14/08	FILE PATH: Basemap OU2.dw

FIGURE: **3-16**



LEGEND

- PROPERTY LINE
- RAILROAD TRACK
- FENCE
- ON-SITE EXCAVATION LIMITS (71,875 CUBIC YARDS)
- VEG-DC — VEGETATIVE LAYER DRIVE CYLINDER TEST LOCATION
- CL-DC — CUSHION LAYER DRIVE CYLINDER TEST LOCATION
- SF-DC — SWALE FOUNDATION DRIVE CYLINDER TEST LOCATION
- 290 — SURFACE CONTOUR

0 30 60
SCALE: 1"=30'

REV	DATE	DESCRIPTION	DSN	CHK	A/
A		ISSUED FOR REVIEW			
B		ISSUED FOR REVIEW			
0		ISSUED FOR CONSTRUCTION			
1		ISSUED FOR CONSTRUCTION			

PREPARED BY:

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FOR:

CHEVRON
PURITY OIL SALES SUPERFUND SITE
3281 SOUTH MAPLE AVENUE
MALAGA, CALIFORNIA

TITLE:

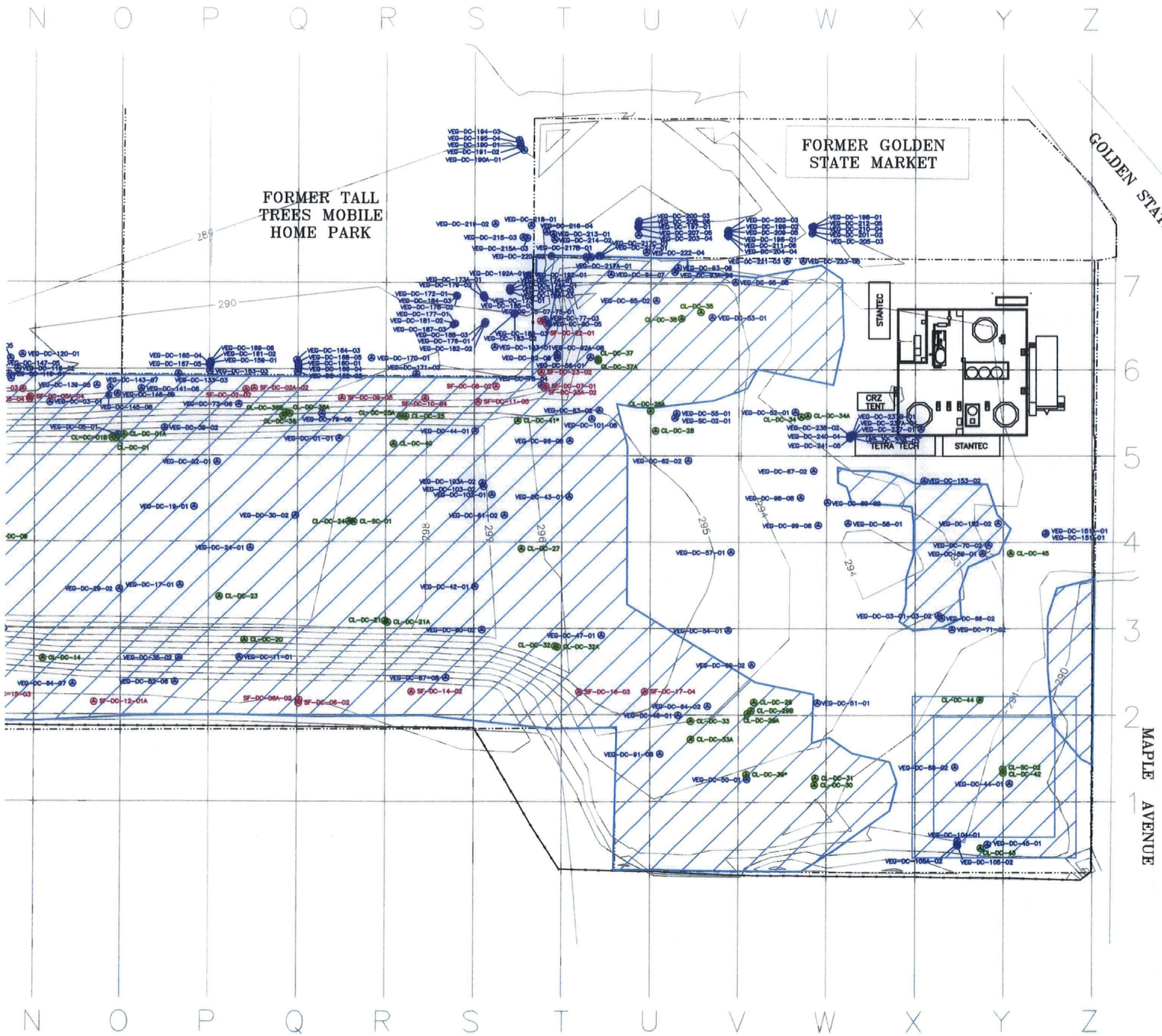
ENGINEERED CAP DENSITY TEST LOCATION MAP (WEST)

DRAWN BY: SRW	DESIGNED BY: DR
CHECKED BY: DRM	APPROVED BY: JM
PROJECT NUMBER: 24CH.67006.03	SCALE: PLOT SCALE: 1" =
DATE: 10/14/08	FILE PATH: Basemap OU2.dw

FIGURE:

3-17

REGISTERED PROFESSIONAL ENGINEER
JEREMY M. RASMUSSEN
C61494
6/30/09
CIVIL
STATE OF CALIFORNIA
10/14/08



LEGEND

- PROPERTY LINE
- RAILROAD TRACK
- FENCE
- ON-SITE EXCAVATION LIMITS (71,875 CUBIC YARDS)
- VEG-DC — VEGETATIVE LAYER DRIVE CYLINDER TEST LOCATION
- CL-DC — CUSHION LAYER DRIVE CYLINDER TEST LOCATION
- SF-DC — SWALE FOUNDATION DRIVE CYLINDER TEST LOCATION
- 290 — SURFACE CONTOUR

0 30 60
SCALE: 1"=30'

REV	DATE	DESCRIPTION	DSN	CHK	A
A		ISSUED FOR REVIEW			
B		ISSUED FOR REVIEW			
0		ISSUED FOR CONSTRUCTION			
1		ISSUED FOR CONSTRUCTION			

PREPARED BY:

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FOR:

CHEVRON
PURITY OIL SALES SUPERFUND SITE
3281 SOUTH MAPLE AVENUE
MALAGA, CALIFORNIA

TITLE:

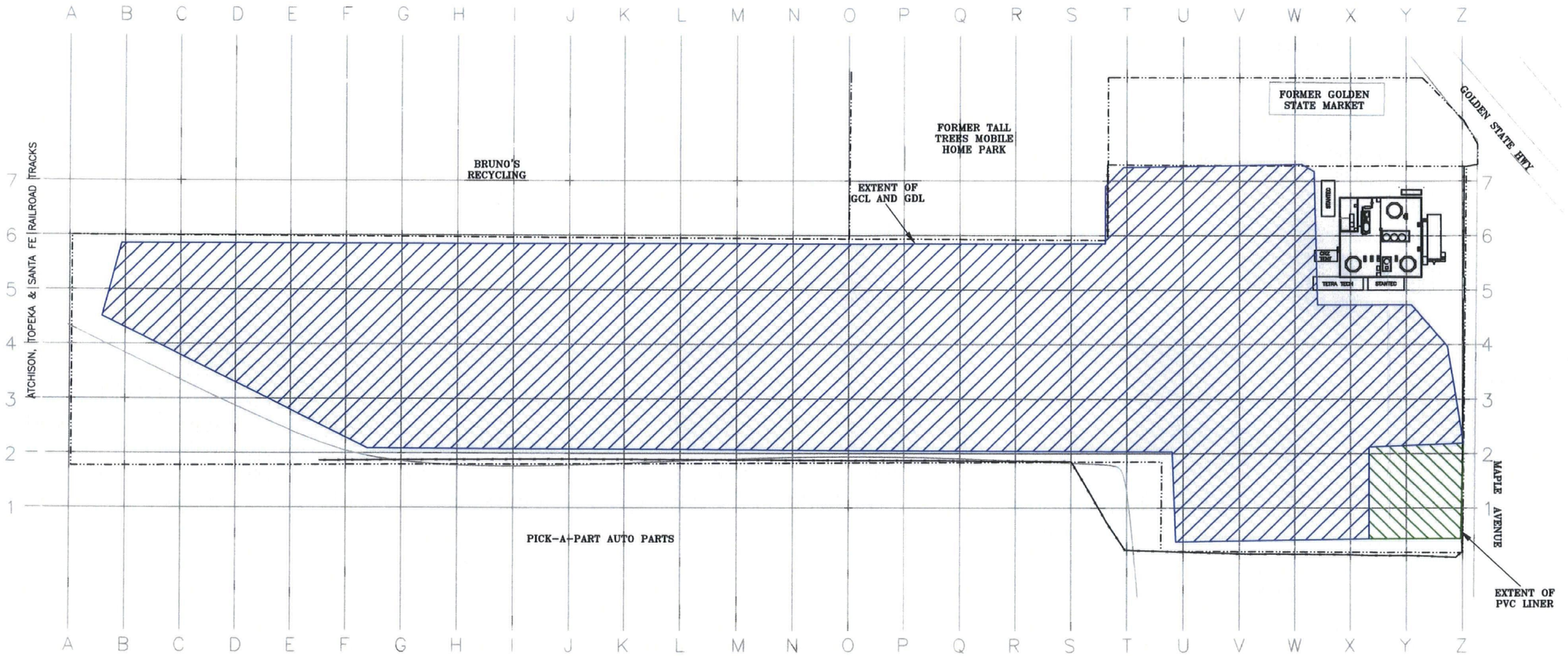
ENGINEERED CAP DENSITY TEST LOCATION MAP (EAST)

REGISTERED PROFESSIONAL ENGINEER
JERGEN M. RASMUSSEN
C61494
6/20/08
CIVIL
STATE OF CALIFORNIA
10/14/08

DRAWN BY: SRW	DESIGNED BY: DR
CHECKED BY: DRM	APPROVED BY: JM
PROJECT NUMBER: 24CH.67006.03	SCALE: PLOT SCALE: 1" =
DATE: 10/14/08	FILE PATH: Basemap OU2.dv

FIGURE:

3-18



LEGEND

- PROPERTY LINE
- RAILROAD TRACK
- FENCE
- GCL AND GDL EXTENT
- PVC LINER EXTENT

0 50 100
SCALE: 1"=50'

REV	DATE	DESCRIPTION	DSN	CHK	A
A		ISSUED FOR REVIEW			
B		ISSUED FOR REVIEW			
0		ISSUED FOR CONSTRUCTION			
1		ISSUED FOR CONSTRUCTION			

PREPARED BY:

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FOR:

CHEVRON
PURITY OIL SALES SUPERFUND SITE
3281 SOUTH MAPLE AVENUE
MALAGA, CALIFORNIA

TITLE:

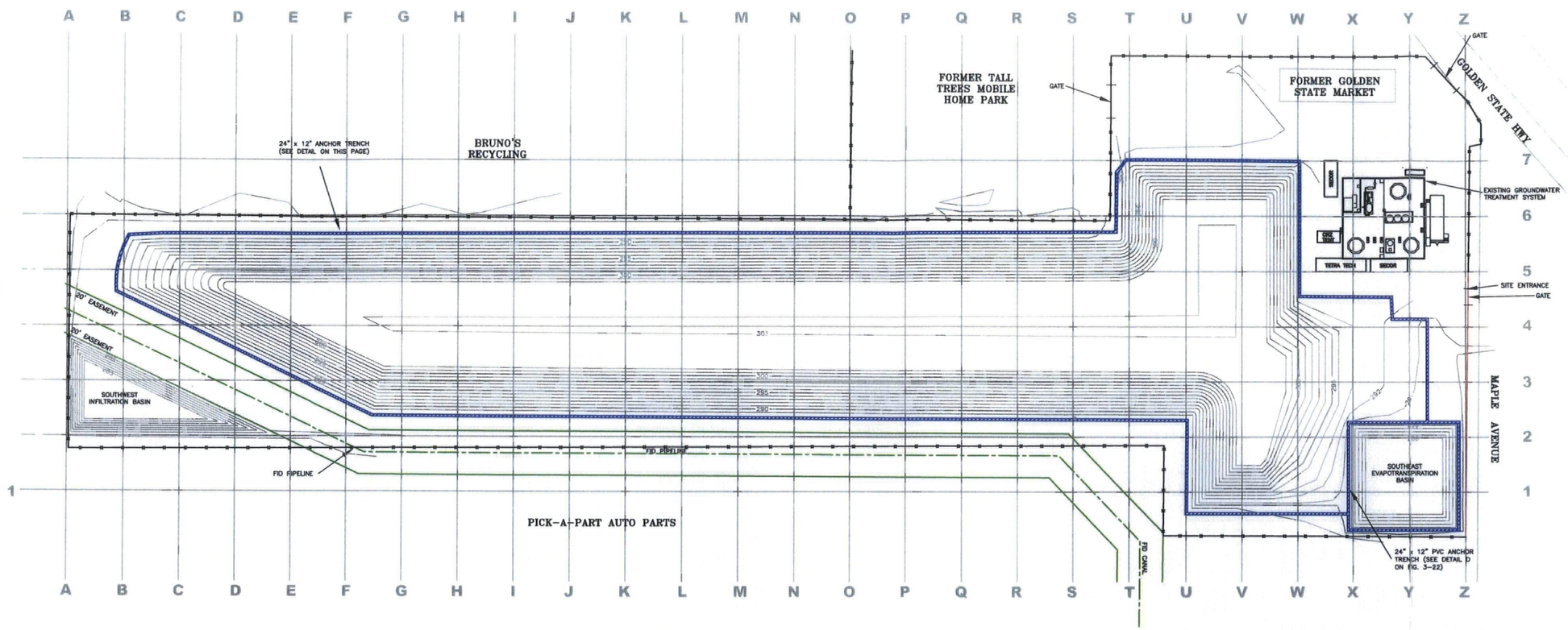
EXTENT OF AS-CONSTRUCTED GCL, GDL, AND PVC LINERS

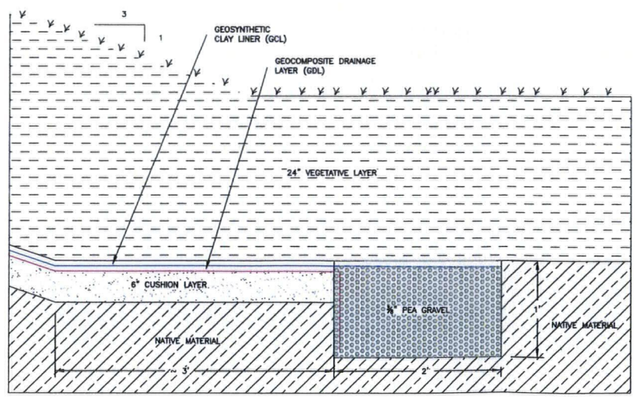
REGISTERED PROFESSIONAL ENGINEER
JEREMY M. RASMUSSEN
C61494
CIVIL
STATE OF CALIFORNIA

DRAWN BY: SRW	DESIGNED BY: DR
CHECKED BY: DRM	APPROVED BY: JIV
PROJECT NUMBER: 24CH.67006.03	SCALE: PLOT SCALE: 1" =
DATE: 10/14/08	FILE PATH: Basemap OU2.dv

FIGURE:

3-19





TYPICAL ANCHOR TRENCH DETAIL (NOT ADJACENT TO SE BASIN)

NOT TO SCALE

LEGEND

- RAILROAD TRACK
- FENCE
- PERIMETER CURB
- LINER ANCHOR TRENCH
- SURFACE CONTOUR

0 50 100
SCALE: 1"=50'

REV	DATE	DESCRIPTION	DSN	CHK	A
A		ISSUED FOR REVIEW			
B		ISSUED FOR REVIEW			
0		ISSUED FOR CONSTRUCTION			
1		ISSUED FOR CONSTRUCTION			

PREPARED BY:

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Okemos, Michigan
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FOR:

CHEVRON
PURITY OIL SALES SUPERFUND SITE
3281 SOUTH MAPLE AVENUE
MALAGA, CALIFORNIA

TITLE:

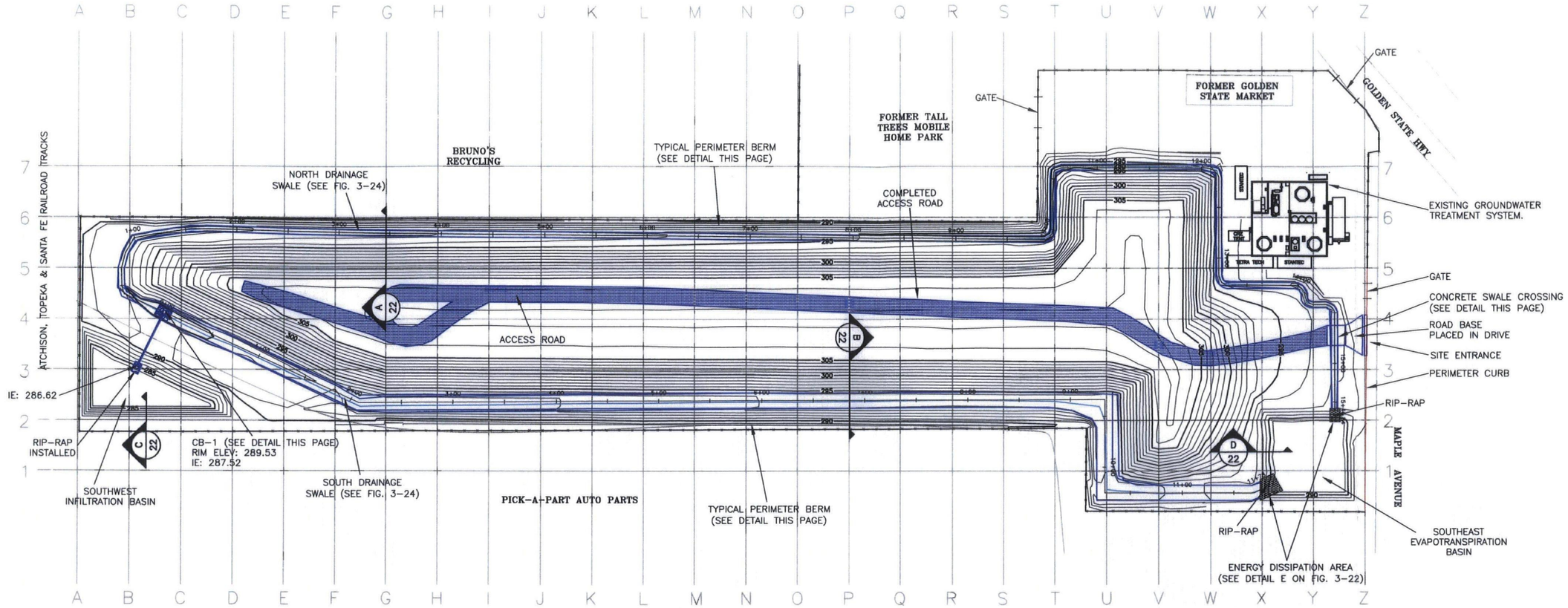
AS-CONSTRUCTED ANCHOR TRENCH LOCATION MAP

REGISTERED PROFESSIONAL ENGINEER
JEREMY M. RASMUSSEN
C61494
6/20/08
CIVIL
STATE OF CALIFORNIA
10/10/08

DRAWN BY: SRW	DESIGNED BY: DR
CHECKED BY: DRM	APPROVED BY: JIv
PROJECT NUMBER: 24CH.67006.03	SCALE: PLOT SCALE: 1" =
DATE: 10/14/08	FILE PATH: Basemap OU2.dv

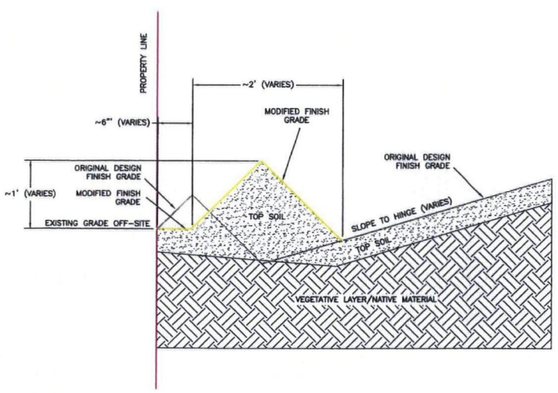
FIGURE:

3-20

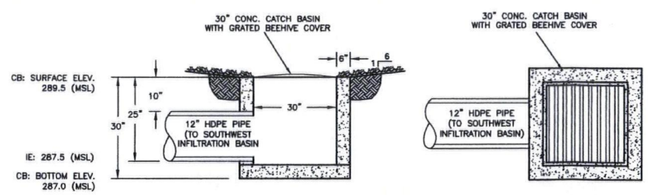


LEGEND

- RAILROAD TRACK
- FENCE
- PERIMETER CURB
- SURFACE CONTOUR



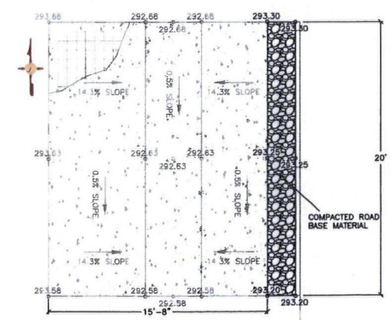
PERIMETER BERM
NOT TO SCALE



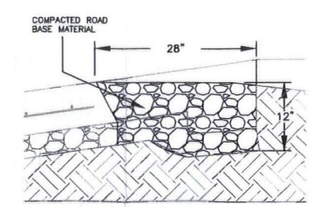
PROFILE VIEW
NOT TO SCALE

PLAN VIEW
NOT TO SCALE

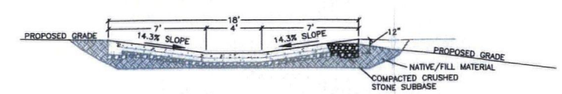
CATCH BASIN (CB-1) DETAILS



CONCRETE SWALE CROSSING (PLAN VIEW)
SCALE: 1" = 5'



CONCRETE SWALE CROSSING (EDGE DETAIL)
SCALE: 1" = 1'



CONCRETE SWALE CROSSING (SIDE VIEW)
SCALE: 1" = 5'

0 50 100
SCALE: 1"=50'

REV	DATE	DESCRIPTION	DSN	CHK	A
A		ISSUED FOR REVIEW			
B		ISSUED FOR REVIEW			
0		ISSUED FOR CONSTRUCTION			
1		ISSUED FOR CONSTRUCTION			

PREPARED BY:
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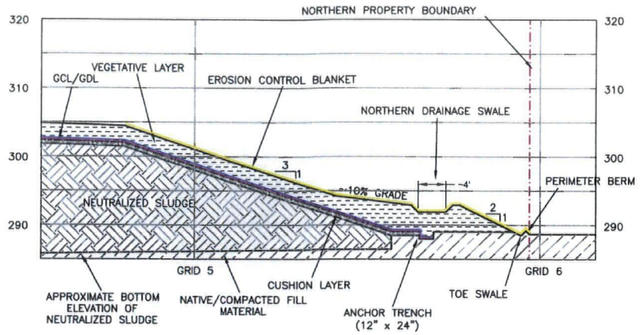
FOR:
CHEVRON
PURITY OIL SALES SUPERFUND SITE
3281 SOUTH MAPLE AVENUE
MALAGA, CALIFORNIA

TITLE:
AS-CONSTRUCTED FINAL SITE TOPOGRAPHY

REGISTERED PROFESSIONAL ENGINEER
JERGEN M. RASMUSSEN
C61494
CIVIL
STATE OF CALIFORNIA
10/14/08

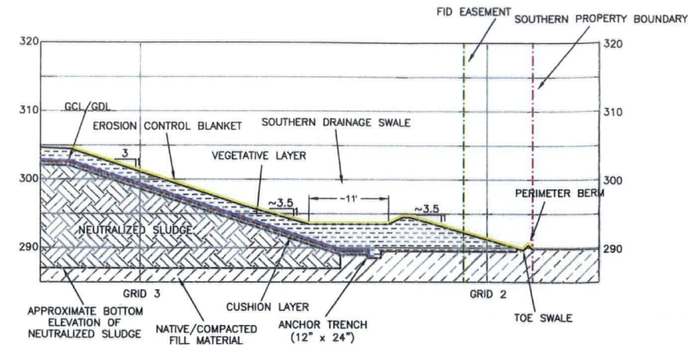
DRAWN BY: SRW	DESIGNED BY: DR
CHECKED BY: DRM	APPROVED BY: JM
PROJECT NUMBER: 24CH.67006.03	SCALE: PLOT SCALE: 1" =
DATE: 10/14/08	FILE PATH: Basemap OU2.dv

FIGURE:
3-21



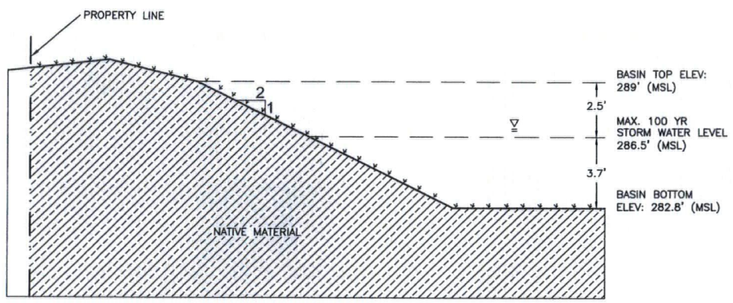
A TYPICAL CROSS-SECTION (GRID G)

HOR. SCALE: 1" = 10'
VERT. SCALE: 1" = 10'



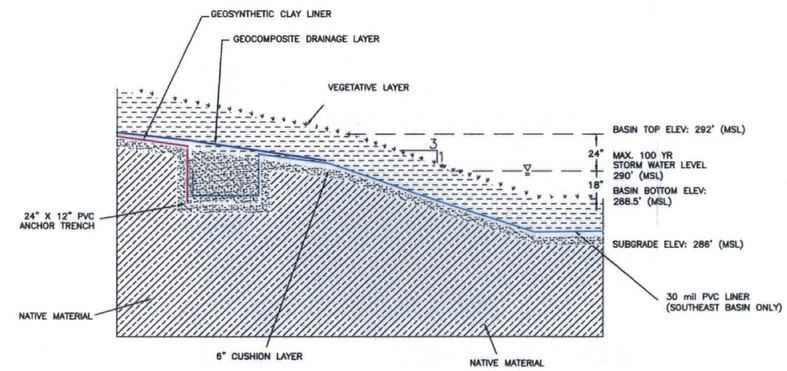
B TYPICAL CROSS-SECTION (GRID P)

HOR. SCALE: 1" = 10'
VERT. SCALE: 1" = 10'



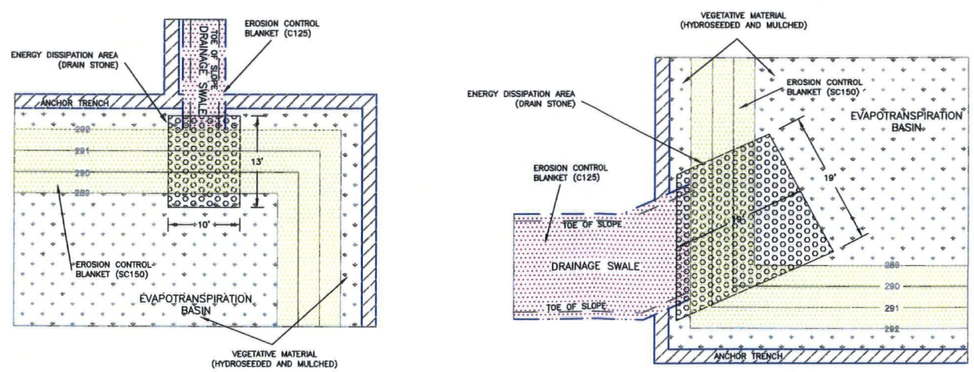
C SOUTHWEST INFILTRATION BASIN DETAIL

NOT TO SCALE



D SOUTHEAST EVAPOTRANSPIRATION BASIN DETAIL

NOT TO SCALE



E TYPICAL ENERGY DISSIPATION AREA DETAIL (SOUTHEAST EVAPOTRANSPIRATION BASIN)

NOT TO SCALE

LEGEND

- NATIVE MATERIAL
- BACKFILL MATERIAL
- NEUTRALIZED SLUDGE
- VEGETATIVE LAYER
- GEOSYNTHETIC CLAY LAYER
- GEOCOMPOSITE DRAINAGE LAYER
- PVC LINER
- RIP RAP

REV	DATE	DESCRIPTION	DSN	CHK	AI
A		ISSUED FOR REVIEW			
B		ISSUED FOR REVIEW			
0		ISSUED FOR CONSTRUCTION			
1		ISSUED FOR CONSTRUCTION			

PREPARED BY:
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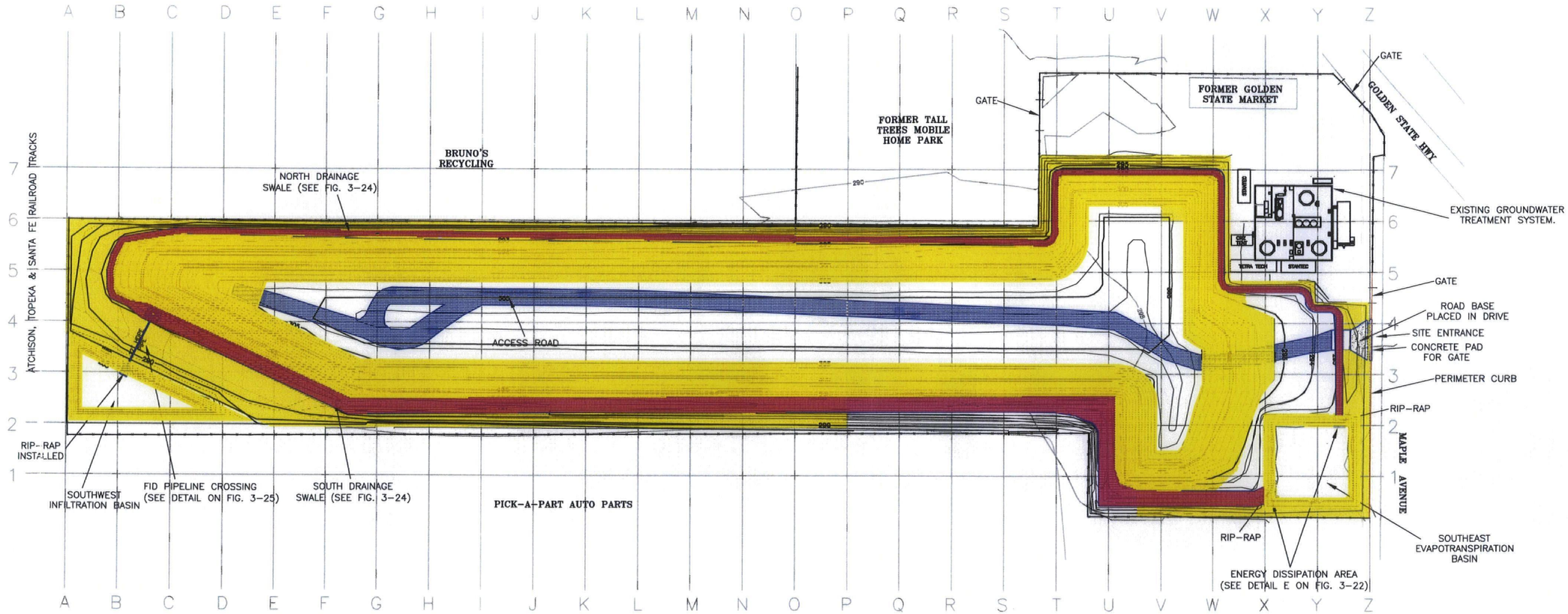
FOR:
CHEVRON
PURITY OIL SALES SUPERFUND SITE
3281 SOUTH MAPLE AVENUE
MALAGA, CALIFORNIA

TITLE:
AS-CONSTRUCTED ENGINEERED CAP DETAILS

REGISTERED PROFESSIONAL ENGINEER
JEREMY M. RASMUSSEN
C61484
6/30/09
CIVIL
STATE OF CALIFORNIA
10/14/08

DRAWN BY: SRW	DESIGNED BY: DR
CHECKED BY: DRM	APPROVED BY: JM
PROJECT NUMBER: 24CH.67006.03	SCALE: PLOT SCALE: 1" =
DATE: 10/14/08	FILE PATH: Basemap OU2.dw

FIGURE: **3-22**



LEGEND

- RAILROAD TRACK
- FENCE
- PERIMETER CURB
- EROSION CONTROL BLANKET (SC150) AND HYDROSEED
- EROSION CONTROL BLANKET (C125) AND HYDROSEED
- SURFACE CONTOUR

0 50 100
SCALE: 1"=50'

REV	DATE	DESCRIPTION	DSN	CHK	A
A		ISSUED FOR REVIEW			
B		ISSUED FOR REVIEW			
0		ISSUED FOR CONSTRUCTION			
1		ISSUED FOR CONSTRUCTION			

PREPARED BY:

Stantec
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Okemos, Michigan
PHONE:(517) 349-9499 FAX:(517) 349-6863

FOR:

CHEVRON
PURITY OIL SALES SUPERFUND SITE
3281 SOUTH MAPLE AVENUE
MALAGA, CALIFORNIA

TITLE:

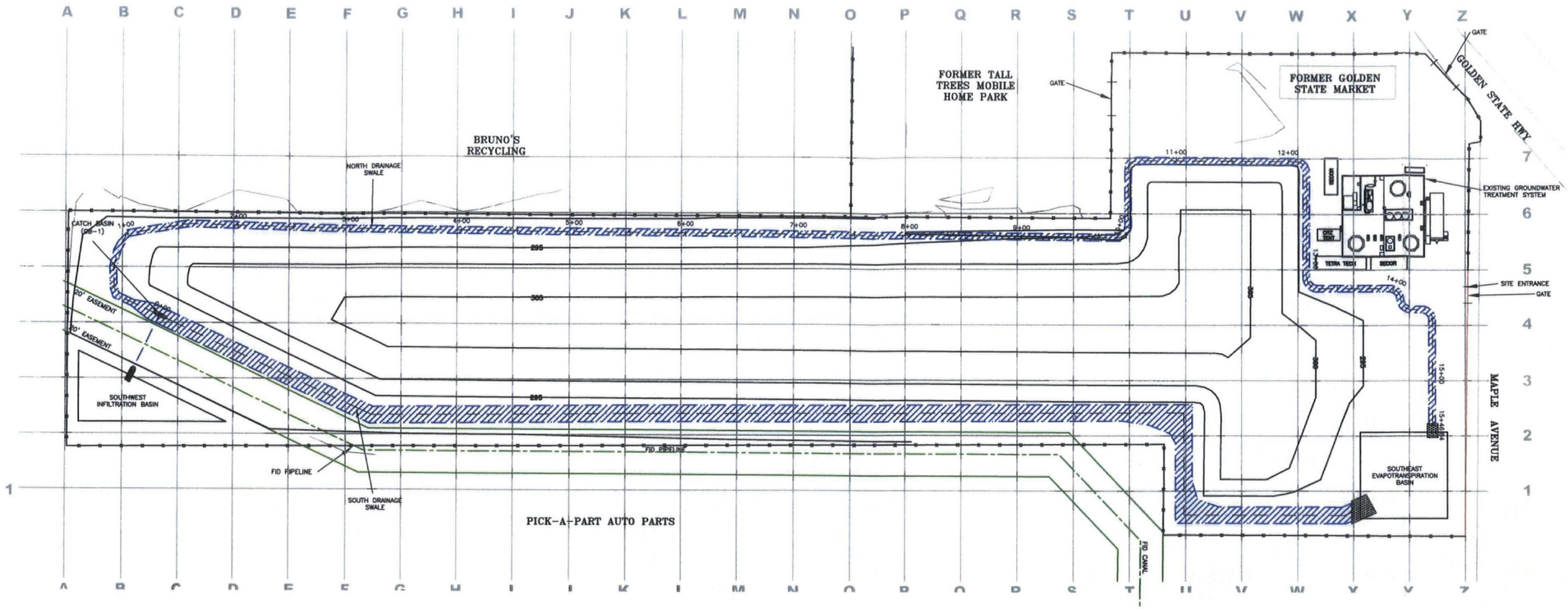
AS-CONSTRUCTED EROSION CONTROL MEASURES LOCATION MAP

REGISTERED PROFESSIONAL ENGINEER
JEREMY M. RASMUSSEN
C61494
CIVIL
STATE OF CALIFORNIA
10/10/08

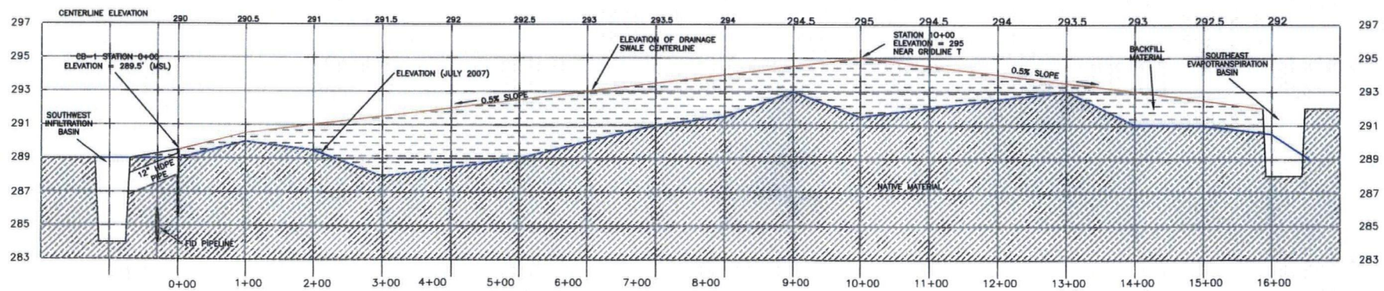
DRAWN BY: SRW	DESIGNED BY: DR
CHECKED BY: DRM	APPROVED BY: JM
PROJECT NUMBER: 24CH.67006.03	SCALE: PLOT SCALE: 1" =
DATE: 10/14/08	FILE PATH: Basemap OU2.dw

FIGURE:

3-23

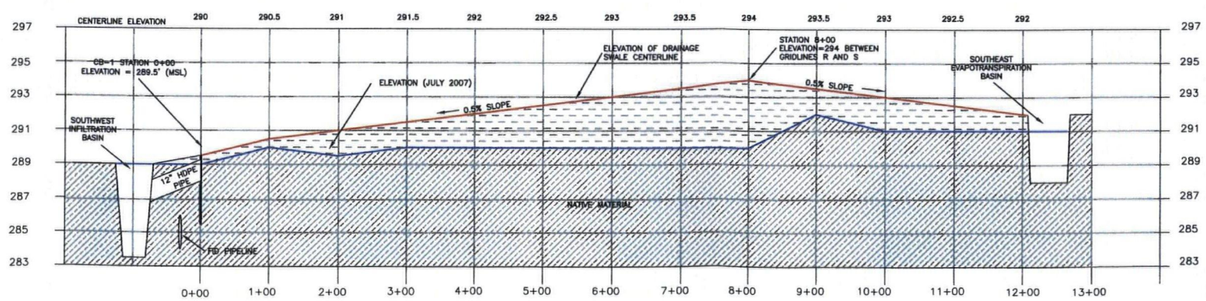


PLAN VIEW



NORTHERN DRAINAGE SWALE PROFILE VIEW

HOR. SCALE: 1" = 100'
VERT. SCALE: 1" = 4'



SOUTHERN DRAINAGE SWALE PROFILE VIEW

HOR. SCALE: 1" = 100'
VERT. SCALE: 1" = 4'

LEGEND

- RAILROAD TRACK
- FENCE
- PERIMETER CURB
- DRAINAGE SWALE
- 0+00 DRAINAGE SWALE STATION
- NATIVE MATERIAL
- BACKFILL MATERIAL
- 290 SURFACE CONTOUR

0 50 100
SCALE: 1"=50'

REV	DATE	DESCRIPTION	DSN	CHK	A
A		ISSUED FOR REVIEW			
B		ISSUED FOR REVIEW			
0		ISSUED FOR CONSTRUCTION			
1		ISSUED FOR CONSTRUCTION			

PREPARED BY:

Stantec
2321 Club Meridian Drive, Suite E
Okemos, Michigan
PHONE:(517) 349-9499 FAX:(517) 349-6863

FOR:

CHEVRON
PURITY OIL SALES SUPERFUND SITE
3281 SOUTH MAPLE AVENUE
MALAGA, CALIFORNIA

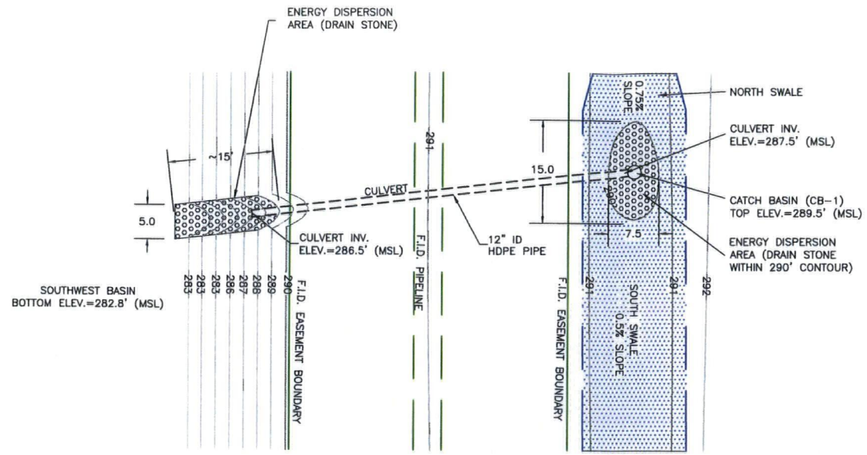
TITLE:

AS-CONSTRUCTED DRAINAGE SWALE PROFILE VIEWS

REGISTERED PROFESSIONAL ENGINEER
JEREMY M. RASMUSSEN
C61491
CIVIL
STATE OF CALIFORNIA

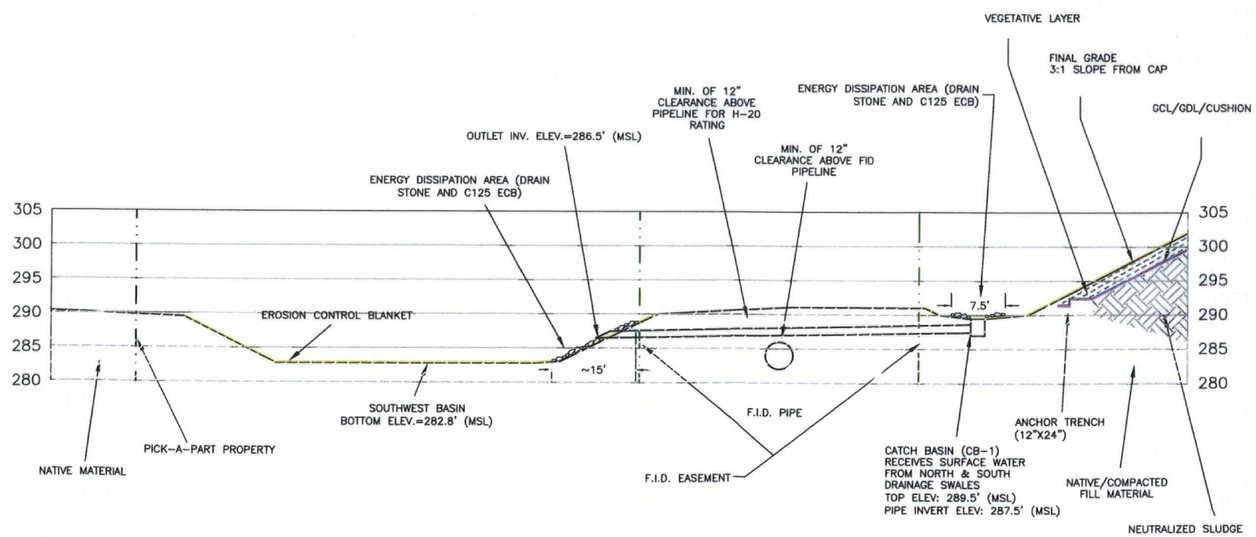
DRAWN BY: SRW	DESIGNED BY: DR
CHECKED BY: DRM	APPROVED BY: JM
PROJECT NUMBER: 24CH.67006.03	SCALE: PLOT SCALE: 1" =
DATE: 10/14/08	FILE PATH: Basemap OU2.dv

FIGURE: **3-24**



FID PIPELINE CROSSING - PLAN VIEW

SCALE: 1" = 20'



FID PIPELINE CROSSING - PROFILE VIEW

HOR. SCALE: 1" = 10'
VERT. SCALE: 1" = 10'

LEGEND

- NATIVE MATERIAL
- BACKFILL MATERIAL
- NEUTRALIZED SLUDGE
- RIPRAP
- DRAINAGE SWALE

REV	DATE	DESCRIPTION	DSN	CHK	A
A		ISSUED FOR REVIEW			
B		ISSUED FOR REVIEW			
0		ISSUED FOR CONSTRUCTION			
1		ISSUED FOR CONSTRUCTION			

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FOR:

CHEVRON
PURITY OIL SALES SUPERFUND SITE
3281 SOUTH MAPLE AVENUE
MALAGA, CALIFORNIA

TITLE:

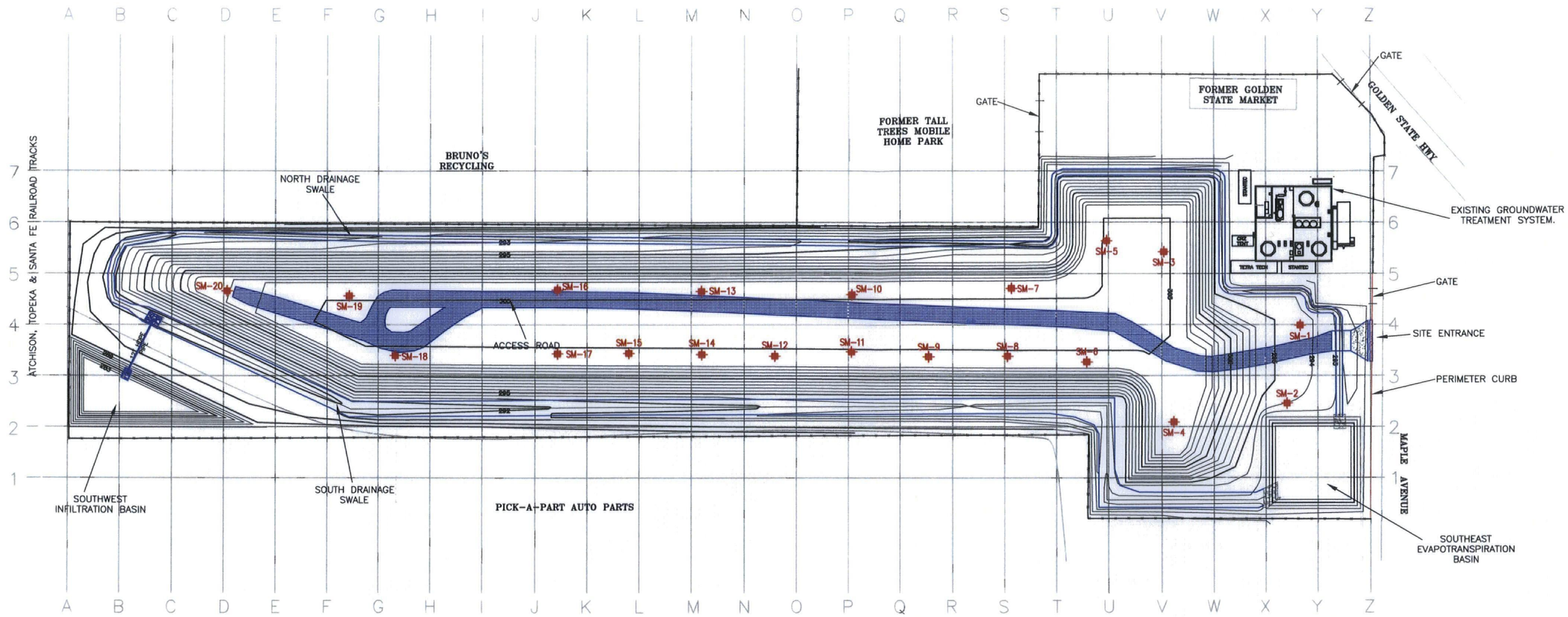
AS-CONSTRUCTED FID CROSSING DETAILS

REGISTERED PROFESSIONAL ENGINEER JEREMY M. RASMUSSEN C61484 6/30/09 CIVIL STATE OF CALIFORNIA
10/14/08

DRAWN BY: SRW	DESIGNED BY: DR
CHECKED BY: DRM	APPROVED BY: JM
PROJECT NUMBER: 24CH.67006.03	SCALE: PLOT SCALE: 1" =
DATE: 10/14/08	FILE PATH: Basemap 2.dv

FIGURE:

3-25



LEGEND

- RAILROAD TRACK
- FENCE
- PERIMETER CURB
- SM-1 SETTLEMENT MARKER
- 290 SURFACE CONTOUR

0 50 100
SCALE: 1"=50'

SETTLEMENT MARKER INFORMATION

Marker	Northing	Easting	Elevation
SM-1	2134156.94	6342914.59	294.57
SM-2	2134080.53	6342901.86	294.07
SM-3	2134228.77	6342783.13	305.24
SM-4	2134062.18	6342792.74	307.29
SM-5	2134239.36	6342729.20	306.31
SM-6	2134121.07	6342710.34	305.75
SM-7	2134192.85	6342637.75	304.42
SM-8	2134126.61	6342633.93	304.65
SM-9	2134126.10	6342558.30	305.70
SM-10	2134187.02	6342484.48	304.73
SM-11	2134131.09	6342484.25	305.91
SM-12	2134126.82	6342410.59	305.76
SM-13	2134190.21	6342341.16	305.80
SM-14	2134128.44	6342341.49	305.85
SM-15	2134129.50	6342271.64	305.90
SM-16	2134191.45	6342203.02	305.78
SM-17	2134129.02	6342203.13	305.84
SM-18	2134127.39	6342047.96	305.89
SM-19	2134185.76	6342003.39	306.24
SM-20	2134190.35	6341884.64	305.80

REV	DATE	DESCRIPTION	DSN	CHK	A
A		ISSUED FOR REVIEW			
B		ISSUED FOR REVIEW			
0		ISSUED FOR CONSTRUCTION			
1		ISSUED FOR CONSTRUCTION			

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FOR:

CHEVRON
PURITY OIL SALES SUPERFUND SITE
3281 SOUTH MAPLE AVENUE
MALAGA, CALIFORNIA

TITLE:

AS-CONSTRUCTED SETTLEMENT MARKER LOCATION MAP

REGISTERED PROFESSIONAL ENGINEER
JEREMY M. RASMUSSEN
C61494
CIVIL
STATE OF CALIFORNIA

DRAWN BY: SRW	DESIGNED BY: DR
CHECKED BY: DRM	APPROVED BY: JN
PROJECT NUMBER: 24CH.87006.03	SCALE: PLOT SCALE: 1" =
DATE: 10/14/08	FILE PATH: Basemap OU2.dv

FIGURE: **3-26**

TABLE 3-1
PURITY OIL SALES SUPERFUND SITE
PILOT STUDY NEUTRALIZATION SUMMARY

NEUTRALIZATION BATCH SUMMARY

Reporting Period: 04/22/03 to 06/18/03

Number of Batches: 57 Batches per Mixing Day: 1.9

Total Batch Yardage (yd³): 17,032 Yards per Mixing Day (yd³): 568

Number of Batches with Initial pH<5.00: 57

Batch Number	Date	Sludge (yd³)	$CaCO_3$ (yd³)	$CaCO_3$ (tons)	$CaCO_3$ Dosage (by Weight (%))	Soil (yd³)	Initial pH	Average Final Mix pH	Proctor Analysis Average Wet Density (pcf)	Proctor Analysis Average Moisture (%)	Proctor Analysis Average Dry Density (pcf)	Final Observations
PTA1-1	04/22/03	37.0	3.5	5.3	4.2%	111.1	3.9	6.7	118.0	11.1%	106.3	
PTA1-2	04/23/03	37.0	2.0	3.5	2.7%	111.1	3.5	6.8	116.0	10.2%	105.4	
PTA1-3	4/23/03	37.4	3.0	5.0	3.9%	111.1	1.9	6.8	116.2	14.4%	101.5	
PTA1-4	4/24/03	37.4	3.0	5.3	4.2%	111.1	1.4	6.7				
PTA1-5	4/24/03	37.4	2.6	4.5	3.5%	111.1	0.5	6.8	117.4	14.5%	102.5	
PTA2-1	4/25/03	37.4	2.0	3	2.6%	111.1	4.2	6.9				20% field pH = 0, 80%=4.2
PTA3-1	4/28/03	37.4	2.0	3	2.4%	111.1	3.5	6.6				
PTA1-6	4/28/03	37.4	4.0	6.3	4.9%	111.1	0.7	6.2				
PTA1-7	4/29/03	37.4	3.0	5	3.8%	111.1	2.7	5.7				
PTA1-8	4/29/03	37.4	4.0	6	5.0%	111.1	0.6	5.6				
PTA1-9a	4/30/03	37.4	8.0	12	9.4%	111.1	1.2	5.3				
PTA1-9b	5/1/03	37.4	3.0	5	3.8%	111.1	0.8	6.2				
PTA1-9c	5/2/03	55.6	6.0	11	10.3%	92.6	0.8	6.5	119.6	10.9%	107.9	
PTA1-9d	5/5/03	55.6	10.0	17	15.6%	92.6	0.2	7.9				
PTA1-9e	5/5/03	55.6	9.0	15	14.1%	92.6	0.0	6.3				
PTA1-9f	5/6/03	55.6	5.0	8	7.3%	92.6	1.1	7.5				
PTA1-9g	5/7/03	55.6	5.0	7.8	7.3%	92.6	1.5	6.9				
PTA1-9h	5/7/03	55.6	5.0	8.1	7.6%	92.6	0.0	6.9				
PTA1-9i	5/14/03	55.6	4.0	6	5.6%	92.6	1.6	5.4				
PTA1-9j	5/14/03	55.6	4.0	6.0	5.6%	92.6	1.0	6.4				
PTA1-9k	5/14/03	55.6	4.0	5.9	5.6%	92.6	1.5	5.4				
PTA1-9l	5/14/03	55.6	4.0	5.9	5.6%	92.6	0.9	5.4				
PTA1-9m	5/15/03	55.6	4.0	6.4	6.0%	92.6	2.7	7.0				
PTA1-9n	5/15/03	55.6	5.0	8	7.5%	92.6	1.3	6.2				
PTA1-9o	5/15/03	55.6	5.0	8.1	7.6%	92.6	1.5	6.2				
PTA1-9p	5/16/03	55.6	5.0	8.9	8.4%	92.6	1.5	5.3				
PTA1-9q	5/15/03	55.6	5.0	8.9	8.4%	92.6	1.6	5.2				
PTA1-9r	5/16/03	55.6	5.0	8	7.9%	92.6	1.6	6.6				
PTA1-9s	5/19/03	55.6	5.0	7	6.9%	92.6	0.2	5.5				
PTA1-10a	5/19/03	55.6	5.0	7	6.9%	92.6	1.5	5.5				
PTA1-10b	5/20/03	55.6	9.0	14	12.8%	92.6	1.8	6.6				
PTA1-10c	5/20/03	55.6	4.0	6.1	5.7%	92.6	2.1	7.0				
PTA1-10d	5/21/03	55.6	5.0	7.3	6.9%	92.6	1.6	6.6				
PTA1-10e	5/21/03	111.1	9.3	12.3	4.8%	222.2	n/a	5.6				
PTA1-10f	5/28/03	74.0	8.5	11.8	6.9%	148.2	1.4	5.4				
PTA1-10g	5/28/03	222.2	8.2	11.4	2.2%	444.4	2.4	5.1				
PTA1-11	5/29/03	74.0	17.5	22.8	13.4%	148.0	0.6	5.9				
PTA1-12	5/29/03	222.2	21.0	27.2	5.3%	444.4	1.3	5.3				
PTA1-13	6/2/03	222.2	35.0	44.8	7.8%	500.0	-0.4	6.6				

TABLE 3-1
PURITY OIL SALES SUPERFUND SITE
PILOT STUDY NEUTRALIZATION SUMMARY

NEUTRALIZATION BATCH SUMMARY

Reporting Period: 04/22/03 to 06/18/03

Number of Batches: 57 | Batches per Mixing Day: 1.9

Total Batch Yardage (yd³): 17,032 | Yards per Mixing Day (yd³): 568

Number of Batches with Initial pH<5.00: 57

Batch Number	Date	Sludge (yd³)	$CaCO_3$ (yd³)	$CaCO_3$ (tons)	$CaCO_3$ Dosage by Weight (%)	Soil (yd³)	Initial pH	Average Final Mix pH	Proctor Analysis Average Wet Density (pcf)	Proctor Analysis Average Moisture (%)	Proctor Analysis Average Dry Density (pcf)	Final Observations
PTA1-14	6/2/03	222.2	24.5	31.4	6.2%	444.4	1.0	6.0				
PTA1-15	6/3/03	222.2	28.0	36.2	7.1%	444.4	1.7	6.5				
PTA1-16	6/4/03	222.2	28.0	25.9	5.1%	444.4	0.9	5.4				
PTA1-17	6/4/03	222.2	24.5	31.4	6.2%	444.4	0.7	6.6				
PTA1-18	6/5/03	222.2	17.5	24.8	4.9%	444.4	0.3	6.2				
PTA1-19	6/5/03	222.2	14.0	19.9	3.9%	444.4	1.1	6.3				
PTA4-1	6/10/03	74.0	10.5	14.3	8.4%	148.0	0.2	9.2				
PTA1-20	6/11/03	222.2	21.0	29.8	5.8%	444.4	1.2	6.1				
PTA1-21	6/11/03	222.2	21.0	29.8	5.8%	444.4	0.9	6.5				
PTA1-22	6/11/03	166.7	35.0	50.5	13.2%	333.3	0.7	6.3				
PTA1-23	6/11/03	166.7	21.0	30.3	7.9%	333.3	1.5	6.2				
PTA1-24	6/13/03	166.7	21.0	30.8	8.1%	333.3	1.1	5.7				
PTA1-25	6/16/03	111.1	14.0	18.2	7.1%	222.2	0.8	5.0				
PTA1-26	6/16/03	111.1	14.0	18.2	7.1%	222.2	1.3	5.4				
PTA1-27	6/17/03	111.1	21.0	27.5	10.8%	222.2	1.5	6.4				
PTA1-28	6/17/03	111.1	14.0	18.4	9.8%	166.7	0.9	5.8				
PTA1-29	6/18/03	74.0	10.5	12.4	7.3%	148.0	1.1	6.1				
PTA1-30	6/18/03	74.0	10.5	12.4	14.6%	74.0	0.9	5.9				
Total		5,485	603	837		10,944						
MIN		37.0	2.0	3.1		74.0						
MAX		222.2	35.0	50.5		600.0						
Average		96.2	10.6	14.69	6.7%	192	1.30	6.21				

TABLE 3-2
PURITY OIL SALES SUPERFUND SITE
PILOT STUDY
DENSITY TESTING SUMMARY

Compaction ID	Date	Elevation (ft)	Method	Wet Density (pcf)	Moisture (%)	Dry Density (pcf)	Pass or Fail (min. 107 pcf wet density)	Pass or Fail	1-pt proctor test moisture (%)	1-pt proctor test wet density (pcf)
PTA1-5a-NG	4/29/03	287.6	Nuc. Gauge	116.7	23.4	94.5	P	P	14.5	117.4
PTA1-5a-DC	4/29/03	287.6	Drive Cyl.	113.8	11.5	102.1	P	P		
PTA1-5b-NG	4/29/03	287.6	Nuc. Gauge	114.8	24.4	92.0	P	P		
PTA1-5b-DC	4/29/03	287.6	Drive Cyl.	110.1	10.1	100.0	P	P		
PTA1-5c-NG	4/29/03	287.8	Nuc. Gauge	120.6	21.0	99.7	P	P		
PTA1-5c-DC	4/29/03	287.8	Drive Cyl.	114.1	11.4	102.4	P	P		
PTA1-5d-NG	4/29/03	287.7	Nuc. Gauge	119.5	23.7	96.6	P	P		
PTA1-5d-DC	4/29/03	287.7	Drive Cyl.	110.2	11.9	98.5	P	P		
PTA1-5d-SC	4/29/03	287.7	Sand Cone	111.3	11.8	99.6	P	P		
PTA1-5e-NG	4/29/03	287.7	Nuc. Gauge	121.8	21.9	99.9	P	P		
PTA1-5e-DC	4/29/03	287.7	Drive Cyl.	107.4	10.6	97.1	P	P		
PTA1-5f-NG	4/29/03	288.1	Nuc. Gauge	119.4	23.3	96.9	P	P		
PTA1-5f-DC	4/29/03	288.1	Drive Cyl.	112.9	12.6	100.3	P	P		
PTA1-5f-SC	4/29/03	288.1	Sand Cone	124.7	11.7	111.6	P	P		
PTA1-5g-NG	4/29/03	288.2	Nuc. Gauge	120.5	22.2	98.6	P	P		
PTA1-5g-DC	4/29/03	288.2	Drive Cyl.	115.9	11.6	103.9	P	P		
PTA1-5g-SC	4/29/03	288.2	Sand Cone	121.7	10.4	110.2	P	P		
PTA1-5h-NG	4/29/03	288.4	Nuc. Gauge	116.9	20.2	97.4	P	P		
PTA1-5h-DC	4/29/03	288.4	Drive Cyl.	110.5	10.7	99.8	P	P		
PTA1-3a-NG	5/1/03	288.5	Nuc. Gauge	116.4	17.0	99.5	P	P	14.4	116.2
PTA1-3a-DC	5/1/03	288.5	Drive Cyl.	115.3	9.9	104.9	P	P		
PTA1-3a-SC	5/1/03	288.5	Sand Cone	126.5	10.2	114.8	P	P		
PTA1-3b-NG	5/1/03	288.5	Nuc. Gauge	119.7	14.8	104.3	P	P		
PTA1-3b-DC	5/1/03	288.5	Drive Cyl.	120.9	9.9	110.0	P	P		
PTA1-3b-SC	5/1/03	288.5	Sand Cone	127.1	10.4	115.1	P	P		
PTA1-3c-NG	5/1/03	287.9	Nuc. Gauge	115.7	13.7	101.8	P	P		
PTA1-3c-DC	5/1/03	287.9	Drive Cyl.	110.4	9.5	100.8	P	P		
PTA1-3d-NG	5/1/03	288.1	Nuc. Gauge	117.9	14.6	102.9	P	P		
PTA1-3d-DC	5/1/03	288.1	Drive Cyl.	112.2	9.6	102.4	P	P		
PTA1-3e-NG	5/1/03	288.0	Nuc. Gauge	118.1	13.6	104.0	P	P		
PTA1-3e-DC	5/1/03	288 0	Drive Cyl	112.3	9.6	102.5	P	P		
PTA1-3f-NG	5/1/03	287.8	Nuc. Gauge	119.1	13.0	105.4	P	P		
PTA1-3f-DC	5/1/03	287.8	Drive Cyl.	117.9	9.5	107.7	P	P		
PTA1-3g-NG	5/1/03	288.0	Nuc. Gauge	122.6	14.8	106.8	P	P		
PTA1-3g-DC	5/1/03	288.0	Drive Cyl.	119.5	10.5	108.1	P	P		
PTA1-3h-NG	5/1/03	288.1	Nuc. Gauge	117.4	16.0	101.3	P	P		
PTA1-3h-DC	5/1/03	288.1	Drive Cyl.	119.4	9.1	109.4	P	P		
PTA1-3h-SC	5/1/03	288.1	Sand Cone	120.4	10.4	109.1	P	P		
PTA1-1a-NG	5/1/03	288.5	Nuc. Gauge	117.6	14.6	102.7	P	P	11.1	118
PTA1-1a-DC	5/1/03	288.5	Drive Cyl.	118.2	9.8	107.7	P	P		
PTA1-1a-SC	5/1/03	288.5	Sand Cone	111.4	9.8	101.5	P	P		
PTA1-1b-NG	5/1/03	288.5	Nuc. Gauge	116.9	14.9	101.7	P	P		
PTA1-1b-DC	5/1/03	288.5	Drive Cyl.	115.2	9.5	105.2	P	P		
PTA1-1c-NG	5/1/03	289.3	Nuc. Gauge	113.7	20.3	94.5	P	P		
PTA1-1c-DC	5/1/03	289.3	Drive Cyl.	110.5	10.3	100.2	P	P		
PTA1-1d-NG	5/1/03	289.2	Nuc. Gauge	117.8	16.6	101.0	P	P		
PTA1-1d-DC	5/1/03	289.2	Drive Cyl.	118.2	9.2	108.2	P	P		
PTA1-1d-SC	5/1/03	289.2	Sand Cone	122.1	10.1	110.9	P	P		
PTA1-1e-NG	5/1/03	289.4	Nuc. Gauge	109.7	18.3	92.7	P	P		
PTA1-1e-DC	5/1/03	289 4	Drive Cyl	110.5	9.9	100.5	P	P		
PTA1-2a-DC	5/6/03	289.2	Drive Cyl	117.3	11.5	105.2	P	P	10.2	116
PTA1-2a-SC	5/6/03	289.2	Sand Cone	123.8	9.7	112.9	P	P		
PTA1-2b-DC	5/6/03	289.2	Drive Cyl.	120.4	9.7	109.8	P	P		
PTA1-2c-DC	5/7/03	287.1	Drive Cyl.	120.9	9.6	110.3	P	P		
PTA1-2c-SC	5/7/03	287.1	Sand Cone	112.2	10.2	101.8	P	P		
PTA1-2d-DC	5/7/03	286.9	Drive Cyl.	119.8	9.7	109.2	P	P		
051403-a	5/14/03	287.9	Drive Cyl.	117.6	10.6	106.3	P	P	10.9	119 6
051403-b	5/14/03	288.8	Drive Cyl.	119.4	10.3	108.3	P	P		
051503-a	5/15/03	289.7	Drive Cyl.	108.7	7.9	100.7	P	P		
051503-b	5/15/03	290.6	Drive Cyl.	120.1	11.1	108.1	P	P	10.2	118
051503-c	5/15/03	291.3	Drive Cyl.	111.3	11.6	99.7	P	P		
051503-d	5/15/03	292.1	Drive Cyl.	114.7	11.5	102.9	P	P	10.8	121.5
051603-a	5/16/03	292.6	Drive Cyl.	113.1	11.4	101.5	P	P	10.3	116.8
053003-a	5/30/03	294.1	Drive Cyl	119.1	10.1	108.2	P	P	9.6	119.5
053003-b	5/30/03	287.7	Drive Cyl.	110.1	8.8	101.2	P	P		
053003-c	5/30/03	288.7	Drive Cyl.	116.5	10.4	105.5	P	P		
053003-d	5/30/03	289.6	Drive Cyl.	119.8	10.7	108.2	P	P		
053003-e	5/30/03	290.5	Drive Cyl.	118.6	10.0	107.8	P	P		
053003-f	5/30/03	291.7	Drive Cyl.	109.0	11.0	98.2	P	P		
060203-a	6/2/03	291.5	Drive Cyl.	108.9	10.0	99.0	P	P	11.1	121.6
060203-b	6/2/03	291.3	Drive Cyl.	116.1	11.2	104.4	P	P		

TABLE 3-2
PURITY OIL SALES SUPERFUND SITE
PILOT STUDY
DENSITY TESTING SUMMARY

Compaction ID	Date	Elevation (ft)	Method	Wet Density (pcf)	Moisture (%)	Dry Density (pcf)	Pass or Fail (min. 107 pcf wet density)	Pass or Fail	1-pt proctor test moisture (%)	1-pt proctor test wet density (pcf)
060203-c	6/2/03	292.4	Drive Cyl	116.7	10.8	105.3	P	P		
060203-d	6/2/03	293.2	Drive Cyl.	112.3	9.1	102.9	P	P		
060503-a	6/5/03	287.1	Drive Cyl	115.5	10.0	105.0	P	P	10.8	117.7
060503-b	6/5/03	287.7	Drive Cyl.	118.2	11.0	106.5	P	P		
060503-c	6/5/03	288.6	Drive Cyl.	119.8	9.0	109.9	P	P		
060503-d	6/5/03	289.6	Drive Cyl.	114.0	9.8	103.8	P	P		
060503-e	6/5/03	290.9	Drive Cyl	115.3	8.6	106.2	P	P		
060503-f	6/5/03	291.5	Drive Cyl.	115.8	9.8	105.5	P	P		
060503-g	6/5/03	292.2	Drive Cyl.	117.3	9.7	106.9	P	P		
060603-a	6/6/03	286.5	Drive Cyl	118.2	10.1	107.4	P	P	7.6	114.7
060603-b	6/6/03	287.8	Drive Cyl.	112.3	9.7	102.4	P	P		
060603-c	6/6/03	288.7	Drive Cyl.	114.7	9.9	104.4	P	P		
060903-a	6/9/03	289.7	Drive Cyl.	114.9	9.3	105.1	P	P	9.1	118.8
060903-b	6/9/03	290.6	Drive Cyl	105.9	9.1	97.1	F	F		
060903-c	6/9/03	290.6	Drive Cyl.	109.5	9.2	100.3	P	P		
060903-d	6/9/03	291.7	Drive Cyl.	112.3	8.3	103.7	P	P		
060903-e	6/9/03	290.6	Drive Cyl	112.6	10.6	101.8	P	P		
060903-f	6/9/03	292.2	Drive Cyl.	111.9	10.1	101.6	P	P		
060903-g	6/9/03	293.9	Drive Cyl.	116.1	8.5	107.0	P	P		
060903-h	6/9/03	295.0	Drive Cyl.	111.6	10.9	100.6	P	P		
061303-a	6/13/03	286.6	Drive Cyl.	113.5	9.9	103.3	P	P	10.2	121.2
061303-b	6/13/03	287.5	Drive Cyl.	115.2	10.8	104.0	P	P		
061303-c	6/13/03	288.4	Drive Cyl.	114.0	10.2	103.4	P	P		
061903-a	6/19/03	286.9	Drive Cyl.	109.3	7.4	101.8	P	P	9.1	123.4
061903-b	6/19/03	287.7	Drive Cyl.	115.0	10.1	104.5	P	P		
MIN	–	–	–	**105.9**	**7.4**	**92.0**	–	–	**7.6**	**114.70**
MAX	–	–	–	**127.1**	**24.4**	**115.1**	–	–	**14.5**	**123.40**
AVERAGE	–	–	–	**115.9**	**11.9**	**103.6**	–	–	**10.7**	**118.69**

PTA = Pilot Test Analysis

TABLE 3-3
PURITY OIL SALES SUPERFUND SITE
TEST PIT INVESTIGATION pH TEST SUMMARY

Sample ID	Date	Depth (ft)	pH
TP01-FL-15		15	8.42
TP01-SW-10.5		10.5	8.40
TP01-SW-2		2	4.50
TP02-FL-15		15	9.22
TP02-SW-3	6/23/2006	3	8.56
TP02-SW-8	6/23/2006	8	8.51
TP03-FL-15	6/23/2006	15	8.71
TP03-SW-4.5	6/23/2006	4.5	7.29
TP03-SW-7	6/23/2006	7	7.92
TP04-FL-15	6/23/2006	15	7.92
TP04-SW-1.5	6/23/2006	1.5	7.67
TP04-SW-4.25	6/23/2006	4.25	6.26
TP04-SW-5	6/23/2006	5	7.81
TP05-SW-10	6/23/2006	10	8.18
TP05-SW-15	6/23/2006	15	7.78
TP05-SW-2.5	6/22/2006	2.5	6.18
TP05-SW-3.5	6/22/2006	3.5	6.78
TP06-FL-15	6/22/2006	15	5.45
TP06-SW-10	6/22/2006	10	8.35
TP06-SW-3.5	6/21/2006	3.5	8.67
TP07-FL-15	6/21/2006	15	8.27
TP07-SW-1.75	6/26/2006	1.75	7.50
TP07-SW-2.5	6/26/2006	2.5	5.59
TP10-FL-15	6/21/2006	15	7.70
TP10-SW-1.5	6/21/2006	1.5	6.76
TP11-FL15	6/21/2006	15	7.75
TP11-SW-2.5	6/21/2006	2.5	8.35
TP11-SW-5	6/21/2006	5	8.27
TP11-SW-9	6/21/2006	9	7.67
TP12-FL-15	6/20/2006	15	6.40
TP12-SW-1.25	6/20/2006	1.25	6.91
TP12-SW-2.5	6/20/2006	2.5	6.02
TP13-SW-1	6/14/2006	1	3.97
TP13-SW-15	6/14/2006	15	6.51
TP14-FL-14	6/14/2006	15	7.45
TP14-SW-0.75	6/14/2006	0.75	4.96
TP15-FL-15	6/14/2006	15	7.27
TP15-SW-1.5	6/14/2006	1.5	5.02
TP16-FL-15	6/14/2006	15	7.78
TP16-SW-11	6/14/2006	11	7.13
TP17-FL-15	6/14/2006	15	7.78
TP17-SW-1.5	6/14/2006	1.5	8.39
TP18-FL-15	6/14/2006	14	7.76
TP18-SW-1	6/14/2006	1	7.31
TP19-FL-15	6/14/2006	15	8.06
TP19-SW-1	6/14/2006	1	5.84
TP21-FL-13	6/14/2006	13	7.65
TP21-SW-7	6/14/2006	7	7.00

TP = Test Pit

FL = Floor

SW = Side Wall

TABLE 3-4
PURITY OIL SALES SUPERFUND SITE
TEST PIT INVESTIGATION DENSITY TEST SUMMARY

Test No.	Date	Depth (ft)	Relative Compaction	Pass/Fail (>90%)	Moisture Content	Optimum Moisture Content	Pass/Fail (Opt. +/- 3%)
TP17-0	6/15/2006	4' bgs	93.91%	Pass	6.02%	7.90%	Pass
TP18-1	6/15/2006	3' bgs	90.00%	Pass	7.78%	7.90%	Pass
TP19-2	6/16/2006	2' bgs	93.50%	Pass	8.94%	7.20%	Pass
TP18-3	6/16/2006	1' bgs	91.50%	Pass	6.54%	7.20%	Pass
TP19-4	6/16/2006	surface	87.60%	Fail	10.20%	7.20%	Pass
TP19-4A	6/16/2006	surface	91.90%	Pass	6.12%	7.20%	Pass
TP16-0	6/16/2006	4' bgs	93.10%	Pass	5.09%	7.20%	Pass
TP15-0	6/19/2006	4' bgs	91.40%	Pass	6.90%	7.90%	Pass
TP14-0	6/19/2006	4' bgs	86.90%	Fail	8.20%	7.90%	Pass
TP14-0A	6/19/2006	4' bgs	94.50%	Pass	7.50%	7.90%	Pass
TP13-0	6/19/2006	4' bgs	93.40%	Pass	7.80%	7.90%	Pass
TP13-1	6/19/2006	3' bgs	91.70%	Pass	7.50%	7.90%	Pass
TP13-2	6/20/2006	2' bgs	90.10%	Pass	6.50%	7.20%	Pass
TP15-3	6/20/2006	1' bgs	90.70%	Pass	5.80%	7.20%	Pass
TP16-4	6/20/2006	surface	93.30%	Pass	7.30%	7.20%	Pass
TP12-0	6/20/2006	4' bgs	84.40%	Fail	8.00%	7.90%	Pass
TP12-0A	6/20/2006	4' bgs	90.00%	Pass	7.62%	7.90%	Pass
TP12-1	6/20/2006	3' bgs	95.50%	Pass	9.51%	7.90%	Pass
TP11-0	6/21/2006	4' bgs	90.70%	Pass	5.40%	7.90%	Pass
TP11-1	6/21/2006	3' bgs	92.20%	Pass	8.10%	7.90%	Pass
TP11-2	6/21/2006	2' bgs	93.00%	Pass	8.10%	7.90%	Pass
TP11-3	6/21/2006	1' bgs	96.90%	Pass	8.50%	7.20%	Pass
TP11-4	6/21/2006	surface	95.50%	Pass	9.12%	7.20%	Pass
TP10-0	6/21/2006	4' bgs	91.90%	Pass	9.50%	7.20%	Pass
TP10-1	6/21/2006	3' bgs	92.80%	Pass	9.60%	7.20%	Pass
TP10-2	6/21/2006	2' bgs	91.10%	Pass	9.80%	7.90%	Pass
TP10-3	6/21/2006	1' bgs	93.10%	Pass	9.50%	7.20%	Pass
TP10-4	6/21/2006	surface	86.40%	Fail	8.30%	7.20%	Pass
TP10-4A	6/22/2006	surface	92.90%	Pass	8.90%	7.20%	Pass
TP6-0	6/22/2006	4' bgs	93.30%	Pass	6.90%	7.20%	Pass
TP6-1	6/22/2006	3' bgs	91.50%	Pass	9.00%	7.90%	Pass
TP6-2	6/22/2006	2' bgs	91.70%	Pass	8.10%	7.90%	Pass
TP6-3	6/22/2006	1' bgs	92.10%	Pass	8.60%	7.20%	Pass
TP6-4	6/22/2006	surface	90.30%	Pass	8.50%	7.20%	Pass
TP5-0	6/22/2006	4' bgs	85.30%	Fail	6.90%	7.90%	Pass
TP5-0A	6/22/2006	4' bgs	91.60%	Pass	7.20%	7.20%	Pass
TP5-1	6/22/2006	3' bgs	90.20%	Pass	6.70%	7.20%	Pass
TP5-2	6/22/2006	2' bgs	93.80%	Pass	7.16%	7.20%	Pass
TP5-3	6/22/2006	1' bgs	96.00%	Pass	9.38%	7.20%	Pass
TP5-4	6/22/2006	surface	96.30%	Pass	8.22%	7.20%	Pass
TP4-0	6/22/2006	4' bgs	90.00%	Pass	10.29%	7.90%	Pass
TP4-1	6/22/2006	3' bgs	93.00%	Pass	9.01%	7.20%	Pass
TP4-2	6/23/2006	2' bgs	90.60%	Pass	8.40%	7.20%	Pass
TP4-3	6/23/2006	1' bgs	93.30%	Pass	8.44%	7.90%	Pass
TP4-4	6/23/2006	surface	91.80%	Pass	7.21%	7.20%	Pass
TP3-0	6/23/2006	4' bgs	92.40%	Pass	8.56%	7.20%	Pass
TP3-1	6/23/2006	3' bgs	90.60%	Pass	7.79%	7.20%	Pass
TP3-2	6/23/2006	2' bgs	92.90%	Pass	7.99%	7.20%	Pass
TP3-3	6/23/2006	1' bgs	94.90%	Pass	8.65%	7.20%	Pass
TP3-4	6/23/2006	surface	93.60%	Pass	7.60%	7.20%	Pass
TP2-0	6/23/2006	4' bgs	91.30%	Pass	8.06%	7.20%	Pass
TP2-1	6/23/2006	3' bgs	93.50%	Pass	7.72%	7.20%	Pass
TP2-2	6/23/2006	2' bgs	94.80%	Pass	7.94%	7.20%	Pass
TP2-3	6/23/2006	1' bgs	92.40%	Pass	8.61%	7.20%	Pass
TP2-4	6/23/2006	surface	93.10%	Pass	9.70%	7.20%	Pass
TP1-0	6/23/2006	4' bgs	91.50%	Pass	8.70%	7.20%	Pass
TP1-1	6/23/2006	3' bgs	91.00%	Pass	9.70%	7.20%	Pass

TABLE 3-4
PURITY OIL SALES SUPERFUND SITE
TEST PIT INVESTIGATION DENSITY TEST SUMMARY

Test No.	Date	Depth (ft)	Relative Compaction	Pass/Fail (>90%)	Moisture Content	Optimum Moisture Content	Pass/Fail (Opt. +/- 3%)
TP1-2	6/26/2006	2' bgs	88.30%	Fail	8.29%	7.20%	Pass
TP1-2A	6/26/2006	2' bgs	92.20%	Pass	9.52%	7.20%	Pass
TP1-3	6/26/2006	1' bgs	94.30%	Pass	9.14%	7.20%	Pass
TP1-4	6/26/2006	surface	90.90%	Pass	11.46%	7.20%	Fail
TP1-4A	6/26/2006	surface	89.90%	Fail	10.86%	7.20%	Fail
TP1-4B	6/26/2006	surface	91.60%	Pass	9.64%	7.20%	Pass
TP7-0	6/26/2006	4' bgs	83.80%	Fail	10.90%	7.20%	Fail
TP7-0A	6/26/2006	4' bgs	92.20%	Pass	7.78%	7.20%	Pass
TP7-1	6/26/2006	3' bgs	90.60%	Pass	8.50%	7.20%	Pass
TP7-2	6/26/2006	2' bgs	91.90%	Pass	7.20%	7.20%	Pass
TP7-3	6/26/2006	1' bgs	91.70%	Pass	9.00%	7.20%	Pass
TP7-4	6/26/2006	surface	91.40%	Pass	7.60%	7.20%	Pass

Locaton ID: TP = Test Pit

Sample ID: BR-DC-01-01 = Area- test type-ID number-lift number

Comments: Any failing test was reworked and retested until passing value was attainied.
Retests IDs are designated with a A, B or C.

TABLE 3-5
PURITY OIL SALES SUPERFUND SITE
WEEKLY EXCAVATION AND BACKFILL LOG

Week Ending	Screened Overburden Material	Excavated Onsite Sludge/Concrete/Debris/Other Soils	Screened Concrete	Calculated Excavated Onsite Sludge/Other Soils	Placed Neutralized Backfill/Other Soils	Placed Concrete	Mixed Neutralized Sludge	Excavated Offsite Sludge &/or Soils	Placed Clean Fill	Placed Cushion Layer	Placed Vegetative Layer	Placed Topsoil
	(yd^3)	(yd^3)	(yd^3)	(yd^3)	(yd^3)	(yd^3)	(yd^3)	(yd^3)	(yd^3)	(yd^3)	(yd^3)	(yd^3)
8/11/2006*	6,394	13,729	1,450	13,409								
8/18/06	1,387	1,652	260	1,392								
8/25/06	618	2,817	320	2,497								
9/1/06		1,908	40	1,868								
9/8/06	154	325	0	325								
9/15/06	861	1,207	30	1,177								
9/22/06	968	1,517	10	1,507								
9/29/06	250	320	0	320								
10/6/06	167	1,479	0	1,479								
10/13/06		356	0	356								
10/20/06	100	160	0	160			149					
10/27/06		210	0	210			920					
11/3/06		210	0	210			1,707					
11/10/06		274	0	274	2,474		3,010					
11/17/06		0	0	0	1,962	660	2,676					
11/24/06		0	0	0	1,771	321	1,070					
12/1/06		0	0	0	1,321	236	1,873					
12/8/06		0	0	0	790	296	2,403					
12/15/06		0	0	0	1,147	0	1,881					
12/22/06		0	0	0	1,990	371	1,679					
1/5/07		0	0	0	0	0	1,616					
1/12/07		0	0	0	1,100	115	2,684					
1/19/07		0	0	0	2,422	375	2,671					
1/26/07		0	0	0	2,164	0	1,823					
2/2/07		0	0	0	1,758	0	2,419					
2/9/07		1,464	0	1,464	1,738	0	2,086					
2/16/07		0	0	0	1,286	205	1,562	354				
2/23/07		0	0	0	840	106	444	632				
3/2/07		0	0	0	425	0	1,110	63				
3/9/07		0	0	0	966	0	1,112	863				
3/16/07		0	0	0	727	0	888	10	166			
3/23/07		0	0	0	430	0	1,324	0	1,255			
3/30/07		0	0	0	657	0	1,325	1,288	128			
4/6/07		0	0	0	0	0	1,516	18	311			
4/13/07		0	0	0	818	0	1,436	380	82			
4/20/07		0	0	0	651	0	410	0	1,505			
4/27/07		639	0	639	73	0	623	0	1,172			
5/4/07		64	0	64	622	0	2,058	0	116			
5/11/07		0	0	0	0	0	1,845	92	181			
5/18/07		0	0	0	0	0	2,154	0	0			
5/25/07		0	0	0	0	0	1,803	0	0			
6/1/07		0	0	0	0	0	2,148	0	0			
6/8/07		0	0	0	54	0	2,149	0	0			
6/15/07		0	0	0	3,604	0	1,560	0	0			
6/22/07		1,205	0	1,205	1,370	0	651	427	235			
6/29/07		150	0	150	683	0	1,361	0	1,005			
7/6/07		0	0	0	3,453	186	0	0	261			
7/13/07		0	0	0	3,787	0	0	1,866	250			
7/20/07		0	0	0	1,308	0	1,067	0	1,339			
7/27/07		56	0	0	3,705	0	0	0	56			
8/3/07		0	0	0	0	0	0	0	271			
8/10/07		300	0	300	5,445	0	0	0	0			
8/17/07		0	0	0	6,127	0	0	544	456			
8/24/07		0	0	0	3,012	0	0	0	1,615			
8/31/07		0	0	0	0	0	0	0	1,299			
9/7/07		0	0	0	692	0	0	0	20			
9/14/07		0	0	0	0	0	0	0	2,004			
9/21/07		1,500	0	1,500	898	0	0	0	344			
9/28/07		0	0	0	739	0	0	0	0	181		
10/5/07		475	0	475	475	0	0	0	475	2,550		
10/12/07		0	0	0	0	0	0	0	0	500		
10/19/07		0	0	0	0	0	0	0	0	300		
10/26/07		0	0	0	0	0	0	0	0	1,514		
11/2/07		0	0	0	0	0	0	0	0	1,680	3,200	
11/9/07		0	0	0	0	0	0	0	0	275	1,800	
11/20/07		0	0	0	0	0	0	0	0	0	3,400	
11/30/07		0	0	0	0	0	0	0	0	0	1,790	
12/7/07		0	0	0	0	0	0	0	0	0	1,828	
12/14/07		0	0	0	0	0	0	0	0	0	4,752	
1/4/08		0	0	0	0	0	0	0	0	0	0	
1/11/08		0	0	0	0	0	0	0	0	0	200	
1/18/08		0	0	0	0	0	0	0	0	0	2,300	
1/25/08		0	0	0	0	0	0	0	0	0	0	
2/1/08		0	0	0	0	0	0	0	0	0	100	

TABLE 3-5
PURITY OIL SALES SUPERFUND SITE
WEEKLY EXCAVATION AND BACKFILL LOG

Week Ending	Screened Overburden Material	Excavated Onsite Sludge/Concrete/Debris/Other Soils	Screened Concrete	Calculated Excavated Onsite Sludge/Other Soils	Placed Neutralized Backfill/Other Soils	Placed Concrete	Mixed Neutralized Sludge	Excavated Offsite Sludge &/or Soils	Placed Clean Fill	Placed Cushion Layer	Placed Vegetative Layer	Placed Topsoil
	(yd^3)	(yd^3)	(yd^3)	(yd^3)	(yd^3)	(yd^3)	(yd^3)	(yd^3)	(yd^3)	(yd^3)	(yd^3)	(yd^3)
2/8/08		0	0	0	0	0	0	0	0	0	0	530
2/15/08		0	0	0	0	0	0	0	0	0	0	870
2/22/08		0	0	0	0	0	0	0	0	0	0	160
2/29/08		0	0	0	0	0	0	0	0	0	0	98
3/7/08		0	0	0	0	0	0	0	0	0	0	627
3/14/08		0	0	0	0	0	0	0	0	0	0	87
3/21/08		0	0	0	0	0	0	0	0	0	0	0
3/28/08		0	0	0	0	0	0	0	0	0	0	0
4/4/08		0	0	0	0	0	0	0	0	0	0	0
4/11/08		0	0	0	0	0	0	0	0	0	0	0
4/18/08		0	0	0	0	0	0	0	0	0	0	1,000
4/25/08		0	0	0	0	0	0	0	0	0	0	91
5/2/08		0	0	0	0	0	0	0	0	0	0	270
5/9/08		0	0	0	0	0	0	0	0	0	0	250
5/16/08		0	0	0	0	0	0	0	0	0	0	300
5/23/08		0	0	0	0	0	0	0	0	0	0	100
5/30/08		0	0	0	0	0	0	0	0	0	0	0
Project Totals	10,389	32,017	2,110	29,907	63,484	2,872	59,413	16,537	14,546	37,000	19,370	4,383

Notes: * Previous weekly totals c * Previous weekly totals combined and reported

All table values are a weel All table values are a weekly volume total in cubic yards

TABLE 3-6
PURITY OIL SALES SUPERFUND SITE
ON-SITE CONFIRMATION AND pH SAMPLE SUMMARY

Sample ID	Date	Depth or Elevation (ft)	pH	PID (ppm)	Pass or Fail (pH>5)	Observations
Excavation Floor Samples						
PUR-EF-01	10/20/06	285.9	5.04	--	P	
PUR-EF-02	10/20/06	286.4	**4.65**	--	F	Resampled as PUR-EF-02A
PUR-EF-02A	10/23/06	285.0	**3.99**	--	F	Resampled as PUR-EF-02B
PUR-EF-02B	10/23/06	284.4	5.32	--	P	Resample of PUR-EF-02A
PUR-EF-03	10/20/06	286.4	**4.73**	--	F	Resampled as PUR-EF-03A
PUR-EF-03A	10/23/06	285.6	**3.90**	--	F	Resampled as PUR-EF-03B
PUR-EF-03B	10/23/06	284.6	**4.02**	--	F	Resampled as PUR-EF-03C
PUR-EF-03C	10/23/06	282.7	6.24	--	P	Resample of PUR-EF-03B
PUR-EF-04	10/20/06	286.5	5.06	--	P	
PUR-EF-05	10/20/06	286.3	6.45	--	P	
PUR-EF-06	10/20/06	287.1	6.52	--	P	
PUR-EF-07	10/20/06	286.7	5.97	--	P	
PUR-EF-08	10/20/06	286.9	5.14	--	P	
PUR-EF-09	10/20/06	288.0	6.23	--	P	
PUR-EF-10	10/20/06	288.3	7.20	--	P	
PUR-EF-11	10/20/06	288.3	6.63	--	P	
PUR-EF-12	10/20/06	288.5	6.64	--	P	
PUR-EF-13	10/20/06	288.6	6.09	--	P	
PUR-EF-14	10/20/06	288.4	6.42	--	P	
PUR-EF-15	10/20/06	288.5	6.40	--	P	
PUR-EF-16	10/20/06	288.6	6.12	--	P	
PUR-EF-17	11/6/06	284.1	7.52	--	P	
PUR-EF-18	11/6/06	283.6	7.31	--	P	
PUR-EF-19	11/6/06	283.9	7.29	--	P	
PUR-EF-20	11/6/06	283.9	7.12	--	P	
PUR-EF-21	11/6/06	284.2	7.49	--	P	
PUR-EF-22	11/6/06	284.5	7.37	--	P	
PUR-EF-23	11/6/06	284.0	6.94	--	P	
PUR-EF-24	11/6/06	284.8	7.25	--	P	
PUR-EF-25	11/9/06	284.9	7.18	--	P	
PUR-EF-26	11/9/06	284.9	7.09	--	P	
PUR-EF-27	11/9/06	284.8	7.49	--	P	
PUR-EF-28	11/9/06	284.5	7.22	--	P	
PUR-EF-29	11/9/06	285.0	7.14	--	P	
PUR-EF-30	11/9/06	284.9	7.39	--	P	
PUR-EF-31	11/9/06	284.7	7.49	--	P	
PUR-EF-32	11/9/06	284.7	7.52	--	P	
PUR-EF-33	11/14/06	284.8	7.23	--	P	
PUR-EF-34	11/14/06	284.8	8.26	--	P	
PUR-EF-35	11/14/06	284.8	6.92	--	P	
PUR-EF-36	11/14/06	284.8	6.87	--	P	
PUR-EF-37	11/14/06	284.8	8.23	--	P	
PUR-EF-38	11/14/06	284.4	7.60	--	P	
PUR-EF-39	11/14/06	284.9	6.80	--	P	
PUR-EF-40	11/14/06	285.1	7.14	--	P	

TABLE 3-6
PURITY OIL SALES SUPERFUND SITE
ON-SITE CONFIRMATION AND pH SAMPLE SUMMARY

Sample ID	Date	Depth or Elevation (ft)	pH	PID (ppm)	Pass or Fail (pH>5)	Observations
PUR-EF-41	11/14/06	285.1	7.35	--	P	
PUR-EF-42	11/14/06	284.6	6.92	--	P	
PUR-EF-43	11/14/06	284.6	7.53	--	P	
PUR-EF-44	11/14/06	284.7	7.78	--	P	
PUR-EF-45	11/14/06	285.0	5.28	--	P	
PUR-EF-46	11/14/06	284.8	7.33	--	P	
PUR-EF-47	11/14/06	285.1	7.52	--	P	
PUR-EF-48	11/14/06	285.5	7.29	--	P	
PUR-EF-49	11/14/06	286.6	7.74	--	P	
PUR-EF-50	11/15/06	285.5	6.85	--	P	
PUR-EF-51	11/15/06	285.0	**3.72**	--	F	Brown Silty Sand, sludge noted west and north of sample location, no visible evidence of sludge, passes by FCR-03
PUR-EF-52	11/28/06	284.9	7.03	--	P	
PUR-EF-53	11/28/06	284.4	6.99	--	P	
PUR-EF-54	11/28/06	284.7	6.99	--	P	
PUR-EF-55	11/28/06	285.1	6.87	--	P	
PUR-EF-56	11/28/06	285.3	7.58	--	P	
PUR-EF-57	11/28/06	284.9	7.26	--	P	
PUR-EF-58	11/28/06	284.9	7.73	--	P	
PUR-EF-59	11/28/06	285.1	7.92	--	P	
PUR-EF-60	11/28/06	285.4	7.64	--	P	
PUR-EF-61	11/28/06	286.0	7.17	--	P	
PUR-EF-62	11/28/06	287.1	**3.78**	--	P	Silty Fine Sand (SM); Olive Brown, no visual evidence of sludge. Sample passes according to FCR-03
PUR-EF-63	11/28/06	286.6	7.83	--	P	
PUR-EF-64	11/28/06	286.3	6.87	--	P	
PUR-EF-65	11/28/06	286.0	7.01	--	P	
PUR-EF-66	11/28/06	286.0	6.99	--	P	
PUR-EF-67	11/28/06	285.8	6.84	--	P	
PUR-EF-68	11/28/06	285.7	6.66	--	P	
PUR-EF-69	11/28/06	285.6	7.11	--	P	
PUR-EF-70	11/28/06	285.8	6.98	--	P	
PUR-EF-71	11/28/06	286.0	7.04	--	P	
PUR-EF-72	11/28/06	288.0	6.24	--	P	
PUR-EF-73	11/28/06	287.7	6.69	--	P	
PUR-EF-74	11/28/06	287.7	7.28	--	P	
PUR-EF-75	11/28/06	287.6	7.93	--	P	
PUR-EF-76	11/28/06	288.0	7.29	--	P	
PUR-EF-77	11/28/06	287.9	7.52	--	P	
PUR-EF-78	11/28/06	288.2	7.74	--	P	
PUR-EF-79	11/28/06	288.4	7.79	--	P	
PUR-EF-80	11/28/06	288.5	7.57	--	P	
PUR-EF-81	11/28/06	288.6	7.03	--	P	
PUR-EF-82	12/01/06	285.2	8.71	--	P	
PUR-EF-83	12/01/06	283.4	8.54	--	P	
PUR-EF-84	12/01/06	280.9	8.92	--	P	

TABLE 3-6
PURITY OIL SALES SUPERFUND SITE
ON-SITE CONFIRMATION AND pH SAMPLE SUMMARY

Sample ID	Date	Depth or Elevation (ft)	pH	PID (ppm)	Pass or Fail (pH>5)	Observations
PUR-EF-85	12/01/06	282.3	**4.22**	--	F	Silt with very fine Sand (ML); Olive Gray. No visual evidence of sludge. Sample passes according to FCR-03
PUR-EF-86	12/01/06	280.8	7.04	--	P	
PUR-EF-87	12/04/06	288.4	7.05	--	P	
PUR-EF-88	12/04/06	287.4	7.35	--	P	
PUR-EF-89	12/04/06	288.2	7.37	--	P	
PUR-EF-90	12/04/06	284.8	8.38	--	P	
PUR-EF-91	12/04/06	291.0	7.43	--	P	
PUR-EF-92	01/10/07	288.2	7.35	--	P	
PUR-EF-93	01/10/07	288.0	7.75	--	P	
PUR-EF-94	01/10/07	287.6	7.15	--	P	
PUR-EF-95	01/10/07	287.3	**3.92**	--	F	Olive Gray Silty Fine Sand (SM), no visual evidence of sludge, sample passes according to FCR-03
PUR-EF-96	01/10/07	285.9	5.23	--	P	
PUR-EF-97	01/10/07	286.5	**4.63**	--	F	Olive Gray Silty Fine Sand (SM), no visual evidence of sludge, sample passes according to FCR-03
PUR-EF-98	01/10/07	285.9	6.79	--	P	
PUR-EF-99	01/10/07	284.9	6.91	--	P	
PUR-EF-100	01/10/07	284.9	7.04	--	P	
PUR-EF-101	01/10/07	285.0	6.61	--	P	
PUR-EF-102	01/10/07	285.8	7.07	--	P	
PUR-EF-103	01/10/07	285.6	7.88	--	P	
PUR-EF-104	02/08/07	282.9	6.66	--	P	
PUR-EF-105	02/08/07	283.3	6.95	--	P	
PUR-EF-106	02/08/07	283.1	7.32	--	P	
PUR-EF-107	02/08/07	282.6	7.18	--	P	
PUR-EF-108	02/08/07	282.5	5.81	--	P	
PUR-EF-109	02/08/07	282.7	7.14	--	P	
PUR-EF-110	02/08/07	282.4	5.03	--	P	
PUR-EF-111	02/08/07	282.0	6.12	--	P	
PUR-EF-112	02/08/07	282.7	7.03	--	P	
PUR-EF-113	02/08/07	282.5	5.10	--	P	
PUR-EF-114	02/08/07	282.5	**4.04**	--	F	Olive Brown Silty Sand with Trace Clay (SM), no visual evidence of sludge, sample passes according to FCR-03
PUR-EF-115	02/08/07	282.3	**4.42**	--	F	Olive Gray Silty Sand with Trace Clay (SM/SC), no visual evidence of sludge, sample passes according to FCR-03
PUR-EF-116	02/08/07	283.6	5.15	--	P	
PUR-EF-117	02/08/07	283.6	**4.30**	--	F	Olive Silty Sand (SM), no visual evidence of sludge, sample passes according to FCR-03
PUR-EF-118	02/08/07	283.6	5.16	--	P	
PUR-EF-119	02/08/07	284.9	**3.85**	--	F	Olive Brown Silty Fine Sand (SM), no visual evidence of sludge, sample passes according to FCR-03
PUR-EF-120	02/08/07	284.2	**4.43**	--	F	Grayish Brown Sandy Silt (ML), no visual evidence of sludge, sample passes according to FCR-03
PUR-EF-121	02/08/07	284.7	5.74	--	P	
PUR-EF-122	02/08/07	288.0	7.94	--	P	
PUR-EF-123	02/08/07	287.3	9.04	--	P	

TABLE 3-6
PURITY OIL SALES SUPERFUND SITE
ON-SITE CONFIRMATION AND pH SAMPLE SUMMARY

Sample ID	Date	Depth or Elevation (ft)	pH	PID (ppm)	Pass or Fail (pH>5)	Observations
PUR-EF-124	02/09/07	287.3	7.71	--	P	
PUR-EF-125	02/09/07	283.6	8.75	--	P	
PUR-EF-126	02/09/07	283.5	8.08	--	P	
PUR-EF-127	02/09/07	283.5	8.25	--	P	
PUR-EF-128	4/16/07	283.5	**4.22**	0.6	F	No visual evidence of sludge, passes by FCR 03
PUR-EF-129	4/16/07	284.9	**4.84**	0.0	F	No visual evidence of sludge, passes by FCR 03
PUR-EF-130	4/16/07	286.0	6.96	0.0	P	
PUR-EF-131	4/16/07	285.9	7.41	0.0	P	
PUR-EF-132	4/16/07	285.7	7.37	0.0	P	
PUR-EF-133	4/26/07	289.9	8.42	--	P	
PUR-EF-134	4/26/07	289.5	7.08	--	P	
PUR-EF-135	4/26/07	289.6	3.54	--	F	No visible evidence of sludge, due to only 2' bgs and close proxmity to cap, sample fails, areea excavated & retested as PUR-EF-135A
PUR-EF-135A	4/30/07	288.0	7.70	--	P	Retest of PUR-EF-135
PUR-EF-136	4/26/07	289.5	5.10	--	P	
PUR-EF-137	4/26/07	289.6	6.86	--	P	
PUR-EF-138	4/26/07	290.0	6.80	--	P	
PUR-EF-139	4/30/07	290.1	7.16	--	P	
PUR-EF-140	4/30/07	289.1	7.18	--	P	
PUR-EF-141	4/30/07	289.4	6.95	--	P	
PUR-EF-142	4/30/07	289.5	6.82	--	P	
PUR-EF-143	4/30/07	289.7	4.97	--	F	No visual evidence of sludge, resampled as PUR-EF-143A
PUR-EF-143A	5/1/07	288.0	**3.78**	--	F	Retest of PUR-EF-143, no visual evidence of sludge, passes by FCR-03
PUR-EF-144	4/30/07	289.5	**4.06**	--	F	No visual evidence of sludge, resampled as PUR-EF-144A
PUR-EF-144A	5/1/07	287.8	**3.96**	--	F	Retest of PUR-EF-144, no visual evidence of sludge, passes by FCR-03
PUR-EF-145	4/30/07	289.4	7.35	--	P	
PUR-EF-146	5/25/07	285.3	**4.16**	--	F	No Visual evidence of sludge, resampled as PUR-EF-146A
PUR-EF-146A	6/7/07	285.1	**4.61**	2.4	F	Retest of PUR-EF-146, no visual evidence of sludge, passes by FCR-03
PUR-EF-147	5/25/07	286.0	**4.05**	--	F	No Visual evidence of sludge, resampled as PUR-EF-147A due to contamination from heavy equipment
PUR-EF-147A	6/7/07	284.9	5.92	1.4	P	Retest of PUR-EF-147
PUR-EF-148	5/25/07	285.9	6.16	--	P	Resampled as PUR-EF-148A due to excessive contamination from heavy equipment
PUR-EF-148A	6/7/07	284.1	6.63	1.6	P	Retest of PUR-EF-148
PUR-EF-149	5/25/07	285.6	6.85	--	P	Resampled as PUR-EF-149A due to excessive contamination from heavy equipment
PUR-EF-149A	6/7/07	284.3	6.51	0.3	P	Retest of PUR-EF-149
PUR-EF-150	5/25/07	286.4	**4.19**	--	F	Resampled as PUR-EF-150A due to excessive contamination from heavy equipment
PUR-EF-150A	6/7/07	286.0	5.90	0.6	P	Retest of PUR-EF-150
PUR-EF-151	5/25/07	286.5	**4.35**	--	F	No Visual evidence of sludge. Resampled as PUR-EF-151A
PUR-EF-151A	6/7/07	285.7	**4.83**	2.2	F	Retest of PUR-EF-151, no Visual evidence of sludge. Passes by FCR-03
PUR-EF-152	5/25/07	286.4	**4.59**	--	F	No Visual evidence of sludge. Resampled as PUR-EF-152A
PUR-EF-152A	6/7/07	286.3	**4.97**	2.0	F	Retest of PUR-EF-152, no Visual evidence of sludge. Passes by FCR-03

TABLE 3-6
PURITY OIL SALES SUPERFUND SITE
ON-SITE CONFIRMATION AND pH SAMPLE SUMMARY

Sample ID	Date	Depth or Elevation (ft)	pH	PID (ppm)	Pass or Fail (pH>5)	Observations
PUR-EF-153	5/25/07	287.1	**4.31**	--	F	No Visual evidence of sludge. Resampled as PUR-EF-153A
PUR-EF-153A	6/7/07	287.1	**4.58**	1.4	F	Retest of PUR-EF-153, no Visual evidence of sludge. Passes by FCR-03
PUR-EF-154	5/25/07	286.1	5.05	--	P	Resampled as PUR-EF-154A due to excessive contamination from heavy equipment
PUR-EF-154A	6/7/07	286.1	5.73	0.9	P	Retest of PUR-EF-154
PUR-EF-155	5/25/07	285.8	**4.98**	--	F	Resampled as PUR-EF-155A due to excessive contamination from heavy equipment
PUR-EF-155A	6/7/07	285.6	6.39	1.5	P	Retest of PUR-EF-155
PUR-EF-156	5/25/07	285.1	6.02	--	P	Resampled as PUR-EF-156A due to excessive contamination from heavy equipment
PUR-EF-156A	6/7/07	285.0	6.04	1.0	P	Retest of PUR-EF-156
PUR-EF-157	5/25/07	285.4	7.02	--	P	Resampled as PUR-EF-157A due to excessive contamination from heavy equipment
PUR-EF-157A	6/7/07	284.9	7.24	3.7	P	Retest of PUR-EF-157
PUR-EF-158	5/25/07	286.1	6.36	--	P	Resampled as PUR-EF-158A due to excessive contamination from heavy equipment
PUR-EF-158A	6/7/07	286.1	6.30	2.9	P	Retest of PUR-EF-158
PUR-EF-159	5/25/07	286.5	**3.96**	--	F	Resampled as PUR-EF-159A due to excessive contamination from heavy equipment
PUR-EF-159A	6/7/07	286.4	5.03	1.8	P	Retest of PUR-EF-159
PUR-EF-160	5/25/07	286.2	6.54	--	P	Resampled as PUR-EF-160A due to excessive contamination from heavy equipment
PUR-EF-160A	6/7/07	286.1	6.66	2.1	P	Retest of PUR-EF-160
PUR-EF-161	5/25/07	285.9	**3.86**	--	F	Resampled as PUR-EF-161A due to excessive contamination from heavy equipment
PUR-EF-161A	6/7/07	285.9	5.14	2.4	P	Retest of PUR-EF-161
PUR-EF-162	6/7/07	285.4	6.22	6.6	P	
PUR-EF-163	6/7/07	284.9	5.97	2.9	P	
PUR-EF-164	6/7/07	286.0	**4.60**	1.7	F	No Visual evidence of sludge. Passes FCR-03
PUR-EF-165	6/7/07	286.1	**3.83**	1.1	F	No Visual evidence of sludge. Passes FCR-03
PUR-EF-166	6/7/07	287.0	**4.06**	2.9	F	No Visual evidence of sludge. Passes FCR-03
PUR-EF-167	6/7/07	287.6	**4.86**	1.3	F	No Visual evidence of sludge. Passes FCR-03
PUR-EF-168	6/7/07	285.0	**3.92**	6.9	F	No Visual evidence of sludge. Passes FCR-03
PUR-EF-169	6/7/07	285.8	5.28	1.6	P	
PUR-EF-170	6/7/07	285.4	**4.95**	7.2	F	No Visual evidence of sludge. Passes FCR-03
PUR-EF-171	6/7/07	285.1	**3.22**	11.1	F	No Visual evidence of sludge. Passes FCR-03
PUR-EF-172	6/7/07	284.7	5.75	6.0	P	
PUR-EF-173	6/7/07	285.4	6.47	4.6	P	
PUR-EF-174	6/7/07	284.5	6.00	2.2	P	
PUR-EF-175	6/7/07	284.4	5.71	6.9	P	
PUR-EF-176	6/7/07	283.7	5.70	3.4	P	
PUR-EF-177	6/7/07	283.9	**4.06**	26.0	F	No Visual evidence of sludge. Passes FCR-03
PUR-EF-178	6/7/07	285.2	**3.92**	15.7	F	No Visual evidence of sludge. Passes FCR-03
PUR-EF-179	6/7/07	282.7	**4.31**	4.8	F	No Visual evidence of sludge. Passes FCR-03
PUR-EF-180	6/7/07	280.9	5.82	89.9	P	
PUR-EF-181	6/7/07	281.4	5.37	92.9	P	

TABLE 3-6
PURITY OIL SALES SUPERFUND SITE
ON-SITE CONFIRMATION AND pH SAMPLE SUMMARY

Sample ID	Date	Depth or Elevation (ft)	pH	PID (ppm)	Pass or Fail (pH>5)	Observations
PUR-EF-182	6/7/07	282.1	6.70	1.9	P	
PUR-EF-183	6/7/07	282.7	5.20	30.8	P	
PUR-EF-184	6/7/07	285.7	6.49	6.9	P	
PUR-EF-185	6/7/07	285.1	**4.40**	10.3	F	No Visual evidence of sludge. Passes FCR-03
PUR-EF-186	6/7/07	282.1	6.47	4.3	P	
PUR-EF-187	6/7/07	282.0	6.13	72.0	P	
PUR-EF-188	6/7/07	281.2	5.81	64.1	P	
PUR-EF-189	6/7/07	280.9	**4.83**	92.6	F	No Visual evidence of sludge. Passes FCR-03
PUR-EF-190	6/7/07	281.7	5.30	17.2	P	
PUR-EF-191	6/22/07	285.0	7.61	1.8	P	
PUR-EF-192	6/22/07	284.9	7.68	0.7	P	
PUR-EF-193	6/22/07	285.2	7.47	3.0	P	
PUR-EF-194	6/22/07	284.9	6.72	0.9	P	
PUR-EF-195	6/22/07	284.9	7.56	4.5	P	
PUR-EF-196	6/22/07	284.8	7.81	3.3	P	
PUR-EF-197	6/22/07	284.8	8.04	0.9	P	
PUR-EF-198	6/22/07	285.6	6.63	1.1	P	
PUR-EF-199	6/26/07	287.1	5.96	1.1	P	
PUR-EF-200	6/26/07	288.8	6.72	0.3	P	
PUR-EF-201	6/26/07	285.9	6.77	--	P	
PUR-EF-202	6/26/07	285.5	6.94	1.8	P	
PUR-EF-230	8/9/07	284.5	7.03	0.1	P	
PUR-EFD-230	8/9/07	284.50	7.03	0.10	P	Duplicate of PUR-EF-230
PUR-EF-231	8/9/07	284.6	**3.94**	0.6	F	No visual evidence of sludge, sample passes FCR-03
PUR-EF-232	8/22/07	282.7	7.79	0.1	P	
PUR-EF-233	8/22/07	283.1	7.78	0.1	P	
Excavation Sidewall Samples						
PUR-SW-01	10/23/06	289.6	7.31	--	P	
PUR-SW-02	10/23/06	290.6	7.40	--	P	
PUR-SW-03	10/23/06	291.4	6.11	--	P	
PUR-SW-04	10/23/06	290.6	6.65	--	P	
PUR-SW-05	10/23/06	290.3	5.01	--	P	
PUR-SW-06	10/23/06	290.7	5.05	--	P	
PUR-SW-07	10/24/06	289.1	7.43	--	P	
PUR-SW-08	10/24/06	291.1	8.01	--	P	
PUR-SW-09	10/27/06	290.5	6.54	--	P	
PUR-SW-10	10/27/06	291.1	7.18	--	P	
PUR-SW-11	10/27/06	289.9	6.38	--	P	
PUR-SW-12	10/27/06	291.5	**1.18**	--	F	Sludge in sample, cut back 5', resampled as PUR-SW-12A
PUR-SW-12A	10/30/06	291.5	9.04	--	P	Resample of PUR-SW-12
PUR-SW-13	10/27/06	289.8	9.95	--	P	
PUR-SW-14	10/27/06	288.2	8.26	--	P	
PUR-SW-15	11/13/06	289.1	6.80	--	P	
PUR-SW-16	11/13/06	289.4	6.89	--	P	
PUR-SW-17	11/20/06	289.2	7.75	--	P	

TABLE 3-6
PURITY OIL SALES SUPERFUND SITE
ON-SITE CONFIRMATION AND pH SAMPLE SUMMARY

Sample ID	Date	Depth or Elevation (ft)	pH	PID (ppm)	Pass or Fail (pH>5)	Observations
PUR-SW-18	11/13/06	288.1	**3.86**	--	F	Brown Silty Sand, none to trace hydrocarbon odor
PUR-SW-19	11/13/06	288.4	6.89	--	P	
PUR-SW-20	11/13/06	288.1	7.02	--	P	
PUR-SW-21	11/13/06	287.9	6.98	--	P	
PUR-SW-22	11/13/06	287.3	7.21	--	P	
PUR-SW-23	12/1/06	285.1	7.77	--	P	
PUR-SW-24	12/1/06	284.9	8.13	--	P	
PUR-SW-25	12/1/06	285.5	8.51	--	P	
PUR-SW-26	12/1/06	286.7	7.90	--	P	
PUR-SW-27	12/1/06	288.6	7.69	--	P	
PUR-SW-28	12/1/06	287.8	8.12	--	P	
PUR-SW-29	12/1/06	290.3	5.76	--	P	
PUR-SW-30	2/28/07	286.9	8.10	0.0	P	
PUR-SW-31	2/28/07	287.5	8.27	0.0	P	
PUR-SW-32	2/28/07	287.8	8.25	0.0	P	
PUR-SW-33	2/28/07	287.6	9.19	0.0	P	
PUR-SW-34	3/6/07	290.2	5.95	6.3	F	Possible oil/staging road material. Black to dark brown and hard/well consilidated
PUR-SW-35	3/6/07	290.0	5.85	1.5	F	Possible oil/staging road material. Black to dark brown and hard/well consilidated
PUR-SW-36	3/6/07	288.5	6.92	0.4	P	
PUR-SW-37	3/6/07	287.4	7.34	0.3	P	
PUR-SW-38	4/26/07	290.4	5.40	--	P	Black staining, debris in sample
PUR-SW-39	4/26/07	290.5	6.38	--	P	Debris in sample
PUR-SW-40	4/26/07	291.3	5.97	--	P	Black staining, debris in sample
PUR-SW-41	4/26/07	291.1	6.21	--	P	Black staining, debris in sample
PUR-SW-42	4/30/07	290.5	3.73	--	F	Excavate further, re-sample as PUR-SW-42A
PUR-SW-42A	5/1/07	290.4	3.63	--	F	Excavate further, re-sample as PUR-SW-42B
PUR-SW-42B	5/2/07	290.5	3.60	--	F	Excavate further, re-sample as PUR-SW-42C
PUR-SW-42C	6/20/07	290.3	**4.51**	0.2	F	Failed due to close proxomity to cap, resample as PUR-SW-42D
PUR-SW-42D	6/29/07	290.7	7.40	10.2	P	Resample of PUR-SW-42C
PUR-SW-43	4/30/07	290.5	4.17	--	F	Excavate further, re-sample as PUR-SW-43A
PUR-SW-43A	5/1/07	291.4	5.45	--	P	Resample of PUR-SW-43
PUR-SW-44	4/30/07	290.1	6.74	--	P	
PUR-SW-45	4/30/07	290.6	5.21	--	P	
PUR-SW-46	4/30/07	290.3	7.60	--	P	
PUR-SW-47	4/30/07	290.2	**4.54**	--	F	Excavate further, re-sample as PUR-SW-47A
PUR-SW-47A	5/1/07	290.6	6.34	--	P	Resample of PUR-SW-47
PUR-SW-48	4/30/07	290.0	6.85	--	P	
PUR-SW-49	4/30/07	290.6	6.57	--	P	
PUR-SW-50	4/30/07	290.6	7.57	--	P	
PUR-SW-51	5/1/07	290.8	6.52	--	P	
PUR-SW-52	6/7/07	287.7	**4.12**	7.2	F	No Visual evidence of sludge. Passes FCR-03
PUR-SW-53	6/7/07	288.1	6.46	2.0	P	
PUR-SW-54	6/7/07	288.1	5.63	1.4	P	
PUR-SW-55	6/7/07	287.9	**4.76**	3.5	F	No Visual evidence of sludge. Passes FCR-03
PUR-SW-56	6/7/07	287.4	6.21	1.6	P	

TABLE 3-6
PURITY OIL SALES SUPERFUND SITE
ON-SITE CONFIRMATION AND pH SAMPLE SUMMARY

Sample ID	Date	Depth or Elevation (ft)	pH	PID (ppm)	Pass or Fail (pH>5)	Observations
PUR-SW-57	6/7/07	287.4	6.97	2.0	P	
PUR-SW-58	6/7/07	287.5	6.09	4.2	P	
PUR-SW-59	6/7/07	287.3	5.42	1.5	P	
PUR-SW-60	6/7/07	286.7	6.97	2.7	P	
PUR-SW-61	6/7/07	286.0	5.90	2.9	P	
PUR-SW-62	6/26/07	291.3	7.25	0.0	P	
PUR-SW-63	6/26/07	290.7	7.34	0.1	P	
PUR-SW-64	6/26/07	290.6	7.56	0.6	P	
PUR-SW-65	6/26/07	290.4	7.18	0.3	P	
PUR-SW-66	6/26/07	290.3	7.23	0.1	P	
PUR-SW-67	6/26/07	289.3	7.80	0.2	P	
PUR-SW-70	7/24/07	287.0	8.35	1.0	P	
PUR-SW-71	7/24/07	283.9	4.37	0.6	F	No visual evidence of sludge, passes by FCR-03
PUR-SW-71D	7/24/07	283.91	4.37	0.60	P	Duplicate of PUR-SW-71
PUR-SW-72	8/9/07	285.4	**3.99**	0.6	F	No visual evidence of sludge, sample passes FCR-03
PUR-SW-73	8/9/07	284.8	6.65	0.4	P	
PUR-SW-74	8/9/07	284.9	6.86	1.0	P	
PUR-SWD-33	2/28/07	287.6	9.19	0.0	P	Duplicate of PUR-SW-33
PUR-SWMS-72	8/9/07	285.4	**3.99**	0.6	P	Matrix Spike of PUR-SW-72
PUR-SW-MSD-72	8/9/07	285.4	**3.99**	0.6	P	Matrix Spike Duplicate of PUR-SW-72
Test Pit Samples						
PUR-TP24-EF-15	9/6/06	*15' bgs*	8.60	--	P	
PUR-TP24-SW-02	9/6/06	*2' bgs*	7.61	--	P	
PUR-TP24-SW-03	9/6/06	*3' bgs*	7.98	--	P	
PUR-TP25-EF-15.5	9/7/07	*15.5' bgs*	7.96	--	P	Strong hydrocarbon odor
PUR-TP25-SW-10	9/7/06	*10' bgs*	5.92	--	P	
PUR-TP25-SW-4.5	9/7/06	*4.5' bgs*	**1.24**	--	F	Entire area was excated and backfilled with neutralized
PUR-TP26-EF-02	10/23/06	*10' bgs*	6.53	--	P	
PUR-TP26-SW-01	10/23/06	*1' bgs*	6.66	--	P	
PUR-TP27-EF-01	11/7/06	*4' bgs*	6.82	--	P	
PUR-TP27-SW-01	11/6/06	*1' bgs*	**3.92**	--	F	Excavate further, resample as PUR-TP27-SW-01A
PUR-TP27-SW-01A	11/6/06	*1' bgs*	5.81	--	P	Resample of PUR-TP27-SW-01
PUR-TP28-EF-01	11/9/06	282.0	**4.25**	--	F	Excavate further, resample as PUR-TP28-EF-01A
PUR-TP28-EF-01A	11/9/06	280.1	5.08	--	P	Resample of PUR-TP28-EF-01
PUR-TP28-EF-02	11/9/06	281.1	5.33	--	P	
PUR-TP28-EF-03	11/10/06	280.4	6.91	--	P	
PUR-TP28-EF-04	11/10/06	280.3	**4.15**	--	F	Excavate further, resample as PUR-TP28-EF-04A
PUR-TP28-EF-04A	11/13/06	278.5	7.74	--	P	Resample of PUR-TP28-EF-04
PUR-TP28-SW-01	11/9/06	285.2	**4.16**	--	F	Excavate further, resample as PUR-TP28-SW-01A
PUR-TP28-SW-01A	11/9/06	283.9	7.54	--	P	Resample of PUR-TP28-SW-01
PUR-TP28-SW-02	11/9/06	284.0	6.71	--	P	
PUR-TP28-SW-03	11/9/06	283.8	**3.60**	--	F	Excavate further, resample as PUR-TP28-SW-03A
PUR-TP28-SW-03A	11/10/06	284.1	**3.65**	--	F	Excavate further, resample as PUR-TP28-SW-03B
PUR-TP28-SW-03B	11/10/06	283.3	**3.79**	--	F	Excavate further, resample as PUR-TP28-SW-03C

TABLE 3-6
PURITY OIL SALES SUPERFUND SITE
ON-SITE CONFIRMATION AND pH SAMPLE SUMMARY

Sample ID	Date	Depth or Elevation (ft)	pH	PID (ppm)	Pass or Fail (pH>5)	Observations
PUR-TP28-SW-03C	11/13/06	282.9	6.50	--	P	Resample of PUR-TP28-SW-03B
PUR-TP28-SW-04	11/9/06	283.4	**4.62**	--	F	Excavate further, resample as PUR-TP28-SW 04A
PUR-TP28-SW-04A	11/10/06	283.3	6.32	--	P	Resample of PUR-TP28-SW-04
PUR-TP28-SW-05	11/9/06	283.4	8.50	--	P	
PUR-TP28-SW-06	11/10/06	284.6	**3.80**	--	F	Excavate further, resample as PUR-TP28-SW 06A
PUR-TP28-SW-06A	11/10/06	283.5	**3.69**	--	F	Excavate further, resample as PUR-TP28-SW 06B
PUR-TP28-SW-06B	11/13/06	283.7	**4.80**	--	F	Excavate further, resample as PUR-TP28-SW 06C
PUR-TP28-SW-06C	11/13/06	283.2	5.94	--	P	Resample of PUR-TP28-SW-06B
PUR-TP28-SW-07	11/10/06	283.9	5.26	--	P	
PUR-TP29-EF-01	11/10/06	281.0	8.38	--	P	
PUR-TP29-SW-01	11/13/06	283.0	5.17	--	P	
PUR-TP30-EF-01	11/10/06	280.5	8.17	--	P	
PUR-TP30-SW-01	11/13/06	282.4	7.75	--	P	
PUR-TP31-EF-01	11/10/06	280.5	5.43	--	P	
PUR-TP31-SW-01	11/13/06	282.9	9.12	--	P	
PUR-TP32-EF-01	11/10/06	281.1	8.77	--	P	
PUR-TP32-SW-01	11/13/06	282.5	5.01	--	P	
PUR-TP33-EF-01	11/15/06	281.2	**4.77**	--	F	Brown Silty Sand, no visible evidence of sludge, passed by FCR-03
PUR-TP33-SW-01	11/15/06	283.9	7.98	--	P	
PUR-TP34-EF-01	11/15/06	281.7	7.28	--	P	
PUR-TP35-EF-01	11/28/06	*285.2*	8.75	--	P	Approximated Elevation
PUR-TP36-EF-01	11/28/06	*280.6*	7.87	--	P	Approximated Elevation
PUR-TP36-SW-01	11/28/06	*287.0*	6.23	--	P	Approximated Elevation
PUR-TP37-EF-01	11/28/06	*282.2*	8.04	--	P	Approximated Elevation
PUR-TP37-SW-01	11/28/06	*287.2*	7.18	--	P	Approximated Elevation
PUR-TP38-EF-01	11/28/06	*283.6*	7.68	--	P	Approximated Elevation
PUR-TP38-SW-01	11/28/06	*287.1*	7.42	--	P	Approximated Elevation
PUR-TP39-EF-01	1/9/07	282.9	7.15	--	P	
PUR-TP40-EF-01	1/10/07	283.6	8.52	--	P	
PUR-TP40-EF-02	1/10/07	282.9	8.65	--	P	
PUR-TP40-SW-01	1/10/07	285.0	6.84	--	P	
PUR-TP40-SW-02	1/10/07	285.6	6.65	--	P	
PUR-TP40-SW-03	1/10/07	284.6	6.34	--	P	
PUR-TP40-SW-04	1/10/07	285.2	7.64	--	P	
PUR-TP40-SW-05	1/10/07	284.5	6.93	--	P	
PUR-TP41-EF-01	1/10/07	284.5	7.79	--	P	
PUR-TP42-EF-01	2/9/07	278.4	5.70	--	P	
PUR-TP43-EF-01	2/9/07	279.0	6.81	--	P	
PUR-TP44-EF-01	2/9/07	280.0	7.79	--	P	
PUR-TP45-EF-01	3/1/07	*278.4*	7.09	0.2	P	*Approximated Elevation*
PUR-TP46-EF-01	3/1/07	*279.5*	6.73	0.4	P	*Approximated Elevation*
PUR-TP47-EF-01	3/1/07	*279.9*	7.91	0.3	P	*Approximated Elevation*
PUR-TP48-EF-01	5/24/07	282.4	7.90	--	P	
PUR-TP49-EF-01	5/24/07	282.4	7.56	--	P	
PUR-TP50-EF-01	5/24/07	283.2	7.16	--	P	

TABLE 3-6
PURITY OIL SALES SUPERFUND SITE
ON-SITE CONFIRMATION AND pH SAMPLE SUMMARY

Sample ID	Date	Depth or Elevation (ft)	pH	PID (ppm)	Pass or Fail (pH>5)	Observations
PUR-TP51-EF-01	5/24/07	283.2	**3.33**	--	F	No Visual evidence of sludge. Passes FCR-03
PUR-TP52-EF-01	5/24/07	282.6	6.35	--	P	
PUR-TP-53-EF-01	6/7/07	TBD	5.08	7.2	P	
TP-08-EF-12	4/26/07	*280.7*	7.63	**22.3**	P	*Elevation Approximated*
TP-08-SW-02	4/26/07	*290.7*	8.34	**27.3**	P	*Elevation Approximated*
TP-08-SW-04	4/26/07	*288.7*	7.72	**25.0**	P	*Elevation Approximated*
TP-09-EF-12	4/26/07	*281.3*	**4.56**	1.3	F	No visible evidence of sludge, sample is at significant depth. *Elevation Approximated.*
TP-09-SW-02	4/26/07	*291.3*	5.54	**14.4**	P	*Elevation Approximated*
SWFIDESMT-S1	8/8/07	288.1	5.93	1.1	P	
SWFIDESMT-S2	8/8/07	287.4	6.60	1.8	P	

Legend

PUR - Purity Oil Superfund Site

EF - Excavation Floor Sample

SB - Soil Boring

SW - Sidewall Sample

TP - Test Pit Sample

SWFIDESMT- Sidewall Fresno Irrigation District Easement

bgs- Below Ground Surface

ppm - Parts Per Million

Table 3-7
PURITY OIL SALES SUPERFUND SITE
ON-SITE CONFIRMATION SAMPLE RESULTS SUMMARY
(all units = mg/kg)

Sample ID	Sample Date	Type of Sample	METALS*	CYANIDE	VOC	SVOC	PAH (SIM)	PCBs	PESTICIDE	TPH	NOTES
PUR-SW-30	2/28/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PUR-SW-31	2/28/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PUR-SW-32	2/28/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PUR-SW-33	2/28/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PUR-SW-34	3/6/07	Sidewall	Ok	Ok	Ok	MRL > PRG Benzo(k)fluoranthene	Ok	MRLs > PRGs	Ok	31,000	Area excavated, new sample SMA-SW-02 (results in Off-site DFW report)
PUR-SW-35	3/6/07	Sidewall	Lead=882	Ok	Ok	MRL > PRG Benzo(k)fluoranthene	Ok	Aroclor 1254 = 6.7	Ok	23,000	Area excavated, new sample SMA-SW-04 (results in Off-site DFW report)
PUR-SW-36	3/6/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PUR-SW-37	3/6/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PUR-SW-70	7/24/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PUR-SW-71	7/24/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PUR-SW-72	8/9/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PUR-SW-73	8/9/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PUR-SW-74	8/9/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PUR-SWD-33	2/28/07	Duplicate	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PUR-SWD-71	7/24/07	Duplicate	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PUR-EF-230	8/9/07	Floor	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PUR-EF-231	8/9/07	Floor	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PUR-EF-232	8/22/07	Floor	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Not a confirmation sample, collected for informational purposes only
PUR-EF-233	8/22/07	Floor	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Not a confirmation sample, collected for informational purposes only
PUR-EFD-230	8/22/07	Duplicate	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PUR-SWMS-72	8/9/07	Duplicate	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PUR-SWMSD-72	8/9/07	Duplicate	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
SWW FID ESMT-S1	8/8/07	Surface	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Not a confirmation sample, collected for informational purposes only
SWW FID ESMT-S2	8/8/07	Surface	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Not a confirmation sample, collected for informational purposes only

* Arsenic concentrations within acceptable background concentrations (< 6 to 7 mg/kg) are not considered exceedances

Legend
PUR - Purity Site
EF - Excavation Floor Sample
SB - Soil Boring
SW - Sidewall Sample
TP - Test Pit Sample
MRL - Method Reporting Limit
PRG - Preliminary Remediation Goal

TABLE 3-8
PURITY OIL SALES SUPERFUND SITE
NEUTRALIZED BATCH SUMMARY

Batch Number	Date	Sludge (yd^3)	$CaCO_3$ (yd^3)	$CaCO_3$ (tons)	$CaCO_3$ Dosage by Weight of Sludge (%)	Soil (yd^3)	Initial pH	Average Final Mix pH	Proctor Analysis Average Wet Density (pcf)	Proctor Analysis Average Moisture(%)	Proctor Analysis Average Dry Density (pcf)	Final Observations
PILOT-A	10/16/06	33	8.0	10.1	26.4%	0	6.29	7.31	130.9	7.4%	121.9	
PILOT-B	10/17/06	50	8.0	10.8	18.7%	50	**3.81**	6.98	135.4	8.9%	124.3	
MB-01	10/23/06	50	8.0	10.9	19.0%	50	7.80	7.29	132.8	10.6%	120.1	
MB-02	10/23/06	50	8.0	10.6	18.5%	50	7.77	7.57	134.1	9.3%	122.7	
MB-03	10/23/06	50	2.7	3.6	6.3%	50	**4.62**	7.03	133.0	8.5%	122.6	
MB-04	10/24/06	100	0	0	0%	0	7.52	6.53	132.3	7.7%	122.8	
MB-04A	10/25/06	See MB-04	0	0	0%	100	See MB-04	See MB-04	134.3	9.1%	123.2	Results from MB-4A are from MB-04 with the addition of 100 yards of soil for purpose of comparative analyses.
MB-05	10/25/06	100	1.0	1.5	1.3%	100	5.77	6.56	132.7	9.8%	120.8	
MB-06	10/25/06	100	0	0	0%	100	5.54	7.30	131.3	10.7%	118.6	Sludge balls noted in mix. Batch was remixed until sludge balls were not noticeable.
MB-07	10/30/06	100	0	0	0%	100	8.37	7.76	134.7	10.4%	122.0	
MB-08	10/31/06	100	0	0	0%	100	7.85	7.97	134.1	10.3%	121.6	
MB-09	10/31/06	100	0	0	0%	100	6.33	7.11	130.9	8.9%	120.2	
MB-10	11/1/06	100	0	0	0%	100	6.83	6.89	133.7	10.6%	120.9	
MB-11	11/2/06	100	0	0	0%	100	6.70	6.96	132.7	9.4%	121.4	Sludge balls noted in mix Batch was remixed until sludge balls were not noticeable.
MB-12	11/2/06	100	0	0	0%	67	6.37	6.72	131.5	9.7%	119.8	
MB-13	11/3/06	267	0	0	0%	0	5.30	6.52	132.5	9.3%	121.2	Approved to mix sludge without addition of soil due to high wet densities.
MB-14	11/3/06	267	6	7.4	2.4%	0	**4.99**	6.23	133.0	8.9%	122.2	6 yards of $CaCO_3$ was added to batch for coverage purposes. Batch completed on 11/06/06.
MB-15	11/6/06	267	6	8.0	2.6%	0	**4.81**	6.88	130.3	11.5%	116.8	6 yards of $CaCO_3$ was added to batch while performing titration and dosage calculations. Results of dosage calculation is approx. 0.6 yards.
MB-16	11/6/06	267	6	6.6	2.2%	0	**3.88**	6.70	131.2	10.3%	118.9	6 yards of $CaCO_3$ was added to batch while performing titration and dosage calculations Results of dosage calculation is approx. 2.4 yards.
MB-17	11/7/06	267	2	2.4	0.8%	0	**4.66**	6.87	132.4	9.8%	120.6	2 yards of $CaCO_3$ was added to batch while performing titration and dosage calculations. Results of dosage calculation is approx. 0.4 yards.
MB-18	11/7/06	267	0	0	0.0%	0	6.81	6.64	130.0	9.2%	119.0	
MB-19	11/8/06	267	0	0	0.0%	0	5.31	6.35	131.6	10.2%	119.5	
MB-20	11/8/06	267	0	0	0.0%	0	6.82	6.52	130.5	9.0%	119.7	
MB-21	11/9/06	267	54	2.8	0.9%	0	**4.83**	6.62	126.8	8.0%	117.4	2 yards of $CaCO_3$ was added to batch while performing titration and dosage calculations. Results of dosage calculation is approx. 0.5 yards.

TABLE 3-8
PURITY OIL SALES SUPERFUND SITE
NEUTRALIZED BATCH SUMMARY

Batch Number	Date	Sludge (yd^3)	$CaCO_3$ (yd^3)	$CaCO_3$ (tons)	$CaCO_3$ Dosage by Weight of Sludge (%)	Soil (yd^3)	Initial pH	Average Final Mix pH	Proctor Analysis Average Wet Density (pcf)	Proctor Analysis Average Moisture(%)	Proctor Analysis Average Dry Density (pcf)	Final Observations
MB-22	11/9/06	267	4	4.8	1.6%	0	**2.55**	6.50	127.3	7.8%	118.1	4 yards of $CaCO_3$ was added to batch while performing titration and dosage calculations. Results of dosage calculation is approx. 1.3 yards.
MB-23	11/10/06	267	1	1.2	0.4%	0	**4.61**	5.77	130.6	9.1%	119.7	1 yard of $CaCO_3$ was added to batch while performing titration and dosage calculations. Results of dosage calculation is approx. 0.2 yards.
MB-24	11/10/06	267	0	0	0.0%	0	6.24	6.03	131.5	10.8%	118.7	
MB-25	11/10/06	267	0	0	0.0%	0	6.03	6.57	127.8	9.0%	117.2	Mix batch completed on 1/13/06
MB-26	11/13/06	267	0	0	0.0%	0	7.03	6.17	131.7	10.6%	119.1	
MB-27	11/13/06	267	0	0	0.0%	0	5.41	5.90	130.6	10.1%	118.5	Mix batch completed on 1/14/06.
MB-28	11/14/06	267	0	0	0.0%	0	6.02	6.30	128.4	8.5%	118.3	
MB-29	11/14/06	267	0	0	0.0%	0	6.32	6.21	130.9	9.5%	119.5	
MB-30	11/14/06	267	0	0	0.0%	0	5.87	6.25	130.3	8.6%	120.0	Mix batch completed on 1/15/06
MB-31	11/15/06	267	0	0	0.0%	0	6.29	6.13	130.5	9.4%	119.3	Sludge balls noted in mix. Mix batch was remixed until sludge balls were not noticeable.
MB-32	11/15/06	267	6	7.0	2.3%	0	**3.80**	6.14	128.8	9.6%	117.6	6 yards of $CaCO_3$ was added to batch for coverage purposes Batch completed on 11/16/06.
MB-33	11/16/06	267	0	0	0.0%	0	5.61	6.28	128.5	8.6%	118.3	
MB-34	11/16/06	267	0	0	0.0%	0	6.53	7.20	128.5	11.6%	115.2	Mix batch completed on 1/17/06
MB-35	11/17/06	267	0	0	0.0%	0	7.53	6.49	127.5	8.9%	117.0	Sludge balls noted in mix. Mix was remixed until sludge balls were not noticeable.
MB-36	11/20/06	267	0	0	0.0%	0	7.58	5.81	123.7	7.8%	114.7	Following first 1-point proctor, water was added to batch to bring moisture levels within target moisture of 7% to 13%.
MB-37	11/20/06	267	2	2.5	0.8%	0	**4.89**	6.89	129.4	9.9%	117.7	2 yards of $CaCO_3$ was added to batch while performing titration and dosage calculations. Results of dosage calculation is approx. 0.3 yards.
MB-38	11/21/06	267	0	0	0.0%	0	6.32	6.57	128.8	10.8%	116.2	
MB-39	11/21/06	267	0	0	0.0%	0	6.74	5.76	132.4	9.8%	120.5	Mix batch completed on 11/27/06.
MB-40	11/27/06	267	0	0	0.0%	0	6.50	6.61	126.7	10.4%	114.8	Mix batch completed on 11/28/06.
MB-41	11/28/06	267	0	0	0.0%	0	6.45	6.48	126.1	10.8%	113.8	Initial inspection of batch was rejected due to sludge balls. Batch passed on 11/29/06 after further mixing
MB-42	11/29/06	267	0	0	0.0%	0	5.62	5.78	126.4	10.0%	115.0	Initial inspection of batch was rejected due to sludge balls. Batch passed after further mixing
MB-43	11/29/06	267	0	0	0.0%	0	5.64	5.80	127.3	10.6%	115.2	
MB-44	11/29/06	267	4	4.2	1.4%	0	6.66	5.79	127.2	9.3%	116.3	6 yards of $CaCO_3$ was added to batch for coverage and odor control purposes. Batch completed on 11/30/06.
MB-45	11/30/06	267	0	0	0.0%	0	5.85	6.10	129.1	9.1%	118.2	Mix batch completed on 12/01/06

TABLE 3-8
PURITY OIL SALES SUPERFUND SITE
NEUTRALIZED BATCH SUMMARY

Batch Number	Date	Sludge (yd^3)	$CaCO_3$ (yd^3)	$CaCO_3$ (tons)	$CaCO_3$ Dosage by Weight of Sludge (%)	Soil (yd^3)	Initial pH	Average Final Mix pH	Proctor Analysis Average Wet Density (pcf)	Proctor Analysis Average Moisture(%)	Proctor Analysis Average Dry Density (pcf)	Final Observations
MB-46	12/1/06	267	0	0	0.0%	0	5.89	6.27	128.5	9.1%	117.7	Mix batch completed on 12/4/06
MB-47	12/4/06	267	0	0	0.0%	0	7.05	6.93	129.1	9.0%	118.4	
MB-48	12/4/06	267	0	0	0.0%	0	6.28	6.72	130.6	9.5%	119.3	Mix batch completed on 12/5/06
MB-49	12/5/06	267	0	0	0.0%	0	6.71	7.03	129.0	11.0%	116.3	Mix batch completed on 12/6/06
MB-50	12/6/06	267	0	0	0.0%	0	6.14	6.87	126.0	8.2%	116.5	
MB-51	12/6/06	267	0	0	0.0%	0	6.76	6.59	128.2	7.0%	119.9	Mix batch completed on 12/7/06
MB-52	12/7/06	267	0	0	0.0%	0	6.78	6.90	130.9	9.7%	119.2	Pads on mix-head were replaced in alternating fashion in an effort to increase mixing efficiency.
MB-53	12/7/06	267	0	0	0.0%	0	6.18	6.14	129.2	9.8%	117.6	
MB-54	12/8/06	133	0	0	0.0%	133	5.22	6.26	130.6	10.9%	117.7	Soil from excavation placed on mix-batch.
MB-55	12/8/06	267	0	0	0.0%	0	6.16	6.97	130.5	10.3%	118.3	Mix batch completed on 12/11/06
MB-56	12/11/06	267	0	0	0.0%	0	6.66	6.87	130.0	8.3%	120.0	
MB-57	12/11/06	267	0	0	0.0%	0	6.58	6.78	132.7	9.4%	121.3	Mix batch completedon 12/13/06
MB-58	12/13/06	267	12	12.2	4.0%	0	**3.85**	7.07	133.4	8.8%	122.6	12 yards of $CaCO_3$ was added to batch while performing titration and dosage calculations. Results of dosage calculation is approx. 0.7 yards.
MB-59	12/13/06	267	0	0	0.0%	0	5.81	6.69	132.2	8.7%	121.7	Mix batch completed on 12/14/06
MB-60	12/14/06	267	0	0	0.0%	0	5.44	6.75	132.7	8.8%	121.9	
MB-61	12/15/06	267	0	0	0.0%	0	5.75	6.89	130.0	9.4%	118.8	
MB-62	12/15/06	267	0	0	0.0%	0	6.93	6.98	129.4	8.9%	118.8	
MB-63	12/18/06	267	0	0	0.0%	0	6.54	7.04	129.7	8.6%	119.5	
MB-64	12/18/06	267	0	0	0.0%	0	7.10	6.90	129.8	9.1%	119.0	
MB-65	12/19/06	267	0	0	0.0%	0	6.49	7.03	130.6	8.6%	120.3	
MB-66	12/19/06	267	0	0	0.0%	0	6.38	6.77	129.7	9.3%	117.0	
MB-67	12/20/06	267	0	0	0.0%	0	5.37	6.40	129.7	10.1%	117.9	
MB-68	12/20/06	267	8	10	3.3%	0	**3.88**	6.82	130.5	9.7%	118.9	
MB-69	12/21/06	267	2	2.4	0.8%	0	**4.90**	6.11	127.7	8.4%	117.8	

TABLE 3-8
PURITY OIL SALES SUPERFUND SITE
NEUTRALIZED BATCH SUMMARY

Batch Number	Date	Sludge (yd^3)	$CaCO_3$ (yd^3)	$CaCO_3$ (tons)	$CaCO_3$ Dosage by Weight of Sludge (%)	Soil (yd^3)	Initial pH	Average Final Mix pH	Proctor Analysis Average Wet Density (pcf)	Proctor Analysis Average Moisture(%)	Proctor Analysis Average Dry Density (pcf)	Final Observations
MB-70	1/3/07	267	0	0	0.0%	0	6.41	7.49	130.3	10.1%	118.4	
MB-71	1/3/07	267	10	12.4	4.0%	0	**1.04**	7.54	131.3	9.0%	120.5	Post Pilot Material in Mix
MB-72	1/4/07	267	0	0	0.0%	0	6.33	7.38	130.8	9.2%	119.8	
MB-73	1/4/07	267	0	0	0.0%	0	5.01	7.16	130.5	8.7%	120.1	
MB-74	1/5/07	267	4	5.1	1.7%	0	**1.72**	6.90	131.2	10.7%	118.5	
MB-75	1/5/07	267	0	0	0.0%	0	5.86	6.74	130.0	9.8%	118.4	
MB-76	1/8/07	267	0	0	0.0%	0	5.80	6.58	131.0	9.1%	120.0	
MB-77	1/8/07	267	0	0	0.0%	0	6.81	6.96	130.9	10.1%	119.0	
MB-78	1/9/07	267	0	0	0.0%	0	5.79	6.98	130.7	9.0%	119.9	
MB-79	1/9/07	267	0	0	0.0%	0	6.37	7.01	130.9	10.4%	118.5	
MB-80	1/10/07	267	4	5.1	1.7%	0	**1.31**	6.85	130.2	10.1%	118.2	
MB-81	1/10/07	267	0	0	0.0%	0	6.82	7.14	131.3	9.9%	119.5	
MB-82	1/11/07	267	0	0	0.0%	0	6.80	6.97	131.5	10.1%	119.4	
MB-83	1/11/07	267	10	12.6	4.1%	0	**1.32**	6.65	129.3	9.7%	117.8	
MB-84	1/12/07	267	0	0	0.0%	0	5.79	6.49	129.1	9.5%	117.8	
MB-85	1/12/07	267	0	0	0.0%	0	6.25	6.92	128.5	9.5%	117.3	No visual sludge balls in mix inspection. Batch completed on 1/15/07
MB-86	1/15/07	267	0	0	0.0%	0	5.35	6.86	129.8	10.3%	117.7	
MB-87	1/16/07	267	0	0	0.0%	0	5.56	7.11	130.0	10.0%	118.2	
MB-88	1/16/07	267	1	1.4	0.5%	0	**3.21**	6.94	128.5	10.2%	116.5	
MB-89	1/17/07	267	0	0	0.0%	0	6.37	7.23	129.2	10.2%	117.3	
MB-90	1/17/07	267	0	0	0.0%	0	5.57	6.66	127.6	11.5%	114.5	
MB-91	1/17/07	267	0	0	0.0%	0	5.33	6.38	128.2	11.1%	115.4	No sludge balls visible during mix inspection.
MB-92	1/18/07	267	0	0	0.0%	0	5.15	6.39	129.4	11.3%	116.2	Inspected 1/18/07; visbly free of sludge balls. Loaded mix out on 1/19/07
MB-93	1/18/07	267	0	0	0.0%	0	5.65	6.48	127.7	10.1%	116.0	

TABLE 3-8
PURITY OIL SALES SUPERFUND SITE
NEUTRALIZED BATCH SUMMARY

Batch Number	Date	Sludge (yd^3)	$CaCO_3$ (yd^3)	$CaCO_3$ (tons)	$CaCO_3$ Dosage by Weight of Sludge (%)	Soil (yd^3)	Initial pH	Average Final Mix pH	Proctor Analysis Average Wet Density (pcf)	Proctor Analysis Average Moisture(%)	Proctor Analysis Average Dry Density (pcf)	Final Observations
MB-94	1/19/07	267	0	0	0.0%	0	5.88	6.72	128.4	10.8%	115.9	Batch completed on 1/22/07
MB-95	1/19/07	267	0	0	0.0%	0	6.44	6.77	129.7	10.6%	117.3	Batch completed on 1/22/07
MB-96	1/22/07	267	0	0	0.0%	0	6.21	6.94	128.6	10.0%	116.9	
MB-97	1/22/07	222	0	0	0.0%	0	6.34	6.66	127.6	9.4%	116.7	
MB-98	1/23/07	222	0	0	0.0%	0	5.88	6.67	128.8	9.7%	117.5	
MB-99	1/23/07	222	0	0	0.0%	0	6.75	6.91	129.8	8.6%	119.5	
MB-100	1/24/07	222	0	0	0.0%	0	5.33	6.81	129.9	10.4%	117.7	
MB-101	1/25/07	222	0	0	0.0%	0	6.70	6.77	130.8	9.2%	119.7	
MB-102	1/25/07	222	2	2.6	1.0%	0	**4.70**	6.95	131.4	10.0%	119.4	
MB-103	1/26/07	222	0	0	0.0%	0	5.83	6.77	129.0	10.8%	116.4	
MB-104	1/29/07	267	0	0	0.0%	0	5.87	6.90	127.6	11.2%	114.7	
MB-105	1/29/07	267	0	0	0.0%	0	6.94	6.96	130.5	11.0%	117.6	
MB-106	1/30/07	267	0	0	0.0%	0	6.51	7.02	128.7	10.2%	116.9	
MB-107	1/30/07	267	2	2.4	0.8%	0	**2.37**	7.05	128.8	10.3%	116.7	
MB-108	1/31/07	267	0	0	0.0%	0	6.94	7.04	127.9	10.8%	115.4	
MB-109	2/1/07	267	0	0	0.0%	0	6.02	6.92	126.7	10.7%	114.4	
MB-110	2/1/07	267	0	0	0.0%	0	6.17	6.90	128.7	11.3%	115.6	
MB-111	2/2/07	267	0	0	0.0%	0	6.38	7.34	128.7	10.6%	116.3	
MB-112	2/2/07	267	14	16	5.2%	0	**0.86**	7.41	131.6	9.3%	120.6	Completed on 2/5/07
MB-113	2/5/07	267	0	0	0.0%	0	7.38	7.26	129.3	9.5%	118.0	
MB-114	2/5/07	267	18	21.8	7.1%	0	**1.04**	7.17	131.7	8.4%	123.0	
MB-115	2/6/07	267	0	0	0.0%	0	6.65	7.21	130.4	9.9%	118.7	
MB-116	2/7/07	267	0	0	0.0%	0	7.35	7.08	131.8	9.3%	120.5	
MB-117	2/7/07	267	0	0	0.0%	0	7.44	7.24	129.2	10.4%	117.0	

TABLE 3-8
PURITY OIL SALES SUPERFUND SITE
NEUTRALIZED BATCH SUMMARY

Batch Number	Date	Sludge (yd^3)	$CaCO_3$ (yd^3)	$CaCO_3$ (tons)	$CaCO_3$ Dosage by Weight of Sludge (%)	Soil (yd^3)	Initial pH	Average Final Mix pH	Proctor Analysis Average Wet Density (pcf)	Proctor Analysis Average Moisture(%)	Proctor Analysis Average Dry Density (pcf)	Final Observations
MB-118	2/8/07	267	0	0	0.0%	0	5.89	7.06	128.5	6.5%	120.7	
MB-119	2/9/07	222	0	0	0.0%	0	6.72	7.24	130.5	8.6%	120.0	
MB-120	2/9/07	244	0	0	0.0%	0	7.18	7.14	128.4	10.3%	116.6	
MB-121	2/12/07	222	0	0	0.0%	0	6.47	7.03	128.0	11.0%	115.3	
MB-122	2/13/07	178	0	0	0.0%	50	6.64	7.23	129.7	10.1%	117.7	
MB-123	2/14/07	222	0	0	0.0%	0	7.38	7.31	127.3	7.3%	118.6	
MB-124	2/14/07	178	0	0	0.0%	44	7.10	7.28	131.2	9.8%	119.5	
MB-125	2/15/07	178	0	0	0.0%	44	6.30	7.21	131.7	9.9%	119.8	
MB-126	2/15/07	178	0	0	0.0%	44	7.02	7.25	128.2	8.8%	117.8	Completed on 2/20/07
MB-127	2/16/07	178	2	2.5	1.2%	44	**3.88**	7.07	129.6	8.9%	119.0	Completed on 2/20/07
MB-128	2/20/07	178	0	0	0.0%	44	6.97	7.01	128.5	7.6%	119.4	Completed on 2/21/07
MB-129	2/21/07	178	0	0	0.0%	44	5.02	6.91	129.5	10.2%	117.6	Completed on 2/26/07
MB-130	2/26/07	178	0	0	0.0%	44	6.60	7.01	129.0	10.0%	117.3	
MB-131	2/27/07	178	0	0	0.0%	44	6.65	7.08	127.3	8.2%	117.6	
MB-132	2/28/07	178	0	0	0.0%	44	6.56	6.80	129.0	9.8%	117.4	
MB-133	3/1/07	178	0	0	0.0%	44	6.53	7.23	129.8	8.8%	119.3	
MB-134	3/1/07	178	0	0	0.0%	44	6.80	7.23	127.6	9.3%	116.8	Completed on 3/2/07
MB-135	3/5/07	178	0	0	0.0%	44	6.92	6.98	128.2	8.6%	118.0	See survey for final volume estimate
MB-136	3/5/07	178	0	0	0.0%	44	6.96	7.01	128.8	8.1%	119.1	Completed on 3/6/07
MB-137	3/6/07	178	2	2.5	1.2%	44	**3.19**	7.32	129.7	10.0%	117.8	Completed on 3/7/07
MB-138	3/7/07	178	0	0	0.0%	44	6.46	7.15	128.3	9.2%	117.5	
MB-139	3/8/07	*178*	0	0	0.0%	*44*	6.48	6.86	125.8	9.0%	115.5	See survey for final volume estimate. Batch to be completed on 3/12/07.
MB-140	3/12/07	178	4	5.7	2.8%	44	**1.81**	7.31	128.8	6.9%	120.4	
MB-141	3/13/07	160	2	2.4	1.3%	60	**3.74**	7.21	126.9	8.6%	116.9	

TABLE 3-8
PURITY OIL SALES SUPERFUND SITE
NEUTRALIZED BATCH SUMMARY

Batch Number	Date	Sludge (yd^3)	$CaCO_3$ (yd^3)	$CaCO_3$ (tons)	$CaCO_3$ Dosage by Weight of Sludge (%)	Soil (yd^3)	Initial pH	Average Final Mix pH	Proctor Analysis Average Wet Density (pcf)	Proctor Analysis Average Moisture(%)	Proctor Analysis Average Dry Density (pcf)	Final Observations
MB-142	3/15/07	160	0	0	0.0%	60	6.75	7.30	127.9	7.4%	119.2	
MB-143	3/16/07	160	0	0	0.0%	60	7.08	7.13	127.6	8.3%	117.8	Mix-head down for repair until 3/20/07
MB-144	3/20/07	160	0	0	0.0%	60	6.29	7.21	127.9	8.1%	118.3	
MB-145	3/20/07	160	0	0	0.0%	60	6.49	7.26	130.3	10.0%	118.4	
MB-146	3/21/07	160	0	0	0.0%	60	6.46	7.48	130.9	9.2%	119.8	
MB-147	3/22/07	160	0	0	0.0%	60	7.07	7.41	127.9	7.5%	118.9	
MB-148	3/22/07	160	4	4.3	2.3%	60	**3.98**	6.95	128.9	8.1%	119.2	
MB-149	3/23/07	160	0	0	0.0%	60	6.60	7.44	126.4	8.0%	117.0	
MB-150	3/26/07	160	0	0	0.0%	60	6.73	7.01	129.2	10.2%	117.3	
MB-151	3/27/07	160	0	0	0.0%	60	6.36	7.06	131.2	9.2%	120.2	
MB-152	3/27/07	160	0	0	0.0%	60	6.09	7.26	130.5	9.1%	119.6	
MB-153	3/28/07	160	4.5	5.2	2.8%	60	**1.30**	7.24	128.3	8.5%	118.3	
MB-154	3/29/07	160	0	0	0.0%	60	6.33	6.99	131.0	8.8%	120.8	
MB-155	3/30/07	160	0	0	0.0%	60	6.30	6.38	131.9	8.6%	121.5	
MB-156	4/2/07	160	6	7.9	4.3%	60	**1.26**	6.52	126.4	7.2%	117.8	
MB-157	4/3/07	160	6	8	4.4%	60	**1.19**	5.47	131.7	7.2%	122.8	
MB-158	4/3/07	160	0	0	0.0%	60	6.21	6.76	132.2	8.7%	121.7	
MB-159	4/4/07	145	20	23	13.8%	60	**1.14**	7.90	131.2	7.9%	122.0	
MB-160	4/5/07	145	4	5.3	3.2%	60	**2.75**	6.86	132.5	8.4%	122.2	
MB-161	4/5/07	145	0	0	0.0%	60	**3.51**	6.92	130.7	8.2%	120.8	
MB-162	4/6/07	145	0	0	0.0%	60	6.55	7.07	128.7	7.8%	119.4	
MB-163	4/9/07	145	1	1.3	0.8%	60	**3.94**	6.89	128.9	7.8%	119.5	
MB-164	4/9/07	145	0	0	0.0%	60	6.44	7.52	129.1	7.2%	120.4	
MB-165	4/10/07	145	0	0	0.0%	60	7.24	7.03	127.7	7.6%	118.3	

TABLE 3-8
PURITY OIL SALES SUPERFUND SITE
NEUTRALIZED BATCH SUMMARY

Batch Number	Date	Sludge (yd^3)	$CaCO_3$ (yd^3)	$CaCO_3$ (tons)	$CaCO_3$ Dosage by Weight of Sludge (%)	Soil (yd^3)	Initial pH	Average Final Mix pH	Proctor Analysis Average Wet Density (pcf)	Proctor Analysis Average Moisture(%)	Proctor Analysis Average Dry Density (pcf)	Final Observations
MB-166	4/11/07	145	0	0	0.0%	60	5.72	7.11	131.0	8.5%	120.9	
MB-167	4/12/07	145	0	0	0.0%	60	6.28	7.13	128.8	8.2%	119.0	
MB-168	4/12/07	145	0	0	0.0%	60	**4.77**	7.19	130.1	8.4%	120.1	
MB-169	4/13/07	145	0	0	0.0%	60	6.79	7.03	126.4	6.7%	118.4	Completed on 4/16/07 due to mix-head repairs
MB-170	4/17/07	145	0	0	0.0%	60	6.41	7.03	129.2	8.8%	118.7	
MB-171	4/17/07	145	0	0	0.0%	60	6.59	6.75	127.5	9.1%	116.8	Mix-head down for repairs on 4/18/07 from 4/25/07
MB-172	4/26/07	145	8	10.3	6.2%	60	**1.43**	7.33	128.8	7.5%	119.7	Mix-head repaired
MB-173	4/27/07	145	0	0	0.0%	60	6.76	7.15	129.2	8.2%	119.4	
MB-174	4/27/07	145	0	0	0.0%	60	6.42	6.72	127.2	6.2%	119.7	
MB-175	4/30/07	145	0	0	0.0%	60	6.03	6.94	129.7	7.3%	120.9	
MB-176	4/30/07	145	4	5.3	3.2%	60	**1.94**	7.16	129.0	8.4%	119.0	
MB-177	5/1/07	145	0	0	0.0%	60	5.87	6.99	126.5	6.8%	118.4	
MB-178	5/1/07	145	4	4.9	2.9%	60	**3.63**	7.17	130.0	8.4%	119.9	
MB-179	5/2/07	145	0	0	0.0%	60	6.51	7.11	130.9	8.8%	120.3	
MB-180	5/2/07	145	0	0	0.0%	60	6.40	7.05	128.5	8.4%	118.5	
MB-181	5/3/07	145	0	0	0.0%	60	6.77	6.77	129.0	7.6%	119.9	
MB-182	5/3/07	145	0	0	0.0%	60	6.56	6.92	128.0	9.6%	116.9	
MB-183	5/4/07	145	0	0	0.0%	60	6.88	6.64	129.0	9.8%	117.5	
MB-184	5/4/07	145	0	0	0.0%	60	6.52	6.83	127.7	9.6%	116.6	
MB-185	5/7/07	145	0	0	0.0%	60	6.85	6.71	129.7	10.5%	117.3	
MB-186	5/8/07	145	0	0	0.0%	60	6.14	7.08	128.1	9.1%	117.4	
MB-187	5/8/07	145	0	0	0.0%	60	**4.92**	7.06	126.9	8.3%	117.1	
MB-188	5/8/07	145	0	0	0.0%	60	6.49	6.99	129.5	8.0%	119.9	
MB-189	5/9/07	145	0	0	0.0%	60	6.34	6.87	127.9	7.4%	119.1	

TABLE 3-8
PURITY OIL SALES SUPERFUND SITE
NEUTRALIZED BATCH SUMMARY

Batch Number	Date	Sludge (yd^3)	$CaCO_3$ (yd^3)	$CaCO_3$ (tons)	$CaCO_3$ Dosage by Weight of Sludge (%)	Soil (yd^3)	Initial pH	Average Final Mix pH	Proctor Analysis Average Wet Density (pcf)	Proctor Analysis Average Moisture (%)	Proctor Analysis Average Dry Density (pcf)	Final Observations
MB-190	5/9/07	145	0	0	0.0%	60	6.10	6.96	128.9	8.6%	118.7	
MB-191	5/10/07	145	4	5.3	3.2%	60	**1.77**	7.07	125.8	8.9%	115.5	
MB-192	5/10/07	145	4	4.8	2.9%	60	**1.55**	7.04	126.3	8.9%	116.0	
MB-193	5/11/07	145	2	2.4	1.4%	50	**2.09**	6.74	128.4	9.3%	117.5	Complete mixing on 5/14/07
MB-194	5/14/07	145	2	2.6	1.6%	50	**2.80**	7.16	128.8	9.7%	117.4	
MB-195	5/14/07	145	2	2.6	1.6%	50	**2.06**	7.13	127.6	9.0%	117.1	Completed on 5/15/07
MB-196	5/14/07	145	3	3.9	2.3%	50	**2.47**	6.94	131.2	9.6%	119.7	
MB-197	5/15/07	145	2	2.7	1.6%	50	**4.00**	7.23	128.5	8.5%	118.4	
MB-198	5/16/07	145	0	0	0.0%	50	6.38	7.20	129.7	10.1%	117.8	Material from disc
MB-199	5/16/07	145	0	0	0.0%	50	6.34	7.36	127.8	8.8%	117.4	
MB-200	5/16/07	145	0	0	0.0%	50	6.49	7.40	127.8	7.9%	118.4	Completed on 5/17/07
MB-201	5/17/07	145	0	0	0.0%	50	6.06	7.38	126.5	8.1%	117.1	
MB-202	5/17/07	145	0	0	0.0%	50	6.34	7.28	125.5	8.7%	115.5	Completed on 5/18/07
MB-203	5/18/07	145	0	0	0.0%	50	6.37	7.30	123.0	7.6%	114.3	
MB-204	5/18/07	145	0	0	0.0%	50	6.44	7.24	121.6	8.2%	112.4	Completed on 5/21/07
MB-205	5/21/07	146	0	0	0.0%	54	6.56	7.43	124.0	8.9%	113.9	
MB-206	5/21/07	146	0	0	0.0%	54	6.39	7.56	125.1	8.7%	115.0	
MB-207	5/21/07	146	0	0	0.0%	54	6.22	7.53	123.0	8.8%	113.1	
MB-208	5/22/07	146	3	3.8	2.3%	54	**3.24**	7.30	122.3	7.0%	114.5	
MB-209	5/22/07	146	0	0	0.0%	54	5.02	7.35	122.6	9.2%	112.3	
MB-210	5/23/07	146	0	0	0.0%	54	6.50	7.22	125.4	9.5%	114.5	
MB-211	5/23/07	146	0	0	0.0%	54	6.34	7.12	124.9	8.8%	114.8	
MB-212	5/23/07	146	0	0	0.0%	54	6.44	7.13	127.2	7.3%	118.5	Completed on 5/24/07
MB-213	5/24/07	146	0	0	0.0%	54	6.95	7.18	130.6	8.2%	120.7	

TABLE 3-8
PURITY OIL SALES SUPERFUND SITE
NEUTRALIZED BATCH SUMMARY

Batch Number	Date	Sludge (yd^3)	$CaCO_3$ (yd^3)	$CaCO_3$ (tons)	$CaCO_3$ Dosage by Weight of Sludge (%)	Soil (yd^3)	Initial pH	Average Final Mix pH	Proctor Analysis Average Wet Density (pcf)	Proctor Analysis Average Moisture(%)	Proctor Analysis Average Dry Density (pcf)	Final Observations
MB-214	5/29/07	142	0	0	0.0%	53	6.65	6.72	134.8	8.0%	124.9	
MB-215	5/29/07	142	0	0	0.0%	53	6.60	6.87	134.8	7.7%	125.2	
MB-216	5/29/07	142	0	0	0.0%	53	6.85	7.17	130.7	8.0%	121.0	
MB-217	5/30/07	142	3	4	2.5%	53	**1.79**	7.44	127.0	7.8%	117.8	
MB-218	5/30/07	142	0	0	0.0%	53	5.90	6.76	129.4	7.6%	120.4	
MB-219	5/31/07	142	0	0	0.0%	53	6.33	7.31	128.1	8.6%	118.0	
MB-220	5/31/07	142	0	0	0.0%	53	6.60	7.07	127.4	9.0%	116.9	
MB-221	5/31/07	142	0	0	0.0%	53	6.09	7.22	126.8	10.5%	114.7	
MB-222	6/1/07	142	0	0	0.0%	53	7.08	7.37	123.4	7.8%	114.5	
MB-223	6/1/07	142	0	0	0.0%	53	6.38	7.36	127.9	9.6%	116.6	
MB-224	6/1/07	142	0	0	0.0%	53	6.68	6.94	124.5	7.3%	116.3	
MB-225	6/4/07	142	0	0	0.0%	53	**4.53**	6.57	128.8	9.6%	117.2	
MB-226	6/4/07	142	0	0	0.0%	53	6.39	6.94	131.0	9.0%	120.2	
MB-227	6/5/07	142	0	0	0.0%	53	6.36	7.21	129.2	8.3%	119.5	
MB-228	6/5/07	142	4	5	3.1%	53	**3.60**	6.87	126.8	10.4%	114.8	
MB-229	6/5/07	142	0	0	0.0%	53	6.45	6.90	127.0	9.9%	115.6	
MB-230	6/6/07	142	0	0	0.0%	53	6.06	6.71	123.4	9.8%	112.4	
MB-231	6/7/07	142	0	0	0.0%	53	6.61	6.95	126.5	10.5%	114.4	
MB-232	6/7/07	142	0	0	0.0%	53	6.93	7.29	124.4	10.2%	112.9	
MB-233	6/7/07	142	0	0	0.0%	53	7.08	6.87	124.8	10.5%	113.1	
MB-234	6/8/07	142	0	0	0.0%	53	5.37	7.21	125.2	9.4%	114.0	
MB-235	6/8/07	142	0	0	0.0%	53	5.92	6.51	125.4	9.8%	114.2	
MB-236	6/12/07	142	0	0	0.0%	53	6.19	6.83	125.4	9.1%	114.9	
MB-237	6/12/07	142	0	0	0.0%	53	6.28	6.72	125.5	8.9%	115.2	

TABLE 3-8
PURITY OIL SALES SUPERFUND SITE
NEUTRALIZED BATCH SUMMARY

Batch Number	Date	Sludge (yd^3)	$CaCO_3$ (yd^3)	$CaCO_3$ (tons)	$CaCO_3$ Dosage by Weight of Sludge (%)	Soil (yd^3)	Initial pH	Average Final Mix pH	Proctor Analysis Average Wet Density (pcf)	Proctor Analysis Average Moisture(%)	Proctor Analysis Average Dry Density (pcf)	Final Observations
MB-238	6/12/07	142	0	0	0.0%	53	5.87	6.99	123.9	9.7%	113.0	
MB-239	6/13/07	142	0	0	0.0%	53	6.06	6.90	122.2	9.8%	111.3	
MB-240	6/14/07	142	0	0	0.0%	53	6.42	6.86	123.6	9.5%	112.8	
MB-241	6/14/07	142	0	0	0.0%	53	6.83	6.62	119.6	10.5%	108.2	
MB-242	6/15/07	142	0	0	0.0%	53	5.63	6.81	123.4	9.8%	112.4	
MB-243	6/15/07	142	0	0	0.0%	53	5.62	6.72	119.5	10.1%	108.5	
MB-244	6/18/07	142	0	0	0.0%	75	5.23	6.52	119.7	9.5%	109.2	
MB-245	6/18/07	142	0	0	0.0%	75	5.24	7.07	122.8	10.3%	111.3	
MB-246	6/19/07	142	0	0	0.0%	75	5.87	6.95	126.9	8.7%	116.7	Last batch of Pilot Material
MB-247	6/26/07	142	0	0	0.0%	75	6.88	7.14	127.2	7.1%	118.7	
MB-248	6/26/07	142	0	0	0.0%	75	6.81	7.10	128.1	6.6%	120.1	Moisture below 7.0%, batch passes because no need for $CaCO_3$ reaction and batch was stockpiled.
MB-249	6/26/07	142	0	0	0.0%	75	6.03	7.15	129.0	7.9%	119.6	
MB-250	6/27/07	142	0	0	0.0%	75	6.54	7.19	127.3	9.1%	116.7	
MB-251	6/27/07	142	0	0	0.0%	75	6.25	7.19	127.8	7.1%	119.3	
MB-252	6/28/07	138	0	0	0.0%	138	5.62	7.18	128.3	7.4%	119.5	Last mix batch of material other than GSMf
MB-253	7/16/07	133	0	0	0.0%	400	6.81	6.39	127.0	7.1%	118.5	Batch from GSMf excavation
MB-254	7/16/07	67	0	0	0.0%	467	6.46	6.63	126.8	7.1%	118.4	Batch from GSMf excavation
MIN	--	**33**	**0.0**	**0.0**	**0.0%**	**0**	**0.86**	**5.47**	**119.5**	**6.2%**	**108.2**	
MAX	--	**267**	**54.0**	**23.0**	**26.4%**	**467**	**8.37**	**7.97**	**135.4**	**11.6%**	**125.2**	
AVERAGE	--	--	**1.2**	**1.3**	--	--	**5.72**	**6.91**	**128.8**	**9.1%**	**118.0**	
TOTALS	--	**49,699**	**314.2**	**323.9**	**0.6%**	**9,399**	--	--	--	--	--	

MB - Mix Batch

TABLE 3-9
PURITY OIL SALES SITE
ON-SITE DENSITY TESTING SUMMARY

Compaction ID	Date	Lift Number	Elevation (ft)	Wet Density (pcf)	Moisture (%)	Dry Density (pcf)	Applicable Proctor Dry Density (pcf)	Applicable Proctor Moisture (%)	Percent Compaction (%)	Pass or Fail	Final Observations	Notes
Neutralized Sludge Density Test Results												
PUR-DC-01-01	10/23/06	1	283.8	127.3	6.9%	119.1	–	–	–	F	6 Passes with Roller, greater than 120pcf wet density	Area re-compacted and re-tested as PUR-DC-01A-01
PUR-DC-01A-01	10/24/06	2	283.8	120.0	8.9%	110.2	–	–	–	P	4 total passes with roller, 2 passes vibrator on	Retest of PUR-DC-01-01
PUR-DC-02-02	10/24/06	2	284.6	120.9	8.8%	111.1	–	–	–	P	4 total passes with roller, 2 passes vibrator on	
PUR-DC-03-03	10/24/06	3	285.5	120.6	7.4%	112.3	–	–	–	P	4 total passes with roller, 2 passes vibrator on	
PUR-DC-04-04	10/24/06	4	286.6	120.1	7.8%	111.4	–	–	–	P	4 total passes with roller, 2 passes vibrator on	
PUR-DC-05-05	10/25/06	5	287.3	125.8	10.0%	114.4	–	–	–	F	4 total passes with roller, 2 passes vibrator on, greater than 120pcf wet density	Area re-compacted and re-tested as PUR-DC-05A-05A
PUR-DC-05A-05A	10/25/06	5	287.2	128.5	10.9%	115.9	–	–	–	F	Rip up Lift and recompact with 3 total passes, 1 pass vibrator, retest of PUR-DC-05-05	Area re-compacted and re-tested as PUR-DC-05B-05B
PUR-DC-05B-05B	10/25/06	5	287.4	124.5	10.3%	112.8	–	–	–	P	Rip up Lift and recompact normally, high moisture noted at surface, change wet density upper limit	Retest of PUR-DC-05A-05A
PUR-DC-06-06	11/3/06	6	288.5	128.0	10.2%	114.3	–	–	–	P	Pass, Wet density range changed to 115pcf to 135pcf during TEM and FCR-01	
PUR-DC-07-07	11/3/06	7	289.3	127.5	9.5%	116.5	–	–	–	P	Perform passes in a cross/cross pattern until compacted	
PUR-DC-08-08	11/6/06	8	290.0	125.8	9.5%	114.9	–	–	–	P		
PUR-DC-09-09	11/6/06	9	290.8	126.9	9.5%	115.8	–	–	–	P		
PUR-DC-10-10	11/7/06	10	291.4	124.2	9.5%	113.4	–	–	–	P		
PUR-DC-11-11	11/7/06	11	292.6	125.5	10.7%	113.4	–	–	–	P		
PUR-DC-12-12	11/7/06	12	293.4	125.2	10.4%	113.4	–	–	–	P		
PUR-DC-13-01	11/15/06	1	284.6	125.8	8.7%	115.7	–	–	–	P	Perform 4 total passes. 2 in NS direction, 2 in EW. Vibrator on all passes	
PUR-DC-14-02	11/15/06	2	285.2	129.6	9.6%	118.3	–	–	–	P		
PUR-DC-15-02	11/16/06	2	285.0	128.4	10.1%	116.6	–	–	–	P		
PUR-DC-16-03	11/16/06	3	285.8	123.7	9.2%	113.3	–	–	–	P	Compaction test performed on edge of concrete lift. Concrete left 4' short of edge	
PUR-DC-17-04	11/16/06	4	286.7	124.6	9.8%	113.5	–	–	–	P		
PUR-DC-18-05	11/17/06	5	287.6	126.6	10.2%	114.8	–	–	–	P	Compaction test performed on edge of concrete lift. Concrete left 10' short of edge	
PUR-DC-19-06	11/20/06	6	288.7	129.9	8.6%	119.6	–	–	–	P		
PUR-DC-20-07	11/21/06	7	289.7	126.0	10.4%	114.1	–	–	–	P	Compaction test performed on edge of concrete lift. Concrete left 10' short of edge	
PUR-DC-21-08	11/21/06	8	290.7	127.2	8.3%	117.5	–	–	–	P		
PUR-DC-22-09	11/21/06	9	291.3	124.3	10.3%	112.7	–	–	–	P		
PUR-DC-23-01	11/29/06	1	285.0	120.1	9.8%	109.4	–	–	–	P		
PUR-DC-24-02	11/30/06	2	286.0	123.0	10.3%	111.5	–	–	–	P		
PUR-DC-28-03	12/1/06	3	286.8	119.2	7.7%	110.7	–	–	–	P	Compaction test performed on edge of concrete lift. Concrete left 4' short of edge	
PUR-DC-29-04	12/1/06	4	287.6	122.4	10.2%	111.0	–	–	–	P		
PUR-DC-30-05	12/4/06	5	288.7	124.6	9.6%	113.7	–	–	–	P	Compaction test performed on edge of concrete lift. Concrete left 4'-10' short of edge	
PUR-DC-31-06	12/8/06	6	289.3	128.8	9.3%	117.9	–	–	–	P		
PUR-DC-32-01	12/8/06	1	282.6	120.3	8.9%	110.4	–	–	–	P		
PUR-DC-33-02	12/8/06	2	283.7	128.4	10.3%	116.4	–	–	–	P		
PUR-DC-34-03	12/8/06	3	284.5	130.0	9.4%	118.9	–	–	–	P		
PUR-DC-35-04	12/8/06	4	285.1	119.1	9.9%	108.4	–	–	–	P	Survey of test location to be completed on 12/11/06	
PUR-DC-36-05	12/14/06	5	286.2	129.6	9.9%	117.9	–	–	–	P		
PUR-DC-37-06	12/14/06	6	287.1	128.2	8.7%	118.0	–	–	–	P		
PUR-DC-38-07	12/14/06	7	287.8	124.3	9.8%	113.2	–	–	–	P		
PUR-DC-39-08	12/15/06	8	289.1	124.8	11.0%	112.5	–	–	–	P	Note, compaction test suspected to be at high location due to uneven lift.	

Note: Samples collected as a retest for a failed sample are labelled as A,B, etc.
(Ex. Retest for PUR-DC-167 is PUR-DC-167A)

TABLE 3-9
PURITY OIL SALES SITE
ON-SITE DENSITY TESTING SUMMARY

Compaction ID	Date	Lift Number	Elevation (ft)	Wet Density (pcf)	Moisture (%)	Dry Density (pcf)	Applicable Proctor Dry Density (pcf)	Applicable Proctor Moisture (%)	Percent Compaction (%)	Pass or Fail	Final Observations	Notes
PUR-DC-40-09	12/15/06	9	289.3	129.0	9.9%	117.4	–	–	–	P		
PUR-DC-41-10	12/15/06	10	290.5	128.5	9.6%	117.3	–	–	–	P		
PUR-DC-42-11	12/18/06	11	291.5	129.0	9.7%	117.6	–	–	–	P		
PUR-DC-43-12	12/18/06	12	292.4	123.6	9.4%	113.0	–	–	–	P		
PUR-DC-44-07	12/19/06	7	289.8	123.9	8.9%	113.7	–	–	–	P	Compaction test performed on edge of concrete lift. Concrete left 4'-10' short of edge	
PUR-DC-45-08	12/19/06	8	291.0	116.4	9.6%	106.2	–	–	–	P		
PUR-DC-46-09	12/21/06	9	291.6	126.7	9.9%	115.3	–	–	–	P		
PUR-DC-47-09	12/21/06	9	291.9	124.3	9.5%	113.6	–	–	–	P		
PUR-DC-48-01	1/10/07	1	283.2	123.0	10.0%	111.8	–	–	–	P		
PUR-DC-49-02	1/10/07	2	284.3	125.4	10.9%	113.1	–	–	–	P		
PUR-DC-50-03	1/11/07	3	284.5	125.7	9.7%	114.6	–	–	–	P		
PUR-DC-51-04	1/11/07	4	285.8	121.0	9.8%	110.2	–	–	–	P		
PUR-DC-52-05	1/11/07	5	286.5	126.6	10.8%	114.2	–	–	–	P	Concrete Lift	
PUR-DC-53-06	1/12/07	6	287.6	128.2	9.7%	116.9	–	–	–	P		
PUR-DC-54-07	1/15/07	7	288.4	126.3	9.8%	115.0	–	–	–	P	Concrete Lift	
PUR-DC-55-08	1/16/07	8	289.3	124.9	10.3%	113.2	–	–	–	P		
PUR-DC-56-09	1/17/07	9	290.0	122.7	11.6%	109.9	–	–	–	P	Concrete Lift	
PUR-DC-57-10	1/17/07	10	289.9	122.8	9.8%	111.9	–	–	–	P		
PUR-DC-58-11	1/18/07	11	291.6	128.1	9.3%	117.2	–	–	–	P		
PUR-DC-59-12	1/18/07	12	292.7	128.8	10.4%	116.7	–	–	–	P		
PUR-DC-60-13	1/19/07	13	293.5	125.1	10.0%	113.7	–	–	–	P		
PUR-DC-61-14	1/19/07	14	294.4	122.5	9.8%	111.5	–	–	–	P		
PUR-DC-62-10	1/23/07	10	292.2	123.0	10.8%	111.0	–	–	–	P	4 total passes with roller in criss cross pattern, vibrator on for 2 passes	
PUR-DC-63-11	1/23/07	11	293.2	125.2	9.8%	114.0	–	–	–	P		
PUR-DC-64-12	1/24/07	12	293.7	129.6	9.4%	118.4	–	–	–	P		
PUR-DC-65-13	1/24/07	13	294.3	123.9	9.5%	113.1	–	–	–	P		
PUR-DC-66-14	1/25/07	14	295.2	126.9	10.3%	115.0	–	–	–	P		
PUR-DC-67-15	1/25/07	15	295.9	122.7	9.5%	112.0	–	–	–	P		
PUR-DC-68-16	1/26/07	16	296.5	121.3	10.0%	110.3	–	–	–	P		
PUR-DC-69-15	1/26/07	15	295.4	124.6	10.2%	113.1	–	–	–	P		
PUR-DC-70-16	1/31/07	16	296.2	127.8	10.3%	115.8	–	–	–	P		
PUR-DC-71-16	1/31/07	16	296.2	126.4	10.8%	114.3	–	–	–	P		
PUR-DC-72-10	2/1/07	10	292.7	128.2	11.7%	114.8	–	–	–	P		
PUR-DC-73-11	2/2/07	11	293.7	126.9	10.9%	114.4	–	–	–	P		
PUR-DC-74-11	2/2/07	11	293.7	126.4	10.2%	114.7	–	–	–	P		
PUR-DC-75-12	2/5/07	12	294.3	126.4	10.4%	114.5	–	–	–	P	Noticed minor pumping in lift-12	
PUR-DC-76-12	2/5/07	12	294.4	125.4	9.8%	114.4	–	–	–	P	Noticed minor pumping in lift-12	
PUR-DC-77-13	2/6/07	13	295.6	128.1	10.9%	115.5	–	–	–	P	Noticed minor pumping in lift-13	
PUR-DC-78-13	2/6/07	13	295.5	129.0	10.1%	117.2	–	–	–	P	Noticed minor pumping in lift-13	
PUR-DC-79-14	2/8/07	14	296.3	127.3	10.7%	115.1	–	–	–	F	[illegible] removed from a large area, replaced and re-compacted. PUR-DC-134-17 is representative of	
PUR-DC-80-14	2/8/07	14	296.4	132.4	9.1%	121.4	–	–	–	F	[illegible] removed from a large area, replaced and re-compacted. PUR-DC-134-17 is representative of	

Note: Samples collected as a retest for a failed sample are labelled as A,B, etc.
(Ex. Retest for PUR-DC-167 is PUR-DC-167A)

TABLE 3-9
PURITY OIL SALES SITE
ON-SITE DENSITY TESTING SUMMARY

Compaction ID	Date	Lift Number	Elevation (ft)	Wet Density (pcf)	Moisture (%)	Dry Density (pcf)	Applicable Proctor Dry Density (pcf)	Applicable Proctor Moisture (%)	Percent Compaction (%)	Pass or Fail	Final Observations	Notes
PUR-DC-81-01	2/9/07	1	282.5	119.7	8.8%	109.9	–	–	–	P	Portion of drive cylinder in excavation floor bottom.	
PUR-DC-82-02	2/13/07	2	283.4	126.4	10.3%	114.6	–	–	–	P	Addition of overburden apparently controls excessive pumping.	
PUR-DC-83-03	2/14/07	3	284.3	132.9	8.8%	122.2	–	–	–	P	Concrete Lift	
PUR-DC-84-04	2/15/07	4	284.8	129.4	10.1%	117.5	–	–	–	P		
PUR-DC-85-05	2/15/07	5	286.1	134.2	9.7%	122.3	–	–	–	P	Concrete Lift	
PUR-DC-86-06	2/20/07	6	286.8	129.6	8.6%	119.3	–	–	–	P		
PUR-DC-87-06	2/20/07	6	286.8	126.6	7.8%	117.4	–	–	–	P		
PUR-DC-88-07	2/22/07	7	287.5	124.0	8.5%	114.3	–	–	–	P	Final Concrete Lift	
PUR-DC-89-08	3/1/07	8	288.4	122.2	10.3%	110.8	–	–	–	P		
PUR-DC-90-09	3/5/07	9	289.3	126.1	9.0%	115.7	–	–	–	P		
PUR-DC-91-10	3/6/07	10	290.0	127.2	8.6%	117.1	–	–	–	P		
PUR-DC-92-10	3/6/07	10	289.9	127.5	9.5%	116.4	–	–	–	P		
PUR-DC-93-11	3/8/07	11	290.8	121.8	9.5%	111.3	–	–	–	P		
PUR-DC-94-11	3/8/07	11	290.8	123.6	9.0%	113.3	–	–	–	P		
PUR-DC-95-12	3/12/07	12	291.6	124.9	8.2%	115.5	–	–	–	P		
PUR-DC-96-12	3/12/07	12	291.4	123.7	8.4%	114.1	–	–	–	P		
PUR-DC-97-13	3/14/07	13	292.4	127.2	9.4%	116.3	–	–	–	P		
PUR-DC-98-13	3/14/07	13	292.2	127.6	9.6%	116.4	–	–	–	P		
PUR-DC-99-14	3/16/07	14	292.9	123.7	9.0%	113.5	–	–	–	P		
PUR-DC-100-14	3/16/07	14	293.0	122.7	8.5%	113.1	–	–	–	P		
PUR-DC-101-15	3/22/07	15	294.0	125.5	7.3%	117.0	–	–	–	P		
PUR-DC-102-15	3/22/07	15	293.9	123.9	8.2%	114.5	–	–	–	P		
PUR-DC-103-16	3/23/07	16	294.6	126.1	7.6%	117.2	–	–	–	P		
PUR-DC-104-16	3/23/07	16	294.5	116.7	8.8%	107.3	–	–	–	P		
PUR-DC-105-17	3/26/07	17	295.4	113.8	9.6%	103.8	–	–	–	F	Lift was rerolled, retested as PUR-DC-105A-17	
PUR-DC-105A-17	3/26/07	17	295.2	128.1	9.5%	117.0	–	–	–	P	Retest for PUR-DC-105-17	
PUR-DC-106-18	3/28/07	18	296.1	128.2	9.0%	117.6	–	–	–	P		
PUR-DC-107-18	3/28/07	18	295.8	130.2	8.8%	119.9	–	–	–	P	Neutralized Fill	
PUR-DC-108-19	3/29/07	19	296.8	121.8	8.5%	112.3	–	–	–	P		
PUR-DC-109-19	3/29/07	19	296.6	127.2	9.6%	116.0	–	–	–	P		
PUR-DC-116-19	4/10/07	19	297.2	122.5	8.2%	113.3	–	–	–	P	Neutralized Fill	
PUR-DC-117-19	4/10/07	19	297.0	126.1	8.6%	116.1	–	–	–	P	Neutralized Fill	
PUR-DC-118-20	4/11/07	20	298.1	128.7	9.1%	117.9	–	–	–	P	Neutralized Fill	
PUR-DC-119-20	4/11/07	20	298.4	126.1	8.3%	116.5	–	–	–	P	Neutralized Fill	
PUR-DC-120-21	4/12/07	21	299.2	126.0	9.2%	115.4	–	–	–	P	Neutralized Fill	
PUR-DC-121-21	4/12/07	21	299.2	121.9	8.8%	112.1	–	–	–	P	Neutralized Fill	
PUR-DC-122-16A	4/16/07	16A	295.2	129.0	9.7%	117.6	–	–	–	P	Center of Lift 16 was cut down 1' bgs due to excessive pumping. *Survey data corrupted, location approximated*	
PUR-DC-123-17	4/16/07	17	296.6	129.4	7.6%	120.2	–	–	–	P	*Survey data corrupted, location approximated*	
PUR-DC-124-18	4/16/07	18	297.8	127.9	8.0%	118.5	–	–	–	P	*Survey data corrupted, location approximated*	
PUR-DC-125-19	4/17/07	19	298.8	121.9	9.1%	111.8	–	–	–	P	*Survey data corrupted, location approximated*	
PUR-DC-126-20	4/18/07	20	299.4	126.7	9.5%	115.8	–	–	–	P	Run loader with full 4 yard bucket on top of lift, minimal deflection noticed	

Note: Samples collected as a retest for a failed sample are labelled as A,B, etc.
(Ex. Retest for PUR-DC-167 is PUR-DC-167A)

TABLE 3-9
PURITY OIL SALES SITE
ON-SITE DENSITY TESTING SUMMARY

Compaction ID	Date	Lift Number	Elevation (ft)	Wet Density (pcf)	Moisture (%)	Dry Density (pcf)	Applicable Proctor Dry Density (pcf)	Applicable Proctor Moisture (%)	Percent Compaction (%)	Pass or Fail	Final Observations	Notes
PUR-DC-127-01	4/27/07	1	288.5	130.2	8.8%	119.7	–	–	–	P	Neutralized Fill	
PUR-DC-128-01	4/30/07	1	288.7	132.0	7.1%	123.2	–	–	–	P	Neutralized Fill	
PUR-DC-129-02	4/30/07	2	289.7	133.9	8.1%	123.9	–	–	–	P	Neutralized Fill	
PUR-DC-130-03	4/30/07	3	290.0	130.3	7.6%	121.1	–	–	–	P	Neutralized Fill	
PUR-DC-131-04	4/30/07	4	290.9	129.9	10.6%	117.5	–	–	–	P	Neutralized Fill	
PUR-DC-132-05	5/1/07	5	291.6	128.5	8.3%	118.7	–	–	–	P	Neutralized Fill	
PUR-DC-133-06	5/1/07	6	292.2	132.7	8.5%	122.3	–	–	–	P	Neutralized Fill	
PUR-DC-134-01	5/2/07	1	288.5	131.1	6.1%	123.5	–	–	–	F	Neutralized Fill, Low water content	Area re-compacted and re-tested as PUR-DC-134A-01
PUR-DC-134A-01	5/2/07	1	288.6	128.7	8.8%	118.3	–	–	–	P	Neutralized Fill, Retest to confirm satisfactory water content	Retest of PUR-DC-134-01
PUR-DC-135-02	5/2/07	2	289.3	129.6	9.4%	118.5	–	–	–	P	Neutralized Fill	
PUR-DC-136-03	5/2/07	3	289.8	128.1	8.8%	117.7	–	–	–	P	Neutralized Fill	
PUR-DC-137-04	5/2/07	4	290.5	128.2	10.5%	116.0	–	–	–	P	Neutralized Fill	
PUR-DC-138-05	5/3/07	5	291.6	133.9	9.4%	122.4	–	–	–	P	Neutralized Fill	
PUR-DC-140-01	6/8/07	1	281.0	128.6	10.3%	114.8	–	–	–	P	Neutralized Fill	
PUR-DC-141-01	6/8/07	1	284.4	121.6	9.8%	110.7	–	–	–	P	Neutralized Fill	
PUR-DC-142-02	6/12/07	2	281.8	118.5	9.7%	106.2	–	–	–	P	Neutralized Fill	
PUR-DC-143-03	6/12/07	3	282.6	123.4	9.4%	112.8	–	–	–	P	Neutralized Fill	
PUR-DC-144-04	6/12/07	4	283.4	122.2	9.2%	111.9	–	–	–	P	Neutralized Fill	
PUR-DC-145-05	6/13/07	5	284.2	121.0	9.2%	110.8	–	–	–	P	Neutralized Fill	
PUR-DC-146-06	6/13/07	6	284.8	122.3	8.9%	112.3	–	–	–	P	Neutralized Fill	
PUR-DC-147-07	6/13/07	7	285.8	119.5	9.1%	109.5	–	–	–	P	Neutralized Fill	
PUR-DC-148-08	6/14/07	8	286.8	125.0	8.9%	114.8	–	–	–	P	Neutralized Fill	
PUR-DC-149-08	6/14/07	8	286.6	116.8	10.4%	105.8	–	–	–	P	Neutralized Fill	
PUR-DC-150-09	6/15/07	9	287.4	124.5	9.1%	114.1	–	–	–	P	Neutralized Fill	
PUR-DC-151-10	6/15/07	10	288.6	115.3	10.5%	104.3	–	–	–	P	Neutralized Fill	
PUR-DC-152-11	6/18/07	11	289.1	111.4	9.0%	102.2	–	–	–	F	Vibrator Roller was not on high and machine not in low gear	Area re-compacted and re-tested as PUR-DC-152A-11
PUR-DC-152A-11	6/18/07	11	289.2	114.4	8.4%	105.5	–	–	–	F	Vibrator Roller was not on high and machine not in low gear. retest of PUR-DC-152-11	Area re-compacted and re-tested as PUR-DC-152B-11
PUR-DC-152B-11	6/18/07	11	289.2	125.6	9.4%	114.8	–	–	–	P	Compaction test passed after Roller turned on vibratorwheel to high and put machine in low gear	Retest of PUR-DC-152A-11
PUR-DC-153-12	6/19/07	12	289.6	115.0	8.2%	106.3	–	–	–	P		
PUR-DC-164-13	6/27/07	13	290.3	118.6	9.8%	108.0	–	–	–	P		
PUR-DC-168-01	6/29/07	1	286.5	117.1	9.8%	106.6	–	–	–	P		
PUR-DC-169-02	6/29/07	2	287.3	128.2	9.7%	116.9	–	–	–	P		
PUR-DC-170-03	6/29/07	3	288.2	121.3	9.2%	111.1	–	–	–	P		
PUR-DC-171-14	7/2/07	14	291.3	121.3	9.2%	111.1	–	–	–	P		
PUR-DC-172-04	7/2/07	4	289.2	124.4	8.6%	114.5	–	–	–	P		
PUR-DC-173-05	7/2/07	5	290.2	122.9	8.8%	113.2	–	–	–	P		
PUR-DC-174-06	7/2/07	6	291.0	122.0	7.9%	113.1	–	–	–	P		
PUR-DC-175-07	7/2/07	7	291.7	126.0	11.3%	113.2	–	–	–	P		
PUR-DC-178-15	7/3/07	15	292.5	119.4	9.2%	109.3	–	–	–	P		
PUR-DC-179-16	7/5/07	16	293.0	122.7	10.2%	111.3	–	–	–	P		
PUR-DC-180-13	7/5/07	13	290.7	123.6	9.8%	112.6	–	–	–	P		

Note: Samples collected as a retest for a failed sample are labelled as A,B, etc.
(Ex. Retest for PUR-DC-167 is PUR-DC-167A)

TABLE 3-9
PURITY OIL SALES SITE
ON-SITE DENSITY TESTING SUMMARY

Compaction ID	Date	Lift Number	Elevation (ft)	Wet Density (pcf)	Moisture (%)	Dry Density (pcf)	Applicable Proctor Dry Density (pcf)	Applicable Proctor Moisture (%)	Percent Compaction (%)	Pass or Fail	Final Observations	Notes
PUR-DC-181-15	7/6/07	15	292.0	125.7	9.3%	115.0	–	–	–	P		
PUR-DC-182-13	7/6/07	13	289.1	120.8	7.6%	112.3	–	–	–	P		
PUR-DC-183-17	7/6/07	17	294.0	120.1	10.6%	108.6	–	–	–	P		
PUR-DC-184-15	7/6/07	15	291.3	127.2	11.9%	113.7	–	–	–	P		
PUR-DC-184-15	7/6/07	15	291.3	127.2	11.9%	113.7	–	–	–	P		
PUR-DC-185-18	7/9/07	18	294.8	128.6	8.2%	117.0	–	–	–	P		
PUR-DC-186-18	7/9/07	18	294.5	124.0	7.8%	115.0	–	–	–	P		
PUR-DC-187-19	7/10/07	19	295.5	118.0	9.3%	108.0	–	–	–	P		
PUR-DC-188-19	7/10/07	19	295.3	122.6	7.6%	113.9	–	–	–	P		
PUR-DC-189-20	7/11/07	20	296.4	122.6	8.1%	113.4	–	–	–	P		
PUR-DC-190-20	7/11/07	20	296.3	123.2	7.7%	114.4	–	–	–	P		
PUR-DC-191-21	7/12/07	21	297.1	118.3	8.0%	109.5	–	–	–	P		
PUR-DC-192-01	7/12/07	1	296.5	122.7	8.4%	113.2	–	–	–	P		
PUR-DC-193-02	7/12/07	2	NA	121.3	9.8%	110.5	–	–	–	P	Survey not available	
PUR-DC-194-22	7/19/07	22	NA	122.4	7.4%	113.9	–	–	–	P	Moisture was added in following placement of neutralized backfill. *Survey incomplete*	
PUR-DC-195-22	7/19/07	22	298.1	121.2	8.2%	112.0	–	–	–	P		
PUR-DC-196-22	7/19/07	22	298.4	125.4	10.8%	113.2	–	–	–	P		
PUR-DC-197-23	7/20/07	23	298.6	104.9	10.0%	95.4	–	–	–	F	Recompacted. moisture OK	
PUR-DC-197A-23	7/20/07	23	298.8	123.0	9.3%	112.5	–	–	–	P		
PUR-DC-198-23	7/23/07	23	298.8	116.7	8.2%	107.8	–	–	–	P		
PUR-DC-199-24	7/23/07	24	299.5	115.2	8.8%	105.8	–	–	–	P	Area reroiled following compaction test	
PUR-DC-200-24	7/23/07	24	299.4	119.7	7.9%	110.9	–	–	–	P		
PUR-DC-201-25	7/23/07	25	300.3	121.3	7.5%	112.8	–	–	–	P		
PUR-DC-202-25	7/24/07	25	300.3	119.7	7.7%	111.1	–	–	–	P		
PUR-DC-203-26	7/24/07	26	300.7	123.0	8.7%	113.2	–	–	–	P		
PUR-DC-204-26	7/24/07	26	300.8	122.4	8.9%	112.3	–	–	–	P		
PUR-DC-205-04	7/25/07	4		127.7	10.2%	115.8	–	–	–	P		
PUR-DC-206-03	7/25/07	3		128.3	8.5%	118.2	–	–	–	P		
PUR-DC-211	8/2/07		293.9	117.5	9.7%	107.1	–	–	–	P		
PUR-DC-212-12A	8/2/07	12A	293.8	118.1	8.7%	108.6	–	–	–	P		
PUR-DC-213-13A	8/2/07	13A	294.5	125.6	8.0%	115.5	–	–	–	P		
PUR-DC-214	8/6/07	14A	295.4	117.7	8.5%	108.4	–	–	–	P		
PUR-DC-215-12A	8/6/07	12A	291.2	126.7	9.6%	115.6	–	–	–	P		
PUR-DC-216-12A	8/6/07	12A	284.9	124.7	8.4%	115.0	–	–	–	P		
PUR-DC-217-15	8/6/07	15	296.3	120.1	8.9%	110.2	–	–	–	P		
PUR-DC-218-12A	8/6/07	12A	298.6	125.2	7.8%	116.1	–	–	–	P		
PUR-DC-219-12A	8/6/07	12A	292.5	124.1	8.2%	116.4	–	–	–	P		
PUR-DC-220-13	8/7/07	13	293.3	125.8	9.5%	114.8	–	–	–	P		
PUR-DC-221-13	8/7/07	13	293.4	117.8	7.2%	109.8	–	–	–	P		
PUR-DC-222-14	8/7/07	14	294.0	122.2	8.9%	112.2	–	–	–	P		
PUR-DC-223-14	8/7/07	14	294.6	117.8	7.8%	109.4	–	–	–	P		

Note: Samples collected as a retest for a failed sample are labelled as A,B, etc.
(Ex. Retest for PUR-DC-167 is PUR-DC-167A)

TABLE 3-9
PURITY OIL SALES SITE
ON-SITE DENSITY TESTING SUMMARY

Compaction ID	Date	Lift Number	Elevation (ft)	Wet Density (pcf)	Moisture (%)	Dry Density (pcf)	Applicable Proctor Dry Density (pcf)	Applicable Proctor Moisture (%)	Percent Compaction (%)	Pass or Fail*	Final Observations	Notes
PUR-DC-224-15	8/7/07	15	289.6	117.5	8.3%	108.4	–	–	–	P		
PUR-DC-225-15	8/8/07	15	295.1	121.4	8.3%	112.0	–	–	–	P		
PUR-DC-226-16	8/8/07	16	295.8	116.3	7.5%	108.1	–	–	–	P		
PUR-DC-227	8/8/07	15	295.4	113.9	8.6%	104.8	–	–	–	F	Area recompacted, retested as PUR-DC-227A	
PUR-DC-227A	8/8/07	15	295.7	119.3	8.3%	110.1	–	–	–	P	Retest for PUR-DC-227	
PUR-DC-228-16	8/8/07	16	296.0	118.6	9.1%	108.7	–	–	–	P		
PUR-DC-229-17	8/8/07	17	296.8	121.3	8.6%	111.6	–	–	–	P		
PUR-DC-230-16	8/9/07	16	296.2	115.1	8.0%	106.5	–	–	–	P		
PUR-DC-231-17	8/9/07	17	296.7	116.3	6.6%	109.0	–	–	–	P		
PUR-DC-232-17	8/9/07	17	285.5	123.1	9.6%	112.3	–	–	–	P		
PUR-DC-233A-17	8/10/07	17	296.6	119.2	8.2%	110.1	–	–	–	P		
PUR-DC-234-17	8/10/07	17	296.8	125.0	11.1%	112.5	–	–	–	P		
PUR-DC-235-18	8/10/07	18	297.7	113.0	7.1%	105.5	–	–	–	F	Retested as PUR-DC-235A-18	
PUR-DC-235A-18	8/13/07	18	297.7	120.2	6.9%	120.2	–	–	–	F	Retest of PUR-DC-235-18	Retested as PUR-DC-235B-18
PUR-DC-235B-18	8/13/07	18	297.7	127.4	9.3%	116.5	–	–	–	P	Retest of PUR-DC-235A-18	
PUR-DC-236-18	8/13/07	18	297.7	120.1	9.2%	109.9	–	–	–	P		
PUR-DC-238-18	8/13/07	18	297.5	116.3	8.1%	107.5	–	–	–	P		
PUR-DC-240-18	8/14/07	18	297.6	129.5	9.5%	118.2	–	–	–	P		
PUR-DC-241-18	8/14/07	18	297.7	119.3	8.7%	109.7	–	–	–	P		
PUR-DC-242-19	8/14/07	19	298.6	120.8	8.8%	111.1	–	–	–	P		
PUR-DC-243-19	8/14/07	19	298.4	121.3	9.7%	110.5	–	–	–	P		
PUR-DC-244-19	8/14/07	19	298.5	116.0	9.2%	106.2	–	–	–	P		
PUR-DC-245-19	8/14/07	19	298.4	117.2	8.2%	108.3	–	–	–	P		
PUR-DC-246-20	8/14/07	20	299.2	125.8	8.3%	116.1	–	–	–	P		
PUR-DC-247-20	8/15/07	20	299.4	124.1	8.6%	114.2	–	–	–	P		
PUR-DC-248-20	8/15/07	20	299.4	122.5	8.0%	113.4	–	–	–	P		
PUR-DC-249-21	8/15/07	21	300.2	121.7	8.7%	111.9	–	–	–	P		
PUR-DC-250-21	8/15/07	21	300.1	127.4	9.9%	115.9	–	–	–	P		
PUR-DC-251-21	8/15/07	21	300.1	118.7	9.4%	108.5	–	–	–	P	*Incomplete survey, elevation and location approximated*	
PUR-DC-252-21	8/16/07	21	300.1	120.2	8.6%	110.6	–	–	–	P	*Incomplete survey, elevation and location approximated*	
PUR-DC-253-22	8/17/07	22	300.8	124.9	8.2%	115.4	–	–	–	P		
PUR-DC-254-22	8/20/07	22	300.7	128.5	7.4%	119.7	–	–	–	P		
PUR-DC-255-22	8/20/07	22	300.8	122.2	6.7%	114.4	–	–	–	F	Retested as PUR-DC-255A-22	
PUR-DC-255A-22	8/21/07	22	300.6	122.5	9.1%	112.3	–	–	–	P	Retest for PUR-DC-255-22	
PUR-DC-257-23	8/21/07	23	301.6	119.5	9.6%	109.0	–	–	–	P		
PUR-DC-258-23	8/21/07	23	301.5	134.8	10.0%	122.5	–	–	–	P		
PUR-DC-261-23	8/22/07	23	301.6	115.0	7.4%	107.1	–	–	–	P	Area was rerolled following compaction test	
PUR-DC-274-24	9/6/2007	24	301.7	117.3	7.7%	108.9	–	–	–	P		
PUR-DC-297-25	9/18/07	25	303.0	112.5	4.5%	107.6	–	–	–	F	Test to dry and low density, grids I through M scarified, added water, and recompacted	
PUR-DC-297A-25	9/19/07	25	303.1	125.5	7.2%	117.1	–	–	–	P		
PUR-DC-298-26	9/24/07	26	303.0	118.0	4.1%	113.5	–	–	–	F	Entire crown lift failed, thus it was ripped, watered, and recompacted. Retested as PUR-DC-298A-26	

Note: Samples collected as a retest for a failed sample are labelled as A,B, etc.
(Ex. Retest for PUR-DC-167 is PUR-DC-167A)

TABLE 3-9
PURITY OIL SALES SITE
ON-SITE DENSITY TESTING SUMMARY

Compaction ID	Date	Lift Number	Elevation (ft)	Wet Density (pcf)	Moisture (%)	Dry Density (pcf)	Applicable Proctor Dry Density (pcf)	Applicable Proctor Moisture (%)	Percent Compaction (%)	Pass or Fail	Final Observations	Notes
PUR-DC-298A-26	9/24/07	26	303.3	117.3	4.7%	112.0	–	–	–	F	Retest for PUR-DC-298-26. North side of lift has sufficient water. South side to be ripped, watered, and recompacted. Retested as PUR-DC-298B-26	
PUR-DC-298B-26	9/25/07	26	303.3	131.1	8.2%	121.1	–	–	–	P	Retest for PUR-DC-298A-26. South side of crown lift ripped up, watered, recompacted. *Location and elevation approximated*	
PUR-DC-299-26	9/24/07	26	303.6	120.3	7.1%	112.3	–	–	–	P		
PUR-DC-300-27	9/26/07	27	304.2	131.4	8.8%	120.6	–	–	–	P		
PUR-TP28-DC-01-01	11/13/06	1	281.5	125.8	11.0%	113.3	–	–	–	P	Cut and sloped in sides of test pit. 4 passes total with vibrator	
PUR-TP28-DC-02-02	11/13/06	2	282.5	120.9	10.5%	109.4	–	–	–	P		
PUR-TP28-DC-03-03	11/13/06	3	283.5	126.1	8.6%	116.1	–	–	–	P		
PUR-TP28-DC-04-04	11/14/06	4	284.2	126.3	8.9%	115.9	–	–	–	P		
PUR-TP28-DC-05-05	11/14/06	5	285.1	128.4	10.2%	116.5	–	–	–	P		
PUR-TP-48-DC-01-01	6/8/07	1	283.9	121.1	10.0%	110.1	–	–	–	P		
PUR-TP-48-DC-02-02	6/8/07	2	284.7	123.4	10.0%	112.2	–	–	–	P		
PUR-TP-49-DC-01-01	6/8/07	1	283.7	120.7	10.0%	109.7	–	–	–	P		
PUR-TP-49-DC-02-02	6/8/07	2	284.5	120.9	9.2%	110.7	–	–	–	P		
PUR-TP-50-DC-01-01	6/8/07	1	285.6	128.4	9.6%	117.2	–	–	–	P		
PUR-TP-50-DC-02-02	6/8/07	2	284.6	119.7	7.6%	111.2	–	–	–	P		
PUR-TP-51-DC-01-01	6/8/07	1	284.0	124.6	10.2%	113.2	–	–	–	P		
PUR-TP51-DC-02-02	6/12/07	2	284.8	120.0	9.8%	109.3	–	–	–	P		
PUR-TP-52-DC-01-01	6/8/07	1	284.8	121.0	10.2%	109.8	–	–	–	P		
PUR-TP52-DC-02-02	6/12/07	2	284.8	120.3	8.5%	110.9	–	–	–	P		
PUR-TP-53-DC-01-01	6/8/07	1	282.7	121.9	10.9%	109.9	–	–	–	P		
PUR-TP53-DC-02-02	6/12/07	2	283.5	115.6	9.1%	106.0	–	–	–	P		
TP08-DC-01-01	4/27/07	1	289.0	127.9	8.8%	117.6	–	–	–	P		
TP08-DC-02-03	4/27/07	3	290.1	124.3	9.5%	113.5	–	–	–	P		
TP09-DC-01-03	5/4/07	3	289.4	134.7	9.1%	123.5	–	–	–	P		
TP09-DC-02-05	5/4/07	5	290.9	131.5	10.9%	118.6	–	–	–	P		
TOTAL	**269**									**17**		
MIN	–	–	–	**104.9**	**4.1%**	**95.4**	–	–	N/A	–		
MAX	–	–	–	**134.8**	**11.9%**	**123.9**	–	–	N/A	–		
AVERAGE	–	–	–	**123.8**	**9.1%**	**113.5**	–	–	N/A	–		
Clean Backfill Density Test Results												
PUR-DC-110-01	4/5/07	1	285.5	131.4	8.8%	120.8	126.7	6.5%	95.3%	P	Clean Fill	
PUR-DC-111-01	4/5/07	1	285.8	133.2	8.8%	122.4	126.7	6.5%	96.6%	P	Clean Fill	
PUR-DC-112-04	4/5/07	4	287.0	123.6	6.8%	115.9	126.7	6.5%	91.5%	P	Clean Fill	
PUR-DC-113-05	4/5/07	5	288.5	128.1	6.4%	120.3	126.7	6.5%	95.0%	P	Clean Fill	
PUR-DC-114-08	4/6/07	8	288.2	119.4	6.8%	111.8	126.7	6.5%	88.2%	F	Clean Fill	Area re-compacted and re-tested as PUR-DC-114A-08
PUR-DC-114A-08	4/6/07	8	287.9	128.9	6.9%	118.7	126.7	6.5%	93.7%	P	Clean Fill, rerolled lift	Retest for PUR-DC-114-08
PUR-DC-115-01	4/6/07	1	285.3	122.7	6.3%	115.4	126.7	6.5%	91.0%	P	Clean Fill	
PUR-DC-139-06	5/3/07	6	292.5	131.8	9.3%	120.6	126.7	6.5%	95.2%	P	Clean Fill	
PUR-DC-154-01	6/21/07	1	288.0	132.0	9.7%	120.3	122.7	9.2%	98.1%	P	Clean fill	
PUR-DC-155-02	6/21/07	2	286.7	121.0	8.3%	111.7	122.7	9.2%	91.1%	P	Clean fill	
PUR-DC-156-03	6/22/07	3	287.6	126.2	8.3%	116.5	122.7	9.2%	95.0%	P	Clean fill	

Note: Samples collected as a retest for a failed sample are labelled as A,B, etc.
(Ex. Retest for PUR-DC-167 is PUR-DC-167A)

TABLE 3-9
PURITY OIL SALES SITE
ON-SITE DENSITY TESTING SUMMARY

Compaction ID	Date	Lift Number	Elevation (ft)	Wet Density (pcf)	Moisture (%)	Dry Density (pcf)	Applicable Proctor Dry Density (pcf)	Applicable Proctor Moisture (%)	Percent Compaction (%)	Pass or Fail	Final Observations	Notes
PUR-DC-157-04	6/22/07	4	287.9	121.6	7.3%	113.3	122.7	9.2%	92.4%	P	Clean fill	
PUR-DC-158-05	6/22/07	5	288.7	122.1	7.5%	113.6	122.7	9.2%	92.6%	P	Clean fill	
PUR-DC-159-06	6/22/07	6	289.6	118.8	6.1%	112.0	122.7	9.2%	91.3%	P	Water was added to lift and then rerolled. After moisture was confirmed to increase, lift was passed	
PUR-DC-160-01	6/25/07	1	284.3	120.1	5.7%	113.6	122.7	9.2%	92.6%	F	Density sample was very dry of optimum, this follow the 9.2% curve. Density exceeded +/- 3%	Area re-compacted and re-tested as PUR-DC-160A-01
PUR-DC-160A-01	6/25/07	1	284.2	119.5	5.7%	113.1	122.7	9.2%	92.1%	F	Density sample was very dry of optimum, this follow the 9.2% curve. Density exceeded +/- 3%	Area re-compacted and re-tested as PUR-DC-160B-01
PUR-DC-160B-01	6/25/07	1	284.4	126.0	8.3%	116.3	122.7	9.2%	94.8%	P	Clean Fill	Retest of PUR-DC-160A-01
PUR-DC-161-02	6/25/07	2	285.0	121.0	6.2%	113.9	122.7	9.2%	92.9%	P	Clean Fill	
PUR-DC-162-03	6/25/07	3	285.0	126.4	7.2%	117.9	122.7	9.2%	96.1%	P	Clean Fill	
PUR-DC-163-04	6/26/07	4	285.7	125.7	7.7%	116.7	122.7	9.2%	95.1%	P	Clean Fill	
PUR-DC-165-05	6/27/07	5	286.4	121.8	5.3%	115.7	126.7	6.5%	91.3%	P	Clean Fill	
PUR-DC-166-06	6/28/07	6	287.4	122.7	5.7%	116.1	126.7	6.5%	91.6%	P	Clean Fill	
PUR-DC-167-07	6/29/07	7	287.9	120.1	5.7%	113.6	126.7	6.5%	89.7%	F	Clean Fill	Area re-compacted and re-tested as PUR-DC-167A-07
PUR-DC-167A-07	6/29/07	7	287.8	121.9	6.1%	114.9	126.7	6.5%	90.7%	P	Clean Fill	Retest of PUR-DC-167-07
PUR-DC-176-08	7/2/07	8	293.1	124.6	5.7%	117.9	126.7	6.5%	93.0%	P	Clean Fill	
PUR-DC-177-04	7/3/07	4	292.4	127.5	6.7%	119.5	126.7	6.5%	94.3%	P	Clean Fill	
PUR-DC-208-02	7/31/07	2	287.8	124.0	7.3%	115.5	122.7	9.2%	94.1%	P	Clean Fill	
PUR-DC-209-03	7/31/07	3	288.7	126.1	7.3%	117.5	122.7	9.2%	95.8%	P	Clean Fill	
PUR-DC-210-04	7/31/07	4	289.4	128.8	9.9%	117.1	122.7	9.2%	95.4%	P	Clean Fill	
PUR-DC-256-01	8/21/07	1	287.3	121.6	6.3%	114.4	127.0	8.0%	90.1%	P	Clean Fill	
PUR-DC-259-02	8/22/07	2	NA	126.3	8.1%	116.8	127.0	8.0%	92.0%	P	*Clean Fill. Survey incomplete, location approximated*	
PUR-DC-260-03	8/22/07	3	287.9	128.0	10.3%	114.3	127.0	8.0%	90.0%	P	Clean Fill	
PUR-DC-262-04	8/23/07	4	289.4	130.0	7.6%	120.8	127.0	8.0%	95.1%	P	Clean Fill	
PUR-DC-263-04	8/23/07	4	289.4	135.9	10.9%	122.5	127.0	8.0%	96.5%	P	Clean Fill	
PUR-DC-264-02	8/24/07	2	290.1	135.0	8.3%	124.6	127.0	8.0%	98.1%	P	*Clean fill, survey incomplete, location and elevation approximated*	
PUR-DC-265-04	8/24/07	4	291.5	132.6	10.0%	120.5	127.0	8.0%	94.9%	P	*Clean fill, survey incomplete, location and elevation approximated*	
PUR-DC-266-01	8/24/07	1	286.2	134.2	10.2%	121.8	127.0	8.0%	95.9%	P	Clean Fill	
PUR-DC-267-01	8/24/07	1	289.0	128.4	7.5%	119.4	127.0	8.0%	94.0%	P	Clean Fill	
PUR-DC-268-02	8/27/07	2	285.2	133.8	8.6%	123.2	127.0	8.0%	97.0%	P	Clean Fill	
PUR-DC-269-03	8/27/07	3	288.9	128.2	5.5%	121.6	127.0	8.0%	95.7%	P		
PUR-DC-270-04	8/28/07	4	287.2	129.6	9.7%	118.1	127.0	8.0%	93.0%	P		
PUR-DC-271-05	8/28/07	5	287.7	127.6	7.7%	118.5	127.0	8.0%	93.3%	P		
PUR-DC-272-06	8/29/07	6	288.3	126.3	9.2%	115.6	127.0	8.0%	91.1%	P	Clean Fill	
PUR-DC-273-07	8/29/07	7	289.2	128.1	10.1%	116.3	127.0	8.0%	91.6%	P	Clean Fill	
PUR-DC-275-03	9/7/07	3	291.9	125.5	8.7%	115.5	127.0	8.0%	90.9%	P	Clean fill, density test sample was near optimum.	
PUR-DC-276-05	9/10/07	5	287.6	120.7	7.1%	112.7	122.7	9.2%	91.8%	P		
PUR-DC-277-06	9/11/07	6	288.2	125.8	9.1%	115.3	122.7	9.2%	94.0%	P		
PUR-DC-278-02	9/11/07	2	287.9	126.7	9.3%	115.9	122.7	9.2%	94.5%	P		
PUR-DC-279-01	9/12/07	1	287.0	128.6	9.1%	116.0	127.0	8.0%	91.3%	P		
PUR-DC-280-06	9/12/07	6	290.7	131.5	8.2%	121.6	127.0	8.0%	95.7%	P	*Elevation and location approximated*	
PUR-DC-281-06	9/12/07	6	290.9	129.1	10.1%	117.3	127.0	8.0%	92.4%	P	Test sample visually wet of optimum	
PUR-DC-282-01	9/12/07	1	288.8	133.8	10.2%	121.5	127.0	8.0%	95.7%	P	Test sample visually wet of optimum	

Note: Samples collected as a retest for a failed sample are labelled as A,B, etc.
(Ex. Retest for PUR-DC-167 is PUR-DC-167A)

TABLE 3-9
PURITY OIL SALES SITE
ON-SITE DENSITY TESTING SUMMARY

Compaction ID	Date	Lift Number	Elevation (ft)	Wet Density (pcf)	Moisture (%)	Dry Density (pcf)	Applicable Proctor Dry Density (pcf)	Applicable Proctor Moisture (%)	Percent Compaction (%)	Pass or Fail*	Final Observations	Notes
PUR-DC-283-01	9/12/07	1	287.2	128.1	9.8%	116.7	127.0	8.0%	91.9%	P	*Elevation and location approximated*	
PUR-DC-284-04	9/12/07	4	287.6	133.0	9.2%	121.8	127.0	8.0%	95.9%	P		
PUR-DC-285-02	9/13/07	2	287.9	126.4	10.2%	114.6	127.0	8.0%	90.3%	P	*Elevation and location approximated*	
PUR-DC-286-03	9/13/07	3	288.5	131.2	9.6%	119.7	127.0	8.0%	94.4%	P	*Elevation and location approximated*	
PUR-DC-287-05	9/13/07	5	288.1	126.0	7.7%	116.9	127.0	8.0%	92.1%	P		
PUR-DC-288-05	9/13/07	5	289.8	130.5	10.5%	118.1	127.0	8.0%	93.0%	P	Test sample visually wet of optimum. *Elevation and location approximated*	
PUR-DC-289-07	9/13/07	7	291.1	126.6	9.2%	115.9	127.0	8.0%	91.2%	P	*Elevation and location approximated*	
PUR-DC-290-08	9/14/07	8	291.7	128.1	7.3%	119.4	127.0	8.0%	94.0%	P	*Elevation and location approximated*	
PUR-DC-291-01	9/14/07	1	289.7	125.7	9.3%	115.0	127.0	8.0%	90.5%	P		
PUR-DC-292-02	9/14/07	2	291.0	127.5	8.1%	117.9	127.0	8.0%	92.8%	P		
PUR-DC-293-02	9/14/07	2	295.1	124.8	11.8%	111.6	122.7	9.2%	91.0%	P	Test sample visually wet of optimum with no pumping in drive cylinder	
PUR-DC-294-01	9/16/07	1	290.8	123.9	7.5%	115.3	127.0	8.0%	90.8%	P		
PUR-DC-295-01	9/16/07	1	290.7	125.4	7.6%	116.5	127.0	8.0%	91.7%	P		
PUR-DC-296-01	9/18/07	1	290.5	125.4	7.9%	116.2	127.0	8.0%	91.5%	P		
PUR-SC-01-02	9/14/07	2	291.0	124.7	8.5%	114.8	127.0	8.0%	90.5%	P	Sand cone field verification of drive cylinder PUR-DC-292-02	
PUR-TP45-DC-01-01	3/12/07	1	285.0	129.6	6.7%	121.5	126.7	6.5%	95.9%	P	Clean Fill	
PUR-TP46-DC-01-01	3/12/07	1	285.4	129.7	7.2%	121.0	126.7	6.5%	95.5%	P	Clean Fill	
PUR-TP46-DC-02-03	3/13/07	3	286.7	132.3	5.6%	125.3	126.7	6.5%	98.9%	P	Clean Fill	
PUR-TP47-DC-01-01	3/12/07	1	285.8	130.8	8.3%	120.8	126.7	6.5%	95.3%	P	Clean Fill	
PUR-TP47-DC-02-03	3/13/07	3	287.1	134.0	7.2%	125.0	126.7	6.5%	98.7%	P	Clean Fill	
TP08-DC-03-04	9/6/07	4	292.5	121.9	10.3%	110.5	122.7	9.2%	90.1%	P	Clean fill, density test sample was near optimum and not wet.	
TOTAL	73									4		
MIN				**116.8**	**5.3%**	**110.5**	–	–	**88.2%**	–		
MAX				**135.9**	**11.8%**	**125.3**	–	–	**98.9%**	–		
AVERAGE				**128.9**	**8.1%**	**117.4**	–	–	**93.4%**	–		
Overburden Material Density Test Results												
PUR-DC-25-01	11/30/06	1	286.3	124.8	6.1%	117.6	128.4	7.2%	91.6%	P	Overburden material used for backfill. Density analysis compared to Proctor 060613-FY-01	
PUR-DC-26-02	11/30/06	2	286.9	129.3	7.0%	120.8	128.4	7.2%	94.1%	P	Overburden material used for backfill. Density analysis compared to Proctor 060613-FY-01	
PUR-DC-27-03	12/1/06	3	287.1	129.6	11.9%	115.8	128.4	7.2%	90.2%	P	Overburden material used for backfill. Density analysis compared to Proctor 060613-FY-01	
PUR-DC-207-01	7/31/07	1	288.87	120.3	6.6%	112.9	128.4	7.2%	87.9%	F	Overburden Material. Area reroiled following compaction test	Retested as PUR-DC-207A-01
PUR-DC-207A-01	7/31/07	1	287.23	124.8	6.8%	116.9	128.4	7.2%	91.0%	P	Overburden Material.	Retest of PUR-DC-207-01
TOTAL	5									1		
MIN	–	–	–	**120.3**	**6.1%**	**112.9**	–	–	**87.9%**	–		
MAX	–	–	–	**129.6**	**11.9%**	**120.8**	–	–	**94.1%**	–		
AVERAGE	–	–	–	**125.8**	**7.7%**	**116.8**	–	–	**91.0%**	–		

MOISTURE/DENSITY ANALYSIS QUANTITIES

Neutralized Backfill Moisture/Density Analyses:	269	Neutralized Backfill Moisture/Density Analyses Failures:	17
Clean Backfill Moisture/Density Analyses:	73	Clean Backfill Moisture/Density Analyses Failures:	4
Other Backfill Moisture/Density Analyses:	5	Other Backfill Moisture/Density Analyses Failures:	1
		Pass Rate (%):	93.7%

* Pass = > 90% compaction & moisture content +/- 3% of optimum

Note: Samples collected as a retest for a failed sample are labelled as A,B, etc.
(Ex. Retest for PUR-DC-167 is PUR-DC-167A)

TABLE 3-10
Purity Oil Sales Superfund Site
SUMMARY OF OFF-SITE CONFIRMATION SAMPLING
(all units = mg/kg)

Sample ID	Lab Report ID	Sample Date	Type of Sample	METALS	CYANIDE	VOC	SVOC	PAH (SIM)	PCB	PESTICIDE	TPH	NOTES
BR-EF-01	G7B150177	2/14/07	Floor	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
BR-EF-02	G7B150177	2/14/07	Floor	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
BR-EF-03	G7B210178	2/20/07	Floor	Ok	Ok	Ok	Ok	Ok	Ok	Ok	10,000	Resolved: Floor Sample > 4' bgs**
BR-EF-04	G7B210178	2/20/07	Floor	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
BR-EF-05	G7C080154	3/7/07	Floor	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
BR-EF-06	G7C080154	3/7/07	Floor	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
BR-EF-07	G7C210166	3/20/07	Floor	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
BR-EF-08	G7C210166	6/22/07	Floor	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
BR-EF-09	G7C210166	6/22/07	Floor	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
BR-EFD-09	G7C210166	6/22/07	Floor	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
BR-SW-01	G7B150177	2/14/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
BR-SW-02	G7B150177	2/14/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
BR-SW-03	G7B150177	2/14/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
BR-SW-04	G7B150177	2/14/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
BR-SW-05	G7B150177	2/14/07	Sidewall	Ok	Ok	Ok	MRL > PRG benzo(a)anthracene Benzo(b)fluoranthene Benzo(k)fluoranthene Indeno(1,2,3-cd)pyrene	Ok	Ok	MRL > PRG Dieldrin	Ok	Area excavated, resampled as BR-SW-05A
BR-SW-05A	G7C210166	3/20/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Resample of BR-SW-05
BR-SW-06	G7B210178	2/20/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
BR-SW-07	G7B210178	2/20/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Arodor 1254 = 0.98	Ok	Ok	Area excavated during BR-SW-05 excavation
BR-SW-08	G7B210178	2/20/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
BR-SW-09	G7B210178	2/20/07	Sidewall	Ok	Ok	Ok	MRL > PRG benzo(a)anthracene Benzo(b)fluoranthene Benzo(k)fluoranthene Indeno(1,2,3-cd)pyrene	Ok	Ok	Ok	Ok	USEPA agreed during 5/2/07 discussion that no further excavation was required because TPH < 10,000 mg/kg & the additional on-site excavation will be conducted.
BR-SW-10	G7B210178	2/20/07	Sidewall	Ok	Ok	Ok	MRL > PRG benzo(a)anthracene Benzo(b)fluoranthene Benzo(k)fluoranthene Indeno(1,2,3-cd)pyrene	Ok	Ok	Ok	Ok	USEPA agreed during 5/2/07 discussion that no further excavation was required because TPH < 10,000 mg/kg.
BR-SW-11	G7B210178	2/20/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
BR-SW-12	G7B210178	2/20/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
BR-SW-13	G7B210178	2/20/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
BR-SW-14	G7B210178	2/20/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
BR-SW-15	G7C080154	3/7/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
BR-SW-16	G7C090146	3/8/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
BR-SW-17	G7C090146	3/8/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
BR-SW-18	G7C080154	3/7/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
BR-SW-19	G7C080154	6/22/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
BR-SW-20	G7C080154	6/22/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
BR-SW-21	G7C080154	6/22/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
BR-SW-22	G7C080154	6/22/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
BR-SW-23	G7C080154	6/22/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
BR-SW-24	G7C080154	7/24/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
BR-SW-25	G7C080154	7/24/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
BR-SWD-10	G7B210178	2/20/07	Duplicate	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
BR-SWD-16	G7C080154	3/7/07	Duplicate	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
BR-SWMS-24	G7C080154	7/24/07	Duplicate	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
BR-SWMSD-24	G7C080154	7/24/07	Duplicate	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
GSMb-EF-01	G7C300183	3/29/07	Floor	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
GSMb-EF-02	G7C300183	3/29/07	Floor	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
GSMb-EF-03	G7D040177	4/3/07	Floor	Ok	Ok	Ok	MRL > PRG 2-Methylnaphthalene Acenaphthylene benzo(a)anthracene Benzo(b)fluoranthene Benzo(k)fluoranthene Chrysene Indeno(1,2,3-cd)pyrene Naphthalene	Ok	Ok	MRL > PRG Dieldrin	35,000	Resolved: Floor Sample > 4' bgs**
GSMb-EF-04	G7D040177	4/3/07	Floor	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
GSMb-EF-05	G7D060175	4/5/07	Floor	Ok	Ok	MRL > PRG TCE	2-Methylnaphthalene = 19 MRL > PRG Acenaphthylene benzo(a)anthracene Benzo(b)fluoranthene Benzo(k)fluoranthene Chrysene Indeno(1,2,3-cd)pyrene Naphthalene	Ok	MRLs > PRGs	MRL > PRG Dieldrin	70,000	Resolved: Floor Sample > 4' bgs**

Note: Samples that were collected to replace failed samples are indicated by using a letter (A, B, etc). (ex. BR-SW-05A repalces BR-SW-05)

TABLE 3-10
Purity Oil Sales Superfund Site
SUMMARY OF OFF-SITE CONFIRMATION SAMPLING
(all units = mg/kg)

Sample ID	Lab Report ID	Sample Date	Type of Sample	METALS*	CYANIDE	VOC	SVOC	PAH (SIM)	PCB	PESTICIDE	TPH	NOTES
GSMb-EF-08	G7D060175	4/5/07	Floor	Ok	Ok	TCE = 0.12	MRL > PRG 2-Methylnaphthalene Acenaphthylene benzo(a)anthracene Benzo(b)fluoranthene Benzo(k)fluoranthene Chrysene Indeno(1,2,3-cd)pyrene Naphthalene	Ok	MRLs > PRGs	MRL > PRG Dieldrin	24,000	Resolved: Floor Sample > 4' bgs**
GSMb-EFD-01	G7C300183	3/29/07	Duplicate	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
GSMb-SW-01	G7C300183	3/29/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
GSMb-SW-02	G7C300183	3/29/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
GSMb-SW-03	G7C300183	3/29/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
GSMb-SW-04	G7C300183	3/29/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
GSMb-SW-05	G7D060175	4/5/07	Floor	Ok	Ok	Ok	MRL > PRG 2-Methylnaphthalene Acenaphthylene benzo(a)anthracene Benzo(b)fluoranthene Benzo(k)fluoranthene Chrysene Indeno(1,2,3-cd)pyrene Naphthalene	Ok	MRLs > PRGs	MRL > PRG Dieldrin	70,000	Resolved: Sample collected from excavation floor > 4' bgs
GSMb-SW-06	G7D060175	4/5/07	Floor	Ok	Ok	TCE = 1.3	2-Methylnaphthalene = 6.1 MRL > PRG Acenaphthylene benzo(a)anthracene Benzo(b)fluoranthene Benzo(k)fluoranthene Chrysene Indeno(1,2,3-cd)pyrene Naphthalene	Ok	MRLs > PRGs	MRL > PRG Dieldrin	24,000	Resolved: Sample collected from excavation floor > 4' bgs**
GSMf-EF-01		7/16/07	Floor	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
GSMf-EF-02		7/16/07	Floor	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
GSMf-EF-03		7/16/07	Floor	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
GSMf-EF-04		7/16/07	Floor	Ok	Ok	Ok	Ok	Ok	Ok	Ok	58,000	Resolved: Sample collected from excavation floor > 4' bgs**
GSMf-EF-05		7/16/07	Floor	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
GSMf-EF-06		7/16/07	Floor	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
GSMf-EF-07		7/16/07	Floor	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
GSMf-EF-08		7/16/07	Floor	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
GSMf-EF-09		7/16/07	Floor	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
GSMf-EF-10		7/16/07	Floor	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
GSMf-EF-11		7/16/07	Floor	Ok	Ok	Ok	Ok	Ok	Ok	Ok	33,700	Resolved: Sample collected from excavation floor > 4' bgs**
GSMf-EF-12		7/16/07	Floor	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
GSMf-EF-13		7/16/07	Floor	Ok	Ok	Ok	Ok	Ok	Ok	Ok	63,000	Resolved: Sample collected from excavation floor > 4' bgs**
GSMf-EF-14		7/16/07	Floor	Ok	Ok	Ok	Ok	Ok	Ok	Ok	37,000	Resolved: Sample collected from excavation floor > 4' bgs**
GSMf-EF-15		7/16/07	Floor	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
GSMf-EF-16		7/16/07	Floor	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
GSMf-EF-17		7/16/07	Floor	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
GSMf-EFD-12		7/16/07	Duplicate	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
GSMf-EFD-17		7/16/07	Duplicate	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
GSMF-SB-01-0.5	G7B130218	2/12/07	Boring	Ok	Ok	Ok	MRL > PRG Benzo(k)fluoranthene Chrysene Indeno(1,2,3-cd)pyrene Naphthalene	Ok	Ok	Ok	43,100	Area excavated and backfilled with clean material. Replaced by GSMf-EF-12
GSMF-SB-01-1.25	G7B130218	2/12/07	Boring	Ok	Ok	Ok	MRL > PRG 2-Methylnaphthalene Acenaphthylene Benzo(b)fluoranthene Benzo(k)fluoranthene Chrysene Indeno(1,2,3-cd)pyrene Naphthalene	Ok	Ok	Ok	22,900	Area excavated and backfilled with clean material. Replaced by GSMf-EF-12
GSMF-SB-02-2.2	G7B140184	2/13/07	Boring	Lead = 6100	Ok	Ok	2-Methylnaphthalene = 30 MRL > PRG Acenaphthylene benzo(a)anthracene Benzo(b)fluoranthene Benzo(k)fluoranthene Chrysene Indeno(1,2,3-cd)pyrene Naphthalene	Ok	Ok	MRL > PRG Aldrin Dieldrin	50,000	Area excavated and backfilled with clean material. Replaced by GSMf-EF-07

Note: Samples that were collected to replace failed samples are indicated by using a letter (A, B, etc). (ex. BR-SW-05A repalces BR-SW-05)

TABLE 3-10
Purity Oil Sales Superfund Site
SUMMARY OF OFF-SITE CONFIRMATION SAMPLING
(all units = mg/kg)

Sample ID	Lab Report ID	Sample Date	Type of Sample	METALS*	CYANIDE	VOC	SVOC	PAH (SIM)	PCB	PESTICIDE	TPH	NOTES
GSMF-SB-03-1.5	G7B130218	2/12/07	Boring	Lead = 1130	Ok	Ok	MRL > PRG 2-Methylnaphthalene Acenaphthylene Benzo(b)fluoranthene Benzo(k)fluoranthene Chrysene Indeno(1,2,3-cd)pyrene Naphthalene	Ok	Ok	Ok	Ok	Area excavated and backfilled with clean material. Replaced by GSMF-EF-06
GSMF-SB-03-6	G7B130218	2/12/07	Boring	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
GSMF-SB-04-1.5	G7B140184	2/13/07	Boring	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
GSMF-SB-05-6.25	G7B140184	2/13/07	Boring	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
GSMF-SB-06-2	G7B140184	2/13/07	Boring	Ok	Ok	TCE=0.14	MRL > PRG Benzo(b)fluoranthene Benzo(k)fluoranthene Indeno(1,2,3-cd)pyrene	Ok	Ok	Ok	27,800	Area excavated and backfilled with clean material. Replaced by GSMF-EF-10
GSMF-SB-06-6.3	G7B140184	2/13/07	Boring	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
GSMF-SB-07-1	G7B140184	2/13/07	Boring	Ok	Ok	Ok	MRL > PRG Benzo(b)fluoranthene Benzo(k)fluoranthene Indeno(1,2,3-cd)pyrene	Ok	Ok	Ok	Ok	Area excavated and backfilled with clean material. Replaced by GSMF-EF-08
GSMF-SB-08-1.5	G7B140184	2/13/07	Boring	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
GSMF-SB-09-1.5	G7B140184	2/13/07	Boring	Ok	Ok	Ok	MRL > PRG Benzo(b)fluoranthene Benzo(k)fluoranthene Indeno(1,2,3-cd)pyrene	Ok	Ok	Ok	Ok	Area excavated and backfilled with clean material during UST Removal activities.
GSMF-SB-10-1.5	G7B140184	2/13/07	Boring	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
GSMF-SB-11.1.5	G7B140184	2/13/07	Boring	Lead=3380	Ok	Ok	MRL > PRG 2-Methylnaphthalene Acenaphthylene Benzo(b)fluoranthene Benzo(k)fluoranthene Chrysene Indeno(1,2,3-cd)pyrene Naphthalene	Ok	Ok	Ok	17,600	Area excavated and backfilled with clean material. Replaced by GSMF-EF-08
GSMF-SB-12-1	G7B140184	2/13/07	Boring	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
GSMf-SW-01		7/12/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
GSMf-SW-02		7/12/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
GSMf-SW-03		7/12/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
GSMf-SW-04		7/12/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
GSMf-SW-05		7/12/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
GSMf-SW-06		7/12/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
GSMf-SW-07		7/12/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
GSMf-SW-08		7/12/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
GSMf-SW-09		7/12/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
GSMf-SWD-04		7/12/07	Duplicate	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PAPE-EF-01	G7D130140	4/12/07	Floor	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PAPE-EF-02	G7D130140	4/12/07	Floor	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PAPE-EF-03	G7D130140	4/12/07	Floor	Ok	Ok	Ok	Ok	Ok	Ok	MRL > PRG Aldrin Dieldrin	Ok	Resolved: Floor Sample > 4' bgs**
PAPE-EF-04	G7D130140	4/12/07	Floor	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PAPE-EF-05	G7D130140	4/12/07	Floor	Ok	Ok	Ok	Ok	Ok	Aroclor 1260 = 1.0	MRL > PRG Dieldrin	18,000	Resolved: Floor Sample > 4' bgs**
PAPE-EF-06	G7D130140	4/12/07	Floor	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PAPE-EF-07	G7D130140	4/12/07	Floor	Ok	Ok	Ok	Ok		Aroclor 1260 = 1.3	MRL > PRG Dieldrin	10,000	Resolved: Floor Sample > 4' bgs**
PAPE-EF-08	G7D130140	6/19/07	Floor	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Replaces PAPE-SW-07
PAPe-EF-09a		5/31/07	Floor	Ok	Ok	Ok	MRL > PRG Benzo(a)anthracene Benzo(b)fluoranthene Benzo(k)fluoranthene Indeno(1,2,3-cd)pyrene	Ok	Ok	Ok	Ok	Resolved. Floor Sample > 4' bgs**
PAPE-EFD-01	G7D130140	4/12/07	Duplicate	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PAPE-EFD-05	G7D130140	4/12/07	Duplicate	Ok	Ok	Ok	Ok	Ok	Aroclor 1260 = 1.1	MRL > PRG Dieldrin	19,000	Resolved: Floor Sample > 4' bgs**
PAPE-SB-01-3.5	G7C010150	2/28/07	Boring	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PAPE-SB-02-2	G7C010150	2/28/07	Boring	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PAPE-SB-03-2.5	G7C010150	2/28/07	Boring	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PAPE-SB-04-4.3	G7C020179	3/1/07	Boring	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PAPE-SB-05-1.5	G7C020179	3/1/07	Boring	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PAPE-SB-06-3.5	G7C020179	3/1/07	Boring	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PAPE-SB-07-1	G7C020179	3/1/07	Boring	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PAPE-SB-08-4	G7C020179	3/1/07	Boring	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PAPE-SB-09-2.5	G7C020179	3/1/07	Boring	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PAPE-SB-10-2	G7C020179	3/1/07	Boring	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PAPE-SB-11-1.5	G7C020179	3/1/07	Boring	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PAPE-SB-12-2.5	G7C020179	3/1/07	Boring	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PAPE-SB-13-2.5	G7C020179	3/1/07	Boring	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PAPE-SB-14-3.5	G7C020179	3/1/07	Boring	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PAPE-SB-15-4	G7C020179	3/1/07	Boring	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PAPE-SBD-1.5	G7C020179	3/1/07	Duplicate	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	

Note: Samples that were collected to replace failed samples are indicated by using a letter (A, B, etc). (ex. BR-SW-05A repalces BR-SW-05)

TABLE 3-10
Purity Oil Sales Superfund Site
SUMMARY OF OFF-SITE CONFIRMATION SAMPLING
(all units = mg/kg)

Sample ID	Lab Report ID	Sample Date	Type of Sample	METALS*	CYANIDE	VOC	SVOC	PAH (SIM)	PCB	PESTICIDE	TPH	NOTES
PAPE-SW-01	G7C020179	3/1/07	Sidewall	Ok	Ok	Ok	MRL > PRG Benzo(b)fluoranthene Benzo(k)fluoranthene Indeno(1,2,3-cd)pyrene	Ok	Ok	Ok	Ok	Area excavated and re-sampled as PAPE-SW-09
PAPE-SW-02	G7C020179	3/1/07	Sidewall	Lead=7740	Ok	Ok	MRL > PRG 2-Methylnaphthalene Acenaphthylene Benzo(b)fluoranthene Benzo(k)fluoranthene Chrysene Indeno(1,2,3-cd)pyrene Naphthalene	Ok	Aroclor 1260 = 1 8	Dieldrin=1.6	Ok	Area excavated, resampled as PAPE-SW-02A
PAPE-SW-02A	G7D040177	4/3/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Resample of PAPE-SW-02
PAPE-SW-03	G7C020179	3/1/07	Sidewall	Lead=2340	Ok	Ok	MRL > PRG Benzo(b)fluoranthene Benzo(k)fluoranthene Indeno(1,2,3-cd)pyrene	Ok	MRLs > PRGs	Dieldrin=1.1 MRL > PRG Aldrin	Ok	Area excavated, resampled as PAPE-SW-03A
PAPE-SW-03A	G7D040177	4/3/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Resample of PAPE-SW-03
PAPE-SW-04	G7C020179	3/1/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PAPE-SW-05	G7C020179	3/1/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PAPE-SW-06	G7C020179	3/1/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PAPE-SW-07	G7D130140	4/12/07	Sidewall	Lead=926	Ok	Ok	Ok	Ok	Ok	MRL > PRG Dieldrin	Ok	Area excavated, resampled as PAPE-SW-07A, PAPE-SW-07B and PAPE-EF-08
PAPE-SW-07A		6/19/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Replaces PAPE-SW-07
PAPE-SW-07B		6/19/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Replaces PAPE-SW-07
PAPE-SW-08	G7D130140	4/12/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PAPE-SW-09	G7D130140	4/12/07	Sidewall	Lead=2205	Ok	Ok	MRL > PRG Benzo(a)anthracene Benzo(b)fluoranthene Benzo(k)fluoranthene Chrysene Indeno(1,2,3-cd)pyrene	MRL > PRG	Aroclor 1260 = 2 7 MRLs > PRGs	MRL > PRG Aldrin Dieldrin Heptachlor Heptachlor epoxide	34,000	Area excavated and re-sampled as PAPE-SW-09A
PAPe-SW09a		5/31/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Replaces PAPe-SW09
PAPe-SW09b		5/31/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Replaces PAPe-SW09
PAPE-SW-10	G7D130140	4/12/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PAPE-SW-11	G7D130140	4/12/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PAPW-EF-01	G7C010150	2/28/07	Floor	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PAPW-EF-02	G7C010150	2/28/07	Floor	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PAPW-SW-01	G7B230152	2/22/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PAPW-SW-02	G7B230152	2/22/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PAPW-SW-03	G7B230152	2/22/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PAPW-SW-04	G7B230152	2/22/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PAPW-SW-05	G7B230152	2/22/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PAPW-SW-06	G7B230152	2/22/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PAPW-SW-07	G7B230152	2/22/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PAPW-SW-08	G7B230152	2/22/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PAPW-SW-09	G7B230152	2/22/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PAPW-SW-10	G7B230152	2/22/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PAPW-SW-11	G7B230152	2/22/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PAPW-SW-12	G7C010150	2/28/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PAPW-SW-13	G7C010150	2/28/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PAPW-SW-14	G7C010150	2/28/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PAPW-SWD-03	G7B230152	2/22/07	Duplicate	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
PAPW-SWD-12	G7C010150	2/28/07	Duplicate	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
SMA-EF-01	G7E090199	5/8/07	Floor	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
SMA-EF-02	G7E090199	5/8/07	Floor	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
SMA-EFD-01	G7E090199	5/8/07	Duplicate	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
SMA-SW-01	G7E090199	5/8/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Aroclor 1254 = 0.88	Ok	Ok	Resolved: Plan to leave in place, and note in O&M Plan that institutional controls (USA/Terradex) will be in place for this section of South Maple Avenue.
SMA-SW-02	G7E090199	5/8/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Aroclor 1254 = 0.81	Ok	Ok	Resolved: Plan to leave in place, and note in O&M Plan that institutional controls (USA/Terradex) will be in place for this section of South Maple Avenue.
SMA-SW-03	G7E090199	5/8/07	Sidewall	Ok	Ok	OK	Ok	Ok	Ok	Ok	10,000	Resolved: Plan to leave in place, and note in O&M Plan that institutional controls (USA/Terradex) will be in place for this section of South Maple Avenue.
SMA-SW-04	G7E090199	5/8/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
SMA-SW-05	G7E090199	5/8/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
SMA-SW-06	G7E090199	5/8/07	Sidewall	Lead=1040	Ok	Ok	MRL > PRG Benzo(a)anthracene Benzo(b)fluoranthene Benzo(k)fluoranthene Indeno(1,2,3-cd)pyrene	Ok	Aroclor 1254 = 2.2	Ok	60,000	Resolved: Plan to leave in place, and note in O&M Plan that institutional controls (USA/Terradex) will be in place for this section of South Maple Avenue.

Note: Samples that were collected to replace failed samples are indicated by using a letter (A, B, etc). (ex. BR-SW-05A repalces BR-SW-05)

TABLE 3-10
Purity Oil Sales Superfund Site
SUMMARY OF OFF-SITE CONFIRMATION SAMPLING
(all units = mg/kg)

Sample ID	Lab Report ID	Sample Date	Type of Sample	METALS*	CYANIDE	VOC	SVOC	PAH (SIM)	PCB	PESTICIDE	TPH	NOTES
SMA-SW-07	G7E090199	9/10/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	57,000	Resolved: Plan to leave in place, and note in O&M Plan that the institutional controls will be in place for this section of South Maple Avenue. The northern extent will be delineated during potential demolition of the GWTP.
TT-EF-01	G7B220214	2/21/07	Floor	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
TT-EF-02	G7B220214	2/21/07	Floor	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
TT-EF-03	G7B220214	2/21/07	Floor	Ok	Ok	Ok	MRL > PRG 2-Methylnaphthalene Acenaphthylene benzo(a)anthracene Benzo(b)fluoranthene Benzo(k)fluoranthene Chrysene Indeno(1,2,3-cd)pyrene Naphthalene	Ok	Ok	MRL > PRG Aldrin Dieldrin	Ok	Resolved: Floor Sample > 4' bgs**
TT-EF-04	G7B220214	2/21/07	Floor	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
TT-EF-05	G7B220214	2/21/07	Floor	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
TT-EF-06	G7B220214	2/21/07	Floor	Ok	Ok	Ok	Ok	Ok	Ok	MRL > PRG Dieldrin	Ok	Resolved: Floor Sample > 4' bgs**
TT-EF-07	G7C160155	3/15/07	Floor	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
TT-EF-08	G7C160155	3/15/07	Floor	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
TT-EF-09	G7C150178	3/14/07	Floor	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
TT-EF-10	G7C150178	3/14/07	Floor	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
TT-EFD-03	G7B220214	2/21/07	Duplicate	Ok	Ok	Ok	MRL > PRG 2-Methylnaphthalene Acenaphthylene benzo(a)anthracene Benzo(b)fluoranthene Benzo(k)fluoranthene Chrysene Indeno(1,2,3-cd)pyrene Naphthalene	Ok	Ok	MRL > PRG Aldrin Dieldrin	Ok	Resolved: Floor Sample > 4' bgs**
TT-SW-01	G7B210178	2/20/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
TT-SW-02	G7B210178	2/20/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
TT-SW-03	G7B220214	2/21/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
TT-SW-04	G7B220214	2/21/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
TT-SW-05	G7C150178	3/14/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
TT-SW-06	G7C150178	3/14/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
TT-SW-07	G7C150178	3/14/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
TT-SW-08	G7C150178	3/14/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
TT-SW-09	G7C150178	3/14/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
TT-SW-10	G7C150178	3/14/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
TT-SW-11	G7C150178	3/14/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
TT-SW-12	G7C150178	3/14/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
TT-SW-13	G7C150178	3/14/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
TT-SW-14	G7C150178	3/14/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
TT-SW-15	G7C150178	3/14/07	Sidewall	Ok	Ok	Ok	Ok	Ok	Ok	Ok	Ok	
TT-SW-16	G7C150178	3/14/07	Sidewall	Ok	Ok	Ok	Ok	Ok	MRLs > PRGs	Ok	Ok	USEPA agreed during 5/2/07 discussion that no further excavation was required because the USEPA split a sample at this location and did not have MRLs > PRGs.
TT-SWD-07	G7C150178	3/14/07	Duplicate	Ok	Ok	Ok	Ok	Ok	MRLs > PRGs	Ok	Ok	
TT-SWD-14	G7C150178	3/14/07	Duplicate	Ok	Ok	Ok	Ok	Ok	MRLs > PRGs	Ok	Ok	
TT-TP02-SW-01	G7C160155	3/15/07	Sidewall	Ok	Ok	Ok	Ok	Ok	MRLs > PRGs	Ok	Ok	

* Arsenic concentrations within acceptable background concentrations (< 6 to 7 mg/kg) are not considered exceedances
** The Remedial Action Work Plan states that excavations in industrial areas with no visible evidence of sludge do not need to extend beyond 4' below ground surface

Legend
BR - Bruno's
GSMb - Golden State Market Backyard
GSMf - Golden State Market Front Yard
PAPe - Pick-a-Part East
PAPw - Pick-a-Part West
SMA - South Maple Ave
TT - Tall Trees
EF - Excavation Floor Sample
SB - Soil Boring
SW - Sidewall Sample
TP - Test Pit Sample
MRL - Method Reporting Limit
PRG - Preliminary Remediation Goal

Note: Samples that were collected to replace failed samples are indicated by using a letter (A, B, etc). (ex. BR-SW-05A repalces BR-SW-05)

TABLE 3-11
PURITY OIL SALES SUPERFUND SITE
OFF-SITE
pH SAMPLE SUMMARY

Sample ID	Date	Depth or Elevation (ft)	pH	PID (ppm)	Pass or Fail (pH>5)	Observations
Bruno's pH Samples						
BR-EF-01	2/14/07	283.1	8.01	0.7	P	
BR-EF-02	2/14/07	283.9	8.00	1.9	P	
BR-EF-03	2/20/07	283.3	7.90	0.0	P	
BR-EF-04	2/20/07	283.1	7.53	0.2	P	
BR-EF-05	3/7/07	284.1	7.79	0.3	P	
BR-EF-06	3/7/07	284.2	7.72	0.3	P	
BR-EF-07	3/20/07	283.0	7.80	0.5	P	
BR-EF-08	06/22/07	284.6	6.71	0.9	P	
BR-EF-09	06/22/07	284.6	7.69	0.8	P	
BR-EFD-09	06/22/07	Same as Above	Same as Above	Same as Above	P	
BR-SW-01	2/14/07	286.7	8.17	0.5	P	
BR-SW-02	2/14/07	285.3	8.15	0.0	P	
BR-SW-03	2/14/07	284.6	8.06	0.0	P	
BR-SW-04	2/14/07	285.7	7.32	1.3	P	
BR-SW-05	2/14/07	285.7	7.36	3.5	P	Debris noted in sample location Location dug out and sampled with BR-SW-05A
BR-SW-05A	3/20/07	286.2	7.62	0.6	P	
BR-SW-06	2/20/07	287.5	6.48	0.2	P	
BR-SW-07	2/20/07	286.0	7.09	1.6	P	Sample location dug out to approximate anchor trench location to south.
BR-SW-08	2/20/07	284.5	7.27	0.0	P	
BR-SW-09	2/20/07	284.5	5.44	0.9	P	
BR-SW-10	2/20/07	286.1	5.21	0.0	P	
BR-SWD-10	2/20/07	Same as above	Same as above	Same as above	P	
BR-SW-11	2/20/07	285.4	7.22	0.1	P	
BR-SW-12	2/20/07	284.1	7.02	0.0	P	
BR-SW-13	2/20/07	285.3	6.64	0.6	P	
BR-SW-14	2/20/07	285.2	7 69	0.8	P	
BR-SW-15	3/7/07	286.0	7.75	0.2	P	
BR-SW-16	3/8/07	287.0	6.94	0.2	P	
BR-SW-17	3/8/07	286.8	7.94	0 0	P	
BR-SW-18	3/7/07	285.1	7.71	0.2	P	
BR-SWD-18	3/7/07	Same as above	Same as above	Same as above	P	
BR-SW-19	06/22/07	286.3	6.95	0.8	P	
BR-SWMS-19	06/22/07	Same as Above	Same as Above	Same as Above	P	
BR-SWMSD-19	06/22/07	Same as Above	Same as Above	Same as Above	P	
BR-SW-20	06/22/07	286.0	7.24	0.7	P	

TABLE 3-11
PURITY OIL SALES SUPERFUND SITE
OFF-SITE
pH SAMPLE SUMMARY

Sample ID	Date	Depth or Elevation (ft)	pH	PID (ppm)	Pass or Fail (pH>5)	Observations
BR-SW-21	06/22/07	284.6	6.92	0.7	P	
BR-SW-22	06/22/07	286.5	7.24	0.6	P	
BR-SW-23	06/22/07	288.3	6.73	1.6	P	
BR-SW-24	07/24/07	286.6	**4.11**	1.1	F	No visible evidence of sludge, passes by FCR-04
BR-SWMS-24	07/24/07	286.6	Same as above	Same as above	P	
BR-SWMSD-24	07/24/07	286.6	Same as above	Same as above	P	
BR-SW-25	07/24/07	286.5	**3.89**	0.9	F	No visible evidence of sludge, passes by FCR-04
BR-TP01-EF-01	3/1/07	*278.4*	7.98	0.3	P	Approximate elevation
BR-TP02-EF-01	3/1/07	277.5	7.96	0.2	P	Approximate elevation
BR-TP03-EF-01	3/21/07	*277.6*	7.58	1.2	P	Approximate elevation
BR-TPO4-EF-01	3/21/07	*278.4*	8.05	1.0	P	Approximate elevation
Golden State Market Back Yard pH Samples						
GSMb-EF-01	3/29/07	285.4	7.96	0.0	P	
GSMb-EFD-01	3/29/07	Same as Above	Same as Above	Same as Above	P	
GSMb-EF-02	3/29/07	284.8	8.19	0.1	P	
GSMb-EF-03	4/3/07	285.6	**4.10**	0.4	F	Silty Sand (SM), Greenish grey. No visible evidence of sludge, passes by FCR-04
GSMb-EF-04	4/3/07	*285.7*	7.31	0.1	P	
GSMb-EF-05	4/5/07	284.3	**3.66**	96.3	F	Silty Sand (SM); Olive, strong hydrocarbon odor, no visible sludge present, passes by FCR-04
GSMb-EF-06	4/5/07	283.3	**4.22**	82.0	F	Silty Sand (SM); Olive, strong hydrocarbon odor, no visible sludge present, passes by FCR-04
GSMb-SW-01	3/29/07	287.2	8.04	NA	P	
GSMb-SW-02	3/29/07	288.0	8.22	NA	P	
GSMb-SW-03	3/29/07	286.0	8.26	NA	P	
GSMb-SW-04	3/29/07	287.0	8.22	NA	P	
GSMb-SW-05	4/5/07	286.6	**3.75**	28.3	F	Silty Sand (SM); Dark yellowish brown with trace black staining, hydrocarbon odor, no visible sludge, passes by FCR-04
GSMb-SW-06	4/5/07	285.2	6.91	180.0	P	Silty Sand (SM); Olive Grey, strong hydrocarbon odor, no visible sludge present.
GSMb-TP01-EF-01	3/29/07	280.2	7.74	76.9	P	
GSMb-TP01-SW-01	3/29/07	283.4	8.40	139.0	P	
GSMb-TP01-SW-02	3/29/07	285.7	8.14	60.9	P	
GSMb-TP02-EF-01	3/29/07	*279.6*	7.75	NA	P	Elevation Approximated
GSMb-TP03-EF-01	4/5/07	*280.0*	5.55	419.0	P	Approximate Elevation
GSMb-TP04-EF-01	4/5/07	*276.5*	7.25	230.0	P	Approximate Elevation
TP-21-05'	7/12/07	*286.8*	8.64	54.0	P	Elevation approximated, Silty Sand (SM), black, hydrocarbon odor, no sludge like.
Golden State Market Front Yard pH Samples						
GSMf-EF-01	7/16/07	286.5	8.05	0.2	P	
GSMf-EF-02	7/16/07	286.5	8.06	0.4	P	
GSMf-EF-03	7/16/07	286.5	7.76	0.3	P	

TABLE 3-11
PURITY OIL SALES SUPERFUND SITE
OFF-SITE
pH SAMPLE SUMMARY

Sample ID	Date	Depth or Elevation (ft)	pH	PID (ppm)	Pass or Fail (pH>5)	Observations
GSMf-EF-04	7/16/07	286.5	8.08	2.0	P	
GSMf-EF-05	7/16/07	286.5	7.67	0.2	P	
GSMf-EF-06	7/16/07	286.5	7.92	1.0	P	
GSMf-EF-07	7/16/07	286.7	6.97	0.1	P	
GSMf-EF-08	7/16/07	286.6	8.06	0.7	P	
GSMf-EF-09	7/16/07	286.4	**4.42**	0.1	F	No visual evidence of sludge, passes FCR-04
GSMf-EF-10	7/16/07	286.7	7.73	0.0	P	
GSMf-EF-11	7/16/07	286.6	**4.20**	0.3	F	No visual evidence of sludge, passes FCR-04
GSMf-EF-12	7/16/07	286.6	5.90	0.3	P	
GSMf-EFD-12	7/16/07	Same as above	Same as above	Same as above	P	
GSMf-EF-13	7/16/07	286.60	7.65	15.4	P	Hydrocarbon odor noted in sample location
GSMf-EF-14	7/16/07	286.7	6.12	7.9	P	
GSMf-EFMS-14	7/16/07	Same as above	Same as above	Same as above	P	
GSMf-EFMSD-14	7/16/07	Same as above	Same as above	Same as above	P	
GSMf-EF-15	7/16/07	286.6	8.08	0.1	P	
GSMf-EF-16	7/16/07	286.5	8.03	0.1	P	
GSMf-EF-17	7/16/07	286.4	8.41	0.2	P	
GSMf-EFD-17	7/16/07	Same as above	Same as above	Same as above	P	
GSMf-SW-01	07/12/07	289.1	7.22	0.2	P	
GSMf-SW-02	07/12/07	288.4	7.84	0.0	P	
GSMf-SW-03	07/12/07	290.2	6.97	0.1	P	
GSMf-SW-04	07/12/07	289.4	6.63	0.3	P	
GSMf-SWD-04	07/12/07	Same as above	Same as above	Same as above	P	
GSMf-SW-05	07/12/07	287.9	7.82	0.3	P	
GSMf-SW-06	07/12/07	289.2	7.37	0.0	P	
GSMf-SW-07	07/12/07	289.8	8.25	0.4	P	
GSMf-SW-08	07/12/07	289.1	7.73	0.3	P	
GSMf-SW-09	07/12/07	288.5	8.24	0.0	P	
Pick-A-Part pH Samples (eastern excavation)						
PAPe-EF-01	4/12/07	286.2	7.07	0.1	P	
PAPe-EFD-01	4/12/07	Same as Above	Same as Above	Same as Above	P	
PAPe-EF-02	4/12/07	286.1	5.58	0.1	P	
PAPe-EFMS-02	4/12/07	Same as Above	Same as Above	Same as Above	P	
PAPe-EFMSD-02	4/12/07	Same as Above	Same as Above	Same as Above	P	
PAPe-EF-03	4/12/07	285.6	5.63	0.5	P	Reference elevation in PAP parking lot = 290.7. Sample location is deeper than 4' bgs
PAPe-EF-04	4/12/07	284.9	6.51	0.7	P	

TABLE 3-11
PURITY OIL SALES SUPERFUND SITE
OFF-SITE
pH SAMPLE SUMMARY

Sample ID	Date	Depth or Elevation (ft)	pH	PID (ppm)	Pass or Fail (pH>5)	Observations
PAPe-EF-05	4/12/07	285.8	**3.61**	2.7	F	Reference elevation in PAP parking lot = 290.7. Sample location is deeper than 4' bgs, passes by FCR-04
PAPe-EFD-05	4/12/07	Same as Above	Same as Above	Same as Above	F	Reference elevation in PAP parking lot = 290.7 Sample location is deeper than 4' bgs, passes by FCR-04
PAPe-EF-06	4/12/07	285.8	5.19	0.4	P	
PAPe-EF-07	4/12/07	286.0	6.84	5.2	P	Reference elevation in PAP parking lot = 290.7. Sample location is deeper than 4' bgs.
PAPe-EF-08	6/19/07	285.2	7.63	0.9	P	
PAPe-EF-09A	5/31/07	288.5	**4.57**	1 4	F	No visible evidence of sludge, passes by FCR-04
PAPe-SW-01	3/1/07	288.9	7.06	0.3	P	
PAPe-SW-02	3/1/07	290.0	6.94	0.4	P	Dark staining and glass debris in sample location. Location dug out to parking lot and resampled as PAPe-SW-02A
PAPe-SW-02A	4/3/07	289.4	7.38	0.2	P	Slight Staining. Trace debris, retest of PAPe-SW-02
PAPe-SW-03	3/1/07	290.0	7.06	0.4	P	Sample location dug out south to parking lot and resampled as PAPe-SW-03A
PAPe-SW-03A	4/3/07	289.3	7.08	0.2	P	No visual impacts, retest of PAPe-SW-03
PAPe-SW-04	3/1/07	288.1	6.99	0.4	P	
PAPe-SWMS-04	3/1/07	Same as above	Same as above	Same as above	P	
PAPe-SWMSD-04	3/1/07	Same as above	Same as above	Same as above	P	
PAPe-SW-05	3/1/07	287.9	7.15	0 4	P	
PAPe-SW-06	3/1/07	287.5	**4.90**	0.2	F	No visible evidence of sludge, passes by FCR-04
PAPe-SW-07	4/12/07	289.3	6.87	0.4	P	Area of asphalti-like material with black staining. Hard and well consolidated. Area excavated based on lab results, retested as PAPe-SW-07A and PAPe-SW-07B
PAPe-SW-07A	6/19/07	289.4	7.41	0.7	P	Retest of PAPe-SW-07
PAPe-SW-07B	6/19/07	289.5	6.76	0.8	P	Retest of PAPe-SW-07
PAPe-SW-08	4/12/07	289.7	7.34	0.5	P	Thin layer, less than 1/2" thick of dark to black stained soils, possible burn area or organics
PAPe-SW-09	4/12/07	290.3	5.78	0.2	P	Visually impacted with trace sludge-like material, asphaltic-like material, burn material, and wood/glass/metal debris. Area excavated based on lab results, resampled as PAPe-SW-09A and PAPe-SW-09B
PAPe-SW-09A	5/31/07	288.9	**4.60**	1.4	F	No visible evidence of sludge, passes by FCR-04, retest of PAPe-SW-09
PAPe-SW-09B	5/31/07	289.1	6.84	1.4	P	Retest of PAPe-SW-09
PAPe-SW-10	4/12/07	287 0	7.25	4.9	P	Staining and debris
PAPe-SW-11	4/12/07	286.7	7.90	0.1	P	Staining and debris
PAPe-TP01-EF-01	4/12/07	278.3	6.74	0.7	P	No visual on VOC impacted soils to depth.
PAPe-SB-01-3.5'	2/28/07	*287.3*	8.04	0.1	P	Approximated elevation
PAPe-SB-02-2.0'	2/28/07	*288.8*	6.75	0.0	P	Approximated elevation
PAPe-SB-02-10'	2/28/07	*280.8*	7.78	0.0	P	Approximated elevation
PAPe-SB-03-2.5'	2/28/07	*288.3*	7.20	0.0	P	Approximated elevation
PAPe-SB-04-4.3'	3/1/07	*286.4*	8.20	0.3	P	Approximated elevation
PAPe-SB-04-9.5'	3/1/07	*281.2*	8.04	0.6	P	Approximated elevation
PAPe-SB-05-1.5'	3/1/07	*289.3*	6.88	0.4	P	Approximated elevation

TABLE 3-11
PURITY OIL SALES SUPERFUND SITE
OFF-SITE
pH SAMPLE SUMMARY

Sample ID	Date	Depth or Elevation (ft)	pH	PID (ppm)	Pass or Fail (pH>5)	Observations
PAPe-SB-06-3.5'	3/1/07	*NA*	7.58	0.2	P	To be surveyed
PAPe-SB-07-1'	3/1/07	*289.6*	8.11	0.6	P	Approximated elevation
PAPe-SB-08-4'	3/1/07	*285.9*	6.88	0.5	P	Approximated elevation
PAPe-SB-09-2.5'	3/1/07	*287.6*	7.16	0.5	P	Approximated elevation
PAPe-SB-10-2'	3/1/07	*288.1*	7.98	0.3	P	Approximated elevation
PAPe-SB-11-1.5'	3/1/07	*288.3*	9.03	0.9	P	Approximated elevation
PAPe-SBD-1.5'	3/1/07	*Same as above*	Same as above	Same as above	P	Approximated elevation
PAPe-SB-12-2.5'	3/1/07	*287.7*	8.11	0.7	P	Approximated elevation
PAPe-SB-13-2.5'	3/1/07	*287.5*	8.52	0.6	P	Approximated elevation
PAPe-SB-13-10'	3/1/07	*280.0*	7.16	0.6	P	Approximated elevation
PAPe-SB-14-3.5'	3/1/07	*286.5*	8.32	0.8	P	Approximated elevation
PAPe-SB-15-4'	3/1/07	*286.0*	7.54	0.3	P	Approximated elevation
Pick-A-Part pH Samples (western excavation)						
PAPw-EF-01	2/28/07	285.1	**4.42**	0.0	F	No visible evidence of sludge, passes by FCR-04
PAPw-EF-02	2/28/07	284.9	**3.88**	0.1	F	No visible evidence of sludge, passes by FCR-04
PAPw-EFMS-02	2/28/07	Same as above	**Same as above**	Same as above	F	
PAPw-EFMSD-02	2/28/07	Same as above	**Same as above**	Same as above	F	
PAPw-SW-01	2/22/07	286.8	6.99	0.4	P	
PAPw-SW-02	2/22/07	286.7	6.36	0.1	P	
PAPw-SW-03	2/22/07	287.8	7.12	0.5	P	
PAPw-SWD-03	2/22/07	Same as above	Same as above	Same as above	P	
PAPw-SW-04	2/22/07	287.6	6.59	0.4	P	
PAPw-SW-05	2/22/07	286.0	8.21	0.7	P	
PAPw-SW-06	2/22/07	285.8	8.33	1.0	P	
PAPw-SW-07	2/22/07	288.0	8.18	0.6	P	
PAPw-SW-08	2/22/07	285.8	8.36	0.9	P	
PAPw-SW-09	2/22/07	288.0	8.38	0.8	P	
PAPw-SW-10	2/22/07	286.3	8.39	0.2	P	
PAPw-SW-11	2/22/07	287.9	8.36	0.5	P	
PAPw-SW-12	2/28/07	287.8	8.37	0.0	P	
PAPw-SWD-12	2/28/07	Same as above	Same as above	Same as above	P	
PAPw-SW-13	2/28/07	287.0	5.99	0.4	P	
PAPw-SW-14	2/28/07	286.8	8.27	0.2	P	
PAPw-TP01-EF-01	3/21/07	*278.9*	6.82	1.7	P	Approximate elevation
Tall Tree's pH Samples						
TT-EF-01	2/21/07	284.6	7.47	0.8	P	

TABLE 3-11
PURITY OIL SALES SUPERFUND SITE
OFF-SITE
pH SAMPLE SUMMARY

Sample ID	Date	Depth or Elevation (ft)	pH	PID (ppm)	Pass or Fail (pH>5)	Observations
TT-EF-02	2/21/07	285.6	7.51	0.6	P	
TT-EF-03	2/21/07	285.8	6.33	0.8	P	
TT-EFD-03	2/21/07	Same as above	6.40	0.6	P	
TT-EF-04	2/21/07	287.8	7.54	0.7	P	
TT-EF-05	2/21/07	288.1	8.09	0.6	P	
TT-EF-06	2/21/07	287.8	**4.61**	0.7	F	Sample has no visual evidence of sludge. Sample passes FCR-04
TT-EF-07	3/15/07	286.3	8.40	4.1	P	
TT-EF-08	3/15/07	285.8	7.46	2.3	P	
TT-EF-09	3/14/07	286.2	6.97	2.0	P	
TT-EF-10	3/14/07	285.7	7.43	0.9	P	
TT-SW-01	2/20/07	286.9	8.24	1.1	P	
TT-SW-02	2/20/07	287.2	7.75	0.9	P	
TT-SW-03	2/21/07	286.9	7.38	0.7	P	
TT-SWMS-03	2/21/07	Same as above	Same as above	Same as above	P	
TT-SWMSD-03	2/21/07	Same as above	Same as above	Same as above	P	
TT-SW-04	2/21/07	287.0	6.80	0.7	P	
TT-SW-05	3/14/07	288.7	7.51	1.0	P	Glass type debris noted in sample location
TT-SW-06	3/14/07	287.6	7.81	1.2	P	
TT-SW-07	3/14/07	288.9	8.11	1.1	P	
TT-SWD-07	3/14/07	Same as above	Same as above	Same as above	P	
TT-SW-08	3/14/07	287.6	7.15	1.3	P	
TT-SW-09	3/14/07	289.5	7.49	0.8	P	
TT-SWMS-09	3/14/07	Same as above	Same as above	Same as above	P	
TT-SWMSD-09	3/14/07	Same as above	Same as above	Same as above	P	
TT-SW-10	3/14/07	287.7	6.53	1.1	P	
TT-SW-11	3/14/07	287.3	7.43	0.8	P	
TT-SW-12	3/14/07	289.1	6.39	0.8	P	
TT-SW-13	3/14/07	287.1	7.34	1.0	P	
TT-SW-14	3/14/07	288.5	6.19	1.6	P	
TT-SWD-14	3/14/07	Same as above	Same as above	Same as above	P	
TT-SW-15	3/14/07	286.6	7.48	1.0	P	
TT-SW-16	3/14/07	287.8	7.94	0.9	P	
TT-TP01-EF-01	2/13/07	*279.0*	8.42	0.2	P	Elevation is approximated.
TT-TP02-EF-01	2/13/07	*280.3*	8.57	0.0	P	Elevation is approximated.
TT-TP02-SW-01	3/15/07	288.7	7.24	3.3	P	
TT-TP02-SWMS-01	3/15/07	Same as above	Same as above	Same as above	P	

TABLE 3-11
PURITY OIL SALES SUPERFUND SITE
OFF-SITE
pH SAMPLE SUMMARY

Sample ID	Date	Depth or Elevation (ft)	pH	PID (ppm)	Pass or Fail (pH>5)	Observations
TT-TP02-SWMSD-01	3/15/07	Same as above	Same as above	Same as above	P	
TT-TP3-EF-01	2/13/07	*279.5*	8.39	**50.0**	P	Elevation is approximated.
TT-TP4-EF-01	2/13/07	*280.7*	7.90	0.8	P	Elevation is approximated.
TT-TP5-EF-01	2/13/07	*280.3*	7.83	0.8	P	Elevation is approximated
TT-TP06-EF-01	3/15/07	*279.8*	7.73	**53.3**	P	Elevation is approximated.
TT-TP07-EF-01	3/15/07	*279.3*	**4.59**	**54.1**	F	No visbile evidence of sludge, passes by FCR-04
TT-TP08-EF-01	3/15/07	*280.1*	8.52	**778**	P	Elevation is approximated.
TT-TP09-EF-01	3/15/07	*280.1*	7.49	2.9	P	Elevation is approximated.
South Maple Avenue pH Samples						
SMA-EF-01	5/8/07	288.2	6.17	2.2	P	
SMA-EFD-01	5/8/07	Same as above	Same as above	Same as above	P	
SMA-EF-02	5/8/07	288.2	**4.73**	1.8	F	No visible evidence of sludge, passes by FCR-04
SMA-SW-01	5/8/07	290.0	**4.43**	3.2	F	Dark Brown to Black Staining, no visible evidence of sludge, passes by FCR-04
SMA-SW-02	5/8/07	290.0	**4.62**	1.8	F	Dark Brown to Black Staining, trace wood debris. Performed below hard asphaltic material, no visible evidence of sludge, passes by FCR-04
SMA-SW-03	5/8/07	290.0	5.02	2.2	P	Dark Brown to Black Staining, trace wood debris Performed below hard asphaltic material.
SMA-SW-04	5/8/07	290.0	6.79	2.5	P	Dark Brown to Black Staining, trace wood debris. Performed below hard asphaltic material.
SMA-SW-05	5/8/07	289.8	8.41	2.3	P	
SMA-SW-06	5/8/07	290.2	6.24	2.6	P	Black staining, trace wood and glass debris
SMA-SW-07	9/10/07	290.3	5.95	1.0	P	Black silty fine sand, asphaltic fragments.

Legend

BR - Bruno's

GSMb - Golden State Market Backyard

GSMf - Golden State Market Front Yard

PAPe - Pick-a-Part East

PAPw - Pick-a-Part West

SMA - South Maple Ave

TT - Tall Trees

EF - Excavation Floor Sample

SB - Soil Boring

SW - Sidewall Sample

TP - Test Pit Sample

TABLE 3-12
PURITY OIL SALES SUPERFUND SITE
OFF-SITE DENSITY TESTING SUMMARY

Compaction ID	Date	Lift Number	Elevation (ft)	Wet Density (pcf)	Moisture (%)	Dry Density (pcf)	Applicable Proctor Dry Density (pcf)	Applicable Proctor Moisture (%)	Percent Compaction (%)	Pass or Fail*	Final Observations	Notes
BRUNOS IRON AND METAL DENSITY TESTS												
BR-DC-01-01	3/15/07	1	284.7	130.8	7.7%	121.4	126.7	6.5%	95.9%	P		
BR-DC-02-04	3/16/07	4	285.8	131.9	7.5%	122.7	126.7	6.5%	96.8%	P		
BR-DC-03-05	3/16/07	5	286.5	125.4	7.7%	116.4	126.7	6.5%	91.9%	P		
BR-DC-04-06	3/16/07	6	287.2	121.3	7.6%	112.7	126.7	6.5%	89.0%	F		Area re-compacted and re-tested as BR-DC-04A-06
BR-DC-04A-06	3/19/07	6	287.3	126.1	7.1%	117.7	126.7	6.5%	92.9%	P	Retest For BR-DC-04-06. Lift was recompacted	
BR-DC-05-02	3/22/07	2	284.1	126.7	6.5%	119.0	126.7	6.5%	93.9%	P		
BR-DC-06-04	3/23/07	4	285.1	123.9	7.8%	114.9	126.7	6.5%	90.7%	P		
BR-DC-07-05	3/23/07	5	285.3	122.5	6.7%	114.8	126.7	6.5%	90.6%	P		
BR-DC-08-06	3/23/07	6	287.8	121.8	6.3%	114.6	126.7	6.5%	90.4%	P		
BR-DC-09-07	3/26/07	7	287.1	123.7	5.9%	116.8	126.7	6.5%	92.2%	P		
BR-DC-10-02	3/26/07	2	285.1	122.7	7.2%	114.5	126.7	6.5%	90.3%	P		
BR-DC-11-02	3/26/07	2	285.0	124.6	6.9%	116.6	126.7	6.5%	92.0%	P		
BR-DC-12-05	3/26/07	5	286.9	124.8	7.2%	116.4	126.7	6.5%	91.9%	P		
BR-DC-13-05	3/26/07	5	286.8	127.5	7.1%	119.0	126.7	6.5%	94.0%	P		
BR-DC-14-02	3/27/07	2	285.3	131.1	8.9%	120.4	126.7	6.5%	95.0%	P		
BR-DC-15-04	3/27/07	4	286.6	130.2	8.6%	119.9	126.7	6.5%	94.6%	P		
BR-DC-16-06	4/4/07	6	288.3	135.3	6.4%	127.2	126.7	6.5%	100.4%	P		
BR-DC-17-01	4/4/07	1	284.7	130.0	7.9%	120.5	126.7	6.5%	95.1%	P		
BR-DC-18-03	4/4/07	3	285.7	132.6	12.1%	118.3	126.7	6.5%	93.4%	F	Failed due to moisture content exceeding 3.0% of 6.5% optimum	Area re-compacted and re-tested as BR-DC-18A-03
BR-DC-18A-03	4/4/07	3	285.9	133.0	9.1%	121.9	126.7	6.5%	96.2%	P	Retest For BR-DC-18A-03. Lift was recompacted	
BR-DC-19-05	4/4/07	5	288.9	123.3	7.4%	114.8	126.7	6.5%	90.6%	P		
BR-DC-20-07	4/4/07	7	288.5	128.3	7.8%	117.2	126.7	6.5%	92.5%	P		
BR-DC-21-04	7/25/07	4	288.5	123.4	7.6%	114.7	122.7	9.2%	93.5%	P		
BR-DC-22-05	7/25/07	5	286.0	124.2	8.0%	115.0	122.7	9.2%	93.7%	P		
BR-TP01-DC-01-01	3/14/07	1	284.3	133.2	7.6%	123.8	126.7	6.5%	97.7%	P		
BR-TP01-DC-02-03	3/14/07	3	285.8	127.3	7.1%	118.9	126.7	6.5%	93.8%	P		
BR-TP02-DC-01-01	3/14/07	1	283.0	126.3	7.2%	117.8	126.7	6.5%	93.0%	P		
BR-TP02-DC-02-04	3/14/07	4	285.1	129.4	6.9%	121.0	126.7	6.5%	95.5%	P		
BR-TP03-DC-01-01	3/22/07	1	282.7	128.8	7.6%	119.7	126.7	6.5%	94.5%	P		
BR-TP04-DC-01-01	3/27/07	1	283.5	128.9	8.8%	118.6	126.7	6.5%	92.1%	P		
TOTAL	**30**									**2**		
MIN	–	–	–	**121.3**	**5.9%**	**112.7**	–	–	**89.0%**	–		
MAX	–	–	–	**135.3**	**12.1%**	**127.2**	–	–	**100.4%**	–		
AVERAGE	–	–	–	**127.2**	**7.6%**	**118.2**	–	–	**93.5%**	–		
GOLDEN STATE MARKET BACK YARD DENSITY TESTS												
GSMb-DC-01-01	4/3/07	1	285.9	124.7	6.7%	116.9	126.7	6.5%	92.2%	P		
GSMb-DC-02-02	4/3/07	2	286.6	123.4	6.8%	115.5	126.7	6.5%	91.2%	P		
GSMb-DC-03-03	4/3/07	3	287.1	126.3	8.7%	116.2	126.7	6.5%	91.7%	P		
GSMb-DC-04-04	4/3/07	4	287.6	122.4	5.3%	116.2	126.7	6.5%	91.7%	P		
GSMb-DC-05-05	4/3/07	5	287.9	130.3	6.2%	122.7	126.7	6.5%	96.8%	P		
GSMb-DC-06-06	4/3/07	6	288.7	124.3	6.8%	116.4	126.7	6.5%	91.9%	P		
GSMb-DC-07-03	4/19/07	3	283.6	126.9	8.5%	119.2	126.7	6.5%	94.0%	P		
GSMb-DC-08-05	4/20/07	5	285.0	124.8	6.7%	117.0	126.7	6.5%	92.3%	P		

TABLE 3-12
PURITY OIL SALES SUPERFUND SITE
OFF-SITE DENSITY TESTING SUMMARY

Compaction ID	Date	Lift Number	Elevation (ft)	Wet Density (pcf)	Moisture (%)	Dry Density (pcf)	Applicable Proctor Dry Density (pcf)	Applicable Proctor Moisture (%)	Percent Compaction (%)	Pass or Fail*	Final Observations	Notes
GSMb-DC-09-07	4/20/07	7	286.3	121.0	7.1%	113.0	126.7	6.5%	89.2%	F		Area re-compacted and re-tested as GSMb-DC-09A-07
GSMb-DC-09A-07	4/23/07	7	286.4	124.5	9.1%	114.1	126.7	6.5%	90.1%	P		
GSMb-DC-10-08	4/23/07	8	288.9	131.9	9.5%	120.5	126.7	6.5%	95.1%	P		
GSMb-DC-11-10	4/23/07	10	288.1	122.5	6.5%	115.0	126.7	6.5%	90.8%	P		
GSMb-DC-12-11	4/24/07	11	288.8	119.7	6.4%	112.5	126.7	6.5%	88.8%	F		Area re-compacted and re-tested as GSMb-DC-12A-11
GSMb-DC-12A-11	4/24/07	11	288.7	121.8	6.4%	114.5	126.7	6.5%	90.4%	P	Retest For GSMb-DC-12-11.	
GSMb-DC-13-02	4/24/07	2	288.6	123.0	5.7%	116.4	126.7	6.5%	91.8%	P		
GSMb-DC-14-12	4/24/07	12	289.3	117.3	6.3%	110.3	126.7	6.5%	87.1%	F	*Approximated Location. Survey incomplete*	Area re-compacted and re-tested as GSMb-DC-14A-12
GSMb-SC-01-12	4/24/07	12	289.3	118.2	6.3%	111.2	126.7	6.5%	87.8%	F	Sand Cone field verification density compared with test GSMb-DC-14-12	
GSMb-DC-14A-12	4/24/07	12	289.3	121.9	5.8%	115.2	126.7	6.5%	90.9%	P	Retest For GSMb-DC-14-12	
GSMb-DC-15-14	4/25/07	14	290.2	131.4	8.5%	121.1	126.7	6.5%	95.6%	P		
GSMb-DC-16-07	4/25/07	7	289.1	120.6	7.0%	112.7	126.7	6.5%	89.0%	F		Area re-compacted and re-tested as GSMb-DC-16A-07
GSMb-DC-16A-07	4/25/07	7	289.1	120.7	6.5%	113.3	126.7	6.5%	89.5%	F	Retest For GSMb-DC-16-07.	Added water and recompacted *Approximated Location. Survey incomplete*
GSMb-DC-16B-07	4/25/07	7	289.1	128.6	6.8%	118.5	126.7	6.5%	93.6%	P	Retest For GSMb-DC-16A-07.	
GSMb-DC-17-16	4/25/07	16	286.6	123.6	7.9%	114.6	126.7	6.5%	90.4%	P	*Approximated Location. Survey incomplete*	
GSMb-TP01-DC-01-01	4/2/07	1	283.9	124.0	8.6%	114.2	126.7	6.5%	90.1%	P		
GSMb-TP02-DC-01-01	4/2/07	1	285.0	130.1	7.1%	121.5	126.7	6.5%	95.9%	P		
GSMb-TP03-DC-01-01	4/19/07	1	281.4	128.1	7.6%	119.1	126.7	6.5%	94.0%	P		
GSMb-TP04-DC-01-01	4/19/07	1	284.5	135.4	7.9%	125.5	126.7	6.5%	99.0%	P		
TP21-DC-01-01	7/17/07	1	288.0	128.1	9.8%	116.6	122.7	9.2%	95.1%	P		
TOTAL	**28**									**6**		
MIN	–	–	–	**117.3**	**5.3%**	**110.3**	–	–	**87.1%**	–		
MAX	–	–	–	**135.4**	**9.8%**	**125.5**	–	–	**99.0%**	–		
AVERAGE	–	–	–	**124.8**	**7.2%**	**116.4**	–	–	**92.0%**	–		
GOLDEN STATE MARKET FRONT YARD DENSITY TESTS												
GSMf-DC-01-01	6/29/07	1	287.1	121.6	6.5%	114.2	126.7	6.5%	90.1%	P		
GSMf-DC-02-02	6/29/07	2	287.6	129.1	9.3%	118.1	122.7	9.2%	96.3%	P		
GSMf-DC-03-05	6/29/07	5	289.5	118.2	5.8%	111.7	126.7	6.5%	88.2%	F	Dry of optimum moisture	Area re-compacted and re-tested as GSMf-DC-03A-05
GSMf-DC-03A-05	6/29/07	5	289.6	121.5	5.8%	114.8	126.7	6.5%	90.6%	P	Added water and re-rolled	Retest for GSMf-DC-03-05
GSMf-DC-04-01	7/13/07	1	287.1	120.4	6.1%	113.5	122.7	9.2%	92.5%	F	Dry of Optimum, will hired to add water and recompact	
GSMf-DC-04A-01	7/16/07	1	287.2	121.0	6.6%	113.5	122.7	9.2%	92.5%	P	Retest for GSMf-DC-04-01	
GSMf-DC-05-01	7/13/07	1	287.2	116.5	6.9%	109.0	122.7	9.2%	88.8%	F	Test sample appeared optimum, will need to recompact	Retested as GFMf-DC-05A-01
GSMf-DC-05A-01	7/16/07	1	287.1	122.7	8.8%	112.8	122.7	9.2%	91.9%	P	Retest for GSMf-DC-05-01	
GSMf-DC-06-02	7/17/07	2	288.1	117.6	5.4%	111.5	122.7	9.2%	90.9%	F	To dry, test sample was crumbly	Retested as GFMf-DC-06A-02
GSMf-DC-06A-02	7/17/07	2	288.0	121.5	6.8%	113.7	122.7	9.2%	92.7%	P	Retest for GSMf-DC-06-02	
GSMf-DC-07-02	7/17/07	2	288.0	124.2	8.5%	114.4	122.7	9.2%	93.3%	P		
GSMf-DC-08-03	7/17/07	3	289.0	131.4	9.5%	120.0	122.7	9.2%	97.8%	P		
GSMf-DC-09-03	7/17/07	3	289.0	127.6	10.2%	115.8	122.7	9.2%	94.4%	P	Not surveyed, lift was failed due to excessive pumping in center, density test was excavated	
GSMf-DC-10-03	7/18/07	3	288.7	133.9	9.2%	122.7	122.7	9.2%	100.0%	P	Density test performed in portion of lift that was ripped up and recompacted due to excessive water and pumping	
GSMf-DC-11-04	7/18/07	4	289.2	130.9	9.6%	119.5	122.7	9.2%	97.4%	P		
GSMf-DC-12-04	7/18/07	4	289.2	130.6	10.0%	118.7	122.7	9.2%	96.8%	P		
GSMf-SC-01-04	7/18/07	4	289.3	125.6	8.9%	115.3	122.7	9.2%	94.0%	P	Sandcone field verification moisture/density analysis with test GSMf-DC-12-04	
GSMf-DC-13-05	7/18/07	5	289.7	120.9	8.8%	111.1	122.7	9.2%	90.5%	P	Approximated elevation	
GSMf-DC-14-05	7/18/07	5	289.8	131.1	8.8%	120.7	122.7	9.2%	98.4%	P	Approximated elevation	

TABLE 3-12
PURITY OIL SALES SUPERFUND SITE
OFF-SITE DENSITY TESTING SUMMARY

Compaction ID	Date	Lift Number	Elevation (ft)	Wet Density (pcf)	Moisture (%)	Dry Density (pcf)	Applicable Proctor Dry Density (pcf)	Applicable Proctor Moisture (%)	Percent Compaction (%)	Pass or Fail	Final Observations	Notes
GSMI-DC-15-06	7/18/07	6	290.7	126.7	9.5%	115.8	122.7	9.2%	94.4%	P		
GSMI-DC-16-06	7/19/07	6	290.7	122.7	7.0%	114.7	122.7	9.2%	93.4%	P		
GSMI-DC-17-07	7/19/07	7	NA	131.8	8.1%	121.9	122.7	9.2%	99.4%	P	Thin lift at surface, to be surveyed	
TOTAL	22									4		
MIN	–	–	–	116.5	5.4%	109.0	–	–	88.2%	–		
MAX	–	–	–	133.9	10.2%	122.7	–	–	100.0%	–		
AVERAGE	–	–	–	124.9	8.0%	115.6	–	–	93.8%	–		
PICK-A-PART EAST-DENSITY TESTS												
PAPe-DC-01-01	4/13/07	1	287.0	122.7	6.5%	115.2	126.7	6.5%	90.9%	P		
PAPe-DC-02-02	4/16/07	2	287.6	120.7	7.0%	112.8	126.7	6.5%	89.0%	F	Test performed on south edge shear wall where sheepsfoot compactor could not reach. *Survey data corrupted, location approximated*	Area re-compacted and re-tested as PAPe-DC-02A-02
PAPe-DC-02A-02	4/16/07	2	287.5	119.5	6.0%	112.7	126.7	6.5%	89.0%	F	Test performed on south edge shear wall where sheepsfoot compactor could not reach. *Survey data corrupted, location approximated. Retest fo*	Area re-compacted and re-tested as PAPe-DC-02B-02
PAPe-DC-02B-02	4/16/07	2	287.6	126.4	6.5%	118.7	126.7	6.5%	93.7%	P	Trench roller used to achieve satisfactory compaction results at edge/shear wall where compactor could not reach. *Survey data corrupted, location approximated.*	Retest of PAP-2B-02
PAPe-DC-03-03	4/16/07	3	288.3	125.2	7.0%	117.0	126.7	6.5%	92.4%	P	*Survey data corrupted, location approximated*	
PAPe-DC-04-04	4/17/07	4	289.2	123.6	6.5%	116.1	126.7	6.5%	91.6%	P	*Survey data corrupted, location approximated*	
PAPe-DC-05-05	4/17/07	5	289.9	116.5	6.5%	109.4	126.7	6.5%	86.3%	F	*Survey data corrupted, location approximated*	Area re-compacted and re-tested as PAPe-DC-05A-05
PAPe-DC-05A-05	4/17/07	5	289.8	122.4	6.6%	114.8	126.7	6.5%	90.6%	P	*Survey data corrupted, location approximated*	
PAPe-DC-06-06	4/18/07	6	290.7	124.5	7.1%	116.2	126.7	6.5%	91.7%	P		
PAPe-DC-07-01	4/18/07	1	286.4	124.7	7.6%	115.9	126.7	6.5%	91.5%	P		
PAPe-DC-08-02	4/18/07	2	287.2	125.5	6.5%	117.8	126.7	6.5%	93.0%	P		
PAPe-DC-09-03	4/19/07	3	287.5	126.8	6.6%	118.9	126.7	6.5%	93.9%	P		
PAPe-DC-10-04	4/19/07	4	288.1	123.4	7.1%	115.2	126.7	6.5%	90.9%	P		
PAPe-DC-11-05	4/20/07	5	288.8	127.2	8.2%	117.6	126.7	6.5%	92.8%	P		
PAPe-DC-12-07	4/23/07	7	290.3	122.1	8.3%	112.7	126.7	6.5%	89.0%	F		Area re-compacted and re-tested as PAPe-DC-12A-07
PAPe-DC-12A-07	4/23/07	7	290.3	129.1	8.7%	118.8	126.7	6.5%	93.7%	P	Recompacted. Retest for PAPe-DC-12-07	
PAPe-DC-13-01	4/25/07	1	288.4	128.8	7.2%	120.1	126.7	6.5%	94.8%	P		
PAPe-DC-14-02	4/25/07	2	289.3	120.1	5.9%	113.4	126.7	6.5%	89.5%	F		Area re-compacted and re-tested as PAPe-DC-14A-02
PAPe-DC-14A-02	4/25/07	2	289.7	131.4	8.6%	121.0	126.7	6.5%	95.5%	P	Added water and recompacted. Retest for PAPe-DC-14-02	
PAPe-DC-15-03	4/26/07	3	289.9	127.8	6.8%	119.7	126.7	6.5%	94.4%	P		
PAPe-DC-16-01	5/31/07	1	288.7	118.8	6.7%	111.3	126.7	6.5%	87.9%	F		Area re-compacted and re-tested as PAPe-DC-16A-01
PAPe-DC-16A-01	5/31/07	1	289.0	124.2	7.9%	115.1	126.7	6.5%	90.8%	P	Retest for PAPe-DC-16-01	
PAPe-DC-17-02	5/31/07	2	289.4	126.0	8.7%	115.9	126.7	6.5%	91.5%	P		
PAPe-DC-18-03	5/31/07	3	290.5	123.1	7.8%	114.4	126.7	6.5%	90.3%	P		
PAPe-DC-19-01	6/8/07	1	289.5	123.9	6.6%	116.2	126.7	6.5%	91.7%	P		
PAPe-DC-20-02	6/8/07	2	290.1	125.5	6.7%	117.6	126.7	6.5	92.8%	P		
PAPe-DC-21-03	6/8/07	3	290.6	124.9	7.0%	116.7	126.7	6.5	92.1%	P		
PAPe-DC-22-01	6/21/07	1	286.0	113.8	5.5%	107.9	126.7	6.5%	85.1%	F		Area re-compacted and re-tested as PAPe-DC-22A-01
PAPe-DC-22A-01	6/21/07	1	285.9	124.5	7.7%	115.6	126.7	6.5%	91.2%	P	Retest for PAPe-DC-22-01	
PAPe-DC-23-05	6/22/07	5	288.2	123.0	8.0%	113.9	122.7	9.2%	92.8%	P		
PAPe-DC-24-07	6/22/07	7	289.7	122.0	6.0%	115.1	122.7	9.2%	93.8%	P		
PAPe-TP01-DC-01-01	4/13/07	1	280.9	131.4	7.4%	122.3	126.7	6.5%	96.6%	P		
TOTAL	32									7		
MIN	–	–	–	113.8	5.5%	107.9	–	–	85.1%	–		
MAX	–	–	–	131.4	8.7%	122.3	–	–	96.6%	–		
AVERAGE	–	–	–	124.0	7.1%	115.8	–	–	91.6%	–		

TABLE 3-12
PURITY OIL SALES SUPERFUND SITE
OFF-SITE DENSITY TESTING SUMMARY

Compaction ID	Date	Lift Number	Elevation (ft)	Wet Density (pcf)	Moisture (%)	Dry Density (pcf)	Applicable Proctor Dry Density (pcf)	Applicable Proctor Moisture (%)	Percent Compaction (%)	Pass or Fail	Final Observations	Notes
PICK-A-PART WEST DENSITY TESTS												
PAPw-DC-01-01	4/23/07	1	286.8	127.5	6.5%	119.7	126.7	6.5%	94.5%	P		
PAPw-DC-02-02	4/23/07	2	288.5	127.8	5.6%	121.0	126.7	6.5%	95.5%	P		
PAPw-DC-03-03	4/24/07	3	287.1	125.4	7.4%	116.8	126.7	6.5%	92.2%	P		
PAPw-DC-04-05	4/24/07	5	288.2	130.0	8.1%	120.3	126.7	6.5%	94.9%	P		
PAPw-DC-05-04	4/24/07	4	287.3	130.9	8.1%	121.1	126.7	6.5%	95.6%	P		
PAPw-DC-06-06	4/24/07	6	288.2	134.4	7.8%	124.7	126.7	6.5%	98.4%	P		
PAPw-TP01-DC-01-01	4/6/07	1	284.5	120.3	6.6%	112.9	126.7	6.5%	89.1%	F		Area re-compacted and re-tested as PAPw-TP01-01A-01
PAPw-TP01-DC-01A-01	4/6/07	1	285.0	123.3	6.0%	116.3	126.7	6.5%	91.8%	P		
TOTAL	8									1		
MIN	–	–	–	120.3	5.6%	112.9	–	–	89.1%	–		
MAX	–	–	–	134.4	8.1%	124.7	–	–	98.4%	–		
AVERAGE	–	–	–	127.5	7.0%	119.1	–	–	94.0%	–		
TALL TREE'S DENSITY TESTS												
TT-DC-01-01	3/5/07	1	284.1	132.4	8.7%	121.8	126.7	6.5%	96.1%	P		
TT-DC-02-02	3/5/07	2	285.6	133.8	8.6%	123.2	126.7	6.5%	97.2%	P		
TT-DC-03-03	3/6/07	3	286.5	134.1	9.0%	123.0	126.7	6.5%	97.1%	P		
TT-DC-04-04	3/16/07	4	287.2	125.2	7.9%	116.0	126.7	6.5%	91.6%	P		
TT-DC-05-05	3/19/07	5	287.8	121.9	6.9%	114.0	126.7	6.5%	90.0%	P		
TT-DC-06-06	3/19/07	6	288.5	126.4	7.4%	117.7	126.7	6.5%	92.9%	P		
TT-DC-07-07	3/19/07	7	289.2	128.4	7.5%	119.4	126.7	6.5%	94.3%	P		
TT-DC-08-05	3/19/07	5	288.6	128.8	7.6%	119.7	126.7	6.5%	94.5%	P		
TT-DC-09-02	3/20/07	2	285.3	123.1	7.5%	114.5	126.7	6.5%	90.4%	P		
TT-DC-10-01	3/20/07	1	286.6	128.8	6.2%	121.3	126.7	6.5%	95.7%	P		
TT-DC-11-02	3/21/07	2	286.5	132.4	9.0%	121.5	126.7	6.5%	95.9%	P		
TT-DC-12-04	3/21/07	4	287.0	127.9	8.5%	120.1	126.7	6.5%	94.8%	P		
TT-DC-13-03	3/21/07	3	287.5	124.9	7.5%	116.2	126.7	6.5%	91.7%	P		
TT-DC-14-04	3/21/07	4	288.1	127.4	7.7%	118.3	126.7	6.5%	93.4%	P		
TT-DC-15-05	3/22/07	5	289.0	124.9	7.2%	116.5	126.7	6.5%	92.0%	P		
TT-DC-16-06	3/22/07	6	289.1	121.3	7.8%	112.5	126.7	6.5%	88.8%	F		Area re-compacted and re-tested as TT-DC-16A-06
TT-DC-16A-06	3/22/07	6	289.0	125.4	7.5%	116.7	126.7	6.5%	92.1%	P	Retest for TT-DC-16-06. Lift was recompacted	
TT-TP01-DC-01-01	2/13/07	1	285.1	122.7	8.9%	112.7	126.7	6.5%	88.9%	F	Lift was pounded in and will need to be rolled	Area re-compacted and re-tested as TT-TP01-DC-01A-01
TT-TP01-DC-01A-01	3/1/07	1	285.3	132.7	8.5%	122.3	126.7	6.5%	96.5%	P	Lift was rolled	
TT-TP01-DC-02-02	3/1/07	2	285.4	132.1	8.4%	121.9	126.7	6.5%	96.2%	P		
TT-TP02-DC-01-01	2/14/07	1	285.9	128.8	8.2%	119.0	126.7	6.5%	94.0%	P		
TT-TP02-DC-02-02	3/1/07	2	286.3	127.3	7.5%	118.4	126.7	6.5%	93.5%	P		
TT-TP02-DC-03-03	3/21/07	3	287.4	125.9	7.7%	116.9	126.7	6.5%	92.3%	P		
TT-TP03-DC-01-01	3/1/07	1	283.2	118.9	7.3%	110.8	126.7	6.5%	87.5%	F	Lift was pounded in and will need to be rolled	Area re-compacted and re-tested as TT-TP03-DC-01A-01
TT-TP03-DC-01A-01	3/2/07	1	283.3	129.4	6.1%	122.0	126.7	6.5%	96.3%	P	Lift was rolled. Retest for TT-TP-03-DC-01-01	
TT-TP03-DC-02-02	3/2/07	2	284.1	125.4	7.2%	117.0	126.7	6.5%	92.3%	P		
TT-TP04-DC-01-01	2/14/07	1	286.2	126.3	8.0%	116.9	126.7	6.5%	92.3%	P		
TT-TP04-DC-02-02	3/1/07	2	286.5	125.2	8.3%	115.6	126.7	6.5%	91.2%	P		
TT-TP04-DC-03-03	3/2/07	3	287.0	128.2	8.7%	117.9	126.7	6.5%	93.1%	P		
TT-TP04-DC-04-04	3/2/07	4	287.5	131.2	9.1%	120.3	126.7	6.5%	94.9%	P		

TABLE 3-12
PURITY OIL SALES SUPERFUND SITE
OFF-SITE DENSITY TESTING SUMMARY

Compaction ID	Date	Lift Number	Elevation (ft)	Wet Density (pcf)	Moisture (%)	Dry Density (pcf)	Applicable Proctor Dry Density (pcf)	Applicable Proctor Moisture (%)	Percent Compaction (%)	Pass or Fail*	Final Observations	Notes
TT-TP04-DC-05-05	3/2/07	5	288.3	126.7	7.1%	118.3	126.7	6.5%	93.4%	P		
TT-TP04-DC-06-06	3/2/07	6	288.6	126.7	7.0%	118.4	126.7	6.5%	93.5%	P		
TT-TP04-DC-07-07	3/2/07	7	290.0	125.0	7.3%	116.5	126.7	6.5%	91.9%	P		
TT-TP05-DC-01-01	2/15/07	1	286.4	120.9	8.0%	111.9	126.7	6.5%	88.4%	F	Lift was pounded in and will need to be rolled.	Area re-compacted and re-tested as TT-TP05-DC-01A-01
TT-TP05-DC-01A-01	3/1/07	1	286.3	132.0	8.0%	122.2	126.7	6.5%	96.5%	P	Lift was rolled. Retest for TT-TP-05-DC-01-01	
TT-TP05-DC-02-02	3/1/07	2	286.7	114.1	7.8%	105.8	126.7	6.5%	83.5%	F	Lift was pounded in and will need to be rolled.	Area re-compacted and re-tested as TT-TP05-DC-02A-02
TT-TP05-DC-02A-02	3/2/07	2	286.4	132.1	8.7%	121.5	126.7	6.5%	95.9%	P	Lift was rolled. Retest for TT-TP-05-DC-02-02	
TT-TP05-DC-03-03	3/2/07	3	287.4	129.6	7.8%	120.2	126.7	6.5%	94.9%	P		
TT-TP05-DC-04-04	3/2/07	4	288.0	132.4	8.6%	121.9	126.7	6.5%	96.2%	P		
TT-TP05-DC-05-05	3/2/07	5	288.8	129.1	7.6%	120.0	126.7	6.5%	94.7%	P		
TT-TP05-DC-06-06	3/2/07	6	290.1	127.0	6.9%	118.8	126.7	6.5%	93.8%	P		
TT-TP06-DC-01-08	3/16/07	8	285.6	131.9	7.4%	122.8	126.7	6.5%	96.9%	P		
TT-TP07-DC-01-01	3/19/07	1	282.1	125.4	7.8%	116.3	126.7	6.5%	91.8%	P		
TT-TP07-DC-02-07	3/19/07	7	285.3	126.6	7.1%	118.2	126.7	6.5%	93.3%	P		
TT-TP08-DC-01-08	3/20/07	8	285.3	126.0	7.2%	117.5	126.7	6.5%	92.8%	P		
TT-TP09-DC-01-01	3/16/07	1	282.9	132.7	7.8%	123.1	126.7	6.5%	97.2%	P		
TOTAL	46									5		
MIN	–	–	–	114.1	6.1%	105.8	–	–	83.5%	–		
MAX	–	–	–	134.1	9.1%	123.2	–	–	97.2%	–		
AVERAGE	–	–	–	127.4	7.8%	118.2	–	–	93.3%	–		
SOUTH MAPLE AVENUE DENSITY TESTS												
SMA-DC-01-01	5/9/07	1	288.5	123.4	7.8%	114.5	122.7	9.2%	93.3%	P		
SMA-DC-02-02	5/9/07	2	289.3	125.5	9.5%	114.6	122.7	9.2%	93.4%	P		
SMA-DC-03-03	5/10/07	3	289.9	133.2	9.5%	121.6	122.7	9.2%	99.1%	P		
SMA-DC-04-04	5/10/07	4	290.5	133.8	8.4%	123.4	126.7	6.5%	97.4%	P		
TOTAL	4									0		
MIN	–	–	–	123.4	7.8%	114.5	–	–	93.3%	–		
MAX	–	–	–	133.8	9.5%	123.4	–	–	99.1%	–		
AVERAGE	–	–	–	129.0	8.8%	118.5	–	–	95.8%	–		
TOTAL FOR ALL OFF-SITE DENSITY TESTS												
TOTAL	170									18		
MIN	–	–	–	113.8	5.3%	105.8	–	–	83.5%	–		
MAX	–	–	–	135.4	12.1%	127.2	–	–	100.4%	–		
AVERAGE	–	–	–	126.0	7.5%	117.2	–	–	93.0%	–		

TOTAL OFF-SITE MOISTURE/DENSITY ANALYSIS QUANTITIES

Off-Site Moisture/Density Analyses: 170 Moisture/Density Analyses Failures: 25

Pass Rate (%): 85.3%

Locations:
BR = Bruno's Iron and Metal
GSMb = Golden State Market Backyard
GSMf = Golden State Market Frontyard
PAPe = Pick-A-Part east excavation
PAPw = Pick-A-Part west excavation
TT = Tall Tree's Mobil Home Park
SMA = South Maple Avenue
DC = Drive Cylider
TP = Test Pit

Sample ID: BR-DC-01-01 = Area- test type-ID number-lift number

Comments: Any failing test was reworked and retested until passing value was attained.
Retests IDs are designated with a A, B or C

* Pass = >90% compaction & moisture content +/- 3% of optimum

TABLE 3-13
PURITY OIL SALES SUPERFUND SITE
CUSHION LAYER DENSITY TEST SUMMARY

Compaction ID	Date	Lift Number	Elevation (ft)	Wet Density (pcf)	Moisture (%)	Dry Density (pcf)	Applicable Proctor Dry Density (pcf)	Applicable Proctor Moisture (%)	Percent Compaction (%)	Pass or Fail*	Final Observations
CL-DC-01	10/1/07	1	296.4	123.4	11.3%	110.9	126.9	7.8%	87.4%	F	Insufficiently compacted needed recompacting
CL-DC-01A	10/1/07	1	295.9	127.2	12.0%	113.6	126.9	7.8%	89.5%	F	Retest for CL-DC-01. Insufficiently rolled, needed recompacting.
CL-DC-01B	10/3/07	1	296.3	126.9	9.0%	116.4	126.9	7.8%	91.8%	P	Retest for CL-DC-01A. Recompacted, rolled a total of 8 passes
CL-DC-02	10/2/07	1	297.7	129.6	8.6%	119.3	126.9	7.8%	94.0%	P	
CL-DC-03	10/2/07	1	290.9	131.8	11.1%	118.7	126.9	7.8%	93.5%	P	
CL-DC-04	10/2/07	1	296.7	117.7	7.7%	109.3	126.9	7.8%	86.1%	F	Insufficiently rolling, area needed more water.
CL-DC-04A	10/2/07	1	297.0	127.5	8.5%	117.5	126.9	7.8%	92.6%	P	Retest for CL-DC-04. Area between test and grid K was rewatered and recompacted
CL-DC-05	10/2/07	1	304.3	130.2	7.8%	120.8	126.9	7.8%	95.2%	P	
CL-DC-06	10/2/07	1	304.6	133.9	10.6%	121.1	126.9	7.8%	95.4%	P	
CL-DC-07	10/3/07	1	299.7	133.5	8.4%	123.1	126.9	7.8%	97.0%	P	
CL-DC-08	10/3/07	1	304.9	129.9	8.1%	120.1	126.9	7.8%	94.8%	P	
CL-DC-09	10/3/07	1	304.7	127.8	7.6%	118.8	126.9	7.8%	93.6%	P	
CL-DC-10	10/9/07	1	292.4	129.3	12.4%	115.0	123.3	9.8%	93.3%	P	
CL-DC-11	10/9/07	1	298.1	129.9	9.6%	118.6	123.3	9.8%	96.1%	P	
CL-DC-12	10/9/07	1	300.1	123.9	7.4%	115.4	123.3	9.8%	93.6%	F	Area was too dry. Added water & recompacted
CL-DC-12A	10/9/07	1	299.8	131.1	9.9%	119.3	123.3	9.8%	96.7%	P	Retest for CL-DC-12
CL-DC-13	10/9/07	1	291.3	131.5	8.6%	121.1	126.9	7.8%	95.4%	P	
CL-DC-14	10/9/07	1	293.2	124.9	9.0%	114.6	123.3	9.8%	93.0%	P	
CL-DC-15	10/10/07	2	303.2	120.0	7.4%	111.7	123.3	9.8%	90.6%	P	Test was performed at north hinge due to added material. Material was placed and compacted on 10/3/07, thus moisture was expected to be dry.
CL-DC-16	10/10/07	2	303.1	124.3	8.4%	114.7	123.3	9.8%	93.0%	P	Test was performed at north hinge due to added material Material was placed and compacted on 10/3/07, thus moisture was expected to be dry
CL-DC-17	10/10/07	2	303.1	121.0	7.5%	112.6	123.3	9.8%	91.3%	P	Test was performed at north hinge due to added material Material was placed and compacted on 10/3/07, thus moisture was expected to be dry.
CL-DC-18	10/10/07	2	303.2	120.9	7.8%	112.1	123.3	9.8%	90.9%	P	Test was performed at north hinge due to added material. Material was placed and compacted on 10/3/07, thus moisture is expected to be dry.
CL-DC-19	10/10/07	2	303.3	111.6	5.1%	106.1	123.3	9.8%	86.1%	F	Test performed at north hinge due to added material. Material was placed and compacted on 10/3/07, however, density too low
CL-DC-19A	10/11/07	2	303.4	128.1	7.8%	118.8	123.3	9.8%	96.3%	P	Retest for CL-DC-19 Only 1 test performed for day due to insufficient material placed and compacted
CL-DC-20	10/15/07	1		123.4	8.2%	114.1	123.3	9.8%	92.6%	P	
CL-DC-21	10/15/07	1		115.0	6.6%	107.9	123.3	9.8%	87.5%	F	
CL-DC-21A	10/15/07	1		125.7	8.1%	116.2	123.3	9.8%	94.3%	P	Retest for CL-DC-21. Area ripped, watered, and recompacted from CL-DC-20 to CL-DC-21A
CL-DC-22	10/15/07	2		124.5	8.0%	115.3	123.3	9.8%	93.5%	P	
CL-DC-23	10/16/07	1		130.9	8.7%	120.5	126.9	7.8%	94.9%	P	Test sample appeared just wet of optimum, thus use previous proctor.
CL-DC-24	10/16/07	1		124.8	8.0%	115.5	126.9	7.8%	91.1%	P	Test sample appeared optimum, thus use previous proctor
CL-DC-25	10/16/07	1		120.4	7.8%	111.9	123.3	9.8%	90.8%	F	Too dry
CL-DC-25A	10/16/07	1		129.4	8.8%	119.2	123.3	9.8%	96.7%	P	Retest for CL-DC-25 Area rewatered
CL-DC-26	10/18/07	2		130.9	9.4%	119.6	123.3	9.8%	97.0%	P	Added material for hpr/quarter crown
CL-DC-27	10/29/07	1	304.99	126.4	8.0%	117.1	126.9	7.8%	92.2%	P	
CL-DC-28	10/29/07	1	304.25	120.1	6.6%	112.7	126.9	7.8%	88.8%	F	Recompacted, retested as CL-DC-28A
CL-DC-28A	10/29/07	1	304.35	125.8	8.0%	116.5	126.9	7.8%	91.8%	P	Retest of CL-DC-28
CL-DC-29	10/30/07	1	304.73	120.6	6.2%	113.6	126.9	7.8%	89.5%	F	Recompacted, retested as CL-DC-28A
CL-DC-29A	10/30/07	1	304.35	120.9	7.0%	113.0	126.9	7.8%	89.0%	F	Recompacted, retested as CL-DC-28B
CL-DC-29B	10/30/07	1	304.57	124.0	9.7%	113.1	123.3	9.8%	91.7%	P	Retest of CL-DC-28A
CL-DC-30	10/30/07	1	294.78	127.3	8.0%	117.9	123.3	9.8%	95.6%	P	
CL-DC-31	10/30/07	1	295.84	128.8	9.9%	117.2	123.3	9.8%	95.1%	P	
CL-DC-32	10/31/07	1	296.31	118.6	7.2%	110.7	123.3	9.8%	89.8%	F	Recompact, retest as CL-DC-32A
CL-DC-32A	10/31/07	1	295.98	127.6	10.2%	116.0	123.3	9.8%	94.1%	P	Retest of CL-DC-32
CL-DC-33	10/31/07	1	295.30	122.4	8.8%	112.5	123.3	9.8%	91.2%	P	Miss marked in field as a fail. Test is a pass
CL-DC-33A	11/1/07	1	295.23	122.5	7.7%	113.7	123.3	9.8%	92.2%	P	Test did not pass moisture requirement, however, EPA's field representative approved sample as Passed
CL-DC-34	10/31/07	1	296.23	121.3	7.5%	112.8	123.3	9.8%	91.5%	F	Too dry, added water retest as CL-DC-34A
CL-DC-34A	10/31/07	1	297.00	123.4	9.1%	113.1	123.3	9.8%	91.7%	P	
CL-DC-35	10/31/07	1	296.64	112.6	6.9%	105.3	123.3	9.8%	85.4%	F	Too dry, collected CL-DC-36 in same area
CL-DC-36	10/31/07	1	291.93	121.2	6.7%	113.6	123.3	9.8%	92.1%	F	Failed due to moisture low moisture content Added moisture, retested as CL-DC-36A
CL-DC-36A	11/1/07	1	291.62	119.7	8.9%	109.9	123.3	9.8%	89.1%	F	Recompact, retest as CL-DC-36B
CL-DC-36B	11/1/07	1	291.34	124.5	9.4%	113.8	123.3	9.8%	92.3%	P	Retest of CL-DC-36A
CL-DC-37	11/1/07	1	300.10	117.3	9.9%	106.7	123.3	9.8%	86.6%	F	Recompact, retest as CL-DC-37A
CL-DC-37A	11/1/07	1	300.16	127.9	10.6%	115.7	123.3	9.8%	93.8%	P	Retest of CL-DC-37
CL-DC-38	11/1/07	1	297.92	122.1	9.9%	111.1	123.3	9.8%	90.1%	P	Collected in same area as CL-DC-35

TABLE 3-13
PURITY OIL SALES SUPERFUND SITE
CUSHION LAYER DENSITY TEST SUMMARY

Compaction ID	Date	Lift Number	Elevation (ft)	Wet Density (pcf)	Moisture (%)	Dry Density (pcf)	Applicable Proctor Dry Density (pcf)	Applicable Proctor Moisture (%)	Percent Compaction (%)	Pass or Fail*	Final Observations
CL-DC-39	11/1/07	1	295.84	126.9	9.7%	115.7	123.3	9.8%	93.8%	P	
CL-DC-40	10/30/07	1	297.63	120.7	8.1%	111.7	123.3	9.8%	90.6%	P	
CL-DC-41	11/1/07	1	297.63	127.2	10.1%	115.5	123.3	9.8%	93.7%	P	
CL-DC-42	11/8/07	1		129.7	9.8%	118.2	123.3	9.8%	95.9%	P	Insufficient volume of material to perform minimum of 4 drive cylinders
CL-DC-43	11/9/07	1		132.4	10.7%	119.6	123.3	9.8%	97.0%	P	
CL-DC-44	11/9/07	1		130.8	9.2%	119.8	123.3	9.8%	97.1%	P	Insufficient volume of material to perform minimum of 4 drive cylinders
CL-DC-45	11/13/07	1		128.1	9.4%	117.1	123.3	9.8%	95.0%	P	
CL-SC-01	10/16/07	1		124.3	7.2%	115.9	126.9	7.8%	91.4%	P	Sandcone field verification test for CL-DC-24
CL-SC-02	11/8/07	1		131.8	9.6%	120.2	123.3	9.8%	97.5%	P	Sand Cone Field Verification for drive cylinder test CL-DC-42
MIN	–	–	–	111.6	5.1%	105.3	–	–	85.4%	–	
MAX	–	–	–	133.9	12.4%	123.1	–	–	97.1%	–	
AVERAGE	–	–	–	125.1	8.6%	115.1	–	–	92.5%	–	

MOISTURE/DENSITY ANALYSES QUANTITIES

Reporting Period: 10/1/07 to 11/8/07

Cushion Layer Drive Cylinder Moisture/Density Analyses: 61

Drive Cylinder Moisture/Density Analyses Failures: 16

Cushion Layer Sand Cone Moisture/Density Analyses: 2

Pass Rate (%): 73.8%

CL = Cushion Layer
DC = Drive Cylinder
SC = Sand Cone
Sample ID: CL-DC-99 = Area-test type-ID number
Comments: Any failed test was reworked and retested until a passing value was attained
Retest IDs are designated with A, B, or C.

* Pass = >90% compaction & moisture content +/- 3% of optimum

TABLE 3-14
PURITY OIL SALES SUPERFUND SITE
ENGINEERED CAP DENSITY TEST SUMMARY

Compaction ID	Date	Lift Number	Elevation (ft)	Wet Density (pcf)	Moisture (%)	Dry Density (pcf)	Applicable Proctor Dry Density (pcf)	Applicable Proctor Moisture (%)	Percent Compaction (%)	Pass or Fail	Final Observations
Vegitation Layer											
VEG-DC-01-01	11/12/07	1	297.5	118.3	5.9%	111.7	125.7	7.9%	88.9%	P	
VEG-DC-02-01	11/12/07	1	302.1	114.9	6.1%	108.3	125.7	7.9%	86.2%	P	
VEG-DC-03-01	11/12/07	1	291.2	126.1	7.9%	116.9	125.7	7.9%	93.0%	P	
VEG-DC-04-01	11/12/07	1	296.4	117.9	6.1%	111.1	125.7	7.9%	88.4%	P	
VEG-DC-05-01	11/12/07	1	296.3	114.3	6.0%	107.8	125.7	7.9%	85.8%	P	
VEG-DC-06-01	11/12/07	1	296.1	128.8	9.1%	118.1	125.7	7.9%	94.0%	P	
VEG-DC-07-01	11/14/07	1	289.0	127.6	11.5%	114.5	125.7	7.9%	91.1%	P	North toe, excavated approx. 0.6', bottom of drive cylinder is approx. 0.2' above GDL
VEG-DC-08-01	11/14/07	1	289.7	130.2	9.8%	118.6	125.7	7.9%	94.4%	P	North toe, excavated approx. 0.4'
VEG-DC-09-01	11/14/07	1	289.5	129.4	11.7%	115.9	125.7	7.9%	92.2%	P	North toe, excavated approx. 0.4'
VEG-DC-10-01	11/14/07	1	289.5	122.1	8.4%	112.6	125.7	7.9%	89.6%	P	North toe, excavated approx. 0.4'
VEG-DC-11-01	11/14/07	1	295.1	126.7	8.4%	117.0	125.7	7.9%	93.0%	P	
VEG-DC-12-01	11/14/07	1	302.1	123.4	7.6%	114.7	125.7	7.9%	91.3%	P	
VEG-DC-13-01	11/14/07	1	291.5	128.1	8.0%	118.5	125.7	7.9%	94.3%	P	
VEG-DC-14-01	11/14/07	1	303.2	118.3	7.3%	110.2	125.7	7.9%	87.7%	P	
VEG-DC-15-01	11/14/07	1	304.8	127.8	6.6%	119.8	125.7	7.9%	95.3%	P	
VEG-DC-16-01	11/14/07	1	304.6	119.2	6.1%	112.4	125.7	7.9%	89.4%	P	
VEG-DC-17-01	11/15/07	1	305.3	122.5	5.9%	115.7	125.7	7.9%	92.0%	P	
VEG-DC-18-01	11/15/07	1	297.3	125.7	8.8%	115.5	125.7	7.9%	91.9%	P	
VEG-DC-19-01	11/15/07	1	305.3	121.6	5.7%	115.0	125.7	7.9%	91.5%	P	
VEG-DC-20-01	11/15/07	1	305.2	122.8	5.0%	117.0	125.7	7.9%	93.1%	P	
VEG-DC-21-01	11/15/07	1	304.7	125.1	6.5%	117.4	125.7	7.9%	93.4%	P	
VEG-DC-22-01	11/15/07	1	294.2	129.7	8.7%	119.3	125.7	7.9%	94.9%	P	
VEG-DC-23-01	11/15/07	1	306.0	116.2	6.7%	108.9	125.7	7.9%	86.6%	P	
VEG-DC-24-01	11/15/07	1	306.1	123.0	6.1%	115.9	125.7	7.9%	92.2%	P	
VEG-DC-25-02	11/20/07	2	305.9	123.6	8.2%	114.2	126.9	7.8%	90.0%	P	Material from residual stockpile, density test sample appeared at optimum moisture, thus use previous best fitting proctor
VEG-DC-26-02	11/20/07	2	305.7	119.7	7.1%	111.7	126.9	7.8%	88.0%	P	
VEG-DC-27-02	11/20/07	2	307.0	123.1	7.3%	114.7	126.9	7.8%	90.4%	P	
VEG-DC-28-02	11/20/07	2	306.5	121.6	8.0%	112.6	126.9	7.8%	88.7%	P	
VEG-DC-29-02	11/20/07	2	305.6	121.8	7.0%	113.9	126.9	7.8%	89.7%	P	
VEG-DC-30-02	11/20/07	2	306.4	120.7	5.5%	114.4	126.9	7.8%	90.1%	P	
VEG-DC-31-02	11/27/07	2	295.9	117.1	7.0%	109.5	126.9	7.8%	86.3%	P	
VEG-DC-32-02	11/27/07	2	296.3	118.2	8.2%	109.2	126.9	7.8%	86.1%	P	
VEG-DC-33-02	11/27/07	2	292.5	125.2	7.9%	116.0	126.9	7.8%	91.4%	P	
VEG-DC-34-02	11/27/07	2	301.2	119.7	6.5%	112.4	126.9	7.8%	88.5%	P	
VEG-DC-35-02	11/28/07	2	295.6	121.6	8.3%	112.3	126.9	7.8%	88.5%	P	
VEG-DC-36-02	11/29/07	2	302.6	117.6	7.2%	109.7	126.9	7.8%	86.5%	P	
VEG-DC-37-02	11/29/07	2	295.7	117.3	7.3%	109.3	126.9	7.8%	86.1%	P	
VEG-DC-38-02	11/29/07	2	297.6	117.1	7.5%	108.9	126.9	7.8%	85.8%	P	
VEG-DC-39-02	11/29/07	2	297.6	117.1	6.9%	109.6	126.9	7.8%	86.4%	P	
VEG-DC-40-02	12/3/07	2	299.3	123.0	7.5%	114.4	126.9	7.8%	90.2%	P	
VEG-DC-41-01	12/3/07	1	294.3	122.7	7.4%	114.2	126.9	7.8%	90.0%	P	
VEG-DC-42-01	12/6/07	1	304.9	121.8	6.3%	114.6	125.7	7.9%	91.1%	P	
VEG-DC-43-01	12/6/07	1	304.9	121.2	6.7%	113.6	125.7	7.9%	90.4%	P	
VEG-DC-44-01	12/10/07	1	287.6	123.1	8.5%	113.5	126.4	8.2%	89.8%	P	
VEG-DC-45-01	12/10/07	1	289.1	129.9	8.6%	119.6	126.4	8.2%	94.6%	P	
VEG-DC-46-01	12/11/07	1		122.5	7.7%	113.7	126.4	8.2%	90.0%	P	
VEG-DC-47-01	12/11/07	1	299.7	125.7	7.9%	116.4	126.4	8.2%	92.1%	P	
VEG-DC-48-01	12/11/07	1	293.9	129.1	7.9%	119.7	126.4	7.9%	94.7%	P	
VEG-DC-49-02	12/11/07	2	306.7	127.5	7.0%	119.1	126.4	8.2%	94.3%	P	
VEG-DC-50-01	12/12/07	1	300.8	128.1	7.1%	119.6	126.4	8.2%	94.6%	P	
VEG-DC-51-01	12/12/07	1	301.3	126.1	7.2%	117.7	126.4	8.2%	93.1%	P	
VEG-DC-52-01	12/12/07	1	301.0	117.1	7.2%	109.3	126.4	8.2%	86.4%	P	
VEG-DC-53-01	12/12/07	1	298.7	122.1	7.9%	113.1	126.4	8.2%	89.5%	P	
VEG-DC-54-01	12/14/07	1	305.0	123.3	5.8%	116.5	126.4	8.2%	92.2%	P	
VEG-DC-55-01	12/14/07	1	305.6	124.0	7.2%	115.7	126.4	8.2%	91.6%	P	
VEG-DC-56-01	12/14/07	1	299.7	118.8	6.0%	112.0	126.4	8.2%	88.6%	P	
VEG-DC-57-01	12/15/07	1	305.5	128.1	6.6%	120.2	126.4	8.2%	95.1%	P	
VEG-DC-58-01	12/15/07	1	295.7	121.9	6.2%	114.9	126.4	8.2%	90.9%	P	
VEG-DC-59-01	12/15/07	1	293.4	126.6	7.2%	118.1	126.4	8.2%	93.4%	P	
VEG-DC-60-02	12/17/07	2	301.3	118.8	6.2%	111.8	126.4	8.2%	88.5%	P	
VEG-DC-61-02	12/17/07	2	306.4	122.5	5.8%	115.8	126.4	8.2%	91.6%	P	
VEG-DC-62-02	12/18/07	2	306.9	120.7	6.5%	113.4	126.9	7.8%	89.4%	P	Material from residual stockpile, thus previous proctor applied.
VEG-DC-63-02	12/18/07	2	302.1	120.0	6.7%	112.5	126.4	8.2%	89.0%	P	

TABLE 3-14
PURITY OIL SALES SUPERFUND SITE
ENGINEERED CAP DENSITY TEST SUMMARY

Compaction ID	Date	Lift Number	Elevation (ft)	Wet Density (pcf)	Moisture (%)	Dry Density (pcf)	Applicable Proctor Dry Density (pcf)	Applicable Proctor Moisture (%)	Percent Compaction (%)	Pass or Fail	Final Observations
VEG-DC-64-02	12/18/07	2	300.2	123.0	6.9%	115.1	126.4	8.2%	91.0%	P	
VEG-DC-65-02	12/18/07	2	295.8	124.8	7.8%	115.7	126.4	8.2%	91.6%	P	
VEG-DC-66-02	1/3/08	2	294.7	120.9	7.9%	112.1	126.4	8.2%	88.7%	P	
VEG-DC-67-02	1/3/08	2	297.2	118.8	7.5%	110.5	126.4	8.2%	87.4%	P	
VEG-DC-68-02	1/3/08	2	288.4	130.9	9.2%	119.9	126.4	8.2%	94.9%	P	
VEG-DC-69-02	1/3/08	2	306.8	119.7	6.5%	112.3	126.4	8.2%	88.9%	P	
VEG-DC-70-02	1/16/08	2	294.4	125.6	10.1%	114.0	126.4	8.2%	90.2%	P	
VEG-DC-69-02A	1/16/08	2		133.7	9.5%	122.3	126.4	8.2%	96.7%	P	
VEG-DC-71-02	1/16/08	2	294.50	128.6	10.3%	116.5	126.4	8.2%	92.1%	P	
VEG-DC-72-02	1/16/08	2	295.4	133.5	9.4%	122.1	126.4	8.2%	96.6%	P	Was reported as VEG-DC-69-02A
VEG-DC-73-06	1/15/08	6	292.9	129.0	9.4%	117.9	126.4	8.2%	93.2%	P	Reported as SF-DC-19-06
VEG-DC-74-06	1/15/08	6	292.9	130.2	9.1%	119.3	126.4	8.2%	94.4%	P	Reported as SF-DC-20-06
VEG-DC-75-07	1/15/08	7	291.8	120.6	9.4%	110.2	126.4	8.2%	87.2%	P	Reported as SF-DC-21-07
VEG-DC-76-08	1/16/08	8	292.2	124.3	9.4%	113.7	126.4	8.2%	89.9%	P	Reported as SF-DC-24-08
VEG-DC-77-03	1/16/08	3	293.4	131.5	9.5%	120.1	126.4	8.2%	95.0%	P	Reported as SF-DC-25-03
VEG-DC-78-04	1/17/08	4	293.3	131.2	9.6%	119.7	126.4	8.2%	94.7%	P	Reported as SF-DC-26-04
VEG-DC-79-08	1/17/08	8	295.1	129.0	8.8%	118.6	126.4	8.2%	93.8%	P	Reported as SF-DC-27-08
VEG-DC-80-05	1/17/08	5	294.5	124.6	9.6%	113.8	126.4	8.2%	90.0%	P	Reported as SF-DC-28-05
VEG-DC-81-06	1/17/08	6	291.4	130.8	8.5%	120.6	126.4	8.2%	95.4%	P	Reported as SF-DC-29-06
VEG-DC-82-06	1/17/08	6	292.9	125.4	8.0%	116.1	126.4	8.2%	91.8%	P	Reported as SF-DC-30-06
VEG-DC-83-07	1/17/08	7	292.4	117.7	8.9%	108.1	126.4	8.2%	85.5%	P	Reported as SF-DC-31-07
VEG-DC-84-07	1/17/08	7	292.9	123.1	8.2%	113.8	126.4	8.2%	90.0%	P	Reported as SF-DC-32-07
VEG-DC-85-08	1/18/08	8	292.0	123.6	8.7%	113.7	126.4	8.2%	89.9%	P	Reported as SF-DC-33-08
VEG-DC-86-08	1/18/08	8	293.2	120.1	10.0%	109.2	126.4	8.2%	86.4%	P	Reported as SF-DC-34-08
VEG-DC-87-08	1/18/08	8	294.4	121.0	8.5%	111.6	126.4	8.2%	88.3%	P	Reported as SF-DC-35-08
VEG-DC-88-06	1/18/08	6	289.8	125.5	8.8%	115.3	126.4	8.2%	91.2%	P	Reported as SF-DC-36-06
VEG-DC-89-07	1/18/08	7	290.5	118.2	7.6%	109.8	126.4	8.2%	86.9%	P	Reported as SF-DC-37-08
VEG-DC-90-08	1/18/08	8	290.8	117.1	7.7%	108.8	126.4	8.2%	86.1%	P	Reported as SF-DC-38-08
VEG-DC-91-08	1/18/08	8	293.0	120.6	7.9%	111.7	126.4	8.2%	88.4%	P	Reported as SF-DC-39-08
VEG-DC-92-08	1/18/08	8	295.4	116.7	9.4%	106.7	126.4	8.2%	84.4%	F	Reported as SF-DC-40-08. Reworked area, retested as VEG-DC-92A-08
VEG-DC-92A-08	1/19/08	8	295.2	128.2	9.1%	117.6	126.4	8.2%	93.0%	P	Reported as SF-DC-40A-08. Retest for VEG-DC-92-08
VEG-DC-93-06	1/19/08	6	293.1	121.5	7.7%	112.8	126.4	8.2%	89.3%	P	Reported as SF-DC-41-06. Reworked area, retested as VEG-DC-93A-06. Original test was mistaken for failure
VEG-DC-93A-06	1/19/08	6	293.0	126.8	7.8%	117.8	126.4	8.2%	93.1%	P	Reported as SF-DC-41A-06. Retest for VEG-DC-93-06
VEG-DC-94-07	1/19/08	7	293.9	120.9	8.1%	111.8	126.4	8.2%	88.4%	P	Reported as SF-DC-42-01
VEG-DC-95-08	1/19/08	8	294.3	120.7	8.3%	111.5	126.4	8.2%	88.2%	P	Reported as SF-DC-43-08
VEG-DC-96-08	2/7/08	2	300.39	126.0	10.9%	113.6	126.4	8.2%	89.9%	P	
VEG-DC-97-08	2/7/08	2	292.41	120.8	9.4%	110.4	126.4	8.2%	87.4%	P	
VEG-DC-98-08	2/7/08	2	300.38	129.4	11.5%	116.1	126.4	8.2%	91.8%	P	
VEG-DC-99-08	2/7/08	2	298.45	130.4	10.4%	118.1	126.4	8.2%	93.4%	P	
VEG-DC-100-08	2/7/08	2	293.64	129.1	10.5%	116.8	126.4	8.2%	92.4%	P	
VEG-DC-101-08	2/7/08	2	301.19	130.4	10.0%	118.5	126.4	8.2%	93.8%	P	
VEG-DC-102-01	2/18/08	1	305.15	129.0	8.9%	118.5	126.4	8.2%	93.7%	P	
VEG-DC-103-02	2/27/08	2	305.66	115.0	7.9%	106.6	126.4	8.2%	84.3%	F	Reworked area and re-tested as VEG-DC-103A-02
VEG-DC-103A-02	2/28/08	2	305.67	120.8	8.0%	111.9	126.4	8.2%	88.5%	P	Re-test of VEG-DC-103-02
VEG-DC-104-01	3/10/08	1	289.45	130.9	9.2%	119.9	126.4	8.2%	94.8%	P	
VEG-DC-105-02	3/10/08	2	290.39	102.5	7.2%	95.6	126.4	8.2%	75.6%	F	Area reworked and re-tested as VEG-DC-105A-02
VEG-DC-105A-02	3/10/08	2	289.91	113.6	6.7%	106.5	126.4	8.2%	84.2%	F	Area is wet and will be recompacted/re-tested once dry.
VEG-DC-106-01	3/13/08	1	304.80	121.3	7.8%	112.5	126.4	8.2%	89.0%	F	Area reworked and re-tested as VEG-DC-106A-01
VEG-DC-106A-01	3/13/08	1	304.83	120.7	8.4%	111.3	126.4	8.2%	88.1%	F	Re-test of VEG-DC-106-01. Area reworked and re-tested as VEG-DC-106B-01
VEG-DC-106B-01	3/13/08	1	304.85	126.5	8.4%	116.7	126.4	8.2%	92.3%	P	Re-test of VEG-DC-106A-01
VEG-DC-107-01	3/13/08	1	305.19	125.0	9.6%	114.1	126.4	8.2%	90.2%	P	
VEG-DC-108-01	3/13/08	1	304.96	120.2	7.4%	111.9	126.4	8.2%	88.5%	F	Area reworked and re-tested as VEG-DC-108A-01
VEG-DC-108A-01	3/13/08	1	304.95	126.8	9.2%	116.1	126.4	8.2%	91.9%	P	Re-test of VEG-DC-108-01
VEG-DC-109-02	3/13/08	2	305.63	124.1	7.1%	115.9	126.4	8.2%	91.7%	P	
VEG-DC-110-02	3/13/08	2	305.98	125.3	7.9%	116.1	126.4	8.2%	91.9%	P	
VEG-DC-111-02	3/13/08	2	305.57	128.9	8.1%	119.2	126.4	8.2%	94.3%	P	
VEG-DC-112-01	3/13/08	1	304.69	125.3	8.7%	115.3	126.4	8.2%	91.2%	P	
VEG-DC-113-02	3/14/08	2	305.46	128.6	10.3%	116.6	126.4	8.2%	92.2%	P	
VEG-DC-114-01	3/14/08	1	289.45	121.9	6.8%	114.1	126.4	8.2%	90.3%	P	
VEG-DC-115-02	3/14/08	2	290.08	131.2	8.9%	120.5	126.4	8.2%	95.3%	P	
VEG-DC-116-03	3/15/08	3	290.54	120.8	7.9%	112.0	126.4	8.4%	88.6%	P	
VEG-DC-117-01	3/13/08	1	288.69	129.2	8.2%	119.4	126.4	8.2%	94.5%	P	
VEG-DC-118-02	3/13/08	2	288.70	131.2	8.3%	121.1	126.4	8.2%	95.8%	P	
VEG-DC-119-01	3/13/08	1	288.83	128.8	8.5%	118.7	126.4	8.2%	93.9%	P	

TABLE 3-14
PURITY OIL SALES SUPERFUND SITE
ENGINEERED CAP DENSITY TEST SUMMARY

Compaction ID	Date	Lift Number	Elevation (ft)	Wet Density (pcf)	Moisture (%)	Dry Density (pcf)	Applicable Proctor Dry Density (pcf)	Applicable Proctor Moisture (%)	Percent Compaction (%)	Pass or Fail	Final Observations
VEG-DC-120-01	3/14/08	1	289.44	123.2	7.6%	114.5	126.4	8.2%	90.6%	P	
VEG-DC-121-01	3/27/08	1		115.7	7.7%	107.4	126.4	8.2%	85.0%	F	Area re-worked and re-tested as VEG-DC-121A-01
VEG-DC-121A-01	3/27/08	1		129.5	6.7%	121.4	126.4	8.2%	96.0%	P	Re-test of VEG-DC-121-01
VEG-DC-122-02	3/27/08	2		131.8	8.2%	121.8	126.4	8.2%	96.4%	P	
VEG-DC-123-3	3/27/08	3		128.3	8.4%	118.4	126.4	8.2%	93.6%	P	
VEG-DC-124-03	3/27/08	3		121.4	7.5%	112.9	126.4	8.2%	89.3%	F	Area re-worked and re-tested as VEG-DC-124A-01
VEG-DC-124A-03	3/27/08	3		134.2	8.3%	123.9	126.4	8.2%	98.0%	P	Re-test of VEG-DC-124-01
VEG-DC-125-04	3/27/08	4		132.1	8.8%	121.4	126.4	8.2%	96.1%	P	
VEG-DC-126-05	3/27/08	5		129.1	8.0%	119.5	126.4	8.2%	94.6%	P	
VEG-DC-127-06	3/28/08	6		131.6	7.5%	122.4	126.4	8.2%	96.9%	P	
VEG-DC-128-01	3/28/08	1		121.9	6.0%	115.0	126.4	8.2%	91.0%	F	Area re-worked and re-tested as VEG-DC-128A-01
VEG-DC-128A-01	3/28/08	1		121.9	6.2%	114.8	126.4	8.2%	90.8%	P	Re-test of VEG-DC-128-01
VEG-DC-129-02	3/28/08	2		124.7	6.6%	117.0	126.4	8.2%	92.5%	P	
VEG-DC-130-02	3/28/08	2		129.8	7.1%	121.2	126.4	8.2%	95.9%	P	
VEG-DC-131-03	3/28/08	3		125.6	8.6%	115.7	126.4	8.2%	91.5%	P	
VEG-DC-132-03	3/28/08	3		129.7	9.4%	118.6	126.4	8.2%	93.8%	P	
VEG-DC-133-03	3/29/08	3		131.8	8.4%	121.6	126.4	8.2%	96.2%	P	
VEG-DC-134-04	3/29/08	4		124.6	7.3%	116.1	126.4	8.2%	91.9%	P	
VEG-DC-135-04	3/29/08	4		131.5	9.4%	120.2	126.4	8.2%	95.1%	P	
VEG-DC-136-05	3/29/08	5		130.0	8.3%	120.0	126.4	8.2%	95.0%	P	
VEG-DC-137-06	3/31/08	6	289.87	123.8	8.1%	114.5	126.4	8.2%	90.6%	P	
VEG-DC-138-07	3/31/08	7	290.47	129.8	9.0%	119.1	126.4	8.2%	94.2%	P	
VEG-DC-139-05	3/31/08	5	289.16	125.3	8.4%	115.6	126.4	8.2%	91.4%	P	
VEG-DC-140-08	3/31/08	8	291.28	127.9	8.6%	117.8	126.4	8.2%	93.2%	P	
VEG-DC-141-06	3/31/08	6	289.76	128.6	8.4%	118.6	126.4	8.2%	93.9%	P	
VEG-DC-142-09	3/31/08	9	291.78	127.7	8.2%	118.0	126.4	8.2%	93.4%	P	
VEG-DC-143-07	3/31/08	7	290.55	121.1	7.6%	112.5	126.4	8.2%	89.0%	P	
VEG-DC-144-10	3/31/08	10	292.35	109.1	5.2%	103.7	126.4	8.2%	82.0%	F	Area re-worked and re-tested as VEG-DC-144A-10
VEG-DC-144A-10	4/1/08	10	292.17	126.1	6.6%	118.3	126.4	8.2%	93.6%	P	Re-test of VEG-DC-144-10
VEG-DC-145-08	4/1/08	8	291.04	128.9	8.3%	119.0	126.4	8.2%	94.2%	P	
VEG-DC-146-09	4/1/08	9	291.83	123.4	8.0%	114.3	126.4	8.2%	90.4%	P	
VEG-DC-147-05	4/1/08	5	289.25	126.1	8.4%	116.3	126.4	8.2%	92.0%	P	
VEG-DC-148-05	4/2/08	5	289.23	128.9	7.4%	120.0	126.4	8.2%	95.0%	P	
VEG-DC-149-06	4/2/08	6	289.39	127.7	7.8%	118.5	126.4	8.2%	93.7%	P	
VEG-DC-150-01	4/3/08	1	289.24	120.2	6.0%	113.4	126.4	8.2%	89.7%	F	Area re-worked and re-tested as VEG-DC-150A-01
VEG-DC-150A-01	4/3/08	1	289.16	125.5	7.7%	116.5	126.4	8.2%	92.2%	P	Re-test of VEG-DC-150-01
VEG-DC-151-01	4/10/08	1	292.45	113.6	5.1%	108.1	126.4	8.2%	85.5%	F	Area re-worked and re-tested as VEG-DC-151A-01
VEG-DC-151A-01	4/10/08	1	292.45	132.4	7.7%	122.9	126.4	8.2%	97.3%	P	Re-test of VEG-DC-151-01
VEG-DC-152-02	4/11/08	2	293.45	128.8	9.1%	118.1	126.4	8.2%	93.4%	P	
VEG-DC-153-02	4/11/08	2	293.73	128.6	8.5%	118.5	126.4	8.2%	93.8%	P	
VEG-DC-154-04	4/18/08	4	291.02	121.1	6.8%	113.4	126.4	8.2%	89.7%	P	
VEG-DC-155-01	4/23/08	1	287.16	124.6	7.4%	116.0	126.4	8.2%	91.8%	P	
VEG-DC-156-02	4/23/08	2	287.56	120.1	6.8%	112.5	126.4	8.2%	89.0%	F	Area re-worked and re-tested as VEG-DC-156A-02
VEG-DC-156A-02	4/23/08	2	287.74	131.1	9.4%	119.8	126.4	8.2%	94.8%	P	Re-test of VEG-DC-156-02
VEG-DC-157-03	4/23/08	3	288.11	131.2	8.4%	121.0	126.4	8.2%	95.8%	P	
VEG-DC-158-04	4/24/08	4	288.14	125.6	7.9%	116.4	126.4	8.2%	92.1%	P	
VEG-DC-159-01	4/30/08	1	287.66	132.5	8.5%	122.1	126.4	8.2%	96.6%	P	
VEG-DC-160-01	4/30/08	1	290.47	136.1	8.6%	125.3	126.4	8.2%	99.1%	P	
VEG-DC-161-02	4/30/08	2	288.37	128.2	7.2%	119.6	126.4	8.2%	94.6%	P	
VEG-DC-162-02	4/30/08	2	288.50	132.7	7.8%	123.1	126.4	8.2%	97.4%	P	
VEG-DC-163-03	4/30/08	3	288.70	132.5	8.5%	122.1	126.4	8.2%	96.6%	P	
VEG-DC-164-03	4/30/08	3	288.95	133.4	8.7%	122.7	126.4	8.2%	97.1%	P	
VEG-DC-165-04	4/30/08	4	289.15	132.7	7.3%	123.7	126.4	8.2%	97.8%	P	
VEG-DC-166-04	4/30/08	4	289.62	137.0	7.8%	127.1	126.4	8.2%	100.5%	P	
VEG-DC-167-05	4/30/08	5	289.83	134.3	7.2%	125.3	126.4	8.2%	99.1%	P	
VEG-DC-168-05	4/30/08	5	290.39	137.3	7.9%	127.2	126.4	8.2%	100.7%	P	
VEG-DC-169-06	4/30/08	6	290.47	129.1	6.2%	121.6	126.4	8.2%	96.2%	P	
VEG-DC-170-01	5/2/08	1	289.44	129.7	6.8%	121.4	126.4	8.2%	96.1%	P	
VEG-DC-171-02	5/2/08	2	290.13	132.8	7.9%	123.1	126.4	8.2%	97.4%	P	
VEG-DC-172-01	5/3/08	3	288.72	129.3	7.3%	120.5	126.4	8.2%	95.3%	P	
VEG-DC-173-01	5/3/08	1	288.19	117.2	11.6%	105.0	126.4	8.2%	83.1%	F	Area re-worked and re-tested as VEG-DC-173A-01
VEG-DC-173A-01	5/5/08	1	288.15	131.5	10.8%	118.7	126.4	8.2%	93.9%	P	Re-test of VEG-DC-173-01
VEG-DC-174-01	5/3/08	1	288.23	121.0	9.2%	110.8	126.4	8.2%	87.7%	F	Area re-worked and re-tested as VEG-DC-174A-01
VEG-DC-174A-01	5/5/08	1	288.01	132.7	11.0%	119.5	126.4	8.2%	94.6%	P	Re-test of VEG-DC-174-01

TABLE 3-14
PURITY OIL SALES SUPERFUND SITE
ENGINEERED CAP DENSITY TEST SUMMARY

Compaction ID	Date	Lift Number	Elevation (ft)	Wet Density (pcf)	Moisture (%)	Dry Density (pcf)	Applicable Proctor Dry Density (pcf)	Applicable Proctor Moisture (%)	Percent Compaction (%)	Pass or Fail	Final Observations
VEG-DC-175-01	5/3/08	1	288.00	125.9	8.2%	116.4	126.4	8.2%	92.1%	P	
VEG-DC-176-01	5/3/08	1	288.18	125.8	10.2%	114.2	126.4	8.2%	90.3%	P	
VEG-DC-177-01	5/3/08	1	287.90	132.7	7.8%	123.1	126.4	8.2%	97.4%	P	
VEG-DC-178-02	5/5/08	2	289.16	130.9	8.4%	120.8	126.4	8.2%	95.6%	P	
VEG-DC-179-02	5/5/08	2	288.97	127.3	8.0%	117.9	126.4	8.2%	93.3%	P	
VEG-DC-180-02	5/5/08	2	288.89	127.5	10.0%	115.9	126.4	8.2%	91.7%	P	
VEG-DC-181-02	5/5/08	2	288.57	131.2	9.3%	120.1	126.4	8.2%	95.0%	P	
VEG-DC-182-02	5/5/08	2	288.74	133.7	8.8%	122.9	126.4	8.2%	97.2%	P	
VEG-DC-183-02	5/5/08	2	288.57	132.6	7.1%	123.8	126.4	8.2%	97.9%	P	
VEG-DC-184-03	5/5/08	3	289.84	133.8	8.2%	123.7	126.4	8.2%	97.8%	P	
VEG-DC-185-03	5/5/08	3	289.58	127.5	10.1%	115.8	126.4	8.2%	91.6%	P	
VEG-DC-186-03	5/5/08	3	289.61	131.2	9.5%	119.9	126.4	8.2%	94.8%	P	
VEG-DC-187-03	5/5/08	3	289.39	129.6	8.9%	119.0	126.4	8.2%	94.1%	P	
VEG-DC-188-03	5/5/08	3	289.73	132.9	9.6%	121.2	126.4	8.2%	95.9%	P	
VEG-DC-189-03	5/5/08	3	289.45	132.7	8.8%	121.9	126.4	8.2%	96.4%	P	
VEG-DC-190-01	5/6/08	1	288.97	118.4	4.6%	113.0	126.4	8.2%	89.4%	F	Area re-worked and re-tested as VEG-DC-190A-01
VEG-DC-190A-01	5/6/08	1	289.09	133.4	7.4%	124.2	126.4	8.2%	98.3%	P	Re-test of VEG-DC-190-01
VEG-DC-191-02	5/6/08	2	289.44	124.7	8.1%	115.4	126.4	8.2%	91.3%	P	
VEG-DC-192-01	5/6/08	1	290.49	117.8	5.5%	111.6	126.4	8.2%	88.3%	F	Area re-worked and re-tested as VEG-DC-192A-01
VEG-DC-192A-01	5/6/08	1	290.53	132.8	9.8%	120.9	126.4	8.2%	95.7%	P	Re-test of VEG-DC-192-01
VEG-DC-193-01	5/6/08	1	289.99	126.4	8.4%	116.6	126.4	8.2%	92.3%	P	
VEG-DC-194-03	5/6/08	3	289.89	131.6	10.1%	119.5	126.4	8.2%	94.6%	P	
VEG-DC-195-04	5/6/08	4	290.26	138.4	10.3%	125.5	126.4	8.2%	99.3%	P	
VEG-DC-196-01	5/6/08	1	289.96	133.3	8.5%	122.9	126.4	8.2%	97.2%	P	
VEG-DC-197-01	5/6/08	1	289.92	130.1	8.8%	119.6	126.4	8.2%	94.6%	P	
VEG-DC-198-01	5/6/08	1	289.38	129.1	7.1%	120.5	126.4	8.2%	95.4%	P	
VEG-DC-199-02	5/6/08	2	290.54	134.8	6.6%	126.5	126.4	8.2%	100.0%	P	
VEG-DC-200-02	5/6/08	2	290.48	129.4	8.0%	119.8	126.4	8.2%	94.8%	P	
VEG-DC-201-02	5/6/08	2	289.99	129.4	6.5%	121.5	126.4	8.2%	96.1%	P	
VEG-DC-202-03	5/6/08	3	290.96	131.6	8.2%	121.6	126.4	8.2%	96.2%	P	
VEG-DC-203-03	5/6/08	3	291.30	136.4	8.3%	125.9	126.4	8.2%	99.6%	P	
VEG-DC-204-04	5/6/08	4	291.61	136.4	8.2%	126.1	126.4	8.2%	99.7%	P	
VEG-DC-205-03	5/6/08	3	290.42	125.9	7.2%	117.4	126.4	8.2%	92.9%	P	
VEG-DC-207-05	5/6/08	5	291.67	129.7	7.4%	120.8	126.4	8.2%	95.5%	P	
VEG-DC-208-06	5/7/08	6	292.28	127.0	7.9%	117.7	126.4	8.2%	93.1%	P	
VEG-DC-209-V-05	5/7/08	6	292.15	131.3	8.4%	121.1	126.4	8.2%	95.8%	P	
VEG-DC-210-W-04	5/7/08	4	290.87	129.4	7.9%	119.9	126.4	8.2%	94.9%	P	
VEG-DC-211-V-06	5/7/08	6	292.54	136.1	8.1%	125.9	126.4	8.2%	99.6%	P	
VEG-DC-212-W-05	5/7/08	5	291.19	131.8	8.1%	121.9	126.4	8.2%	96.5%	P	
VEG-DC-213-01	5/7/08	1	289.36	127.1	7.7%	118.0	126.4	8.2%	93.4%	P	
VEG-DC-214-02	5/7/08	2	290.04	126.4	6.4%	118.8	126.4	8.2%	94.0%	P	
VEG-DC-215-03	5/7/08	3	290.52	118.6	6.8%	111.0	126.4	8.2%	87.9%	F	Area re-worked and re-tested as VEG-DC-215A-03
VEG-DC-215A-03	5/8/08	3	290.56	124.7	9.3%	114.1	126.4	8.2%	90.3%	P	Re-test of VEG-DC-215-03
VEG-DC-218-04	5/8/08	4	291.10	127.0	8.2%	117.4	126.4	8.2%	92.9%	P	
VEG-DC-217-01	5/8/08	1	290.68	117.8	6.8%	110.3	126.4	8.2%	87.3%	F	Area re-worked and re-tested as VEG-DC-217A-01
VEG-DC-217A-01	5/8/08	1	290.66	122.0	8.1%	112.9	126.4	8.2%	89.3%	F	Area re-worked and re-tested as VEG-DC-217B-01
VEG-DC-217B-01	5/8/08	1	290.76	116.6	8.1%	107.9	126.4	8.2%	85.3%	F	Area re-worked and re-tested as VEG-DC-217C-01
VEG-DC-217C-01	5/8/08	1	290.62	131.8	8.7%	121.3	126.4	8.2%	95.9%	P	Re-test of VEG-DC-217,217A & 217B-01
VEG-DC-218-01	5/8/08	1	289.42	130.1	9.9%	118.4	126.4	8.2%	93.7%	P	
VEG-DC-219-02	5/8/08	2	289.92	124.9	6.7%	117.1	126.4	8.2%	92.6%	P	
VEG-DC-220-03	5/8/08	3	290.60	131.8	9.5%	120.4	126.4	8.2%	95.2%	P	
VEG-DC-221-03	5/8/08	3	291.36	125.0	7.6%	116.2	126.4	8.2%	91.9%	P	
VEG-DC-222-04	5/9/08	4	292.05	124.1	7.2%	115.8	126.4	8.2%	91.6%	P	
VEG-DC-223-04	5/9/08	4	291.78	125.6	8.5%	115.8	126.4	8.2%	91.6%	P	
VEG-DC-237-01	5/19/08	1	290.04	125.0	10.2%	113.4	126.4	8.2%	89.7%	F	Area re-worked and re-tested as VEG-DC-237A-01
VEG-DC-237A-01	5/19/08	1	290.08	130.1	12.9%	115.2	126.4	8.2%	91.2%	F	Area re-worked and re-tested as VEG-DC-237B-01
VEG-DC-237B-01	5/19/08	1	290.39	123.7	8.5%	114.0	126.4	8.2%	90.2%	P	Re-test of VEG-DC-237A-01
VEG-DC-238-02	5/19/08	2	290.89	122.8	7.7%	114.0	126.4	8.2%	90.2%	P	
VEG-DC-239-03	5/19/08	3	291.23	121.1	8.7%	111.4	126.4	8.2%	88.1%	F	Area re-worked and re-tested as VEG-DC-239A-01
VEG-DC-239A-03	5/19/08	3	291.12	128.0	9.1%	117.3	126.4	8.2%	92.8%	P	Re-test of VEG-DC-239A-01
VEG-DC-240-04	5/19/08	4	291.68	126.2	6.9%	118.1	126.4	8.2%	93.4%	P	
VEG-DC-241-05	5/19/08	5	292.18	128.8	8.1%	119.1	126.4	8.2%	94.3%	P	
VEG-DC-242-01	6/11/08	1	288.11	122.5	11.0%	110.4	126.4	8.2%	87.3%	F	Area re-worked and re-tested as VEG-DC-242A-01
VEG-DC-242A-01	6/11/08	1	288.09	116.7	7.6%	108.5	126.4	8.2%	85.8%	F	Area re-worked and re-tested as VEG-DC-242B-01

TABLE 3-14
PURITY OIL SALES SUPERFUND SITE
ENGINEERED CAP DENSITY TEST SUMMARY

Compaction ID	Date	Lift Number	Elevation (ft)	Wet Density (pcf)	Moisture (%)	Dry Density (pcf)	Applicable Proctor Dry Density (pcf)	Applicable Proctor Moisture (%)	Percent Compaction (%)	Pass or Fail	Final Observations
VEG-DC-242B-01	6/11/08	1	288 14	129.3	8.6%	119.1	126.4	8.2%	94 2%	P	Re-test of VEG-DC-24B-01
VEG-DC-243-02	6/11/08	2	288.54	129.4	7.4%	120.5	126 4	8.2%	95 3%	P	
VEG-SC-01-02	12/11/07	2		131.8	7.0%	123.2	126 4	8.2%	97 5%	P	Sand cone field verification for drive cylinderVEG-DC-49-02
VEG-SC-02-01	12/14/07	1		128 9	6 7%	120.8	126 4	8.2%	95.6%	P	Sand cone field verification for drive cylinder VEG-DC-55-01
VEG-SC-03-02	1/3/08	2		131 2	8 6%	120.8	126 4	8.2%	95.6%	P	Sandcone field verification test with drive cylinder VEG-DC-66-02
VEG-SC-156-02	4/23/08	2	287 72	122 2	8.2%	112 9	126 4	8.2%	89 4%	F	Sand cone field verification for drive cylinder VEG-DC-156-02
TOTAL	**257**									**27**	
MIN	–	–	–	**102.5**	**4.8%**	**95.6**	–	–	**75.6%**	–	
MAX	–	–	–	**138.4**	**12.9%**	**127.2**	–	–	**100.7%**	–	
AVERAGE	–	–	–	**125.8**	**8.1%**	**116.4**	–	–	**92.1%**	–	
Swale Foundation Layer											
SF-DC-01-01	11/20/07	1	289 4	129.1	9.0%	118 5	126 9	7 8%	93 4%	P	Material from residual stockpile, density test sample just wet of optimum, thus use best fitting proctor
SF-DC-02-02	11/20/07	2	290 2	120 7	5.8%	114.1	126.9	7.8%	89.9%	F	Failed due to below minimum density requirement and 2% below optimum.
SF-DC-02A-02	11/20/07	2	290.1	123.0	6.9%	115.0	126.9	7.8%	90 7%	P	Retest for SF-DC-02-01. Added water and recompacted test area westward to SF-DC-03-02
SF-DC-03-02	11/20/07	2	290.1	127.8	7.5%	118.8	126 9	7.8%	93.6%	P	
SF-DC-04-03	11/20/07	2	290.7	124.6	8.0%	115.4	126 9	7.8%	90.9%	P	
SF-DC-05-04	11/27/07	4	291.6	121.8	6.9%	113 8	126.9	7.8%	89.6%	F	
SF-DC-05A-04	11/27/07	4	291 6	126.0	6.6%	118 2	126.9	7.8%	93 1%	P	Retest for failed sample SF-DC-05-04 Added minor quantity of water and recompacted.
SF-DC-06-02	11/27/07	2	289.8	120 9	5 9%	114.1	126.9	7.8%	89 9%	F	
SF-DC-06A-02	11/29/07	2	289.8	124 8	7.4%	116.1	126.9	7.8%	91.5%	P	Retest for failed sample SF-DC-06-02 Added water and recompacted
SF-DC-07-01	12/10/07	1	289.7	126 9	7 3%	118.2	126.9	7.8%	93.2%	P	
SF-DC-08-02	12/10/07	2	290.3	132.1	7.6%	122.7	126 9	7.8%	96.7%	P	
SF-DC-09-03	12/10/07	3	291.0	127.8	7 4%	119.0	126.9	7.8%	93.8%	P	
SF-DC-10-04	12/11/07	4	291.9	129.1	7.0%	120.7	126 4	8.2%	95.5%	P	
SF-DC-11-05	12/11/07	5	292.6	129.6	7.5%	120.6	126 4	8 2%	95.4%	P	
SF-DC-12-01A	12/12/07	1A	289 6	139.0	9.0%	127.5	126.9	7.8%	100.5%	P	Original lift-1 was partially cut down and regraded due to improper grading elevations
SF-DC-13-02	12/12/07	2	290.3	128 4	7.9%	119.0	126.4	8.2%	94.2%	P	
SF-DC-14-02	12/12/07	2	290 3	127.2	7.6%	118.2	126 4	8.2%	93 5%	P	
SF-DC-15-03	12/13/07	3	291.2	124.5	7.6%	115 6	126.4	8.2%	91 5%	P	
SF-DC-16-03	12/13/07	3	290 9	127 0	7 3%	118 4	126.4	8.2%	93 7%	P	
SF-DC-17-04	12/13/07	4	291.9	132.4	7.4%	123 3	126 4	8.2%	97.5%	P	
SF-DC-18-05	12/14/07	5	290.1	124.3	6.5%	116.7	126 4	8.2%	92.3%	P	
SF-DC-22-01	1/16/08	1	292.0	129 9	9.6%	118.5	126 4	8.2%	93.7%	P	No drive cylinders for SF-DC-19 thru SF-DC-21
SF-DC-23-02	1/16/08	2	292.1	120.3	8.8%	110.7	126 4	8.2%	87.6%	F	Reworked area, retested as SF-DC-23a-02
SF-DC-23A-02	1/16/08	2	292.0	130.5	11.5%	117.0	126 4	8.2%	92 5%	P	Retest of SF-DC-23-02
TOTAL	**24**									**4**	
MIN	–	–	–	**120.3**	**5.8%**	**110.7**	–	–	**87.6%**	–	
MAX	–	–	–	**139.0**	**11.5%**	**127.5**	–	–	**98.0%**	–	
AVERAGE	–	–	–	**127.0**	**7.7%**	**115.1**	–	–	**93.1%**	–	
Storm Water Basin											
PUR-DC-SWP-1	10/23/07	1	288.3	119.8	7.3%	111 7	128 4	7.2%	87.0%	F	Area recompacted, resampled as PUR-DC- SWP-1A
PUR-DC-SWP-1A	10/23/07	1	288.2	120.7	8.8%	110 9	128 4	7.2%	86 4%	F	Retest of PUR-SWP-1A, retested as PUR-DC-SWP-1B
PUR-DC-SWP-1B	10/23/07	1	288.3	129.9	7.3%	121.1	128 4	7.2%	94.3%	P	Retest of PUR-DC-SWP-1B
PUR-DC-SWP-2	10/23/07	1	289.5	131.6	6.5%	123.5	128 4	7 2%	96 2%	P	
PUR-DC-SWP-2-2	10/23/07	2	NA	125.5	6.8%	117.5	128 4	7.2%	91 5%	P	
PUR-DC-SWP-3	10/23/07	3	289.4	122.9	5.5%	116 4	128 4	7.2%	90.7%	P	
PUR-DC-SWP-4	10/23/07	4	289.6	121.6	6.3%	114.3	128 4	7.2%	89.0%	F	Recompacted, retested as PUR-DC-SWP-04A
PUR-DC-SWP-4A	10/23/07	4	NA	132 4	8 7%	121.8	128 4	7.2%	94.9%	P	Retest of PUR-DC-SWP-4
PUR-DC-SWP-5	10/23/07	5	290.8	128.8	6.7%	120.7	128 4	7.2%	94.0%	P	
TOTAL	**9**									**3**	
MIN	–	–	–	**119.8**	**5.5%**	**110.9**	–	–	**86.4%**	–	
MAX	–	–	–	**132.4**	**8.8%**	**123.5**	–	–	**96.0%**	–	
AVERAGE	–	–	–	**125.9**	**7.1%**	**115.5**	–	–	**91.5%**	–	

VEG = Vegitation layer
SF = Swale Foundation
SWP
DC = Drive Cylinder
SC
Sample ID VEG-DC-12-01 = Area - test type - test ID - lift number
Comments. Any failed test was reworked and retested until passing value was attained
Retest IDs are designated with an A, B or C
* Pass = >85% compaction & moisture content +/- 3% of optimum (Swale foundation requires >90% compaction)

TABLE 4-1
PURITY OIL SALES SUPERFUND SITE
AIR SAMPLING SHORT TERM SCREENING CRITERIA

Parameter		Value		Units
ET[1]	Exposure time	12		hours/day
EF[1]	Exposure frequency	250		days/year
ED[1]	Exposure duration	1		years
AT_{NC}	Averaging time, noncarcinogens	8760		hours
AT_C	Averaging time, carcinogens	613200		hours

$$Risk_C = C_{air} \cdot \frac{(ET \times EF \times ED)}{AT_C} \cdot IUR$$

$$HQ = C_{air} \cdot \frac{(ET \times EF \times ED)}{AT_{NC}} \cdot \frac{1}{RfC}$$

Chemical	$Risk_C$	HQ (subchronic)	IUR (ug/m^3)[1]	RfC (ug/m^3)	Minimum Value to Exceed $Risk_C$ (ug/m^3)	OEHHA Acute RELs (ug/m^3)	Short Term Screening Criteria (ug/m^3)	Basis
1,1,1-Trichloroethane	1.00E-05	1	NA	2.20E+04	NA	NA	**2.20E+04**	Subchronic RfC
1,1,2,2-Tetrachloroethane	1.00E-05	1	5.80E-05	2.10E+02	3.52E+01	NA	**3.52E+01**	IUR and Risk Equation
1,1,2-Trichloro-1,2,2-Trifluoroethane	1.00E-05	1	NA	3.00E+04	NA	NA	**3.00E+04**	Subchronic RfC
1,1-Dichloroethane	1.00E-05	1	1.60E-06	4.90E+03	1.28E+03	NA	**1.28E+03**	IUR and Risk Equation
1,1-Dichloroethylene	1.00E-05	1	NA	7.00E+02	NA	NA	**7.00E+02**	Subchronic RfC
1,2,4-Trichlorobenzene	1.00E-05	1	NA	2.00E+03	NA	NA	**2.00E+03**	Subchronic RfC
1,2,4-Trimethylbenzene	1.00E-05	1	NA	1.80E+01	NA	NA	**1.80E+01**	Subchronic RfC
1,2-Dichlorobenzene	1.00E-05	1	NA	2.00E+03	NA	NA	**2.00E+03**	Subchronic RfC
1,2-Dichloroethane	1.00E-05	1	2.10E-05	4.90E+00	9.73E+01	NA	**4.90E+00**	Subchronic RfC
1,2-Dichloropropane	1.00E-05	1	1.00E-05	1.30E+01	2.04E+02	NA	**1.30E+01**	Subchronic RfC
1,3,5-Trimethylbenzene	1.00E-05	1	NA	1.80E+01	NA	NA	**1.80E+01**	Subchronic RfC
1,3-Dichlorobenzene	1.00E-05	1	NA	1.05E+02	NA	NA	**1.05E+02**	Subchronic RfC
1,4-Dichlorobenzene	1.00E-05	1	1.10E-05	2.40E+03	1.86E+02	NA	**1.86E+02**	IUR and Risk Equation
Aluminum	1.00E-05	1	NA	4.90E+00	NA	NA	**4.90E+00**	Subchronic RfC
Benzene	1.00E-05	1	2.90E-05	6.00E+01	7.05E+01	1.30E+03	**6.00E+01**	Subchronic RfC
Bromomethane	1.00E-05	1	NA	4.90E+00	NA	NA	**4.90E+00**	Subchronic RfC
Carbon Disulfide	1.00E-05	1	NA	8.00E+02	NA	6.20E+03	**8.00E+02**	Subchronic RfC
Carbon Tetrachloride	1.00E-05	1	4.20E-05	1.20E+02	4.87E+01	1.90E+03	**4.87E+01**	IUR and Risk Equation
Carbonyl Sulfide	1.00E-05	1	NA	3.00E+01	NA	NA	**3.00E+01**	H2S as Surrogate
Chlorobenzene	1.00E-05	1	NA	3.00E+03	NA	NA	**3.00E+03**	Subchronic RfC
Chloroethane	1.00E-05	1	8.30E-07	3.00E+04	2.46E+03	NA	**2.46E+03**	IUR and Risk Equation
Chloroform	1.00E-05	1	5.30E-06	3.00E+02	3.86E+02	1.50E+02	**1.50E+02**	Acute REL
Chloromethane	1.00E-05	1	1.80E-06	9.10E+03	1.14E+03	NA	**1.14E+03**	IUR and Risk Equation
Chromium	1.00E-05	1	1.20E-02	NA	1.70E-01	NA	**1.70E-01**	IUR and Risk Equation
Dichlorodifluoromethane	1.00E-05	1	NA	2.00E+03	NA	NA	**2.00E+03**	Subchronic RfC
Diethyl Sulfide	1.00E-05	1	NA	3.00E+01	NA	NA	**3.00E+01**	H2S as Surrogate
Dimethyl Disulfide	1.00E-05	1	NA	3.44E+01	NA	NA	**3.44E+01**	Chemical-Specific Value
Ethylbenzene	1.00E-05	1	NA	2.00E+03	NA	NA	**2.00E+03**	Subchronic RfC
H2S	1.00E-05	1	NA	3.00E+01	NA	4.20E+01	**3.00E+01**	Subchronic RfC
Lead	1.00E-05	1	1.20E-05	NA	1.70E+02	NA	**1.50E+00**	California Ambient Air Quality Standard; 30-day Average
m,p-Xylenes	1.00E-05	1	NA	7.00E+02	NA	2.20E+04	**7.00E+02**	Subchronic RfC
Methylene Chloride	1.00E-05	1	1.00E-06	4.00E+02	2.04E+03	1.40E+04	**4.00E+02**	Subchronic RfC
n-Butyl mercaptan	1.00E-05	1	NA	8.00E+02	NA	NA	**8.00E+02**	Carbon Disulfide as Surrogate
Nickel	1.00E-05	1	2.60E-04	5.00E-02	7.86E+00	6.00E+00	**5.00E-02**	Subchronic RfC
o-Xylene	1.00E-05	1	NA	7.00E+02	NA	2.20E+04	**7.00E+02**	Subchronic RfC
Propyl Mercaptan	1.00E-05	1	NA	8.00E+02	NA	NA	**8.00E+02**	Carbon Disulfide as Surrogate

TABLE 4-1
PURITY OIL SALES SUPERFUND SITE
AIR SAMPLING SHORT TERM SCREENING CRITERIA

Chemical	$Risk_c$	HQ (subchronic)	IUR (ug/m^3)$^{-1}$	RfC (ug/m^3)	Minimum Value to Exceed $Risk_c$ (ug/m^3)	OEHHA Acute RELs (ug/m^3)	Short Term Screening Criteria (ug/m^3)	Basis
Styrene	1.00E-05	1	NA	9.00E+02	NA	2.10E+04	**9.00E+02**	Subchronic RfC
Tetrachloroethylene	1.00E-05	1	5.90E-06	3.50E+01	3.46E+02	NA	**3.50E+01**	Subchronic RfC
Tetrahydrothiophene	1.00E-05	1	NA	8.00E+02	NA	NA	**8.00E+02**	Carbon Disulfide as Surrogate
Toluene	1.00E-05	1	NA	3.00E+03	NA	3.70E+04	**3.00E+03**	Subchronic RfC
Trichloroethene	1.00E-05	1	1.10E-04	6.00E+02	1.86E+01	NA	**1.86E+01**	IUR and Risk Equation
Trichlorofluoromethane	1.00E-05	1	NA	7.00E+02	NA	NA	**7.00E+02**	Subchronic RfC
Vinyl chloride	1.00E-05	1	7.80E-05	1.00E+02	2.62E+01	1.80E+05	**2.62E+01**	IUR and Risk Equation

Notes:

Only analytes with toxicity criteria or surrogates are shown.

NA	Not available
1	Off-site exposure assumes a 50-week period (max. 12 hours per day, 5 days per week)
IUR	Inhalation Unit Risk
RfC	Inhalation Reference Concentration
HQ	Hazard Quotient
OEHHA	Office of Environmental Health Hazard Assessment
RELs	Reference Exposure Levels
ug/m^3	Micrograms per cubic meter

TABLE 4-2
PURITY OIL SALES SUPERFUND SITE
EXPOSURE POINT CONCENTRATION SUMMARY FOR STATION S1

Analyte Name	Analyte Detected?	Total # of Samples	# of Detects	Detection Frequency (%)	Units	Detected Minimum	Detected Maximum	Average	Standard Deviation	95% UCL	Pro UCL Value	UCL > Max	Average > UCL	Min > Max
Aluminum	Yes	187	187	100.0	ug/m3	7.47E-03	5.25E+00	1.26E+00	0.915	Approximate Gamma UCL	1.38E+00	No	No	No
BROMOMETHANE	Yes	176	3	1.7	ug/m3	6.48E+00	1.02E+01	3.72E+00	1.336	Mod-t UCL	3.89E+00	No	No	No
Carbon Disulfide	Yes	176	5	2.8	ug/m3	1.39E+01	6.41E+01	5.64E+00	4.891	Mod-t UCL	6.30E+00	No	No	No
Carbonyl Sulfide	Yes	176	1	0.6	ug/m3	2.51E+01	2.51E+01	5.11E+00	1.510	Mod-t UCL	5.32E+00	No	No	No
Chromium	Yes	187	187	100.0	ug/m3	1.46E-03	3.55E-02	6.52E-03	0.004	Mod-t UCL	7.00E-03	No	No	No
DICHLORODIFLUOROMETHANE	Yes	74	4	5.4	ug/m3	7.22E+00	1.01E+01	4.15E+00	1.576	Mod-t UCL	4.47E+00	No	No	No
Lead	Yes	76	76	100.0	ug/m3	3.90E-03	2.00E-01	5.59E-02	0.039	Approximate Gamma UCL	6.40E-02	No	No	No
METHYLENE CHLORIDE	Yes	176	9	5.1	ug/m3	5.60E+00	6.08E+02	8.04E+00	46.233	Standard Bootstrap UCL	1.37E+01	No	No	No
Nickel	Yes	187	187	100.0	ug/m3	4.65E-04	4.54E-02	6.73E-03	0.004	Standard Bootstrap UCL	7.27E-03	No	No	No
TOLUENE	Yes	74	20	27.0	ug/m3	6.26E+00	1.92E+01	5.18E+00	3.368	Standard Bootstrap UCL	5.80E+00	No	No	No
Total Reduced Sulfurs as H2S	Yes	74	1	1.4	ug/m3	2.51E+01	2.51E+01	5.27E+00	2.319	Mod-t UCL	5.77E+00	No	No	No
TSP	Yes	18	18	100.0	ug/m3	3.91E+01	2.45E+02	1.30E+02	56.400	Student's-t UCL	1.53E+02	No	No	No
1,1,1-TRICHLOROETHANE	No	74												
1,1,2,2-TETRACHLOROETHANE	No	74												
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	No	74												
1,1,2-TRICHLOROETHANE	No	74												
1,1-DICHLOROETHANE	No	74												
1,1-DICHLOROETHYLENE	No	74												
1,2,4-TRICHLOROBENZENE	No	74												
1,2,4-TRIMETHYLBENZENE	No	176												
1,2-DIBROMOETHANE	No	74												
1,2-DICHLORO-1,1,2,2-TETRAFLUOROETHANE	No	74												
1,2-DICHLOROBENZENE	No	74												
1,2-DICHLOROETHANE	No	74												
1,2-DICHLOROPROPANE	No	74												
1,3,5-TRIMETHYLBENZENE	No	74												
1,3-DICHLOROBENZENE	No	74												
1,4-DICHLOROBENZENE	No	74												
2,5-Dimethylthiophene	No	74												
2-Ethylthiophene	No	74												
3-Methylthiophene	No	74												
Allyl disulfide	No	74												
Allyl Mercaptan	No	74												
Allyl Sulfide	No	74												
BENZENE	No	176												
Butyl Sulfide	No	74												
CARBON TETRACHLORIDE	No	74												
CHLOROBENZENE	No	74												
CHLOROETHANE	No	74												
CHLOROFORM	No	74												
CHLOROMETHANE	No	74												
CIS-1,2-DICHLOROETHENE	No	74												
CIS-1,3-DICHLOROPROPENE	No	74												
Diethyl disulfide	No	74												
Diethyl Sulfide	No	74												
Dimethyl Disulfide	No	74												
Dimethyl Sulfide	No	74												
Ethyl Mercaptan	No	74												
Ethyl Methyl Sulfide	No	74												
ETHYLBENZENE	No	74												
H2S	No	176												
HEXACHLOROBUTADIENE	No	74												
Isobutyl Mercaptan	No	74												
Isopropyl Mercaptan	No	74												
M,P-XYLENES	No	74												
Methyl Mercaptan	No	74												
n-Butyl mercaptan	No	74												
O-XYLENE	No	74												
Propyl Mercaptan	No	74												
Propyl Sulfide	No	74												

TABLE 4-2
PURITY OIL SALES SUPERFUND SITE
EXPOSURE POINT CONCENTRATION SUMMARY FOR STATION S1

Analyte Name	Analyte Detected?	Total # of Samples	# of Detects	Detection Frequency (%)	Units	Detected Minimum	Detected Maximum	Average	Standard Deviation	95% UCL	Pro UCL Value*	UCL > Max	Average > UCL	Min > Max
SO2	No	74												
STYRENE	No	74												
T-1,3-DICHLOROPROPENE	No	74												
t-Butyl Mercaptan	No	74												
TETRACHLOROETHYLENE	No	74												
Tetrahydrothiophene	No	74												
Thiophene	No	74												
Total Unidentified Sulfurs as H2S	No	74												
TRICHLOROETHENE	No	74												
TRICHLOROFLUOROMETHANE	No	74												
VINYL CHLORIDE	No	74												

NOTES:
* ProUCL version 3.00.02 was used in the calculation of the 95% UCL EPCs
One-half of the sample quantitation limit (SQL) was used in calculating 95% UCL EPCs for chemicals that were non-detects

TABLE 4-3
PURITY OIL SALES SUPERFUND SITE
EXPOSURE POINT CONCENTRATION SUMMARY FOR STATION S2

Analyte Name	Analyte Detected?	Total # of Samples	# of Detects	Detection Frequency (%)	Units	Detected Minimum	Detected Maximum	Average	Standard Deviation	95% UCL	Pro UCL Value*	UCL > Max	Average > UCL	Min > Max
1,2,4-TRIMETHYLBENZENE	Yes	268	6	2.2	ug/m3	6.88E+00	2.76E+01	4.74E+00	2.451	Mod-t UCL	5.00E+00	No	No	No
Aluminum	Yes	313	313	100.0	ug/m3	1.09E-01	1.43E+01	2.24E+00	2.062	95% H-UCL	2.47E+00	No	No	No
BENZENE	Yes	268	1	0.4	ug/m3	7.44E+00	7.44E+00	2.88E+00	0.911	Mod-t UCL	2.97E+00	No	No	No
BROMOMETHANE	Yes	268	5	1.9	ug/m3	7.15E+00	2.79E+01	3.75E+00	2.126	Mod-t UCL	3.97E+00	No	No	No
Carbon Disulfide	Yes	280	14	5.0	ug/m3	1.39E+01	4.60E+01	5.92E+00	4.640	Mod-t UCL	6.40E+00	No	No	No
Carbonyl Sulfide	Yes	280	8	2.9	ug/m3	1.39E+01	4.60E+01	5.62E+00	4.008	Mod-t UCL	6.04E+00	No	No	No
Chromium	Yes	313	313	100.0	ug/m3	1.48E-03	2.64E-01	1.56E-02	0.019	Standard Bootstrap UCL	1.75E-02	No	No	No
DICHLORODIFLUOROMETHANE	Yes	168	12	7.1	ug/m3	6.54E+00	3.07E+01	4.30E+00	3.004	Mod-t UCL	4.702778	No	No	No
Lead	Yes	203	203	100.0	ug/m3	6.60E-03	1.54E+00	1.97E-01	0.237	Standard Bootstrap UCL	2.24E-01	No	No	No
M,P-XYLENES	Yes	168	2	1.2	ug/m3	1.42E+01	1.97E+01	7.61E+00	2.224	Mod-t UCL	7.91E+00	No	No	No
METHYLENE CHLORIDE	Yes	268	13	4.9	ug/m3	5.07E+00	8.66E+01	4.53E+00	8.8860	Standard Bootstrap UCL	5.41E+00	No	No	No
Nickel	Yes	313	313	100.0	ug/m3	9.20E-04	3.37E-01	2.30E-02	0.0287	Standard Bootstrap UCL	2.57E-02	No	No	No
O-XYLENE	Yes	168	1	0.6	ug/m3	1.02E+01	1.02E+01	3.79E+00	1.0928	Mod-t UCL	3.93E+00	No	No	No
TOLUENE	Yes	168	23	13.7	ug/m3	5.03E+00	2.81E+01	4.15E+00	2.9191	Mod-t UCL	4.53E+00	No	No	No
Total Reduced Sulfurs as H2S	Yes	166	7	4.2	ug/m3	1.39E+01	4.18E+01	5.70E+00	3.9399	Mod-t UCL	6.24E+00	No	No	No
TRICHLOROETHENE	Yes	168	1	0.6	ug/m3	1.41E+01	1.41E+01	4.75E+00	1.5713	Mod-t UCL	4.95E+00	No	No	No
TRICHLOROFLUOROMETHANE	Yes	168	6	3.6	ug/m3	8.61E+00	2.14E+01	4.85E+00	2.1386	Mod-t UCL	5.14E+00	No	No	No
TSP	Yes	18	18	100.0	ug/m3	6.74E+01	3.22E+02	1.61E+02	78.2057	Approximate Gamma UCL	1.99E+02	No	No	No
1,1,1-TRICHLOROETHANE	No	168												
1,1,2,2-TETRACHLOROETHANE	No	168												
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	No	168												
1,1,2-TRICHLOROETHANE	No	168												
1,1-DICHLOROETHANE	No	168												
1,1-DICHLOROETHYLENE	No	168												
1,2,4-TRICHLOROBENZENE	No	168												
1,2-DIBROMOETHANE	No	168												
1,2-DICHLORO-1,1,2,2-TETRAFLUOROETHANE	No	168												
1,2-DICHLOROBENZENE	No	168												
1,2-DICHLOROETHANE	No	168												
1,2-DICHLOROPROPANE	No	168												
1,3,5-TRIMETHYLBENZENE	No	168												
1,3-DICHLOROBENZENE	No	168												
1,4-DICHLOROBENZENE	No	168												
2,5-Dimethylthiophene	No	166												
2-Ethylthiophene	No	166												
3-Methylthiophene	No	166												
Allyl disulfide	No	166												
Allyl Mercaptan	No	166												
Allyl Sulfide	No	166												
Butyl Sulfide	No	166												
CARBON TETRACHLORIDE	No	168												
CHLOROBENZENE	No	168												
CHLOROETHANE	No	168												
CHLOROFORM	No	168												
CHLOROMETHANE	No	168												
CIS-1,2-DICHLOROETHENE	No	168												
CIS-1,3-DICHLOROPROPENE	No	168												
Diethyl disulfide	No	166												
Diethyl Sulfide	No	166												
Dimethyl Disulfide	No	166												
Dimethyl Sulfide	No	166												
Ethyl Mercaptan	No	166												
Ethyl Methyl Sulfide	No	166												
ETHYLBENZENE	No	168												

TABLE 4-3
PURITY OIL SALES SUPERFUND SITE
EXPOSURE POINT CONCENTRATION SUMMARY FOR STATION S2

Analyte Name	Analyte Detected?	Total # of Samples	# of Detects	Detection Frequency (%)	Units	Detected Minimum	Detected Maximum	Average	Standard Deviation	95% UCL	Pro UCL Value*	UCL > Max	Average > UCL	Min > Max
H2S	No	280												
HEXACHLOROBUTADIENE	No	168												
Isobutyl Mercaptan	No	166												
Isopropyl Mercaptan	No	166												
Methyl Mercaptan	No	166												
n-Butyl mercaptan	No	166												
Propyl Mercaptan	No	166												
Propyl Sulfide	No	166												
SO2	No	166												
STYRENE	No	168												
T-1,3-DICHLOROPROPENE	No	168												
t-Butyl Mercaptan	No	166												
TETRACHLOROETHYLENE	No	168												
Tetrahydrothiophene	No	166												
Thiophene	No	166												
Total Unidentified Sulfurs as H2S	No	166												
VINYL CHLORIDE	No	168												

NOTES:
* ProUCL version 3.00.02 was used in the calculation of the 95% UCL EPCs
One-half of the sample quantitation limit (SQL) was used in calculating 95% UCL EPCs for chemicals that were non-detects

TABLE 4-4
PURITY OIL SALES SUPERFUND SITE
EXPOSURE POINT CONCENTRATION SUMMARY FOR STATION S3

Analyte Name	Analyte Detected?	Total # of Samples	# of Detects	Detection Frequency (%)	Units	Detected Minimum	Detected Maximum	Average	Standard Deviation	95% UCL	Pro UCL Value*	UCL > Max	Average > UCL	Min > Max
1,2,4-TRIMETHYLBENZENE	YES	391	17	4.3	ug/m3	7.24E+00	3.86E+01	5.17E+00	3.2321	Mod-t UCL	5.45E+00	No	No	No
1,3,5-TRIMETHYLBENZENE	YES	170	2	1.2	ug/m3	9.87E+00	1.07E+01	4.41E+00	1.1816	Mod-t UCL	4.57E+00	No	No	No
Aluminum	YES	328	328	100.0	ug/m3	1.16E-01	6.00E+00	1.33E+00	0.7967	Approximate Gamma UCL	1.41E+00	No	No	No
BENZENE	YES	282	1	0.4	ug/m3	7.21E+00	7.21E+00	2.94E+00	0.8765	Mod-t UCL	3.02E+00	No	No	No
BROMOMETHANE	YES	282	2	0.7	ug/m3	6.10E+00	7.58E+00	3.51E+00	0.9030	Standard Bootstrap UCL	3.59E+00	No	No	No
Carbon Disulfide	YES	282	18	6.4	ug/m3	1.39E+01	5.44E+01	6.25E+00	5.6119	Mod-t UCL	6.82E+00	No	No	No
Carbonyl Sulfide	YES	282	9	3.2	ug/m3	1.39E+01	1.95E+02	6.44E+00	12.4173	Mod-t UCL	7.76E+00	No	No	No
Chromium	YES	328	328	100.0	ug/m3	8.02E-04	5.64E-02	7.63E-03	0.0075	Standard Bootstrap UCL	8.31E-03	No	No	No
DICHLORODIFLUOROMETHANE	YES	170	6	3.5	ug/m3	7.05E+00	1.61E+01	4.03E+00	1.7162	Mod-t UCL	4.26E+00	No	No	No
H2S	YES	282	2	0.7	ug/m3	1.39E+01	2.79E+01	5.11E+00	1.4580	Mod-t UCL	5.27E+00	No	No	No
Lead	YES	204	204	100.0	ug/m3	1.30E-02	1.05E+00	9.21E-02	0.0959	Standard Bootstrap UCL	1.03E-01	No	No	No
M,P-XYLENES	YES	170	1	0.6	ug/m3	1.54E+01	1.54E+01	7.60E+00	1.5634	Mod-t UCL	7.81E+00	No	No	No
METHYLENE CHLORIDE	YES	282	12	4.3	ug/m3	6.03E+00	4.59E+01	4.06E+00	4.5251	Mod-t UCL	4.52E+00	No	No	No
Nickel	YES	328	328	100.0	ug/m3	1.55E-03	8.53E-02	7.35E-03	0.0066	Standard Bootstrap UCL	7.94E-03	No	No	No
O-XYLENE	YES	170	1	0.6	ug/m3	7.47E+00	7.47E+00	3.80E+00	0.7764	Mod-t UCL	3.90E+00	No	No	No
TOLUENE	YES	170	15	8.8	ug/m3	5.81E+00	5.17E+01	4.11E+00	4.0324	Mod-t UCL	4.67E+00	No	No	No
Total Reduced Sulfurs as H2S	YES	169	15	8.9	ug/m3	1.39E+01	6.27E+01	7.12E+00	8.0536	Mod-t UCL	8.19E+00	No	No	No
Total Unidentified Sulfurs as H2S	YES	169	1	0.6	ug/m3	2.51E+01	2.51E+01	5.12E+00	1.5406	Mod-t UCL	5.34E+00	No	No	No
TRICHLOROETHENE	YES	170	1	0.6	ug/m3	1.00E+01	1.00E+01	4.73E+00	1.0508	Standard Bootstrap UCL	4.84E+00	No	No	No
TRICHLOROFLUOROMETHANE	YES	170	1	0.6	ug/m3	8.73E+00	8.73E+00	4.54E+00	0.8671	Mod-t UCL	4.66E+00	No	No	No
TSP	YES	18	18	100.0	ug/m3	4.47E+01	3.01E+02	1.34E+02	72.5891	Approximate Gamma UCL	1.68E+02	No	No	No
1,1,1-TRICHLOROETHANE	NO	170												
1,1,2,2-TETRACHLOROETHANE	NO	170												
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	NO	170												
1,1,2-TRICHLOROETHANE	NO	170												
1,1-DICHLOROETHANE	NO	170												
1,1-DICHLOROETHYLENE	NO	170												
1,2,4-TRICHLOROBENZENE	NO	170												
1,2-DIBROMOETHANE	NO	170												
1,2-DICHLORO-1,1,2,2-TETRAFLUOROETHANE	NO	170												
1,2-DICHLOROBENZENE	NO	170												
1,2-DICHLOROETHANE	NO	170												
1,2-DICHLOROPROPANE	NO	170												
1,3-DICHLOROBENZENE	NO	170												
1,4-DICHLOROBENZENE	NO	170												
2,5-Dimethylthiophene	NO	169												
2-Ethylthiophene	NO	169												
3-Methylthiophene	NO	169												
Allyl disulfide	NO	169												
Allyl Mercaptan	NO	169												
Allyl Sulfide	NO	169												
Butyl Sulfide	NO	169												
CARBON TETRACHLORIDE	NO	170												
CHLOROBENZENE	NO	170												
CHLOROETHANE	NO	170												
CHLOROFORM	NO	170												
CHLOROMETHANE	NO	170												
CIS-1,2-DICHLOROETHENE	NO	170												
CIS-1,3-DICHLOROPROPENE	NO	170												
Diethyl disulfide	NO	169												
Diethyl Sulfide	NO	169												
Dimethyl Disulfide	NO	169												
Dimethyl Sulfide	NO	169												
Ethyl Mercaptan	NO	169												
Ethyl Methyl Sulfide	NO	169												

TABLE 4-4
PURITY OIL SALES SUPERFUND SITE
EXPOSURE POINT CONCENTRATION SUMMARY FOR STATION S3

Analyte Name	Analyte Detected?	Total # of Samples	# of Detects	Detection Frequency (%)	Units	Detected Minimum	Detected Maximum	Average	Standard Deviation	95% UCL	Pro UCL Value*	UCL > Max	Average > UCL	Min > Max
ETHYLBENZENE	NO	170												
HEXACHLOROBUTADIENE	NO	170												
Isobutyl Mercaptan	NO	169												
Isopropyl Mercaptan	NO	169												
Methyl Mercaptan	NO	169												
n-Butyl mercaptan	NO	169												
Propyl Mercaptan	NO	169												
Propyl Sulfide	NO	169												
SO2	NO	169												
STYRENE	NO	170												
T-1,3-DICHLOROPROPENE	NO	170												
t-Butyl Mercaptan	NO	169												
TETRACHLOROETHYLENE	NO	170												
Tetrahydrothiophene	NO	169												
Thiophene	NO	169												
VINYL CHLORIDE	NO	170												

NOTES:
* ProUCL version 3.00.02 was used in the calculation of the 95% UCL EPCs
One-half of the sample quantitation limit (SQL) was used in calculating 95% UCL EPCs for chemicals that were non-detects

TABLE 4-5
PURITY OIL SALES SUPERFUND SITE
EXPOSURE POINT CONCENTRATION SUMMARY FOR STATION S4

Analyte Name	Analyte Detected?	Total # of Samples	# of Detects	Detection Frequency (%)	Units	Detected Minimum	Detected Maximum	Average	Standard Deviation	95% UCL	Pro UCL Value	UCL > Max	Average > UCL	Min > Max
Aluminum	YES	200	200	100.0	ug/m3	3.81E-02	7.78E+00	1.26E+00	0.9174	Standard Bootstrap UCL	1.37E+00	No	No	No
BROMOMETHANE	YES	183	1	0.5	ug/m3	8.36E+00	8.36E+00	3.86E+00	1.2821	Mod-t UCL	4.02E+00	No	No	No
Carbon Disulfide	YES	183	6	3.3	ug/m3	1.39E+01	3.76E+01	5.52E+00	3.3603	Mod-t UCL	5.96E+00	No	No	No
Carbonyl Sulfide	YES	183	5	2.7	ug/m3	1.39E+01	3.48E+01	5.39E+00	2.6787	Mod-t UCL	5.74E+00	No	No	No
Chromium	YES	200	200	100.0	ug/m3	2.12E-03	3.00E-02	6.65E-03	0.0041	Mod-t UCL	7.14E-03	No	No	No
H2S	YES	183	1	0.5	ug/m3	4.88E+01	4.88E+01	5.24E+00	3.2275	Mod-t UCL	5.67E+00	No	No	No
Lead	YES	76	76	100.0	ug/m3	1.55E-02	4.21E-01	5.73E-02	0.0558	Standard Bootstrap UCL	6.78E-02	No	No	No
METHYLENE CHLORIDE	YES	183	6	3.3	ug/m3	9.15E+00	8.05E+01	4.67E+00	7.7691	Standard Bootstrap UCL	5.59E+00	No	No	No
Nickel	YES	200	200	100.0	ug/m3	3.51E-04	2.62E-02	6.78E-03	0.0035	Mod-t UCL	7.20E-03	No	No	No
TOLUENE	YES	74	14	18.92	ug/m3	6.11E+00	1.05E+01	4.99E+00	2.3577	Standard Bootstrap UCL	5.38E+00	No	No	No
Total Reduced Sulfurs as H2S	YES	72	1	1.39	ug/m3	1.53E+01	1.53E+01	5.14E+00	1.2090	Mod-t UCL	5.41E+00	No	No	No
Total Unidentified Sulfurs as H2S	YES	72	1	1.39	ug/m3	1.53E+01	1.53E+01	5.14E+00	1.2090	Mod-t UCL	5.41E+00	No	No	No
TSP	YES	18	18	100.00	ug/m3	4.56E+01	3.54E+02	1.65E+02	78.2725	Student's-t UCL	1.99E+02	No	No	No
1,1,1-TRICHLOROETHANE	NO	74												
1,1,2,2-TETRACHLOROETHANE	NO	74												
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	NO	74												
1,1,2-TRICHLOROETHANE	NO	74												
1,1-DICHLOROETHANE	NO	74												
1,1-DICHLOROETHYLENE	NO	74												
1,2,4-TRICHLOROBENZENE	NO	74												
1,2,4-TRIMETHYLBENZENE	NO	74												
1,2-DIBROMOETHANE	NO	74												
1,2-DICHLORO-1,1,2,2-TETRAFLUOROETHANE	NO	74												
1,2-DICHLOROBENZENE	NO	74												
1,2-DICHLOROETHANE	NO	74												
1,2-DICHLOROPROPANE	NO	74												
1,3,5-TRIMETHYLBENZENE	NO	74												
1,3-DICHLOROBENZENE	NO	74												
1,4-DICHLOROBENZENE	NO	74												
2,5-Dimethylthiophene	NO	72												
2-Ethylthiophene	NO	72												
3-Methylthiophene	NO	72												
Allyl disulfide	NO	72												
Allyl Mercaptan	NO	72												
Allyl Sulfide	NO	72												
BENZENE	NO	183												
Butyl Sulfide	NO	72												
CARBON TETRACHLORIDE	NO	74												
CHLOROBENZENE	NO	74												
CHLOROETHANE	NO	74												
CHLOROFORM	NO	74												
CHLOROMETHANE	NO	74												
CIS-1,2-DICHLOROETHENE	NO	74												
CIS-1,3-DICHLOROPROPENE	NO	74												
DICHLORODIFLUOROMETHANE	NO	74												
Diethyl disulfide	NO	72												
Diethyl Sulfide	NO	72												
Dimethyl Disulfide	NO	72												
Dimethyl Sulfide	NO	72												
Ethyl Mercaptan	NO	72												
Ethyl Methyl Sulfide	NO	72												
ETHYLBENZENE	NO	74												
HEXACHLOROBUTADIENE	NO	74												
Isobutyl Mercaptan	NO	72												
Isopropyl Mercaptan	NO	72												

TABLE 4-5
PURITY OIL SALES SUPERFUND SITE
EXPOSURE POINT CONCENTRATION SUMMARY FOR STATION S4

Analyte Name	Analyte Detected?	Total # of Samples	# of Detects	Detection Frequency (%)	Units	Detected Minimum	Detected Maximum	Average	Standard Deviation	95% UCL	Pro UCL Value*	UCL > Max	Average > UCL	Min > Max
M,P-XYLENES	NO	74												
Methyl Mercaptan	NO	72												
n-Butyl mercaptan	NO	72												
O-XYLENE	NO	74												
Propyl Mercaptan	NO	72												
Propyl Sulfide	NO	72												
SO2	NO	72												
STYRENE	NO	74												
T-1,3-DICHLOROPROPENE	NO	74												
t-Butyl Mercaptan	NO	72												
TETRACHLOROETHYLENE	NO	74												
Tetrahydrothiophene	NO	72												
Thiophene	NO	72												
TRICHLOROETHENE	NO	74												
TRICHLOROFLUOROMETHANE	NO	74												
VINYL CHLORIDE	NO	74												

NOTES:
* ProUCL version 3.00.02 was used in the calculation of the 95% UCL EPCs
One-half of the sample quantitation limit (SQL) was used in calculating 95% UCL EPCs for chemicals that were non-detects

TABLE 4-6
PURITY OIL SALES SUPERFUND SITE
COMPARISON OF 95% UCL EPCs AGAINST PILOT STUDY 95% UCL EPCs

Chemical	Station S1 95% UCL EPCs (ug/m3)	Station S2 95% UCL EPCs (ug/m3)	Station S3 95% UCL EPCs (ug/m3)	Station S4 95% UCL EPCs (ug/m3)	Pilot Study 95% UCL EPCs (ug/m3)
1,1,1-Trichloroethane	ND	ND	ND	ND	5.21E+00
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	5.59E+00
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	ND	ND	ND	6.52E+00
1,1,2-Trichloroethane	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	3.20E+00
1,1-Dichloroethylene	ND	ND	ND	ND	3.21E+00
1,2,4-Trichlorobenzene	ND	ND	ND	ND	1.27E+01
1,2,4-Trimethylbenzene	ND	5.00E+00	5.45E+00	ND	5.92E+00
1,2-Dibromoethane	ND	ND	ND	ND	ND
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	ND	ND	ND	6.04E+00
1,2-Dichlorobenzene	ND	ND	ND	ND	6.55E+00
1,2-Dichloroethane	ND	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND	ND	3.82E+00
1,3,5-Trimethylbenzene	ND	ND	4.57E+00	ND	4.94E+00
1,3-Dichlorobenzene	ND	ND	ND	ND	6.91E+00
1,4-Dichlorobenzene	ND	ND	ND	ND	7.79E+00
2,5-Dimethylthiophene	ND	ND	ND	ND	ND
2-Ethylthiophene	ND	ND	ND	ND	ND
3-Methylthiophene	ND	ND	ND	ND	ND
Allyl disulfide	ND	ND	ND	ND	ND
Allyl Mercaptan	ND	ND	ND	ND	ND
Allyl Sulfide	ND	ND	ND	ND	ND
Aluminum	1.38E+00	2.47E+00	1.41E+00	1.37E+00	3.24E+00
Benzene	ND	**2.97E+00**	**3.02E+00**	ND	2.96E+00
Bromomethane	**3.89E+00**	**3.97E+00**	**3.59E+00**	**4.02E+00**	3.22E+00
Butyl Sulfide	ND	ND	ND	ND	ND
Carbon Disulfide	6.30E+00	6.40E+00	6.82E+00	5.96E+00	4.62E+01
Carbon Tetrachloride	ND	ND	ND	ND	5.07E+00
Carbonyl Sulfide	5.32E+00	6.04E+00	7.76E+00	5.74E+00	1.72E+02
Chlorobenzene	ND	ND	ND	ND	3.57E+00
Chloroethane	ND	ND	ND	ND	2.38E+00
Chloroform	ND	ND	ND	ND	3.94E+00
Chloromethane	ND	ND	ND	ND	3.22E+00
Chromium	7.00E-03	**1.75E-02**	8.31E-03	7.14E-03	1.32E-02
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND
Dichlorodifluoromethane	4.47E+00	4.70E+00	4.26E+00	ND	4.95E+00
Diethyl disulfide	ND	ND	ND	ND	ND
Diethyl Sulfide	ND	ND	ND	ND	ND
Dimethyl Disulfide	ND	ND	ND	ND	ND
Dimethyl Sulfide	ND	ND	ND	ND	7.94E+00
Ethyl Mercaptan	ND	ND	ND	ND	ND
Ethyl Methyl Sulfide	ND	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND	4.08E+00
H2S	ND	ND	5.27E+00	5.67E+00	2.10E+01

TABLE 4-6
PURITY OIL SALES SUPERFUND SITE
COMPARISON OF 95% UCL EPCs AGAINST PILOT STUDY 95% UCL EPCs

Chemical*	Station S1 95% UCL EPCs (ug/m3)	Station S2 95% UCL EPCs (ug/m3)	Station S3 95% UCL EPCs (ug/m3)	Station S4 95% UCL EPCs (ug/m3)	Pilot Study 95% UCL EPCs (ug/m^3)
Hexachlorobutadiene	ND	ND	ND	ND	1.84E+01
Isobutyl Mercaptan	ND	ND	ND	ND	ND
Isopropyl Mercaptan	ND	ND	ND	ND	ND
Lead	6.40E-02	**2.24E-01**	1.03E-01	6.78E-02	1.84E-01
m,p-Xylenes	ND	7.91E+00	7.81E+00	ND	8.60E+00
Methyl Mercaptan	ND	ND	ND	ND	ND
Methylene Chloride	1.37E+01	5.41E+00	4.52E+00	5.59E+00	6.09E+01
n-Butyl mercaptan	ND	ND	ND	ND	ND
Nickel	7.27E-03	**2.57E-02**	7.94E-03	7.20E-03	1.22E-02
o-Xylene	ND	3.93E+00	3.90E+00	ND	4.70E+00
Propyl Mercaptan	ND	ND	ND	ND	ND
Propyl Sulfide	ND	ND	ND	ND	ND
SO2	ND	ND	ND	ND	ND
Styrene	ND	ND	ND	ND	3.91E+00
t-1,3-Dichloropropene	ND	ND	ND	ND	ND
t-Butyl Mercaptan	ND	ND	ND	ND	ND
Tetrachloroethylene	ND	ND	ND	ND	5.27E+00
Tetrahydrothiophene	ND	ND	ND	ND	ND
Thiophene	ND	ND	ND	ND	ND
Toluene	5.80E+00	4.53E+00	4.67E+00	5.38E+00	1.26E+01
Trichloroethene	ND	4.95E+00	4.84E+00	ND	7.44E+00
Trichlorofluoromethane	ND	**5.14E+00**	4.66E+00	ND	5.13E+00
Vinyl chloride	ND	ND	ND	ND	2.12E+00

NOTES:
*95% UCL EPCs exceeding the Pilot Study 95% UCL EPCs are noted in bold text.
ND = Not detected.

TABLE 4-7
PURITY OIL SALES SUPERFUND SITE
ACTUAL OFF-SITE EXPOSURE SUMMARY

Date	Hours of Daily Exposure					
	S1	S2	S3	S4	Const. Days	Maximum Daily Exposure for All Stations
June-06	0	7	5	6	18	14
July-06	1	0	2	107	21	107
August-06	3	18	17	39	24	64
September-06	36	73	86	8	19	100
October-06	0	34	112	4	20	125
November-06	9	18	142	1	22	142
December-06	2	2	102	0	13	102
January-07	19	6	163	2	23	163
February-07	4	13	134	2	18	134
March-07	5	12	113	0	20	115
April-07	9	10	3	8	20	29
May-07	N/A	43	28	N/A	23	63
June-07	N/A	2	0	N/A	19	2
July-07	N/A	13	8	N/A	19	17
August-07	N/A	6	4	N/A	23	8
September-07	N/A	1	0	N/A	20	1
October-07	N/A	1	0	N/A	21	1
Total	88	259	919	177	343	1187
Daily Exposure Average[1]						3.46

[1]Daily Exposure Average = Total Hours / Number of Construction Days

NOTE: Hours of daily exposure at each sampling station (S1-S4) were determined from the Off-Site Receptor Exposure Logs for the Purity Oil Sales Superfund Site. On these logs, field personnel record whether or not there are people (one or more) within 50 feet of the sampling station. This information is recorded every one or two hours for the duration of the daily construction activities. Each record is assumed to represent the entire hour in which it was recorded as well as the subsequent hour (if there is no record for that hour).

TABLE 4-8
PURITY OIL SALES SUPERFUND SITE
ASSUMED EXPOSURE POINT SCENARIO RISK EVALUATION - STATION S1

Parameter		Value	Units
ET[1]	Exposure time	12	hours/day
EF[1]	Exposure frequency	250	days/year
ED[1]	Exposure duration	1	years
AT_{NC}	Averaging time, noncarcinogens	8760	hours
AT_C	Averaging time, carcinogens	613200	hours

$$Risk_C = C_{air} \cdot \frac{(ET \times EF \times ED)}{AT_C} \cdot IUR$$

$$HQ = C_{air} \cdot \frac{(ET \times EF \times ED)}{AT_{NC}} \cdot \frac{1}{RfC}$$

Chemical	95% UCL EPC (ug/m^3)	IUR (ug/m^3)$^{-1}$	RfC (ug/m^3)	Risk	HQ (subchronic)
1,1,1-Trichloroethane	ND	NA	2.20E+04	NA	NA
1,1,2,2-Tetrachloroethane	ND	5.80E-05	2.10E+02	NA	NA
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	NA	3.00E+04	NA	NA
1,1,2-Trichloroethane	ND	1.60E-05	NA	NA	NA
1,1-Dichloroethane	ND	1.60E-06	4.90E+03	NA	NA
1,1-Dichloroethylene	ND	NA	7.00E+02	NA	NA
1,2,4-Trichlorobenzene	ND	NA	2.00E+03	NA	NA
1,2,4-Trimethylbenzene	ND	NA	1.80E+01	NA	NA
1,2-Dibromoethane	ND	7.10E-05	NA	NA	NA
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	NA	NA	NA	NA
1,2-Dichlorobenzene	ND	NA	2.00E+03	NA	NA
1,2-Dichloroethane	ND	2.10E-05	4.90E+00	NA	NA
1,2-Dichloropropane	ND	1.00E-05	1.30E+01	NA	NA
1,3,5-Trimethylbenzene	ND	NA	1.80E+01	NA	NA
1,3-Dichlorobenzene	ND	NA	1.05E+02	NA	NA
1,4-Dichlorobenzene	ND	1.10E-05	2.40E+03	NA	NA
2,5-Dimethylthiophene	ND	NA	NA	NA	NA
2-Ethylthiophene	ND	NA	NA	NA	NA
3-Methylthiophene	ND	NA	NA	NA	NA
Allyl disulfide	ND	NA	NA	NA	NA
Allyl Mercaptan	ND	NA	NA	NA	NA
Allyl Sulfide	ND	NA	NA	NA	NA
Aluminum	**1.38E+00**	**NA**	**4.90E+00**	**NA**	**9.6E-02**
Benzene	ND	2.90E-05	6.00E+01	NA	NA
Bromomethane	**3.89E+00**	**NA**	**4.90E+00**	**NA**	**2.7E-01**
Butyl Sulfide	ND	NA	NA	NA	NA
Carbon Disulfide	**6.30E+00**	**NA**	**8.00E+02**	**NA**	**2.7E-03**
Carbon Tetrachloride	ND	4.20E-05	1.20E+02	NA	NA
Carbonyl Sulfide	**5.32E+00**	**NA**	**3.00E+01**	**NA**	**6.1E-02**
Chlorobenzene	ND	NA	3.00E+03	NA	NA
Chloroethane	ND	8.30E-07	3.00E+04	NA	NA
Chloroform	ND	5.30E-06	3.00E+02	NA	NA
Chloromethane	ND	1.80E-06	9.10E+03	NA	NA
Chromium	**7.00E-03**	**1.20E-02**	**NA**	**4.1E-07**	**NA**
cis-1,2-Dichloroethene	ND	NA	NA	NA	NA

TABLE 4-8
PURITY OIL SALES SUPERFUND SITE
ASSUMED EXPOSURE POINT SCENARIO RISK EVALUATION - STATION S1

Chemical	95% UCL EPC (ug/m^3)	IUR (ug/m^3)	RfC (ug/m^3)	Risk	HQ (subchronic)
cis-1,3-Dichloropropene	ND	1.60E-05	NA	NA	NA
Dichlorodifluoromethane	**4.47E+00**	**NA**	**2.00E+03**	**NA**	**7.7E-04**
Diethyl disulfide	ND	NA	NA	NA	NA
Diethyl Sulfide	ND	NA	3.00E+01	NA	NA
Dimethyl Disulfide	ND	NA	3.44E+01	NA	NA
Dimethyl Sulfide	ND	NA	NA	NA	NA
Ethyl Mercaptan	ND	NA	NA	NA	NA
Ethyl Methyl Sulfide	ND	NA	NA	NA	NA
Ethylbenzene	ND	NA	2.00E+03	NA	NA
H2S	ND	NA	3.00E+01	NA	NA
Hexachlorobutadiene	ND	NA	NA	NA	NA
Isobutyl Mercaptan	ND	NA	NA	NA	NA
Isopropyl Mercaptan	ND	NA	NA	NA	NA
Lead	**6.40E-02**	**1.20E-05**	**NA**	**3.8E-09**	**NA**
m,p-Xylenes	ND	NA	7.00E+02	NA	NA
Methyl Mercaptan	ND	NA	NA	NA	NA
Methylene Chloride	**1.37E+01**	**1.00E-06**	**4.00E+02**	**6.7E-08**	**1.2E-02**
n-Butyl mercaptan	ND	NA	8.00E+02	NA	NA
Nickel	**7.27E-03**	**2.60E-04**	**5.00E-02**	**9.2E-09**	**5.0E-02**
o-Xylene	ND	NA	7.00E+02	NA	NA
Propyl Mercaptan	ND	NA	8.00E+02	NA	NA
Propyl Sulfide	ND	NA	NA	NA	NA
SO2	ND	NA	NA	NA	NA
Styrene	ND	NA	9.00E+02	NA	NA
t-1,3-Dichloropropene	ND	1.60E-05	NA	NA	NA
t-Butyl Mercaptan	ND	NA	NA	NA	NA
Tetrachloroethylene	ND	5.90E-06	3.50E+01	NA	NA
Tetrahydrothiophene	ND	NA	8.00E+02	NA	NA
Thiophene	ND	NA	NA	NA	NA
Toluene	**5.80E+00**	**NA**	**3.00E+03**	**NA**	**6.6E-04**
Trichloroethene	ND	1.10E-04	6.00E+02	NA	NA
Trichlorofluoromethane	ND	NA	7.00E+02	NA	NA
Vinyl chloride	ND	7.80E-05	1.00E+02	NA	NA
TOTALS				**5.E-07**	**0.5**

Notes:
Detected constituents are noted in **bold** text

[1]	Off-site exposure assumes a 50-week period (max. 12 hours per day, 5 days per week)
RME	Reasonable maximum exposure
95% UCL EPC	95% upper confidence limit exposure point concentration
IUR	Inhalation Unit Risk
RfC	Inhalation Reference Concentration
HQ	Hazard Quotient
ug/m^3	Micrograms per cubic meter
ND	Not detected
NA	Not applicable

TABLE 4-9
PURITY OIL SALES SUPERDUND SITE
ASSUMED EXPOSURE SCENARIO RISK EVALUATION - STATION S2

Parameter		Value	Units
ET[1]	Exposure time	12	hours/day
EF[1]	Exposure frequency	250	days/year
ED[1]	Exposure duration	1	years
AT_{NC}	Averaging time, noncarcinogens	8760	hours
AT_C	Averaging time, carcinogens	613200	hours

$$Risk_C = C_{air} \cdot \frac{(ET \times EF \times ED)}{AT_C} \cdot IUR$$

$$HQ = C_{air} \cdot \frac{(ET \times EF \times ED)}{AT_{NC}} \cdot \frac{1}{RfC}$$

Chemical	95% UCL EPC (ug/m^3)	IUR (ug/m^3)$^{-1}$	RfC (ug/m^3)	Risk	HQ (subchronic)
1,1,1-Trichloroethane	ND	NA	2.20E+04	NA	NA
1,1,2,2-Tetrachloroethane	ND	5.80E-05	2.10E+02	NA	NA
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	NA	3.00E+04	NA	NA
1,1,2-Trichloroethane	ND	1.60E-05	NA	NA	NA
1,1-Dichloroethane	ND	1.60E-06	4.90E+03	NA	NA
1,1-Dichloroethylene	ND	NA	7.00E+02	NA	NA
1,2,4-Trichlorobenzene	ND	NA	2.00E+03	NA	NA
1,2,4-Trimethylbenzene	**5.00E+00**	**NA**	**1.80E+01**	**NA**	**9.5E-02**
1,2-Dibromoethane	ND	7.10E-05	NA	NA	NA
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	NA	NA	NA	NA
1,2-Dichlorobenzene	ND	NA	2.00E+03	NA	NA
1,2-Dichloroethane	ND	2.10E-05	4.90E+00	NA	NA
1,2-Dichloropropane	ND	1.00E-05	1.30E+01	NA	NA
1,3,5-Trimethylbenzene	ND	NA	1.80E+01	NA	NA
1,3-Dichlorobenzene	ND	NA	1.05E+02	NA	NA
1,4-Dichlorobenzene	ND	1.10E-05	2.40E+03	NA	NA
2,5-Dimethylthiophene	ND	NA	NA	NA	NA
2-Ethylthiophene	ND	NA	NA	NA	NA
3-Methylthiophene	ND	NA	NA	NA	NA
Allyl disulfide	ND	NA	NA	NA	NA
Allyl Mercaptan	ND	NA	NA	NA	NA
Allyl Sulfide	ND	NA	NA	NA	NA
Aluminum	**2.47E+00**	**NA**	**4.90E+00**	**NA**	**1.7E-01**
Benzene	**2.97E+00**	**2.90E-05**	**6.00E+01**	**NA**	**NA**
Bromomethane	**3.97E+00**	**NA**	**4.90E+00**	**NA**	**2.8E-01**
Butyl Sulfide	ND	NA	NA	NA	NA
Carbon Disulfide	**6.40E+00**	**NA**	**8.00E+02**	**NA**	**NA**
Carbon Tetrachloride	ND	4.20E-05	1.20E+02	NA	NA
Carbonyl Sulfide	**6.04E+00**	**NA**	**3.00E+01**	**NA**	**NA**
Chlorobenzene	ND	NA	3.00E+03	NA	NA
Chloroethane	ND	8.30E-07	3.00E+04	NA	NA
Chloroform	ND	5.30E-06	3.00E+02	NA	NA
Chloromethane	ND	1.80E-06	9.10E+03	NA	NA
Chromium	**1.75E-02**	**1.20E-02**	**NA**	**1.0E-06**	**NA**
cis-1,2-Dichloroethene	ND	NA	NA	NA	NA

TABLE 4-9
PURITY OIL SALES SUPERDUND SITE
ASSUMED EXPOSURE SCENARIO RISK EVALUATION - STATION S2

Chemical	95% UCL EPC (ug/m^3)	IUR (ug/m^3)$^{-1}$	RfC (ug/m^3)	Risk	HQ (subchronic)
cis-1,3-Dichloropropene	ND	1.60E-05	NA	NA	NA
Dichlorodifluoromethane	**4.70E+00**	**NA**	**2.00E+03**	**NA**	**NA**
Diethyl disulfide	ND	NA	NA	NA	NA
Diethyl Sulfide	ND	NA	3.00E+01	NA	NA
Dimethyl Disulfide	ND	NA	3.44E+01	NA	NA
Dimethyl Sulfide	ND	NA	NA	NA	NA
Ethyl Mercaptan	ND	NA	NA	NA	NA
Ethyl Methyl Sulfide	ND	NA	NA	NA	NA
Ethylbenzene	ND	NA	2.00E+03	NA	NA
H2S	ND	NA	3.00E+01	NA	NA
Hexachlorobutadiene	ND	NA	NA	NA	NA
Isobutyl Mercaptan	ND	NA	NA	NA	NA
Isopropyl Mercaptan	ND	NA	NA	NA	NA
Lead	**2.24E-01**	**1.20E-05**	**NA**	**1.3E-08**	**NA**
m,p-Xylenes	**7.91E+00**	**NA**	**7.00E+02**	**NA**	**3.9E-03**
Methyl Mercaptan	ND	NA	NA	NA	NA
Methylene Chloride	**5.41E+00**	**1.00E-06**	**4.00E+02**	**2.6E-08**	**4.6E-03**
n-Butyl mercaptan	ND	NA	8.00E+02	NA	NA
Nickel	**2.57E-02**	**2.60E-04**	**5.00E-02**	**3.3E-08**	**1.8E-01**
o-Xylene	**3.93E+00**	**NA**	**7.00E+02**	**NA**	**1.9E-03**
Propyl Mercaptan	ND	NA	8.00E+02	NA	NA
Propyl Sulfide	ND	NA	NA	NA	NA
SO2	ND	NA	NA	NA	NA
Styrene	ND	NA	9.00E+02	NA	NA
t-1,3-Dichloropropene	ND	1.60E-05	NA	NA	NA
t-Butyl Mercaptan	ND	NA	NA	NA	NA
Tetrachloroethylene	ND	5.90E-06	3.50E+01	NA	NA
Tetrahydrothiophene	ND	NA	8.00E+02	NA	NA
Thiophene	ND	NA	NA	NA	NA
Toluene	**4.53E+00**	**NA**	**3.00E+03**	**NA**	**5.2E-04**
Trichloroethene	**4.95E+00**	**1.10E-04**	**6.00E+02**	**NA**	**NA**
Trichlorofluoromethane	**5.14E+00**	**NA**	**7.00E+02**	**NA**	**NA**
Vinyl chloride	ND	7.80E-05	1.00E+02	NA	NA
TOTALS				1E-06	0.7

Notes:
Detected constituents are noted in **bold** text

[1]	Off-site exposure assumes a 50-week period (max. 12 hours per day, 5 days per week)
RME	Reasonable maximum exposure
95% UCL EPC	95% upper confidence limit exposure point concentration
IUR	Inhalation Unit Risk
RfC	Inhalation Reference Concentration
HQ	Hazard Quotient
ug/m^3	Micrograms per cubic meter
ND	Not detected
NA	Not applicable

TABLE 4-10
PURITY OIL SALES SUPERFUND SITE
ASSUMED EXPOSURE SCENARIO RISK EVALUATION - STATION S3

Parameter		Value	Units
ET[1]	Exposure time	12	hours/day
EF[1]	Exposure frequency	250	days/year
ED[1]	Exposure duration	1	years
AT_{NC}	Averaging time, noncarcinogens	8760	hours
AT_C	Averaging time, carcinogens	613200	hours

$$Risk_C = C_{air} \cdot \frac{(ET \times EF \times ED)}{AT_C} \cdot IUR$$

$$HQ = C_{air} \cdot \frac{(ET \times EF \times ED)}{AT_{NC}} \cdot \frac{1}{RfC}$$

Chemical	95% UCL EPC (ug/m^3)	IUR (ug/m^3)$^{-1}$	RfC (ug/m^3)	Risk	HQ (subchronic)
1,1,1-Trichloroethane	ND	NA	2.20E+04	NA	NA
1,1,2,2-Tetrachloroethane	ND	5.80E-05	2.10E+02	NA	NA
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	NA	3.00E+04	NA	NA
1,1,2-Trichloroethane	ND	1.60E-05	NA	NA	NA
1,1-Dichloroethane	ND	1.60E-06	4.90E+03	NA	NA
1,1-Dichloroethylene	ND	NA	7.00E+02	NA	NA
1,2,4-Trichlorobenzene	ND	NA	2.00E+03	NA	NA
1,2,4-Trimethylbenzene	**5.45E+00**	**NA**	**1.80E+01**	**NA**	**1.0E-01**
1,2-Dibromoethane	ND	7.10E-05	NA	NA	NA
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	NA	NA	NA	NA
1,2-Dichlorobenzene	ND	NA	2.00E+03	NA	NA
1,2-Dichloroethane	ND	2.10E-05	4.90E+00	NA	NA
1,2-Dichloropropane	ND	1.00E-05	1.30E+01	NA	NA
1,3,5-Trimethylbenzene	**4.57E+00**	**NA**	**1.80E+01**	**NA**	**8.7E-02**
1,3-Dichlorobenzene	ND	NA	1.05E+02	NA	NA
1,4-Dichlorobenzene	ND	1.10E-05	2.40E+03	NA	NA
2,5-Dimethylthiophene	ND	NA	NA	NA	NA
2-Ethylthiophene	ND	NA	NA	NA	NA
3-Methylthiophene	ND	NA	NA	NA	NA
Allyl disulfide	ND	NA	NA	NA	NA
Allyl Mercaptan	ND	NA	NA	NA	NA
Allyl Sulfide	ND	NA	NA	NA	NA
Aluminum	**1.41E+00**	**NA**	**4.90E+00**	**NA**	**9.9E-02**
Benzene	**3.02E+00**	**2.90E-05**	**6.00E+01**	**4.3E-07**	**1.7E-02**
Bromomethane	**3.59E+00**	**NA**	**4.90E+00**	**NA**	**2.5E-01**
Butyl Sulfide	ND	NA	NA	NA	NA
Carbon Disulfide	**6.82E+00**	**NA**	**8.00E+02**	**NA**	**2.9E-03**
Carbon Tetrachloride	ND	4.20E-05	1.20E+02	NA	NA
Carbonyl Sulfide	**7.76E+00**	**NA**	**3.00E+01**	**NA**	**8.9E-02**
Chlorobenzene	ND	NA	3.00E+03	NA	NA
Chloroethane	ND	8.30E-07	3.00E+04	NA	NA
Chloroform	ND	5.30E-06	3.00E+02	NA	NA
Chloromethane	ND	1.80E-06	9.10E+03	NA	NA
Chromium	**8.31E-03**	**1.20E-02**	**NA**	**4.9E-07**	**NA**
cis-1,2-Dichloroethene	ND	NA	NA	NA	NA

TABLE 4-10
PURITY OIL SALES SUPERFUND SITE
ASSUMED EXPOSURE SCENARIO RISK EVALUATION - STATION S3

Chemical	95% UCL EPC (ug/m^3)	IUR (ug/m^3)$^{-1}$	RfC (ug/m^3)	Risk	HQ (subchronic)
cis-1,3-Dichloropropene	ND	1.60E-05	NA	NA	NA
Dichlorodifluoromethane	**4.26E+00**	**NA**	**2.00E+03**	**NA**	**7.3E-04**
Diethyl disulfide	ND	NA	NA	NA	NA
Diethyl Sulfide	ND	NA	3.00E+01	NA	NA
Dimethyl Disulfide	ND	NA	3.44E+01	NA	NA
Dimethyl Sulfide	ND	NA	NA	NA	NA
Ethyl Mercaptan	ND	NA	NA	NA	NA
Ethyl Methyl Sulfide	ND	NA	NA	NA	NA
Ethylbenzene	ND	NA	2.00E+03	NA	NA
H2S	**5.27E+00**	**NA**	**3.00E+01**	**NA**	**6.0E-02**
Hexachlorobutadiene	ND	NA	NA	NA	NA
Isobutyl Mercaptan	ND	NA	NA	NA	NA
Isopropyl Mercaptan	ND	NA	NA	NA	NA
Lead	**1.03E-01**	**1.20E-05**	**NA**	**6.0E-09**	**NA**
m,p-Xylenes	**7.81E+00**	**NA**	**7.00E+02**	**NA**	**3.8E-03**
Methyl Mercaptan	ND	NA	NA	NA	NA
Methylene Chloride	**4.52E+00**	**1.00E-06**	**4.00E+02**	**2.2E-08**	**3.9E-03**
n-Butyl mercaptan	ND	NA	8.00E+02	NA	NA
Nickel	**7.94E-03**	**2.60E-04**	**5.00E-02**	**1.0E-08**	**5.4E-02**
o-Xylene	**3.90E+00**	**NA**	**7.00E+02**	**NA**	**1.9E-03**
Propyl Mercaptan	ND	NA	8.00E+02	NA	NA
Propyl Sulfide	ND	NA	NA	NA	NA
SO2	ND	NA	NA	NA	NA
Styrene	ND	NA	9.00E+02	NA	NA
t-1,3-Dichloropropene	ND	1.60E-05	NA	NA	NA
t-Butyl Mercaptan	ND	NA	NA	NA	NA
Tetrachloroethylene	ND	5.90E-06	3.50E+01	NA	NA
Tetrahydrothiophene	ND	NA	8.00E+02	NA	NA
Thiophene	ND	NA	NA	NA	NA
Toluene	**4.67E+00**	**NA**	**3.00E+03**	**NA**	**5.3E-04**
Trichloroethene	**4.84E+00**	**1.10E-04**	**6.00E+02**	**2.6E-06**	**2.8E-03**
Trichlorofluoromethane	**4.66E+00**	**NA**	**7.00E+02**	**NA**	**2.3E-03**
Vinyl chloride	ND	7.80E-05	1.00E+02	NA	NA
TOTALS				**4E-06**	**0.8**

Notes:
Detected constituents are noted in **bold** text

[1]	Off-site exposure assumes a 50-week period (max. 12 hours per day, 5 days per week)
RME	Reasonable maximum exposure
95% UCL EPC	95% upper confidence limit exposure point concentration
IUR	Inhalation Unit Risk
RfC	Inhalation Reference Concentration
HQ	Hazard Quotient
ug/m^3	Micrograms per cubic meter
ND	Not detected
NA	Not applicable

TABLE 4-11
PURITY OIL SALES SUPERFUND SITE
ASSUMED EXPOSURE SCENARIO RISK EVALUATION - STATION S4

Parameter		Value	Units
ET[1]	Exposure time	12	hours/day
EF[1]	Exposure frequency	250	days/year
ED[1]	Exposure duration	1	years
AT_{NC}	Averaging time, noncarcinogens	8760	hours
AT_C	Averaging time, carcinogens	613200	hours

$$Risk_C = C_{air} \cdot \frac{(ET \times EF \times ED)}{AT_C} \cdot IUR$$

$$HQ = C_{air} \cdot \frac{(ET \times EF \times ED)}{AT_{NC}} \cdot \frac{1}{RfC}$$

Chemical	95th UCL EPC (ug/m³)	IUR (ug/m³)⁻¹	RfC (ug/m³)	Risk	HQ (subchronic)
1,1,1-Trichloroethane	ND	NA	2.20E+04	NA	NA
1,1,2,2-Tetrachloroethane	ND	5.80E-05	2.10E+02	NA	NA
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	NA	3.00E+04	NA	NA
1,1,2-Trichloroethane	ND	1.60E-05	NA	NA	NA
1,1-Dichloroethane	ND	1.60E-06	4.90E+03	NA	NA
1,1-Dichloroethylene	ND	NA	7.00E+02	NA	NA
1,2,4-Trichlorobenzene	ND	NA	2.00E+03	NA	NA
1,2,4-Trimethylbenzene	ND	NA	1.80E+01	NA	NA
1,2-Dibromoethane	ND	7.10E-05	NA	NA	NA
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	NA	NA	NA	NA
1,2-Dichlorobenzene	ND	NA	2.00E+03	NA	NA
1,2-Dichloroethane	ND	2.10E-05	4.90E+00	NA	NA
1,2-Dichloropropane	ND	1.00E-05	1.30E+01	NA	NA
1,3,5-Trimethylbenzene	ND	NA	1.80E+01	NA	NA
1,3-Dichlorobenzene	ND	NA	1.05E+02	NA	NA
1,4-Dichlorobenzene	ND	1.10E-05	2.40E+03	NA	NA
2,5-Dimethylthiophene	ND	NA	NA	NA	NA
2-Ethylthiophene	ND	NA	NA	NA	NA
3-Methylthiophene	ND	NA	NA	NA	NA
Allyl disulfide	ND	NA	NA	NA	NA
Allyl Mercaptan	ND	NA	NA	NA	NA
Allyl Sulfide	ND	NA	NA	NA	NA
Aluminum	**1.37E+00**	**NA**	**4.90E+00**	**NA**	**9.6E-02**
Benzene	ND	2.90E-05	6.00E+01	NA	NA
Bromomethane	**4.02E+00**	**NA**	**4.90E+00**	**NA**	**2.8E-01**
Butyl Sulfide	ND	NA	NA	NA	NA
Carbon Disulfide	**5.96E+00**	**NA**	**8.00E+02**	**NA**	**2.6E-03**
Carbon Tetrachloride	ND	4.20E-05	1.20E+02	NA	NA
Carbonyl Sulfide	**5.74E+00**	**NA**	**3.00E+01**	**NA**	**6.6E-02**
Chlorobenzene	ND	NA	3.00E+03	NA	NA
Chloroethane	ND	8.30E-07	3.00E+04	NA	NA
Chloroform	ND	5.30E-06	3.00E+02	NA	NA
Chloromethane	ND	1.80E-06	9.10E+03	NA	NA
Chromium	**7.14E-03**	**1.20E-02**	**NA**	**4.2E-07**	**NA**
cis-1,2-Dichloroethene	ND	NA	NA	NA	NA

TABLE 4-11
PURITY OIL SALES SUPERFUND SITE
ASSUMED EXPOSURE SCENARIO RISK EVALUATION - STATION S4

Chemical	95th UCL EPC (ug/m^3)	IUR (ug/m^3)$^{-1}$	RfC (ug/m^3)	Risk	HQ (subchronic)
cis-1,3-Dichloropropene	ND	1.60E-05	NA	NA	NA
Dichlorodifluoromethane	ND	NA	2.00E+03	NA	NA
Diethyl disulfide	ND	NA	NA	NA	NA
Diethyl Sulfide	ND	NA	3.00E+01	NA	NA
Dimethyl Disulfide	ND	NA	3.44E+01	NA	NA
Dimethyl Sulfide	ND	NA	NA	NA	NA
Ethyl Mercaptan	ND	NA	NA	NA	NA
Ethyl Methyl Sulfide	ND	NA	NA	NA	NA
Ethylbenzene	ND	NA	2.00E+03	NA	NA
H2S	**5.67E+00**	**NA**	**3.00E+01**	**NA**	**6.5E-02**
Hexachlorobutadiene	ND	NA	NA	NA	NA
Isobutyl Mercaptan	ND	NA	NA	NA	NA
Isopropyl Mercaptan	ND	NA	NA	NA	NA
Lead	**6.78E-02**	**1.20E-05**	**NA**	**4.0E-09**	**NA**
m,p-Xylenes	ND	NA	7.00E+02	NA	NA
Methyl Mercaptan	ND	NA	NA	NA	NA
Methylene Chloride	**5.59E+00**	**1.00E-06**	**4.00E+02**	**2.7E-08**	**4.8E-03**
n-Butyl mercaptan	ND	NA	8.00E+02	NA	NA
Nickel	**7.20E-03**	**2.60E-04**	**5.00E-02**	**9.2E-09**	**4.9E-02**
o-Xylene	ND	NA	7.00E+02	NA	NA
Propyl Mercaptan	ND	NA	8.00E+02	NA	NA
Propyl Sulfide	ND	NA	NA	NA	NA
SO2	ND	NA	NA	NA	NA
Styrene	ND	NA	9.00E+02	NA	NA
t-1,3-Dichloropropene	ND	1.60E-05	NA	NA	NA
t-Butyl Mercaptan	ND	NA	NA	NA	NA
Tetrachloroethylene	ND	5.90E-06	3.50E+01	NA	NA
Tetrahydrothiophene	ND	NA	8.00E+02	NA	NA
Thiophene	ND	NA	NA	NA	NA
Toluene	**5.38E+00**	**NA**	**3.00E+03**	**NA**	**6.1E-04**
Trichloroethene	ND	1.10E-04	6.00E+02	NA	NA
Trichlorofluoromethane	ND	NA	7.00E+02	NA	NA
Vinyl chloride	ND	7.80E-05	1.00E+02	NA	NA
TOTALS				**5.E-07**	**0.6**

Notes:
Detected constituents are noted in **bold** text

1	Off-site exposure assumes a 50-week period (max. 12 hours per day, 5 days per week)
RME	Reasonable maximum exposure
95% UCL EPC	95% upper confidence limit exposure point concentration
IUR	Inhalation Unit Risk
RfC	Inhalation Reference Concentration
HQ	Hazard Quotient
ug/m^3	Micrograms per cubic meter
ND	Not detected
NA	Not applicable

TABLE 4-12
PURITY OIL SALES SUPERFUND SITE
ACTUAL EXPOSURE SCENARIO RISK EVALUATION - STATION S1

Parameter		Value	Units
ET[1]	Exposure time	4	hours/day
EF[1]	Exposure frequency	250	days/year
ED[1]	Exposure duration	1	years
AT_{NC}	Averaging time, noncarcinogens	8760	hours
AT_C	Averaging time, carcinogens	613200	hours

$$Risk_C = C_{air} \cdot \frac{(ET \times EF \times ED)}{AT_C} \cdot IUR$$

$$HQ = C_{air} \cdot \frac{(ET \times EF \times ED)}{AT_{NC}} \cdot \frac{1}{RfC}$$

Chemical	95% UCL EPC (ug/m^3)	IUR (ug/m^3)$^{-1}$	RfC (ug/m^3)	Risk	HQ (subchronic)
1,1,1-Trichloroethane	ND	NA	2.20E+04	NA	NA
1,1,2,2-Tetrachloroethane	ND	5.80E-05	2.10E+02	NA	NA
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	NA	3.00E+04	NA	NA
1,1,2-Trichloroethane	ND	1.60E-05	NA	NA	NA
1,1-Dichloroethane	ND	1.60E-06	4.90E+03	NA	NA
1,1-Dichloroethylene	ND	NA	7.00E+02	NA	NA
1,2,4-Trichlorobenzene	ND	NA	2.00E+03	NA	NA
1,2,4-Trimethylbenzene	ND	NA	1.80E+01	NA	NA
1,2-Dibromoethane	ND	7.10E-05	NA	NA	NA
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	NA	NA	NA	NA
1,2-Dichlorobenzene	ND	NA	2.00E+03	NA	NA
1,2-Dichloroethane	ND	2.10E-05	4.90E+00	NA	NA
1,2-Dichloropropane	ND	1.00E-05	1.30E+01	NA	NA
1,3,5-Trimethylbenzene	ND	NA	1.80E+01	NA	NA
1,3-Dichlorobenzene	ND	NA	1.05E+02	NA	NA
1,4-Dichlorobenzene	ND	1.10E-05	2.40E+03	NA	NA
2,5-Dimethylthiophene	ND	NA	NA	NA	NA
2-Ethylthiophene	ND	NA	NA	NA	NA
3-Methylthiophene	ND	NA	NA	NA	NA
Allyl disulfide	ND	NA	NA	NA	NA
Allyl Mercaptan	ND	NA	NA	NA	NA
Allyl Sulfide	ND	NA	NA	NA	NA
Aluminum	**1.38E+00**	**NA**	**4.90E+00**	**NA**	**3.2E-02**
Benzene	ND	2.90E-05	6.00E+01	NA	NA
Bromomethane	**3.89E+00**	**NA**	**4.90E+00**	**NA**	**9.1E-02**
Butyl Sulfide	ND	NA	NA	NA	NA
Carbon Disulfide	**6.30E+00**	**NA**	**8.00E+02**	**NA**	**9.0E-04**
Carbon Tetrachloride	ND	4.20E-05	1.20E+02	NA	NA
Carbonyl Sulfide	**5.32E+00**	**NA**	**3.00E+01**	**NA**	**2.0E-02**
Chlorobenzene	ND	NA	3.00E+03	NA	NA
Chloroethane	ND	8.30E-07	3.00E+04	NA	NA
Chloroform	ND	5.30E-06	3.00E+02	NA	NA
Chloromethane	ND	1.80E-06	9.10E+03	NA	NA
Chromium	**7.00E-03**	**1.20E-02**	**NA**	**1.4E-07**	**NA**
cis-1,2-Dichloroethene	ND	NA	NA	NA	NA

TABLE 4-12
PURITY OIL SALES SUPERFUND SITE
ACTUAL EXPOSURE SCENARIO RISK EVALUATION - STATION S1

Chemical	95% UCL EPC (ug/m^3)	IUR (ug/m^3)$^{-1}$	RfC (ug/m^3)	Risk	HQ (subchronic)
cis-1,3-Dichloropropene	ND	1.60E-05	NA	NA	NA
Dichlorodifluoromethane	**4.47E+00**	**NA**	**2.00E+03**	**NA**	**2.6E-04**
Diethyl disulfide	ND	NA	NA	NA	NA
Diethyl Sulfide	ND	NA	3.00E+01	NA	NA
Dimethyl Disulfide	ND	NA	3.44E+01	NA	NA
Dimethyl Sulfide	ND	NA	NA	NA	NA
Ethyl Mercaptan	ND	NA	NA	NA	NA
Ethyl Methyl Sulfide	ND	NA	NA	NA	NA
Ethylbenzene	ND	NA	2.00E+03	NA	NA
H2S	ND	NA	3.00E+01	NA	NA
Hexachlorobutadiene	ND	NA	NA	NA	NA
Isobutyl Mercaptan	ND	NA	NA	NA	NA
Isopropyl Mercaptan	ND	NA	NA	NA	NA
Lead	**6.40E-02**	**1.20E-05**	**NA**	**1.3E-09**	**NA**
m,p-Xylenes	ND	NA	7.00E+02	NA	NA
Methyl Mercaptan	ND	NA	NA	NA	NA
Methylene Chloride	**1.37E+01**	**1.00E-06**	**4.00E+02**	**2.2E-08**	**3.9E-03**
n-Butyl mercaptan	ND	NA	8.00E+02	NA	NA
Nickel	**7.27E-03**	**2.60E-04**	**5.00E-02**	**3.1E-09**	**1.7E-02**
o-Xylene	ND	NA	7.00E+02	NA	NA
Propyl Mercaptan	ND	NA	8.00E+02	NA	NA
Propyl Sulfide	ND	NA	NA	NA	NA
SO2	ND	NA	NA	NA	NA
Styrene	ND	NA	9.00E+02	NA	NA
t-1,3-Dichloropropene	ND	1.60E-05	NA	NA	NA
t-Butyl Mercaptan	ND	NA	NA	NA	NA
Tetrachloroethylene	ND	5.90E-06	3.50E+01	NA	NA
Tetrahydrothiophene	ND	NA	8.00E+02	NA	NA
Thiophene	ND	NA	NA	NA	NA
Toluene	**5.80E+00**	**NA**	**3.00E+03**	**NA**	**2.2E-04**
Trichloroethene	ND	1.10E-04	6.00E+02	NA	NA
Trichlorofluoromethane	ND	NA	7.00E+02	NA	NA
Vinyl chloride	ND	7.80E-05	1.00E+02	NA	NA
TOTALS				**2.E-07**	**0.2**

Notes:
Detected constituents are noted in **bold** text

[1]	Off-site exposure based on a 50-week period, 5 days per week, and hours per day as determined in Table 7.
RME	Reasonable maximum exposure
95% UCL EPC	95% upper confidence limit exposure point concentration
IUR	Inhalation Unit Risk
RfC	Inhalation Reference Concentration
HQ	Hazard Quotient
ug/m^3	Micrograms per cubic meter
ND	Not detected
NA	Not applicable

TABLE 4-13
PURITY OIL SALES SUPERFUND SITE
ACTUAL EXPOSURE SCENARIO RISK EVALUATION - STATION S2

Parameter		Value	Units
ET[1]	Exposure time	4	hours/day
EF[1]	Exposure frequency	250	days/year
ED[1]	Exposure duration	1	years
AT_{NC}	Averaging time, noncarcinogens	8760	hours
AT_C	Averaging time, carcinogens	613200	hours

$$Risk_C = C_{air} \cdot \frac{(ET \times EF \times ED)}{AT_C} \cdot IUR$$

$$HQ = C_{air} \cdot \frac{(ET \times EF \times ED)}{AT_{NC}} \cdot \frac{1}{RfC}$$

Chemical	95% UCL EPC (ug/m^3)	IUR (ug/m^3)$^{-1}$	RfC (ug/m^3)	Risk	HQ (subchronic)
1,1,1-Trichloroethane	ND	NA	2.20E+04	NA	NA
1,1,2,2-Tetrachloroethane	ND	5.80E-05	2.10E+02	NA	NA
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	NA	3.00E+04	NA	NA
1,1,2-Trichloroethane	ND	1.60E-05	NA	NA	NA
1,1-Dichloroethane	ND	1.60E-06	4.90E+03	NA	NA
1,1-Dichloroethylene	ND	NA	7.00E+02	NA	NA
1,2,4-Trichlorobenzene	ND	NA	2.00E+03	NA	NA
1,2,4-Trimethylbenzene	**5.00E+00**	**NA**	**1.80E+01**	**NA**	**3.2E-02**
1,2-Dibromoethane	ND	7.10E-05	NA	NA	NA
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	NA	NA	NA	NA
1,2-Dichlorobenzene	ND	NA	2.00E+03	NA	NA
1,2-Dichloroethane	ND	2.10E-05	4.90E+00	NA	NA
1,2-Dichloropropane	ND	1.00E-05	1.30E+01	NA	NA
1,3,5-Trimethylbenzene	ND	NA	1.80E+01	NA	NA
1,3-Dichlorobenzene	ND	NA	1.05E+02	NA	NA
1,4-Dichlorobenzene	ND	1.10E-05	2.40E+03	NA	NA
2,5-Dimethylthiophene	ND	NA	NA	NA	NA
2-Ethylthiophene	ND	NA	NA	NA	NA
3-Methylthiophene	ND	NA	NA	NA	NA
Allyl disulfide	ND	NA	NA	NA	NA
Allyl Mercaptan	ND	NA	NA	NA	NA
Allyl Sulfide	ND	NA	NA	NA	NA
Aluminum	**2.47E+00**	**NA**	**4.90E+00**	**NA**	**5.7E-02**
Benzene	**2.97E+00**	**2.90E-05**	**6.00E+01**	**NA**	**NA**
Bromomethane	**3.97E+00**	**NA**	**4.90E+00**	**NA**	**9.3E-02**
Butyl Sulfide	ND	NA	NA	NA	NA
Carbon Disulfide	**6.40E+00**	**NA**	**8.00E+02**	**NA**	**NA**
Carbon Tetrachloride	ND	4.20E-05	1.20E+02	NA	NA
Carbonyl Sulfide	**6.04E+00**	**NA**	**3.00E+01**	**NA**	**NA**
Chlorobenzene	ND	NA	3.00E+03	NA	NA
Chloroethane	ND	8.30E-07	3.00E+04	NA	NA
Chloroform	ND	5.30E-06	3.00E+02	NA	NA
Chloromethane	ND	1.80E-06	9.10E+03	NA	NA
Chromium	**1.75E-02**	**1.20E-02**	**NA**	**3.4E-07**	**NA**
cis-1,2-Dichloroethene	ND	NA	NA	NA	NA

TABLE 4-13
PURITY OIL SALES SUPERFUND SITE
ACTUAL EXPOSURE SCENARIO RISK EVALUATION - STATION S2

Chemical	95% UCL EPC (ug/m^3)	IUR (ug/m^3)$^{-1}$	RfC (ug/m^3)	Risk	HQ (subchronic)
cis-1,3-Dichloropropene	ND	1.60E-05	NA	NA	NA
Dichlorodifluoromethane	**4.70E+00**	**NA**	**2.00E+03**	**NA**	**NA**
Diethyl disulfide	ND	NA	NA	NA	NA
Diethyl Sulfide	ND	NA	3.00E+01	NA	NA
Dimethyl Disulfide	ND	NA	3.44E+01	NA	NA
Dimethyl Sulfide	ND	NA	NA	NA	NA
Ethyl Mercaptan	ND	NA	NA	NA	NA
Ethyl Methyl Sulfide	ND	NA	NA	NA	NA
Ethylbenzene	ND	NA	2.00E+03	NA	NA
H2S	ND	NA	3.00E+01	NA	NA
Hexachlorobutadiene	ND	NA	NA	NA	NA
Isobutyl Mercaptan	ND	NA	NA	NA	NA
Isopropyl Mercaptan	ND	NA	NA	NA	NA
Lead	**2.24E-01**	**1.20E-05**	**NA**	**4.4E-09**	**NA**
m,p-Xylenes	**7.91E+00**	**NA**	**7.00E+02**	**NA**	**1.3E-03**
Methyl Mercaptan	ND	NA	NA	NA	NA
Methylene Chloride	**5.41E+00**	**1.00E-06**	**4.00E+02**	**8.8E-09**	**1.5E-03**
n-Butyl mercaptan	ND	NA	8.00E+02	NA	NA
Nickel	**2.57E-02**	**2.60E-04**	**5.00E-02**	**1.1E-08**	**5.9E-02**
o-Xylene	**3.93E+00**	**NA**	**7.00E+02**	**NA**	**6.4E-04**
Propyl Mercaptan	ND	NA	8.00E+02	NA	NA
Propyl Sulfide	ND	NA	NA	NA	NA
SO2	ND	NA	NA	NA	NA
Styrene	ND	NA	9.00E+02	NA	NA
t-1,3-Dichloropropene	ND	1.60E-05	NA	NA	NA
t-Butyl Mercaptan	ND	NA	NA	NA	NA
Tetrachloroethylene	ND	5.90E-06	3.50E+01	NA	NA
Tetrahydrothiophene	ND	NA	8.00E+02	NA	NA
Thiophene	ND	NA	NA	NA	NA
Toluene	**4.53E+00**	**NA**	**3.00E+03**	**NA**	**1.7E-04**
Trichloroethene	**4.95E+00**	**1.10E-04**	**6.00E+02**	**NA**	**NA**
Trichlorofluoromethane	**5.14E+00**	**NA**	**7.00E+02**	**NA**	**NA**
Vinyl chloride	ND	7.80E-05	1.00E+02	NA	NA
TOTALS				4.E-07	10.2

Notes:
Detected constituents are noted in **bold** text

[1]	Off-site exposure based on a 50-week period, 5 days per week, and hours per day as determined in Table 7.
RME	Reasonable maximum exposure
95% UCL EPC	95% upper confidence limit exposure point concentration
IUR	Inhalation Unit Risk
RfC	Inhalation Reference Concentration
HQ	Hazard Quotient
ug/m^3	Micrograms per cubic meter
ND	Not detected
NA	Not applicable

TABLE 4-14
PURITY OIL SALES SUPERFUND SITE
ACTUAL EXPOSURE SCENARIO RISK EVALUATION - STATION S3

Parameter		Value	Units
ET[1]	Exposure time	4	hours/day
EF[1]	Exposure frequency	250	days/year
ED[1]	Exposure duration	1	years
AT_{NC}	Averaging time, noncarcinogens	8760	hours
AT_C	Averaging time, carcinogens	613200	hours

$$Risk_C = C_{air} \cdot \frac{(ET \times EF \times ED)}{AT_C} \cdot IUR$$

$$HQ = C_{air} \cdot \frac{(ET \times EF \times ED)}{AT_{NC}} \cdot \frac{1}{RfC}$$

Chemical	95% UCL EPC (ug/m^3)	IUR (ug/m^3)$^{-1}$	RfC (ug/m^3)	Risk	HQ (subchronic)
1,1,1-Trichloroethane	ND	NA	2.20E+04	NA	NA
1,1,2,2-Tetrachloroethane	ND	5.80E-05	2.10E+02	NA	NA
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	NA	3.00E+04	NA	NA
1,1,2-Trichloroethane	ND	1.60E-05	NA	NA	NA
1,1-Dichloroethane	ND	1.60E-06	4.90E+03	NA	NA
1,1-Dichloroethylene	ND	NA	7.00E+02	NA	NA
1,2,4-Trichlorobenzene	ND	NA	2.00E+03	NA	NA
1,2,4-Trimethylbenzene	**5.45E+00**	**NA**	**1.80E+01**	**NA**	**3.5E-02**
1,2-Dibromoethane	ND	7.10E-05	NA	NA	NA
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	NA	NA	NA	NA
1,2-Dichlorobenzene	ND	NA	2.00E+03	NA	NA
1,2-Dichloroethane	ND	2.10E-05	4.90E+00	NA	NA
1,2-Dichloropropane	ND	1.00E-05	1.30E+01	NA	NA
1,3,5-Trimethylbenzene	**4.57E+00**	**NA**	**1.80E+01**	**NA**	**2.9E-02**
1,3-Dichlorobenzene	ND	NA	1.05E+02	NA	NA
1,4-Dichlorobenzene	ND	1.10E-05	2.40E+03	NA	NA
2,5-Dimethylthiophene	ND	NA	NA	NA	NA
2-Ethylthiophene	ND	NA	NA	NA	NA
3-Methylthiophene	ND	NA	NA	NA	NA
Allyl disulfide	ND	NA	NA	NA	NA
Allyl Mercaptan	ND	NA	NA	NA	NA
Allyl Sulfide	ND	NA	NA	NA	NA
Aluminum	**1.41E+00**	**NA**	**4.90E+00**	**NA**	**3.3E-02**
Benzene	**3.02E+00**	**2.90E-05**	**6.00E+01**	**1.4E-07**	**5.7E-03**
Bromomethane	**3.59E+00**	**NA**	**4.90E+00**	**NA**	**8.4E-02**
Butyl Sulfide	ND	NA	NA	NA	NA
Carbon Disulfide	**6.82E+00**	**NA**	**8.00E+02**	**NA**	**9.7E-04**
Carbon Tetrachloride	ND	4.20E-05	1.20E+02	NA	NA
Carbonyl Sulfide	**7.76E+00**	**NA**	**3.00E+01**	**NA**	**3.0E-02**
Chlorobenzene	ND	NA	3.00E+03	NA	NA
Chloroethane	ND	8.30E-07	3.00E+04	NA	NA
Chloroform	ND	5.30E-06	3.00E+02	NA	NA
Chloromethane	ND	1.80E-06	9.10E+03	NA	NA
Chromium	**8.31E-03**	**1.20E-02**	**NA**	**1.6E-07**	**NA**
cis-1,2-Dichloroethene	ND	NA	NA	NA	NA

TABLE 4-14
PURITY OIL SALES SUPERFUND SITE
ACTUAL EXPOSURE SCENARIO RISK EVALUATION - STATION S3

Chemical	95% UCL EPC (ug/m^3)	IUR (ug/m^3)$^{-1}$	RfC (ug/m^3)	Risk	HQ (subchronic)
cis-1,3-Dichloropropene	ND	1.60E-05	NA	NA	NA
Dichlorodifluoromethane	**4.26E+00**	**NA**	**2.00E+03**	**NA**	**2.4E-04**
Diethyl disulfide	ND	NA	NA	NA	NA
Diethyl Sulfide	ND	NA	3.00E+01	NA	NA
Dimethyl Disulfide	ND	NA	3.44E+01	NA	NA
Dimethyl Sulfide	ND	NA	NA	NA	NA
Ethyl Mercaptan	ND	NA	NA	NA	NA
Ethyl Methyl Sulfide	ND	NA	NA	NA	NA
Ethylbenzene	ND	NA	2.00E+03	NA	NA
H2S	**5.27E+00**	**NA**	**3.00E+01**	**NA**	**2.0E-02**
Hexachlorobutadiene	ND	NA	NA	NA	NA
Isobutyl Mercaptan	ND	NA	NA	NA	NA
Isopropyl Mercaptan	ND	NA	NA	NA	NA
Lead	**1.03E-01**	**1.20E-05**	**NA**	**2.0E-09**	**NA**
m,p-Xylenes	**7.81E+00**	**NA**	**7.00E+02**	**NA**	**1.3E-03**
Methyl Mercaptan	ND	NA	NA	NA	NA
Methylene Chloride	**4.52E+00**	**1.00E-06**	**4.00E+02**	**7.4E-09**	**1.3E-03**
n-Butyl mercaptan	ND	NA	8.00E+02	NA	NA
Nickel	**7.94E-03**	**2.60E-04**	**5.00E-02**	**3.4E-09**	**1.8E-02**
o-Xylene	**3.90E+00**	**NA**	**7.00E+02**	**NA**	**6.4E-04**
Propyl Mercaptan	ND	NA	8.00E+02	NA	NA
Propyl Sulfide	ND	NA	NA	NA	NA
SO2	ND	NA	NA	NA	NA
Styrene	ND	NA	9.00E+02	NA	NA
t-1,3-Dichloropropene	ND	1.60E-05	NA	NA	NA
t-Butyl Mercaptan	ND	NA	NA	NA	NA
Tetrachloroethylene	ND	5.90E-06	3.50E+01	NA	NA
Tetrahydrothiophene	ND	NA	8.00E+02	NA	NA
Thiophene	ND	NA	NA	NA	NA
Toluene	**4.67E+00**	**NA**	**3.00E+03**	**NA**	**1.8E-04**
Trichloroethene	**4.84E+00**	**1.10E-04**	**6.00E+02**	**8.7E-07**	**9.2E-04**
Trichlorofluoromethane	**4.66E+00**	**NA**	**7.00E+02**	**NA**	**7.6E-04**
Vinyl chloride	ND	7.80E-05	1.00E+02	NA	NA
TOTALS				**1.E-06**	**0.3**

Notes:
Detected constituents are noted in **bold** text

[1]	Off-site exposure based on a 50-week period, 5 days per week, and hours per day as determined in Table 7.
RME	Reasonable maximum exposure
95% UCL EPC	95% upper confidence limit exposure point concentration
IUR	Inhalation Unit Risk
RfC	Inhalation Reference Concentration
HQ	Hazard Quotient
ug/m^3	Micrograms per cubic meter
ND	Not detected
NA	Not applicable

TABLE 4-15
PURITY OIL SALES SUPERFUND SITE
ACTUAL EXPOSURE RISK EVALUATION - STATION S4

Parameter		Value	Units
ET[1]	Exposure time	4	hours/day
EF[1]	Exposure frequency	250	days/year
ED[1]	Exposure duration	1	years
AT_{NC}	Averaging time, noncarcinogens	8760	hours
AT_C	Averaging time, carcinogens	613200	hours

$$Risk_C = C_{air} \cdot \frac{(ET \times EF \times ED)}{AT_C} \cdot IUR$$

$$HQ = C_{air} \cdot \frac{(ET \times EF \times ED)}{AT_{NC}} \cdot \frac{1}{RfC}$$

Chemical	95% UCL EPC (ug/m^3)	IUR (ug/m^3)$^{-1}$	RfC (ug/m^3)	Risk	HQ (subchronic)
1,1,1-Trichloroethane	ND	NA	2.20E+04	NA	NA
1,1,2,2-Tetrachloroethane	ND	5.80E-05	2.10E+02	NA	NA
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	NA	3.00E+04	NA	NA
1,1,2-Trichloroethane	ND	1.60E-05	NA	NA	NA
1,1-Dichloroethane	ND	1.60E-06	4.90E+03	NA	NA
1,1-Dichloroethylene	ND	NA	7.00E+02	NA	NA
1,2,4-Trichlorobenzene	ND	NA	2.00E+03	NA	NA
1,2,4-Trimethylbenzene	ND	NA	1.80E+01	NA	NA
1,2-Dibromoethane	ND	7.10E-05	NA	NA	NA
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	NA	NA	NA	NA
1,2-Dichlorobenzene	ND	NA	2.00E+03	NA	NA
1,2-Dichloroethane	ND	2.10E-05	4.90E+00	NA	NA
1,2-Dichloropropane	ND	1.00E-05	1.30E+01	NA	NA
1,3,5-Trimethylbenzene	ND	NA	1.80E+01	NA	NA
1,3-Dichlorobenzene	ND	NA	1.05E+02	NA	NA
1,4-Dichlorobenzene	ND	1.10E-05	2.40E+03	NA	NA
2,5-Dimethylthiophene	ND	NA	NA	NA	NA
2-Ethylthiophene	ND	NA	NA	NA	NA
3-Methylthiophene	ND	NA	NA	NA	NA
Allyl disulfide	ND	NA	NA	NA	NA
Allyl Mercaptan	ND	NA	NA	NA	NA
Allyl Sulfide	ND	NA	NA	NA	NA
Aluminum	**1.37E+00**	**NA**	**4.90E+00**	**NA**	**3.2E-02**
Benzene	ND	2.90E-05	6.00E+01	NA	NA
Bromomethane	**4.02E+00**	**NA**	**4.90E+00**	**NA**	**9.4E-02**
Butyl Sulfide	ND	NA	NA	NA	NA
Carbon Disulfide	**5.96E+00**	**NA**	**8.00E+02**	**NA**	**8.5E-04**
Carbon Tetrachloride	ND	4.20E-05	1.20E+02	NA	NA
Carbonyl Sulfide	**5.74E+00**	**NA**	**3.00E+01**	**NA**	**2.2E-02**
Chlorobenzene	ND	NA	3.00E+03	NA	NA
Chloroethane	ND	8.30E-07	3.00E+04	NA	NA
Chloroform	ND	5.30E-06	3.00E+02	NA	NA
Chloromethane	ND	1.80E-06	9.10E+03	NA	NA
Chromium	**7.14E-03**	**1.20E-02**	**NA**	**1.4E-07**	**NA**
cis-1,2-Dichloroethene	ND	NA	NA	NA	NA

TABLE 4-15
PURITY OIL SALES SUPERFUND SITE
ACTUAL EXPOSURE RISK EVALUATION - STATION S4

Chemical	95% UCL EPC (ug/m^3)	IUR (ug/m^3)$^{-1}$	RfC (ug/m^3)	Risk	HQ (subchronic)
cis-1,3-Dichloropropene	ND	1.60E-05	NA	NA	NA
Dichlorodifluoromethane	ND	NA	2.00E+03	NA	NA
Diethyl disulfide	ND	NA	NA	NA	NA
Diethyl Sulfide	ND	NA	3.00E+01	NA	NA
Dimethyl Disulfide	ND	NA	3.44E+01	NA	NA
Dimethyl Sulfide	ND	NA	NA	NA	NA
Ethyl Mercaptan	ND	NA	NA	NA	NA
Ethyl Methyl Sulfide	ND	NA	NA	NA	NA
Ethylbenzene	ND	NA	2.00E+03	NA	NA
H2S	**5.67E+00**	**NA**	**3.00E+01**	**NA**	**2.2E-02**
Hexachlorobutadiene	ND	NA	NA	NA	NA
Isobutyl Mercaptan	ND	NA	NA	NA	NA
Isopropyl Mercaptan	ND	NA	NA	NA	NA
Lead	**6.78E-02**	**1.20E-05**	**NA**	**1.3E-09**	**NA**
m,p-Xylenes	ND	NA	7.00E+02	NA	NA
Methyl Mercaptan	ND	NA	NA	NA	NA
Methylene Chloride	**5.59E+00**	**1.00E-06**	**4.00E+02**	**9.1E-09**	**1.6E-03**
n-Butyl mercaptan	ND	NA	8.00E+02	NA	NA
Nickel	**7.20E-03**	**2.60E-04**	**5.00E-02**	**3.1E-09**	**1.6E-02**
o-Xylene	ND	NA	7.00E+02	NA	NA
Propyl Mercaptan	ND	NA	8.00E+02	NA	NA
Propyl Sulfide	ND	NA	NA	NA	NA
SO2	ND	NA	NA	NA	NA
Styrene	ND	NA	9.00E+02	NA	NA
t-1,3-Dichloropropene	ND	1.60E-05	NA	NA	NA
t-Butyl Mercaptan	ND	NA	NA	NA	NA
Tetrachloroethylene	ND	5.90E-06	3.50E+01	NA	NA
Tetrahydrothiophene	ND	NA	8.00E+02	NA	NA
Thiophene	ND	NA	NA	NA	NA
Toluene	**5.38E+00**	**NA**	**3.00E+03**	**NA**	**2.0E-04**
Trichloroethene	ND	1.10E-04	6.00E+02	NA	NA
Trichlorofluoromethane	ND	NA	7.00E+02	NA	NA
Vinyl chloride	ND	7.80E-05	1.00E+02	NA	NA
TOTALS				**2.E-07**	**0.2**

Notes:
Detected constituents are noted in **bold** text

[1]	Off-site exposure based on a 50-week period, 5 days per week, and hours per day as determined in Table 7.
RME	Reasonable maximum exposure
95% UCL EPC	95% upper confidence limit exposure point concentration
IUR	Inhalation Unit Risk
RfC	Inhalation Reference Concentration
HQ	Hazard Quotient
ug/m^3	Micrograms per cubic meter
ND	Not detected
NA	Not applicable

TABLE 6-1
PURITY OIL SALES SUPERFUND SITE
RELATIVE PERCENT DIFFERENCE ANALYSIS FOR DENSITY TESTING

	Wet Density			Moisture Content		
Density Sample	Drive Cylinder	Sand Cone	RPD*	Drive Cylinder	Sand Cone	RPD*
Clean Fill Material						
PUR-DC-292	127.5	124.8	0.535077	8.1	8.5	-1.204819
PUR-DC-303A	133.3	136	-0.5013	11.9	11.4	1.072961
Cushion Layer						
CL-DC-24	124.8	124.3	0.100361	8	7.2	2.631579
CL-DC-42	129.7	131.8	-0.40153	9.8	9.6	0.515464
Vegetative Layer						
VEG-DC-49	127.5	131.8	-0.829155	7	7	0
VEG-DC-55	124	128.9	-0.968762	7.2	6.7	1.798561
VEG-DC-66	120.9	131.2	-2.04284	7.9	8.6	-2.121212
VEG-DC-156	120.1	122.2	-0.433347	6.8	8.8	-6.410256
Off-Site Clean Fill						
GSMb-DC-14	117.3	117.7	-0.085106	6.3	6.3	0
GSMf-DC-12	130.6	125.6	0.9758	10	8.9	2.910053

* RPD = {(S-D)/((S+D)/2)}x100
S = Sample Result (Drive cylinder)
D = Duplicate Result (Sand cone)

TABLE 6-2
PURITY OIL SALES SUPERFUND SITE
SUMMARY OF 3rd PARTY SURVEY DATA FOR SUBGRADE

Point Number	Location	Northing	Easting	Design/Existing Elevation	Surveyed Subgrade	Difference	Notes
1	B-pln	2134269.99	6341800.36	288.63	288.53	-0.10	
2	B-atn	2134240.91	6341800.10	289.00	289.00	0.00	
3	B-ats	2134197.40	6341800.14	289.00	288.85	-0.15	See Note #1
4	B-fid	2134160.02	6341800.08	287.51	287.43	-0.08	
5	B-swpond-top1	2134137.80	6341800.29	290.00	287.28	-2.72	See Note #2
6	B-swpond-bot1	2134120.97	6341800.04	283.00	287.86	4.86	See Note #2
7	B-swpond-bot2	2134084.57	6341800.14	283.00	288.55	5.55	See Note #2
8	B-swpond-top2	2134072.51	6341800.14	289.00	288.54	-0.46	See Note #2
9	B-pls	2134066.53	6341800.22	289.12	289.10	-0.02	
10	C-pln	2134269.16	6341849.98	288.24	288.28	0.04	
11	C-atn	2134252.94	6341849.99	288.98	288.87	-0.11	
12	C-ntoe	2134248.01	6341849.99	289.00	288.95	-0.05	
13	C-ms-n	2134230.06	6341849.93	295.41	295.03	-0.38	See Note #1
14	C-ms-s	2134198.97	6341849.86	295.44	295.13	-0.31	See Note #1
15	C-stoe	2134179.25	6341850.09	289.00	289.07	0.07	Previous survey was 289.23. Area was regraded to 289.07, verified by Stantec and TetraTech
16	C-ats	2134173.35	6341849.97	288.86	288.81	-0.05	
17	C-fid	2134135.92	6341849.96	287.86	287.86	0.00	
18	C-swpond-top1	2134113.84	6341850.01	290.00	287.79	-2.21	See Note #2
19	C-swpond-bot1	2134097.01	6341849.98	283.00	288.01	5.01	See Note #2
20	C-swpond-bot2	2134084.56	6341849.98	283.00	288.17	5.17	See Note #2
21	C-swpond-top2	2134072.58	6341849.98	289.00	288.45	-0.55	See Note #2
22	C-pls	2134066.14	6341850.20	289.18	288.87	-0.31	See Note #1
23	D-pln	2134268.90	6341900.08	288.52	288.46	-0.06	
24	D-atn	2134253.00	6341900.08	288.96	288.92	-0.04	
25	D-ntoe	2134248.33	6341899.67	289.00	288.79	-0.21	See Note #1
26	D-ms-n	2134230.28	6341899.94	295.02	295.03	0.01	Point was mislabeled in Espinosa data as E-ms-n
27	D-n-hinge	2134208.58	6341899.81	302.40	302.42	0.02	See Note #3
28	D-s-hinge	2134198.31	6341900.21	302.40	302.53	0.13	See Note #3
29	D-ms-s	2134174.61	6341899.83	294.84	294.86	0.02	
30	D-stoe	2134153.78	6341898.84	289.00	288.63	-0.37	See Note #1
31	D-ats	2134148.93	6341899.98	288.75	288.74	-0.01	
32	D-fid	2134111.52	6341899.96	287.91	287.91	0.01	
33	D-swpond-top	2134090.17	6341899.96	289.00	288.00	-1.00	See Note #2
34	D-pls	2134066.08	6341899.89	288.71	288.62	-0.09	
35	E-pln	2134268.94	6341949.95	288.38	288.35	-0.02	
36	E-atn	2134253.33	6341950.05	288.94	288.94	0.00	
37	E-ntoe	2134248.19	6341949.99	289.00	288.90	-0.10	
38	E-ms-n	2134230.34	6341949.89	295.18	295.18	0.00	
39	E-n-hinge	2134208.40	6341949.94	302.40	302.35	-0.05	See Note #3
40	E-s-hinge	2134174.40	6341951.88	302.40	302.30	-0.10	See Note #3
41	E-ms-s	2134150.46	6341949.82	295.07	295.04	-0.03	
42	E-stoe	2134130.68	6341949.96	289.00	288.66	-0.34	See Note #1
43	E-ats	2134124.63	6341950.05	288.72	288.77	0.05	
44	E-fid	2134087.24	6341949.96	288.35	288.25	-0.10	
45	E-pls	2134066.11	6341948.81	288.49	288.45	-0.04	
46	F-pln	2134268.64	6341999.90	288.48	288.48	0.00	
47	F-atn	2134253.33	6342000.04	288.79	288.74	-0.05	
48	F-ntoe	2134248.81	6341999.92	289.00	288.91	-0.09	
49	F-ms-n	2134230.48	6341999.86	295.14	295.15	0.01	
50	F-n-hinge	2134207.77	6341999.75	302.40	302.26	-0.14	See Note #3
51	F-s-hinge	2134149.54	6342001.29	302.00	302.05	0.05	
52	F-ms-s	2134126.04	6341999.87	295.13	295.14	0.01	
53	F-stoe	2134106.00	6341999.96	289.00	288.80	-0.20	See Note #1
54	F-ats	2134099.87	6341999.99	288.87	288.82	-0.05	
55	F-pls	2134065.48	6341999.90	289.16	289.10	-0.06	
56	G-pln	2134268.32	6342050.03	288.57	288.55	-0.02	
57	G-atn	2134253.66	6342049.95	289.05	288.96	-0.09	
58	G-ntoe	2134248.38	6342050.12	289.00	288.95	-0.05	
59	G-ms-n	2134230.66	6342049.96	295.10	295.14	0.04	
60	G-n-hinge	2134209.26	6342050.07	302.00	301.97	-0.03	
61	G-crown	2134170.56	6342049.86	304.50	304.50	0.00	See Note #4
62	G-s-hinge	2134131.19	6342050.18	302.00	301.93	-0.07	
63	G-ms-s	2134111.78	6342049.93	295.09	295.03	-0.06	
64	g-stoe	2134092.04	6342049.82	289.00	288.30	-0.70	See Note #1
65	G-ats	2134088.61	6342050.02	288.53	288.49	-0.04	
66	G-pls	2134065.04	6342049.92	289.42	289.39	-0.03	
67	H-pln	2134267.97	6342100.02	288.84	288.68	-0.16	See Note #1
68	H-atn	2134253.70	6342099.97	288.94	288.87	-0.07	
69	H-ntoe	2134248.42	6342099.99	289.00	289.10	0.10	
70	H-ms-n	2134230.84	6342099.96	295.02	294.98	-0.04	
71	H-n-hinge	2134208.97	6342100.02	302.00	302.03	0.03	
72	H-crown	2134167.60	6342099.06	304.50	304.48	-0.02	See Note #4
73	H-s-hinge	2134131.95	6342100.02	302.40	301.78	-0.62	See Note #3
74	H-ms-s	2134111.51	6342099.85	295.09	295.12	0.03	
75	H-stoe	2134092.43	6342099.98	289.00	288.68	-0.32	See Note #1
76	H-ats	2134088.50	6342099.98	288.92	288.88	-0.04	
77	H-pls	2134064.80	6342100.05	289.51	289.45	-0.06	
78	I-pln	2134268.05	6342150.22	288.74	288.63	-0.11	See Note #1
79	I-atn	2134253.67	6342150.02	289.01	288.96	-0.05	
80	I-ntoe	2134248.79	6342150.04	289.00	288.92	-0.08	
81	I-ms-n	2134230.93	6342149.95	295.04	295.03	-0.01	
82	I-n-hinge	2134208.05	6342149.92	302.40	302.38	-0.02	See Note #3
83	I-crown	2134167.74	6342149.29	304.50	304.47	-0.03	See Note #4

TABLE 6-2
PURITY OIL SALES SUPERFUND SITE
SUMMARY OF 3rd PARTY SURVEY DATA FOR SUBGRADE

Point Number	Location	Northing	Easting	Design/Existing Elevation	Surveyed Subgrade	Difference	Notes
84	I-s-hinge	2134131.89	6342149.89	302.00	301.90	-0.10	
85	I-ms-s	2134111.30	6342149.98	294.99	294.91	-0.08	
86	I-stoe	2134091.91	6342149.80	289.00	288.84	-0.16	See Note #1
87	I-ats	2134088.27	6342150.02	288.91	288.85	-0.06	
88	I-pls	2134064.85	6342149.86	289.13	289.12	-0.01	
89	J-pln	2134267.83	6342199.62	288.78	288.68	-0.10	
90	J-atn	2134254.00	6342199.99	288.95	288.83	-0.12	See Note #1
91	J-ntoe	2134248.42	6342200.03	289.00	288.88	-0.12	See Note #1
92	J-ms-n	2134231.00	6342199.99	295.12	295.08	-0.04	
93	J-n-hinge	2134208.36	6342199.83	302.40	302.22	-0.18	See Note #3
94	J-crown	2134167.74	6342199.22	304.50	304.49	-0.01	See Note #4
95	J-s-hinge	2134131.41	6342200.09	302.00	301.72	-0.28	See Note #3
96	J-ms-s	2134111.02	6342199.93	295.07	295.06	-0.01	
97	J-stoe	2134092.78	6342200.02	289.00	288.78	-0.22	See Note #1
98	J-ats	2134087.67	6342199.99	288.88	288.81	-0.07	
99	J-pls	2134065.00	6342200.04	289.39	289.37	-0.02	
100	K-pln	2134267.61	6342250.23	288.85	288.76	-0.09	
101	K-atn	2134254.36	6342250.02	288.79	288.74	-0.05	
102	K-ntoe	2134248.91	6342250.26	289.00	288.99	-0.01	
103	K-ms-n	2134231.14	6342249.84	295.20	295.18	-0.02	
104	K-n-hinge	2134208.30	6342249.85	302.40	302.27	-0.13	See Note #3
105	K-crown	2134168.59	6342249.65	304.50	304.55	0.05	See Note #4
106	K-s-hinge	2134130.50	6342250.09	302.00	301.50	-0.50	See Note #3
107	K-ms-s	2134110.67	6342249.95	294.92	294.86	-0.06	
108	K-stoe	2134092.87	6342250.00	289.00	288.94	-0.06	
109	K-ats	2134087.32	6342250.01	288.85	288.83	-0.02	
110	K-pls	2134065.22	6342250.13	289.10	288.95	-0.15	See Note #1
111	L-pln	2134267.37	6342299.96	288.97	288.92	-0.05	
112	L-atn	2134254.34	6342300.00	288.89	288.79	-0.10	
113	L-ntoe	2134249.35	6342299.80	289.00	289.01	0.01	
114	L-ms-n	2134231.29	6342299.78	295.08	295.14	0.06	
115	L-n-hinge	2134208.81	6342299.74	302.00	301.90	-0.10	
116	L-crown	2134167.64	6342299.54	304.50	304.54	0.04	See Note #4
117	L-s-hinge	2134130.42	6342300.06	302.00	301.71	-0.29	See Note #3
118	L-ms-s	2134110.37	6342299.89	295.04	295.04	0.00	
119	L-stoe	2134093.09	6342300.01	289.00	289.00	0.00	
120	L-ats	2134087.73	6342300.07	289.02	288.92	-0.10	
121	L-pls	2134064.90	6342299.83	289.38	289.44	0.06	
122	M-pln	2134267.10	6342349.86	289.01	289.00	-0.01	
123	M-atn	2134254.38	6342350.06	288.77	288.71	-0.06	
124	M-ntoe	2134249.72	6342350.11	289.00	288.84	-0.16	See Note #1
125	M-ms-n	2134231.45	6342349.91	295.09	295.01	-0.07	
126	M-n-hinge	2134209.35	6342349.62	302.00	301.94	-0.06	
127	M-crown	2134167.74	6342349.56	304.50	304.49	-0.01	See Note #4
128	M-s-hinge	2134130.98	6342350.00	302.00	301.78	-0.22	See Note #3
129	M-ms-s	2134110.07	6342349.89	295.03	294.95	-0.08	
130	M-stoe	2134091.69	6342350.02	289.00	288.87	-0.13	See Note #1
131	M-ats	2134087.70	6342350.03	288.93	288.91	-0.02	
132	M-pls	2134064.72	6342350.23	288.90	288.88	-0.02	
133	N-pln	2134266.91	6342399.77	289.33	289.22	-0.10	
134	N-atn	2134254.71	6342400.01	288.93	288.84	-0.09	
135	N-ntoe	2134250.10	6342400.05	289.00	288.88	-0.12	See Note #1
136	N-ms-n	2134231.56	6342399.91	295.01	295.05	0.05	
137	N-n-hinge	2134208.51	6342400.08	302.40	302.31	-0.09	See Note #3
138	N-crown	2134172.16	6342400.07	304.50	304.31	-0.19	See Note #4
139	N-s-hinge	2134130.40	6342399.99	302.00	302.00	0.00	
140	N-ms-s	2134109.77	6342400.01	295.03	295.00	-0.02	
141	N-stoe	2134091.78	6342399.98	289.00	288.97	-0.03	
142	N-ats	2134087.09	6342400.03	288.96	288.93	-0.03	
143	N-pls	2134064.02	6342400.05	290.09	290.06	-0.03	
144	O-pln	2134266.69	6342449.99	289.16	289.14	-0.02	
145	O-atn	2134254.71	6342449.99	288.99	288.89	-0.10	
146	O-ntoe	2134250.02	6342449.82	289.00	289.00	0.00	
147	O-ms-n	2134231.71	6342450.02	294.70	294.77	0.07	
148	O-n-hinge	2134210.82	6342449.54	302.00	301.96	-0.04	
149	O-crown	2134172.90	6342450.15	304.50	304.21	-0.29	See Note #4
150	O-s-hinge	2134129.63	6342449.82	302.00	301.65	-0.35	See Note #3
151	O-ms-s	2134109.41	6342449.90	295.01	294.97	-0.04	
152	O-stoe	2134091.23	6342449.74	289.00	288.97	-0.03	
153	O-pls	2134063.88	6342449.76	289.42	289.42	0.00	
154	P-pln	2134266.45	6342499.78	289.86	289.54	-0.32	See Note #1
155	P-atn	2134255.00	6342500.05	288.89	288.83	-0.06	
156	P-ntoe	2134249.44	6342499.97	289.00	288.97	-0.03	
157	P-ms-n	2134231.84	6342499.99	295.07	295.15	0.08	
158	P-n-hinge	2134210.85	6342499.84	302.00	301.97	-0.03	
159	P-crown	2134172.66	6342500.09	304.50	304.15	-0.35	See Note #4
160	P-s-hinge	2134129.43	6342499.99	302.00	301.70	-0.30	See Note #3
161	P-ms-s	2134109.06	6342499.94	294.93	294.85	-0.08	
162	P-stoe	2134092.33	6342499.86	289.00	288.90	-0.10	
163	P-ats	2134086.37	6342500.02	288.65	288.62	-0.03	
164	P-pls	2134063.96	6342499.79	288.70	288.67	-0.03	
165	Q-pln	2134266.11	6342550.00	289.57	289.53	-0.04	
166	Q-atn	2134254.72	6342549.96	289.49	289.38	-0.11	See Note #1
167	Q-ntoe	2134249.83	6342550.00	289.00	290.04	1.04	See Note #5

TABLE 6-2
PURITY OIL SALES SUPERFUND SITE
SUMMARY OF 3rd PARTY SURVEY DATA FOR SUBGRADE

Point Number	Location	Northing	Easting	Design/Existing Elevation	Surveyed Subgrade	Difference	Notes
168	Q-ms-n	2134231.95	6342549.93	294.97	295.06	0.09	
169	Q-n-hinge	2134210.85	6342549.99	302.00	302.02	0.02	
170	Q-crown	2134172.08	6342550.09	304.50	304.34	-0.16	See Note #4
171	Q-s-hinge	2134128.60	6342549.99	302.00	301.45	-0.55	See Note #3
172	Q-ms-s	2134108.87	6342549.89	295.03	294.97	-0.06	
173	Q-stoe	2134091.00	6342550.06	289.00	288.97	-0.03	
174	Q-ats	2134086.06	6342549.98	288.85	288.84	-0.01	
175	Q-pls	2134063.33	6342549.90	289.46	289.42	-0.04	
176	R-pln	2134265.91	6342599.54	289.76	289.69	-0.07	
177	R-atn	2134255.19	6342599.90	289.20	289.23	0.03	
178	R-ntoe	2134250.18	6342599.90	289.00	289.00	0.00	
179	R-ms-n	2134232.09	6342599.95	294.91	294.95	0.04	
180	R-n-hinge	2134211.22	6342599.90	302.00	302.12	0.12	See Note #3
181	R-crown	2134170.12	6342599.90	304.50	304.41	-0.09	See Note #4
182	R-s-hinge	2134129.73	6342599.90	302.00	301.95	-0.05	
183	R-ms-s	2134108.52	6342599.90	294.83	294.83	0.00	
184	R-stoe	2134090.77	6342599.90	289.00	288.94	-0.06	
185	R-ats	2134085.77	6342599.90	288.84	288.86	0.02	
186	R-pls	2134062.89	6342599.90	289.28	289.33	0.05	
187	S-pln	2134265.55	6342649.95	289.52	289.52	0.00	
188	S-atn	2134255.19	6342649.95	289.10	289.13	0.03	
189	S-ntoe	2134250.18	6342649.95	289.00	288.99	-0.01	
190	S-ms-n	2134232.23	6342649.80	294.86	294.95	0.09	
191	S-n-hinge	2134211.22	6342649.95	302.40	302.11	-0.29	See Note #3
192	S-crown	2134170.12	6342649.59	304.50	304.54	0.04	See Note #4
193	S-s-hinge	2134129.37	6342649.95	302.00	301.99	-0.01	
194	S-ms-s	2134108.30	6342649.88	294.96	295.06	0.10	
195	S-stoe	2134090.41	6342649.95	289.00	288.92	-0.08	
196	S-ats	2134085.41	6342649.95	288.88	288.88	0.00	
197	S-pls	2134062.89	6342649.95	290.54	290.59	0.05	
198	T-10-atn	2134309.10	6342689.27	291.00	291.08	0.08	See Note #6
199	T-10_atn-corner	2134255.54	6342688.52	289.45	289.40	-0.05	
200	T-10_ntoe-corner	2134248.40	6342693.21	290.00	289.83	-0.17	Repaired on 10/12/07
201	T-15_pln-corner1	2134334.46	6342683.21	291.30	291.29	-0.01	
202	T-15_pln-corner2	2134265.96	6342683.21	289.44	289.42	-0.02	
203	T-pln	2134334.84	6342700.00	291.44	291.38	-0.06	
204	T-atn	2134320.54	6342700.00	291.60	291.55	-0.05	
205	T-ntoe	2134213.01	6342700.00	302.00	302.42	0.42	This point is T-n-Hinge - Elevation is OK
206	T-ms-n	2134235.06	6342699.84	295.07	295.27	0.20	See Note #7
207	T-crown	2134170.12	6342700.00	304.50	304.48	-0.02	See Note #4
208	T-s-hinge	2134129.37	6342700.00	302.00	302.02	0.02	
209	T-ms-s	2134108.08	6342699.94	294.91	294.87	-0.04	Repaired on 10/22/07
210	T-stoe	2134090.41	6342700.00	289.00	288.80	-0.20	See Note #1
211	T-ats	2134085.41	6342700.00	288.60	288.70	0.10	
212	T-pls	2134062.54	6342700.00	289.39	289.33	-0.06	
213	u-20-plcorner1	2134062.30	6342730.73	290.40	289.68	-0.72	
214	u-20-plcorner2	2133980.43	6342729.99	291.40	291.35	-0.05	
215	U-pln	2134334.18	6342750.10	291.79	292.03	0.24	See Note #1
216	U-atn	2134320.53	6342749.69	292.10	292.05	-0.05	
217	U-ntoe	2134315.15	6342750.00	292.00	292.01	0.01	Repaired on 10/12/07
218	U-ms-n	2134303.19	6342749.82	295.74	295.83	0.09	
219	U-n-hinge	2134285.13	6342749.72	302.40	302.37	-0.03	Subgrade elevation at hinge is 302.4
220	U-crown	2134170.65	6342749.97	304.50	304.46	-0.04	See Note #4
221	U-s-hinge	2134129.54	6342750.32	302.40	302.23	-0.17	Subgrade elevation at hinge is 302.4
364	U-ms-s	2134107.92	6342749.92	295.00	295.00	0.00	
222	U-stoe	2134090.05	6342750.06	289.00	288.54	-0.46	
223	U-ats-cor1	2134084.72	6342750.04	289.00	288.63	-0.37	See Note #8
224	U-ats-cor2	2134000.06	6342750.01	289.50	289.43	-0.07	
225	U-pls	2133980.43	6342750.05	291.03	290.98	-0.05	
226	V-pln	2134333.97	6342800.06	291.76	291.85	0.09	
227	V-atn	2134320.36	6342800.08	291.64	291.59	-0.05	
228	V-ntoe	2134315.04	6342799.70	292.00	291.76	-0.24	See Note #1
229	V-ms-n	2134303.22	6342799.91	295.84	295.85	0.01	
230	V-n-hinge	2134285.12	6342800.15	302.40	302.37	-0.03	Subgrade elevation at hinge is 302.4
231	V-crown	2134104.85	6342814.70	304.50	304.37	-0.13	See Note #4
232	V-s-hinge	2134044.35	6342800.14	302.03	302.05	0.02	
233	V-ms-s	2134026.07	6342799.83	296.00	295.90	-0.10	Changed Design elevation to be consistant with other mid slope points elevations.
234	V-stoe	2134006.25	6342800.15	290.00	289.29	-0.71	See Note #1
235	V-ats	2134000.10	6342800.06	289.93	289.79	-0.14	
236	V-pls	2133980.01	6342800.04	291.09	291.14	0.05	
237	W-pln	2134333.96	6342849.76	291.30	291.20	-0.10	
238	W-atn	2134319.32	6342849.75	292.00	292.07	0.07	
239	W-ntoe-corner	2134313.41	6342849.83	292.00	291.99	-0.01	
240	W-toe-corner	2134193.06	6342849.01	293.00	292.76	-0.24	
241	W-ms-n	2134166.42	6342849.58	297.58	297.52	-0.06	
242	W-middle(slope)	2134120.04	6342850.84	300.28	300.18	-0.10	
243	W-ms-s	2134049.96	6342849.92	296.50	296.20	-0.30	See Note #1
244	W-stoe	2134010.10	6342849.11	291.00	290.42	-0.58	Repaired on 10/12/07
245	W-ats	2133999.90	6342849.80	290.86	290.43	-0.43	
246	W-pls	2133979.87	6342849.77	291.25	291.19	-0.06	
247	X-pln	2134211.56	6342900.04	292.18	292.13	-0.05	
248	X-atn	2134197.23	6342900.07	292.13	292.00	-0.13	
249	X4	2134169.95	6342899.92	293.00	292.98	-0.02	

TABLE 6-2
PURITY OIL SALES SUPERFUND SITE
SUMMARY OF 3rd PARTY SURVEY DATA FOR SUBGRADE

Point Number	Location	Northing	Easting	Design/Existing Elevation	Surveyed Subgrade	Difference	Notes
250	X3	2134120.01	6342899.91	293.00	292.70	-0.30	See Note #1
251	X-ats1	2134082.99	6342899.96	290.34	290.34	0.00	
252	X-ats2	2133985.66	6342899.95	290.00	290.07	0.07	
253	X-pls	2133979.61	6342899.90	290.37	290.33	-0.04	
254	Y-3-pin-corner1	2134211.24	6342947.24	292.12	292.08	-0.04	
255	Y-3-pin-corner2	2134190.95	6342947.46	292.91	291.83	-1.08	See Note #1
256	Y-atn	2134176.90	6342949.86	291.54	291.60	0.06	
257	Y4	2134170 14	6342949.90	291.36	291.30	-0.06	
258	Y3	2134119.99	6342949.93	291.12	291.17	0.05	
259	Y-ats1	2134083.50	6342949.90	290.21	290.02	-0.19	Repaired on 10/12/07
260	Y-pond-Hinge1	2134080.76	6342949.96	290.00	289.97	-0.03	
261	Y-pond-toe1	2134068.94	6342949.91	286.00	286.01	0.01	Repaired on 10/12/07
262	Y-pond-toe2	2133999.95	6342949.63	286.00	285.91	-0.09	
263	Y-pond-hinge2	2133987.06	6342949.17	290.00	289.90	-0.10	
264	Y-ats2	2133985.16	6342949.92	290.06	289.99	-0.07	
265	Y-pls	2133979.35	6342949.89	290.24	290.16	-0.08	
266	Y+40-atcorner1	2134082.26	6342994.13	290.00	289.97	-0.03	Espinosa re-surveyed on 10-19-07 after repair, elev. was 289.97
267	Y+40-atcorner2	2133985.38	6342994.07	290.22	290.12	-0.10	
268	Z-pin	2134190.44	6342999.92	291.44	291.35	-0.09	
269	Z4	2134169.64	6342999.45	291.04	291.00	-0.04	
270	Z3	2134119.74	6342999.89	290.82	290.77	-0.05	
271	Z2	2134070.34	6342999.87	290.39	290.35	-0.04	
272	Z1	2134020.07	6342999.87	290.27	290.20	-0.07	
273	3-e-crown	2134119.73	6342840.69	302.00	301.93	-0.07	
274	3-etoe	2134120.34	6342887.05	294.00	293.96	-0.04	
275	6e-toe	2134269.81	6342849.25	293	292.93	-0.07	
276	6e-ms	2134269.92	6342834.25	298	297.87	-0.13	See Note #1
277	6e-hinge	2134269.85	6342822.25	302	301.94	-0.06	Espinosa re-surveyed on 10-19-07 after repair, elev. was 301.94
278	6w-hinge	2134269.72	6342729.65	302	302.19	0.19	Subgrade elevation at hinge is 302.4
279	6w-toe	2134269.87	6342693.69	290	289.52	-0.48	See Note #1
280	6w-ms	2134269.77	6342711.60	296	295.79	-0.21	See Note #1
281	2w-toe	2134069.98	6342755.89	289	288.78	-0.22	See Note #1
282	2w-ms-s	2134069.97	6342773.89	295	294.79	-0.21	See Note #1
283	2w-hinge	2134069.88	6342794.89	302	301.72	-0.28	See Note #1
284	2-crown	2134069.97	6342810.84	304.5	304.21	-0.29	See Note #1
285	3-crown	2134119.95	6342811.35	304.5	304.36	-0.14	See Note #1
286	2e-hinge	2134070.11	6342827.67	302	302.20	0.20	Subgrade elevation at hinge is 302.4
287	2e-ms-s	2134070.09	6342846.46	298	297.94	-0.06	
288	2e-toe-s	2134069.94	6342872.98	294	293.99	-0.01	
289	2se-pond-hinge1	2134070.00	6342898.57	290	290.03	0.03	
290	2se-pond-hinge2	2134070.00	6342991.57	290	289.81	-0.19	See Note #1
291	1se-pond-hinge	2134019.92	6342991.57	290	289.38	-0.62	See Note #1
292	1se-pond-toe	2134019.95	6342979.57	286	285.84	-0.16	See Note #1
293	y1	2134019.98	6342950.00	286	285.81	-0.19	See Note #1
294	1se-pond-toe	2134019.99	6342910.57	286	285.84	-0.16	See Note #1
295	1se-pond-hinge	2134020.00	6342898.57	290	289.38	-0.62	See Note #1
296	4e-hinge	2134169.97	6342822.25	302	301.94	-0.06	Espinosa re-surveyed on 10-19-07 after repair, elev. was 301.94
297	5e-hinge	2134219.96	6342822.25	302	302.07	0.07	Espinosa re-surveyed on 10-19-07 after repair, elev. was 302.07
298	5e-ms	2134219.84	6342834.25	298	297.72	-0.28	See Note #1
299	5e-toe	2134219.84	6342849.25	293	293.03	0.03	
300	5-crown	2134219.79	6342778.37	304.5	304.38	-0.12	See Note #1
301	e-ship	2134185.370	6341950.008	303.75	303.23	-0.52	See Note #1
302	f-ship	2134168.510	6342000.226	303.75	303.86	0.11	Cushion layer design elevation was adjusted up .05
303	g-ship	2134151.140	6342050.160	303.75	303.52	-0.23	See Note #1
304	h-ship	2134150.856	6342099.956	303.75	303.69	-0.06	
305	i-ship	2134151.323	6342149.881	303.75	303.67	-0.08	
306	j-ship	2134151.400	6342200.093	303.75	303.60	-0.15	See Note #1
307	k-ship	2134151.299	6342249.932	303.75	303.75	0.00	
308	l-ship	2134150.913	6342300.008	303.75	303.62	-0.13	See Note #1
309	m-ship	2134150.925	6342350.126	303.75	303.62	-0.13	See Note #1
310	n-ship	2134150.968	6342400.129	303.75	303.54	-0.21	See Note #1
311	o-ship	2134150.885	6342449.723	303.75	303.32	-0.43	See Note #1
312	p-ship	2134151.234	6342499.943	303.75	303.04	-0.71	See Note #1
313	q-ship	2134151.041	6342550 184	303.75	303.03	-0.72	See Note #1
314	r-ship	2134150.649	6342599.969	303.75	303.17	-0.58	See Note #1
315	s-ship	2134150.700	6342649.894	303.75	303.38	-0.37	See Note #1
316	t-ship	2134150.657	6342699.923	303.75	303.58	-0.17	See Note #1
317	u-ship	2134150.632	6342750.030	303.75	303.82	0.07	
318	1-ship	2134150.684	6342767.358	303.75	303.87	0.12	Espinosa re-surveyed on 10-19-07 after repair, elev. was 303.87
319	2-ship	2134128.435	6342793.466	303.75	303.68	-0.07	
320	3-swhip	2134120.072	6342797.226	303.75	303.48	-0.27	See Note #1
321	swhip	2134102.299	6342805.249	303.75	303.69	-0.06	
322	2-swhip	2134070.047	6342803.025	303.75	303.38	-0.37	See Note #1
323	2-sehip	2134069.950	6342819.074	303.75	303.54	-0.21	See Note #1
324	1-sehip	2134083.690	6342822.239	303.75	303.69	-0.06	
325	2-sehip	2134111.538	6342827.207	303.75	303.54	-0.21	See Note #1
326	3-sehip	2134120.039	6342827.196	303.75	303.51	-0.24	See Note #1
327	se-hip	2134127.698	6342827.303	303.75	303.40	-0.35	See Note #1
328	1-e-hip	2134140.893	6342820.871	303.75	303.46	-0.29	See Note #1

TABLE 6-2
PURITY OIL SALES SUPERFUND SITE
SUMMARY OF 3rd PARTY SURVEY DATA FOR SUBGRADE

Point Number	Location	Northing	Easting	Design/Existing Elevation	Surveyed Subgrade	Difference	Notes
329	2-e-hip	2134147.112	6342812.283	303.75	303.55	-0.20	See Note #1
330	v-ehip	2134163.251	6342799.956	303.75	303.67	-0.08	Espinosa re-surveyed on 10-19-07 after repair, elev. was 303.67
331	v5-nehip	2134220.006	6342800.300	303.75	303.75	0.00	
332	v-nehip	2134267.143	6342800.501	303.75	303.50	-0.25	See Note #1
333	1 nw-hip	2134267.043	6342754.196	303.75	303.34	-0.41	See Note #1
334	2 nw-hip	2134248.183	6342754.048	303.75	303.59	-0.16	See Note #1
335	nwhip	2134220.204	6342750.487	303.75	303.75	0.00	
336	u-nhip	2134196.340	6342747.441	303.75	303.85	0.10	
337	t-nhip	2134190.680	6342699.975	303.75	303.73	-0.02	
338	s-nhip	2134190.799	6342650.053	303.75	303.70	-0.05	
339	r-nhip	2134190.787	6342599.862	303.75	303.65	-0.10	
340	q-nhip	2134191.066	6342550.160	303.75	303.52	-0.23	See Note #1
341	p-nhip	2134190.849	6342500.191	303.75	303.27	-0.48	See Note #1
342	o-nhip	2134190.903	6342450.006	303.75	303.19	-0.56	See Note #1
343	n-nhip	2134190.888	6342399.786	303.75	303.25	-0.50	See Note #1
344	m-nhip	2134190.937	6342349.909	303.75	303.26	-0.49	See Note #1
345	l-nhip	2134190.818	6342299.943	303.75	303.12	-0.63	See Note #1
346	k-nhip	2134191.145	6342249.938	303.75	303.34	-0.41	See Note #1
347	j-nhip	2134190.954	6342200.093	303.75	303.20	-0.55	See Note #1
348	i-nhip	2134191.065	6342150.119	303.75	303.28	-0.47	See Note #1
349	h-nhip	2134191.037	6342100.035	303.75	303.18	-0.57	See Note #1
350	g-nhip	2134191.156	6342050.098	303.75	303.13	-0.62	See Note #1
351	f-nhip	2134195.734	6342000.074	303.75	303.40	-0.35	See Note #1
352	e-nhip	2134200.539	6341950.177	303.75	302.99	-0.76	See Note #1
353	sg west crown	2134197.545	6341927.767	303.22	303.12	-0.10	See Note #9
354	1 sg crown	2134170.909	6342641.589	304.50	304.56	0.06	Espinosa re-surveyed on 10-19-07 after repair, elev. was 304.56
355	2 sg crown	2134170.558	6342677.510	304.50	304.47	-0.03	
356	3 sg crown	2134170.768	6342710.319	304.50	304.55	0.05	
357	4 sg crown	2134170.683	6342748.395	304.50	304.47	-0.03	
358	5 sg crown	2134170.674	6342777.636	304.50	304.51	0.01	
359	6 sg crown	2134140.852	6342802.381	304.50	304.31	-0.19	See Note #1
360	7 sg crown	2134111.019	6342815.185	304.50	304.49	-0.01	
361	8 sg crown	2134060.250	6342809.042	304.50	303.06	-1.44	See Note #1
362	9 sg crown	2134194.855	6342778.311	304.50	304.54	0.04	
363	10 sg crown	2134249.094	6342778.759	304.50	304.42	-0.08	
365	t+25 hinge	2134222.969	6342718.193	302	302.30	0.30	
366	t+30 hinge	2134285.216	6342729.745	302	302.28	0.28	
367	6+15 hinge	2134285.198	6342822.248	302	301.92	-0.08	
368	3+40 hinge	2134155.836	6342822.248	302	302.05	0.05	
369	3+25 hinge	2134143.304	6342839.284	302	301.93	-0.07	
370	v+20 hinge	2134050.369	6342822.156	302	301.83	-0.17	
371	u+45 hinge	2134044.087	6342794.634	302	301.90	-0.10	
372	3 hinge	2134118.4	6342784.571	302	302.08	0.08	
373	u+20 ms-s	2134103.551	6342769.722	295	294.96	-0.04	

NOTES:

1 The elevation difference was filled with Cushion Layer material
2 The pond had not been excavated at the time of the third party survey
3 The hinge design elevations were adjusted to be 303.0. The elevation difference was filled with Cushion Layer material
4 The crown design elevations were adjusted to be 305.1 The elevation difference was filled with Cushion Layer material.
5 Espinosa Survey reflected location with ~12" of cushion layer material. Stantec re-surveyed elevation of subgrade = 288.92, which met requirements
6 Design Point elevation changed to 291 to accommodate anchor trench alignment. Discussed as field change with TetraTech
7 Surveyed 10-22-07 by Stantec at 295.20 - Pt is located on inside corner, cushion layer was built at 295.8 to correct.
8 Design Elevation was 289, then transitioned to point U-ats-cor2 at 289.5. Difference in elev. was filled with cushion layer material.
9 Area was re-graded to make a better transition to the 7:1 slope on West End.

LEGEND:

1, 2, etc	Gridline 1	ntoe	Toe of north slope
6+15, etc	Gridline 6 +15 feet	nwhip	Hip of northwest slope
atn	Anchor trench north	picorner	Corner of property line
ats	Anchor trench south	pln	Property line north
B, C, D, etc	Gridline B, Gridline C, etc	pls	Property line suth
B+25, etc.	Gridline B + 25 feet	se	Southeast
Bot	Bottom	sehip	Hip of southeast slope
crown	Crown of slope	sg	Subgrade
e	East	s-hinge	Hinge of south slope
ehip	Hip of east slope	ship	Hip of south slope
fid	FID pipeline/easement location	stoe	Toe of south slope
ms-n	Middle of north slope	swhip	Hip of southwest slope
ms-s	Middle of south slope	swpond	Southwest infiltration pond
n-hinge	Hinge of North slope	top	Top
nhipe	Hip of north slope	w	West

TABLE 6-3
PURITY OIL SALES SUPERFUND SITE
SUMMARY OF 3rd PARTY SURVEY DATA FOR CUSHION LAYER

Point Number	Location	Northing	Easting	Surveyed Subgrade	Surveyed Cushion Layer	Difference	Pass?	Notes
1	B-pln	2134269.99	6341800.36	288.53	NA	NA	NA	See Note #1
2	B-atn	2134240.91	6341800.10	289.00	289.04	0.04	OK	See Note #1
3	B-ats	2134197.40	6341800.14	289.00	289.00	0.00	OK	See Note #1
4	B-fid	2134160.02	6341800.08	287.43	NA	NA	NA	See Note #1
5	B-swpond-top1	2134137.80	6341800.29	287.28	NA	NA	NA	See Note #1
6	B-swpond-bot1	2134120.97	6341800.04	287.86	NA	NA	NA	See Note #1
7	B-swpond-bot2	2134084.57	6341800.14	288.55	NA	NA	NA	See Note #1
8	B-swpond-top2	2134072.51	6341800.14	288.54	NA	NA	NA	See Note #1
9	B-pls	2134066.53	6341800.22	289.10	NA	NA	NA	See Note #1
10	C-pln	2134269.16	6341849.98	288.28	NA	NA	NA	See Note #1
11	C-atn	2134252.94	6341849.99	289.04	289.04	0.00	OK	See Note #1
12	C-ntoe	2134248.01	6341849.99	288.95	289.72	0.77	OK	
13	C-ms-n	2134230.06	6341849.93	295.03	295.78	0.75	OK	
14	C-ms-s	2134198.97	6341849.86	295.13	296.05	0.92	OK	
15	C-stoe	2134179.25	6341850.09	289.07	289.99	0.92	OK	
16	C-ats	2134173.35	6341849.97	288.88	288.88	0.00	OK	See Note #1
17	C-fid	2134135.92	6341849.96	287.86	NA	NA	NA	See Note #1
18	C-swpond-top1	2134113.84	6341850.01	287.79	NA	NA	NA	See Note #1
19	C-swpond-bot1	2134097.01	6341849.98	288.01	NA	NA	NA	See Note #1
20	C-swpond-bot2	2134084.56	6341849.98	288.17	NA	NA	NA	See Note #1
21	C-swpond-top2	2134072.58	6341849.98	288.45	NA	NA	NA	See Note #1
22	C-pls	2134066.14	6341850.20	288.87	NA	NA	NA	See Note #1
23	D-pln	2134268.90	6341900.08	288.46	NA	NA	NA	See Note #1
24	D-atn	2134253.00	6341900.08	289.01	289.01	0.00	OK	See Note #1
25	D-ntoe	2134248.33	6341899.67	288.79	289.68	0.89	OK	
26	D-ms-n	2134230.28	6341899.94	295.03	295.75	0.72	OK	
27	D-n-hinge	2134208.58	6341899.81	302.42	303.06	0.64	OK	
28	D-s-hinge	2134198.31	6341900.21	302.53	303.06	0.53	OK	
29	D-ms-s	2134174.61	6341899.83	294.86	295.72	0.86	OK	
30	D-stoe	2134153.78	6341898.84	288.63	289.30	0.67	OK	
31	D-ats	2134148.93	6341899.98	288.93	288.93	0.00	OK	See Note #1
32	D-fid	2134111.52	6341899.96	287.91	NA	NA	NA	See Note #1
33	D-swpond-top	2134090.17	6341899.96	288.00	NA	NA	NA	See Note #1
34	D-pls	2134066.08	6341899.89	288.62	NA	NA	NA	See Note #1
35	E-pln	2134268.94	6341949.95	288.35	NA	NA	NA	See Note #1
36	E-atn	2134253.33	6341950.05	289.17	288.98	-0.19	OK	See Note #1
37	E-ntoe	2134248.19	6341949.99	288.90	289.60	0.70	OK	
38	E-ms-n	2134230.34	6341949.89	295.18	295.90	0.72	OK	
39	E-n-hinge	2134208.40	6341949.94	302.35	303.01	0.66	OK	
40	E-s-hinge	2134174.40	6341951.88	302.30	303.27	0.97	OK	
41	E-ms-s	2134150.46	6341949.82	295.04	296.05	1.01	OK	
42	E-stoe	2134130.68	6341949.96	288.66	289.74	1.08	OK	
43	E-ats	2134124.63	6341950.05	288.77	288.77	0.00	OK	See Note #1
44	E-fid	2134087.24	6341949.96	288.25	NA	NA	NA	See Note #1
45	E-pls	2134066.11	6341948.81	288.45	NA	NA	NA	See Note #1
46	F-pln	2134268.64	6341999.90	288.48	NA	NA	NA	See Note #1
47	F-atn	2134253.33	6342000.04	289.07	289.01	-0.06	OK	See Note #1
48	F-ntoe	2134248.81	6341999.92	288.91	289.60	0.69	OK	
49	F-ms-n	2134230.48	6341999.86	295.15	295.86	0.71	OK	
50	F-n-hinge	2134207.77	6341999.75	302.26	303.31	1.05	OK	
51	F-s-hinge	2134149.54	6342001.29	302.05	303.24	1.19	OK	
52	F-ms-s	2134126.04	6341999.87	295.14	295.85	0.71	OK	
53	F-stoe	2134106.00	6341999.96	288.80	289.65	0.85	OK	
54	F-ats	2134099.87	6341999.99	289.08	289.08	0.00	OK	See Note #1
55	F-pls	2134065.48	6341999.90	289.10	NA	NA	NA	See Note #1
56	G-pln	2134268.32	6342050.03	288.55	NA	NA	NA	See Note #1
57	G-atn	2134253.66	6342049.95	289.04	289.04	0.00	OK	See Note #1
58	G-ntoe	2134248.38	6342050.12	288.95	289.84	0.89	OK	
59	G-ms-n	2134230.66	6342049.96	295.14	295.75	0.61	OK	
60	G-n-hinge	2134209.26	6342050.07	301.97	303.04	1.07	OK	
61	G-crown	2134170.56	6342049.86	304.50	305.31	0.81	OK	
62	G-s-hinge	2134131.19	6342050.18	301.93	302.65	0.72	OK	
63	G-ms-s	2134111.78	6342049.93	295.03	295.93	0.90	OK	
64	g-stoe	2134092.04	6342049.82	288.30	289.36	1.06	OK	
65	G-ats	2134088.61	6342050.02	288.84	288.84	0.00	OK	See Note #1
66	G-pls	2134065.04	6342049.92	289.39	NA	NA	NA	See Note #1
67	H-pln	2134267.97	6342100.02	288.68	NA	NA	NA	See Note #1
68	H-atn	2134253.70	6342099.97	288.98	288.98	0.00	OK	See Note #1
69	H-ntoe	2134248.42	6342099.99	289.10	289.82	0.72	OK	
70	H-ms-n	2134230.84	6342099.96	294.96	295.78	0.80	OK	
71	H-n-hinge	2134208.97	6342100.02	302.03	303.16	1.13	OK	
72	H-crown	2134167.60	6342099.06	304.48	305.12	0.64	OK	
73	H-s-hinge	2134131.95	6342100.02	301.78	302.91	1.13	OK	
74	H-ms-s	2134111.51	6342099.85	295.12	295.89	0.77	OK	
75	H-stoe	2134092.43	6342099.98	288.68	289.37	0.69	OK	
76	H-ats	2134088.50	6342099.98	288.83	288.83	0.00	OK	See Note #1
77	H-pls	2134064.80	6342100.05	289.45	NA	NA	NA	See Note #1
78	I-pln	2134268.05	6342150.22	288.63	NA	NA	NA	See Note #1
79	I-atn	2134253.67	6342150.02	289.00	289.00	0.00	OK	See Note #1
80	I-ntoe	2134248.79	6342150.04	288.92	289.75	0.83	OK	
81	I-ms-n	2134230.93	6342149.95	295.03	295.80	0.77	OK	
82	I-n-hinge	2134208.05	6342149.92	302.38	303.18	0.80	OK	
83	I-crown	2134167.74	6342149.29	304.47	305.15	0.68	OK	
84	I-s-hinge	2134131.89	6342149.89	301.90	302.91	1.01	OK	
85	I-ms-s	2134111.30	6342149.98	294.91	295.92	1.01	OK	
86	I-stoe	2134091.91	6342149.60	288.84	289.55	0.71	OK	
87	I-ats	2134088.27	6342150.02	288.93	288.93	0.00	OK	See Note #1
88	I-pls	2134064.85	6342149.86	289.12	NA	NA	NA	See Note #1

TABLE 6-3
PURITY OIL SALES SUPERFUND SITE
SUMMARY OF 3rd PARTY SURVEY DATA FOR CUSHION LAYER

Point Number	Location	Northing	Easting	Surveyed Subgrade	Surveyed Cushion Layer	Difference	Pass?	Notes
89	J-pln	2134267.83	6342199.62	288.68	NA	NA	NA	See Note #1
90	J-atn	2134254.00	6342199.99	289.08	289.08	0.00	OK	See Note #1
91	J-ntoe	2134248.42	6342200.03	288.88	290.03	1.15	OK	
92	J-ms-n	2134231.00	6342199.99	295.08	295.83	0.75	OK	
93	J-n-hinge	2134208.36	6342199.83	302.22	303.22	1.00	OK	
94	J-crown	2134167.74	6342199.22	304.49	304.98	0.49	OK	
95	J-s-hinge	2134131.41	6342200.09	301.72	302.87	1.15	OK	
96	J-ms-s	2134111.02	6342199.93	295.06	296.07	1.01	OK	
97	J-stoe	2134092.78	6342200.02	288.78	289.80	1.02	OK	
98	J-ats	2134087.67	6342199.99	288.88	288.88	0.00	OK	See Note #1
99	J-pls	2134065.00	6342200.04	289.37	NA	NA	NA	See Note #1
100	K-pln	2134267.61	6342250.23	288.76	NA	NA	NA	See Note #1
101	K-atn	2134254.36	6342250.02	288.89	288.89	0.00	OK	See Note #1
102	K-ntoe	2134248.91	6342250.26	288.99	289.87	0.88	OK	
103	K-ms-n	2134231.14	6342249.84	295.18	295.91	0.73	OK	
104	K-n-hinge	2134208.30	6342249.85	302.27	303.43	1.16	OK	
105	K-crown	2134168.59	6342249.65	304.55	305.06	0.51	OK	
106	K-s-hinge	2134130.50	6342250.09	301.50	302.67	1.17	OK	
107	K-ms-s	2134110.67	6342249.95	294.86	295.85	0.99	OK	
108	K-stoe	2134092.87	6342250.00	288.94	289.80	0.86	OK	
109	K-ats	2134087.32	6342250.01	288.88	288.88	0.00	OK	See Note #1
110	K-pls	2134065.22	6342250.13	288.95	NA	NA	NA	See Note #1
111	L-pln	2134267.37	6342299.96	288.92	NA	NA	NA	See Note #1
112	L-atn	2134254.34	6342300.00	288.79	289.03	0.24	OK	See Note #1
113	L-ntoe	2134249.35	6342299.80	289.01	289.63	0.62	OK	
114	L-ms-n	2134231.29	6342299.78	295.14	296.01	0.87	OK	
115	L-n-hinge	2134208.81	6342299.74	301.90	303.51	1.61	OK	
116	L-crown	2134167.64	6342299.54	304.54	305.12	0.58	OK	
117	L-s-hinge	2134130.42	6342300.06	301.71	302.78	1.07	OK	
118	L-ms-s	2134110.37	6342299.89	295.04	295.83	0.79	OK	
119	L-stoe	2134093.09	6342300.01	289.00	290.02	1.02	OK	
120	L-ats	2134087.73	6342300.07	288.91	288.91	0.00	OK	See Note #1
121	L-pls	2134064.90	6342299.83	289.44	NA	NA	NA	See Note #1
122	M-pln	2134267.10	6342349.86	289.00	NA	NA	NA	See Note #1
123	M-atn	2134254.38	6342350.06	288.71	289.04	0.33	OK	See Note #1
124	M-ntoe	2134249.72	6342350.11	288.84	289.59	0.75	OK	
125	M-ms-n	2134231.45	6342349.91	295.01	295.76	0.75	OK	
126	M-n-hinge	2134209.35	6342349.62	301.94	303.13	1.19	OK	
127	M-crown	2134167.74	6342349.56	304.49	305.01	0.52	OK	
128	M-s-hinge	2134130.98	6342350.00	301.78	302.89	1.11	OK	
129	M-ms-s	2134110.07	6342349.89	294.95	295.91	0.96	OK	
130	M-stoe	2134091.69	6342350.02	288.87	289.66	0.79	OK	
131	M-ats	2134087.70	6342350.03	288.86	288.86	0.00	OK	See Note #1
132	M-pls	2134064.72	6342350.23	288.88	NA	NA	NA	See Note #1
133	N-pln	2134266.91	6342399.77	289.22	NA	NA	NA	See Note #1
134	N-atn	2134254.71	6342400.01	289.14	289.00	-0.14	OK	See Note #1
135	N-ntoe	2134250.10	6342400.05	288.88	289.40	0.52	OK	
136	N-ms-n	2134231.56	6342399.91	295.05	295.89	0.84	OK	
137	N-n-hinge	2134208.51	6342400.08	302.31	303.19	0.88	OK	
138	N-crown	2134172.16	6342400.07	304.31	305.08	0.77	OK	
139	N-s-hinge	2134130.40	6342399.99	302.00	302.80	0.80	OK	
140	N-ms-s	2134109.77	6342400.01	295.00	295.83	0.83	OK	
141	N-stoe	2134091.78	6342399.98	288.97	289.79	0.82	OK	
142	N-ats	2134087.09	6342400.03	288.93	288.93	0.00	OK	See Note #1
143	N-pls	2134064.02	6342400.05	290.06	NA	NA	NA	See Note #1
144	O-pln	2134266.69	6342449.99	289.14	NA	NA	NA	See Note #1
145	O-atn	2134254.71	6342449.99	289.16	288.99	-0.17	OK	See Note #1
146	O-ntoe	2134250.02	6342449.82	289.00	289.70	0.70	OK	
147	O-ms-n	2134231.71	6342450.02	294.77	295.84	1.07	OK	
148	O-n-hinge	2134210.82	6342449.54	301.96	302.97	1.01	OK	
149	O-crown	2134172.90	6342450.15	304.21	305.06	0.85	OK	
150	O-s-hinge	2134129.63	6342449.82	301.65	302.95	1.30	OK	
151	O-ms-s	2134109.41	6342449.90	294.97	295.90	0.93	OK	
152	O-stoe	2134091.23	6342449.74	288.97	289.84	0.87	OK	
153	O-pls	2134063.88	6342449.76	289.42	NA	NA	NA	See Note #1
154	P-pln	2134266.45	6342499.78	289.54	NA	NA	NA	See Note #1
155	P-atn	2134255.00	6342500.05	289.17	288.94	-0.23	OK	See Note #1
156	P-ntoe	2134249.44	6342499.97	288.97	289.69	0.72	OK	
157	P-ms-n	2134231.84	6342499.99	295.15	295.68	0.53	OK	
158	P-n-hinge	2134210.85	6342499.84	301.97	302.99	1.02	OK	
159	P-crown	2134172.66	6342500.09	304.15	305.00	0.85	OK	
160	P-s-hinge	2134129.43	6342499.99	301.70	302.51	0.81	OK	
161	P-ms-s	2134109.06	6342499.94	294.85	295.83	0.98	OK	
162	P-stoe	2134092.33	6342499.86	288.90	290.13	1.23	OK	
163	P-ats	2134086.37	6342500.02	288.84	288.84	0.00	OK	See Note #1
164	P-pls	2134063.96	6342499.79	288.67	NA	NA	NA	See Note #1
165	Q-pln	2134266.11	6342550.00	289.53	NA	NA	NA	See Note #1
166	Q-atn	2134254.72	6342549.96	289.38	288.94	-0.44	OK	See Note #1
167	Q-ntoe	2134249.83	6342550.00	288.92	289.65	0.73	OK	
168	Q-ms-n	2134231.95	6342549.93	295.06	295.81	0.75	OK	
169	Q-n-hinge	2134210.85	6342549.99	302.02	302.95	0.93	OK	
170	Q-crown	2134172.08	6342550.09	304.34	304.97	0.63	OK	
171	Q-s-hinge	2134128.60	6342549.99	301.45	302.50	1.05	OK	
172	Q-ms-s	2134108.87	6342549.89	294.97	295.78	0.81	OK	
173	Q-stoe	2134091.00	6342550.06	288.97	289.71	0.74	OK	
174	Q-ats	2134086.06	6342549.98	288.84	288.99	0.15	OK	See Note #1
175	Q-pls	2134063.33	6342549.90	289.42	NA	NA	NA	See Note #1
176	R-pln	2134265.91	6342599.54	289.69	NA	NA	NA	See Note #1

TABLE 6-3
PURITY OIL SALES SUPERFUND SITE
SUMMARY OF 3rd PARTY SURVEY DATA FOR CUSHION LAYER

Point Number	Location	Northing	Easting	Surveyed Subgrade	Surveyed Cushion Layer	Difference	Pass?	Notes
177	R-atn	2134255.19	6342599.90	289.23	288.92	-0.31	OK	See Note #1
178	R-ntoe	2134250.18	6342599.90	289.00	289.68	0.68	OK	
179	R-ms-n	2134232.09	6342599.95	294.95	295.81	0.86	OK	
180	R-n-hinge	2134211.22	6342599.90	302.12	302.94	0.82	OK	
181	R-crown	2134170.12	6342599.90	304.41	305.01	0.60	OK	
182	R-s-hinge	2134129.73	6342599.90	301.95	302.99	1.04	OK	
183	R-ms-s	2134108.52	6342599.90	294.83	295.88	1.05	OK	
184	R-stoe	2134090.77	6342599.90	288.94	289.71	0.77	OK	
185	R-ats	2134085.77	6342599.90	288.86	288.90	0.04	OK	See Note #1
186	R-pls	2134062.89	6342599.90	289.33	NA	NA	NA	See Note #1
187	S-pln	2134265.55	6342649.95	289.52	NA	NA	NA	See Note #1
188	S-atn	2134255.19	6342649.95	289.13	288.96	-0.17	OK	See Note #1
189	S-ntoe	2134250.18	6342649.95	288.99	289.59	0.60	OK	
190	S-ms-n	2134232.23	6342649.80	294.95	295.79	0.84	OK	
191	S-n-hinge	2134211.22	6342649.95	302.11	302.93	0.82	OK	
192	S-crown	2134170.12	6342649.59	304.54	305.12	0.58	OK	
193	S-s-hinge	2134129.37	6342649.95	301.99	302.90	0.91	OK	
194	S-ms-s	2134108.30	6342649.88	295.06	295.91	0.85	OK	
195	S-stoe	2134090.41	6342649.95	288.92	289.90	0.98	OK	
196	S-ats	2134085.41	6342649.95	288.88	289.04	0.16	OK	See Note #1
197	S-pls	2134062.89	6342649.95	290.59	NA	NA	NA	See Note #1
198	T-10-atn	2134309.10	6342689.27	291.08	NA	NA	NA	See Note #1
199	T-10_atn-corner	2134255.54	6342688.52	289.40	NA	NA	NA	See Note #1
200	T-10_ntoe-corner	2134248.40	6342693.21	289.83	290.72	0.89	OK	
201	T-15_pln-corner1	2134334.46	6342683.21	291.29	NA	NA	NA	See Note #1
202	T-15_pln-corner2	2134265.96	6342683.21	289.42	NA	NA	NA	See Note #1
203	T-pln	2134334.84	6342700.00	291.36	NA	NA	NA	See Note #1
204	T-atn	2134320.54	6342700.00	291.55	NA	NA	NA	See Note #1
205	T-n-hinge	2134213.01	6342700.00	302.42	302.97	0.55	OK	See Notes #2 and #3
206	T-ms-n	2134235.06	6342699.84	295.27	295.78	0.51	OK	
207	T-crown	2134170.12	6342700.00	304.48	305.06	0.58	OK	
208	T-s-hinge	2134129.37	6342700.00	302.02	302.97	0.95	OK	
209	T-ms-s	2134108.08	6342699.94	295.11	295.66	0.55	OK	
210	T-stoe	2134090.41	6342700.00	288.80	289.45	0.65	OK	
211	T-ats	2134085.41	6342700.00	288.70	NA	NA	NA	See Note #1
212	T-pls	2134062.54	6342700.00	289.33	NA	NA	NA	See Note #1
213	u-20-plcorner1	2134062.30	6342730.73	289.68	NA	NA	NA	See Note #1
214	u-20-plcorner2	2133980.43	6342729.99	291.35	NA	NA	NA	See Note #1
215	U-pln	2134334.18	6342750.10	292.03	NA	NA	NA	See Note #1
216	U-atn	2134320.53	6342749.69	292.05	NA	NA	NA	See Note #1
217	U-ntoe	2134315.15	6342750.00	292.01	292.75	0.74	OK	
218	U-ms-n	2134303.19	6342749.82	295.83	296.75	0.92	OK	
219	U-n-hinge	2134285.13	6342749.72	302.37	303.16	0.79	OK	
220	U-crown	2134170.65	6342749.97	304.46	305.17	0.71	OK	
221	U-s-hinge	2134129.54	6342750.32	302.23	303.10	0.87	OK	
364	U-ms-s	2134107.92	6342749.92	294.73	295.75	1.02	OK	See Notes #2 and #4
222	U-stoe	2134090.05	6342750.06	288.54	289.74	1.20	OK	
223	U-ats-cor1	2134084.72	6342750.04	288.63	NA	NA	NA	See Note #1
224	U-ats-cor2	2134000.06	6342750.01	289.43	NA	NA	NA	See Note #1
225	U-pls	2133980.43	6342750.05	290.98	NA	NA	NA	See Note #1
226	V-pln	2134333.97	6342800.06	291.85	NA	NA	NA	See Note #1
227	V-atn	2134320.36	6342800.08	291.59	NA	NA	NA	See Note #1
228	V-ntoe	2134315.04	6342799.70	291.76	292.60	0.84	OK	
229	V-ms-n	2134303.22	6342799.91	295.85	296.75	0.90	OK	
230	V-n-hinge	2134285.12	6342800.15	302.37	302.92	0.55	OK	See Notes #2 and #5
231	V-crown	2134104.85	6342814.70	304.37	305.03	0.66	OK	
232	V-s-hinge	2134044.35	6342800.14	302.05	303.38	1.33	OK	See Note #6
233	V-ms-s	2134026.07	6342799.83	295.90	297.04	1.14	OK	
234	V-stoe	2134006.25	6342800.15	289.29	290.13	0.84	OK	
235	V-ats	2134000.10	6342800.06	289.79	NA	NA	NA	See Note #1
236	V-pls	2133980.01	6342800.04	291.14	NA	NA	NA	See Note #1
237	W-pln	2134333.96	6342849.78	291.20	NA	NA	NA	See Note #1
238	W-atn	2134319.32	6342849.75	292.07	NA	NA	NA	See Note #1
239	W-ntoe-corner	2134313.41	6342849.83	291.99	292.56	0.56	OK	See Notes #2 and #7
240	W-toe-corner	2134193.06	6342849.01	292.76	293.59	0.83	OK	
241	W-ms-n	2134166.42	6342849.58	297.52	298.48	0.96	OK	
242	W-middle(slope)	2134120.04	6342850.84	300.18	300.91	0.73	OK	
243	W-ms-s	2134049.96	6342849.92	296.20	296.72	0.52	OK	
244	W-stoe	2134010.10	6342849.11	290.42	291.04	0.62	OK	See Notes #2 and #8
245	W-ats	2133999.90	6342849.80	290.43	NA	NA	NA	See Note #1
246	W-pls	2133979.87	6342849.77	291.19	NA	NA	NA	See Note #1
247	X-pln	2134211.56	6342900.04	292.13	NA	NA	NA	See Note #1
248	X-atn	2134197.23	6342900.07	292.00	NA	NA	NA	See Note #1
249	X4	2134169.95	6342899.92	292.98	293.48	0.50	OK	
250	X3	2134120.01	6342899.91	292.70	293.41	0.71	OK	
251	X-ats1	2134082.99	6342899.96	290.34	NA	NA	NA	See Note #1
252	X-ats2	2133985.66	6342899.95	290.07	NA	NA	NA	See Note #1
253	X-pls	2133979.61	6342899.90	290.33	NA	NA	NA	See Note #1
254	Y-3-pln-corner1	2134211.24	6342947.24	292.08	NA	NA	NA	See Note #1
255	Y-3-pln-corner2	2134190.95	6342947.46	291.83	NA	NA	NA	See Note #1
256	Y-atn	2134176.90	6342949.86	291.60	NA	NA	NA	See Note #1
257	Y4	2134170.14	6342949.90	291.30	292.08	0.78	OK	
258	Y3	2134119.99	6342949.93	291.17	291.98	0.81	OK	
259	Y-ats1	2134083.50	6342949.90	290.02	NA	NA	NA	See Note #1
260	Y-pond-Hinge1	2134080.76	6342949.96	289.97	290.55	0.58	OK	
261	Y-pond-toe1	2134068.94	6342949.91	286.01	286.70	0.69	OK	
262	Y-pond-toe2	2133999.95	6342949.63	285.91	286.64	0.73	OK	
263	Y-pond-hinge2	2133987.06	6342949.17	289.90	290.46	0.56	OK	

TABLE 6-3
PURITY OIL SALES SUPERFUND SITE
SUMMARY OF 3rd PARTY SURVEY DATA FOR CUSHION LAYER

Point Number	Location	Northing	Easting	Surveyed Subgrade	Surveyed Cushion Layer	Difference	Pass?	Notes
264	Y-ats2	2133985.16	6342949.92	289.99	NA	NA	NA	See Note #1
265	Y-pls	2133979.35	6342949.89	290.16	NA	NA	NA	See Note #1
266	Y+40-atcorner1	2134082.26	6342994.13	289.97	NA	NA	NA	See Note #1
267	Y+40-atcorner2	2133985.38	6342994.07	290.12	NA	NA	NA	See Note #1
268	Z-pln	2134190.44	6342999.92	291.35	NA	NA	NA	See Note #1
269	Z4	2134169.64	6342999.45	291.00	NA	NA	NA	See Note #1
270	Z3	2134119.74	6342999.89	290.77	NA	NA	NA	See Note #1
271	Z2	2134070.34	6342999.87	290.35	NA	NA	NA	See Note #1
272	Z1	2134020.07	6342999.87	290.20	NA	NA	NA	See Note #1
273	3-e-crown	2134119.73	6342840.69	301.93	302.74	0.81	OK	
274	3-etoe	2134120.34	6342887.05	293.96	294.60	0.64	OK	
275	6e-toe	2134269.81	6342849.25	292.93	293.73	0.80	OK	
276	6e-ms	2134269.92	6342834.25	297.87	298.68	0.81	OK	
277	6e-hinge	2134269.85	6342822.25	301.94	303.05	1.11	OK	
278	6w-hinge	2134269.72	6342729.65	302.19	303.20	1.01	OK	
279	6w-toe	2134269.87	6342693.69	289.52	290.49	0.97	OK	
280	6w-ms	2134269.77	6342711.60	295.79	296.81	1.02	OK	
281	2w-toe	2134069.98	6342755.89	288.78	289.78	1.00	OK	
282	2w-ms-s	2134069.97	6342773.89	294.79	295.77	0.98	OK	
283	2w-hinge	2134069.88	6342794.89	301.72	302.92	1.20	OK	
284	2-crown	2134069.97	6342810.84	304.21	304.82	0.61	OK	
285	3-crown	2134119.95	6342811.35	304.36	304.96	0.60	OK	
286	2e-hinge	2134070.11	6342827.67	302.20	302.99	0.79	OK	
287	2e-ms-s	2134070.09	6342846.46	297.94	299.18	1.24	OK	
288	2e-toe-s	2134069.94	6342872.98	293.99	294.65	0.66	OK	
289	2se-pond-hinge1	2134070.00	6342898.57	290.03	290.61	0.58	OK	See Notes #2 and #9
290	2se-pond-hinge2	2134070.00	6342991.57	289.81	290.39	0.58	OK	
291	1se-pond-hinge	2134019.92	6342991.57	289.38	290.47	1.09	OK	
292	1se-pond-toe	2134019.95	6342979.57	285.84	286.53	0.69	OK	
293	y1	2134019.98	6342950.00	285.81	286.73	0.92	OK	
294	1se-pond-toe	2134019.99	6342910.57	285.84	286.63	0.79	OK	
295	1se-pond-hinge	2134020.00	6342898.57	289.38	290.20	0.82	OK	
296	4e-hinge	2134169.97	6342822.25	301.94	302.83	0.89	OK	
297	5e-hinge	2134219.96	6342822.25	302.07	302.95	0.88	OK	
298	5e-ms	2134219.84	6342834.25	297.72	298.51	0.79	OK	
299	5e-toe	2134219.84	6342849.25	293.03	293.66	0.63	OK	
300	5-crown	2134219.79	6342778.37	304.38	305.08	0.70	OK	
301	e-ship	2134185.370	6341950.008	303.23	304.27	1.04	OK	
302	f-ship	2134168.510	6342000.226	303.86	304.43	0.57	OK	
303	g-ship	2134151.140	6342050.160	303.52	304.27	0.75	OK	
304	h-ship	2134150.856	6342099.956	303.69	304.36	0.67	OK	
305	i-ship	2134151.323	6342149.881	303.67	304.41	0.74	OK	
306	j-ship	2134151.400	6342200.093	303.60	304.38	0.78	OK	
307	k-ship	2134151.299	6342249.932	303.75	304.40	0.65	OK	
308	l-ship	2134150.913	6342300.008	303.62	304.41	0.79	OK	
309	m-ship	2134150.925	6342350.126	303.62	304.40	0.78	OK	
310	n-ship	2134150.968	6342400.129	303.54	304.34	0.80	OK	
311	o-ship	2134150.885	6342449.723	303.32	304.38	1.06	OK	
312	p-ship	2134151.234	6342499.943	303.04	304.45	1.41	OK	
313	q-ship	2134151.041	6342550.184	303.03	304.44	1.41	OK	
314	r-ship	2134150.649	6342599.969	303.17	304.28	1.11	OK	
315	s-ship	2134150.700	6342649.894	303.38	304.39	1.01	OK	
316	t-ship	2134150.657	6342699.923	303.58	304.46	0.88	OK	
317	u-ship	2134150.632	6342750.030	303.82	304.32	0.50	OK	
318	1-ship	2134150.684	6342767.358	303.87	304.38	0.51	OK	
319	2-ship	2134128.435	6342793.466	303.68	304.31	0.63	OK	
320	3-swhip	2134120.072	6342797.226	303.48	304.21	0.73	OK	
321	swhip	2134102.299	6342805.249	303.69	304.40	0.71	OK	
322	2-swhip	2134070.047	6342803.025	303.38	304.25	0.87	OK	
323	2-sehip	2134069.950	6342819.074	303.54	304.35	0.81	OK	
324	1-sehip	2134083.690	6342822.239	303.69	304.26	0.57	OK	
325	2-sehip	2134111.538	6342827.207	303.54	304.45	0.91	OK	
326	3-sehip	2134120.039	6342827.196	303.51	304.45	0.94	OK	
327	se-hip	2134127.698	6342827.303	303.40	304.34	0.94	OK	
328	1-e-hip	2134140.893	6342820.871	303.46	304.32	0.86	OK	
329	2-e-hip	2134147.112	6342812.283	303.55	304.31	0.76	OK	
330	v-ehip	2134163.251	6342799.956	303.67	304.33	0.66	OK	
331	v5-nehip	2134220.006	6342800.300	303.75	304.35	0.60	OK	
332	v-nehip	2134267.143	6342800.501	303.50	304.26	0.76	OK	
333	1 nw-hip	2134267.043	6342754.196	303.34	304.37	1.03	OK	
334	2 nw-hip	2134248.183	6342754.048	303.59	304.34	0.75	OK	
335	nwhip	2134220.204	6342750.487	303.75	304.26	0.51	OK	
336	u-nhip	2134196.340	6342747.441	303.85	304.35	0.50	OK	See Notes #2 and #10
337	t-nhip	2134190.680	6342699.975	303.73	304.39	0.66	OK	
338	s-nhip	2134190.799	6342650.053	303.70	304.40	0.70	OK	
339	r-nhip	2134190.787	6342599.862	303.65	304.34	0.69	OK	
340	q-nhip	2134191.066	6342550.160	303.52	304.44	0.92	OK	
341	p-nhip	2134190.849	6342500.191	303.27	304.30	1.03	OK	
342	o-nhip	2134190.903	6342450.006	303.19	304.30	1.11	OK	
343	n-nhip	2134190.888	6342399.786	303.25	304.37	1.12	OK	
344	m-nhip	2134190.937	6342349.909	303.26	304.26	1.00	OK	
345	l-nhip	2134190.818	6342299.943	303.12	304.31	1.19	OK	
346	k-nhip	2134191.145	6342249.938	303.34	304.38	1.04	OK	
347	j-nhip	2134190.954	6342200.093	303.20	304.34	1.14	OK	
348	i-nhip	2134191.065	6342150.119	303.28	304.30	1.02	OK	
349	h-nhip	2134191.037	6342100.035	303.18	304.20	1.02	OK	
350	g-nhip	2134191.156	6342050.098	303.13	304.32	1.19	OK	
351	f-nhip	2134195.734	6342000.074	303.40	304.36	0.96	OK	

TABLE 6-3
PURITY OIL SALES SUPERFUND SITE
SUMMARY OF 3rd PARTY SURVEY DATA FOR CUSHION LAYER

Point Number	Location	Northing	Easting	Surveyed Subgrade	Surveyed Cushion Layer	Difference	Pass?	Notes
352	e-nhip	2134200.539	6341950.177	302.99	304.23	1.24	OK	
353	sg west crown	2134197.545	6341927.767	303.12	303.75	0.63	OK	
354	1 sg crown	2134170.909	6342641.589	304.56	305.22	0.66	OK	
355	2 sg crown	2134170.558	6342677.510	304.47	305.03	0.56	OK	
356	3 sg crown	2134170.768	6342710.319	304.55	305.08	0.53	OK	
357	4 sg crown	2134170.683	6342748.395	304.47	305.16	0.69	OK	
358	5 sg crown	2134170.674	6342777.636	304.51	305.10	0.59	OK	
359	6 sg crown	2134140.852	6342802.381	304.31	305.00	0.69	OK	
360	7 sg crown	2134111.019	6342815.185	304.49	305.11	0.62	OK	
361	8 sg crown	2134060.250	6342809.042	303.06	304.83	1.77	OK	
362	9 sg crown	2134194.855	6342778.311	304.54	305.06	0.52	OK	See Notes #2 and #11
363	10 sg crown	2134249.094	6342778.759	304.42	305.00	0.58	OK	
365	t+25 hinge	2134222.969	6342718.193	302.30	302.80	0.50	OK	
366	t+30 hinge	2134285.216	6342729.745	302.28	302.87	0.59	OK	
367	6+15 hinge	2134285.198	6342822.248	301.92	302.80	0.88	OK	
368	3+40 hinge	2134155.836	6342822.248	302.05	302.92	0.87	OK	
369	3+25 hinge	2134143.304	6342839.284	301.93	302.89	0.96	OK	
370	v+20 hinge	2134050.369	6342822.156	301.83	302.95	1.12	OK	
371	u+45 hinge	2134044.087	6342794.634	301.90	302.94	1.04	OK	
372	3 hinge	2134118.4	6342784.571	302.08	303.01	0.93	OK	
373	u+20 ms-s	2134103.551	6342769.722	294.96	295.95	0.99	OK	

NOTES:

1 This point was located outside of capped area.
2 The 3rd party surveyors used a point instead of a shoe on the end of the rod
3 This point was mislabeled and is actually t-n-hinge. The point was resurveyed by Stantec and verified by Tetra Tech on 11/15/07 with a shoe on the bottom of the rod The new elevation was 302.97 and passed.
4 The point was resurveyed by Stantec and verified by Tetra Tech on 11/15/07 with a shoe on the bottom of the rod The new elevation was 295.75 and passed
5 The point was resurveyed by Stantec and verified by Tetra Tech on 11/15/07 with a shoe on the bottom of the rod The new elevation was 302.915 and passed
6 The area was re-graded to an elevation of 303.38 The point was re-surveyed by Stantec and verified by TetraTech on 11/16/07.
7 The point was resurveyed by Stantec and verified by Tetra Tech on 11/15/07 with a shoe on the bottom of the rod. The new elevation was 292.56 and passed.
8 The area was re-graded to an elevation of 291.04. The point was re-surveyed by Stantec and verified by TetraTech on 11/16/07.
9 The area was re-graded to an elevation of 290.61. The point was re-surveyed by Stantec and verified by TetraTech on 11/16/07.
10 The point was resurveyed by Stantec and verified by Tetra Tech on 11/15/07 with a shoe on the bottom of the rod. The new elevation was 304.351 and passed
11 The point was resurveyed by Stantec and verified by Tetra Tech on 11/15/07 with a shoe on the bottom of the rod. The new elevation was 305.06 and passed

LEGEND:

NA	Not Applicable	ntoe	Toe of north slope
1, 2, etc.	Gridline 1	nwhip	Hip of northwest slope
6+15, etc.	Gridline 6 +15 feet	picorner	Corner of property line
atn	Anchor trench north	pln	Property line north
ats	Anchor trench south	pls	Property line suth
B, C, D, etc	Gridline B, Gridline C, etc	se	Southeast
B+25, etc	Gridline B + 25 feet	sehip	Hip of southeast slope
Bot	Bottom	sg	Subgrade
crown	Crown of slope	s-hinge	Hinge of south slope
e	East	ship	Hip of south slope
ehip	Hip of east slope	stoe	Toe of south slope
fid	FID pipeline/easement location	swhip	Hip of southwest slope
ms-n	Middle of north slope	swpond	Southwest infiltration pond
ms-s	Middle of south slope	top	Top
n-hinge	Hinge of North slope	w	West
nhipe	Hip of north slope		

TABLE 6-4
PURITY OIL SALES SUPERFUND SITE
SUMMARY OF 3rd PARTY SURVEY DATA FOR TOPSOIL

Point Number	Location	Northing	Easting	Design/Existing Elevation	Surveyed Subgrade	Re-Surveyed Elevation	Difference	Notes
60001	B25-hinge-n	2,134,239.85	6,341,825.00	294.43	294.33		-0.10	
60002	B25-crown	2,134,221.58	6,341,825.00	295.43	295.41		-0.02	
60003	B25-hinge-s	2,134,203.61	6,341,825.00	295.71	295.64		-0.07	
60004	B25-toe-s	2,134,185.53	6,341,825.00	290.06	290.05		-0.01	
60005	C-hinge-in	2,134,254.05	6,341,850.00	291.72	290.51		-1.21	Re-surveyed as Point # 60683, See Note #1
60006	C-toe-n	2,134,244.17	6,341,850.00	293.23	293.19		-0.04	
60007	C-ms-n	2,134,239.11	6,341,850.00	294.94	294.92		-0.02	
60008	C-hinge-n	2,134,228.85	6,341,850.00	298.41	298.34		-0.07	
60009	C-crown	2,134,212.53	6,341,850.00	299.24	299.17		-0.07	
60010	C-hinge-s	2,134,202.35	6,341,850.00	299.28	299.21		-0.07	
60011	C-ms-s	2,134,185.46	6,341,850.00	294.09	294.03		-0.06	
60012	C-toe-s	2,134,171.18	6,341,850.00	289.70	289.80		0.10	
60013	C25-hinge-in	2,134,255.55	6,341,875.00	291.85	291.03		-0.82	Re-surveyed as Point # 60672, See Note #1
60014	C25-toe-n	2,134,245.63	6,341,875.00	293.18	293.16		-0.02	
60015	C25-ms-n	2,134,237.12	6,341,875.00	295.62	295.54		-0.08	
60016	C25-hinge-n	2,134,216.27	6,341,875.00	302.63	302.53		-0.10	
60017	C25-crown	2,134,207.86	6,341,875.00	303.06	303.00		-0.06	
60018	C25-hinge-s	2,134,202.71	6,341,875.00	303.01	302.95		-0.06	
60019	C25-ms-s	2,134,180.51	6,341,875.00	296.36	296.33		-0.03	
60020	C25-toe-s	2,134,159.03	6,341,875.00	289.94	290.01		0.07	
60021	D-toe-n	2,134,244.82	6,341,900.00	293.51	293.45		-0.06	
60022	D-ms-n	2,134,228.35	6,341,900.00	299.00	299.00		0.00	
60023	D-hinge-n	2,134,209.16	6,341,900.00	305.40	305.35		-0.05	
60024	D-crown	2,134,203.24	6,341,900.00	305.65	305.56		-0.09	
60025	D-hinge-s	2,134,198.33	6,341,900.00	305.40	305.37		-0.03	
60026	D-ms-s	2,134,174.62	6,341,900.00	298.08	298.16		0.08	
60027	D-toe-s	2,134,149.19	6,341,900.00	290.22	290.16		-0.06	
60028	E-toe-n	2,134,243.51	6,341,950.00	294.07	294.05		-0.02	
60029	E-ms-n	2,134,228.05	6,341,950.00	299.00	298.97		-0.03	
60030	E-hinge-n	2,134,208.33	6,341,950.00	305.58	305.50		-0.08	
60031	E-hip-n	2,134,200.65	6,341,950.00	306.50	306.47		-0.03	
60032	E-Crown	2,134,193.00	6,341,950.00	306.55	306.49		-0.06	
60033	E-hip-s	2,134,185.29	6,341,950.00	306.50	306.37		-0.13	See Note #2
60034	E-hinge-s	2,134,173.84	6,341,950.00	305.38	305.35		-0.03	
60035	E-ms-s	2,134,150.46	6,341,950.00	298.26	298.18		-0.08	
60036	E-toe-s	2,134,125.17	6,341,950.00	290.64	290.62		-0.02	
60037	F-toe-n	2,134,242.65	6,342,000.00	294.17	294.13		-0.04	
60038	F-ms-n	2,134,228.16	6,342,000.00	299.00	298.90		-0.10	
60039	F-hinge-n	2,134,208.40	6,342,000.00	305.59	305.51		-0.08	
60040	F-hip-n	2,134,195.85	6,342,000.00	306.50	306.40		-0.10	
60041	F-crown	2,134,180.89	6,342,000.00	306.82	306.76		-0.06	
60042	F-hip-s2	2,134,172.53	6,342,000.00	306.70	306.57		-0.13	
60043	F-hip-s	2,134,167.95	6,342,000.00	306.50	306.45		-0.05	
60044	F-hinge-s	2,134,149.41	6,342,000.00	305.39	305.31		-0.08	
60045	F-ms-s	2,134,125.73	6,342,000.00	298.29	298.26		-0.03	
60046	F-toe-s	2,134,101.11	6,342,000.00	290.91	290.98		0.07	
60047	G-toe-n	2,134,242.05	6,342,050.00	294.43	294.30		-0.13	See Note #2
60048	G-ms-n	2,134,228.33	6,342,050.00	299.00	298.96		-0.04	
60049	G-hinge-n	2,134,208.56	6,342,050.00	305.59	305.50		-0.09	
60050	G-hip-n	2,134,193.00	6,342,050.00	306.50	306.46		-0.04	
60051	G-nhip2	2,134,177.19	6,342,050.00	307.27	307.19		-0.08	
60052	G-crown	2,134,171.00	6,342,050.00	307.40	307.32		-0.08	
60053	G-hip-s	2,134,153.55	6,342,050.00	306.50	306.44		-0.06	
60054	G-hinge-s	2,134,132.78	6,342,050.00	305.39	305.33		-0.06	
60055	G-ms-s	2,134,111.44	6,342,050.00	298.28	298.24		-0.04	
60056	G-toe-s	2,134,090.15	6,342,050.00	291.18	291.26		0.08	
60057	H-toe-n	2,134,241.11	6,342,100.00	294.78	294.75		-0.03	
60058	H-ms-n	2,134,228.45	6,342,100.00	299.00	298.93		-0.07	
60059	H-hinge-n	2,134,208.68	6,342,100.00	305.59	305.55		-0.04	
60060	H-hip-n	2,134,191.21	6,342,100.00	306.50	306.47		-0.03	
60061	H-crown	2,134,171.00	6,342,100.00	307.41	307.35		-0.06	
60062	H-hip-s	2,134,150.99	6,342,100.00	306.50	306.44		-0.06	
60063	H-hinge-s	2,134,132.44	6,342,100.00	305.39	305.31		-0.08	
60064	H-ms-s	2,134,111.17	6,342,100.00	298.21	298.18		-0.03	
60065	H-toe-s	2,134,090.74	6,342,100.00	291.40	291.39		-0.01	
60066	I-toe-n	2,134,240.65	6,342,150.00	294.98	294.99		0.01	
60067	I-ms-n	2,134,228.59	6,342,150.00	299.00	298.96		-0.04	
60068	I-hinge-n	2,134,208.81	6,342,150.00	305.59	305.46		-0.13	See Note #2
60069	I-hip-n	2,134,191.17	6,342,150.00	306.50	306.47		-0.03	
60070	I-crown	2,134,171.01	6,342,150.00	307.40	307.32		-0.08	
60071	I-hip-s	2,134,151.21	6,342,150.00	306.50	306.45		-0.06	
60072	I-hinge-s	2,134,132.21	6,342,150.00	305.39	305.35		-0.04	
60073	I-ms-s	2,134,111.31	6,342,150.00	298.42	288.36		-0.06	
60074	I-toe-s	2,134,091.15	6,342,150.00	291.70	291.72		0.02	
60075	J-toe-n	2,134,240.22	6,342,200.00	295.14	295.05		-0.09	
60076	J-ms-n	2,134,228.62	6,342,200.00	299.00	299.09		0.09	
60077	J-hinge-n	2,134,208.87	6,342,200.00	305.58	305.57		-0.01	
60078	J-hip-n	2,134,190.93	6,342,200.00	306.49	306.50		0.01	
60079	J-crown	2,134,171.01	6,342,200.00	307.40	307.37		-0.03	
60080	J-hip-s	2,134,151.21	6,342,200.00	306.49	306.45		-0.05	
60081	J-hinge-s	2,134,131.99	6,342,200.00	305.38	305.27		-0.11	See Note #2
60082	J-ms-s	2,134,110.68	6,342,200.00	298.16	298.14		-0.02	
60083	J-toe-s	2,134,091.90	6,342,200.00	291.90	291.85		-0.05	
60084	K-toe-n	2134239.740	6342250.000	295.36	295.29		0.075	
60085	K-ms-n	2134228.810	6342250.000	299.00	298.94		0.061	

TABLE 6-4
PURITY OIL SALES SUPERFUND SITE
SUMMARY OF 3rd PARTY SURVEY DATA FOR TOPSOIL

Point Number	Location	Northing	Easting	Design/Existing Elevation	Surveyed Subgrade	Re-Surveyed Elevation	Difference	Notes
60086	K-hinge-n	2134209.030	6342250.000	305.59	305.53		0.057	
60087	K-hip-n	2134191.050	6342250.000	306.50	306.41		0.091	
60088	K-crown	2134171.010	6342250.000	307.40	307.38		0.019	
60089	K-hip-s	2134151.220	6342250.000	306.49	306.47		0.017	
60090	K-hinge-s	2134131.770	6342250.000	305.39	305.35		0.038	
60091	K-ms-s	2134110.330	6342250.000	298.15	298.19		-0.04	
60092	K-toe-s	2134092.480	6342250.000	292.20	292.28		-0.076	
60093	L-toe-n	2134239.230	6342300.000	295.57	295.57		0.003	
60094	L-ms-n	2134228.950	6342300.000	299.00	298.99		0.014	
60095	L-hinge-n	2134209.190	6342300.000	305.59	305.56		0.028	
60096	L-hip-n	2134191.010	6342300.000	306.50	306.48		0.025	
60097	L-crown	2134171.000	6342300.000	307.40	307.38		0.02	
60098	L-hip-s	2134150.890	6342300.000	306.50	306.42		0.081	
60099	L-hinge-s	2134131.590	6342300.000	305.39	305.34		0.051	
60100	L-ms-s	2134110.370	6342300.000	298.31	298.31		0.001	
60101	L-toe-s	2134092.630	6342300.000	292.40	292.39		0.015	
60102	M-toe-n	2134238.720	6342350.000	295.76	295.72		0.043	
60103	M-ms-n	2134229.000	6342350.000	299.00	299.06		-0.057	
60104	M-hinge-n	2134209.250	6342350.000	305.58	305.51		0.074	
60105	M-hip-n	2134190.890	6342350.000	306.50	306.46		0.036	
60106	M-crown	2134171.000	6342350.000	307.39	307.44		-0.045	
60107	M-hip-s	2134151.110	6342350.000	306.50	306.48		0.018	
60107	M-hip-s	2134151.110	6342350.000	306.50	306.49		0.01	
60108	M-hinge-s	2134131.320	6342350.000	305.38	305.35		0.031	
60109	M-ms-s	2134110.970	6342350.000	298.50	298.53		-0.033	
60110	M-toe-s	2134093.490	6342350.000	292.67	292.67		0.002	
60111	N-toe-n	2134238.030	6342400.000	296.06	296.01		0.055	
60112	N-ms-n	2134229.210	6342400.000	299.00	298.96		0.038	
60113	N-hinge-n	2134209.460	6342400.000	305.58	305.53		0.047	
60114	N-hip-n	2134190.730	6342400.000	306.49	306.51		-0.02	
60115	N-crown	2134171.010	6342400.000	307.39	307.42		-0.029	
60116	N-hip-s2	2134157.880	6342400.000	306.92	306.73		0.189	See Note #3
60117	N-hip-s	2134150.950	6342400.000	306.50	306.51		-0.012	
60118	N-hinge-s	2134131.110	6342400.000	305.38	305.30		0.08	
60119	N-ms-s	2134109.770	6342400.000	298.20	298.15		0.052	
60120	N-toe-s	2134093.960	6342400.000	292.93	292.99		-0.063	
60121	O-toe-n	2134237.810	6342450.000	296.18	296.16		0.022	
60122	O-ms-n	2134229.340	6342450.000	299.00	298.92		0.083	
60123	O-hinge-n	2134209.570	6342450.000	305.59	305.56		0.03	
60124	O-hip-n	2134190.910	6342450.000	306.49	306.44		0.047	
60125	O-crown	2134171.000	6342450.000	307.40	307.42		-0.02	
60126	O-hip-s	2134150.780	6342450.000	306.49	306.47		0.022	
60127	O-hinge-s	2134130.870	6342450.000	305.38	305.33		0.049	
60128	O-ms-s	2134109.410	6342450.000	298.42	298.36		0.06	
60129	O-toe-s	2134093.740	6342450.000	293.20	293.27		-0.072	
60130	P-toe-n	2134237.210	6342500.000	296.41	296.42		-0.009	
60131	P-ms-n	2134229.430	6342500.000	299.00	298.98		0.021	
60132	P-hinge-n	2134209.680	6342500.000	305.58	305.52		0.059	
60133	P-hip-n	2134190.910	6342500.000	306.49	306.44		0.048	
60134	P-crown	2134171.000	6342500.000	307.39	307.40		-0.009	
60135	P-hip-s2	2134154.460	6342500.000	306.81	306.65		0.158	See note #4
60136	P-hip-s	2134150.680	6342500.000	306.50	306.49		0.01	
60137	P-hinge-s	2134130.630	6342500.000	305.38	305.33		0.046	
60138	P-ms-s	2134109.060	6342500.000	298.19	298.11		0.076	
60139	P-toe-s	2134094.680	6342500.000	293.40	293.40		-0.001	
60140	Q-toe-n	2134236.800	6342550.000	296.62	296.63		-0.009	
60141	Q-ms-n	2134229.660	6342550.000	299.00	298.93		0.066	
60142	Q-hinge-n	2134209.910	6342550.000	305.58	305.57		0.014	
60143	Q-hip-n	2134190.840	6342550.000	306.49	306.40		0.09	
60144	Q-crown	2134171.000	6342550.000	307.40	307.38		0.017	
60145	Q-hip-s	2134150.840	6342550.000	306.50	306.46		0.036	
60146	Q-hinge-s	2134130.300	6342550.000	305.38	305.38		0.002	
60147	Q-ms-s	2134108.870	6342550.000	298.24	298.22		0.016	
60148	Q-toe-s	2134095.170	6342550.000	293.67	293.69		-0.021	
60149	R-toe-n	2134236.290	6342600.000	296.81	296.81		0.003	
60150	R-ms-n	2134229.740	6342600.000	299.00	298.94		0.057	
60151	R-hinge-n	2134209.990	6342600.000	305.58	305.52		0.057	
60152	R-hip-n	2134190.810	6342600.000	306.50	306.46		0.04	
60153	R-crown	2134171.000	6342600.000	307.40	307.45		-0.053	
60154	R-hip-s	2134150.700	6342600.000	306.50	306.59		-0.086	
60155	R-hinge-s	2134130.110	6342600.000	305.38	305.35		0.028	
60156	R-ms-s	2134108.520	6342600.000	298.18	298.20		-0.018	
60157	R-toe-s	2134095.670	6342600.000	293.90	293.96		-0.06	
60158	S-toe-n	2134235.790	6342650.000	297.02	297.01		0.006	
60159	S-ms-n	2134229.840	6342650.000	299.00	298.94		0.058	
60160	S-hinge-n	2134210.090	6342650.000	305.59	305.56		0.033	
60161	S-hip-n	2134190.810	6342650.000	306.50	306.47		0.027	
60162	S-crown	2134171.000	6342650.000	307.40	307.38		0.016	
60163	S-hip-s	2134150.870	6342650.000	306.50	306.54		-0.036	
60164	S-hinge-s	2134129.810	6342650.000	305.39	305.38		0.015	
60165	S-ms-s	2134108.300	6342650.000	298.22	298.30		-0.077	
60166	S-toe-s	2134095.110	6342650.000	293.82	293.87		-0.047	
60263	6T-ms2	2134300.12	6342711.91	298.98	298.99		-0.01	
60264	6T-ms1	2134303.25	6342714.96	298.98	298.96		0.02	
60265	6-w-toe	2134270	6342702.4	296.31	296.3		0.01	
60266	6-ms2-w	2134270	6342711.36	299.4	299.36		0.04	
60267	5+30-ms-w	2134248	6342710.18	299.1	299.09		0.01	

TABLE 6-4
PURITY OIL SALES SUPERFUND SITE
SUMMARY OF 3rd PARTY SURVEY DATA FOR TOPSOIL

Point Number	Location	Northing	Easting	Design/Existing Elevation	Surveyed Subgrade	Re-Surveyed Elevation	Difference	Notes
60268	T-toe-n	2134240.4	6342700	296.27	296.21		0.06	
60269	T-ms-n	2134232.23	6342700	299	298.98		0.02	
60270	U-ms-n	2134303.54	6342750	299.26	299.23		0.03	
60271	V-toe-n	2134316.5	6342800	294.92	294.9		0.02	
60272	V-ms-n	2134303.32	6342800	299.31	299.23		0.08	
60273	V-hinge-n	2134284.22	6342800	305.59	305.52		0.07	
60274	ne-cor-hinge	2134285.2	6342822.25	305.59	305.52		0.07	
60275	6-hinge-e	2134270	6342822.88	305.59	305.54		0.05	
60276	6-hip-e	2134270	6342800.59	306.5	306.43		0.07	
60277	U-hinge-n	2134285.13	6342750	305.59	305.54		0.05	
60278	6T-hinge20	2134285.22	6342729.75	305.59	305.51		0.08	
60279	6-hinge-w	2134270	6342729.27	305.59	305.51		0.08	
60280	U_6-hip-n	2134270.01	6342750.2	306.49	306.41		0.08	
60281	6-hip-e	2134270	6342800.59	306.5	306.43		0.07	
60282	5+30-hinge-E	2134248	6342822.31	305.38	305.39		-0.01	
60283	5+30-hip-E	2134248	6342800.01	306.5	306.48		0.02	
60284	5+30-crown	2134248	6342778.76	307.2	307.17		0.03	
60285	5+30-hip-w	2134248	6342750.19	306.5	306.42		0.08	
60286	5+30-hinge-w	2134248	6342729.43	305.59	305.55		0.04	
60287	5-w-hip	2134220	6342750.51	306.49	306.47		0.02	
60288	5-crown	2134220	6342778.37	307.4	307.37		0.03	
60289	5-e-hip	2134220	6342800.39	306.51	306.48		0.03	
60290	5-e-hinge	2134220	6342822.53	305.39	305.34		0.05	
60291	spot-hinge	2134194.95	6342822.25	305.39	305.41		-0.02	
60292	spot-hip	2134195	6342800	306.5	306.46		0.04	
60293	spot_crown	2134194.87	6342778.02	307.4	307.37		0.03	
60294	U-hip2-n	2134196.38	6342750	306.49	306.42		0.07	
60295	T-hinge-n	2134213.07	6342700	305.59	305.5		0.09	
60296	T-hip-n	2134190.81	6342700	306.49	306.43		0.06	
60297	T-crown	2134171	6342700	307.4	307.32		0.08	
60298	T-hip-s	2134150.6	6342700	306.5	306.52		-0.02	
60299	T-hinge-s	2134128.96	6342700	305.38	305.33		0.05	
60300	T-ms-s	2134108.1	6342700	298.3	298.38		-0.08	
60301	T-toe-s	2134094.19	6342700	293.58	293.69		-0.11	See Note #5
60302	2-toe-w-in	2134070	6342758.52	293.26	293.21		0.05	
60303	2-ms-w	2134070	6342772.76	298.03	297.97		0.06	
60304	U-toe-s	2134094.44	6342750	293.69	293.61		0.08	
60305	U-ms-s	2134107.58	6342750	298.07	298.08		-0.01	
60306	U-hinge-s	2134128.91	6342750	305.38	305.29		0.09	
60307	U-hip-s	2134150.63	6342750	306.49	306.53		-0.04	
60308	U-crown	2134170.69	6342750	307.4	307.39		0.01	
60309	U4-crown	2134170.66	6342777.7	307.4	307.34		0.06	
60310	4-hip	2134170	6342800	306.5	306.42		0.08	
60311	4-hinge	2134170	6342822.25	305.39	305.31		0.08	
60312	spot-hinge	2134143.3	6342839.28	305.39	305.29		0.1	
60313	spot-hip	2134140.82	6342820.8	306.5	306.43		0.07	
60314	crown-3	2134138.34	6342802.31	307.4	307.32		0.08	
60315	spot-hip	2134120.02	6342797.2	306.5	306.46		0.04	
60316	crown-2	2134111.93	6342815.29	307.4	307.34		0.06	
60317	spot-hip	2134111.54	6342827.21	306.5	306.5		0	
60318	spot-hinge	2134111.06	6342839.12	305.39	305.33		0.06	
60319	spot-ms	2134103.49	6342869.16	299.74	299.74		0	
60320	2-hinge-E	2134070	6342827.69	305.38	305.37		0.01	
60321	2-hip-E	2134070	6342819.27	306.49	306.5		-0.01	
60322	2-crown	2134070	6342810.83	307.4	307.39		0.01	
60323	2-hip-w	2134070	6342803.03	306.49	306.45		0.04	
60324	2-hinge-w	2134070	6342794.81	305.38	305.29		0.09	
60325	V-hip-s	2134052.12	6342800	306.51	306.43		0.08	
60326	V-hinge-s	2134044	6342800	305.61	305.71		-0.1	
60327	spot-hinge	2134044.09	6342794.63	305.39	305.38		0.01	
60328	V-ms-s	2134025.62	6342800	300.08	300.12		-0.04	
60329	spot-hinge	2134043.99	6342816.32	305.39	305.38		0.01	
60330	spot-ms	2134054.17	6342845.45	300.72	300.66		0.06	
60333	SE Pond corner	2133989.31	6342898.42	292.47	292.408		0.062	
60334	SE Pond hinge	2134019.54	6342898.44	292.76	292.718		0.042	
60335	SE Pond corner	2134081.45	6342898.3	293.27	293.234		0.036	
60336	SE Pond hinge	2134081.27	6342927.62	293.12	293.084		0.036	
60337	SE Pond hinge	2134081.3	6342962.39	292.82	292.87		-0.05	
60338	SE Pond hinge	2134081.15	6342990.78	292.65	292.558		0.092	
60339	SE Pond hinge	2134046.51	6342990.48	292.59	292.513		0.077	
60340	SE Pond hinge	2134018.5	6342990.28	292.49	292.439		0.051	
60341	SE Pond hinge	2133989.37	6342990.08	292.39	292.332		0.058	
60342	SE Pond hinge	2133989.27	6342958.62	292.46	292.42		0.04	
60343	SE Pond hinge	2133989.26	6342931.94	292.53	292.459		0.071	
60344	SE Pond hinge	2134048.77	6342898.53	292.78	292.753		0.027	
60345	SE Pond corner toe	2134068.89	6342910.47	289.05	288.984		0.066	
60346	SE Pond corner toe	2134068.56	6342979.09	288.71	288.697		0.013	
60347	SE Pond corner toe	2134000.01	6342979.26	288.56	288.545		0.015	
60348	SE Pond corner toe	2133999.87	6342910.58	288.7	288.626		0.074	
60349	SE Pond toe	2134031.07	6342979.21	288.63	288.646		-0.016	
60350	SE Pond toe	2134068.71	6342946.78	288.78	288.74		0.04	
60351	SE Pond toe	2134033.34	6342910.6	288.86	288.862		-0.002	
60352	SE Pond toe	2133999.9	6342944.33	288.65	288.618		0.032	
60353	SE Pond Bottom	2134020.02	6342931.15	288.61	288.557		0.053	
60354	SE Pond Bottom	2134019.02	6342955.18	288.64	288.618		0.022	
60355	SE Pond Bottom	2134042.88	6342956.96	288.63	288.583		0.047	
60356	SE Pond Bottom	2134043.96	6342932.02	288.63	288.625		0.005	

TABLE 6-4
PURITY OIL SALES SUPERFUND SITE
SUMMARY OF 3rd PARTY SURVEY DATA FOR TOPSOIL

Point Number	Location	Northing	Easting	Design/Existing Elevation	Surveyed Subgrade	Re-Surveyed Elevation	Difference	Notes
60402	n100_berm-out	2134252.75	6341801.28	291.5	291.585		-0.085	
60403	n100_hinge-out	2134251.92	6341802.2	291.5	291.563		-0.063	
60404	n100_toe-out	2134251.09	6341803.13	290.5	290.484		0.016	
60405	n100_toe-in	2134247.71	6341806.87	290.5	290.66	290.48	0.02	See Note #6
60406	n100_hinge-in	2134246.67	6341807.8	291.5	291.502		-0.002	
60407	n100-cl	2134249.4	6341805	290.5	290.49	290.49	0.01	See Note #6
60408	n83-cl	2134234.835	6341796.115	290.33	290.328		0.002	
60409	n83_berm-out	2134236.05	6341792.22	291.33	291.476	291.4	-0.07	See Note #6
60410	n83_hinge-out	2134235.77	6341793.21	291.33	291.358		-0.028	
60411	n83_toe-out	2134235.32	6341794.1	290.33	290.38		-0.05	
60412	n83_toe-in	2134234.35	6341798.13	290.33	290.382		-0.052	
60413	n83_hinge-in	2134234.07	6341799.11	291.33	291.342		-0.012	
60414	n67_berm-out	2134220.19	6341788.26	291.17	291.311	291.25	-0.08	See Note #6
60415	n67_hinge-out	2134220.08	6341789.26	291.17	291.287	291.21	-0.04	See Note #6
60416	n67_toe-out	2134219.94	6341790.25	290.17	290.219		-0.049	
60417	n67_toe-in	2134219.44	6341794.28	290.17	290.269		-0.099	
60418	n67_hinge-in	2134219.32	6341795.28	291.17	291.125		0.045	
60419	n67-cl	2134219.69	6341792.265	290.17	290.259		-0.089	
60420	n50-cl	2134201.785	6341792.745	290	290.045		-0.045	
60421	n50_berm-out	2134200.52	6341788.78	291	291.182		-0.182	See Note #7
60422	n50_hinge-out	2134200.84	6341789.77	291	291.13	291.04	-0.04	See Note #6
60423	n50_toe-out	2134201.16	6341790.76	290	290.004		-0.004	
60424	n50_toe-in	2134202.41	6341794.73	290	290.044		-0.044	
60425	n50_hinge-in	2134202.73	6341795.72	291	290.934		0.066	
60426	n25_berm-out	2134183.75	6341808.03	290.75	290.738		0.012	
60427	n25_hinge-out	2134184.66	6341808.46	290.75	290.778		-0.028	
60428	n25_toe-out	2134185.56	6341808.88	289.75	289.821		-0.071	
60429	n25_toe-in	2134189.18	6341810.58	289.75	289.795		-0.045	
60430	n25_hinge-in	2134190.09	6341811.01	290.75	290.568	290.77	-0.02	See Note #6
60431	n25-cl	2134187.37	6341809.73	289.75	289.793		-0.043	
60432	s8_hinge-out	2134173.23	6341822.24	290.58	290.605		-0.025	
60433	s8_toe-out	2134174.14	6341822.66	289.58	289.735	289.59	-0.01	See Note #6
60434	s8_toe-in	2134184.27	6341827.4	289.58	289.683		-0.103	
60435	s8-cl	2134179.205	6341825.03	289.58	289.532		0.048	
60436	sC-cl	2134165.325	6341850	289.7	289.683		0.017	
60437	C-toe-s	2134171.18	6341850	289.7	289.634		0.066	
60438	C-ssw-toe-s	2134159.47	6341850	289.7	289.813	289.73	-0.03	See Note #6
60439	C-ssw-hinge-s	2134158.04	6341850	291	290.981		0.019	
60440	C25-toe-s	2134159.03	6341875	289.94	289.983		-0.043	
60441	C25-ssw-toe-s	2134147.33	6341875	289.94	290.047	289.95	-0.01	See Note #6
60442	C25-ssw-hinge-s	2134146.23	6341875	290.94	290.939		0.001	
60443	C25-berm-s	2134145.23	6341875	290.94	291.016		-0.076	
60444	sC25-cl	2134153.18	6341875	289.94	289.924		0.016	
60445	sD-cl	2134143.34	6341900	290.22	290.052	290.22	0	See Note #6
60446	D-toe-s	2134149.19	6341900	290.22	290.229		-0.009	
60447	D-ssw-toe-s	2134137.49	6341900	290.22	290.257		-0.037	
60448	D-ssw-hinge-s	2134136.39	6341900	291.22	291.121		0.099	
60449	D-berm-s	2134135.39	6341900	291.22	291.286		-0.066	
60450	E-berm-s	2134111.27	6341950	291.64	291.747	291.65	-0.01	See Note #6
60451	E-ssw-hinge-s	2134112.37	6341950	291.64	291.578		0.062	
60452	E-ssw-toe-s	2134113.47	6341950	290.64	290.651		-0.011	
60453	E-toe-s	2134125.17	6341950	290.64	290.676		-0.036	
60454	sE-cl	2134119.32	6341950	290.64	290.577		0.063	
60455	sF-cl	2134095.26	6342000	290.91	290.899		0.011	
60456	F-toe-s	2134101.11	6342000	290.91	291.005		-0.095	
60457	F-ssw-toe-s	2134089.41	6342000	290.91	290.976		-0.066	
60458	F-ssw-hinge-s	2134088.31	6342000	291.91	292.005		-0.095	
60459	F-berm-s	2134087.21	6342000	291.91	291.938		-0.028	
60462	G-toe-s	2134090.15	6342050	291.18	291.232		-0.052	
60463	G-ssw-toe-s	2134078.74	6342050	291.18	291.222		-0.042	
60464	G-ssw-hinge-s	2134077.74	6342050	292.18	292.207		-0.027	
60465	G-berm-s	2134076.74	6342050	292.18	292.166		0.014	
60466	sG-cl	2134084.445	6342050	291.18	291.216		-0.036	
60467	sH-cl	2134084.99	6342100	291.4	291.321		0.079	
60468	H-toe-s	2134090.74	6342100	291.4	291.344		0.056	
60469	H-ssw-toe-s	2134079.24	6342100	291.4	291.317		0.083	
60470	H-ssw-hinge-s	2134078.24	6342100	292.4	292.349		0.051	
60471	H-berm-s	2134077.24	6342100	292.4	292.324		0.076	
60472	I-toe-s	2134091.15	6342150	291.7	291.653		0.047	
60473	I-ssw-toe-s	2134079.74	6342150	291.7	291.689		0.011	
60474	I-ssw-hinge-s	2134078.74	6342150	292.7	292.637		0.063	
60475	I-berm-s	2134077.74	6342150	292.7	292.667		0.033	
60476	sI-cl	2134085.445	6342150	291.7	291.71		-0.01	
60477	sJ-cl	2134086.07	6342200	291.9	291.816		0.084	
60478	J-toe-s	2134091.9	6342200	291.9	291.945		-0.045	
60479	J-ssw-toe-s	2134080.24	6342200	291.9	291.897		0.003	
60480	J-ssw-hinge-s	2134079.24	6342200	292.9	292.939		-0.039	
60481	J-berm-s	2134078.24	6342200	292.9	292.896		0.004	
60482	K-toe-s	2134092.48	6342250	292.2	292.092	292.21	-0.01	See Note #6
60483	K-ssw-toe-s	2134080.74	6342250	292.2	292.248		-0.048	
60484	K-ssw-hinge-s	2134079.74	6342250	293.2	293.141		0.059	
60485	K-berm-s	2134078.74	6342250	293.2	293.168		0.032	
60486	sK-cl	2134086.61	6342250	292.2	292.155		0.045	
60487	sL-cl	2134086.935	6342300	292.4	292.409		-0.009	
60488	L-toe-s	2134092.63	6342300	292.4	292.386		0.014	
60489	L-ssw-toe-s	2134081.24	6342300	292.4	292.422		-0.022	
60490	L-ssw-hinge-s	2134080.24	6342300	293.4	293.447		-0.047	

TABLE 6-4
PURITY OIL SALES SUPERFUND SITE
SUMMARY OF 3rd PARTY SURVEY DATA FOR TOPSOIL

Point Number	Location	Northing	Easting	Design/Existing Elevation	Surveyed Subgrade	Re-Surveyed Elevation	Difference	Notes
60491	L-berm-s	2134079.24	6342300	293.4	293.396		0.004	
60492	M-toe-s	2134093.49	6342350	292.67	292.65		0.02	
60493	M-ssw-toe-s	2134081.74	6342350	292.67	292.632		0.038	
60494	M-ssw-hinge-s	2134080.74	6342350	293.67	293.679		-0.009	
60495	M-berm-s	2134079.74	6342350	293.67	293.641		0.029	
60496	sM-cl	2134087.615	6342350	292.67	292.669		0.001	
60497	sN-cl	2134088.1	6342400	292.93	292.998		-0.068	
60498	N-toe-s	2134093.96	6342400	292.93	292.961		-0.031	
60499	N-ssw-toe-s	2134082.24	6342400	292.93	292.919		0.011	
60500	N-ssw-hinge-s	2134081.24	6342400	293.93	293.995		-0.065	
60501	N-berm-s	2134080.24	6342400	293.93	294.008		-0.078	
60502	O-toe-s	2134093.74	6342450	293.2	293.156		0.044	
60503	O-ssw-toe-s	2134082.74	6342450	293.2	293.22		-0.02	
60504	O-ssw-hinge-s	2134081.74	6342450	294.2	294.18		0.02	
60505	O-berm-s	2134080.74	6342450	294.2	294.17		0.03	
60506	sO-cl	2134088.24	6342450	293.2	293.142		0.058	
60507	sP-cl	2134088.96	6342500	293.4	293.421		-0.021	
60508	P-toe-s	2134094.68	6342500	293.4	293.389		0.011	
60509	P-ssw-toe-s	2134083.24	6342500	293.4	293.432		-0.032	
60510	P-ssw-hinge-s	2134082.24	6342500	294.4	294.478		-0.078	
60511	P-berm-s	2134081.24	6342500	294.4	294.473		-0.073	
60512	Q-toe-s	2134095.17	6342550	293.67	293.612		0.058	
60513	Q-ssw-toe-s	2134083.74	6342550	293.67	293.7		-0.03	
60514	Q-ssw-hinge-s	2134082.74	6342550	294.67	294.609		0.061	
60515	Q-berm-s	2134081.74	6342550	294.67	294.675		-0.005	
60516	sQ-cl	2134089.455	6342550	293.67	293.669		0.001	
60517	sR-cl	2134089.955	6342600	293.9	293.92		-0.02	
60518	R-toe-s	2134095.67	6342600	293.9	293.927		-0.027	
60519	R-ssw-toe-s	2134084.24	6342600	293.9	293.925		-0.025	
60520	R-ssw-hinge-s	2134083.24	6342600	294.9	294.914		-0.014	
60521	R-berm-s	2134082.24	6342600	294.9	294.86		0.04	
60522	S-toe-s	2134095.11	6342650	293.82	293.845		-0.025	
60523	S-ssw-toe-s	2134084.11	6342650	293.82	293.83		-0.01	
60524	S-ssw-hinge-s	2134083.11	6342650	294.82	294.795		0.025	
60525	S-berm-s	2134082.11	6342650	294.82	294.873		-0.053	
60526	sS-cl	2134089.61	6342650	293.82	293.87		-0.05	
60527	sT-cl	2134088.69	6342700	293.58	293.59		-0.01	
60528	T-toe-s	2134094.19	6342700	293.58	293.579		0.001	
60529	T-swale-toe-s	2134083.19	6342700	293.58	293.614		-0.034	
60530	T-swale-hinge-s	2134082.19	6342700	294.58	294.573		0.007	
60531	T-swale-berm	2134081.19	6342700	294.58	294.5		0.08	
60532	s903_berm out	2134078.425	6342717.684	294.49	294.392		0.098	
60533	s903_hinge out	2134079.395	6342717.959	294.49	294.452		0.038	
60534	s903_toe out	2134080.364	6342718.234	293.49	293.601	293.56	-0.07	See Note #6
60536	s918_berm out	2134074.693	6342726.511	294.41	294.345		0.065	
60537	s918_hinge out	2134075.61	6342726.9	294.41	294.358		0.052	
60538	s918_toe out	2134076.533	6342727.294	293.41	293.404		0.006	
60539	s918_toe-out	2134076.5	6342727.28	293.42	293.405		0.015	
60540	s918-cl	2134085.075	6342730.915	293.41	293.43		-0.02	
60541	s918_toe in	2134093.62	6342734.54	293.41	293.455		-0.045	
60542	U-toe-s	2134094.44	6342750	293.69	293.466	293.63	0.06	See Note #6
60543	s950-cl	2134083.485	6342743.385	293.34	293.297		0.043	
60544	sU-toe in	2134093.2	6342758.25	293.33	293.367		-0.037	
60545	s950_toe-out	2134072.53	6342736.77	293.26	293.3		-0.04	
60546	s950_toe out	2134072.528	6342736.768	293.29	293.292		-0.002	
60547	s950_hinge out	2134071.743	6342736.056	294.29	294.239		0.051	
60548	s950_berm out	2134070.958	6342735.344	294.29	294.268		0.022	
60549	s2_berm out	2134070	6342736.297	294.26	294.189		0.071	
60550	s961_berm out	2134062.91	6342739.717	294.19	294.133		0.057	
60551	s961_hinge out	2134062.91	6342740.717	294.19	294.119		0.071	
60552	s961_toe out	2134062.91	6342741.717	293.19	293.289		-0.099	
60553	s961_toe_out	2134062.91	6342741.72	293.2	293.275		-0.075	
60554	s2-cl	2134070	6342748.335	293.26	293.235		0.025	
60555	s1014_berm out	2134012.4	6342739.717	293.94	293.886		0.054	
60556	s1014_hinge out	2134012.4	6342740.717	293.94	293.932		0.008	
60557	s1014_toe out	2134012.4	6342741.717	292.94	293.068	292.92	0.02	See Note #6
60558	s1014_toe in	2134012.4	6342759.22	292.94	292.949		-0.009	
60559	s1014-cl	2134012.4	6342750.47	292.94	292.96		-0.02	
60560	s1025_toe in	2134010.762	6342759.159	292.88	292.944		-0.064	
60561	s1038_toe-in	2134008.7	6342760.68	292.82	292.859		-0.039	
60562	s1025-cl	2134001.305	6342750.44	292.88	292.87		0.01	
60563	s1038-cl	2134000.26	6342760.68	292.82	292.735		0.085	
60564	s1038_toe out	2133991.815	6342760.68	292.81	292.731		0.079	
60565	s1038_hinge out	2133990.815	6342760.68	293.81	293.766		0.044	
60566	s1038_berm out	2133989.815	6342760.68	293.81	293.807		0.003	
60567	U-ssw-toe-s	2133991.84	6342750	292.87	292.806		0.064	
60568	U-ssw-hinge-s	2133990.84	6342750	293.87	293.798		0.072	
60569	U-berm-s	2133989.84	6342750	293.87	293.783		0.087	
60570	s1025_berm out	2133989.854	6342739.724	293.88	293.839		0.041	
60571	s1025_hinge out	2133990.847	6342740.717	293.88	293.885		-0.005	
60572	s1025_toe out	2133991.85	6342741.717	292.88	292.869		0.011	
60573	V-toe-in	2134003.23	6342800	292.61	292.569		0.041	
60574	V-ssw-toe-s	2133991.73	6342800	292.61	292.562		0.048	
60575	V-ssw-hinge-s	2133990.73	6342800	293.61	293.526		0.084	
60576	V-berm-s	2133989.72	6342800	293.61	293.487	293.62	-0.01	See Note #6
60577	sV-cl	2133997.48	6342800	292.61	292.561		0.049	
60586	O-toe-n	2134237.81	6342450	296.18	296.093		0.087	

TABLE 6-4
PURITY OIL SALES SUPERFUND SITE
SUMMARY OF 3rd PARTY SURVEY DATA FOR TOPSOIL

Point Number	Location	Northing	Easting	Design/Existing Elevation	Surveyed Subgrade	Re-Surveyed Elevation	Difference	Notes
60587	O-nsw-hinge-s	2134247.7	6342450	294.73	294.712		0.018	
60588	O-nsw-toe-s	2134248.7	6342450	293.73	293.718		0.012	
60589	nO-cl	2134250.7	6342450	293.73	293.701		0.029	
60590	O-nsw-toe-n	2134252.7	6342450	293.73	293.698		0.032	
60591	O-nsw-hinge-n	2134253.7	6342450	294.73	294.685		0.045	
60592	O-berm-n	2134254.7	6342450	294.73	294.713		0.017	
60593	N-berm-n	2134254.9	6342400	294.5	294.392		0.108	See Note #11
60594	N-nsw-hinge-n	2134253.9	6342400	294.5	294.444		0.056	
60595	N-nsw-toe-n	2134252.9	6342400	293.5	293.489		0.011	
60596	nN-cl	2134250.9	6342400	293.5	293.484		0.016	
60597	N-nsw-toe-s	2134248.9	6342400	293.5	293.467		0.033	
60598	N-nsw-hinge-s	2134247.9	6342400	294.5	294.529		-0.029	
60599	N-toe-n	2134238.03	6342400	296.06	296.005		0.055	
60600	M-toe-n	2134238.72	6342350	295.76	295.744		0.016	
60601	M-nsw-hinge-s	2134248.6	6342350	294.25	294.223		0.027	
60602	M-nsw-toe-s	2134249.6	6342350	293.25	293.212		0.038	
60603	nM-cl	2134251.6	6342350	293.25	293.088		0.162	See Note #13
60604	M-nsw-toe-n	2134253.6	6342350	293.25	293.154		0.096	
60605	M-nsw-hinge-n	2134254.6	6342350	294.25	294.069		0.181	See Note #8
60606	M-berm-n	2134255.6	6342350	294.25	294.098		0.152	See Note #11
60609	L-berm-n	2134256.1	6342300	293.98	293.91		0.07	
60610	L-nsw-hinge-n	2134255.1	6342300	293.98	293.957		0.023	
60611	L-nsw-toe-n	2134254.1	6342300	292.98	292.938		0.042	
60612	nL-cl	2134252.1	6342300	292.98	292.899		0.081	
60613	L-nsw-toe-s	2134250.1	6342300	292.98	292.934		0.046	
60614	L-nsw-hinge-s	2134249.1	6342300	293.98	294.005		-0.025	
60615	L-toe-n	2134239.23	6342300	295.57	295.442		0.128	See Note #10
60616	K-toe-n	2134239.74	6342250	295.36	295.247		0.113	See Note #10
60617	K-nsw-hinge-s	2134249.6	6342250	293.73	293.723		0.007	
60618	K-nsw-toe-s	2134250.6	6342250	292.73	292.632		0.098	
60619	nK-cl	2134252.6	6342250	292.73	292.626		0.104	
60620	K-nsw-toe-n	2134254.6	6342250	292.73	292.592		0.138	See Note #9
60621	K-nsw-hinge-n	2134255.6	6342250	293.73	293.585		0.145	See Note #8
60622	K-berm-n	2134256.6	6342250	293.73	293.585		0.145	See Note #11
60623	J-berm-n	2134257.08	6342200	293.48	293.421		0.059	
60624	J-nsw-hinge-n	2134256.08	6342200	293.48	293.51		-0.03	
60625	J-nsw-toe-n	2134255.08	6342200	292.48	292.429		0.051	
60626	nJ-cl	2134253.08	6342200	292.48	292.428		0.052	
60627	J-nsw-toe-s	2134251.08	6342200	292.48	292.428		0.052	
60628	J-nsw-hinge-s	2134250.08	6342200	293.48	293.365		0.115	See Note #9
60629	J-toe-n	2134240.22	6342200	295.14	295.134		0.006	
60630	I-toe-n	2134240.65	6342150	294.98	294.929		0.051	
60631	I-nsw-hinge-s	2134250.5	6342150	293.23	293.219		0.011	
60632	I-nsw-toe-s	2134251.5	6342150	292.23	292.276		-0.046	
60633	nI-cl	2134253.49	6342150	292.23	292.222		0.008	
60634	I-nsw-toe-n	2134255.48	6342150	292.23	292.261		-0.031	
60635	I-nsw-hinge-n	2134256.48	6342150	293.23	293.143		0.087	
60636	I-berm-n	2134257.48	6342150	293.23	293.164		0.066	
60637	H-berm-n	2134257.94	6342100	292.98	292.932		0.048	
60638	H-nsw-hinge-n	2134256.94	6342100	292.98	293.001		-0.021	
60639	H-nsw-toe-n	2134255.94	6342100	291.98	291.95		0.03	
60640	nH-cl	2134253.94	6342100	291.98	291.995		-0.015	
60641	H-nsw-toe-s	2134251.94	6342100	291.98	292.035		-0.055	
60642	H-nsw-hinge-s	2134250.95	6342100	292.97	292.958		0.012	
60643	H-toe-n	2134241.11	6342100	294.78	294.723		0.057	
60644	G-nsw-hinge-s	2134251.91	6342050	292.73	292.764		-0.034	
60645	G-nsw-toe-s	2134252.9	6342050	291.73	291.726		0.004	
60646	nG-cl	2134254.9	6342050	291.73	291.604		0.126	See Note #12
60647	G-nsw-toe-n	2134256.9	6342050	291.73	291.711		0.019	
60648	G-nsw-hinge-n	2134257.9	6342050	292.73	292.735		-0.005	
60649	G-berm-n	2134258.9	6342050	292.73	292.679		0.051	
60650	F-berm-n	2134259.5	6342000	292.48	292.339		0.141	See Note #11
60651	F-nsw-hinge-n	2134258.5	6342000	292.48	292.386		0.094	
60652	F-nsw-toe-n	2134257.51	6342000	291.48	291.466		0.014	
60653	nF-cl	2134255.51	6342000	291.48	291.506		-0.026	
60654	F-nsw-toe-s	2134253.5	6342000	291.48	291.563		-0.083	
60655	F-nsw-hinge-s	2134252.51	6342000	292.47	292.506		-0.036	
60656	F-toe-n	2134242.65	6342000	294.17	294.12		0.05	
60657	E-toe-n	2134243.51	6341950	294.07	294.119		-0.049	
60658	E-nsw-hinge-s	2134253.34	6341950	292.22	292.235		-0.015	
60659	E-nsw-toe-s	2134254.33	6341950	291.23	291.256		-0.026	
60660	nE-cl	2134256.34	6341950	291.23	291.151		0.079	
60661	E-nsw-toe-n	2134258.34	6341950	291.23	291.236		-0.006	
60662	E-nsw-hinge-n	2134259.34	6341950	292.23	292.18		0.05	
60663	E-berm-n	2134260.47	6341950	292.23	292.223		0.007	
60664	D-berm-n	2134261.72	6341900	291.98	291.809		0.171	See Note #11
60665	D-nsw-hinge-n	2134260.72	6341900	291.98	291.854		0.126	See Note #9
60666	D-nsw-toe-n	2134259.72	6341900	290.98	290.862		0.118	See Note #9
60667	nD-cl	2134257.72	6341900	290.98	290.887		0.093	
60668	D-nsw-toe-s	2134255.72	6341900	290.98	290.972		0.008	
60669	D-nsw-hinge-s	2134254.72	6341900	291.98	292.038		-0.058	
60670	D-toe-n	2134244.82	6341900	293.51	293.387		0.123	See Note #9
60671	C25-toe-n	2134245.63	6341875	293.18	292.89		0.29	See Note #10
60672	C25-hinge-in	2134255.55	6341875	291.85	291.839		0.011	
60673	C25-toe-in	2134256.54	6341875	290.85	290.801		0.049	
60674	nC25-cl	2134258.54	6341875	290.85	290.785		0.065	
60675	C25-toe-out	2134260.54	6341875	290.85	290.787		0.063	

TABLE 6-4
PURITY OIL SALES SUPERFUND SITE
SUMMARY OF 3rd PARTY SURVEY DATA FOR TOPSOIL

Point Number	Location	Northing	Easting	Design/Existing Elevation	Surveyed Subgrade	Re-Surveyed Elevation	Difference	Notes
60676	C25-hinge-out	2134261.54	6341875	291.85	291.745		0.105	See Note #9
60677	C25-berm-n	2134262.68	6341875	291.85	291.822		0.028	
60678	C-berm-n	2134261.27	6341850	291.73	291.68		0.05	
60679	C-hinge-out	2134260.05	6341850	291.73	291.644		0.086	
60680	C-toe-n-out	2134259.05	6341850	290.73	290.711		0.019	
60681	nC-cl	2134257.05	6341850	290.73	290.733		-0.003	
60682	C-toe-n-in	2134255.05	6341850	290.73	290.727		0.003	
60683	C-hinge-in	2134254.05	6341850	291.72	291.759		-0.039	
60684	C-toe-n	2134244.17	6341850	293.23	293.3		-0.07	
60685	B25-nsw-toe-s	2134251.33	6341825	290.6	290.589		0.011	
60686	nB25-cl	2134253.33	6341825	290.6	290.558		0.042	
60687	B25-nsw-toe-n	2134255.32	6341825	290.6	290.636		-0.036	
60688	B25-nsw-hinge-n	2134256.32	6341825	291.6	291.225		0.375	See Note #8
60689	B25-berm-n	2134259.13	6341825	291.6	291.649		-0.049	
60711	995_berm	2134255.66	6342693.69	295.97	295.913	295.99	0.057	
60712	P-berm-n	2134254.1	6342500	294.98	294.971	295.01	0.009	
60712	995_berm_hinge	2134255.07	6342694.43	295.97	295.899	295.97	0.071	
60713	P-nsw-hinge-n	2134253.1	6342500	294.98	294.974	295.05	0.006	
60713	995_berm_toe	2134254.37	6342695.25	294.97	294.969	295	0.001	
60714	P-nsw-toe-n	2134252.1	6342500	293.98	293.96	294.1	0.02	
60714	n995-cl	2134253.09	6342696.83	294.97	294.888	294.97	0.082	
60715	995_approx_toe	2134251.81	6342698.41	294.97	294.936	295.01	0.034	
60715	nP-cl	2134250.1	6342500	293.98	293.953	294.1	0.027	
60716	P-nsw-toe-s	2134248.1	6342500	293.98	293.966	294.06	0.014	
60716	995-hinge-out	2134251.178	6342699.185	295.97	295.921	295.92	0.049	
60717	P-nsw-hinge-s	2134247.1	6342500	294.98	295.031	295.11	0.051	
60717	1002_berm	2134259.21	6342694.32	296	295.969	296.05	0.031	
60718	Q-berm-n	2134253.7	6342550	295.22	295.127	NS	0.093	
60718	1002_berm_hinge	2134259.21	6342695.32	296	295.928	295.93	0.072	
60719	Q-nsw-hinge-n	2134252.7	6342550	295.22	295.128	NS	0.092	
60719	1002_toe-out	2134259.21	6342696.32	295	294.966	295.03	0.034	
60720	Q-nsw-toe-n	2134251.7	6342550	294.22	294.167	NS	0.053	
60720	n1002-cl	2134259.21	6342697.66	295	294.909	294.98	0.091	
60721	1002_toe-in	2134259.21	6342699	295	294.973	295.05	0.027	
60722	1002-toe	2134259.21	6342702.4	296.44	296.376	296.44	0.064	
60723	6-w-berm-out	2134270	6342694.34	295.93	295.893	295.97	0.037	
60723	nQ-cl	2134249.7	6342550	294.22	294.197	294.26	0.023	
60724	Q-nsw-toe-s	2134247.7	6342550	294.22	294.182	294.21	0.038	
60724	6-w-hinge-out	2134270	6342695.34	295.93	295.957	295.94	0.027	
60725	Q-nsw-hinge-s	2134246.7	6342550	295.22	295.184	295.18	0.036	
60725	6-w-toe-out	2134270	6342696.34	294.93	294.899	294.92	0.031	
60726	R-berm-n	2134253.2	6342600	295.5	295.457	295.52	0.043	
60726	n6w-cl	2134270	6342697.665	294.93	294.873	294.95	0.057	
60727	R-nsw-hinge-n	2134252.2	6342600	295.5	295.465	295.41	0.035	
60727	6-w-toe-in	2134270	6342698.99	294.93	294.959	295	0.029	
60728	R-nsw-toe-n	2134251.2	6342600	294.5	294.513	294.51	0.013	
60728	6w-nsw-hinge-in	2134270	6342699.99	295.93	295.415	295.5	0.515	See Note #14
60729	nsw-1050-berm-out	2134307.61	6342694.68	295.75	295.75	295.82	0	
60729	nR-cl	2134249.2	6342600	294.5	294.462	294.52	0.038	
60730	R-nsw-toe-s	2134247.2	6342600	294.5	294.486	NS	0.014	
60730	nsw-1050-hinge-out	2134307.61	6342695.68	295.75	295.726	295.79	0.024	
60731	R-nsw-hinge-s	2134246.2	6342600	295.5	295.442	NS	0.058	
60731	nsw-1050-toe-out	2134307.61	6342696.68	294.75	294.681	294.76	0.069	
60732	S-berm-n	2134252.7	6342650	295.73	295.701	295.76	0.029	
60732	n1050-cl	2134307.606	6342698.676	294.75	294.682	294.76	0.068	
60733	S-nsw-hinge-n	2134251.7	6342650	295.73	295.705	295.71	0.025	
60733	nsw-1050-toe-in	2134307.61	6342700.68	294.75	294.679	294.76	0.071	
60734	S-nsw-toe-n	2134250.7	6342650	294.73	294.748	294.75	0.018	
60734	nsw-1050-hinge-in	2134307.61	6342701.68	295.75	295.24	295.32	0.51	See Note #14
60735	nsw-1057-berm-out	2134316.87	6342695.57	295.71	295.68	295.74	0.03	
60735	nS-cl	2134248.7	6342650	294.73	294.732	294.79	0.002	
60736	S-nsw-toe-s	2134246.7	6342650	294.73	294.688	294.73	0.042	
60736	nsw-1057-hinge-out	2134316.39	6342696.52	295.71	295.702	295.73	0.008	
60737	S-nsw-hinge-s	2134245.7	6342650	295.73	295.724	295.78	0.006	
60737	nsw-1057-toe-out	2134315.92	6342697.46	294.71	294.657	294.69	0.053	
60738	nsw977-berm-out	2134252.62	6342680.7	295.88	295.866	295.93	0.014	
60738	n1057-cl	2134314.96	6342699.345	294.71	294.556	294.63	0.154	See Note #17
60739	nsw977-hinge-out	2134251.84	6342680.7	295.88	295.854	295.81	0.026	
60739	nsw-1057-toe-in	2134314	6342701.23	294.71	294.683	294.74	0.027	
60740	nsw977-toe-out	2134250.84	6342680.7	294.88	294.856	294.92	0.024	
60740	nsw-1059-berm-out	2134319.89	6342698.82	295.7	295.59	295.66	0.11	See Note #9
60741	nsw-1059-hinge-out	2134318.98	6342699.31	295.7	295.603	295.66	0.097	
60741	n977-cl	2134248.705	6342680.7	294.88	294.891	294.95	0.011	
60742	nsw977-toe-in	2134246.57	6342680.7	294.88	294.909	294.96	0.029	
60742	nsw-1059-toe-out	2134318.08	6342699.79	294.7	294.622	294.68	0.078	
60743	nsw977-hinge-in	2134245.56	6342680.7	295.88	295.857	295.87	0.023	
60743	n1059-cl	2134316.241	6342700.773	294.7	294.572	294.65	0.128	See Note #17
60744	nsw977-toe	2134238.18	6342680.7	296.2	296.294	296.29	0.094	
60744	nsw-1059-toe-in	2134314.41	6342701.77	294.7	294.657	294.77	0.043	
60745	986_berm	2134252.62	6342689.68	295.93	295.941	295.98	0.011	
60745	nsw-1066-berm-out	2134322.59	6342707.24	295.67	295.582	295.64	0.088	
60746	986_berm_hinge	2134251.84	6342689.68	295.93	295.913	295.96	0.017	
60746	nsw-1066-hinge-out	2134321.58	6342707.24	295.67	295.599	295.68	0.071	
60747	986_berm_toe	2134250.84	6342689.68	294.93	294.92	294.97	0.01	
60747	nsw-1066-toe-out	2134320.59	6342707.24	294.67	294.654	294.68	0.016	
60748	n986-cl	2134248.705	6342689.68	294.93	294.952	295.03	0.022	
60748	n1066-cl	2134318.59	6342707.24	294.67	294.626	294.71	0.044	

TABLE 6-4
PURITY OIL SALES SUPERFUND SITE
SUMMARY OF 3rd PARTY SURVEY DATA FOR TOPSOIL

Point Number	Location	Northing	Easting	Design/Existing Elevation	Surveyed Subgrade	Re-Surveyed Elevation	Difference	Notes
60749	986_berm_toe	2134246.57	6342689.68	294.93	294.949	295.01	0.019	
60749	nsw-1066-toe-in	2134316.59	6342707.24	294.67	294.615	294.68	0.055	
60750	U-berm-n	2134322.54	6342750	295.45	295.433	295.51	0.017	
60750	986_berm_hinge	2134245.56	6342689.68	295.93	295.952	NS	0.022	
60751	U-nsw-hinge-n	2134321.6	6342750	295.45	295.407	295.47	0.043	
60751	986_toe	2134238.18	6342689.68	296.2	296.274	296.46	0.074	
60752	U-nsw-toe-n	2134320.6	6342750	294.45	294.416	294.49	0.034	
60753	nU-cl	2134318.595	6342750	294.45	294.372	294.45	0.078	
60754	U-nsw-toe-s	2134316.59	6342750	294.45	294.439	294.49	0.011	
60755	U-nsw-hinge-s	2134315.59	6342750	295.45	294.984	295.04	0.466	See Note #14
60756	V-berm-n-out	2134323.01	6342800	295.2	295.056	295.11	0.144	See Note #9
60757	V-hinge-n-out	2134322.01	6342800	295.2	295.079	295.16	0.121	See Note #9
60758	V-toe-n-out	2134321.01	6342800	294.2	294.19	294.24	0.01	
60759	nV-cl	2134319.47	6342800	294.2	294.156	294.23	0.044	
60760	V-toe-n-in	2134317.93	6342800	294.2	294.149	294.22	0.051	
60761	1200_berm	2134323.23	6342841.32	295	294.966	294.9	0.034	
60762	1200_berm-hinge	2134322.23	6342841.32	295	294.962	295.04	0.038	
60763	1200_n-swale-toe	2134321.23	6342841.32	294	293.936	294.02	0.064	
60764	n1200-cl	2134319.49	6342841.32	294	294.002	294.08	0.002	
60765	1200_Toe	2134318.25	6342841.32	294	294.02	294.07	0.02	
60766	1200-hinge-in	2134317.25	6342841.316	295	294.428	294.46	0.572	See Note #14
60767	1204_Toe	2134318.25	6342844.92	293.73	294.035	NS	0.305	See Note #16
60768	n1209-cl	2134319.065	6342851.28	293.96	293.932	294.02	0.028	
60769	1218_berm	2134319.2	6342858.9	294.91	294.792	294.88	0.118	See Note #9
60770	1218_berm-hinge	2134318.43	6342858.24	294.91	294.833	294.89	0.077	
60771	1218_n-swale-toe	2134317.67	6342857.58	293.91	293.867	293.96	0.043	
60773	n1218-cl	2134316.2	6342856.305	293.91	293.746	293.83	0.164	See Note #17
60774	1218_Toe	2134314.73	6342855.03	293.91	293.857	293.93	0.053	
60775	1218_hinge-in	2134313.947	6342854.24	294.905	294.791	294.83	0.114	See Note #9
60776	1220_berm	2134309.28	6342862.33	294.9	294.735	294.77	0.165	See Note #9
60777	1220_berm-hinge	2134309.28	6342861.33	294.9	294.822	294.89	0.078	
60778	1220_n-swale-toe	2134309.28	6342860.33	293.9	293.855	293.93	0.045	
60779	n1220-cl	2134309.28	6342858.19	293.9	293.778	293.86	0.122	See Note #17
60780	1220_s-swale-toe	2134309.28	6342856.05	293.9	293.776	293.82	0.124	See Note #9
60781	1220_Toe	2134309.28	6342854.95	294.9	294.81	294.85	0.09	
60782	6-berm-s	2134270	6342862.16	294.7	294.627	294.66	0.073	
60783	6-ssw-hinge-s	2134270	6342861.16	294.7	294.592	294.62	0.108	See Note #9
60784	6-e-sw-toe-out	2134270	6342860.16	293.7	293.75	293.77	0.05	
60785	n6e-cl	2134270	6342858.16	293.7	293.676	293.71	0.024	
60786	6-e-sw-toe-in	2134270	6342856.16	293.7	293.661	293.69	0.039	
60787	6-e-swale-hinge-	2134270	6342855.39	294.7	294.777	294.8	0.077	
60788	6-toe-e	2134270	6342852.15	295.33	295.322	295.32	0.008	
60789	6-ms-e	2134270	6342834.6	301.17	301.178	301.2	0.008	
60790	5+30-ms-E	2134248	6342839.01	299.7	299.627	299.62	0.073	
60791	5+30-toe-E	2134248	6342855.71	294.59	294.583	294.61	0.007	
60792	5+30-Esw-hinge-w	2134248	6342856.16	293.59	293.603	293.63	0.013	
60793	n5+30e-cl	2134248	6342858.16	293.59	293.571	293.59	0.019	
60794	5+30-Esw-toe-w	2134248	6342860.16	293.59	293.605	293.6	0.015	
60795	5+30-Esw-hinge-E	2134248	6342861.16	294.59	294.557	294.58	0.033	
60796	5+30-Esw-berm-E	2134248	6342862.16	294.59	294.53	294.56	0.06	
60797	5-e-berm-out	2134220	6342862.19	294.45	294.397	294.41	0.053	
60798	5-e-hinge-out	2134220	6342861.19	294.45	294.411	294.4	0.039	
60799	5-e-toe-out	2134220	6342860.19	293.45	293.497	293.49	0.047	
60800	n5e-cl	2134220	6342858.19	293.45	293.487	293.5	0.037	
60801	5-e-toe-in	2134220	6342856.19	293.45	293.472	293.48	0.022	
60802	5-e-hinge-in	2134220	6342855.19	294.45	294.455	294.45	0.005	
60803	5-e-toe	2134220	6342849.9	295.67	295.642	295.62	0.028	
60804	5-ms-e	2134220	6342834.94	300.6	300.574	300.58	0.026	
60805	nsw1316-berm-out	2134214	6342862.04	294.42	294.42	294.44	0	
60806	nsw1316-hinge-ou	2134214	6342861.25	294.42	294.419	294.43	0.001	
60807	nsw1316-toe-out	2134214	6342860.24	293.42	293.431	293.44	0.011	
60808	n1315-cl	2134214	6342858.1	293.42	293.488	293.51	0.068	
60809	nsw1316-toe-in	2134214	6342855.96	293.42	293.473	293.49	0.053	
60810	nsw1316-toe	2134214	6342854.85	294.53	294.511	294.53	0.019	
60811	nsw-1324-berm-out	2134208.685	6342863.916	294.38	294.361	294.36	0.019	
60812	nsw-1324-hinge-out	2134208	6342863.3	294.38	294.413	294.43	0.033	
60813	nsw-1324-toe-out	2134207.27	6342862.62	293.38	293.381	293.39	0.001	
60814	n1324-cl	2134205.785	6342861.278	293.38	293.409	293.43	0.029	
60815	nsw-1324-toe-in	2134204.34	6342859.89	293.38	293.423	293.42	0.043	
60816	nsw-1324-toe	2134203.61	6342859.21	294.38	294.407	294.42	0.027	
60817	toe	2134193.12	6342849.25	295.7	295.738	295.73	0.038	
60818	ms-1	2134193.56	6342837.6	299.37	299.38	299.38	0.01	
60819	nsw-1335-berm-out	2134208.349	6342870.4	294.32	294.257	294.29	0.063	
60820	nsw-1335-hinge-out	2134207.21	6342870.48	294.32	294.303	294.3	0.017	
60821	nsw-1335-toe-out	2134206.21	6342870.48	293.32	293.322	293.33	0.002	
60822	n1335-cl	2134204.21	6342870.48	293.32	293.324	293.35	0.004	
60823	nsw-1335-toe-in	2134202.21	6342870.48	293.32	293.338	293.36	0.018	
60824	nsw-1335-toe	2134201.21	6342870.48	294.32	294.327	294.35	0.007	
60825	spot	2134185.59	6342866.48	295.7	295.746	295.74	0.046	
60826	spot-ms	2134176.058	6342837.079	300.134	300.133	300.14	0.001	
60827	ms-8	2134171.18	6342851.52	299.95	299.856	299.85	0.094	
60828	ms-6	2134163.17	6342862.47	299.95	299.868	299.87	0.082	
60829	ms-7	2134159.92	6342849.82	301.84	301.807	301.83	0.033	
60830	spot-hinge	2134155.83	6342822.65	305.39	305.372	305.37	0.018	
60831	3+25-e-toe	2134145	6342887.19	296.73	296.847	296.81	0.117	See Note #9
60832	3+25-e-trans	2134145	6342899.41	295.71	295.085	NS	0.625	See Note #15
60833	spot10	2134152.78	6342927.02	294.7	294.582	294.68	0.118	See Note #9

TABLE 6-4
PURITY OIL SALES SUPERFUND SITE
SUMMARY OF 3rd PARTY SURVEY DATA FOR TOPSOIL

Point Number	Location	Northing	Easting	Design/Existing Elevation	Surveyed Subgrade	Re-Surveyed Elevation	Difference	Notes
60834	spot11	2134172.57	6342927.02	294.7	294.706	294.75	0.006	
60835	x-4	2134169.97	6342900	295.51	295.43	295.47	0.08	
60836	toe	2134165.96	6342887.05	296.73	296.628	296.66	0.102	
60837	spot	2134178.13	6342883.53	295.7	295.671	295.72	0.029	
60838	nsw-1396-berm-out	2134207.2	6342932.56	294.01	294.004	294.04	0.006	
60839	nsw-1396-hinge-out	2134206.2	6342932.56	294.01	293.964	293.99	0.046	
60840	nsw-1396-toe-out	2134205.2	6342932.56	293.01	292.982	293.03	0.028	
60841	n1396-cl	2134203.2	6342932.56	293.02	292.973	293.01	0.047	
60842	nsw-1396-toe-in	2134201.2	6342932.56	293.01	292.966	292.98	0.044	
60843	nsw-1396-hinge-in	2134200.2	6342932.56	294.01	293.983	294.02	0.027	
60844	nsw-1403-berm-out	2134203.82	6342941.09	293.98	293.955	293.97	0.025	
60845	nsw-1403-hinge-out	2134203.07	6342940.43	293.98	293.966	293.99	0.014	
60846	nsw-1403-toe-out	2134202.32	6342939.77	292.98	293.049	293.06	0.069	
60847	n1403-cl	2134200.82	6342938.445	292.98	293.005	293.03	0.025	
60848	nsw-1403-toe-in	2134199.32	6342937.12	292.98	292.966	292.99	0.014	
60849	nsw-1403-hinge-in	2134198.57	6342936.46	293.98	293.936	293.97	0.044	
60850	nsw-1410-berm-out	2134195	6342945.762	293.95	293.925	293.94	0.025	
60851	nsw-1410-hinge-out	2134195	6342944.87	293.95	293.946	293.98	0.004	
60852	nsw-1410-toe-out	2134195	6342943.96	292.95	293.006	293.03	0.056	
60853	n1410-cl	2134195	6342941.72	292.95	292.975	293	0.025	
60854	nsw-1410-toe-in	2134195	6342939.48	292.95	292.904	292.93	0.046	
60855	nsw-1410-hinge-in	2134195	6342938.56	293.95	293.883	293.91	0.067	
60856	nsw-1417-berm-out	2134189.634	6342946.631	293.91	293.878	293.89	0.032	
60857	nsw-1417-hinge-out	2134188.74	6342945.99	293.91	293.883	293.91	0.027	
60858	nsw-1417-toe-out	2134187.98	6342945.36	292.91	292.861	292.89	0.049	
60859	n1417-cl	2134186.325	6342943.995	292.91	292.87	292.9	0.04	
60860	nsw-1417-toe-in	2134184.67	6342942.63	292.91	292.881	292.94	0.029	
60861	nsw-1417-hinge-in	2134183.91	6342942	293.91	293.888	293.9	0.022	
60862	nsw-Y-berm-out	2134188.516	6342950.297	293.88	293.843	293.88	0.037	
60863	nsw-Y-hinge-out	2134187.5	6342950.32	293.88	293.846	293.88	0.034	
60864	nsw-Y-toe-out	2134186.5	6342950.32	292.88	292.794	292.86	0.086	
60865	nY-cl	2134184.36	6342950.32	292.88	292.835	292.88	0.045	
60866	nsw-Y-toe-in	2134182.22	6342950.32	292.88	292.861	292.88	0.019	
60867	nsw-Y-hinge-in	2134181.22	6342950.32	293.88	293.763	293.82	0.117	See Note #9
60868	nsw-1438-berm-out	2134188.24	6342962.7	293.81	293.7	293.74	0.11	See Note #9
60869	nsw-1438-hinge-out	2134187.5	6342962.7	293.81	293.727	293.77	0.083	
60870	nsw-1438-toe-out	2134186.5	6342962.7	292.81	292.737	292.76	0.073	
60871	n1438-cl	2134184.36	6342962.7	292.81	292.726	292.75	0.084	
60872	nsw-1438-toe-in	2134182.22	6342962.7	292.81	292.723	292.77	0.087	
60873	nsw-1438-hinge-in	2134181.22	6342962.7	293.81	293.743	293.77	0.067	
60874	nsw-1444-berm-out	2134184.36	6342970.94	293.78	293.719	NS	0.061	
60875	nsw-1444-hinge-out	2134183.76	6342970.33	293.78	293.72	293.63	0.06	
60876	nsw-1444-toe-out	2134183.06	6342969.62	292.78	292.723	292.68	0.057	
60877	n1444-cl	2134181.553	6342968.093	292.78	292.709	292.75	0.071	
60878	nsw-1444-toe-in	2134180.05	6342966.57	292.78	292.719	292.72	0.061	
60879	nsw-1444-hinge-in	2134179.35	6342965.86	293.78	293.788	293.79	0.008	
60880	nsw-1450-berm-out	2134179.12	6342974.74	293.75	293.713	293.75	0.037	
60881	nsw-1450-hinge-out	2134179.12	6342973.87	293.75	293.679	293.67	0.071	
60882	nsw-1450-toe-out	2134179.12	6342972.87	292.75	292.704	292.69	0.046	
60883	n1450-cl	2134179.12	6342969.207	292.75	292.738	292.77	0.012	
60884	nsw-1450-toe-in	2134179.12	6342968.6	292.75	292.708	292.73	0.042	
60885	nsw-1450-hinge-in	2134179.12	6342966.072	293.75	293.787	293.82	0.037	
60886	nsw-Grid3-berm-out	2134120	6342974.72	293.47	293.474	NS	0.004	
60887	nsw-Grid3-hinge-	2134120	6342973.87	293.47	293.494	293.48	0.024	
60888	nsw-Grid3-toe-out	2134120	6342972.87	292.47	292.385	292.39	0.085	
60889	n3e-cl	2134120	6342970.735	292.47	292.32	292.38	0.15	See Note #17
60890	nsw-Grid3-toe-in	2134120	6342968.6	292.47	292.384	292.41	0.086	
60891	nsw-Grid3-hinge-in	2134120	6342967.6	293.47	293.389	293.42	0.081	
60892	nsw-1546-toe-out	2134081.24	6342972.86	292	291.932	291.94	0.068	
60893	n1546-cl	2134081.24	6342970.735	292	291.943	291.95	0.057	
60894	nsw-1546-toe-in	2134081.24	6342968.61	292	291.923	291.99	0.077	
60895	spot4	2134025.46	6342873.14	294.7	294.634	294.81	0.066	
60896	spot23	2134031.28	6342866.93	295.7	295.697	295.74	0.003	
60897	ms-2	2134031.35	6342844.27	297.8	297.794	297.82	0.006	
60898	spot22	2134022.91	6342848.19	295.7	295.648	295.71	0.052	
60899	spot-ms	2134029.04	6342822.82	299.95	299.972	299.99	0.022	
60900	ms-1	2134041.21	6342834.11	301.63	301.616	301.63	0.014	
60901	ms-3	2134042.29	6342859.79	297.18	297.168	297.22	0.012	
60902	spot24	2134052.74	6342875.32	295.7	295.704	295.73	0.004	
60903	spot5	2134070	6342888.21	294.7	294.746	294.75	0.046	
60904	spot25	2134074.55	6342883.86	295.7	295.706	295.71	0.006	
60905	2-ms-E	2134070	6342846.65	301.82	301.856	301.87	0.036	
60906	midslope20	2134084.57	6342861.5	300.46	300.469	300.48	0.009	
60907	Spot	2134099.52	6342887.1	296.74	296.65	296.65	0.09	
60908	spot6	2134098.74	6342905.76	294.7	294.749	294.77	0.049	
60909	spot7	2134104.76	6342915.27	294.7	294.659	294.69	0.041	
60910	spot8	2134112.99	6342923.86	294.7	294.609	294.67	0.091	
60911	x-trans4	2134115.32	6342899.3	295.7	295.665	295.7	0.035	
60912	spot-ms	2134117.41	6342869.03	300.15	300.175	300.17	0.025	
60913	toe	2134124.42	6342887.08	296.7	296.658	296.67	0.042	
60914	spot9	2134134.16	6342927.02	294.7	294.673	294.72	0.027	
60921	s1178_toe in	2134008.87	6342900	292	291.911	291.99	0.089	
60922	s1178_center	2134001.747	6342900	292	291.94	291.99	0.06	
60923	s1178_toe out	2133994.61	6342900	292	291.888	291.97	0.112	See Note #9
60924	s1167_hinge in	2134005.575	6342890.247	293.09	293.082	293.12	0.008	
60925	s1167_toe in	2134004.575	6342890.25	292.09	292.108	292.18	0.018	
60926	s1167_toe out	2133991.575	6342890.25	292.09	292.133	292.17	0.043	

TABLE 6-4
PURITY OIL SALES SUPERFUND SITE
SUMMARY OF 3rd PARTY SURVEY DATA FOR TOPSOIL

Point Number	Location	Northing	Easting	Design/Existing Elevation	Surveyed Subgrade	Re-Surveyed Elevation	Difference	Notes
60927	s1167_hinge out	2133990.575	6342890.25	293.09	293.042	293.13	0.048	
60928	s1167_berm out	2133989.575	6342890.25	293.09	293.007	293.06	0.083	
60929	sW-berm out	2133989.649	6342850	293.36	293.248	293.28	0.112	See Note #9
60930	sW-hinge out	2133990.649	6342850	293.36	293.316	293.36	0.044	
60931	sW-toe out	2133991.649	6342850	292.36	292.301	292.47	0.059	
60932	sW-toe in	2134004.649	6342850	292.36	292.342	292.52	0.018	
60933	sW-hinge in	2134005.649	6342850	293.36	293.436	293.44	0.076	
60934	sW-cl	2133998.15	6342850	292.36	292.318	292.37	0.042	
60935	s1167-cl	2133998.08	6342890.25	292.09	292.03	292.09	0.06	
60936	spot3	2134017.21	6342854.08	294.7	294.671	294.7	0.029	
60937	spot2	2134013.94	6342828.02	294.7	294.748	294.71	0.048	
60938	spot1	2134019.95	6342826.83	296.7	296.713	296.72	0.013	

NOTES:

1. This area was not constructed at time of initial survey. Point was re-surveyed after construction was completed
2. No further action was conducted at this location because correcting the descrepacy would've potentially created more variations in the surrounding area.
3. This design point was added to provide a "bump" to ensure that the minimum 2.1 feet of cover was provided based on interpolating between survey shots of the GCL/GDL. The as-built elevation provided a minimum of 1.91 feet of cover above the GCL/GDL, as was acceptable to Stantec and TetraTech.
4. This design point was added to provide a "bump" to ensure that the minimum 2.1 feet of cover was provided based on interpolating between survey shots of the GCL/GDL. The as-built elevation provided a minimum of 1.95 feet of cover above the GCL/GDL, as was acceptable to Stantec and TetraTech
5. This point was acceptable because it provided more than the minimum cover of 2.1 feet, and did impact site drainage.
6. This area was re-worked by RECON and re-surveyed by Stantec 5/1/08.
7. This point was acceptable because the elevation difference does not affect drainage from the west into the swale
8. This area was not repaired because the descrapancy was caused by a small depression at the actual stake which would have required an insignificant amount of soil to bring the topsoil elevation to the design elevation. The area does not affect drainage or swale flow and the surrounding areas are at the correct grade.
9. This area was not repaired because the repair would've been insignificant and the point does not affect the swale drainage or flow.
10. This area was not repaired because the point is located at the tow of slope on the north side, which is the transistion from the 3:1 to the 10:1 slopes into the swale. The descrapancy does not affect drainage into the swale. In addition, vegetation was growing in the area and would've been damaged by repairing the descrapancy.
11. This area was not repaired because the descrepancy was caused by a small depression at the stake which would've required an insignificant amount of soil to bring the topsoil elevation to the design elevation. The small depression is located on the north swale berm and does not affect drainage or swale flow.
12. Stantec installed grade stakes fifteen feet on either side of the point in the flow line and marked them with the appropriate elevation for proper flow. The entire swale flow line to grade was filled and Stantec resurveyed the point at an elevation of 291.7469
13. Stantec installed grade stakes fifteen feet on either side of the point in the flow line and marked them with the appropriate elevation for proper flow. The entire swale flow line to grade was filled and Stantec resurveyed the point at an elevation of 293.2672.
14. This point was no longer used because the 3:1 slope transitions directly into the swale and does not have a hinge point
15. The survey point is located in the new access road and the area was excavated approximately 6 inches prior to the 3rd party survey. The point was acceptable with no further action
16. This points was a temporary construction point used to construct the 3:1 slope prior to construction of the drainage features This point was no longer valid because the toe of the swale was at a higher elevation than the temporary point
17. This point was acceptable because the differences from the 0 10 foot tolerance could be attributed to deviations in the survey procedures (ie rod placement) The Stantec survey elevations were within the 0.1 foot tolerance, and Stantec believed that attempting to make a correction of less than 0.1 foot would potentially have created more damage to the swale and surrounding slopes.

LEGEND:

NA	Not Applicable	sehip	Hip of southeast slope
NS	Not Re-surveyed	sg	Subgrade
1, 2, etc.	Gridline 1	s-hinge	Hinge of south slope
6+15, etc	Gridline 6 +15 feet	ship	Hip of south slope
atn	Anchor trench north	stoe	Toe of south slope
ats	Anchor trench south	swhip	Hip of southwest slope
B, C, D, etc.	Gridline B, Gridline C, etc	swpond	Southwest infiltration pond
B+25, etc	Gridline B + 25 feet	top	Top
Bot	Bottom	w	West
crown	Crown of slope	spot	Spot elevation
e	East	n##	Station number - north swale
ehip	Hip of east slope	s##	Station number - south swale
fid	FID pipeline/easement location	berm-out	Outside edge of berm
ms-n	Middle of north slope	hinge-out	Outside hinge of swale
ms-s	Middle of south slope	toe-out	Outside toe of swale
n-hinge	Hinge of North slope	toe-in	Inside toe of swale
nhipe	Hip of north slope	hinge-in	Inside hinge of swale
ntoe	Toe of north slope	cl	centerline of swale
nwhip	Hip of northwest slope	ssw	South drainage swale
picorner	Corner of property line	nsw	North drainage swale
pln	Property line north	toe-s	South toe
pls	Property line suth	hinge-s	South hinge
se	Southeast	berm-s	South berm

TABLE 6-5
PURITY OIL SALES SUPERFUND SITE
RELATIVE PERCENT DIFFERENCE ANALYSIS FOR SOIL SAMPLING

Sample ID	Sample Date	Analyte	Result	Duplicate Result	Units	RPD
Purity Oil Perimeter Confirmation Samples						
PUR-EF-230-080907	8/9/07	Antimony	0.14	0.13	mg/kg	1.852
PUR-EF-230-080907	8/9/07	Arsenic	1.7	1.6	mg/kg	1.515
PUR-EF-230-080907	8/9/07	Barium	60	63	mg/kg	-1.220
PUR-EF-230-080907	8/9/07	Beryllium	0.22	0.19	mg/kg	3.659
PUR-EF-230-080907	8/9/07	CA Diesel Range Organics (C10-C28)	6.5	6.1	mg/kg	1.587
PUR-EF-230-080907	8/9/07	Cadmium	0.092	0.1	mg/kg	-2.083
PUR-EF-230-080907	8/9/07	Lead	5.6	6.1	mg/kg	-2.137
PUR-EF-230-080907	8/9/07	Mercury	0.01	0.0089	mg/kg	2.910
PUR-EF-230-080907	8/9/07	Methylene Chloride	0.00056	0.00071	mg/kg	-5.906
PUR-EF-230-080907	8/9/07	Selenium	0.76	0.71	mg/kg	1.701
PUR-EF-230-080907	8/9/07	Silver	0.035	0.031	mg/kg	3.030
PUR-EF-230-080907	8/9/07	Toluene	0.0002	0.00043	mg/kg	-18.254
PUR-EF-230-080907	8/9/07	Vanadium	34	33	mg/kg	0.746
PUR-EF-230-080907	8/9/07	Zinc	26	26	mg/kg	0.000
PUR-EFD-230-080907	8/9/07	Cyanide, Total	0.77	0.2	mg/kg	29.381
PUR-SW-33-022807	2/28/07	Acetone	0.031	0.031	mg/kg	0.000
PUR-SW-33-022807	2/28/07	Arsenic	3.2	3.6	mg/kg	-2.941
PUR-SW-33-022807	2/28/07	Barium	47.1	45.7	mg/kg	0.754
PUR-SW-33-022807	2/28/07	Beryllium	0.27	0.27	mg/kg	0.000
PUR-SW-33-022807	2/28/07	Lead	3	3	mg/kg	0.000
PUR-SW-33-022807	2/28/07	Vanadium	32.9	32.9	mg/kg	0.000
PUR-SW-33-022807	2/28/07	Zinc	27.3	27.3	mg/kg	0.000
PUR-SW-71-072407	7/24/07	Arsenic	0.62	1.2	mg/kg	-15.934
PUR-SW-71-072407	7/24/07	Barium	33	39	mg/kg	-4.167
PUR-SW-71-072407	7/24/07	Beryllium	0.092	0.12	mg/kg	-6.604
PUR-SW-71-072407	7/24/07	CA Diesel Range Organics (C10-C28)	14	14	mg/kg	0.000
PUR-SW-71-072407	7/24/07	CA Extended Range Organics (>C28-C40)	42	41	mg/kg	0.602
PUR-SW-71-072407	7/24/07	Cadmium	0.078	0.15	mg/kg	-15.789
PUR-SW-71-072407	7/24/07	Di-n-butyl phthalate	0.0014	0.0019	mg/kg	-7.576
PUR-SW-71-072407	7/24/07	Lead	32	40	mg/kg	-5.556
PUR-SW-71-072407	7/24/07	Methylene Chloride	0.00027	0.00031	mg/kg	-3.448
PUR-SW-71-072407	7/24/07	Toluene	0.00038	0.00037	mg/kg	0.667
PUR-SW-71-072407	7/24/07	Vanadium	24	27	mg/kg	-2.941
PUR-SW-71-072407	7/24/07	Zinc	22	26	mg/kg	-4.167
					Average	**-1.480**
Off-site Confirmation Samples						
BR-EF-09-062207	6/22/07	2,4,6-Tribromophenol	0.036	0.039	mg/kg	-2.000
BR-EF-09-062207	6/22/07	2-Fluorobiphenyl	0.035	0.035	mg/kg	0.000
BR-EF-09-062207	6/22/07	2-Fluorophenol	0.038	0.037	mg/kg	0.667
BR-EF-09-062207	6/22/07	4,4'-DDD	0.00054	0.0052	mg/kg	-40.592
BR-EF-09-062207	6/22/07	4,4'-DDE	0.00086	0.00062	mg/kg	8.108
BR-EF-09-062207	6/22/07	4,4'-DDT	0.0016	0.0013	mg/kg	5.172
BR-EF-09-062207	6/22/07	4-Bromofluorobenzene (Surr)	0.0079	0.0079	mg/kg	0.000
BR-EF-09-062207	6/22/07	alpha-BHC	0.00028	0.00024	mg/kg	3.846
BR-EF-09-062207	6/22/07	alpha-Chlordane	0.00045	0.00037	mg/kg	4.878
BR-EF-09-062207	6/22/07	Arsenic	2.1	2.1	mg/Kg	0.000
BR-EF-09-062207	6/22/07	Barium	55	57	mg/Kg	-0.893
BR-EF-09-062207	6/22/07	Benzo[a]anthracene	0.0035	0.0047	mg/kg	-7.317
BR-EF-09-062207	6/22/07	Benzo[a]pyrene	0.0033	0.0042	mg/kg	-6.000
BR-EF-09-062207	6/22/07	Benzo[b]fluoranthene	0.0064	0.0076	mg/kg	-4.286
BR-EF-09-062207	6/22/07	Benzo[g,h,i]perylene	0.0059	0.0087	mg/kg	-9.589
BR-EF-09-062207	6/22/07	Benzo[k]fluoranthene	0.0014	0.002	mg/kg	-8.824
BR-EF-09-062207	6/22/07	Beryllium	0.21	0.22	mg/Kg	-1.163
BR-EF-09-062207	6/22/07	CA Diesel Range Organics (C10-C28)	130	150	mg/Kg	-3.571
BR-EF-09-062207	6/22/07	CA Extended Range Organics (>C28-C40)	330	370	mg/Kg	-2.857
BR-EF-09-062207	6/22/07	Chrysene	0.011	0.012	mg/kg	-2.174
BR-EF-09-062207	6/22/07	DCB Decachlorobiphenyl	0.016	0.015	mg/kg	1.613
BR-EF-09-062207	6/22/07	DCB Decachlorobiphenyl	0.21	0.21	mg/Kg	0.000
BR-EF-09-062207	6/22/07	Dieldrin	0.00045	0.00036	mg/kg	5.556
BR-EF-09-062207	6/22/07	Di-n-butyl phthalate	0.0016	0.0019	mg/kg	-4.286
BR-EF-09-062207	6/22/07	Endosulfan II	0.00088	0.00055	mg/kg	11.538
BR-EF-09-062207	6/22/07	Endrin aldehyde	0.00042	0.00035	mg/kg	4.545
BR-EF-09-062207	6/22/07	Ethylbenzene-d10	0.0079	0.008	mg/kg	-0.314
BR-EF-09-062207	6/22/07	Fluoranthene	0.005	0.0053	mg/kg	-1.456
BR-EF-09-062207	6/22/07	Fluorobenzene (Surr)	0.0076	0.0075	mg/kg	0.331
BR-EF-09-062207	6/22/07	gamma-Chlordane	0.00055	0.0005	mg/kg	2.381
BR-EF-09-062207	6/22/07	Heptachlor epoxide	0.00013	0.004	mg/kg	-46.852
BR-EF-09-062207	6/22/07	Lead	38	50	mg/Kg	-6.818
BR-EF-09-062207	6/22/07	Methoxychlor	0.0019	0.0018	mg/kg	1.351
BR-EF-09-062207	6/22/07	Nitrobenzene-d5	0.035	0.035	mg/kg	0.000
BR-EF-09-062207	6/22/07	o-Terphenyl	20	21	mg/Kg	-1.220
BR-EF-09-062207	6/22/07	PCB-1260	0.028	0.046	mg/Kg	-12.162
BR-EF-09-062207	6/22/07	Phenanthrene	0.0029	0.0028	mg/kg	0.877
BR-EF-09-062207	6/22/07	Phenol-d5	0.041	0.042	mg/kg	-0.602
BR-EF-09-062207	6/22/07	Pyrene	0.0073	0.0082	mg/kg	-2.903
BR-EF-09-062207	6/22/07	Terphenyl-d14	0.034	0.034	mg/kg	0.000
BR-EF-09-062207	6/22/07	Tetrachloro-m-xylene	0.017	0.016	mg/kg	1.515
BR-EF-09-062207	6/22/07	Tetrachloro-m-xylene	0.23	0.22	mg/Kg	1.111

TABLE 6-5
PURITY OIL SALES SUPERFUND SITE
RELATIVE PERCENT DIFFERENCE ANALYSIS FOR SOIL SAMPLING

Sample ID	Sample Date	Analyte	Result	Duplicate Result	Units	RPD*
BR-EF-09-062207	6/22/07	Toluene-d8 (Surr)	0.0082	0.0081	mg/kg	0.307
BR-EF-09-062207	6/22/07	Trifluorotoluene (Surr)	0.017	0.016	mg/kg	1.515
BR-EF-09-062207	6/22/07	Vanadium	40	40	mg/Kg	0.000
BR-EF-09-062207	6/22/07	Zinc	35	37	mg/Kg	-1.389
BR-SW-10-022007	2/20/07	Aroclor 1260	0.17	0.17	mg/kg	0.000
BR-SW-10-022007	2/20/07	Arsenic	2.3	2.2	mg/kg	1.111
BR-SW-10-022007	2/20/07	Barium	46	40.9	mg/kg	2.934
BR-SW-10-022007	2/20/07	Beryllium	0.22	0.21	mg/kg	1.163
BR-SW-10-022007	2/20/07	Dieldrin	0.0073	0.008	mg/kg	-2.288
BR-SW-10-022007	2/20/07	Lead	4.3	3.9	mg/kg	2.439
BR-SW-10-022007	2/20/07	TPH quantitated as Motor Oil(C24-C36)	1500	1300	mg/kg	3.571
BR-SW-10-022007	2/20/07	Vanadium	28	26.1	mg/kg	1.756
BR-SW-10-022007	2/20/07	Zinc	25.4	25.3	mg/kg	0.099
BR-SW-18-030707	3/7/07	Acetone	0.059	0.048	mg/kg	5.140
BR-SW-18-030707	3/7/07	Arsenic	3.1	3.2	mg/kg	-0.794
BR-SW-18-030707	3/7/07	Barium	48.8	50.1	mg/kg	-0.657
BR-SW-18-030707	3/7/07	Beryllium	0.2	0.25	mg/kg	-5.556
BR-SW-18-030707	3/7/07	Bromoform	0.14	0.081	mg/kg	13.348
BR-SW-18-030707	3/7/07	Lead	2.8	2.9	mg/kg	-0.877
BR-SW-18-030707	3/7/07	TPH quantitated as Diesel (C10-C24)	1.9	1.4	mg/kg	7.576
BR-SW-18-030707	3/7/07	Vanadium	31.4	33.2	mg/kg	-1.393
BR-SW-18-030707	3/7/07	Zinc	54.8	57.5	mg/kg	-1.202
GSMF-EF-12-071607	7/16/07	Barium	43	44	mg/kg	-0.575
GSMF-EF-12-071607	7/16/07	Cadmium	0.53	0.45	mg/kg	4.082
GSMF-EF-12-071607	7/16/07	Lead	5.2	4.5	mg/kg	3.608
GSMF-EF-12-071607	7/16/07	Mercury	0.00023	0.00022	mg/kg	1.111
GSMF-EF-12-071607	7/16/07	Vanadium	33	32	mg/kg	0.769
GSMF-EF-12-071607	7/16/07	Zinc	46	51	mg/kg	-2.577
GSMF-EF-17-071607	7/16/07	Barium	44	45	mg/kg	-0.562
GSMF-EF-17-071607	7/16/07	Lead	4.6	4.5	mg/kg	0.549
GSMF-EF-17-071607	7/16/07	Vanadium	31	31	mg/kg	0.000
GSMF-EF-17-071607	7/16/07	Zinc	26	26	mg/kg	0.000
GSMF-EFD-17-07160	7/16/07	CA Diesel Range Organics (C10-C28)	27	25	mg/kg	1.923
GSMF-EFD-17-07160	7/16/07	CA Extended Range Organics (>C28-C40)	75	50	mg/kg	10.000
GSMF-SW-04-071207	7/12/07	Arsenic	1.3	1.2	mg/kg	2.000
GSMF-SW-04-071207	7/12/07	Barium	48	49	mg/kg	-0.515
GSMF-SW-04-071207	7/12/07	Beryllium	0.05	0.052	mg/kg	-0.980
GSMF-SW-04-071207	7/12/07	CA Diesel Range Organics (C10-C28)	4.6	3.8	mg/kg	4.762
GSMF-SW-04-071207	7/12/07	Lead	3.7	3.6	mg/kg	0.685
GSMF-SW-04-071207	7/12/07	Selenium	1.2	1.1	mg/kg	2.174
GSMF-SW-04-071207	7/12/07	Vanadium	30	30	mg/kg	0.000
GSMF-SW-04-071207	7/12/07	Zinc	25	26	mg/kg	-0.980
PAPe-EF-01-041207	4/12/07	2-Butanone (MEK)	0.034	0.047	mg/kg	-8.025
PAPe-EF-01-041207	4/12/07	Acetone	0.18	0.27	mg/kg	-10.000
PAPe-EF-01-041207	4/12/07	Arsenic	1.7	1.3	mg/kg	6.667
PAPe-EF-01-041207	4/12/07	Barium	43.5	45.1	mg/kg	-0.903
PAPe-EF-01-041207	4/12/07	Beryllium	0.3	0.25	mg/kg	4.545
PAPe-EF-01-041207	4/12/07	Lead	6.3	4	mg/kg	11.165
PAPe-EF-01-041207	4/12/07	TPH quantitated as Motor Oil(C24-C36)	38	46	mg/kg	-4.762
PAPe-EF-01-041207	4/12/07	Vanadium	33	32.7	mg/kg	0.228
PAPe-EF-01-041207	4/12/07	Zinc	38.8	28.6	mg/kg	7.567
PAPe-EF-05-041207	4/12/07	1,2,4-Trichlorobenzene	0.0072	0.0027	mg/kg	22.727
PAPe-EF-05-041207	4/12/07	1,2,4-Trichlorobenzene	0.15	0.11	mg/kg	7.692
PAPe-EF-05-041207	4/12/07	1,2,4-Trimethylbenzene	0.018	0.01	mg/kg	14.286
PAPe-EF-05-041207	4/12/07	1,2-Dichlorobenzene	0.0024	0.0014	mg/kg	13.158
PAPe-EF-05-041207	4/12/07	1,3,5-Trimethylbenzene	0.014	0.0084	mg/kg	12.500
PAPe-EF-05-041207	4/12/07	1,4-Dichlorobenzene	0.0018	0.0011	mg/kg	12.069
PAPe-EF-05-041207	4/12/07	2-Methylnaphthalene	1	0.95	mg/kg	1.282
PAPe-EF-05-041207	4/12/07	Acetone	0.041	0.062	mg/kg	-10.194
PAPe-EF-05-041207	4/12/07	Aroclor 1260	1	1.1	mg/kg	-2.381
PAPe-EF-05-041207	4/12/07	Arsenic	1.6	1.3	mg/kg	5.172
PAPe-EF-05-041207	4/12/07	Barium	45.7	45.5	mg/kg	0.110
PAPe-EF-05-041207	4/12/07	Beryllium	0.18	0.2	mg/kg	-2.632
PAPe-EF-05-041207	4/12/07	bis(2-Ethylhexyl) phthalate	0.66	0.52	mg/kg	5.932
PAPe-EF-05-041207	4/12/07	Fluorene	0.37	0.32	mg/kg	3.623
PAPe-EF-05-041207	4/12/07	Lead	13.1	11.1	mg/kg	4.132
PAPe-EF-05-041207	4/12/07	m-Xylene & p-Xylene	0.003	0.0013	mg/kg	19.767
PAPe-EF-05-041207	4/12/07	Naphthalene	0.014	0.0068	mg/kg	17.308
PAPe-EF-05-041207	4/12/07	Naphthalene	0.15	0.15	mg/kg	0.000
PAPe-EF-05-041207	4/12/07	Phenanthrene	1.6	1.3	mg/kg	5.172
PAPe-EF-05-041207	4/12/07	Pyrene	0.66	0.55	mg/kg	4.545
PAPe-EF-05-041207	4/12/07	Tetrachloroethene	0.0078	0.014	mg/kg	-14.220
PAPe-EF-05-041207	4/12/07	TPH quantitated as Motor Oil(C24-C36)	18000	19000	mg/kg	-1.351
PAPe-EF-05-041207	4/12/07	Trichloroethene	0.0028	0.0022	mg/kg	6.000
PAPe-EF-05-041207	4/12/07	Vanadium	24.8	24.6	mg/kg	0.202
PAPe-EF-05-041207	4/12/07	Zinc	29.8	28.5	mg/kg	1.115
PAPE-SB-11-1.5'-0301	3/1/07	4,4'-DDE	0.0021	0.0026	mg/kg	-5.319
PAPE-SB-11-1.5'-0301	3/1/07	4,4'-DDT	0.00088	0.0019	mg/kg	-18.345
PAPE-SB-11-1.5'-0301	3/1/07	Acetone	0.018	0.013	mg/kg	8.065
PAPE-SB-11-1.5'-0301	3/1/07	Arsenic	2.1	1.9	mg/kg	2.500
PAPE-SB-11-1.5'-0301	3/1/07	Barium	34.4	37.2	mg/kg	-1.955

TABLE 6-5
PURITY OIL SALES SUPERFUND SITE
RELATIVE PERCENT DIFFERENCE ANALYSIS FOR SOIL SAMPLING

Sample ID	Sample Date	Analyte	Result	Duplicate Result	Units	RPD
PAPE-SB-11-1.5'-030	3/1/07	Beryllium	0.2	0.23	mg/kg	-3.488
PAPE-SB-11-1.5'-030	3/1/07	TPH quantitated as Motor Oil(C24-C36)	53	320	mg/kg	-35.791
PAPE-SB-11-1.5'-030	3/1/07	Vanadium	22.9	22.7	mg/kg	0.219
PAPE-SB-11-1.5'-030	3/1/07	Zinc	18.5	23.5	mg/kg	-5.952
PAPW-SW-03-022207	2/22/07	2-Butanone (MEK)	0.01	0.013	mg/kg	-6.522
PAPW-SW-03-022207	2/22/07	4,4'-DDE	0.0011	0.0013	mg/kg	-4.167
PAPW-SW-03-022207	2/22/07	4,4'-DDT	0.0011	0.0011	mg/kg	0.000
PAPW-SW-03-022207	2/22/07	Acetone	0.084	0.091	mg/kg	-2.000
PAPW-SW-03-022207	2/22/07	alpha-Chlordane	0.0012	0.00066	mg/kg	14.516
PAPW-SW-03-022207	2/22/07	Arsenic	2.3	2.4	mg/kg	-1.064
PAPW-SW-03-022207	2/22/07	Barium	50.2	49.4	mg/kg	0.402
PAPW-SW-03-022207	2/22/07	Beryllium	0.26	0.26	mg/kg	0.000
PAPW-SW-03-022207	2/22/07	gamma-Chlordane	0.00084	0.00039	mg/kg	18.293
PAPW-SW-03-022207	2/22/07	Lead	9.2	9.9	mg/kg	-1.832
PAPW-SW-03-022207	2/22/07	TPH quantitated as Motor Oil(C24-C36)	22	21	mg/kg	1.163
PAPW-SW-03-022207	2/22/07	Vanadium	27	26.4	mg/kg	0.562
PAPW-SW-03-022207	2/22/07	Zinc	29.9	29	mg/kg	0.764
PAPW-SW-12-022807	2/28/07	4,4'-DDE	0.0017	0.0024	mg/kg	-8.537
PAPW-SW-12-022807	2/28/07	4,4'-DDT	0.00084	0.00096	mg/kg	-3.333
PAPW-SW-12-022807	2/28/07	Acetone	0.029	0.025	mg/kg	3.704
PAPW-SW-12-022807	2/28/07	alpha-Chlordane	0.00053	0.00061	mg/kg	-3.509
PAPW-SW-12-022807	2/28/07	Arsenic	3.1	2.2	mg/kg	8.491
PAPW-SW-12-022807	2/28/07	Barium	44.9	35.7	mg/kg	5.707
PAPW-SW-12-022807	2/28/07	Beryllium	0.26	0.22	mg/kg	4.167
PAPW-SW-12-022807	2/28/07	Lead	3	5	mg/kg	-12.500
PAPW-SW-12-022807	2/28/07	TPH quantitated as Motor Oil(C24-C36)	6.7	5.9	mg/kg	3.175
PAPW-SW-12-022807	2/28/07	Vanadium	30.2	24.2	mg/kg	5.515
PAPW-SW-12-022807	2/28/07	Zinc	20.8	26.6	mg/kg	-6.118
SMA-EF-01-050807	5/8/07	Acetone	0.015	0.024	mg/kg	-11.538
SMA-EF-01-050807	5/8/07	Arsenic	1.7	1.7	mg/kg	0.000
SMA-EF-01-050807	5/8/07	Barium	41	43.1	mg/kg	-1.249
SMA-EF-01-050807	5/8/07	Beryllium	0.15	0.17	mg/kg	-3.125
SMA-EF-01-050807	5/8/07	Lead	3.7	3.8	mg/kg	-0.667
SMA-EF-01-050807	5/8/07	TPH quantitated as Diesel (C10-C24)	0.88	1.4	mg/kg	-11.404
SMA-EF-01-050807	5/8/07	Vanadium	22.3	22.3	mg/kg	0.000
SMA-EF-01-050807	5/8/07	Zinc	28.8	29.5	mg/kg	-0.600
TT-EF-03-022107	2/21/07	4,4'-DDD	0.12	0.11	mg/kg	2.174
TT-EF-03-022107	2/21/07	Arsenic	3.3	3.7	mg/kg	-2.857
TT-EF-03-022107	2/21/07	Barium	46.1	43.7	mg/kg	1.336
TT-EF-03-022107	2/21/07	Beryllium	0.28	0.29	mg/kg	-0.877
TT-EF-03-022107	2/21/07	Cadmium	1	1	mg/kg	0.000
TT-EF-03-022107	2/21/07	Lead	4.8	4.6	mg/kg	1.064
TT-EF-03-022107	2/21/07	Tetrachloroethene	0.0027	0.0008	mg/kg	27.143
TT-EF-03-022107	2/21/07	TPH quantitated as Motor Oil(C24-C36)	5800	5000	mg/kg	3.704
TT-EF-03-022107	2/21/07	Vanadium	33.3	32.5	mg/kg	0.608
TT-EF-03-022107	2/21/07	Zinc	148	144	mg/kg	0.685
TT-SW-07-031407	3/14/07	Acetone	0.03	0.043	mg/kg	-8.904
TT-SW-07-031407	3/14/07	Arsenic	1.9	2.8	mg/kg	-9.574
TT-SW-07-031407	3/14/07	Barium	46.6	47	mg/kg	-0.214
TT-SW-07-031407	3/14/07	Beryllium	0.2	0.21	mg/kg	-1.220
TT-SW-07-031407	3/14/07	Lead	2.6	2.8	mg/kg	-1.852
TT-SW-07-031407	3/14/07	Vanadium	25.5	26	mg/kg	-0.485
TT-SW-07-031407	3/14/07	Zinc	25.8	26.8	mg/kg	-0.951
TT-SW-14-031407	3/14/07	Acetone	0.033	0.055	mg/kg	-12.500
TT-SW-14-031407	3/14/07	Arsenic	1.9	2	mg/kg	-1.282
TT-SW-14-031407	3/14/07	Barium	55.4	53.3	mg/kg	0.966
TT-SW-14-031407	3/14/07	Beryllium	0.25	0.24	mg/kg	1.020
TT-SW-14-031407	3/14/07	Lead	3	3.1	mg/kg	-0.820
TT-SW-14-031407	3/14/07	Vanadium	25.2	24.7	mg/kg	0.501
TT-SW-14-031407	3/14/07	Zinc	29.1	28.3	mg/kg	0.697
TT-SWD-14-031407	3/14/07	2-Butanone (MEK)	0.0094	0.0089	mg/kg	1.366
					Average	0.002

Legend
PUR - Purity
BR - Bruno's
GSMb - Golden State Market Backyard
GSMf - Golden State Market Front Yard
PAPe - Pick-a-Part East
PAPw - Pick-a-Part West
SMA - South Maple Ave
TT - Tall Trees
EF - Excavation Floor Sample
SB - Soil Boring
SW - Sidewall Sample
TP - Test Pit Sample
MRL - Method Reporting Limit
PRG - Preliminary Remediation Goal

TABLE 6-6
PURITY OIL SALES SUPERFUND SITE
RELATIVE PERCENT DIFFERENCE ANALYSIS FOR AIR SAMPLING

Month	Average RPD*
September-06	10.37
October-06	14.04
November-06	13.26
December-06	7.57
January-07	18.14
February-07	17.16
March-07	24.54
April-07	8.53
May-07	3.37
June-07	3.74
July-07	6.22
August-07	10.04
September-07	8.76
October-07	13.73
Average	**11.39**

* RPD = {(S-D)/((S+D)/2)}x100

S = Sample Result (Drive cylinder)

D = Duplicate Result (Sand cone)

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