REMEDIAL ACTION PLAN
HIGHLANDS RANCH PHASE II
PITTSBURG, CA

PREPARED FOR:

WEST COAST HOME BUILDERS, INC.
4021 PORT CHICAGO HIGHWAY
P.O. BOX 4113
CONCORD, CALIFORNIA 94524

PREPARED BY:

RISK-BASED DECISIONS, INC.
2033 HOWE AVENUE, SUITE 240
SACRAMENTO, CALIFORNIA 95825

AUGUST 4, 2006

(APPROVED BY CRWQCB 7-20-07)

California Regional Water Quality Control Board
San Francisco Bay Region

Linda S. Adams
Secretary for Environmental Protection

1515 Clay Street, Suite 1400, Oakland, California 94612
(510) 622-2300 • Fax (510) 622-2460
http://www.waterboards.ca.gov/sanfranciscobay

Arnold Schwarzenegger
Governor

August 5, 2008
File No.: 2119.1251 (KER)

West Coast Builders, Inc.
Attn: Mr. Richard Sestero (dsestero@seenohomes.com)
4021 Port Chicago Highway
P.O. Box 4113
Concord, CA 94524

Subject: **Authorization of Field Work and Request for Completion Report, Highlands Ranch Phase II Development, 2360 Buchanan Road, Pittsburg, Contra Costa County**

Dear Mr. Sestero:

As we discussed during our telephone conversation on July 22, West Coast Builders, Inc. is authorized to implement the soil cleanup project at the Highlands Ranch Phase II residential development site in Pittsburg. Work is to be performed in accordance with the Remedial Action Plan (RAP) that we approved on July 20, 2007, and the Storm Water Pollution (SWPPP) that we approved on July 21, 2008. Remedial actions consist of excavation of petroleum-contaminated soils and on-site treatment of excavated soils through bioremediation. Public notification requirements for this site cleanup project were fulfilled in September/October 2007.

Request for Completion Report

We request that you notify us by telephone or e-mail when field work is to begin. Also, when site cleanup activities are completed, you are required to submit a Technical Report that documents completion of field work and demonstrates attainment of the soil cleanup standards specified in our July 20, 2007 RAP approval letter. This report must be submitted within 90 days of conclusion of soil cleanup activities. Any extension in this deadline must be confirmed in writing by Board staff.

Your submittal of a Completion Report is necessary so that Water Board staff can evaluate whether soil cleanup standards have been achieved. Attainment of soil cleanup standards is necessary to protect the health of future residents at this proposed residential development. This requirement for a technical report is made pursuant to Section 13267 of the California Water Code, which allows the Board to require technical or monitoring program reports from any person who has discharged, discharges, proposes to discharge, or is suspected of discharging waste that could affect water quality. The attached Fact Sheet provides additional information about Section 13267 requirements.

Soil Cleanup Standards
The soil cleanup (and soil re-use) standards established for the Highlands Ranch Phase II site are as follows:

Maximum Allowable Soil Cleanup and Re-use Standards

Contaminant Type	*Shallow Soil (<10 feet bgs)*	*Deep Soil (>10 feet bgs)*
TPH-oil	500 mg/kg	15,000 mg/kg
benzene	0.18 mg/kg	18 mg/kg
toluene	100 mg/kg	not applicable (n/a)
ethylbenzene	390 mg/kg	n/a
xylene	310 mg/kg	n/a
SVOCs	USEPA PRGs	n/a

The application of these cleanup standards to onsite re-use of soils is to be governed by the following:

1) Soils containing contaminant concentrations that exceed those in the table above must be excavated and treated, as technically feasible, to a depth of 20 feet.
2) Excavated soils that have been successfully treated to the concentrations in the table above can be used on-site as engineered fill material. Treated soils that meet the cleanup standard for shallow soils can be used without placement restrictions. Treated soils that meet the cleanup standard for deep soil but exceed the standard for shallow soil must be used at depths greater than 10 feet below finished grade.
3) Treated soils that continue to exceed the cleanup standard for deep soil must receive additional treatment or be disposed of offsite.

If you have any questions, please contact Keith Roberson of my staff at (510) 622-2404 or via e-mail at KRoberson@waterboards.ca.gov.

Sincerely,

Dyan C. Whyte
for

Bruce H. Wolfe
Executive Officer

Attachment: Section 13267 Fact Sheet
cc w/o attachment: Mailing List

Mailing List

Risk-Based Decisions, Inc.
Attn: Mr. Ijaz Jumall (ijamall@riskbaseddecisions.com)
2033 Howe Avenue, Suite 240
Sacramento, CA 95825

Isakson & Associates, Inc.
2255 Ygnacio Valley Road, Suite C
Walnut Creek, CA 94598

Dept. of Toxic Substances Control
Attn: Ms. Jayantha Randeni (jrandeni@dtsc.ca.gov)
700 Heinz Avenue, Suite 200
Berkeley, CA 94710-2721

Contra Costa County Health Services Dept.
Attn: Mr. Eric Fung
Environmental Health Division
2120 Diamond Blvd Ste 200
Concord, CA 94520

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Arnold Schwarzenegger
Governor

Cleanup Activity Fact Sheet
Former Los Medanos Tank Farm
2360 Buchanan Road, Pittsburg
August 2007

Purpose

The San Francisco Bay Regional Water Quality Control Board (Water Board) has prepared this Fact Sheet to provide information about the proposed cleanup of soils at former Los Medanos Tank Farm. The site is located along the Antioch/Pittsburg boundary, near the intersection of Somersville and Buchanan Roads (see Site Location Map). The Water Board will oversee site cleanup activities. This Fact Sheet summarizes existing information about the proposed site restoration project and is intended to facilitate community awareness.

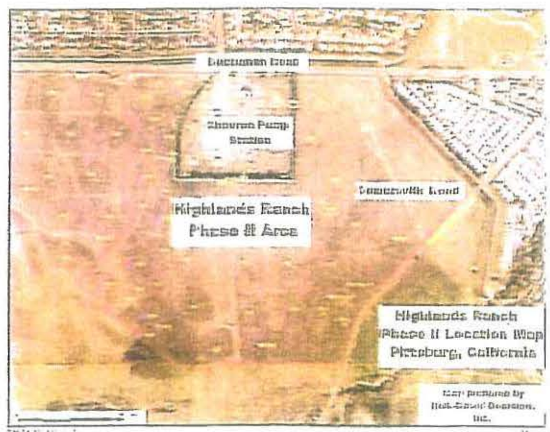
Background & Site History

Los Medanos Tank Farm was built around 1913 and contained 40 above-ground storage tanks, each with a capacity of about 35,000 barrels. The site was owned and operated by Chevron, USA, and the tanks were used to store crude oil prior to refining. The site was used until 1980. In 1981, all of the tanks and associated piping were dismantled and removed, with the exception of the one tank still used by Chevron at its pump station on Buchanan Road (see map).

Soil and Groundwater Contamination

Environmental investigations begun in the 1980s and completed in 2005 have characterized the extent of chemical contamination at the site. Soil contamination consists primarily of residual petroleum hydrocarbons derived from the breakdown of crude oil. Toxic constituents such as benzene and organic solvents are generally not present. Soils containing elevated concentrations of lead were removed in the 1980s and current metals concentrations do not exceed local background levels. Petroleum hydrocarbon impacts in soil generally do not extend more than 15 feet below ground surface. However, two former tank locations will require excavation to a depth of 20 feet.

Groundwater was not encountered in any of the soil borings drilled to a depth of 25 feet, and earlier investigations showed no groundwater present at depths less than 100 feet. A water well at the northern end of the site was sampled and contained no detectable fuel hydrocarbons. Therefore, it does not appear that groundwater has been impacted at the site, and it is unlikely that petroleum hydrocarbons have migrated offsite.



Site Location Map

Site Restoration and Redevelopment Plans

The current property owner, West Coast Home Builders, has submitted a Remedial Action Plan (RAP) to the Water Board that describes the soil cleanup plan for a 140-acre portion of the former tank farm. Soil cleanup is needed to prepare the site for proposed residential redevelopment. An adjacent 50-acre parcel in the western part of the former tank farm was cleaned up and redeveloped as Highlands Ranch Phase I between 2001 and 2003. This proposed development is known as Highlands Ranch Phase II.

The Remedial Action Plan proposes excavation of petroleum-impacted soils followed by on-site bioremediation as the soil cleanup remedy. Bioremediation is a form of enhanced breakdown of organic material such as petroleum hydrocarbons, in which the natural processes are accelerated by addition of soil amendments. These amendments stimulate the growth of micro-organisms in the soil, which then consume the petroleum. An estimated 75,000 cubic yards of petroleum-impacted soils will be excavated and treated onsite in phases. Excavated soils will be placed in onsite bio-treatment cells to reduce soil contaminant concentrations to the target cleanup levels. This treatment is expected to promptly reduce contaminant concentrations and therefore reduce the potential for long-term exposure to contaminated soils. Water Board staff reviewed and approved this remedy in a letter dated July 20, 2007.

Soil cleanup activities at the site may generate odors, dust, and noise that have the potential to be a nuisance to nearby residents. However, generation of dust can be controlled by watering work areas and soil piles if the work is performed during dry conditions. To minimize odors and noise, soil stockpiling and treatment will be performed at a designated location near the center of the 140-acre parcel, at considerable distance from neighboring residences. Because soils will not be hauled offsite, significant impacts on local traffic are not anticipated. The cleanup activities are not expected to affect endangered or threatened species or have other significant negative environmental impacts.

Site Cleanup Criteria
The risks to human health from soils containing residual petroleum hydrocarbons from degradation of crude oil are low. There are no specific risk-based cleanup criteria for TPH in soil. However, because residential development is planned for the site, it is assumed that direct human contact with shallow soils is likely through common activities such as gardening, landscaping, and pool installation. Therefore, the cleanup goals established for the site must be stringent enough to protect human health assuming unrestricted use. In its July 20, 2007 letter approving the RAP, the Water Board established site cleanup criteria that must be achieved before site redevelopment can begin.

Public Review of Cleanup Plans
Presentation of this Fact Sheet initiates the Public Participation Process for the proposed cleanup activities at the site. A 30-day public review period will begin on August 15, 2007. Comments on the proposed site cleanup activities will be accepted until **September 14, 2007**.

Documents describing the proposed cleanup, including the Remedial Action Plan, the Water Board's letter approving the RAP, this Fact Sheet, and other relevant documents, are available for review at the Pittsburg Public Library, located at 80 Power Avenue. These documents can also be viewed online at www.waterboards.ca.gov/sanfranciscobay/sitecleanupdocs.htm. Any comments on the proposed cleanup activities should be submitted in writing to the Water Board staff member identified below.

Regulatory Oversight
The Regional Water Quality Control Board is the lead agency overseeing cleanup activities at this site. The Water Board's oversight and public review process pertains only to site cleanup activities. Contra Costa County will oversee site redevelopment activities and manage the public review process for the redevelopment. If you have specific questions regarding cleanup activities, please contact:

Keith Roberson
Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612
(510) 622-2404
Email: KRoberson@waterboards.ca.gov

or

Dick Sestero
West Coast Home Builders
4021 Port Chicago Highway
P.O. Box 4113
Concord, CA 94524
(925) 602-7235
Email: Dsestero@seenohomes.com

California Regional Water Quality Control Board
San Francisco Bay Region

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Arnold Schwarzenegger
Governor

Date: JUL 2 0 2007
File No.: 2119.1251 (KER)

West Coast Builders, Inc.
Attn: Mr. Richard Sestero
4021 Port Chicago Highway
P.O. Box 4113
Concord, CA 94524

Subject: **Conditional Approval of the Remedial Action Plan for Highlands Ranch Phase II Development, 2360 Buchanan Road, Pittsburg, Contra Costa County**

Dear Mr. Sestero:

Water Board staff has reviewed the Remedial Action Plan ("RAP") submitted by Risk-Based Decisions, Inc., on August 4, 2006 for the planned Highlands Ranch Phase II residential development project. The RAP is approved on the condition that the soil cleanup standards and soil re-use guidelines established in this letter are employed when corrective actions are implemented.

Background and Purpose of the Remedial Action Plan

West Coast Builders, Inc., plans to construct residential housing on the site of the former Los Medanos Tank Farm, located at 2360 Buchanan Road near the Pittsburg/Antioch boundary. The site was used until 1980 as an above-ground "tank farm" for storage of crude oil. The planned housing development is called Highlands Ranch Phase II. Highlands Ranch Phase I has already been built on an adjacent portion of the former tank farm and is fully occupied.

Soil remediation is necessary to prepare the site for redevelopment. The RAP was submitted to guide the cleanup of soils contaminated with petroleum hydrocarbons. The remedial technology proposed in the RAP (excavation followed by on-site bioremediation), is acceptable. However, we have added specific target cleanup standards for benzene, toluene, ethylbenzene, and xylenes (BTEX) to the Remedial Action Objectives (RAO) that were proposed the RAP. The revised cleanup standards are described below.

Soil Cleanup Standards and Soil Re-use Guidelines

After considering site-specific factors, redevelopment plans, and applicable Water Board guidance, staff has determined acceptable residual soil concentrations to guide soil cleanup and onsite soil re-use at the Highlands Ranch site. Because of the likelihood of direct human contact and the potential for vapor intrusion under a residential development scenario, we require as a

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LAND DEVELOPMENT

condition of approval that the following soil cleanup standards and soil reuse guidelines be used during site remediation:

Maximum Allowable Soil Cleanup and Re-use Standards

Contaminant Type	*Shallow Soil (<10 feet bgs)*	*Deep Soil (>10 feet bgs)*
TPH-oil	500 mg/kg	15,000 mg/kg
benzene	0.18 mg/kg	18 mg/kg
toluene	100 mg/kg	not applicable (n/a)
ethylbenzene	390 mg/kg	n/a
xylene	310 mg/kg	n/a
SVOCs	USEPA PRGs	n/a

The application of these cleanup standards to onsite re-use of soils is to be governed by the following rules:

1) Soils containing contaminant concentrations that exceed those in the table above must be excavated and treated, as technically feasible to a depth of 20 feet.
2) Excavated soils that have been successfully treated to the concentrations in the table above can be used on-site as engineered fill material. Treated soils that meet the cleanup standard for shallow soils can be used without placement restrictions. Treated soils that meet the cleanup standard for deep soil but exceed the standard for shallow soil must be used at depths greater than 10 feet below finished grade.
3) Treated soils that continue to exceed the cleanup standard for deep soil must receive additional treatment or be disposed offsite.

Other Restrictions

Site remediation and treatment activities must mimimize the release of fugitive dust, organic vapors, and odors that may pose a nuisance to existing residences near the site.

Related Water Board Actions

Within the next few weeks, Water Board staff will issue an information package to the public that explains the proposed site cleanup and redevelopment activities. This information package will be placed in a library or other public building for reading and posted on the Water Board's website. The package will include a Fact Sheet, the RAP, and a copy of this approval letter and staff report. Depending upon the level of interest shown, a public meeting may also be held to discuss the RAP and site redevelopment plans. After addressing comments from the public, the Water Board will issue a Site Cleanup Requirements Order to govern site cleanup activities.

If you have any questions, please contact Keith Roberson of my staff at (510) 622-2404 or via e-mail at KRoberson@waterboards.ca.gov.

Sincerely,

Curtis T. Scott

Curtis T. Scott, Chief
Groundwater Protection Division

Attachment: Staff Report (*Technical Rationale Behind Site Cleanup Standards*)
cc w/ attachment:

Risk-Based Decisions, Inc.
Attn: Mr. Ijaz Jumall
2033 Howe Avenue, Suite 240
Sacramento, CA 95825

Dept. of Toxic Substances Control
Attn: Mr. Bill Brown
700 Heinz Avenue, Suite 200
Berkeley, CA 94710-2721

Contra Costa County Health Services Dept.
Attn: Mr. Eric Fung
Environmental Health Division
2120 Diamond Blvd Ste 200
Concord, CA 94520

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

STAFF REPORT

TO: Bruce H. Wolfe
Executive Officer

DATE: July 19, 2007
File No. 2119.1251 (KER)

FROM:

Keith E. Roberson, Ph.D., PG

CONCUR:

Curtis T. Scott, Chief
Groundwater Protection Division

Terry Seward
Section Leader

SUBJECT: ***Technical Rationale Behind the Site Cleanup Standards for Highlands Ranch Phase II Development (former Los Medanos Tank Farm)***

Environmental characterization performed at the former Los Medanos Tank Farm site has indicated the presence of elevated levels of petroleum hydrocarbons in soils. Therefore, soil remediation must be performed and appropriate cleanup standards must be achieved before housing construction can begin. When establishing cleanup standards for specific sites, Water Board staff must consider and evaluate many different factors. Factors that appear to be particularly relevant at the Highlands Ranch site include the types of contaminants present, the depth and quality of groundwater, whether surface water bodies and sensitive ecologic receptors may be affected, and the future land use scenario and exposure routes. Our evaluation of the available information for this site suggests that:

1) The primary contaminants of concern are total petroleum hydrocarbons (TPH) derived from the degradation of crude oil;
2) TPH from crude oil generally has low toxicity, limited volatility, limited mobility in soil above the water table, limited mobility in groundwater, and is readily biodegradable;
3) Depth to groundwater is very deep (greater than 100 feet), and there is no evidence of current groundwater impacts and very low likelihood that groundwater will be used as a source of drinking water;
4) Surface water and ecologic receptors are not affected by the TPH contamination; and
5) The owner plans to develop the site for residential occupancy, therefore direct human contact with shallow, contaminated soils is the most likely exposure route. Unprotected

contact with soils during common activities such as gardening, landscaping, and installation of features such as swimming pools is to be expected. Intrusion of volatile organic vapors from shallow, TPH-contaminated soils into overlying homes must also be considered a viable exposure pathway.

Because the site will be redeveloped for residential occupation, it is necessary to establish stringent restrictions on shallow soil cleanup and re-use (i.e., zero to 10 feet below ground surface). Less stringent target cleanup goals for deep soils (i.e., 10 or more feet below finished grade) at the site are acceptable because there is no indication of shallow groundwater at the site and no evidence of current groundwater impacts. While there are no specific risk-based cleanup criteria for TPH in soil, the San Francisco Bay Regional Water Board has issued Environmental Screening Levels (ESLs) for soils at sites where residential development is planned and where groundwater is not a potential source of drinking water (RWQCB, February 2005). The applicable ESLs for shallow soils differentiate between TPH ranges as follows:

100 mg/kg for TPH-gasoline and TPH-middle distillates (i.e., diesel fuel)
500 mg/kg for TPH-residual fuels (i.e., oils).

Remedial Action Objectives Proposed in the RAP
The RAP proposed a single cleanup goal of 500 milligrams per kilogram (mg/kg) total petroleum hydrocarbons (TPH) for site soils. The RAP also stated that cleanup would meet the current USEPA Region 9 Preliminary Remediation Goals (PRGs) for BTEX compounds and semi-volatile organic compounds (SVOCs) including polynuclear aromatic hydrocarbons (PNAs), if such compounds are detected at the site during confirmation sampling. As a soil reuse guideline, the RAP proposed unrestricted onsite reuse of treated soils that met the 500 mg/kg RAO, and proposed that soils with TPH concentrations exceeding 500 mg/kg would be used as engineered fill at depths of 10 or more feet below final grade. Water Board staff cannot approve these proposed RAOs and soil reuse guidelines, and we have modified them as described below.

Soil Sampling Results
At the Highlands Ranch site, soil sampling results (summarized in Tables 1, 2, and 3 of the RAP) show elevated concentrations of TPH in the oil, gasoline, and diesel ranges. Heavy TPH was the predominant contaminant in most soil samples, consistent with the former use of the site for storing unrefined crude oil. However, diesel-range (TPH-d) concentrations were as high as 30,000 mg/kg and gasoline-range TPH (TPH-g) concentrations were as high as 11,000 mg/kg. The proportion of gasoline-range TPH was less than 5% of the total TPH in all samples except the sample from Tank 604, which contained 14% TPH-g. Diesel-range TPH concentrations varied between 13 and 39% of the total TPH, with 8 samples containing greater than 30% TPH-d. However, because crude oil contains varying percentages of the lighter-grade hydrocarbon compounds, the presence of TPH in the gasoline and diesel ranges does not necessarily indicate that refined gasoline and diesel fuels were released at the site.

Soil-Gas Sampling Results
Because significant concentrations of TPH-g and TPH-d were quantified in site soils, Water Board staff requested that a supplemental soil gas investigation be performed at the site to provide additional information about the nature of the release and the volatility of the various constituents present. The soil gas survey was performed in accordance with an approved work plan in December 2006, and the results were summarized in a report submitted on January 31, 2007. The soil gas samples yielded no TPH-d above detection limits, but contained vapor-phase TPH-g at concentrations ranging between <5.0 and 5,300 micrograms per liter of air (ug/L). Eleven of the 14 soil gas samples exceeded the Water Board's residential ESL for TPH-g in soil vapor (26 ug/L). BTEX compounds were not detected in soil gas, with the exception of ethylbenzene which was detected at trace concentrations in five samples. A re-examination of the soil gas chromatograms showed that *n*-hexane was present in only three samples at concentrations near the reporting limit. The general absence of BTEX compounds and *n*-hexane in the soil-vapor samples suggests that the types of hydrocarbons detected at the site are consistent with a crude oil source material and do not indicate a release of refined fuels at the site. This conclusion has implications for the soil cleanup standards at the site, as discussed below.

On the basis of the soil and soil-gas sampling results demonstrating that crude oil is the primary contaminant in site soils, staff concurs with RBD's recommendation that specific target cleanup goals and soil reuse guidelines for TPH-g and TPH-d are not necessary at this site. However, because of the likelihood of direct human contact and the potential for vapor intrusion under a residential development scenario, we require the addition of cleanup standards for benzene, toluene, ethylbenzene, and xylenes. The following soil cleanup standards and soil reuse guidelines must be used during site remediation:

Soil Cleanup and Re-use Standards

Contaminant Type	*Shallow Soil (<10 feet bgs)*	*Deep Soil (>10 feet bgs)*
TPH-oil	500 mg/kg	15,000 mg/kg
benzene	0.18 mg/kg	18 mg/kg
toluene	100 mg/kg	n/a
ethylbenzene	390 mg/kg	n/a
xylene	310 mg/kg	n/a
SVOCs	USEPA PRGs	n/a

The application of these cleanup standards to onsite re-use of soils is to be governed by the following rules:

1) Soils containing contaminant concentrations that exceed those in the table above must be excavated and treated, as technically feasible to a depth of 20 feet.
2) Excavated soils that have been successfully treated to the concentrations in the table above can be used on-site as engineered fill material. Treated soils that meet the cleanup standard for shallow soils can be used without placement restrictions. Treated soils that meet the cleanup standard for deep soil but exceed the standard for shallow soil must be used at depths greater than 10 feet below finished grade.
3) Treated soils that continue to exceed the cleanup standard for deep soils must receive additional treatment or be disposed offsite.

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1.0 INTRODUCTION

This Remedial Action Plan (RAP) describes the horizontal and vertical delineation of petroleum hydrocarbon impacts in soils at the Highlands Ranch Phase II, a 140-acre portion of the former Los Medanos Tank Farm, in Contra Costa County, California 94565, and the proposed excavation and onsite bioremediation of these hydrocarbons. The parcel in question is part of the original 354-acre former Los Medanos Tank Farm ("Tank Farm") located at 2360 Buchanan Road, Contra Costa County, California. Figure 1 shows the Site and its vicinity. The Tank Farm was previously owned and operated by Chevron USA, Inc. (now Chevron-Texaco) as shown in a historical aerial photo with tank numbers shown in yellow next to each tank (Figure 2).

The horizontal and vertical delineation was conducted under the oversight of the California Department of Toxic Substances Control (DTSC) in accordance with a *Workplan for Site Investigation, Highlands Ranch, California,* prepared by Risk-Based Decisions, Inc. (RBDI, January 11, 2005) on behalf of West Coast Home Builders, Inc. ("West Coast"). The DTSC approved this Workplan via a letter dated June 20, 2005.

In June 2006, oversight of the remediation of this Site was transferred by the DTSC to the San Francisco Bay Area Regional Water Quality Control Board (RWQCB).

Figure 3 shows a more recent aerial photo of the former Tank Farm with the Site boundary delineated in red to show the 140-acre parcel which includes the remaining aboveground storage tank (AST) pads and surrounding areas slated for residential development in the future (the "Site").

Chevron still owns and operates an aboveground storage tank on a 20-acre portion of the former Los Medanos Tank Farm shown as a green-bordered area in Figure 3.

Based on the earlier Site investigation of 13 of the former 40 ASTs, at the former Los Medanos Tank Farm (Highlands Ranch, Unit #3), covering an area of about 24 to 26 acres, only limited amounts of petroleum hydrocarbons were detected in soils which were bioremediated at the Site (PES Environmental, 2000; ENGEO, 2001; RBDI, 2002) and this portion of the property (Highlands Ranch, Unit #3) was issued a *No Further Action* letter, dated July 15, 2002, by the DTSC. As part of this same investigation, groundwater at a monitoring well, MW-2, on the northern edge of the property along Buchanan Road (Figure 3) was sampled on August 16, 2001, and no petroleum hydrocarbons were detected in the groundwater which was recorded in the well at that time to be at a depth of 100.64 feet.

2.0 BACKGROUND

2.1 Site Location and Description

Highlands Ranch is located in eastern Contra Costa County, north-northeast of Mount Diablo, southeast of Honker Bay, east of Concord, and southwest of Antioch (Figure 1).

2.1.1 Site Name and Address

Highlands Ranch Phase II (former Chevron Los Medanos Tank Farm)
2360 Buchanan Road
Contra Costa County, California 94565

2.1.2 Contact Person, Mailing Address and Telephone Number

Mr. Richard D. Sestero
West Coast Home Builders
4021 Port Chicago Highway
P. O. Box 4113
Concord, California 94524-4113
925-671-7711 Office
925-689-5979 (fax)

2.1.3 DTSC Identification Number and Site Code Number

http://www.envirostor.dtsc.ca.gov/public/profile_report.asp?global_id=07290001

Envirostor ID - Site Code	Site Name	Address	City	ZIP	County	Status
07290001	HIGHLANDS RANCH PHASE II - (AKA LOS MEDANOS TANK FARM)	2360 BUCHANAN ROAD	PITTSBURG	94565	CONTRA COSTA	VCP
201340	HIGHLANDS RANCH PHASE II - (AKA LOS MEDANOS TANK FARM)	2360 BUCHANAN ROAD	PITTSBURG	94565	CONTRA COSTA	VCP

2.1.4 Assessor's Parcel Number and Maps

The Highlands Ranch Phase II property is located in Contra Costa County, Assessor's Parcel Number 089-150-013 (Figure 7).

2.1.5 Ownership

West Coast Home Builders, Inc.
4021 Port Chicago Highway
P. O. Box 4113
Concord, California 94524-4113

2.1.6 Township, Range, Section and Meridian

The Highlands Ranch property is located in Township 2 North, Range 1 East, Section 27 and 28, of the Mt. Diablo Meridian.

2.2 Operational History and Status

The history and initial Site assessment described here are taken from the *Chevron Los Medanos Property Investigation* (Woodward-Clyde, April, 1986). According to historical information in this report, the Los Medanos Tank Farm contained 40 ASTs and was built circa 1913 to store crude oil produced in the San Joaquin Valley. The ASTs, each of approximately 35,000-barrel capacity, were constructed on pads with earthen berms to contain potential spillage. The AST shells and bottoms were constructed of riveted steel and the tank roofs of #20 black iron supported by wooden frames. The ASTs were connected to trunk lines by a system of 6 to 18 inch diameter steel pipelines and a manifold located in the north central portion of the 354-acre parcel. Five impoundments ("wax" ponds) were constructed to hold solids removed from the pipeline and material collected from tank bottoms, spills and leaks.

The ASTs remained in service until July 1980. In 1981, all of the tanks and their associated piping, with the exception of the one (Tank 602), were dismantled and removed from the Site. Tank 602, a second smaller tank, a pump station and service buildings remain in use (Woodward-Clyde, 1986). These structures occupy about 20 acres of the 354-acre property, which remain under the ownership of Chevron and are not part of the Highlands Ranch development project. The Chevron parcel is separated from the West Coast property by a 12-foot high pre-cast concrete wall.

In addition to crude oil transported via pipeline, condensate from natural gas fields was brought to the Los Medanos Tank Farm and mixed with crude oil for transport to Chevron's refineries. On rare occasions, off-specification gasoline from product terminals or product pipelines was reportedly pumped to the Tank Farm, mixed with crude oil, and shipped to Chevron's refineries. Tank maintenance activities included periodic re-painting. Reportedly, crude oil was also injected underneath some tank pads to retard corrosion.

2.3 Topography

The Highlands Ranch Phase II property is located in an area surrounded from the west, south and east by gently rolling hills of the Mount Diablo Range and from the north by Suisun and Honker Bay flat lands.

2.4 Geology and Hydrogeology

2.4.1 Site Geology, Soil Types and Hydrogeologic Settings

The Highlands Ranch property is located on slightly undulating, northward sloping foothills on the northern flank of Mount Diablo. Mount Diablo is the northern extension of the Diablo Range and is a piercement structure composed of Mesozoic Age Franciscan Complex and Great Valley sequence rocks. The geologic units comprising the north flank of Mount Diablo include a host of Tertiary Units. The Wolfskill Formation is part of this

Tertiary Unit and covers approximately one-third of the Site. No tank pads were cut into the Wolfskill Formation. The Tertiary Units strike northwest and dip between 30 and 40 degrees to the northeast. These Units dip below the former tank farm and may control the flow of groundwater toward Suisun Bay. Quaternary alluvium covers the remaining two-thirds of the former Los Medanos Tank Farm property upon which all of the former tanks were constructed.

The primary composition of the soils is reportedly silty clay with subordinate amounts of sandy clay, silty sand, clayey sand and clayey silt with minor amounts of gravels. This heterogeneous soil composition is typical of alluvial fans. The alluvial fans extend from the Mount Diablo foothills toward Suisun Bay.

These unconsolidated deposits act as the primary source of regional groundwater recharge, but do not affect local groundwater recharge sources. The greatest amount of rainfall infiltration occur upslope from the former Tank Farm where the coarsest, most permeable materials exist. The down-slope movement of groundwater is primarily controlled by the geologic structure of the area. Within the former Tank Farm area, the fine-grained clayey nature of the soil inhibits infiltration, which results in surface runoff and ponding. The deepest boring drilled onsite to 150 feet bgs encountered no groundwater.

2.5 Surrounding Land Use

The area around the Highlands Ranch property is densely populated farther to the east, north and west, sparsely populated to the south and not populated at all to the southwest and southeast. Land use around Highlands Ranch is residential. Estuaries of Suisun and Honker Bays are located approximately 2.5 miles to the north.

2.6 Meteorology

Pittsburg, California receives average precipitation of 13.33 inches per year distributed among the months of the year as follows:

Month	*Average Mean Temperature (°F)*	*Average Precipitation (inches)*
January	46	2.72
February	51	2.51
March	55	2.16
April	59	0.73
May	65	0.47
June	71	0.09
July	74	0.03
August	74	0.03
September	71	0.24
October	64	0.76
November	54	1.70
December	46	1.89

2.7 Previous Site Actions

2.7.1 Overview of Past Investigations

Several reports have been prepared on the sampling and characterization of petroleum hydrocarbon contaminants and on lead in soils at the Site. Figure 2 shows the locations of previous sampling across the 140-acre property.

2.8.1-1 Woodward-Clyde, April 1986

The purpose of this investigation was to identify the presence of residual contamination that could be associated with operations at the facility. It included a review of the Site history, identification of potential sources of contamination, development and implementation of a field investigation and evaluation of the resulting data.

Around September 1985, a series of sampling events were conducted to identify a wide range of contaminants, such as asbestos, herbicides used for weed control, polychlorinated biphenyls (PCBs) potentially released from electrical equipment, hydrocarbons and metals (Woodward-Clyde, 1986).

- 40 surface soil samples from the 40 tank pads were analyzed for a wide range of toxic metals, including lead and arsenic (see Table 2 of the Woodward-Clyde Report). The highest lead concentration was reported to be 580 mg/kg. The mean and standard deviation (SD) of the metals reported were as follows:

Arsenic	6.7	±	6.4 mg/kg
Lead	147	±	138 mg/kg
Cadmium	1.8	±	1.0 mg/kg
Chromium	19	±	6 mg/kg
Barium	136	±	25 mg/kg

- 40 soil samples from two feet below ground surface (bgs) from the 40 tank pads were also analyzed for lead. In these two-foot deep soil samples, the mean lead concentration was reported to be 14.3 ± 20.8 mg/kg.

- Depth-discrete soil samples were taken from the Tanks with the highest lead concentrations and analyzed for total petroleum hydrocarbons (TPH). These included Tanks 605, 611 and 633. Soil samples were taken from as deep as 25 feet bgs from Tanks 611 and 633 and at the surface, and from Tank 605 at a depth of 48 feet. The highest TPH concentration reported was 13,000 mg/kg at 2 feet bgs from Tank Pad 611 with rapidly attenuating concentrations below this depth.

- 40 surface soil samples from each tank pad were also analyzed for TPH (as extractable hydrocarbons). The mean and standard deviation of the results were reported to be 3,669 ± 2,057 mg/kg.

- An additional 39 soil samples collected from the various tank pads at different depths showed no particular pattern and little remaining TPH contamination with a mean and standard deviation (SD) of 281 ± 910 mg/kg.

- Nine soil gas samples taken from 2, 8 and 12 feet bgs at tank 605, and from 2 and 8 feet bgs at Tanks 611, 620, and 633 showed very low concentrations of TPH with a mean and SD of 4.31 ± 6.12 μg/L.

- Soil Boring samples from 8 feet bgs, taken from Tanks 605, 611 and 633, were also analyzed for semi-volatile organic compounds (SVOCs) (see Table 9 of the

Woodward-Clyde Report), including polyaromatic hydrocarbons (PNAs). In general, no carcinogenic PNAs were detected.

- Six samples of wax pond materials were analyzed for toxic metals with no consistently elevated metal concentrations reported, although one sample from Pond D had 7 mg/kg mercury (Table 10 of the Woodward-Clyde Report).

- Soluble Threshold Limit Concentration (STLC) analyses of wax pond materials for arsenic, cadmium and lead showed no detectable concentrations (Table 12 of the Woodward-Clyde Report).

- Wax pond materials were also analyzed for priority pollutants with elevated concentrations of trimethylbenzenes and methylated naphthalenes reported (Table 13 of the Woodward-Clyde Report).

- Wax pond soils were analyzed for TPH and showed a maximum detected concentration of 9,600 mg/kg (Pond E). Several other soil boring samples from Pond B showed TPH concentrations as high as 7,800 mg/kg (Table 15 of the Woodward-Clyde Report).

- Three soil samples from Tanks 604, 626 and 634 were tested for herbicides. The only compounds detected were 2, 4-D and 2, 4, 5-T with a mean and SD of 0.33 $\pm$ 0.058 mg/kg (Table 17 of the Woodward-Clyde Report).

- Testing of surface soils for asbestos containing material potentially associated with piping showed no detectable asbestos (Table 18 of the Woodward-Clyde Report).

Lead concentrations in the first two feet of soil were reported to be above background concentrations, but below the Total Threshold Limit Concentration (TTLC).

The bulk of the hydrocarbon contamination, measured as total extractable petroleum hydrocarbons (TEPH), was limited to visually identifiable deposits of less than 0.1 percent by weight, also in the upper two feet of soil and beneath selected tanks.

In the course of this investigation, groundwater was not encountered in borings as deep as 150 feet bgs.

All analytical results were summarized in the 18 data tables contained in the Woodward-Clyde Report (1986).

2.8.1-2 Chevron USA Inc. Mitigation Plan, 7/17/1986

In light of the above data obtained by Woodward-Clyde, Chevron developed a Mitigation Plan. The key elements of this Plan were:

- Removing dirt with lead concentrations above 100 ppm (mg/kg) and disposing of these in an approved offsite facility.
- Removing waxy solids and soil containing waxy solids and treating these at a licensed waste recycling facility. The waxy hydrocarbon fraction would be recycled. The remaining solids and water would be disposed of in an appropriate manner.
- To eliminate aesthetic concerns, the Plan also called for establishing a "cap" of five feet (relative to final grading elevation) of dirt (with less than 200 ppm oil concentration) over any hydrocarbon contaminated soil. This was subsequently modified to 500 ppm oil concentration.

This Mitigation Plan contained a summary of the Woodward-Clyde report cited above and a summary of the known toxicity of crude oil and petroleum hydrocarbons stored at the facility.

As cited above, this Mitigation Plan was approved by the California Department of Health Services, the predecessor to the DTSC, per a letter from Mr. Howard Hatayama to Chevron dated September 11, 1986.

2.8.1-3 ENGEO, Inc.: Geotechnical Exploration, 7/1/98

This report contained information on the testing of soils through borings, soil samples, and test pits at the former Los Medanos Tank Farm to evaluate the feasibility of constructing homes on the property. Of particular relevance to the potential for migration of contaminants in the soil, was the observation that residual natural soils were derived by in-place weathering of the underlying parent bedrock. These natural soils consisted of dark brown silty clay with lesser amounts of sand. The residual soil cover ranged from about 3 to 5 feet thick over bedrock.

2.8.1-4 Levine-Fricke: Results of Surface Soil Lead Excavation and Verification

This investigation was designed to confirm that all lead above 100 ppm in surface had been removed offsite per the Agency Approved Mitigation Plan. The Chevron Real Estate Management Company (CREMCO) records indicated that lead-affected soil was removed from the former Los Medanos Tank Farm property in October and November 1986 and was disposed of at the Petroleum Waste, Inc. facility in Bakersfield, California. A total of 23 surface soil samples were collected and analyzed from former tank pad areas which in the 1985-86 investigation had shown lead above 100 ppm. Only one sample, T621S on the north side of Tank 621, exhibited a lead concentration of 230 ppm. An additional volume of soil, approximately 20 square feet in area and about six inches deep, was excavated around this lead detection in T621S. All other samples exhibited lead concentrations of less than 70 ppm. Based on these results, Levine-Fricke concluded that no further action with respect to lead-affected soils was required.

2.8.1-5 PES Environmental, Inc.: Subsurface Investigation Results, 9/14/00

The purpose of the subsurface investigation by PES was to *"...assess soil conditions along proposed roadway alignments at the subject property."* 56 soil borings (SB-701 through SB-757) were drilled and 177 soil samples collected from locations approximately every 70 linear feet along 3,900 linear feet of proposed roadway alignments. The soil samples were analyzed for TPH by EPA Method 8015 (modified). Only 4 of 177 samples (about 2 percent of the samples) contained TPH in excess of the laboratory reporting limits and these were detected in just two of the 56 borings. These borings and samples results were as follows:

SB-722 (6-6.5 ft bgs)	1,200 ppm
SB-729 (6-6.5 ft bgs)	600 ppm
SB-729 (11-11.5 ft bgs)	710 ppm
SB-729 (16-16.5 ft bgs)	300 ppm

2.8.1-6 RBDI, Preliminary Endangerment Assessment, 6/14/02

This Preliminary Endangerment Assessment (PEA) was performed for an approximately 24-26 acre parcel under DTSC oversight.

A total of 43 shallow soil samples were taken. 27 were randomized soil samples, three were Site-specific background samples, and the remaining 13 were focused soil samples (one from each of the 13 former tank pad areas). All samples were analyzed for CCR/CAM-17 metals, fuel hydrocarbons including gasoline, diesel, and motor oil, and their potentially toxic constituents.

Of the 13 former tank areas covered in this PEA report, all 13 were excavated to a minimum depth of 5 feet bgs and several were excavated to depths ranging from 10 to 16 feet bgs to remove most of the remaining hydrocarbons. The soil sampling data, contained in the *Summary of Onsite Bioremediation Activities, Highlands Ranch Unit 3* (ENGEO, 2002), were used to guide the excavation of approximately 51,900 cubic yards of soil. All excavated soils were replaced with clean fill and the hydrocarbon impacted soils were stockpiled for evaluation and, where necessary, for bioremediation. As an added precautionary measure, 25 samples were taken from these stockpiled soils and analyzed for potentially toxic constituents of gasoline and diesel fuel, including benzene, toluene, ethyl benzene, xylenes (BTEX) and the PNAs. Only negligible levels of such compounds were detected. Details of the excavation and bioremediation activities and the results of sampling and analyses are provided in a report submitted to the DTSC (ENGEO, 2002).

A sample of groundwater from an onsite monitoring well, MW-2, was also collected and analyzed to evaluate whether groundwater beneath the Site might have been impacted by petroleum hydrocarbons migrating down through the soil column. The results confirmed earlier data that groundwater in the northwest area was not impacted.

The results of the soil sampling showed that no metals were elevated above naturally occurring background concentrations, no potentially toxic constituents of fuel hydrocarbons were present, and only relatively low detections of total petroleum hydrocarbons were noted in soils.

In July of 2001, at the request of West Coast Homes, RBDI collected seven target soil samples from former tank pads 616, 618, 619, 622, 624, 627, 641 and 15, random soil samples from the western portion of the Phase II area. These data were evaluated by RBDI and reported to DTSC in a Revised Workplan For Site Investigation, Preliminary Endangerment Assessment, Highlands Ranch Phase II, Contra Costa County, California, dated June 8, 2005.

On June 15, 2002, the DTSC issued a *No Further Action* letter to West Coast Home Builders, Inc., on the Unit 3 project (DTSC, July 15, 2002).

2.8.1-7 Summary of Previous Investigations

The data collected to date suggest that no lead above regulatory thresholds remains in surface soils although former tank pad areas do have petroleum hydrocarbons over 500 ppm. If these remaining hydrocarbons were from crude oil, the levels of potentially toxic constituents would be expected to be below regulatory thresholds.

The portion of the former Los Medanos Tank Farm slated for development as part of this RAP covers approximately 140 acres.

3.0 NATURE, SOURCE, AND EXTENT OF CONTAMINANTS

3.1 Soil Sampling Approach

In general, there are two approaches to characterizing contaminants in soil: (a) *targeted* or *biased* sampling which involves testing an area that is either known to be contaminated or which is likely to be contaminated based on historical activities at the Site; and (b) *random* sampling which consists of testing an area that is believed to be clean (i.e., contains the contaminant below a regulatory threshold) to determine whether it is in fact clean.

Targeted samples only reveal whether the location sampled is in fact contaminated or "dirty" (above a regulatory threshold). Since targeted samples are by definition in areas known or believed to be contaminated, the spatial distribution of targeted sample results helps to delineate the zone of contamination. By collecting samples at various locations and at multiple depths at each location, both horizontal and vertical delineation can be achieved with a reasonable statistical confidence level (typically, the 95% upper confidence limit or 95% UCL). If, for example, five out of 10 targeted sample locations show contamination above some cleanup criterion or regulatory threshold and the remaining five were below the regulatory threshold, then only those five locations would be interpreted to be contaminated. Depending on the grid size and spacing, step-out borings can be used to further identify the volume of soil that might need to be remediated around the five samples that yielded results above the remedial action objective (RAO).

Random samples are selected by placing a grid over the area thought to be uncontaminated based on the history of Site operations. Each grid is assigned a number and a random number generator is used to select a given number of random sample locations. The results from the random sampling are evaluated differently from the targeted sample results in that if five out of 10 random sample locations show the contaminant above the RAO, then 5/10 or 50% of the entire area where the random sampling was conducted would be deemed to be potentially contaminated above the RAO, and additional random sampling would be required to more accurately delineate the area or areas of contamination.

In order to assess the nature and extent of any remaining hydrocarbon impacted soil, RBDI collected both target and random soil samples as described below and shown in Figure 4. As part of the Site investigation, RBDI selected 32 locations for targeted soil samples and 37 locations for random soil samples. Targeted samples were collected from former tank pad areas or from former wax ponds areas. Random samples were collected based on a random grid pattern to evaluate the presence of any contamination outside the former tank pad areas.

3.1.1 Targeted Sampling

A total of 34 locations were selected for multi-depth targeted sampling. These included the remaining 27 former tank pad areas, the five former wax ponds, and the three "X" designated locations.

In order to assess the nature and extent of any remaining petroleum hydrocarbon contamination, RBDI drilled 24 boreholes, one in each tank pad area, to 15 feet bgs in the center of each former tank pad area. Four soil samples were collected in each borehole, at the surface, and at 5, 10, and 15 feet bgs. If visual evidence of any oily dirt was noted in the field at 15 feet bgs, an additional soil sample was collected from 19-20 feet bgs. These *targeted samples* were designed primarily to elicit the nature of the remaining hydrocarbon contamination. These samples were also analyzed for the CCR/CAM-17 suite of potentially toxic metals.

RBDI drilled six additional boreholes in the former wax pond areas and one boring in each of the "X" designated areas (Figure 4). Four soil samples were collected from each wax pond or "X" designated area, including from the surface, 5, 10, and 15 feet bgs. Each soil sample was also analyzed for pH so that the potential for the downward transport of metals or presence of acidic or alkaline materials could be evaluated. In addition, each sample from the wax pond or "X" designated area was also analyzed for the entire suite of semi-volatile organic compounds (SVOCs) by EPA Method 8270.

The results of these targeted samples are given in Table 1 (CAM-17 metals), Table 2 (TPHg, TPHd, TPHo), Table 3 (VOCs), Table 4 (SVOCs), and Table 5 (SVOCs, but specifically PNAs). The data show TPH detections above 500 mg/Kg (ppm) at several locations and at multiple depths, some VOCs, primarily toluene, ethylbenzene, xylenes, and the alkybenzenes, no detectable SVOCs (although some compounds had high detection limits), and no detectable PNAs (again, some samples had high detection limits despite re-analysis by the laboratory). In virtually every sample, the detection of VOCs were co-located with detections of TPH above 500 ppm and, therefore, will be excavated and remediated. Metals were not elevated above naturally occurring background concentrations or above the USEPA Region IX PRGs for residential soils.

Figure 5A shows by a red star the location where TPH was found above 500 ppm in surface soils. Figure 5B indicates the locations of TPH impacted soils up to 5 feet bgs. Figure 5C indicates the locations of TPH impacted soils up to 10 feet bgs. Figure 5D shows the locations of TPH impacted soils up to 15 feet bgs. Figure 5E gives the locations of TPH impacted soils up to 20 feet bgs. The implications of these data and how they will be remediated is discussed later in this RAP.

3.1.2 Random Sampling

It was assumed that some soil contamination might also occur from leaks in piping or truck spills in the areas outside the former petroleum tank pads or wax ponds. Thus, soil in these areas was randomly sampled. The Site was divided into 100 feet by 100 feet grids and a random number generator used to select 37 locations. These random soil samples were collected from the 0 to 12 inch soil horizon, since any release of hazardous chemicals in these areas would likely have originated from the surface.

The data are presented in Table 6 (CAM-17 metals), Table 7 (TPHg, TPHd, TPHo), Table 8 (SVOCs) and Table 9 (PNAs). Note that a few PNAs were detected in 9 of the 37 samples. However, the TPH detections above 500 ppm were in just 6 of the 37 samples. This suggests that the PNAs could be from vehicular diesel exhaust and not as a constituent of the TPH. Figure 6 shows the locations of TPH-impacted collected surface soils.

3.2 Type and Location of Contaminants

The Site characterization data collected in August 2005, under DTSC oversight, revealed further information about total petroleum hydrocarbons as gasoline (TPH-g), diesel (TPH-d), motor oil (TPH-o) and their constituents including, toluene, ethylbenzene, xylenes, isopropyl benzene, n-propylbenzene, 1,2,4-trimethylbenzene, sec-butylbenzene, 4-isopropyltoluene, n-butylbenzene and naphthalene in soils at the Site.

3.3 Extent and Volume of Contamination

The vertical extent of petroleum hydrocarbons affected soil was delineated in all but three locations and, in general, did not extend more than 15 feet bgs. In three locations, under former tank numbers 609 and 613 were present at 19.5 feet bgs and in Pond-C hydrocarbon impacted soils were detected at 15 feet bgs, respectively.

The volume of soil which requires excavation from under these former tanks, and random sample locations is not known with precision. Based on the known 110-foot diameter of each former tank pad, we propose to excavate radially out from the center of each former tank pad where our soil boring was located until there is no visual or PID evidence of TPH contamination. At that point, four discrete soil samples will be taken from each wall for laboratory analysis for TPH, BTEX and SVOCs, including PNAs to establish that all TPH contamination at or above the RAO has been removed and that concentrations of other measured constituents are present below the residential soil PRGs developed by USEPA Region IX.

The vertical delineation has been achieved except for the three locations mentioned. At all locations with TPH at or above 500 ppm, excavation will occur to the depths described in Figures 5A, 5B, 5C, 5D and 5E and confirmation samples taken and analyzed as above to establish that the RAOs have been met. It is expected that once the concentration of TPH diminishes in these confirmation samples with depth, the potential presence of other constituents which presently have high detection limits will be resolved.

We estimate the volume of TPH-impacted soils to be somewhere in the neighborhood of about 75,000 cubic yards. This estimate was derived by assuming that much of soils within the circumference of each former tank pad would be impacted to the depths identified. It is expected that the TPH impacted soils will be less spread out horizontally below about 5 feet bgs than this assumption considered simply because of how the viscous TPH would narrow as it migrated down through these relatively low permeability soils.

4.0 REMEDIAL ACTION OBJECTIVES

The risks to human health and the environment, including groundwater quality, from the presence of petroleum hydrocarbons in soils to typically less than 20 feet bgs at this Site is considered to be low. The data indicate that much of the petroleum hydrocarbons detected originated from crude oil stored at the Site over several decades. Crude oil, unlike gasoline does not contain the potentially toxic BTEX constituents and there are no risk-based cleanup criteria for TPH per se in the soil. However, in accordance with the agreement between West Coast and Chevron, we propose to use their agreed-upon threshold of 500 ppm TPH as the Remedial Action Objective (RAO). Where BTEX or other SVOCs may be detected, we propose to use the most current USEPA Region IX Preliminary Remediation Goals (PRGs) for these constituents in soil under a residential exposure scenario.

Therefore, we propose excavating all soil affected by TPH-g, TPH-d and TPH-o at or above be 500 ppm. Since this Site contains mainly heavier hydrocarbons and BTEX, and PNAs were detected only sporadically at low levels, RBDI proposes that the 500 ppm RAO for TPH-g, TPH-d and TPH-o will rule the remedial activities rather than preliminary remedial goals for BTEX and PNAs. In addition, the data indicate a strong correlation between areas with detectable concentrations of BTEX or PNAs and areas with TPH-g, TPH-d and TPH-o above 500 ppm. This correlation assures that all petroleum affected soil will be excavated and remediated.

As discussed above, in some cases detection limits for non-TPH compounds were high presumably because of the presence of high TPH values. To address this issue, post-excavation verification sampling will be analyzed for these non-TPH VOCs and SVOCs to ensure that any detections observed are carefully evaluated and remediated where they exceed the USEPA PRG for residential soils.

5.0 FOCUSED ENGINEERING EVALUATION

The purpose of this Section of this RAP is to identify and screen possible removal action alternatives that may best achieve the proposed cleanup levels discussed in Section 4.0. The screening of the removal action alternatives was conducted in general accordance with the USEPA document, *Guidance on Conducting Non-Time Critical Removal Actions under CERCLA*. Accordingly, the removal action alternatives were screened and evaluated based on their effectiveness and implementability. Cost was not considered quantitatively as a factor in determining which of several remedial options should be considered because West Coast is committed to cleanup of the Site for residential development.

5.1 RAP Scope

Each of the remedial action alternatives is screened based on effectiveness and implementability and qualitative cost considerations, as defined below:

- Effectiveness – This criterion focuses on the degree to which a removal action reduces toxicity, mobility, and volume, minimizes residual risk, affords long-term protection and minimizes short-term impacts. It also considers how quickly the removal action achieves overall protection of human health and compliance with Applicable or Relevant and Appropriate Requirements (ARARs).

- Implementability – Remedial actions are evaluated with respect to technical feasibility and applicability to Site conditions. Some examples of this criterion include the ability to obtain necessary permits, regulatory approval of remedial actions, availability of necessary equipment and skilled workers, and acceptance by the State and the community.

- Cost – This criterion relates to the relative cost screening bases on approximate capital and operational maintenance costs.

Screening of several technology types was limited to the tried and true given that much or most of the contamination consists of petroleum hydrocarbons. Based on this screening, the three Alternatives identified and developed are:

- Alternative 1 – No Action

- Alternative 2 – Excavation and Offsite Disposal

- Alternative 3 – Excavation and Onsite Bioremediation

Each of these removal action alternatives is described in Section 5.2

5.2 Evaluation of Remedial Action Alternatives

Each removal action alternative was independently analyzed without consideration to the other alternatives. This analysis addressed the criteria listed below:

- Short-Term Effectiveness – This criterion evaluates the effects of the remedial alternative during the construction and implementation phase until remedial objectives are met. It accounts for the protection of workers and the community during remedial activities and environmental impacts from implementing the remedial action.

- Long-Term Effectiveness and Permanence – This criterion addresses issues related to the management of residual risk remaining onsite after a remedial action has been carried out and has met its objectives. The primary focus is on the controls that may be required to manage risk posed by treatment residuals and/or untreated wastes.

- Reduction of Toxicity, Mobility, or Volume – This criterion evaluates whether the remedial technology employed results in significant reduction in toxicity, mobility, or volume of the hazardous substances.

- Implementability – This criterion evaluates the technical and administrative feasibility of the alternatives, as well as the availability of the necessary equipment and services. This includes the ability to design and perform a remedial alternative, ability to obtain services and equipment, ability to monitor the performance and effectiveness of technologies, and the ability to obtain necessary approvals from agencies, and acceptance by the State and the community.

- Overall Protection of Human Health and the Environment – This criterion evaluates whether the remedial alternative provides adequate protection to human health and the environment.

- Cost Effectiveness – This criterion assesses the relative cost of each technology based on estimated fixed capital for construction or initial implementation and ongoing operational and maintenance costs. The actual costs will depend on true labor and material cost, competitive market conditions, final project scope, and the implementation schedule.

5.2.1 Alternative 1 – No Action

The No Action Alternative has been included to provide a baseline for comparisons among other remedial alternatives. This Alternative does not include any institutional controls, treatment of soil, or any monitoring.

The No Action Alternative would not require implementing any measures at the Site, and thus no costs would be incurred. Consequently, there would not be any activities that would disturb Site soil, and therefore, no short-term risks to Site workers or the community as a result of implementing this Alternative. However, under the No Action Alternative, the potential environmental impacts due to the presence of petroleum hydrocarbons in soil would not be addressed. This Alternative, therefore, does not meet the long-term effectiveness and permanence criterion. The No Action Alternative also would not result in reducing the toxicity, mobility, or volume of petroleum hydrocarbons in Site soils. In addition, this Alternative does not meet the criterion of overall protection of human health and the environment.

Because West Coast intends to use the property to build single family homes, the presence of any kind of "oily dirt" is not desirable. Even though the high concentrations of TPH, insofar as these represent crude oil, might not pose a threat to human health and the environment, cleanup is desired by the property owner so as to be able to develop the Site.

5.2.2 Alternative 2 – Excavation and Offsite Land Disposal

The Excavation and Offsite Land Disposal alternative would consist of removing and transporting impacted soil to an appropriate, permitted facility for disposal. Excavation includes using loaders, backhoes, large diameter augers, and/or other appropriate equipment. Excavation operations may generate fugitive dust emissions. Water spray and other forms of dust control may be required during excavation, and workers may be required to use personal protective equipment to reduce exposure to dust and hydrocarbons. Sloping or benching excavation sidewalls may result in increased volume of soil requiring excavation. Confirmation soil sampling and analysis would need to be conducted to verify that all cleanup criteria were met at the excavation bottom and around its perimeter.

Excavation may require additional area for soil stockpiling, prior to treatment or disposal. A summary of the assessment of this alternative for each of the screening criteria is provided in this section.

Short-and-Long-Term Effectiveness

Potential short-term risks to onsite workers, public health and the environment could result from dust or particulates that may be generated during excavation and soil handling activities. These risks could be mitigated using personal protective equipment for onsite workers and engineering controls, such as dust suppression and air monitoring in addition to traffic and equipment operating safety procedures for protection of the surrounding community and to meet all ARARs.

Excavation and disposal would remove the chemicals of potential concern from the Site, and therefore eliminate the long-term risks and all RAOs would be met.

Reduction of Toxicity, Mobility, or Volume

Although the hydrocarbon impacted soils would be removed from the Site, excavation and offsite land disposal does not result in the reduction of toxicity or volume of the impacted soils. By placing the impacted soil in an engineered landfill suitable for receiving the petroleum hydrocarbon affected soil, the mobility of the chemicals of concern would be reduced.

Implementability

Excavation and offsite disposal is a well-proven readily implementable technology that is a common method for cleaning up contaminated sites. It is a relatively simple process, with proven results. Equipment and labor required to implement this alternative are uncomplicated and readily available. The depths of the identified contamination make excavation implementable. It is anticipated that regulatory approval would be granted since it is a proven and permanent technology. However, the transport of an estimated 112,500 tons of soil at 20 tons/ truck (leaving 6 inches of freeboard) would require over 5,625 trucks. Emissions from these trucks and traffic congestion on neighboring streets would be significant and would require an approved traffic control plan for the duration of the offsite transport. At an estimated 30 trucks per day, the offsite transportation would take about 188 days. Acceptance by the State and the community for this alternative may be slow to obtain because of these issues.

Overall Protection of Human Health and the Environment

This alternative reduces the potential risks from the exposure to the impacted soils at the Site and would meet the RAOs. Consequently, it is considered to be protective of human health and the environment.

Cost Effectiveness

Because of the large volume of petroleum-impacted soils estimated to be about 75,000 cubic yards or approximately 112,500 tons, the estimated costs for excavation, transportation, and disposal, even exclusive of permitting fees would be quite high.

5.2.3 Alternative 3 – Excavation and Onsite Bioremediation

The Excavation and Onsite Bioremediation alternative would consist of excavating the impacted soils and stockpiling them in a designated area on the Site for bioremediation. After bioremediation, the soil could be reused at the Site. The excavation would require loaders, backhoes, and trucks, and other appropriate equipment, all of which are readily available to West Coast since they are home builders. Excavation operations may generate fugitive dust emissions. Suppressant foam, water spray and other forms of dust control may be required during excavation, and workers may be required to use personal protective equipment to reduce exposure to hydrocarbons and their constituents. Sloping or benching excavation sidewalls may result in increased volume of soil requiring excavation. Confirmation soil sampling and analysis would be performed to verify that all cleanup criteria were met at the excavation bottom and around its perimeter.

A summary of the assessment of this alternative for each of the screening criteria is provided in this section.

Short-and-Long-Term Effectiveness

Potential short-term risks to onsite workers, public health and the environment could result from dust that may be generated during excavation and soil handling activities. These could readily be mitigated using personal protective equipment for onsite workers and engineering controls, such as dust suppression and air monitoring in addition to traffic and equipment operating safety procedures for protection of the surrounding community. Given that the Site is large (approximately 140 acres) and vacant, much of the activity could be performed in a phased manner so as to minimize dust, noise, and traffic.

Excavation and onsite bioremediation would remove and/or reduce the concentrations of the hydrocarbons at the Site to below the RAOs and, therefore, eliminate any long-term risks. Importantly, all remedial action objectives would be met.

Reduction of Toxicity, Mobility, or Volume

Excavation and onsite bioremediation will result in the reduction of toxicity or volume of the hydrocarbons. Treatment of the hydrocarbon impacted soils would permanently reduce the toxicity and mobility of the chemicals of concern.

Implementability

Excavation and bioremediation is a well-proven readily implementable technology and is a common method for cleaning up petroleum contaminated soils. It is a relatively simple process. Equipment and labor required to implement this alternative are uncomplicated and readily available. The depths of the identified contamination make excavation feasible. It is anticipated that regulatory approval would be granted since it is a proven and permanent technology. Acceptance by the State and the community for this alternative is considered high and given the large vacant area onsite, this could be accomplished readily.

Overall Protection of Human Health and the Environment

This alternative reduces the potential risks from the exposure to the chemicals of concern at the Site and accomplishes the RAOs, after completion of the bioremediation process.

Cost Effectiveness

The estimated cost for excavation and onsite bioremediation would be significantly less than that of Alternative 2, especially given the nature of the contamination and the low-tech bioremediation technology.

5.4 Recommended Removal Action Alternative

Based on the comparative analysis described in Section 5.3, Alternative 3, Excavation and Onsite Bioremediation, is the preferred and recommended remedial action alternative for addressing the petroleum hydrocarbons at this Site. This alternative was selected because it was determined to meet all RAOs, be cost-effective, and is readily implementable.

The overall short-term effectiveness and implementability of this alternative is high. Potential risks include exposure of onsite workers to dusts during excavation, soil handling, and remediation activities. However, these risks are readily mitigated by the proper use of personal protective equipment, adherence to procedures outlined in the Health and Safety Plan, air monitoring, and other engineering controls such as watering to reduce fugitive dust generated during excavation.

The selected technology has a high, long-term effectiveness and reliability. The source of the contamination would be eliminated or greatly reduced at the Site. Long-term monitoring, sampling, or maintenance will not be required. Acceptance by the State and the community for this Alternative would likely be high.

The selected Excavation and Onsite Bioremediation action will reduce toxicity or volume, and will reduce exposure and mobility of chemicals of potential concern.

Alternative 3 is deemed most preferable in the long and short-term effectiveness categories, and in the overall protection of human health and the environment. It is also the most cost effective and will allow for the use of the Site for residential development.

5.4.1 Description of Selected Remedy

Petroleum hydrocarbon impacted soil currently present under the former tank pads or in the vicinity of random sample locations will be excavated using a combination of excavator-backhoe, scrapers and 20-ton dump trucks, and hauled to the designated soil stockpile-bioremediation area on the 140-acre parcel (see Figure 7 for the proposed biotreatment cell location). The proposed excavation would be implanted in phases to allow for effective management of traffic, dust and bioremediation activities. It is estimated that the entire remediation effort would be completed in one year. This period of time will include excavation, loading of the impacted soil into and disposal at the designated bioremediation cell area. Control measures to be implemented as part of the Health and Safety Plan (HASP, Appendix D) are work area control, dust control, traffic control, and air monitoring, if required by the BAAQMD as described in Sections 7.4, 7.5 and 7.7.

The total estimated volume of soil to be removed is approximately 75,000 cubic yards or about 112,500 tons, based on a conversion factor of 1.5 tons per cubic yard. Upon completion of the removal action, confirmation soil samples will be collected from the excavated area, as described in Section 7.3.5.

The excavation will be considered complete when the overall cleanup goal of 500 mg/kg or less is achieved. The excavated areas will be backfilled and compacted with bioremediated soils or clean fill. However, portions of the excavation may be fenced and secured until remediation is completed and remediated soil is available as fill material.

Bioremediation describes the process by which microorganisms naturally occurring in soils (or externally augmented) break down environmental contaminants. Organic contaminants such as petroleum hydrocarbons can be metabolized by the microorganisms and used as energy or food generating benign end products such as carbon dioxide and water (Eweis et al, 1998).

Petroleum and petroleum products typically consist of a mixture of straight-chain and branched-chain alkanes, aromatic and nitrogen, oxygen or sulfur-containing hydrocarbons. In general, straight-chain alkanes are the least toxic and the most readily biodegradable. Longer chain n-alkanes are more viscous, hydrophobic and biodegrade more slowly. Branched and cycloalkanes are more resistant to biodegradation and polynuclear aromatics (PNAs) are difficult to biodegrade (Morgan and Watkinson, 1989; Tabak and Govind, 1997; Bouwer et al, 1997). In addition to molecular structure of the hydrocarbons, temperature, moisture content, available oxygen, pH, nutrients and the presence of other organic compounds can influence the rate of hydrocarbon biodegradation in soils (Sylva et al, 2003; Leahy & Colwell, 1990).

RBDI proposes to implement bioremediation in excavated stockpiled soils that will be spread out close to the excavation of the former tank pad areas in two or three phases depending on volume of soil to be remediated. The proposed bio-treatment cell is located south of the Chevron Pump Station, and is about 1,200 feet long by 900 feet wide in dimension (Figure 7). This area will be divided in to 24 cells. Each cell will be about 50 feet by 450 feet. A driving space of 30 to 40 feet is located between each cell. The soil pile will be no more than about 1.5 feet high to allow for oxygen penetration. Therefore, each cell could bio-treat about 1250 cubic yards soil, and a total of 30,000 cubic yards soil can be bio-treated in this area (122 feet by 900 feet). The moisture content will initially be maintained at about 40% and pH in a range of 7.0 and 7.8. The carbon to nitrogen (C:N) ratio will be at about 5:1 through the addition of fertilizers.

Pilot treatment will be tested in two cells. Weekly churning of the soils undergoing bioremediation and weekly random sampling of the soils for TPH will be conducted. Based on the literature cited above, our experience, and the fact that much of the oily dirt consists of crude oil, we expect to be able to achieve biodegradation of 75% in 6 to

8 weeks. Once the pilot test results are evaluated, the bioremediation process may be modified to optimize the rate of biodegradation under Site-specific conditions. Our initial attempt will be to implement a simple, effective and cost-sensitive process that gets the soils remediated in a timely manner.

The effectiveness of the bioremediation process will be evaluated through a random sampling of each cell prior to initiation of the bioremediation. This sampling will consist of 10 discrete random soil samples from random locations throughout the stockpile. The 10 discrete samples will be composited into 2 soil samples which will be sent to the laboratory at the end of each week for analysis for TPH, BTEX and SVOCs. Once the weekly results over an initial 4 to 6 weeks confirm that biodegradation is occurring, the subsequent sampling frequency may be reduced to every four weeks for each stockpile undergoing bioremediation.

The bioremediation process will consist of the following:

1. Excavation and onsite soil stockpiling of petroleum impacted soil in a phased manner.

2. Stockpiled soil with confirmed hydrocarbon impact will be used to construct onsite bio-treatment cells. The treatment cell will be subject to bioremediation processes to reduce petroleum hydrocarbon level to the target cleanup level (below 500 mg/kg for TPH and below USEPA residential PRGs for all other detected VOC and SVOCs).

3. A disking unit or soil grinder will be used frequently to homogenize the soil so as to introduce oxygen to the indigenous microbes that metabolize petroleum hydrocarbons.

4. To enhance bioremediation, the soil will be treated with amendments and fertilizers, and moisture will be controlled to optimize biodegradation.

5. Random soil samples from the treatment cell will be sampled monthly to verify the decline of TPH concentrations. Ten discrete soil samples will be taken randomly and composited into two samples for laboratory analyses for TPH, BTEX, and SVOCs.

6. Once the sampling program verifies that TPH concentrations in the cell are below 500 ppm, soil will be reused as an engineered fill onsite.

7. Soil with non-detectable (ND) TPH concentrations or with detectable TPH concentrations less then 500 mg/kg will be used without placement restrictions so long as BTEX and other potentially toxic SVOCs such as PNAs are below the USEPA Region IX residential soil PRGs.

8. Soil with TPH concentrations above 500 mg/kg will be restricted to placement at least 10 feet below finished grades.

9. Confirmation soil samples will be collected from the soil underlining the bio-treatment cell once the remediated soil has been removed and a closure report submitted to the RWQCB.

5.5 Health and Safety Plan (HASP)

All contractors will be responsible for operating in accordance with the most current Occupational Safety and Health Administration (OSHA) regulations including 29 CFR 1910.120, Hazardous Waste Operations and Emergency Response, and 29 CFR 1926, Construction Industry Standards as well as other applicable federal, state and local laws and regulations (Appendix A).

5.6 Quality Assurance/ Quality Control (QA/QC)

The quality assurance/quality control measures that will be used during project execution will assure that Site field and analytical data collected meet project Data Quality Objectives (DQOs) and RAOs to support decisions for development of the Site for residential purposes.

6.0 REMOVAL ACTION IMPLEMENTATION

6.1 Site Preparation and Security Measures

6.1.1 Delineation of Excavation Areas

The excavation area will be delineated using "*Suggested Guidelines for Prospective Excavation Site Delineation and Facility Owner Location Markout*" published by Underground Service Alert (USA) of Northern California at http://www.digalert.org.

6.1.2 Utility Clearance

Underground Service Alert (USA) of Northern California will be contacted at least 48 hours prior to any excavation at the Site.

6.1.3 Contaminant Control

Erosion control measures (straw bales), wind fences, and a water truck will be used to control dust and erosion as appropriate.

In order to prevent any potential exposure of material to the equipment, the following measures, if needed, will be implemented during soil excavation activities:

- Removal action will be conducted only after the RAP has been approved in writing by the RWQCB.
- West Coast Home Builders, Inc. will take necessary steps to minimize impact to the surrounding community.

6.1.4 Permits and Plans

In addition to the submittal of the RAP, the scope of activities necessary to complete the excavation will involve general construction permitting (under West Coast Home Builders, Inc. permits). Prior to the initiation of any field activities the following agencies may have to be notified, or permits obtained:

Contra Costa County:

- Public Works

State of California:

- Occupational Safety and Health Administration (OSHA), Department of Industrial Relations – Notification of Excavation Activity
- Bay Area Air Quality Management District (BAAQMD)
- Underground Service Alert (USA) of Northern California – AB 73 or equivalent.

Several elements of BAAQMD Rule 226 and Regulation 8, Rule 40, Section 113, such as protocols for mitigation of potential fugitive dust emissions, have been incorporated into this RAP. Excavation, loading and transport of impacted soils shall be in compliance with BAAQMD rules and regulations for the prevention, reduction, and mitigation measures for fugitive dust emissions.

6.2 Field Documentation

The forms generated to document sample collection activities will include the Chain-of-Custody (CoC), Sample Collection Log (SCL), and Field Activity Daily Log (FADL).

6.2.1 Field Logbooks

Field logbooks will document where, when, how, and from whom any vital project information was obtained. Logbook entries will be complete and accurate enough to permit reconstruction of field activities. Logbooks will be bound with consecutively numbered pages. Each page will be dated and the time of entry noted in military time. All entries will be legible, written in blue or black ink, and signed by the individual making the entries. Language will be factual, objective, and free of personal opinions or other terminology which might prove inappropriate. If an error is made, corrections will be made by crossing a line through the error and entering the correct information. Corrections will be dated and initialed. No entries will be obliterated or rendered unreadable.

Entries in the field logbook will include at a minimum the following for each fieldwork date:

- Site name and address.
- Recorder's name.
- Team members and their responsibilities.
- Time of Site arrival/entry on Site and time of Site departure.
- Other personnel onsite.
- A summary of any onsite meetings.
- Quantity of impacted soils excavated and stored onsite.
- Quantities of import fill material in truckloads.
- Deviations from this RAW and Site HASP.
- Changes in personnel and responsibilities, as well as reasons for the changes.
- Levels of safety protection.
- Calibration readings for any equipment used with equipment model and serial number.

At a minimum, the following information will be recorded during the collection of each sample:

- Sample identification number.
- Sample location and description.
- Site sketch showing sample location and measured distances.

- Sampler's name(s).
- Date and time of sample collection.
- Designation of sample as composite or grab.
- Type of sample (i.e., matrix).
- Type of preservation.
- Type of sampling equipment used.
- Field observations and details important to analysis or integrity of samples (e.g., heavy rains, odors, colors, etc.).
- Instrument readings (e.g., photoionization detector [PID], etc.).
- Chain-of-custody form numbers and chain-of-custody seal numbers.
- Transport arrangements (courier delivery, lab pickup, etc.).
- Recipient laboratory.

6.2.2 Chain-of-Custody Records

The Chain-of-Custody (CoC) will be generated from the Sample Labels that are typically prepared during sample collection and affixed to the sample containers. Information provided on the CoC includes the sample names, sample descriptions, date and time of collection, container types, sample volumes, preservative and requested analytical testing. The CoC will be generated in the field and accompany the samples to the laboratory.

6.3 Excavation

6.3.1 Confined Space Entry Requirements

No confined space entry is anticipated. Excavation will follow CAL/OSHA standards. Slopes or benches will be used per construction industry practices and in accordance with all relevant rules and regulations (CAL/OSHA Regulations, Excavation, Trenches, Earthwork, CCR Title 8, Section 1541.1(a) through Section 1541.1(e) Protective Systems).

6.3.2 Storage Operations

The excavated soil will be stored at designated bioremediation area. The soil storage process will be monitored to ensure dust is limited or not created. The staging areas will be bermed to contain any runoff.

6.3.3 Decontamination Area

Each piece of equipment used for the excavation will have a clean-out bucket or continuous edge across the cutting face of its bucket.

Entry to the petroleum hydrocarbon affected areas will be limited to avoid unnecessary exposure and related transfer of contaminants. In unavoidable circumstances, equipment or trucks will be decontaminated in a designated decontamination area before leaving the Site as follows:

Decontamination Procedures

All equipment or trucks that come into contact with potentially contaminated soil or water will be decontaminated to assure the quality of samples collected and/or to avoid cross contamination. Disposable equipment intended for one-time use will not be decontaminated, but will be packaged for appropriate disposal. Decontamination will occur prior to and after each designated use of a piece of equipment. All drilling, sampling, excavating, transporting and storage devices used will be decontaminated using the following procedures:

- Non-phosphate detergent and tap water wash, using a brush if necessary.
- Tap-water rinse.
- Initial deionized/distilled water rinse.
- Final deionized/distilled water rinse.

Equipment will be decontaminated in a pre-designated area.

6.3.4 Excavation Plan

Trucks and equipment will enter and exit the Site from Buchanan Road.

Initial Excavation: The initial excavation includes identified petroleum affected areas. The initial excavation will produce approximately 75,000 cubic yards of material, or about 112,500 tons. The excavation will proceed in phases so as to initially excavate only those soils that can be bioremediated n the biotreatment area.

Confirmation Excavation: Additional excavation also may be necessary depending on the results of confirmation sampling as discussed in Section 7.6.

6.4 Dust Control Plan

Applicable dust control requirements are found in Rule 40 and Rule 226 of the BAAQMD. A dust control plan will be submitted to the Air Pollution Control Officer, if required. It is anticipated that soils will be kept moist when the excavation occurs and, therefore, dust generation potential will be minimal. If needed, dust minimization procedures will be used as discussed below.

6.4.1 Dust Control

Excavation activities will cease if wind speed exceeds 25 mph. Water will be used to control dust on the Site. Some excavation areas may remain open and fenced, otherwise the excavation will be filled with reusable soil.

- All removal activities will cease in the event wind conditions change creating an uncontrollable condition. If offsite meteorological stations can not provide data relevant to the Site, West Coast Home Builders, Inc.'s contractor will rely on the onsite station. This will be determined after mobilization.

6.5 Confirmation Sampling

Once complete, each excavation area will be sampled at the bottom and four sidewalls to verify contaminant removal. Upon removal of the stockpiled soils, the underlying native soil will be sampled to verify that all petroleum hydrocarbons have been removed.

Additional confirmation sampling will be implemented if any visually impacted soil is encountered at any excavation depth. Confirmation soil samples will be compared to the RAO/PRGs. Analytical results from confirmation samples exceeding the preliminary cleanup goals will result in further excavation and additional confirmation sampling. The excavation of additional soil will proceed until the cleanup goals are met (from any outward-facing sidewall sample and/or final bottom sample).

Confirmation samples will be collected directly into sampling jars or brass liners thereby reducing the number of sampling equipment which will significantly reduce the possibility of cross contamination. The samples will be stored onsite in a cooler filled with ice or blue ice prior to delivery to a California certified laboratory within holding time of the samples. All samples will be analyzed for total petroleum hydrocarbons (TPH), BTEX, and SVOCs such as the PNAs typically associated with diesel fuels (TPH-d).

6.6 Backfill and Site Restoration

Most of the excavation areas will be backfilled with non-petroleum impacted soil available onsite or with clean backfill material, depending on the data and West Coast's plans to re-develop that portion of the Site, contingent, of course, on RWQCB approval. Some excavation areas will remain open until remediated soil is available for backfill. While the excavation is open, security fencing with a locking gate will be installed (see Section 7.1.3). Storm water runoff will be controlled as per 40 CFR 100-149.

7.0 PROJECT SCHEDULE AND REPORT OF COMPLETION

Submit RAP to RWQCB:	August 4, 2006
Days After RAP Approval by RWQCB:	
Permit Submission & Anticipated Approval:	+ 30 days
Utility Clearance (USA):	+ 10 days
Excavation Start Date:	+ 30 days
Phased Bioremediation:	+ 100-200 days
Report of Completion:	45 days after completion of bioremediation - Monthly letter format progress reports to RWQCB anticipated.

8.0 REFERENCES

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FIGURES

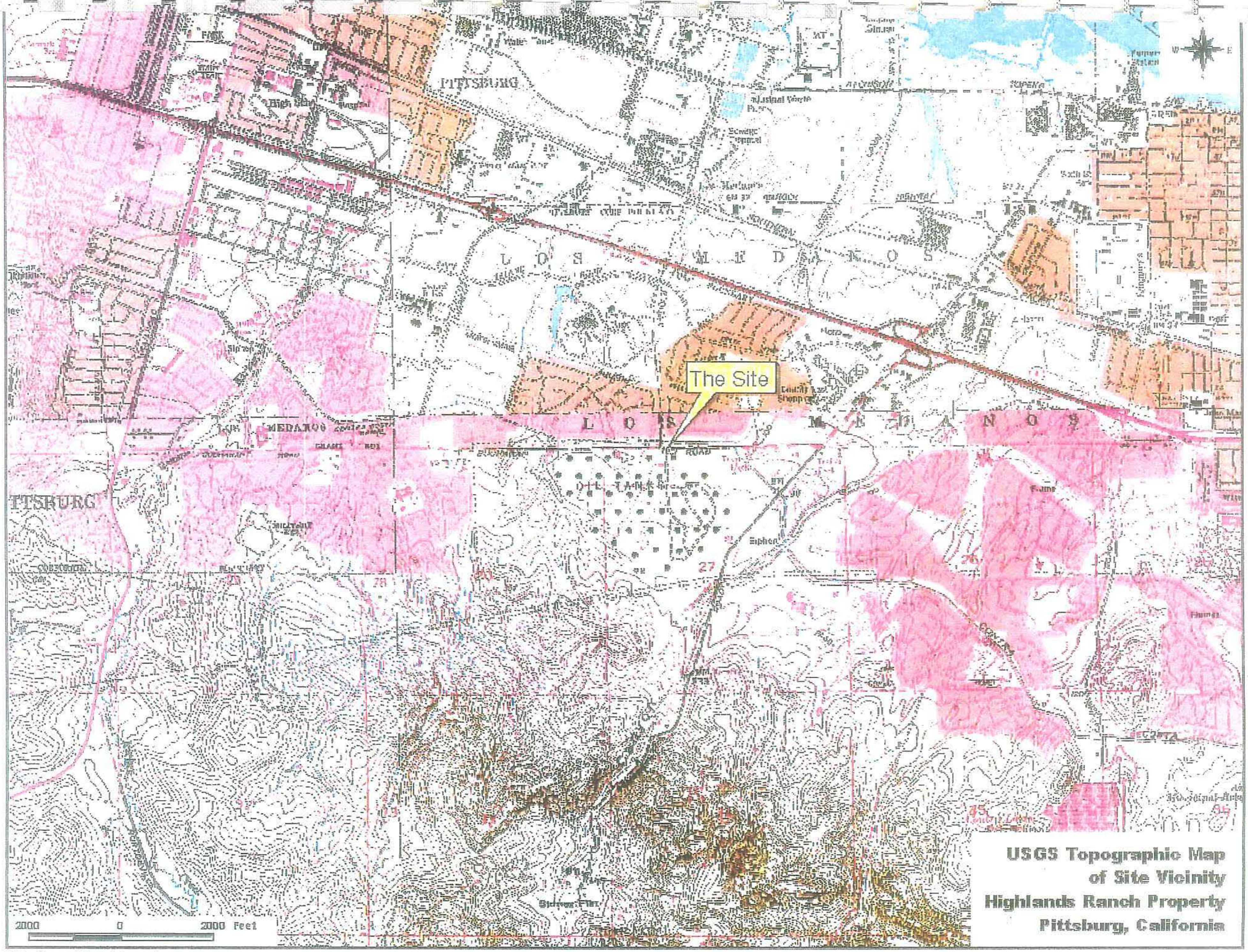

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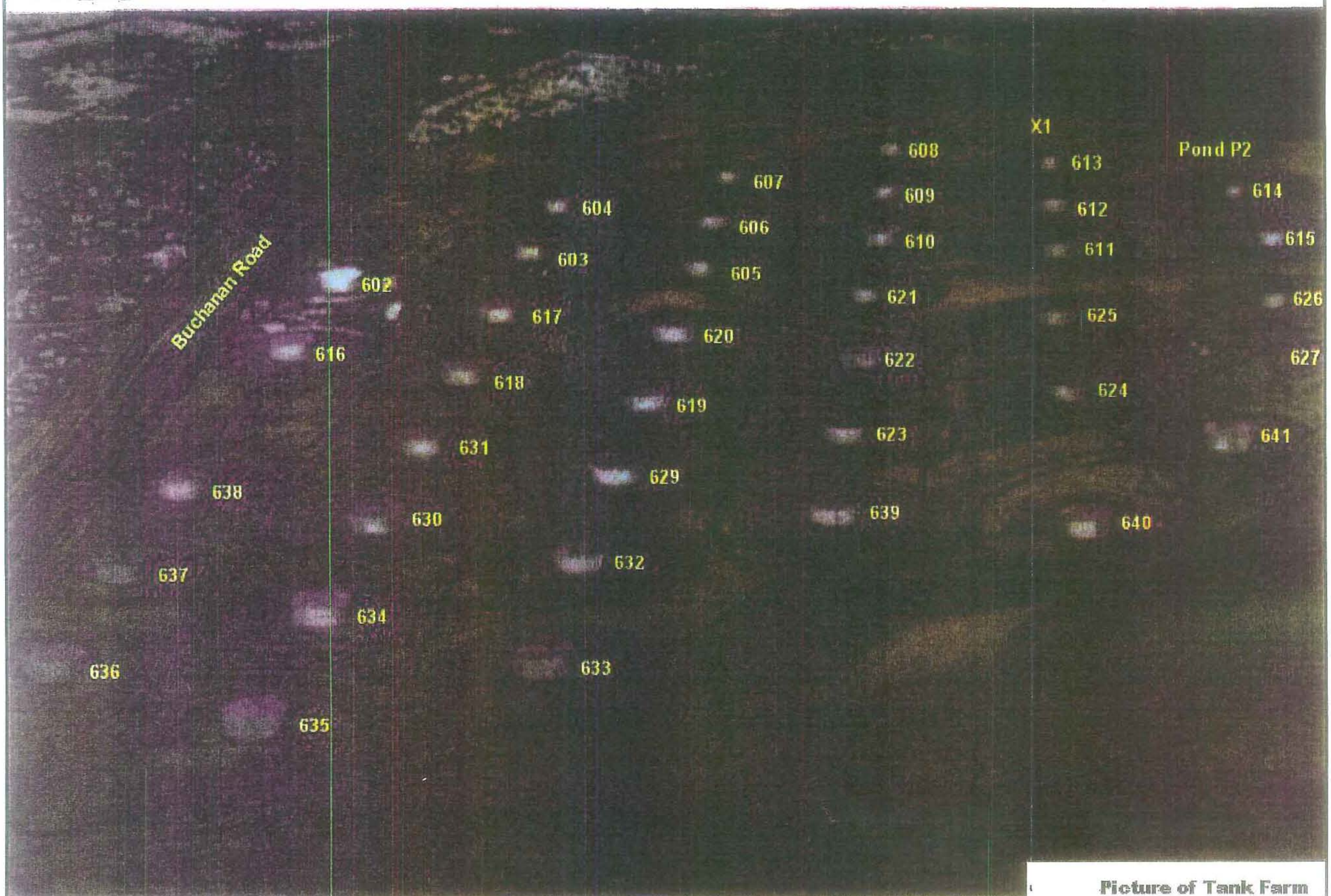
Figure 1



Picture of Tank Farm
Highlands Ranch Property
Pittsburg, California

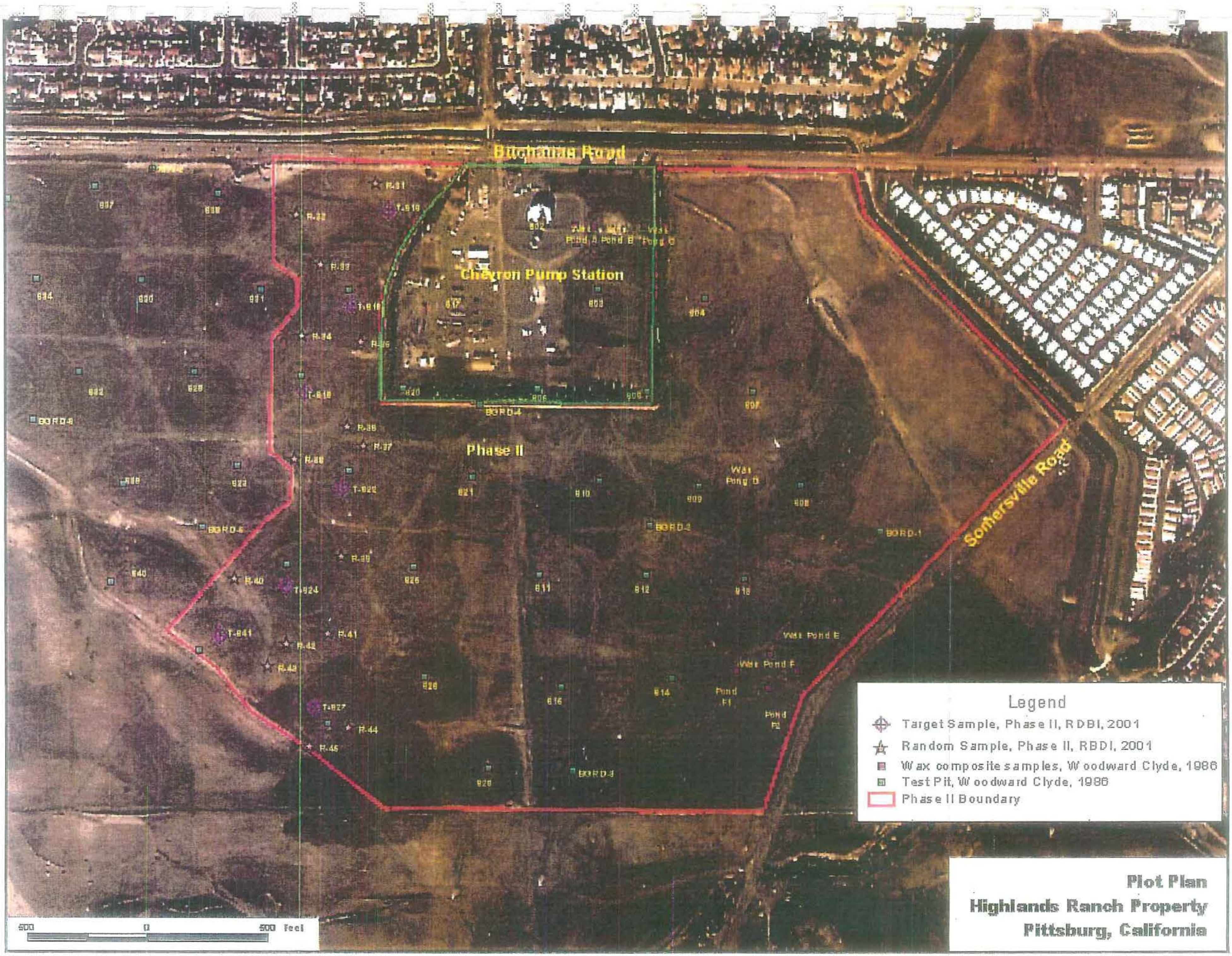


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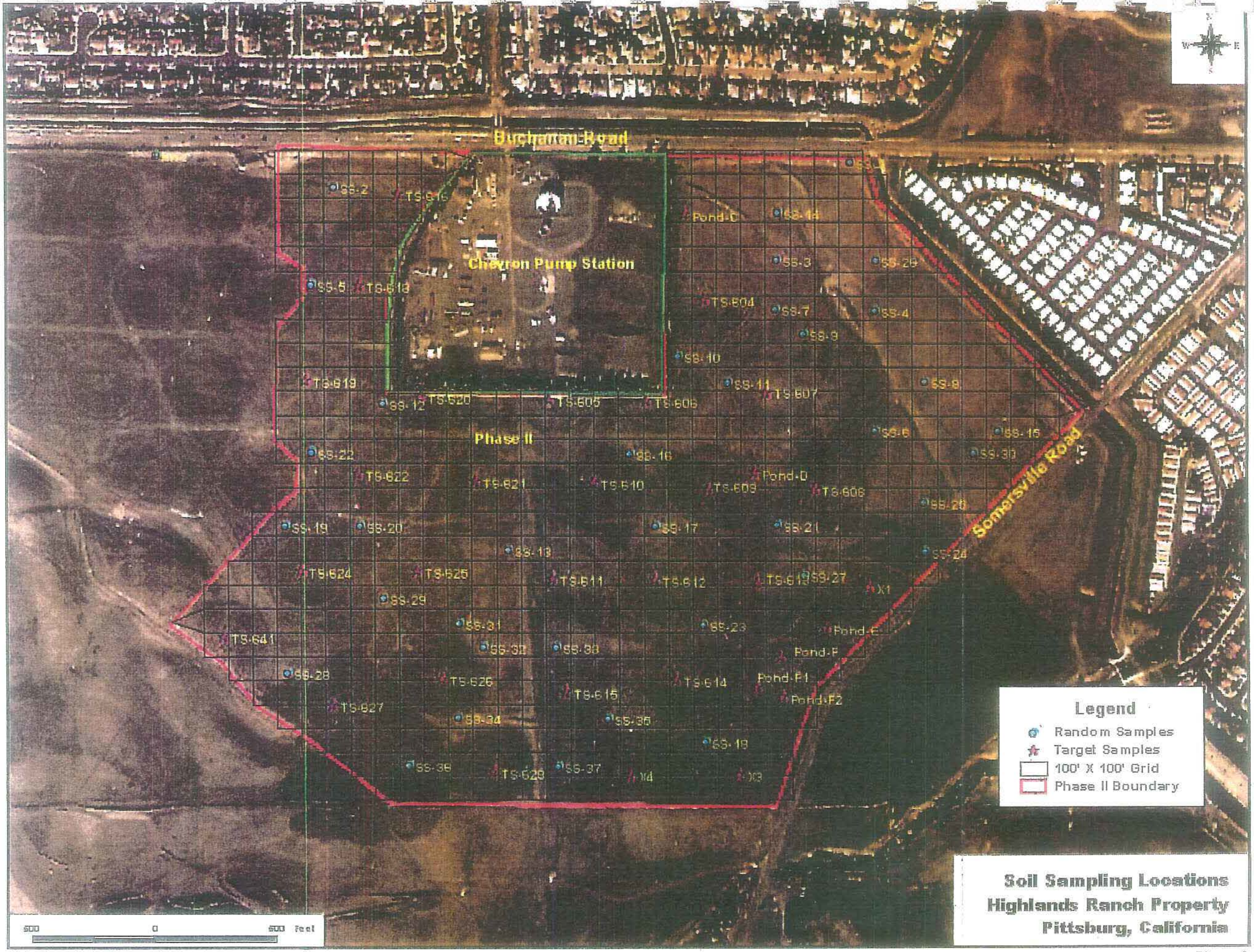
Figure 3



Soil Sampling Locations
Highlands Ranch Property
Pittsburg, California

Risk-Based Decisions, Inc.

Figure 4

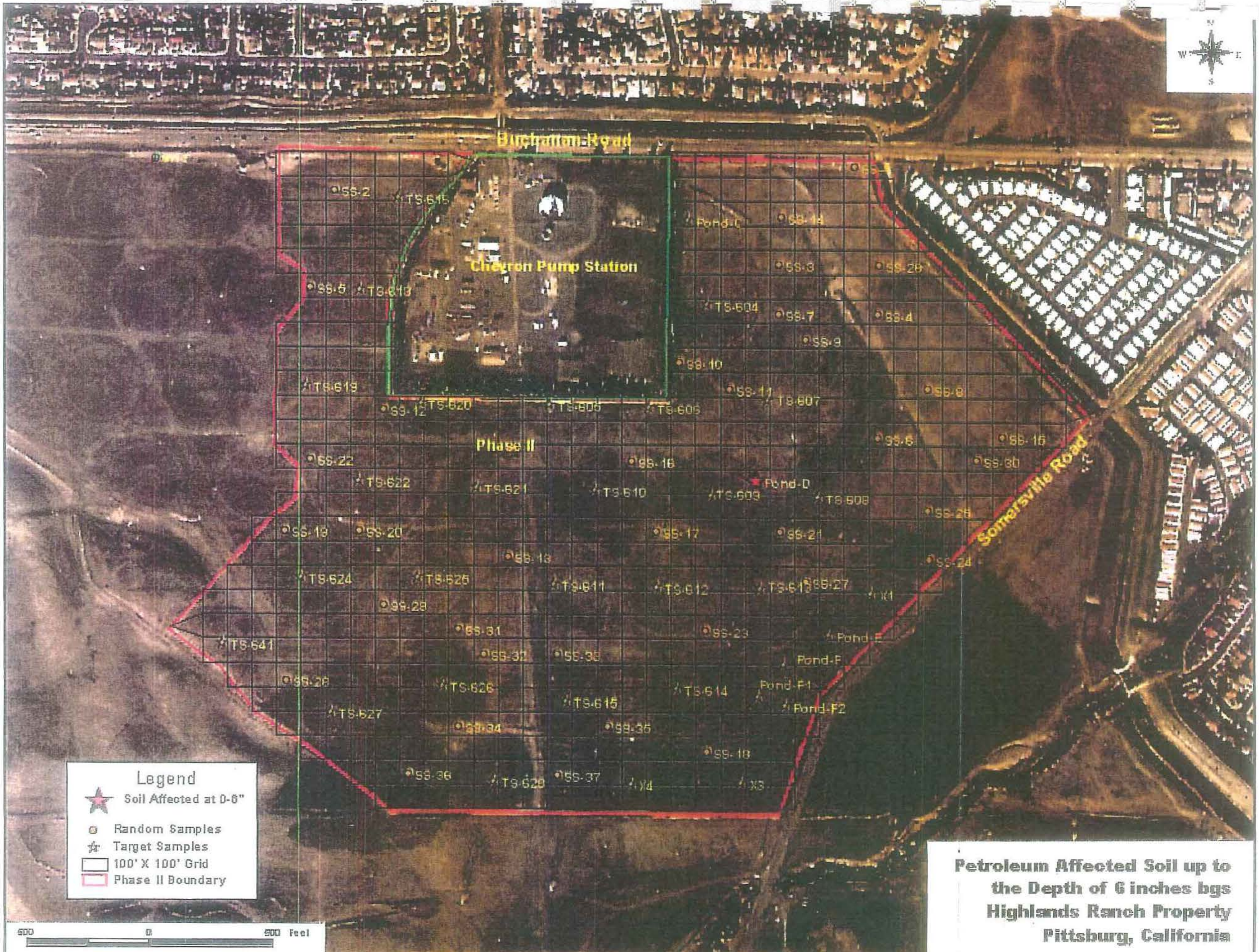


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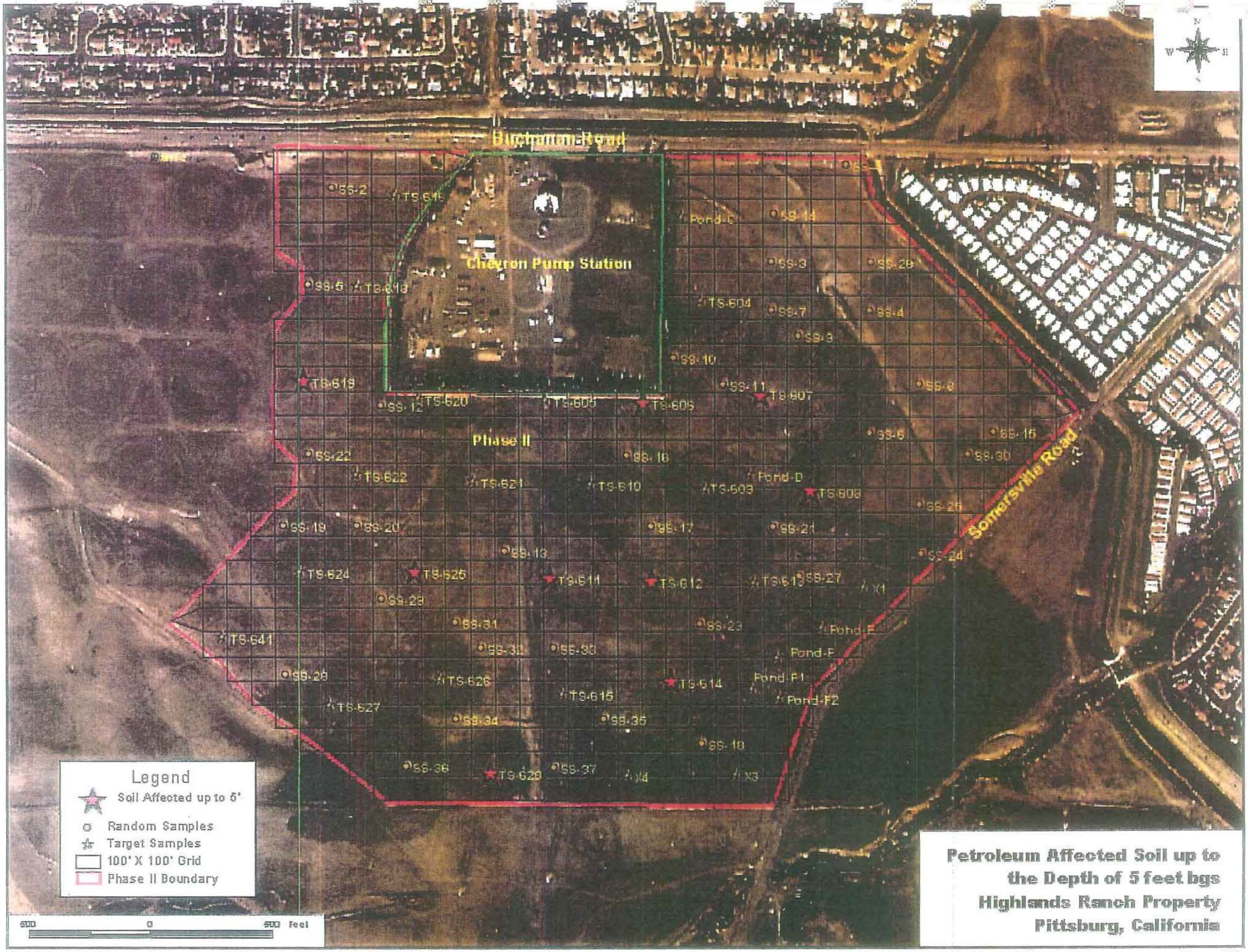
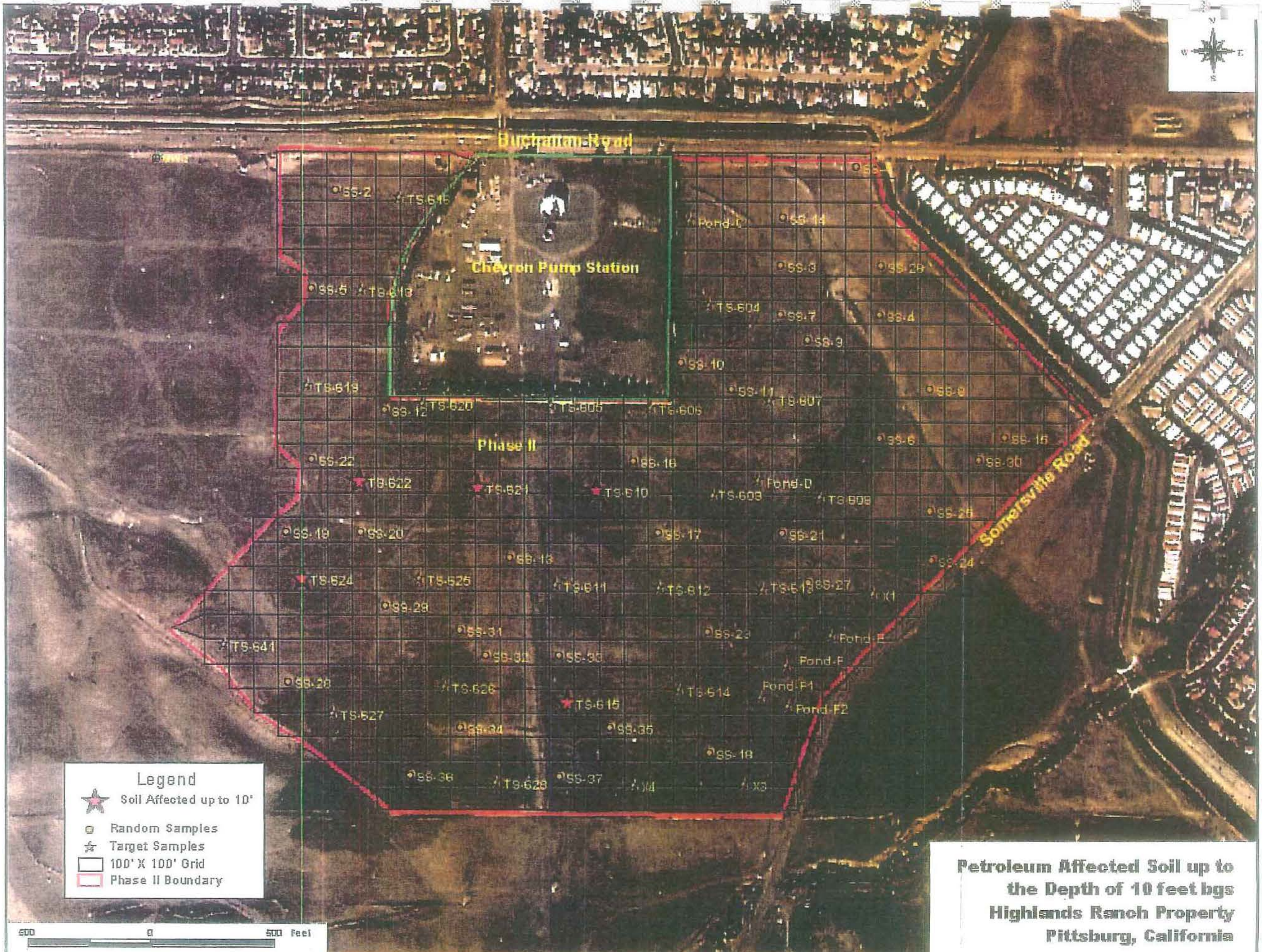
Figure 5A



Petroleum Affected Soil up to the Depth of 5 feet bgs
Highlands Ranch Property
Pittsburg, California

Risk-Based Decisions, Inc.

Figure 5B



Petroleum Affected Soil up to the Depth of 10 feet bgs
Highlands Ranch Property
Pittsburg, California

Risk-Based Decisions, Inc.

Figure 5C

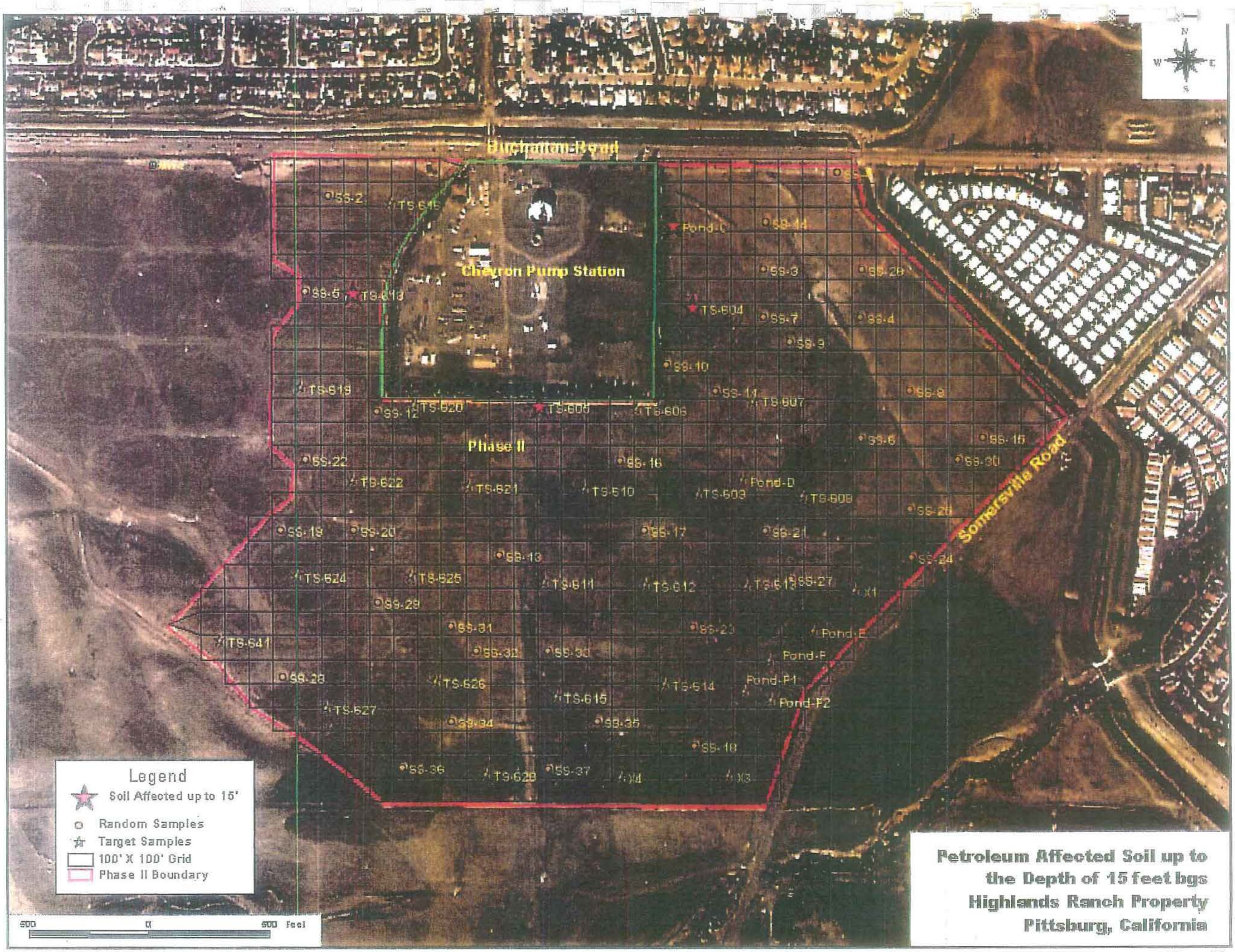


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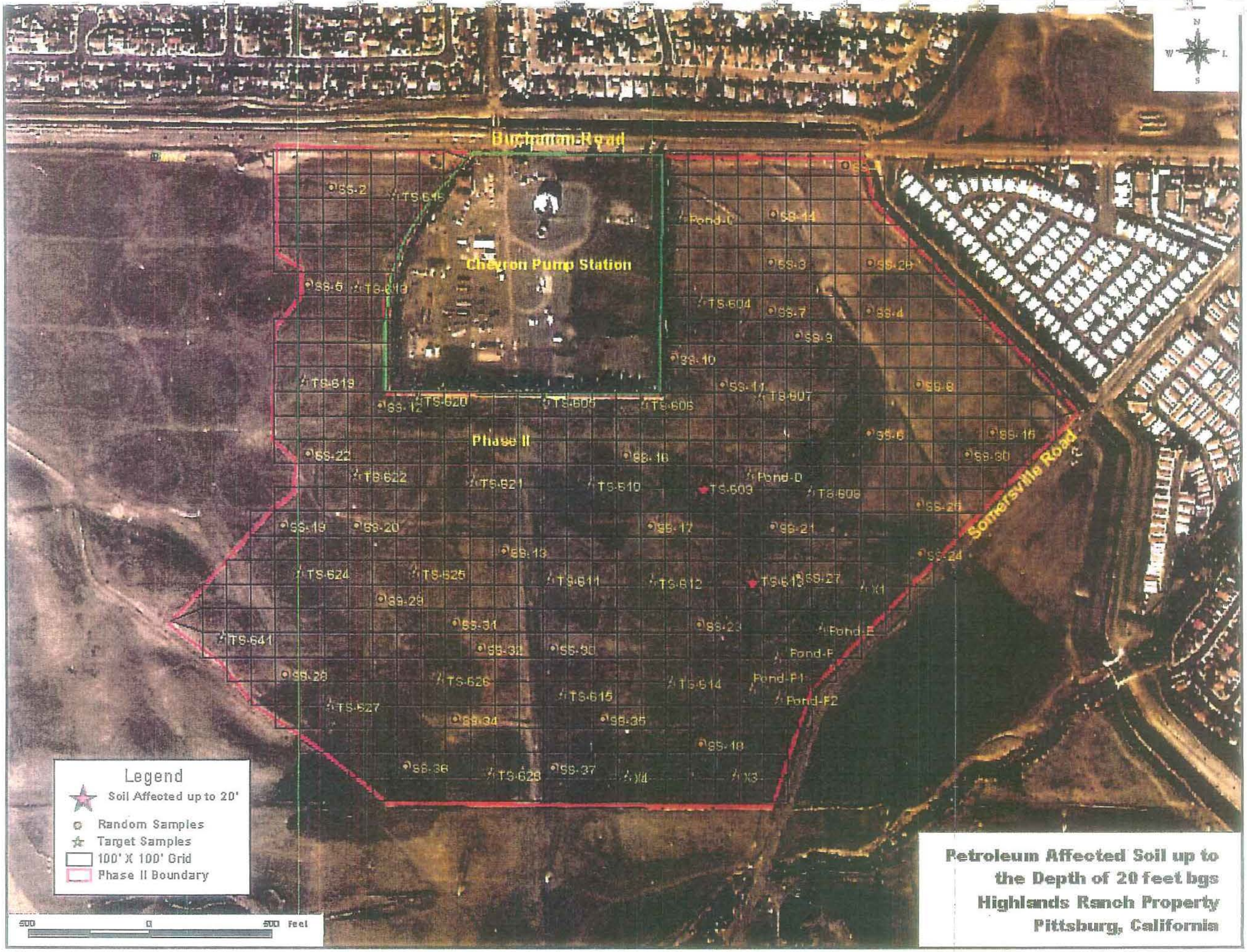
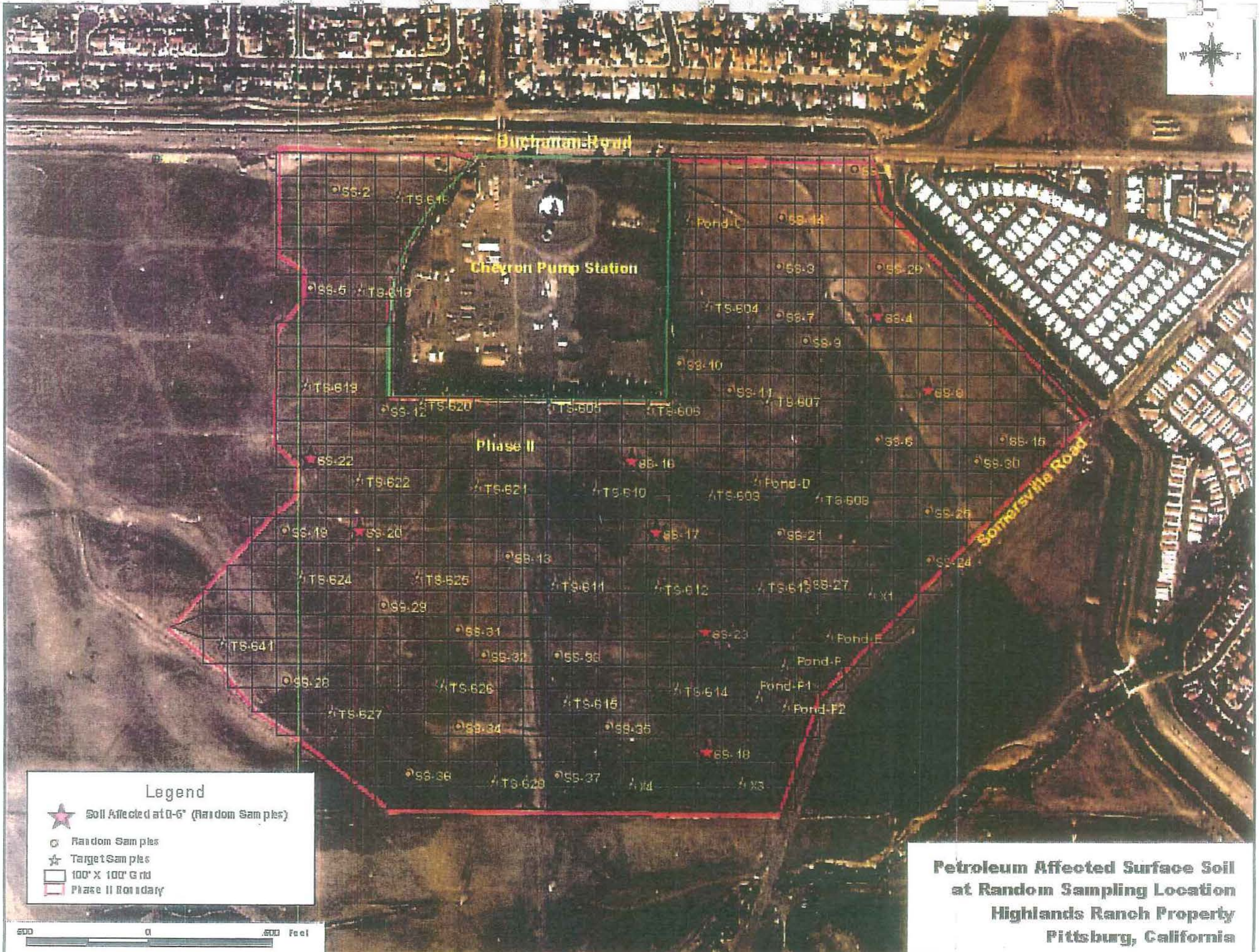
Figure 5D



Petroleum Affected Soil up to the Depth of 20 feet bgs
Highlands Ranch Property
Pittsburg, California

Risk-Based Decisions, Inc.

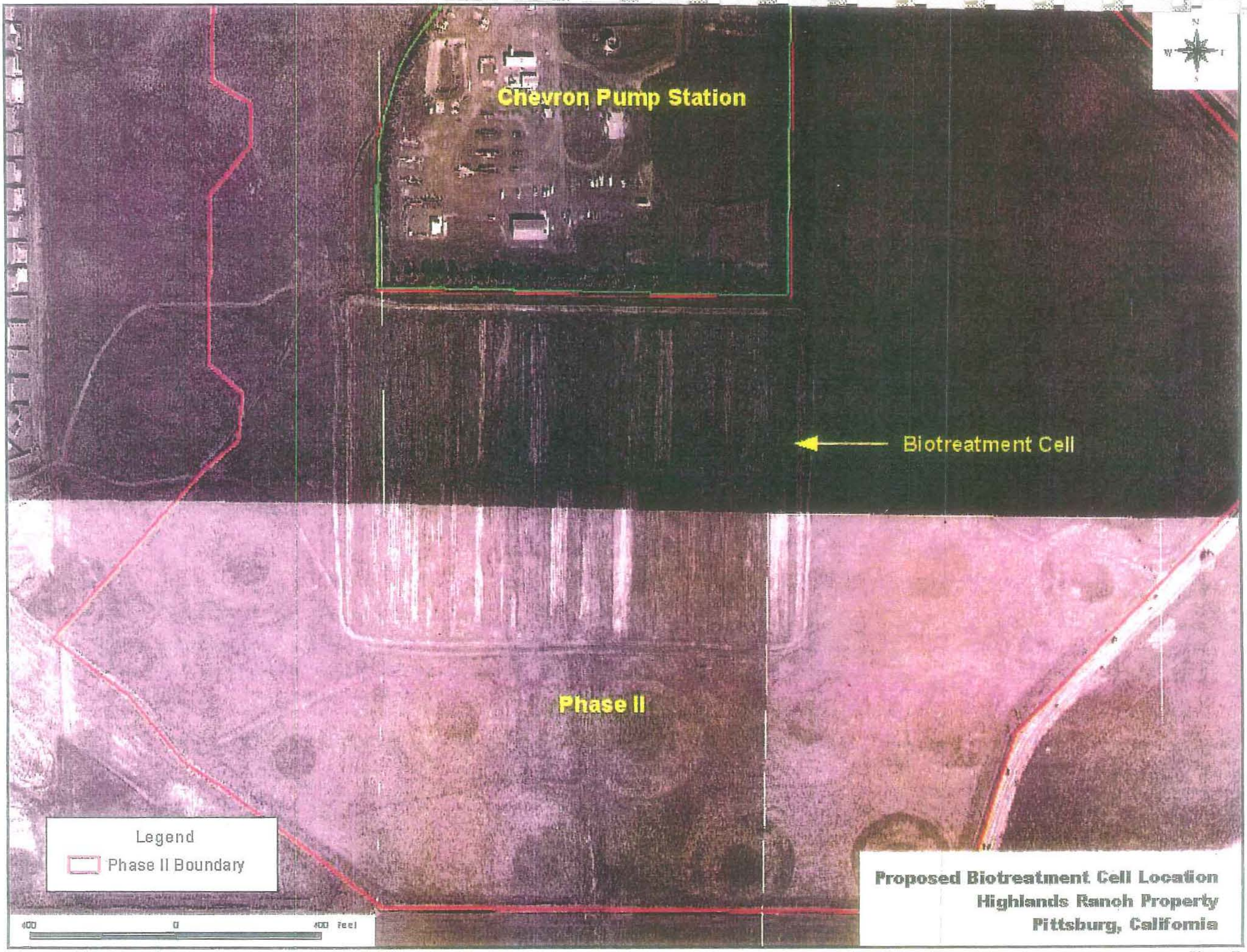
Figure 5E



Petroleum Affected Surface Soil at Random Sampling Location
Highlands Ranch Property
Pittsburg, California

Risk-Based Decisions, Inc.

Figure 6



Risk-Based Decisions, Inc.

Figure 7

TABLES

Table 1
ANALYTICAL RESULTS FOR CAM-17 METALS IN TARGETED SOIL SAMPLES BY DEPTH - August, 2005
Highlands Ranch
Contra Costa County, California
(mg/Kg)

Location	Depth (ft.)	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	pH
TS-604	0	<1.0	6.1	180	<1.0	<1.0	12	6.8	19	19	<0.20	<1.0	16	<1.0	<1.0	<1.0	32	57	6.5
	5	<1.0	2.5	110	<1.0	<1.0	13	5.3	12	5.4	<0.20	<1.0	13	<1.0	<1.0	<1.0	23	29	7.8
	10	<1.0	4.9	170	<1.0	<1.0	26	7.3	20	8.5	<0.20	<1.0	22	<1.0	<1.0	<1.0	50	56	7.9
	15	<1.0	5.6	180	<1.0	<1.0	23	6.7	22	7.9	<0.20	<1.0	20	<1.0	<1.0	<1.0	42	60	8.1
	19.5	<1.0	5.5	120	<1.0	<1.0	23	8.4	19	7.6	<0.20	<1.0	19	<1.0	<1.0	<1.0	45	53	7.6
TS-605	0	<1.0	4.4	190	<1.0	<1.0	30	6.3	16	6.9	<0.20	<1.0	18	<1.0	<1.0	<1.0	58	43	8.3
	5	<1.0	5.8	180	<1.0	<1.0	17	7.5	19	9.4	<0.20	<1.0	18	<1.0	<1.0	<1.0	39	49	6.9
	10	<1.0	4.1	160	<1.0	<1.0	18	6.7	17	6.3	<0.20	<1.0	19	<1.0	<1.0	<1.0	42	42	7.9
	15	<1.0	4.7	170	<1.0	<1.0	21	7.6	16	7.0	<0.20	<1.0	16	<1.0	<1.0	<1.0	38	44	7.8
	19.5	<1.0	7.8	92	<1.0	<1.0	17	7.6	20	9.8	<0.20	<1.0	15	<1.0	<1.0	<1.0	50	44	8.4
TS-606	0	<1.0	5.3	180	<1.0	<1.0	27	8.2	17	7.8	<0.20	<1.0	20	<1.0	<1.0	<1.0	56	48	7.9
	5	<1.0	5.2	270	<1.0	<1.0	44	7.5	22	8.2	<0.20	<1.0	23	<1.0	<1.0	<1.0	63	55	79
	10	<1.0	4.5	150	<1.0	<1.0	34	8.4	20	6.2	<0.20	<1.0	25	<1.0	<1.0	<1.0	56	51	8.4
	15	<1.0	4.2	180	<1.0	<1.0	29	6.4	18	6.3	<0.20	<1.0	20	<1.0	<1.0	<1.0	43	46	8.3
	15D	<1.0	4.2	150	<1.0	<1.0	27	6.3	17	5.7	<0.20	<1.0	18	<1.0	<1.0	<1.0	48	43	8.3
TS-607	0	<1.0	4.2	190	<1.0	<1.0	30	7.5	15	10	<0.20	<1.0	18	<1.0	<1.0	<1.0	56	38	6.3
	5	<1.0	3.8	130	<1.0	<1.0	28	7.4	17	6.1	<0.20	<1.0	22	<1.0	<1.0	<1.0	53	43	8.3
	10	<1.0	3.6	140	<1.0	<1.0	18	6.0	15	5.1	<0.20	<1.0	18	<1.0	<1.0	<1.0	32	40	7.8
	15	<1.0	4.3	130	<1.0	<1.0	9.3	6.6	18	5.4	<0.20	<1.0	16	<1.0	<1.0	<1.0	23	36	7.9
TS-608	0	<1.0	7.8	170	<1.0	<1.0	32	7.1	20	6.0	<0.20	<1.0	20	1.2	<1.0	<1.0	98	53	6.3
	5	<1.0	4.6	150	<1.0	<1.0	20	5.9	21	5.9	<0.20	<1.0	23	<1.0	<1.0	<1.0	32	47	8.4
	10	<1.0	5.5	180	<1.0	<1.0	20	6.3	18	5.7	<0.20	<1.0	19	<1.0	<1.0	<1.0	42	47	8.1
	15	<1.0	9.0	220	<1.0	<1.0	24	6.2	23	7.3	<0.20	1.1	20	1.3	<1.0	<1.0	61	64	8.3
TS-609	0	<1.0	4.7	150	<1.0	<1.0	21	7.5	19	11	<0.20	<1.0	17	<1.0	<1.0	<1.0	45	37	6.1
	5	<1.0	4.3	140	<1.0	<1.0	19	5.3	17	6.4	<0.20	<1.0	19	<1.0	<1.0	<1.0	37	43	8.1
	10	<1.0	4.9	160	<1.0	<1.0	39	5.6	19	6.4	<0.20	<1.0	23	<1.0	<1.0	<1.0	58	52	8.2
	15	<1.0	7.2	150	<1.0	<1.0	11	7.1	22	6.8	<0.20	<1.0	20	<1.0	<1.0	<1.0	31	47	7.8
	19.5	<1.0	2.7	64	<1.0	<1.0	6.0	4.0	8.3	3.1	<0.20	<1.0	10	<1.0	<1.0	<1.0	15	22	7.5
	19.5D	<1.0	5.3	140	<1.0	<1.0	13	7.2	18	6.5	<0.20	<1.0	17	<1.0	<1.0	<1.0	27	41	7.8
TS-610	0	<1.0	5.1	140	<1.0	<1.0	22	6.6	18	8.1	<0.20	<1.0	19	<1.0	<1.0	<1.0	37	47	8.6
	5	<1.0	5.0	130	<1.0	<1.0	18	6.0	17	5.7	<0.20	<1.0	26	<1.0	<1.0	<1.0	36	43	7.6
	10	<1.0	4.2	140	<1.0	<1.0	16	5.2	14	5.5	<0.20	<1.0	16	<1.0	<1.0	<1.0	28	35	8.2
	15	<1.0	5.0	130	<1.0	<1.0	11	4.5	14	4.4	<0.20	<1.0	13	<1.0	<1.0	<1.0	27	38	8.6
TS-611	0	<1.0	6.3	220	<1.0	<1.0	17	7.2	19	12	<0.20	<1.0	18	<1.0	<1.0	<1.0	41	57	6.7
	5	<1.0	4.5	120	<1.0	<1.0	14	5.2	15	5.7	<0.20	<1.0	14	<1.0	<1.0	<1.0	27	33	7.7
	10	<1.0	5.3	250	<1.0	<1.0	19	6.3	16	6.2	<0.20	<1.0	16	<1.0	<1.0	<1.0	44	43	7.9
	15	<1.0	5.2	220	<1.0	<1.0	14	6.6	17	6.3	<0.20	<1.0	16	<1.0	<1.0	<1.0	32	44	8.0
TS-612	0	<1.0	4.5	130	<1.0	<1.0	21	6.9	15	7.0	<0.20	<1.0	16	<1.0	<1.0	<1.0	44	42	8.0
	5	<1.0	5.2	150	<1.0	<1.0	20	5.3	16	7.0	<0.20	<1.0	22	<1.0	<1.0	<1.0	35	46	8.2
	10	<1.0	6.2	110	<1.0	<1.0	9.5	6.6	13	5.1	<0.20	<1.0	15	<1.0	<1.0	<1.0	34	35	8.9
	15	<1.0	6.2	230	<1.0	<1.0	12	7.1	20	8.0	<0.20	<1.0	19	<1.0	<1.0	<1.0	31	49	8.7
TS-613	0	<1.0	5.4	140	<1.0	<1.0	17	7.4	18	7.4	<0.20	<1.0	17	<1.0	<1.0	<1.0	40	47	7.0
	5	<1.0	4.4	170	<1.0	<1.0	21	6.9	18	6.0	<0.20	<1.0	22	<1.0	<1.0	<1.0	38	37	8.1
	10	<1.0	6.7	220	<1.0	<1.0	12	8.4	18	8.4	<0.20	<1.0	20	<1.0	<1.0	<1.0	25	47	8.6
	15	<1.0	6.1	160	<1.0	<1.0	8.7	5.9	16	6.7	<0.20	<1.0	15	<1.0	<1.0	<1.0	21	40	8.5
	19.5	<1.0	5.2	130	<1.0	<1.0	15	5.7	15	5.4	<0.20	<1.0	14	<1.0	<1.0	<1.0	36	43	8.4
TS-614	0	<1.0	4.3	170	<1.0	<1.0	21	13	17	14	<0.20	<1.0	17	<1.0	<1.0	<1.0	46	36	6.4
	5	<1.0	5.1	100	<1.0	<1.0	19	6.8	16	5.8	<0.20	<1.0	23	<1.0	<1.0	<1.0	42	45	7.6
	10	<1.0	4.6	160	<1.0	<1.0	15	6.4	16	6.1	<0.20	<1.0	17	<1.0	<1.0	<1.0	33	42	7.7
	15	<1.0	4.6	180	<1.0	<1.0	12	6.5	16	6.3	<0.20	<1.0	14	<1.0	<1.0	<1.0	30	42	8.5
	15D	<1.0	4.1	140	<1.0	<1.0	11	6.0	14	5.3	<0.20	<1.0	13	<1.0	<1.0	<1.0	26	38	8.5
TS-615	0	<1.0	5.6	190	<1.0	<1.0	24	7.1	18	12	<0.20	<1.0	16	<1.0	<1.0	<1.0	54	53	6.9
	5	<1.0	3.3	120	<1.0	<1.0	9.9	4.9	13	4.8	<0.20	<1.0	13	<1.0	<1.0	<1.0	20	36	7.9
	10	<1.0	2.7	78	<1.0	<1.0	6.8	3.5	10	3.5	<0.20	<1.0	9.7	<1.0	<1.0	<1.0	16	26	8.2
	15	<1.0	4.5	150	<1.0	<1.0	13	5.8	15	8.5	<0.20	<1.0	13	<1.0	<1.0	<1.0	26	42	7.0

Table 1
ANALYTICAL RESULTS FOR CAM-17 METALS IN TARGETED SOIL SAMPLES BY DEPTH - August, 2005
Highlands Ranch
Contra Costa County, California
(mg/Kg)

Location	Depth (ft.)	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenu	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	pH
	19.5	<1.0	2.6	66	<1.0	<1.0	5.1	2.9	5.8	2.4	<0.20	<1.0	6.8	<1.0	<1.0	<1.0	15	<20	9.1
TS-616	0	<1.0	6.6	160	<1.0	<1.0	29	7.5	20	7.6	<0.20	<1.0	22	1.0	<1.0	<1.0	61	54	8.0
	5	<1.0	6.0	120	<1.0	<1.0	30	8.9	20	8.2	<0.20	<1.0	26	<1.0	<1.0	<1.0	53	62	6.7
	10	<1.0	5.6	160	<1.0	<1.0	23	8.2	18	8.8	<0.20	<1.0	19	<1.0	<1.0	<1.0	49	51	7.7
	15	<1.0	6.0	560	<1.0	<1.0	14	6.8	16	5.5	<0.20	<1.0	22	<1.0	<1.0	<1.0	48	40	8.3
	15D	<1.0	4.0	220	<1.0	<1.0	10	5.5	12	4.8	<0.20	<1.0	14	<1.0	<1.0	<1.0	32	30	7.9
TS-618	0	<1.0	4.6	130	<1.0	<1.0	18	6.7	15	11	<0.20	<1.0	15	<1.0	<1.0	<1.0	36	37	6.5
	5	<1.0	6.6	130	<1.0	<1.0	15	11	15	6.2	<0.20	<1.0	22	<1.0	<1.0	<1.0	35	45	7.1
	10	<1.0	8.1	150	<1.0	<1.0	18	8.0	19	6.4	<0.20	1.1	24	<1.0	<1.0	<1.0	58	51	7.9
	15	<1.0	4.8	150	<1.0	<1.0	21	6.6	16	7.1	<0.20	<1.0	16	<1.0	<1.0	<1.0	41	43	8.3
	19.5	<1.0	4.7	230	<1.0	<1.0	22	8.2	21	8.4	<0.20	<1.0	20	<1.0	<1.0	<1.0	37	50	8.3
TS-619	0	<1.0	3.9	130	<1.0	<1.0	14	6.8	14	10	<0.20	<1.0	13	<1.0	<1.0	<1.0	32	33	6.3
	5	<1.0	3.5	140	<1.0	<1.0	28	6.0	13	5.7	<0.20	<1.0	20	<1.0	<1.0	<1.0	41	38	7.3
	10	<1.0	4.9	160	<1.0	<1.0	23	7.1	17	6.7	<0.20	<1.0	17	<1.0	<1.0	<1.0	46	47	7.8
	15	<1.0	5.3	150	<1.0	<1.0	21	5.3	19	6.7	<0.20	<1.0	18	<1.0	<1.0	<1.0	39	46	7.7
TS-620	0	<1.0	5.1	170	<1.0	<1.0	24	7.3	18	15	<0.20	1.6	18	<1.0	<1.0	<1.0	50	46	6.9
	5	<1.0	7.8	120	<1.0	<1.0	15	6.3	16	5.9	<0.20	<1.0	17	<1.0	<1.0	<1.0	49	43	8.6
	10	<1.0	4.3	160	<1.0	<1.0	28	6.6	15	5.9	<0.20	<1.0	21	<1.0	<1.0	<1.0	49	44	7.8
	15	<1.0	4.3	140	<1.0	<1.0	22	5.6	13	5.4	<0.20	<1.0	14	<1.0	<1.0	<1.0	49	36	8.2
TS-621	0	<1.0	6.4	180	<1.0	<1.0	24	9.0	24	29	<0.20	<1.0	22	1.1	<1.0	<1.0	48	80	6.6
	5	<1.0	4.8	140	<1.0	<1.0	21	4.9	17	5.9	<0.20	<1.0	21	<1.0	<1.0	<1.0	32	44	8.7
	10	<1.0	5.6	120	<1.0	<1.0	22	4.7	18	11	<0.20	<1.0	18	<1.0	<1.0	<1.0	40	54	7.4
	15	<1.0	5.3	120	<1.0	<1.0	15	6.5	17	8.1	<0.20	<1.0	18	<1.0	<1.0	<1.0	28	46	7.9
	15D	<1.0	5.8	100	<1.0	<1.0	17	7.6	30	6.9	<0.20	<1.0	21	<1.0	<1.0	<1.0	28	53	8.3
TS-622	0	<1.0	3.8	130	<1.0	<1.0	16	8.0	13	14	<0.20	<1.0	13	<1.0	<1.0	<1.0	35	35	6.0
	5	<1.0	3.0	100	<1.0	<1.0	12	4.8	11	5.5	<0.20	<1.0	16	<1.0	<1.0	<1.0	18	30	8.0
	10	<1.0	4.3	140	<1.0	<1.0	21	7.1	14	10	<0.20	<1.0	16	<1.0	<1.0	<1.0	45	42	8.6
	15	<1.0	4.3	140	<1.0	<1.0	16	5.1	15	5.3	<0.20	<1.0	17	<1.0	<1.0	<1.0	31	39	8.0
TS-624	0	<1.0	3.9	170	<1.0	<1.0	18	7.2	13	11	<0.20	<1.0	15	<1.0	<1.0	<1.0	36	34	6.6
	5	<1.0	4.5	190	<1.0	<1.0	22	6.8	18	6.6	<0.20	<1.0	19	<1.0	<1.0	<1.0	39	52	8.1
	10	<1.0	4.2	120	<1.0	<1.0	13	5.7	14	5.2	<0.20	<1.0	14	<1.0	<1.0	<1.0	23	38	6.9
	15	<1.0	4.1	110	<1.0	<1.0	9.0	6.4	11	4.2	<0.20	<1.0	12	<1.0	<1.0	<1.0	24	33	8.0
TS-625	0	<1.0	3.2	130	<1.0	<1.0	18	4.6	15	6.3	<0.20	<1.0	12	<1.0	<1.0	<1.0	40	29	6.7
	5	<1.0	6.4	150	<1.0	<1.0	24	6.8	19	6.5	<0.20	<1.0	21	<1.0	<1.0	<1.0	57	53	8.5
	10	<1.0	5.2	180	<1.0	<1.0	25	6.7	17	5.9	<0.20	<1.0	19	<1.0	<1.0	<1.0	55	50	7.5
	15	<1.0	6.1	190	<1.0	<1.0	28	6.9	18	6.0	<0.20	<1.0	16	<1.0	<1.0	<1.0	60	55	8.4
	15D	<1.0	4.9	170	<1.0	<1.0	21	6.2	15	5.7	<0.20	<1.0	14	<1.0	<1.0	<1.0	52	44	8.6
TS-626	0	<1.0	3.7	140	<1.0	<1.0	16	8.5	14	8.0	<0.20	<1.0	16	<1.0	<1.0	<1.0	33	29	6.4
	5	<1.0	4.1	92	<1.0	<1.0	11	8.5	15	5.3	<0.20	<1.0	20	<1.0	<1.0	<1.0	23	41	7.4
	10	<1.0	6.5	180	<1.0	<1.0	24	6.1	21	5.6	<0.20	<1.0	15	<1.0	<1.0	<1.0	63	51	8.5
	15	<1.0	7.8	270	1.1	<1.0	46	9.5	29	9.0	<0.20	<1.0	27	<1.0	<1.0	<1.0	88	80	8.4
TS-627	0	<1.0	4.1	160	<1.0	<1.0	18	6.2	14	8.9	<0.20	<1.0	14	<1.0	<1.0	<1.0	34	35	6.3
	5	<1.0	4.2	720	<1.0	<1.0	20	9.4	16	6.4	<0.20	<1.0	19	<1.0	<1.0	<1.0	30	46	7.5
	10	<1.0	5.1	190	<1.0	<1.0	16	6.1	17	7.4	<0.20	<1.0	16	<1.0	<1.0	<1.0	31	47	7.0
	15	<1.0	5.3	150	<1.0	<1.0	28	6.6	17	6.5	<0.20	<1.0	18	<1.0	<1.0	<1.0	48	47	8.0
TS-628	0	<1.0	4.8	240	<1.0	<1.0	30	8.1	17	14	<0.20	<1.0	20	<1.0	<1.0	<1.0	57	49	6.4
	5	<1.0	7.9	200	<1.0	<1.0	43	7.8	25	8.7	<0.20	<1.0	27	<1.0	<1.0	<1.0	71	73	8.6
	10	<1.0	5.2	220	<1.0	<1.0	31	7.2	18	6.7	<0.20	<1.0	18	<1.0	<1.0	<1.0	62	54	8.7
	15	<1.0	6.9	250	<1.0	<1.0	38	8.6	24	7.8	<0.20	<1.0	23	<1.0	<1.0	<1.0	76	72	8.6
TS-641																			
Pond-C	0	<1.0	5.8	190	<1.0	<1.0	22	7.4	22	11	<0.20	<1.0	19	<1.0	<1.0	<1.0	38	62	6.5
	5	<1.0	5.6	160	<1.0	<1.0	22	7.8	17	7.1	<0.20	<1.0	16	<1.0	<1.0	<1.0	51	50	8.2
	10	<1.0	4.1	110	<1.0	<1.0	21	8.2	16	6.4	<0.20	<1.0	23	<1.0	<1.0	<1.0	33	43	8.0
	15	<1.0	5.8	120	<1.0	<1.0	23	7.8	19	8.2	<0.20	<1.0	20	<1.0	<1.0	<1.0	45	53	8.0
Pond-D	0	<1.0	9.1	170	<1.0	<1.0	24	8.5	18	21	0.50	<1.0	22	<1.0	<1.0	<1.0	50	71	6.4

Table 1

ANALYTICAL RESULTS FOR CAM-17 METALS IN TARGETED SOIL SAMPLES BY DEPTH - August, 2005

Highlands Ranch

Contra Costa County, California

(mg/Kg)

Location	Depth (ft.)	Antimony	Arsenic	Barium	Berylium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenu	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	pH
	5	<1.0	4.2	120	<1.0	<1.0	26	6.1	17	6.2	<0.20	<1.0	18	<1.0	<1.0	<1.0	36	45	7.3
	10	<1.0	5.5	330	<1.0	<1.0	32	7.2	19	6.3	<0.20	<1.0	19	<1.0	<1.0	<1.0	64	58	8.6
	15	<1.0	4.5	150	<1.0	<1.0	23	5.9	15	6.0	<0.20	<1.0	15	<1.0	<1.0	<1.0	45	44	8.6
Pond-E	0	<1.0	5.4	160	<1.0	<1.0	20	6.9	21	12	<0.20	<1.0	17	<1.0	<1.0	<1.0	44	50	6.4
	5	<1.0	3.9	120	<1.0	<1.0	20	11	13	6.9	<0.20	<1.0	23	<1.0	<1.0	<1.0	34	37	8.4
	10	<1.0	4.7	110	<1.0	<1.0	15	6.0	17	6.2	<0.20	<1.0	17	<1.0	<1.0	<1.0	28	44	8.0
	15	<1.0	5.1	120	<1.0	<1.0	13	5.8	16	5.4	<0.20	<1.0	13	<1.0	<1.0	<1.0	27	41	8.2
Pond-F	0	<1.0	3.9	160	<1.0	<1.0	15	6.2	14	6.6	<0.20	<1.0	15	<1.0	<1.0	<1.0	32	30	6.8
	5	<1.0	5.0	160	<1.0	<1.0	14	6.3	19	11	0.58	<1.0	15	<1.0	<1.0	<1.0	32	43	8.8
	10	<1.0	4.1	94	<1.0	<1.0	27	6.1	16	7.2	<0.20	<1.0	19	<1.0	<1.0	<1.0	45	43	8.4
	15	<1.0	4.9	130	<1.0	<1.0	22	6.4	18	6.4	<0.20	<1.0	23	<1.0	<1.0	<1.0	44	49	8.1
Pond-F1	0	<1.0	3.4	190	<1.0	<1.0	11	5.4	11	4.1	<0.20	<1.0	12	<1.0	<1.0	<1.0	23	33	7.7
	5	<1.0	6.0	260	<1.0	<1.0	28	8.1	20	9.0	<0.20	<1.0	20	<1.0	<1.0	<1.0	57	54	7.4
	10	<1.0	3.1	160	<1.0	<1.0	15	7.6	13	6.2	<0.20	<1.0	13	<1.0	<1.0	<1.0	23	34	8.0
	13.5	<1.0	4.5	110	<1.0	<1.0	11	4.8	14	4.9	<0.20	<1.0	13	<1.0	<1.0	<1.0	25	34	8.2
Pond-F2	0	<1.0	4.9	160	<1.0	<1.0	18	6.7	15	8.9	<0.20	<1.0	18	<1.0	<1.0	<1.0	39	43	7.9
	5	<1.0	3.9	91	<1.0	<1.0	18	9.9	15	8.1	<0.20	<1.0	18	<1.0	<1.0	<1.0	41	33	7.5
	10	<1.0	4.5	100	<1.0	<1.0	24	5.2	15	4.9	<0.20	<1.0	15	<1.0	<1.0	<1.0	50	44	7.7
	15	<1.0	4.6	140	<1.0	<1.0	21	6.1	15	5.2	<0.20	<1.0	15	<1.0	<1.0	<1.0	45	45	7.8
X1	0	<1.0	5.2	140	<1.0	<1.0	23	7.1	19	13	<0.20	<1.0	21	<1.0	<1.0	<1.0	38	54	6.5
	5	<1.0	7.1	150	<1.0	<1.0	19	6.4	21	5.5	<0.20	<1.0	23	<1.0	<1.0	<1.0	52	49	8.0
	10	<1.0	3.2	190	<1.0	<1.0	16	6.7	14	5.8	<0.20	<1.0	19	<1.0	<1.0	<1.0	21	41	8.1
	15	<1.0	4.9	190	<1.0	<1.0	21	7.0	18	6.8	<0.20	<1.0	17	<1.0	<1.0	<1.0	43	44	7.8
	15D	<1.0	4.8	170	<1.0	<1.0	18	6.3	15	6.1	<0.20	<1.0	14	<1.0	<1.0	<1.0	39	41	8.4
X3	0	<1.0	4.5	130	<1.0	<1.0	12	6.1	15	6.0	<0.20	<1.0	13	<1.0	<1.0	<1.0	25	38	7.3
	5	<1.0	5.4	180	<1.0	<1.0	21	6.4	19	8.8	<0.20	<1.0	16	<1.0	<1.0	<1.0	43	51	8.2
	10	<1.0	5.2	96	<1.0	<1.0	26	6.3	14	6.5	<0.20	<1.0	14	<1.0	<1.0	<1.0	50	47	8.5
	15	<1.0	4.4	190	<1.0	<1.0	28	8.3	14	6.8	<0.20	<1.0	18	<1.0	<1.0	<1.0	46	47	8.3
X4	0	<1.0	4.5	170	<1.0	<1.0	25	6.3	12	7.3	<0.20	<1.0	13	<1.0	<1.0	<1.0	49	43	6.7
	5	<1.0	4.8	170	<1.0	<1.0	28	6.6	13	6.2	<0.20	<1.0	18	<1.0	<1.0	<1.0	58	43	6.9
	10	<1.0	6.9	140	<1.0	<1.0	34	7.3	18	6.6	<0.20	<1.0	21	1.1	<1.0	<1.0	72	61	8.8
	15	<1.0	3.6	190	<1.0	<1.0	20	4.9	8.2	4.5	<0.20	<1.0	11	<1.0	<1.0	<1.0	40	32	8.5
Mean			**5.0**	**163**			**20**	**6.8**	**17**	**7.5**			**18**				**41**	**45**	**8.3**
S.D.			**1.2**	**72**			**7**	**1.4**	**3**	**3.2**			**4**				**14**	**10**	**6.0**
95% UCL			**5.2**	**173**			**21**	**7.0**	**17**	**7.9**			**18**				**43**	**47**	**9.1**

Table 2
ANALYTICAL RESULTS FOR TPH IN TARGETED SOIL SAMPLES BY DEPTH - August, 2005
Highlands Ranch
Contra Costa County, California
(mg/Kg)

Location	Depth (ft.)	TPHg	TPHd	TPHo
TS-604	0	<4.0	140	810
	5	2100	4800	8000
	10	330	960	1400
	15	450	2700	3900
	19.5	13	<5.0	<10
TS-605	0	<1.0	36	230
	5	<2.0	12	94
	10	770	30000	40000
	15	200	2400	3300
	19.5	3.1	<5.0	<10
TS-606	0	<1.0	<5.0	<10
	5	<1.0	150	620
	10	<1.0	<5.0	<10
	15	<1.0	<5.0	<10
	15D	<1.0	<5.0	<10
TS-607	0	<2.0	49	240
	5	460	16000	25000
	10	<1.0	<5.0	<10
	15	<1.0	<5.0	<10
TS-608	0	<4.0	39	320
	5	700	6900	12000
	10	<1.0	<5.0	<10
	15	<1.0	<5.0	<10
TS-609	0	<1.0	<5.0	17
	5	410	5600	8500
	10	360	4400	7100
	15	1400	9200	12000
	19.5	1500	17000	23000
	19.5[a]	11000	21000	29000
	19.5D	1200	5700	8300
	19.5D[a]	4000	5800	8800
TS-610	0	<1.0	45	260
	5	3.6	3100	15000
	10	61	980	1600
	15	<1.0	<5.0	<10
TS-611	0	<1.0	24	160
	5	17	1100	2300
	10	<1.0	<5.0	<10
	15	<1.0	<5.0	<10
TS-612	0	16	36	140
	5	<1.0	470	1800
	10	<1.0	<5.0	<10
	15	<1.0	<5.0	<10

Table 2
ANALYTICAL RESULTS FOR TPH IN TARGETED SOIL SAMPLES BY DEPTH - August, 2005
Highlands Ranch
Contra Costa County, California
(mg/Kg)

Location	Depth (ft.)	TPHg	TPHd	TPHo
TS-613	0	<1.0	<5.0	<10
	5	<2.0	290	1400
	10	1300	1600	1800
	15	3500	4800	5100
	19.5	8400	4100	3500
TS-614	0	<2.0	12	45
	5	<1.0	89	580
	10	<1.0	<5.0	<10
	15	<1.0	<5.0	<10
	15D	<1.0	<5.0	<10
TS-615	0	<1.0	14	120
	5	380	12000	20000
	10	1100	23000	39000
	15	7.8	33	160
	19.5	<1.0	<5.0	<10
TS-616	0	<1.0	<5.0	14
	5	<1.0	<5.0	23
	10	<1.0	12	97
	15	<1.0	<5.0	<10
	15D	<1.0	<5.0	<10
TS-618	0	<1.0	64	520
	5	<1.0	<5.0	24
	10	860	10000	22000
	15	740	2900	4000
	19.5	<1.0	<5.0	<10
TS-619	0	110	380	790
	5	<2.0	75	570
	10	<1.0	<5.0	<10
	15	<1.0	<5.0	<10
TS-620	0	<2.0	14	77
	5	<1.0	<5.0	<10
	10	<1.0	<5.0	<10
	15	<1.0	<5.0	<10
TS-621	0	<1.0	71	500
	5	250	9400	22000
	10	6.4	250	1100
	15	15	100	220
	15D	<1.0	<5.0	<10
TS-622	0	<2.0	27	140
	5	320	6700	21000
	10	2.7	110	720
	15	<1.0	20	73
TS-624	0	<1.0	5.2	16
	5	1.2	950	6200
	10	<4.0	2600	20000
	15	<1.0	<5.0	<10

Table 2
ANALYTICAL RESULTS FOR TPH IN TARGETED SOIL SAMPLES BY DEPTH - August, 2005
Highlands Ranch
Contra Costa County, California
(mg/Kg)

Location	Depth (ft.)	TPHg	TPHd	TPHo
TS-625	0	<1.0	<5.0	<10
	5	500	8000	15000
	10	1.8	<5.0	<10
	15	<1.0	<5.0	<10
	15D	<1.0	<5.0	<10
TS-626	0	<1.0	<5.0	<10
	5	<1.0	23	120
	10	<1.0	<5.0	<10
	15	<1.0	<5.0	<10
TS-627	0	<1.0	7.2	28
	5	<10	11	44
	10	<1.0	<5.0	<10
	15	2.3	51	94
TS-628	0	<1.0	<5.0	17
	5	110	5000	11000
	10	<1.0	<5.0	<10
	15	<1.0	<5.0	<10
TS-641				
Pond-C	0	<1.0	<5.0	<10
	5	<1.0	<5.0	<10
	10	<1.0	<5.0	<10
	15	<1.0	220	670
Pond-D	0	<10	2000	13000
	5	<1.0	15	92
	10	<1.0	16	110
	15	<1.0	8.9	63
Pond-E	0	<1.0	19	41
	5	<1.0	<5.0	<10
	10	<1.0	<5.0	<10
	15	<1.0	<5.0	<10
Pond-F	0	<1.0	15	83
	5	<1.0	<5.0	<10
	10	<1.0	<5.0	<10
	15	<1.0	<5.0	11
Pond-F1	0	<1.0	5.8	72
	5	<1.0	15	75
	10	<1.0	<5.0	<10
	13.5	<1.0	<5.0	15
Pond-F2	0	<1.0	41	230
	5	<2.0	68	370
	10	<1.0	<5.0	<10
	15	<1.0	6.5	29
X1	0	<4.0	60	340
	5	<1.0	<5.0	<10
	10	<1.0	<5.0	<10
	15	<1.0	<5.0	<10
	15D	<1.0	<5.0	<10

Table 2
ANALYTICAL RESULTS FOR TPH IN TARGETED SOIL SAMPLES BY DEPTH - August, 2005
Highlands Ranch
Contra Costa County, California
(mg/Kg)

Location	Depth (ft.)	TPHg	TPHd	TPHo
X3	0	<1.0	<5.0	<10
	5	<1.0	<5.0	<10
	10	<1.0	<5.0	<10
	15	<1.0	<5.0	<10
X4	0	<1.0	<5.0	<10
	5	<1.0	<5.0	<10
	10	<1.0	<5.0	<10
	15	<1.0	<5.0	<10
Mean		**294**	**1625**	**2969**
S.D.		**1268**	**4510**	**7329**
95% UCL		**470**	**2249**	**3985**

a. Reanalyzed due to inconsistencies in original analysis

Table 3
ANALYTICAL RESULTS FOR TARGETED SOIL SAMPLES BY DEPTH - August, 2005
Highlands Ranch
Contra Costa County, California
Volatile Organic Compounds (μg/Kg)

Location	Depth (ft.)	Dichlorodifluoromethane	Chloromethane	Vinyl chloride	Chloroethane	Bromomethane	Trichlorofluoromethane	1,1-Dichloroethene	Dichloromethane	trans-1,2-Dichloroethene	Methyl tert-butyl ether (MTBE)	1,1-Dichloroethane	cis-1,2-Dichloroethene	Bromochloromethane
TS-604	0	<40	<80	<40	<40	<160	<40	<40	<160	<40	<20	<40	<40	<40
	5	<500	<1000	<500	<500	<2000	<500	<500	<2000	<500	<250	<500	<500	<500
	10	<100	<200	<100	<100	<400	<100	<100	<400	<100	<50	<100	<100	<100
	15	<67	<130	<67	<67	<270	<67	<67	<270	<67	<34	<67	<67	<67
	19.5	<20	<40	<20	<20	<40	<20	<20	<40	<20	<5.0	<20	<20	<20
TS-605	0	<20	<40	<20	<20	<40	<20	<20	<40	<20	<5.0	<20	<20	<20
	5	<20	<40	<20	<20	<80	<20	<20	<80	<20	<10	<20	<20	<20
	10	<1000	<2000	<1000	<1000	<4000	<1000	<1000	<4000	<1000	<500	<1000	<1000	<1000
	15	<100	<200	<100	<100	<400	<100	<100	<400	<100	<50	<100	<100	<100
	19.5	<20	<40	<20	<20	<40	<20	<20	<40	<20	<5.0	<20	<20	<20
TS-606	0	<20	<40	<20	<20	<40	<20	<20	<40	<20	<5.0	<20	<20	<20
	5	<20	<40	<20	<20	<40	<20	<20	<40	<20	<5.0	<20	<20	<20
	10	<20	<40	<20	<20	<40	<20	<20	<40	<20	<5.0	<20	<20	<20
	15	<20	<40	<20	<20	<40	<20	<20	<40	<20	<5.0	<20	<20	<20
	15D	<20	<40	<20	<20	<40	<20	<20	<40	<20	<5.0	<20	<20	<20
TS-607	0	<20	<40	<20	<20	<80	<20	<20	<80	<20	<10	<20	<20	<20
	5	<330	<670	<330	<330	<1300	<330	<330	<1300	<330	<170	<330	<330	<330
	10	<20	<40	<20	<20	<40	<20	<20	<40	<20	<5.0	<20	<20	<20
	15	<20	<40	<20	<20	<40	<20	<20	<40	<20	<5.0	<20	<20	<20
TS-608	0	<40	<80	<40	<40	<160	<40	<40	<160	<40	<20	<40	<40	<40
	5	<100	<200	<100	<100	<400	<100	<100	<400	<100	<50	<100	<100	<100
	10	<20	<40	<20	<20	<40	<20	<20	<40	<20	<5.0	<20	<20	<20
	15	<20	<40	<20	<20	<40	<20	<20	<40	<20	<5.0	<20	<20	<20
TS-609	0	<20	<40	<20	<20	<40	<20	<20	<40	<20	<5.0	<20	<20	<20
	5	<250	<500	<250	<250	<1000	<250	<250	<1000	<250	<130	<250	<250	<250
	10	<200	<400	<200	<200	<800	<200	<200	<800	<200	<100	<200	<200	<200
	15	<1000	<2000	<1000	<1000	<4000	<1000	<1000	<4000	<1000	<500	<1000	<1000	<1000
	19.5	<2000	<4000	<2000	<2000	<8000	<2000	<2000	<8000	<2000	<1000	<2000	<2000	<2000
	19.5[a]	<5000	<10000	<5000	<5000	<20000	<5000	<5000	<20000	<5000	<2500	<5000	<5000	<5000
	19.5D	<1000	<2000	<1000	<1000	<4000	<1000	<1000	<4000	<1000	<500	<1000	<1000	<1000
	19.5D[a]	<2000	<4000	<2000	<2000	<8000	<2000	<2000	<8000	<2000	<1000	<2000	<2000	<2000

Table 3
ANALYTICAL RESULTS FOR TARGETED SOIL SAMPLES BY DEPTH - August, 2005
Highlands Ranch
Contra Costa County, California
Volatile Organic Compounds (μg/Kg)

Location	Depth (ft.)	Chloroform	2,2-Dichloropropane	1,2-Dichloroethane	1,1,1-Trichloroethane	1,1-Dichloropropene	Carbon tetrachloride	Benzene	Dibromomethane	1,2-Dichloropropane	Trichloroethene	Bromodichloromethane	cis-1,3-Dichloropropene	trans-1,3-Dichloropropene
TS-604	0	<40	<40	<40	<40	<40	<40	<20	<40	<40	<40	<40	<40	<40
	5	<500	<500	<500	<500	<500	<500	<250	<500	<500	<500	<500	<500	<500
	10	<100	<100	<100	<100	<100	<100	<50	<100	<100	<100	<100	<100	<100
	15	<67	<67	<67	<67	<67	<67	<34	<67	<67	<67	<67	<67	<67
	19.5	<20	<20	<20	<20	<20	<20	<5.0	<20	<20	<20	<20	<20	<20
TS-605	0	<20	<20	<20	<20	<20	<20	<5.0	<20	<20	<20	<20	<20	<20
	5	<20	<20	<20	<20	<20	<20	<10	<20	<20	<20	<20	<20	<20
	10	<1000	<1000	<1000	<1000	<1000	<1000	<500	<1000	<1000	<1000	<1000	<1000	<1000
	15	<100	<100	<100	<100	<100	<100	<50	<100	<100	<100	<100	<100	<100
	19.5	<20	<20	<20	<20	<20	<20	<5.0	<20	<20	<20	<20	<20	<20
TS-606	0	<20	<20	<20	<20	<20	<20	<5.0	<20	<20	<20	<20	<20	<20
	5	<20	<20	<20	<20	<20	<20	<5.0	<20	<20	<20	<20	<20	<20
	10	<20	<20	<20	<20	<20	<20	<5.0	<20	<20	<20	<20	<20	<20
	15	<20	<20	<20	<20	<20	<20	<5.0	<20	<20	<20	<20	<20	<20
	15D	<20	<20	<20	<20	<20	<20	<5.0	<20	<20	<20	<20	<20	<20
TS-607	0	<20	<20	<20	<20	<20	<20	<10	<20	<20	<20	<20	<20	<20
	5	<330	<330	<330	<330	<330	<330	<170	<330	<330	<330	<330	<330	<330
	10	<20	<20	<20	<20	<20	<20	<5.0	<20	<20	<20	<20	<20	<20
	15	<20	<20	<20	<20	<20	<20	<5.0	<20	<20	<20	<20	<20	<20
TS-608	0	<40	<40	<40	<40	<40	<40	<20	<40	<40	<40	<40	<40	<40
	5	<100	<100	<100	<100	<100	<100	<50	<100	<100	<100	<100	<100	<100
	10	<20	<20	<20	<20	<20	<20	<5.0	<20	<20	<20	<20	<20	<20
	15	<20	<20	<20	<20	<20	<20	<5.0	<20	<20	<20	<20	<20	<20
TS-609	0	<20	<20	<20	<20	<20	<20	<5.0	<20	<20	<20	<20	<20	<20
	5	<250	<250	<250	<250	<250	<250	<130	<250	<250	<250	<250	<250	<250
	10	<200	<200	<200	<200	<200	<200	<100	<200	<200	<200	<200	<200	<200
	15	<1000	<1000	<1000	<1000	<1000	<1000	<500	<1000	<1000	<1000	<1000	<1000	<1000
	19.5	<2000	<2000	<2000	<2000	<2000	<2000	<1000	<2000	<2000	<2000	<2000	<2000	<2000
	19.5[a]	<5000	<5000	<5000	<5000	<5000	<5000	<2500	<5000	<5000	<5000	<5000	<5000	<5000
	19.5D	<1000	<1000	<1000	<1000	<1000	<1000	<500	<1000	<1000	<1000	<1000	<1000	<1000
	19.5D[a]	<2000	<2000	<2000	<2000	<2000	<2000	<1000	<2000	<2000	<2000	<2000	<2000	<2000

Table 3
ANALYTICAL RESULTS FOR TARGETED SOIL SAMPLES BY DEPTH - August, 2005
Highlands Ranch
Contra Costa County, California
Volatile Organic Compounds (μg/Kg)

Location	Depth (ft.)	1,1,2-Trichloroethane	Toluene	1,3-Dichloropropane	Dibromochloromethane	1,2-Dibromoethane (EDB)	Tetrachloroethene	1,1,1,2-Tetrachloroethane	Chlorobenzene	Ethylbenzene	m,p-Xylene	Bromoform	Styrene	o-Xylene
TS-604	0	<40	<20	<40	<40	<160	<40	<40	<40	<20	<20	<40	<40	<20
	5	<500	<250	<500	<500	<2000	<500	<500	<500	**1800**	<250	<500	<500	<250
	10	<100	<50	<100	<100	<400	<100	<100	<100	<50	<50	<100	<100	<50
	15	<67	<34	<67	<67	<270	<67	<67	<67	<34	<34	<67	<67	<34
	19.5	<20	**9.6**	<20	<20	<40	<20	<20	<20	**7.8**	**8.4**	<20	<20	<5.0
TS-605	0	<20	<5.0	<20	<20	<40	<20	<20	<20	<5.0	<5.0	<20	<20	<5.0
	5	<20	<10	<20	<20	<80	<20	<20	<20	<10	<10	<20	<20	<10
	10	<1000	<500	<1000	<1000	<4000	<1000	<1000	<1000	**1700**	<500	<1000	<1000	<500
	15	<100	<50	<100	<100	<400	<100	<100	<100	**74**	<50	<100	<100	<50
	19.5	<20	<5.0	<20	<20	<40	<20	<20	<20	<5.0	<5.0	<20	<20	<5.0
TS-606	0	<20	<5.0	<20	<20	<40	<20	<20	<20	<5.0	<5.0	<20	<20	<5.0
	5	<20	<5.0	<20	<20	<40	<20	<20	<20	<5.0	<5.0	<20	<20	<5.0
	10	<20	<5.0	<20	<20	<40	<20	<20	<20	<5.0	<5.0	<20	<20	<5.0
	15	<20	<5.0	<20	<20	<40	<20	<20	<20	<5.0	<5.0	<20	<20	<5.0
	15D	<20	<5.0	<20	<20	<40	<20	<20	<20	<5.0	<5.0	<20	<20	<5.0
TS-607	0	<20	<10	<20	<20	<80	<20	<20	<20	<10	<10	<20	<20	<10
	5	<330	<170	<330	<330	<1300	<330	<330	<330	<170	<170	<330	<330	<170
	10	<20	<5.0	<20	<20	<40	<20	<20	<20	<5.0	<5.0	<20	<20	<5.0
	15	<20	<5.0	<20	<20	<40	<20	<20	<20	<5.0	<5.0	<20	<20	<5.0
TS-608	0	<40	<20	<40	<40	<160	<40	<40	<40	<20	<20	<40	<40	<20
	5	<100	<50	<100	<100	<400	<100	<100	<100	**440**	<50	<100	<100	<50
	10	<20	<5.0	<20	<20	<40	<20	<20	<20	<5.0	<5.0	<20	<20	<5.0
	15	<20	<5.0	<20	<20	<40	<20	<20	<20	<5.0	<5.0	<20	<20	<5.0
TS-609	0	<20	<5.0	<20	<20	<40	<20	<20	<20	<5.0	<5.0	<20	<20	<5.0
	5	<250	<130	<250	<250	<1000	<250	<250	<250	**500**	<130	<250	<250	<130
	10	<200	<100	<200	<200	<800	<200	<200	<200	**1200**	<100	<200	<200	<100
	15	<1000	<500	<1000	<1000	<4000	<1000	<1000	<1000	<500	<500	<1000	<1000	<500
	19.5	<2000	<1000	<2000	<2000	<8000	<2000	<2000	<2000	<1000	<1000	<2000	<2000	<1000
	19.5[a]	<5000	<2500	<5000	<5000	<20000	<5000	<5000	<5000	<2500	<2500	<5000	<5000	<2500
	19.5D	<1000	<500	<1000	<1000	<4000	<1000	<1000	<1000	<500	<500	<1000	<1000	<500
	19.5D[a]	<2000	<1000	<2000	<2000	<8000	<2000	<2000	<2000	<1000	<1000	<2000	<2000	<1000

Table 3
ANALYTICAL RESULTS FOR TARGETED SOIL SAMPLES BY DEPTH - August, 2005
Highlands Ranch
Contra Costa County, California
Volatile Organic Compounds (μg/Kg)

Location	Depth (ft.)	1,1,2,2-Tetrachloroethane	1,2,3-Trichloropropane	Isopropyl Benzene	Bromobenzene	n-Propylbenzene	4-Chlorotoluene	2-Chlorotoluene	1,3,5-Trimethylbenzene	tert-Butylbenzene	1,2,4-Trimethylbenzene	sec-Butylbenzene	1,3-Dichlorobenzene
TS-604	0	<40	<160	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40
	5	<500	<2000	**6000**	<500	**5900**	<500	<500	<500	<500	<500	**5800**	<500
	10	<100	<400	**500**	<100	**530**	<100	<100	<100	<100	<100	**610**	<100
	15	<67	<270	**310**	<67	**370**	<67	<67	<67	<67	<67	**570**	<67
	19.5	<20	<40	**20**	<20	**23**	<20	<20	<20	<20	<20	**25**	<20
TS-605	0	<20	<40	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
	5	<20	<80	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
	10	<1000	<4000	**1900**	<1000	**1200**	<1000	<1000	<1000	<1000	**1400**	**1000**	<1000
	15	<100	<400	**210**	<100	<100	<100	<100	<100	<100	<100	**170**	<100
	19.5	<20	<40	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
TS-606	0	<20	<40	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
	5	<20	<40	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
	10	<20	<40	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
	15	<20	<40	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
	15D	<20	<40	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
TS-607	0	<20	<80	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
	5	<330	<1300	<330	<330	<330	<330	<330	<330	<330	<330	**410**	<330
	10	<20	<40	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
	15	<20	<40	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
TS-608	0	<40	<160	<40	<40	<40	<40	<40	<40	<40	<40	<40	<40
	5	<100	<400	**750**	<100	**940**	<100	<100	<100	<100	<100	**880**	<100
	10	<20	<40	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
	15	<20	<40	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
TS-609	0	<20	<40	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
	5	<250	<1000	**540**	<250	**500**	<250	<250	<250	<250	<250	**570**	<250
	10	<200	<800	**1200**	<200	**1100**	<200	<200	<200	<200	**230**	**1400**	<200
	15	<1000	<4000	**3100**	<1000	**3100**	<1000	<1000	<1000	<1000	<1000	**4600**	<1000
	19.5	<2000	<8000	**5800**	<2000	**5800**	<2000	<2000	<2000	<2000	<2000	**6400**	<2000
	19.5[a]	<5000	<20000	**12000**	<5000	**12000**	<5000	<5000	<5000	<5000	<5000	**16000**	<5000
	19.5D	<1000	<4000	**2200**	<1000	**2200**	<1000	<1000	<1000	<1000	<1000	**3300**	<1000
	19.5D[a]	<2000	<8000	**2900**	<2000	**3000**	<2000	<2000	<2000	<2000	<2000	<2000	<2000

Table 3
ANALYTICAL RESULTS FOR TARGETED SOIL SAMPLES BY DEPTH - August, 2005
Highlands Ranch
Contra Costa County, California
Volatile Organic Compounds (μg/Kg)

Location	Depth (ft.)	1,4-Dichlorobenzene	4-Isopropyltoluene	1,2-Dichlorobenzene	n-Butylbenzene	1,2-Dibromo-3-chloropropane (DBCP)	1,2,4-Trichlorobenzene	Naphthalene	Hexachlorobutadiene	1,2,3-Trichlorobenzene
TS-604	0	<40	<40	<40	<40	<240	<160	<160	<160	<160
	5	<500	<500	<500	**1700**	<3000	<2000	**2300**	<2000	<2000
	10	<100	<100	<100	**190**	<600	<400	**600**	<400	<400
	15	<67	<67	<67	**180**	<400	<270	**940**	<270	<270
	19.5	<20	<20	<20	<20	<60	<40	<40	<40	<40
TS-605	0	<20	<20	<20	<20	<60	<40	<40	<40	<40
	5	<20	<20	<20	<20	<120	<80	<80	<80	<80
	10	<1000	<1000	<1000	<1000	<6000	<4000	**15000**	<4000	<4000
	15	<100	<100	<100	**120**	<600	<400	**1900**	<400	<400
	19.5	<20	<20	<20	<20	<60	<40	<40	<40	<40
TS-606	0	<20	<20	<20	<20	<60	<40	<40	<40	<40
	5	<20	<20	<20	<20	<60	<40	<40	<40	<40
	10	<20	<20	<20	<20	<60	<40	<40	<40	<40
	15	<20	<20	<20	<20	<60	<40	<40	<40	<40
	15D	<20	<20	<20	<20	<60	<40	<40	<40	<40
TS-607	0	<20	<20	<20	<20	<120	<80	<80	<80	<80
	5	<330	<330	<330	**370**	<2000	<1300	**8600**	<1300	<1300
	10	<20	<20	<20	<20	<60	<40	<40	<40	<40
	15	<20	<20	<20	<20	<60	<40	<40	<40	<40
TS-608	0	<40	<40	<40	<40	<240	<160	<160	<160	<160
	5	<100	<100	<100	**640**	<600	<400	**11000**	<400	<400
	10	<20	<20	<20	<20	<60	<40	<40	<40	<40
	15	<20	<20	<20	<20	<60	<40	<40	<40	<40
TS-609	0	<20	<20	<20	<20	<60	<40	<40	<40	<40
	5	<250	<250	<250	**410**	<1500	<1000	**8400**	<1000	<1000
	10	<200	**210**	<200	**520**	<1200	<800	**2400**	<800	<800
	15	<1000	<1000	<1000	**1400**	<6000	<4000	<4000	<4000	<4000
	19.5	<2000	<2000	<2000	**2100**	<12000	<8000	**21000**	<8000	<8000
	19.5[a]	<5000	<5000	<5000	<5000	<30000	<20000	**44000**	<20000	<20000
	19.5D	<1000	<1000	<1000	<1000	<6000	<4000	<4000	<4000	<4000
	19.5D[a]	<2000	<2000	<2000	<2000	<12000	<8000	<8000	<8000	<8000

Table 4
ANALYTICAL RESULTS FOR TARGETED SOIL SAMPLES BY DEPTH - August, 2005
Highlands Ranch
Contra Costa County, California
Semi-Volatile Organic Compounds (μg/Kg)

Location	Depth (ft.)	Phenol	2-Chlorophenol	Bis(2-chloroethyl)ether	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,2-Dichlorobenzene	Bis(2-chloroisopropyl)ether	N-Nitrosodi-n-propylamine
Pond-C	0	<660	<660	<660	<1300	<1300	<1300	<660	<660
	5	<660	<660	<660	<1300	<1300	<1300	<660	<660
	10	<660	<660	<660	<1300	<1300	<1300	<660	<660
	15	<660	<660	<660	<1300	<1300	<1300	<660	<660
Pond-D	0	<330000	<330000	<330000	<650,000	<650,000	<650,000	<330000	<330000
	5	<6600	<6600	<6600	<13000	<13000	<13000	<6600	<6600
	10	<6600	<6600	<6600	<13000	<13000	<13000	<6600	<6600
	15	<6600	<6600	<6600	<13000	<13000	<13000	<6600	<6600
Pond-E	0	<1300	<1300	<1300	<2600	<2600	<2600	<1300	<1300
	5	<660	<660	<660	<1300	<1300	<1300	<660	<660
	10	<660	<660	<660	<1300	<1300	<1300	<660	<660
	15	<660	<660	<660	<1300	<1300	<1300	<660	<660
Pond-F	0	<1300	<1300	<1300	<2600	<2600	<2600	<1300	<1300
	5	<660	<660	<660	<1300	<1300	<1300	<660	<660
	10	<660	<660	<660	<1300	<1300	<1300	<660	<660
	15	<660	<660	<660	<1300	<1300	<1300	<660	<660
Pond-F1	0	<660	<660	<660	<1300	<1300	<1300	<660	<660
	5	<3300	<3300	<3300	<6500	<6500	<6500	<3300	<3300
	10	<660	<660	<660	<1300	<1300	<1300	<660	<660
	13.5	<660	<660	<660	<1300	<1300	<1300	<660	<660
Pond-F2	0	<1300	<1300	<1300	<2600	<2600	<2600	<1300	<1300
	5	<1300	<1300	<1300	<2600	<2600	<2600	<1300	<1300
	10	<660	<660	<660	<1300	<1300	<1300	<660	<660
	15	<660	<660	<660	<1300	<1300	<1300	<660	<660
X1	0	<66000	<66000	<66000	<130000	<130000	<130000	<66000	<66000
	5	<6600	<6600	<6600	<13000	<13000	<13000	<6600	<6600
	10	<660	<660	<660	<1300	<1300	<1300	<660	<660
	15	<660	<660	<660	<1300	<1300	<1300	<660	<660
	15D	<660	<660	<660	<1300	<1300	<1300	<660	<660
X3	0	<660	<660	<660	<1300	<1300	<1300	<660	<660
	5	<660	<660	<660	<1300	<1300	<1300	<660	<660
	10	<660	<660	<660	<1300	<1300	<1300	<660	<660
	15	<660	<660	<660	<1300	<1300	<1300	<660	<660
X4	0	<660	<660	<660	<1300	<1300	<1300	<660	<660
	5	<660	<660	<660	<1300	<1300	<1300	<660	<660
	10	<660	<660	<660	<1300	<1300	<1300	<660	<660
	15	<660	<660	<660	<1300	<1300	<1300	<660	<660

Table 4
ANALYTICAL RESULTS FOR TARGETED SOIL SAMPLES BY DEPTH - August, 2005
Highlands Ranch
Contra Costa County, California
Semi-Volatile Organic Compounds (μg/Kg)

Location	Depth (ft.)	Hexachloroethane	Nitrobenzene	Isophorone	2-Nitrophenol	2,4-Dimethylphenol	Bis(2-chloroethoxy)methane	2,4-Dichlorophenol	1,2,4-Trichlorobenzene
Pond-C	0	<1300	<660	<660	<660	<660	<660	<660	<660
	5	<1300	<660	<660	<660	<660	<660	<660	<660
	10	<1300	<660	<660	<660	<660	<660	<660	<660
	15	<1300	<660	<660	<660	<660	<660	<660	<660
Pond-D	0	<650,000	<330000	<330000	<330000	<330000	<330000	<330000	<330000
	5	<13000	<6600	<6600	<6600	<6600	<6600	<6600	<6600
	10	<13000	<6600	<6600	<6600	<6600	<6600	<6600	<6600
	15	<13000	<6600	<6600	<6600	<6600	<6600	<6600	<6600
Pond-E	0	<2600	<1300	<1300	<1300	<1300	<1300	<1300	<1300
	5	<1300	<660	<660	<660	<660	<660	<660	<660
	10	<1300	<660	<660	<660	<660	<660	<660	<660
	15	<1300	<660	<660	<660	<660	<660	<660	<660
Pond-F	0	<2600	<1300	<1300	<1300	<1300	<1300	<1300	<1300
	5	<1300	<660	<660	<660	<660	<660	<660	<660
	10	<1300	<660	<660	<660	<660	<660	<660	<660
	15	<1300	<660	<660	<660	<660	<660	<660	<660
Pond-F1	0	<1300	<660	<660	<660	<660	<660	<660	<660
	5	<6500	<3300	<3300	<3300	<3300	<3300	<3300	<3300
	10	<1300	<660	<660	<660	<660	<660	<660	<660
	13.5	<1300	<660	<660	<660	<660	<660	<660	<660
Pond-F2	0	<2600	<1300	<1300	<1300	<1300	<1300	<1300	<1300
	5	<2600	<1300	<1300	<1300	<1300	<1300	<1300	<1300
	10	<1300	<660	<660	<660	<660	<660	<660	<660
	15	<1300	<660	<660	<660	<660	<660	<660	<660
X1	0	<130000	<66000	<66000	<66000	<66000	<66000	<66000	<66000
	5	<13000	<6600	<6600	<6600	<6600	<6600	<6600	<6600
	10	<1300	<660	<660	<660	<660	<660	<660	<660
	15	<1300	<660	<660	<660	<660	<660	<660	<660
	15D	<1300	<660	<660	<660	<660	<660	<660	<660
X3	0	<1300	<660	<660	<660	<660	<660	<660	<660
	5	<1300	<660	<660	<660	<660	<660	<660	<660
	10	<1300	<660	<660	<660	<660	<660	<660	<660
	15	<1300	<660	<660	<660	<660	<660	<660	<660
X4	0	<1300	<660	<660	<660	<660	<660	<660	<660
	5	<1300	<660	<660	<660	<660	<660	<660	<660
	10	<1300	<660	<660	<660	<660	<660	<660	<660
	15	<1300	<660	<660	<660	<660	<660	<660	<660

Table 4
ANALYTICAL RESULTS FOR TARGETED SOIL SAMPLES BY DEPTH - August, 2005
Highlands Ranch
Contra Costa County, California
Semi-Volatile Organic Compounds (μg/Kg)

Location	Depth (ft.)	Hexachlorobutadiene	4-Chloro-3-methylphenol	Hexachlorocyclopentadiene	2,4,6-Trichlorophenol	2-Chloronaphthalene	Dimethyl phthalate	2,6-Dinitrottoluene	2,4-Dinitrophenal
Pond-C	0	<1300	<1300	<6600	<660	<660	<660	<660	<6600
	5	<1300	<1300	<6600	<660	<660	<660	<660	<6600
	10	<1300	<1300	<6600	<660	<660	<660	<660	<6600
	15	<1300	<1300	<6600	<660	<660	<660	<660	<6600
Pond-D	0	<650,000	<650,000	<3300000	<330000	<330000	<330000	<330000	<3300000
	5	<13000	<13000	<66000	<6600	<6600	<6600	<6600	<66000
	10	<13000	<13000	<66000	<6600	<6600	<6600	<6600	<66000
	15	<13000	<13000	<66000	<6600	<6600	<6600	<6600	<66000
Pond-E	0	<2600	<2600	<13000	<1300	<1300	<1300	<1300	<13000
	5	<1300	<1300	<6600	<660	<660	<660	<660	<6600
	10	<1300	<1300	<6600	<660	<660	<660	<660	<6600
	15	<1300	<1300	<6600	<660	<660	<660	<660	<6600
Pond-F	0	<2600	<2600	<13000	<1300	<1300	<1300	<1300	<13000
	5	<1300	<1300	<6600	<660	<660	<660	<660	<6600
	10	<1300	<1300	<6600	<660	<660	<660	<660	<6600
	15	<1300	<1300	<6600	<660	<660	<660	<660	<6600
Pond-F1	0	<1300	<1300	<6600	<660	<660	<660	<660	<6600
	5	<6500	<6500	<33000	<3300	<3300	<3300	<3300	<33000
	10	<1300	<1300	<6600	<660	<660	<660	<660	<6600
	13.5	<1300	<1300	<6600	<660	<660	<660	<660	<6600
Pond-F2	0	<2600	<2600	<13000	<1300	<1300	<1300	<1300	<13000
	5	<2600	<2600	<13000	<1300	<1300	<1300	<1300	<13000
	10	<1300	<1300	<6600	<660	<660	<660	<660	<6600
	15	<1300	<1300	<6600	<660	<660	<660	<660	<6600
X1	0	<130000	<130000	<660000	<66000	<66000	<66000	<66000	<660000
	5	<13000	<13000	<66000	<6600	<6600	<6600	<6600	<66000
	10	<1300	<1300	<6600	<660	<660	<660	<660	<6600
	15	<1300	<1300	<6600	<660	<660	<660	<660	<6600
	15D	<1300	<1300	<6600	<660	<660	<660	<660	<6600
X3	0	<1300	<1300	<6600	<660	<660	<660	<660	<6600
	5	<1300	<1300	<6600	<660	<660	<660	<660	<6600
	10	<1300	<1300	<6600	<660	<660	<660	<660	<6600
	15	<1300	<1300	<6600	<660	<660	<660	<660	<6600
X4	0	<1300	<1300	<6600	<660	<660	<660	<660	<6600
	5	<1300	<1300	<6600	<660	<660	<660	<660	<6600
	10	<1300	<1300	<6600	<660	<660	<660	<660	<6600
	15	<1300	<1300	<6600	<660	<660	<660	<660	<6600

Table 4
ANALYTICAL RESULTS FOR TARGETED SOIL SAMPLES BY DEPTH - August, 2005
Highlands Ranch
Contra Costa County, California
Semi-Volatile Organic Compounds (μg/Kg)

Location	Depth (ft.)	4-Nitrophenol	2,4-Dinitrotoluene	Diethyl phthalate	4-Chlorophenyl phenyl ether	4,6-Dinitro-2-methylphenol	N-Nitrosodiphenylamine	4-Bromophenyl phenyl ether	Hexachlorobenzene
Pond-C	0	<3300	<660	<660	<660	<6600	<660	<660	<660
	5	<3300	<660	<660	<660	<6600	<660	<660	<660
	10	<3300	<660	<660	<660	<6600	<660	<660	<660
	15	<3300	<660	<660	<660	<6600	<660	<660	<660
Pond-D	0	<1700000	<330000	<330000	<330000	<3300000	<330000	<330000	<330000
	5	<33000	<6600	<6600	<6600	<66000	<6600	<6600	<6600
	10	<33000	<6600	<6600	<6600	<66000	<6600	<6600	<6600
	15	<33000	<6600	<6600	<6600	<66000	<6600	<6600	<6600
Pond-E	0	<6600	<1300	<1300	<1300	<13000	<1300	<1300	<1300
	5	<3300	<660	<660	<660	<6600	<660	<660	<660
	10	<3300	<660	<660	<660	<6600	<660	<660	<660
	15	<3300	<660	<660	<660	<6600	<660	<660	<660
Pond-F	0	<6600	<1300	<1300	<1300	<13000	<1300	<1300	<1300
	5	<3300	<660	<660	<660	<6600	<660	<660	<660
	10	<3300	<660	<660	<660	<6600	<660	<660	<660
	15	<3300	<660	<660	<660	<6600	<660	<660	<660
Pond-F1	0	<3300	<660	<660	<660	<6600	<660	<660	<660
	5	<17000	<3300	<3300	<3300	<33000	<3300	<3300	<3300
	10	<3300	<660	<660	<660	<6600	<660	<660	<660
	13.5	<3300	<660	<660	<660	<6600	<660	<660	<660
Pond-F2	0	<6600	<1300	<1300	<1300	<13000	<1300	<1300	<1300
	5	<6600	<1300	<1300	<1300	<13000	<1300	<1300	<1300
	10	<3300	<660	<660	<660	<6600	<660	<660	<660
	15	<3300	<660	<660	<660	<6600	<660	<660	<660
X1	0	<330000	<66000	<66000	<66000	<660000	<66000	<66000	<66000
	5	<33000	<6600	<6600	<6600	<66000	<6600	<6600	<6600
	10	<3300	<660	<660	<660	<6600	<660	<660	<660
	15	<3300	<660	<660	<660	<6600	<660	<660	<660
	15D	<3300	<660	<660	<660	<6600	<660	<660	<660
X3	0	<3300	<660	<660	<660	<6600	<660	<660	<660
	5	<3300	<660	<660	<660	<6600	<660	<660	<660
	10	<3300	<660	<660	<660	<6600	<660	<660	<660
	15	<3300	<660	<660	<660	<6600	<660	<660	<660
X4	0	<3300	<660	<660	<660	<6600	<660	<660	<660
	5	<3300	<660	<660	<660	<6600	<660	<660	<660
	10	<3300	<660	<660	<660	<6600	<660	<660	<660
	15	<3300	<660	<660	<660	<6600	<660	<660	<660

Table 4
ANALYTICAL RESULTS FOR TARGETED SOIL SAMPLES BY DEPTH - August, 2005
Highlands Ranch
Contra Costa County, California
Semi-Volatile Organic Compounds (μg/Kg)

Location	Depth (ft.)	Pentachlorophenol	Di-n-butyl phthalate	Butyl benzyl phthalate	3,3'-Dichlorobenzidine	Bis(2-ethylhexy)phthalate	Di-n-octyl phthalate
Pond-C	0	<3300	<3300	<1300	<1300	<3300	<1300
	5	<3300	<3300	<1300	<1300	<3300	<1300
	10	<3300	<3300	<1300	<1300	<3300	<1300
	15	<3300	<3300	<1300	<1300	<3300	<1300
Pond-D	0	<1700000	<1700000	<650,000	<650,000	<1700000	<650,000
	5	<33000	<33000	<13000	<13000	<33000	<13000
	10	<33000	<33000	<13000	<13000	<33000	<13000
	15	<33000	<33000	<13000	<13000	<33000	<13000
Pond-E	0	<6600	<6600	<2600	<2600	<6600	<2600
	5	<3300	<3300	<1300	<1300	<3300	<1300
	10	<3300	<3300	<1300	<1300	<3300	<1300
	15	<3300	<3300	<1300	<1300	<3300	<1300
Pond-F	0	<6600	<6600	<2600	<2600	<6600	<2600
	5	<3300	<3300	<1300	<1300	<3300	<1300
	10	<3300	<3300	<1300	<1300	<3300	<1300
	15	<3300	<3300	<1300	<1300	<3300	<1300
Pond-F1	0	<3300	<3300	<1300	<1300	<3300	<1300
	5	<17000	<17000	<6500	<6500	<17000	<6500
	10	<3300	<3300	<1300	<1300	<3300	<1300
	13.5	<3300	<3300	<1300	<1300	<3300	<1300
Pond-F2	0	<6600	<6600	<2600	<2600	<6600	<2600
	5	<6600	<6600	<2600	<2600	<6600	<2600
	10	<3300	<3300	<1300	<1300	<3300	<1300
	15	<3300	<3300	<1300	<1300	<3300	<1300
X1	0	<330000	<330000	<130000	<130000	<330000	<130000
	5	<33000	<33000	<13000	<13000	<33000	<13000
	10	<3300	<3300	<1300	<1300	<3300	<1300
	15	<3300	<3300	<1300	<1300	<3300	<1300
	15D	<3300	<3300	<1300	<1300	<3300	<1300
X3	0	<3300	<3300	<1300	<1300	<3300	<1300
	5	<3300	<3300	<1300	<1300	<3300	<1300
	10	<3300	<3300	<1300	<1300	<3300	<1300
	15	<3300	<3300	<1300	<1300	<3300	<1300
X4	0	<3300	<3300	<1300	<1300	<3300	<1300
	5	<3300	<3300	<1300	<1300	<3300	<1300
	10	<3300	<3300	<1300	<1300	<3300	<1300
	15	<3300	<3300	<1300	<1300	<3300	<1300

Table 5
ANALYTICAL RESULTS FOR TARGETED SOIL SAMPLES BY DEPTH - August, 2005
Highlands Ranch
Contra Costa County, California
PNAs (µg/Kg)

Location	Depth (ft.)	Naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo(a)anthracene	Chrysene	Benzo(b)fluoranthene
Pond-C	0	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	5	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	10	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	15	<50	<50	<50	<50	<50	<50	<50	60	<50	<50	<50
Pond-D	0	<2500	<2500	<2500	<2500	<2500	<2500	<2500	<2500	<2500	<2500	<2500
	5	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	10	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	15	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Pond-E	0	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	5	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	10	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	15	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Pond-F	0	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	5	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	10	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	15	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Pond-F1	0	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	5	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	10	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	13.5	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Pond-F2	0	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	5	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	10	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	15	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
X1	0	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250	<250
	5	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	10	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	15	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	15D	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
X3	0	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	5	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	10	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	15	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
X4	0	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	5	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	10	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	15	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50

Table 5
ANALYTICAL RESULTS FOR TARGETED SOIL SAMPLES BY DEPTH - August, 2005
Highlands Ranch
Contra Costa County, California
PNAs (μg/Kg)

Location	Depth (ft.)	Benzo(k)fluoranthene	Benzo(a)pyrene	Indeno(1,2,3-cd)pyrene	Dibenz(a,h)anthracene	Benzo(g,h,i)perylene
Pond-C	0	<50	<50	<50	<50	<50
	5	<50	<50	<50	<50	<50
	10	<50	<50	<50	<50	<50
	15	<50	<50	<50	<50	<50
Pond-D	0	<2500	<2500	<2500	<2500	<2500
	5	<50	<50	<50	<50	<50
	10	<50	<50	<50	<50	<50
	15	<50	<50	<50	<50	<50
Pond-E	0	<50	<50	<50	<50	<50
	5	<50	<50	<50	<50	<50
	10	<50	<50	<50	<50	<50
	15	<50	<50	<50	<50	<50
Pond-F	0	<50	<50	<50	<50	<50
	5	<50	<50	<50	<50	<50
	10	<50	<50	<50	<50	<50
	15	<50	<50	<50	<50	<50
Pond-F1	0	<50	<50	<50	<50	<50
	5	<50	<50	<50	<50	<50
	10	<50	<50	<50	<50	<50
	13.5	<50	<50	<50	<50	<50
Pond-F2	0	<50	<50	<50	<50	<50
	5	<50	<50	<50	<50	<50
	10	<50	<50	<50	<50	<50
	15	<50	<50	<50	<50	<50
X1	0	<250	<250	<250	<250	<250
	5	<50	<50	<50	<50	<50
	10	<50	<50	<50	<50	<50
	15	<50	<50	<50	<50	<50
	15D	<50	<50	<50	<50	<50
X3	0	<50	<50	<50	<50	<50
	5	<50	<50	<50	<50	<50
	10	<50	<50	<50	<50	<50
	15	<50	<50	<50	<50	<50
X4	0	<50	<50	<50	<50	<50
	5	<50	<50	<50	<50	<50
	10	<50	<50	<50	<50	<50
	15	<50	<50	<50	<50	<50

Table 6
ANALYTICAL RESULTS FOR RANDOM SOIL SAMPLES - August, 2005
Highlands Ranch
Contra Costa County, California
(mg/Kg)

Sample ID	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	pH
SS-1	<1.0	4.5	190	<1.0	<1.0	30	9.3	47	18	<0.20	<1.0	20	<1.0	<1.0	<1.0	66	76	6.8
SS-2	<1.0	4.3	170	<1.0	<1.0	19	6.3	37	9.3	<0.20	<1.0	19	<1.0	<1.0	<1.0	34	55	6.8
SS-3	<1.0	4.4	240	<1.0	<1.0	25	29	37	12	<0.20	<1.0	20	<1.0	<1.0	<1.0	65	44	6.4
SS-4	<1.0	5.5	170	<1.0	<1.0	20	6.6	33	10	<0.20	<1.0	18	<1.0	<1.0	<1.0	42	60	7.0
SS-4D	<1.0	5.2	170	<1.0	<1.0	19	9.8	64	10	<0.20	1.0	20	<1.0	<1.0	<1.0	65	75	7.0
SS-5	<1.0	4.1	140	<1.0	<1.0	15	5.9	41	22	<0.20	<1.0	15	<1.0	<1.0	<1.0	32	53	5.9
SS-5D	<1.0	4.7	160	<1.0	<1.0	24	6.4	40	21	<0.20	<1.0	18	<1.0	<1.0	<1.0	54	58	6.1
SS-6	<1.0	4.9	170	<1.0	<1.0	23	7.3	44	9.8	<0.20	<1.0	22	<1.0	<1.0	<1.0	38	53	6.9
SS-7	<1.0	5.4	190	<1.0	<1.0	38	8.1	70	11	<0.20	<1.0	23	<1.0	<1.0	<1.0	80	69	6.6
SS-8	<1.0	4.6	160	<1.0	<1.0	20	9.7	81	14	<0.20	<1.0	19	<1.0	<1.0	<1.0	43	70	6.1
SS-9	<1.0	4.7	150	<1.0	<1.0	22	7.9	51	13	<0.20	<1.0	18	<1.0	<1.0	<1.0	44	59	6.3
SS-10	<1.0	5.3	190	<1.0	<1.0	33	10	38	20	<0.20	<1.0	19	<1.0	<1.0	<1.0	73	61	6.3
SS-11	<1.0	5.1	190	<1.0	<1.0	32	9.2	58	24	<0.20	<1.0	19	<1.0	<1.0	<1.0	74	72	6.3
SS-12	<1.0	4.8	170	<1.0	<1.0	16	5.8	43	6.4	<0.20	<1.0	18	<1.0	<1.0	<1.0	31	61	7.4
SS-13	<1.0	8.4	210	<1.0	<1.0	41	16	46	13	<0.20	1.1	36	<1.0	<1.0	<1.0	110	100	6.4
SS-14	<1.0	4.3	160	<1.0	<1.0	26	13	47	11	<0.20	<1.0	19	<1.0	<1.0	<1.0	66	52	6.8
SS-15	<1.0	5.3	160	<1.0	<1.0	18	5.6	120	19	<0.20	1.0	17	<1.0	<1.0	<1.0	35	130	6.2
SS-16	<1.0	1.2	61	<1.0	<1.0	27	24	130	6.8	0.3	<1.0	24	<1.0	<1.0	<1.0	120	47	6.7
SS-17	<1.0	4.7	190	<1.0	<1.0	23	7.1	42	9.4	<0.20	<1.0	22	<1.0	<1.0	<1.0	41	57	7.8
SS-18	<1.0	3.3	140	<1.0	<1.0	18	4.8	57	18	<0.20	<1.0	13	<1.0	<1.0	<1.0	32	62	5.9
SS-19	<1.0	4.5	150	<1.0	<1.0	25	6.9	31	9.2	<0.20	<1.0	18	<1.0	<1.0	<1.0	49	44	6.8
SS-20	<1.0	4.1	140	<1.0	<1.0	17	7.7	32	16	<0.20	<1.0	14	<1.0	<1.0	<1.0	37	45	6.1
SS-21	<1.0	5.5	200	<1.0	<1.0	24	8.3	52	9	<0.20	<1.0	22	<1.0	<1.0	<1.0	55	63	6.8
SS-22	<1.0	5.5	160	<1.0	<1.0	22	6.4	47	19	<0.20	<1.0	18	<1.0	<1.0	<1.0	49	63	5.9
SS-23	<1.0	5.1	160	<1.0	<1.0	19	5.5	48	25	<0.20	<1.0	17	<1.0	<1.0	<1.0	39	79	6.2
SS-24	<1.0	5.1	170	<1.0	<1.0	20	7.1	62	9.9	<0.20	<1.0	18	<1.0	<1.0	<1.0	38	59	6.4
SS-25	<1.0	4.7	180	<1.0	<1.0	23	7.2	230	18	<0.20	<1.0	20	<1.0	<1.0	<1.0	47	150	6.0
SS-26	<1.0	5.3	200	<1.0	<1.0	33	9.3	39	1.1	<0.20	1.6	22	<1.0	<1.0	1.2	79	59	6.5
SS-27	<1.0	5.9	180	<1.0	<1.0	23	6.6	34	13	<0.20	<1.0	19	<1.0	<1.0	<1.0	51	63	6.5
SS-28	<1.0	3.7	150	<1.0	<1.0	19	7.1	31	8.0	<0.20	<1.0	14	<1.0	<1.0	<1.0	41	35	6.8
SS-29	<1.0	10	170	<1.0	<1.0	28	13	66	9.4	<0.20	<1.0	32	<1.0	<1.0	<1.0	130	82	8.0
SS-30	<1.0	4.6	170	<1.0	<1.0	18	6.5	40	17	<0.20	<1.0	18	<1.0	<1.0	<1.0	39	57	7.1
SS-31	<1.0	3.6	150	<1.0	<1.0	26	7.2	53	15	<0.20	<1.0	16	<1.0	<1.0	<1.0	48	54	6.4
SS-32	<1.0	4.8	170	<1.0	<1.0	24	6	43	14	<0.20	<1.0	18	<1.0	<1.0	<1.0	56	58	6.3
SS-33	<1.0	7.5	270	<1.0	<1.0	40	12	66	19	<0.20	1.0	30	<1.0	<1.0	<1.0	100	110	7.0
SS-34	<1.0	4.5	150	<1.0	<1.0	21	6.7	100	27	<0.20	<1.0	18	<1.0	<1.0	<1.0	43	79	6.3
SS-35	<1.0	4.7	160	<1.0	<1.0	21	5.4	33	13	<0.20	<1.0	16	<1.0	<1.0	<1.0	43	63	6.8
SS-36	<1.0	3.9	190	<1.0	<1.0	16	13	23	11	<0.20	<1.0	15	<1.0	<1.0	<1.0	31	31	6.6
SS-37	<1.0	5.4	260	<1.0	<1.0	20	5.8	60	21	<0.20	1.2	16	<1.0	<1.0	<1.0	53	120	4.5
Mean		**5.0**	**173**			**24**	**9.0**	**57**	**14**			**19**				**56**	**67**	**6.5**
S.D.		**1.37**	**35**			**6**	**4.9**	**36**	**6**			**5**				**25**	**25**	**0.6**
95% UCL		**5.33**	**183**			**26**	**10.3**	**67**	**16**			**21**				**62**	**74**	**6.7**

Table 7
ANALYTICAL RESULTS FOR RANDOM SURFACE SOIL SAMPLES - AUGUST, 2005
Highlands Ranch
Contra Costa County, California
(mg/Kg)

Sample ID	TPHg	TPHd	TPHo
SS-1	<4.0	52	370
SS-2	<13	28	260
SS-3	<1.0	<5.0	<10
SS-4	<4.0	180	1500
SS-4D	<1.5	<5.0	16
SS-5	<2.5	29	280
SS-5D	<1.3	24	270
SS-6	<1.0	<5.0	<10
SS-7	<1.3	5.1	19
SS-8	<2.0	190	1300
SS-9	<1.0	43	250
SS-10	<2.0	34	190
SS-11	<1.3	13	89
SS-12	<2.5	23	200
SS-13	<2.5	86	420
SS-14	<1.0	39	280
SS-15	<1.5	8.5	30
SS-16	<4.0	69	600
SS-17	<4.0	390	1500
SS-18	<2.5	43	510
SS-19	<1.0	23	180
SS-20	<1.0	120	1100
SS-21	<1.0	<5.0	21
SS-22	<4.0	190	1700
SS-23	<2.0	130	1300
SS-24	<1.0	5.8	20
SS-25	<1.0	7.1	25
SS-26	<1.0	<5.0	<10
SS-27	<2.0	19	92
SS-28	<1.0	<5.0	<10
SS-29	<2.0	43	290
SS-30	<1.0	<5.0	14
SS-31	<1.3	8.5	110
SS-32	<2.5	13	120
SS-33	<2.5	23	290
SS-34	<2.5	<5.0	59
SS-35	<2.5	8.2	85
SS-36	<1.0	<5.0	<10
SS-37	<3.0	22	220
Mean	NM	**48.4**	**352**
S.D.	NM	**77.9**	**488**
95% UCL	NM	**69.9**	**486**

NM: Not Meaningful.

Table 8
ANALYTICAL RESULTS FOR RANDOM SURFACE SOIL SAMPLES - August, 2005
Highlands Ranch
Contra Costa County, California
Semi-Volatile Organic Compounds (μg/Kg)

Sample ID	Phenol	2-Chlorophenol	Bis(2-chloroethyl)ether	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,2-Dichlorobenzene	Bis(2-chloroisopropyl)ether	N-Nitrosodi-n-propylamine	Hexachloroethane	Nitrobenzene
SS-1	<3300	<3300	<3300	<6500	<6500	<6500	<3300	<3300	<6500	<3300
SS-2	<3300	<3300	<3300	<6500	<6500	<6500	<3300	<3300	<6500	<3300
SS-3	<660	<660	<660	<1300	<1300	<1300	<660	<660	<1300	<660
SS-4	<6600	<6600	<6600	<13000	<13000	<13000	<6600	<6600	<13000	<6600
SS-4D	<660	<660	<660	<1300	<1300	<1300	<660	<660	<1300	<660
SS-5	<6600	<6600	<6600	<13000	<13000	<13000	<6600	<6600	<13000	<6600
SS-5D	<6600	<6600	<6600	<13000	<13000	<13000	<6600	<6600	<13000	<6600
SS-6	<660	<660	<660	<1300	<1300	<1300	<660	<660	<1300	<660
SS-7	<660	<660	<660	<1300	<1300	<1300	<660	<660	<1300	<660
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SS-14	<1300	<1300	<1300	<2600	<2600	<2600	<1300	<1300	<2600	<1300
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SS-17	<66000	<66000	<66000	<130000	<130000	<130000	<66000	<66000	<130000	<66000
SS-18	<3300	<3300	<3300	<6500	<6500	<6500	<3300	<3300	<6500	<3300
SS-19	<3300	<3300	<3300	<6500	<6500	<6500	<3300	<3300	<6500	<3300
SS-20	<6600	<6600	<6600	<13000	<13000	<13000	<6600	<6600	<13000	<6600
SS-21	<1300	<1300	<1300	<2600	<2600	<2600	<1300	<1300	<2600	<1300
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SS-26	<660	<660	<660	<1300	<1300	<1300	<660	<660	<1300	<660
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SS-29	<3300	<3300	<3300	<6500	<6500	<6500	<3300	<3300	<6500	<3300
SS-30	<1300	<1300	<1300	<2600	<2600	<2600	<1300	<1300	<2600	<1300
SS-31	<660	<660	<660	<1300	<1300	<1300	<660	<660	<1300	<660
SS-32	<660	<660	<660	<1300	<1300	<1300	<660	<660	<1300	<660
SS-33	<1300	<1300	<1300	<2600	<2600	<2600	<1300	<1300	<2600	<1300
SS-34	<660	<660	<660	<1300	<1300	<1300	<660	<660	<1300	<660
SS-35	<1300	<1300	<1300	<2600	<2600	<2600	<1300	<1300	<2600	<1300
SS-36	<660	<660	<660	<1300	<1300	<1300	<660	<660	<1300	<660
SS-37	<3300	<3300	<3300	<6500	<6500	<6500	<3300	<3300	<6500	<3300

Table 8
ANALYTICAL RESULTS FOR RANDOM SURFACE SOIL SAMPLES - August, 2005
Highlands Ranch
Contra Costa County, California
Semi-Volatile Organic Compounds (μg/Kg)

Sample ID	Isophorone	2-Nitrophenol	2,4-Dimethylphenol	Bis(2-chloroethoxy)methane	2,4-Dichlorophenol	1,2,4-Trichlorobenzene	Hexachlorobutadiene	4-Chloro-3-methylphenol	Hexachlorocyclopentadiene	2,4,6-Trichlorophenol
SS-1	<3300	<3300	<3300	<3300	<3300	<3300	<6500	<6500	<33000	<3300
SS-2	<3300	<3300	<3300	<3300	<3300	<3300	<6500	<6500	<33000	<3300
SS-3	<660	<660	<660	<660	<660	<660	<1300	<1300	<6600	<660
SS-4	<6600	<6600	<6600	<6600	<6600	<6600	<13000	<13000	<66000	<6600
SS-4D	<660	<660	<660	<660	<660	<660	<1300	<1300	<6600	<660
SS-5	<6600	<6600	<6600	<6600	<6600	<6600	<13000	<13000	<66000	<6600
SS-5D	<6600	<6600	<6600	<6600	<6600	<6600	<13000	<13000	<66000	<6600
SS-6	<660	<660	<660	<660	<660	<660	<1300	<1300	<6600	<660
SS-7	<660	<660	<660	<660	<660	<660	<1300	<1300	<6600	<660
SS-8	<6600	<6600	<6600	<6600	<6600	<6600	<13000	<13000	<66000	<6600
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SS-32	<660	<660	<660	<660	<660	<660	<1300	<1300	<6600	<660
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SS-34	<660	<660	<660	<660	<660	<660	<1300	<1300	<6600	<660
SS-35	<1300	<1300	<1300	<1300	<1300	<1300	<2600	<2600	<13000	<1300
SS-36	<660	<660	<660	<660	<660	<660	<1300	<1300	<6600	<660
SS-37	<3300	<3300	<3300	<3300	<3300	<3300	<6500	<6500	<33000	<3300

Table 8
ANALYTICAL RESULTS FOR RANDOM SURFACE SOIL SAMPLES - August, 2005
Highlands Ranch
Contra Costa County, California
Semi-Volatile Organic Compounds (µg/Kg)

Sample ID	2-Chloronaphthalene	Dimethyl phthalate	2,6-Dinitrottoluene	2,4-Dinitrophenal	4-Nitrophenol	2,4-Dinitrotoluene	Diethyl phthalate	4-Chlorophenyl phenyl ether	4,6-Dinitro-2-methylphenol	N-Nitrosodiphenylamine
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SS-2	<3300	<3300	<3300	<33000	<17000	<3300	<3300	<3300	<33000	<3300
SS-3	<660	<660	<660	<6600	<3300	<660	<660	<660	<6600	<660
SS-4	<6600	<6600	<6600	<66000	<33000	<6600	<6600	<6600	<66000	<6600
SS-4D	<660	<660	<660	<6600	<3300	<660	<660	<660	<6600	<660
SS-5	<6600	<6600	<6600	<66000	<33000	<6600	<6600	<6600	<66000	<6600
SS-5D	<6600	<6600	<6600	<66000	<33000	<6600	<6600	<6600	<66000	<6600
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SS-7	<660	<660	<660	<6600	<3300	<660	<660	<660	<6600	<660
SS-8	<6600	<6600	<6600	<66000	<33000	<6600	<6600	<6600	<66000	<6600
SS-9	<6600	<6600	<6600	<66000	<33000	<6600	<6600	<6600	<66000	<6600
SS-10	<3300	<3300	<3300	<33000	<17000	<3300	<3300	<3300	<33000	<3300
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SS-13	<13000	<13000	<13000	<130000	<66000	<13000	<13000	<13000	<130000	<13000
SS-14	<1300	<1300	<1300	<13000	<6600	<1300	<1300	<1300	<13000	<1300
SS-15	<3300	<3300	<3300	<33000	<17000	<3300	<3300	<3300	<33000	<3300
SS-16	<13000	<13000	<13000	<130000	<66000	<13000	<13000	<13000	<130000	<13000
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SS-25	<660	<660	<660	<6600	<3300	<660	<660	<660	<6600	<660
SS-26	<660	<660	<660	<6600	<3300	<660	<660	<660	<6600	<660
SS-27	<3300	<3300	<3300	<33000	<17000	<3300	<3300	<3300	<33000	<3300
SS-28	<660	<660	<660	<6600	<3300	<660	<660	<660	<6600	<660
SS-29	<3300	<3300	<3300	<33000	<17000	<3300	<3300	<3300	<33000	<3300
SS-30	<1300	<1300	<1300	<13000	<6600	<1300	<1300	<1300	<13000	<1300
SS-31	<660	<660	<660	<6600	<3300	<660	<660	<660	<6600	<660
SS-32	<660	<660	<660	<6600	<3300	<660	<660	<660	<6600	<660
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SS-34	<660	<660	<660	<6600	<3300	<660	<660	<660	<6600	<660
SS-35	<1300	<1300	<1300	<13000	<6600	<1300	<1300	<1300	<13000	<1300
SS-36	<660	<660	<660	<6600	<3300	<660	<660	<660	<6600	<660
SS-37	<3300	<3300	<3300	<33000	<17000	<3300	<3300	<3300	<33000	<3300

Table 8
ANALYTICAL RESULTS FOR RANDOM SURFACE SOIL SAMPLES - August, 2005
Highlands Ranch
Contra Costa County, California
Semi-Volatile Organic Compounds (μg/Kg)

Sample ID	4-Bromophenyl phenyl ether	Hexachlorobenzene	Pentachlorophenol	Di-n-butyl phthalate	Butyl benzyl phthalate	3,3'-Dichlorobenzidine	Bis(2-ethylhexy)phthalate	Di-n-octyl phthalate
SS-1	<3300	<3300	<17000	<17000	<6500	<6500	<17000	<6500
SS-2	<3300	<3300	<17000	<17000	<6500	<6500	<17000	<6500
SS-3	<660	<660	<3300	<3300	<1300	<1300	<3300	<1300
SS-4	<6600	<6600	<33000	<33000	<13000	<13000	<33000	<13000
SS-4D	<660	<660	<3300	<3300	<1300	<1300	<3300	<1300
SS-5	<6600	<6600	<33000	<33000	<13000	<13000	<33000	<13000
SS-5D	<6600	<6600	<33000	<33000	<13000	<13000	<33000	<13000
SS-6	<660	<660	<3300	<3300	<1300	<1300	<3300	<1300
SS-7	<660	<660	<3300	<3300	<1300	<1300	<3300	<1300
SS-8	<6600	<6600	<33000	<33000	<13000	<13000	<33000	<13000
SS-9	<6600	<6600	<33000	<33000	<13000	<13000	<33000	<13000
SS-10	<3300	<3300	<17000	<17000	<6500	<6500	<17000	<6500
SS-11	<3300	<3300	<17000	<17000	<6500	<6500	<17000	<6500
SS-12	<1300	<1300	<6600	<6600	<2600	<2600	<6600	<2600
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SS-15	<3300	<3300	<17000	<17000	<6500	<6500	<17000	<6500
SS-16	<13000	<13000	<66000	<66000	<26000	<26000	<66000	<26000
SS-17	<66000	<66000	<330000	<330000	<130000	<130000	<330000	<130000
SS-18	<3300	<3300	<17000	<17000	<6500	<6500	<17000	<6500
SS-19	<3300	<3300	<17000	<17000	<6500	<6500	<17000	<6500
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SS-21	<1300	<1300	<6600	<6600	<2600	<2600	<6600	<2600
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SS-23	<6600	<6600	<33000	<33000	<13000	<13000	<33000	<13000
SS-24	<660	<660	<3300	<3300	<1300	<1300	<3300	<1300
SS-25	<660	<660	<3300	<3300	<1300	<1300	<3300	<1300
SS-26	<660	<660	<3300	<3300	<1300	<1300	<3300	<1300
SS-27	<3300	<3300	<17000	<17000	<6500	<6500	<17000	<6500
SS-28	<660	<660	<3300	<3300	<1300	<1300	<3300	<1300
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SS-30	<1300	<1300	<6600	<6600	<2600	<2600	<6600	<2600
SS-31	<660	<660	<3300	<3300	<1300	<1300	<3300	<1300
SS-32	<660	<660	<3300	<3300	<1300	<1300	<3300	<1300
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SS-36	<660	<660	<3300	<3300	<1300	<1300	<3300	<1300
SS-37	<3300	<3300	<17000	<17000	<6500	<6500	<17000	<6500

Table 9

ANALYTICAL RESULTS FOR RANDOM SURFACE SOIL SAMPLES - August, 2005

Highlands Ranch

Contra Costa County, Califorinia

PNAs (μg/Kg)

Sample ID	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene	Pyrene
SS-1	<50	<50	<50	<50	**57**	<50	**86**	<50	<50	<50	**64**	<50	**54**	<50	<50	**81**
SS-2	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
SS-3	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
SS-4	<50	<50	<50	<50	<50	<50	**55**	<50	<50	<50	<50	<50	<50	<50	<50	<50
SS-4D	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
SS-5	<50	<50	<50	<50	<50	<50	**55**	<50	**75**	<50	<50	<50	<50	<50	<50	<50
SS-5D	<50	<50	<50	<50	<50	<50	**67**	<50	**89**	<50	<50	<50	<50	<50	<50	<50
SS-6	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
SS-7	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
SS-8	<50	<50	<50	<50	<50	<50	**79**	<50	<50	<50	<50	<50	<50	<50	<50	<50
SS-9	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
SS-10	<50	<50	<50	<50	<50	<50	**54**	<50	<50	<50	<50	<50	<50	<50	<50	<50
SS-11	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
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SS-13	<130	<130	**230**	<130	<130	<130	<130	<130	<130	<130	<130	<130	<130	<130	<130	<130
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