Draft SSI

DRAFT

Sampling table for pea

need to review the proposal for scope of work at lloyd wise

See scope of work done by ken chiang

CHECK DOC IS IT GAS OR VAPOR?????

4.2.7 Blanks and Duplicates

Blanks will be analyzed at the start of each day and more often as appropriate depending upon the measured concentrations. Typically, when high sample values are encountered, additional blanks may be analyzed. Soil-vapor samples will be analyzed using U.S. EPA Method TO-14 or U.S. EPA Method 8260. A mobile laboratory will be used for analysis of the soil-vapor samples with at

least four duplicate soil-vapor samples collected for analysis at a fixed laboratory.

The soil gas investigation will be conducted in accordance with DTSC's January 28, 2003 "ADVISORY - SOIL GAS INVESTIGATIONS" document.

SOIL GAS OR SOIL VAPOR IN ABOVE DOC BE CONSISTENT IN REPORT

Supplemental Site Investigation Work Plan
Batarse Site - Lloyd Wise Parcels
Oakland, California

February 17, 2003
001-08040.00-002

Prepared for
Oakland Unified School District
955 High Street
Oakland, California 94601

February 17, 2003 001-07962.01-060

Mr. Michael Lozano
California Environmental Protection Agency
Department of Toxic Substances Control
8800 Cal Center Drive
Sacramento, California 95826

Subject: Supplemental Site Investigation Work Plan
Batarse Site - Lloyd Wise Parcels
Oakland, California

DTSC Site Code: 204059-11

Dear Mr. Lozano:

On behalf of the Oakland Unified School District (OUSD), LFR Levine·Fricke (LFR) has prepared the attached Supplemental Site Investigation (SSI) Work Plan for the addition of the Lloyd Wise Parcels to the Batarse Site Preliminary Environmental Assessment (PEA) in Oakland, California.

The SSI Work Plan is based on the following: (1) a scoping meeting held on January 31, 2003 with representatives of OUSD, LFR, the California Department of Education, and the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC); (2) review of background information for the Lloyd Wise Parcels; (3) a site reconnaissance; and (4) DTSC guidelines as presented in the PEA Guidance Manual (June 1999).

If you have any questions or comments concerning the SSI Work Plan, please call either of the undersigned at (510) 652-4500.

Sincerely,

Lita D. Freeman, R.G., REA II
Senior Geologist

Alan D. Gibbs, R.G., C.HG., REA II
Principal Hydrogeologist
California New School Siting Program Director

cc: Mr. Tim White, Oakland Unified School District
Ms. Atheria Smith, Oakland Unified School District
Ms. Lee Sims, Oakland Unified School District
Mr. Jerry Suich, Oxbridge Development

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APPENDICES

1.0 INTRODUCTION AND BACKGROUND

1.1 Introduction

On behalf of the Oakland Unified School District (OUSD), LFR Levine·Fricke (LFR) has prepared this Supplemental Site Investigation (SSI) Work Plan for the property located at 10550 East 14th Street (now known as International Boulevard) in Oakland, California ("the Site"; Figure 1). The Site is located adjacent to the existing Proposed Batarse School Site ("the Batarse Site") and is being considered for inclusion in the Batarse Site. The Site is currently developed with two buildings that house the Lloyd A. Wise, Inc. (Lloyd Wise) automobile dealership.

LFR previously completed a Preliminary Environmental Assessment (PEA) of the Batarse Site and presented the results in the report entitled "Preliminary Environmental Assessment Report, Batarse Site, 104th Avenue and East 14th Street, Oakland, California," dated October 3, 2001. This PEA was performed in accordance with the PEA work plan entitled "Preliminary Environmental Assessment Work Plan, Batarse Project Site, 104th Avenue and East 14th Street, Oakland, California," dated May 25, 2001. This work plan was prepared for the Batarse Site by LFR.

The SSI Work Plan for the Lloyd Wise Parcels is a supplement to the Batarse Site PEA Work Plan. The findings of the SSI will be incorporated into the Batarse Site PEA report which will include a human health risk evaluation that will combine the cumulative affect of Contaminants of Potential Concern (COPCs) encountered during the PEA at the Batarse Site and the SSI at the Lloyd Wise Parcels.

Information used in preparing of this SSI Work Plan was obtained from the following:

- The January 31, 2003 scoping meeting with representatives of OUSD, LFR, the California Department of Education, and the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC)
- LFR's site and vicinity reconnaissance
- The Phase I Limited Environmental Site Assessment Report prepared by ENSR Consulting and Engineering (ENSR 2000; "the Phase I ESA")
- Alameda County Department of Environmental Health Underground Storage Tank Closure Report

This SSI Work Plan was prepared in accordance with DTSC's SSI and PEA guidelines. The site-specific Health and Safety Plan prepared during the PEA for the Batarse Site and presented in Appendix A of this work plan will be followed for the planned activities at the Site. Standard operating procedures for field work and laboratory work are presented in the Batarse Site PEA Work Plan and are therefore not repeated in this document.

Draft
Lita Freeman

1.2 Background

A Phase I Environment Site Assessment (ESA) was prepared for the Site by ENSR in June 2000. The approximately 1-acre Site is occupied by two buildings that house automobile show rooms and offices. The remainder of the Site is occupied by automobile sales lots.

According to information contained in the Phase I ESA report, the Site was undeveloped land prior to the development of the Lloyd Wise automobile dealership. One 2,000-gallon gasoline underground storage tank (UST) was reportedly located near the center of the Site (see Site Plan, Figure 2). This UST was removed in February 1993. No other USTs, no above ground storage tanks, and no chemical storage areas were reportedly present on the Site in the past.

After removal of the UST, soil samples were collected from the excavation at a depth of 8 feet bgs. Analysis of these soil samples indicated the presence of total petroleum hydrocarbons as gasoline (TPHg), toluene, and ethylbenzene. Benzene and xylenes were not present at concentrations at or above their laboratory reporting limits. Additional soil was removed from the excavation and analysis of confirmation samples indicated that the affected soils related to the UST had been removed.

Two groundwater monitoring wells were subsequently installed on the Site and one groundwater monitoring well was installed off-site across 105th Avenue. Analysis of groundwater samples collected from the on-site wells in 1998 (the most recent data available) indicated the presence of TPHg at concentrations up to 18,000 micrograms per liter (µg/l), benzene at up to 270 µg/l, toluene at up to 120 µg/l, ethylbenzene at up to 1,800 µg/l, and total xylenes at up to 6,300 µg/l. These concentrations were significantly lower than those detected during the initial sampling event in 1994. The wells have since been abandoned, although specifics on the well abandonment were not available.

The Alameda County Health Care Services Agency issued a case closure letter for the Site in 1998. However, it was stated in the closure summary that construction of a building over the vicinity of the former gasoline UST would require a human health risk assessment that included volatilization of chemicals of concern from soil and groundwater to indoor air.

2.0 SSI OBJECTIVE

Since completion of the PEA for the Batarse Site, OUSD has decided to enlarge the Batarse Site boundaries by acquiring the adjacent Lloyd Wise Parcels. The objective of the SSI at the Site is to obtain data to supplement the existing PEA and establish the suitability of the Site as a school site.

To meet this objective, LFR will perform the following tasks:

- Evaluate historical information regarding the past use, storage, disposal, or release of hazardous wastes/substances at the Site
- Conduct a sampling and analysis program to assess lead impacts, if any, from lead-based paint in soils around the on-site buildings
- Conduct a sampling and analysis program to characterize the nature, concentration, and vertical and horizontal extent of volatile organic compounds (VOCs), if any, present in soil gas at the Site
- Conduct a sampling and analysis program to characterize the nature, concentration, and vertical and horizontal extent of VOCs, if any, present in soil and groundwater at the Site, if sufficient concentrations of VOCs are detected during the soil gas survey
- Evaluate the potential threat to public health and/or the environment posed by known hazardous constituents at the Site using a residential-land-use scenario

Results of the SSI will be incorporated into the Batarse Site PEA Report. Based on the results of the SSI, potential alternatives will be assessed by DTSC. These potential alternatives include:

- justification for a No Further Action declaration on the Lloyd Wise Parcels
- the requirement for further assessment of the Lloyd Wise Parcels
- the need to perform a removal action on the Lloyd Wise Parcels
- abandonment of the Site as a potential school site

3.0 SITE DESCRIPTION AND CONTACTS

The Site consists of the former Lloyd Wise Auto Sales, located southeast of the intersection of 104th Avenue and East 14th Street in Oakland, California. A description of the Lloyd Wise site and contacts are presented in the following sections.

3.1 Contact Information

Mr. Timothy E. White
Assistant Superintendent
Oakland Unified School District
955 High Street
Oakland, California 94601
(510) 879-8385 (telephone)
(510) 879-1860 (fax)

3.2 Land Use

An automobile sales lot and two buildings, housing offices and show rooms associated with the Lloyd Wise automobile dealership, occupy the approximately 1-acre Site.

According to information contained in the Phase I ESA report, the Site was undeveloped land prior to the development of the Lloyd Wise automobile dealership.

One 2,000-gallon gasoline UST installed by the dealership was removed from the Site in February 1993. The UST was reportedly located near the center of the Site. No other USTs, no above ground storage tanks, and no chemical storage areas were reportedly present on the Site in the past.

Surrounding land uses include commercial businesses fronting on East 14th Street to the west, commercial businesses and residences fronting on 105th Avenue to the north, residences along Breed Avenue to the east, and Alameda-Contra Costa (AC) Transit's bus maintenance facility to the south. The surrounding area is fully developed.

3.3 Assessor's Parcel Numbers and Street Addresses

The parcel numbers and corresponding street addresses for the Site include:

Lloyd Wise Auto Sales	10500 East 14th Street	047-5509-041-00
Lloyd Wise Auto Sales	10550 East 14th Street	047-5519-005-02

3.4 Latitude and Longitude

The approximate geographic coordinates of the Site are Latitude North 37° 44'21" and Longitude West 122° 09'52".

3.5 Zoning

The City of Oakland Community and Economic Development Agency has zoned the Site for manufacturing (M-20) and residential (R-30).

3.6 Maps

A site vicinity map is presented on Figure 1. A site plan with proposed soil vapor sampling locations is presented on Figure 2. Proposed potential soil boring locations, where soil and groundwater samples may be collected, are presented on Figure 3. Locations where soil samples will be collected for lead analysis only are presented on Figure 4.

3.7 Physical Setting

The elevation of the Site is approximately 40 to 42 feet above mean sea level according to the United States Geological Survey San Leandro, California, Quadrangle, 7.5-minute topographic map (1993). The surface topography at the Site and in the site vicinity is fairly level with a slight slope to the southwest toward San Francisco Bay. No natural surface water is present on the Site.

The Site is located west of the Oakland Hills in the central portion of the Coast Range geomorphic province and is underlain by alluvial fan material that originated from the hills to the east. Near-surface sediments (generally less than 50 feet thick in the vicinity of the Site) consist primarily of interbedded sequences of silts and clays with poorly sorted sands and gravels. These sediments represent Quaternary to Recent alluvial deposits that originated in the mountains of the Coast Ranges to the east.

Soil borings completed at the Batarse Site for the PEA did not penetrate deeper than the Recent alluvial deposits. Soil encountered during the PEA field investigation consisted primarily of very-fine grained silty clay transitioning into clayey sand to sand at depths of approximately 18 to 25 feet below ground surface (bgs). Thin sand lenses were interfingered with silty clays in some borings. The sand layers comprise the primary shallow water bearing zone in the site vicinity. This zone has an average thickness of at least 4 feet over most of the Batarse Site. The total thickness of this sand layer at the Site was not established during the PEA because the borings did not penetrate this layer.

Depth-to-water was measured in each boring advanced at the Batarse Site before collection of the "reconnaissance" groundwater samples. The measured depth to shallow groundwater at the Batarse Site ranged from approximately 16 to 31 feet bgs. In LFR's opinion, these measurements were taken too soon after the borings were completed to represent an accurate potentiometric surface. The depth to the top of the sand layers in the area ranges from 18 to 25 feet bgs, and the depth-to-water measurements indicate that the shallow groundwater is pressurized with 2 to 3 feet of hydraulic head.

depth to GW

Stabilized groundwater levels for the three wells installed on and near the Site in the past were reported to be approximately 17 to 17.5 feet bgs in 1995. Groundwater flow direction beneath the Site was estimated to be to the west-southwest based on these depth-to-water measurements. Based on surface topography, regional shallow and deep (greater than 200 feet bgs) groundwater is expected to flow to the west-southwest toward San Francisco Bay.

17.5'

4.0 FIELD SAMPLING PROGRAM

The field sampling program will focus on assessing the presence of VOCs in the area of the former UST and whether these VOCs, if present, could constitute a vapor pathway threat. The field sampling program will consist of the following phases:

- collecting surface soil samples around buildings for lead analysis only to assess potential soil impacts from lead based paint
- a soil gas survey to assess the presence of VOC's in the vapor phase
- an optional soil and groundwater investigation to assess potential soil and groundwater pathway threats

The soil gas survey will be conducted prior to the soil and groundwater investigation. Data from the soil gas survey will be evaluated to establish if a soil and groundwater investigation is necessary, or to modify the proposed soil and groundwater sampling program if a soil and groundwater investigation is necessary at the Site.

If the soil gas survey results indicate that COPCs are not present in soil gas at the Site in sufficient concentrations to pose a threat to human health, then the need for the collection of soil and groundwater samples will be evaluated by OUSD in consultation with DTSC.

The following sections describe the potential environmental issues, sampling procedures and analysis, decontamination procedures, and management of investigative-derived wastes.

4.1 Potential Environmental Issues

Potential environmental issues at the Site arise primarily from the gasoline UST formerly located on the Site. As noted above, petroleum-affected soil was removed from the UST excavation; however, petroleum-affected groundwater was still present in the vicinity of the former UST as of 1998.

The two existing on-site buildings were constructed in 1966, according to available information. Therefore, it is possible that lead-based paint could have been applied to the buildings and subsequently flaked off, into the surrounding soil.

4.2 Surface Soil Sampling Program

Surface soil samples will be collected around each of the two on-site buildings for lead analysis only to assess potential soil impacts from lead based paint. These sampling locations are presented on Figure 4. CHECK FIG NUMBER

PRE FIELD ACTIVITIES - HASP AND UTILITY CLEARANCE

4.2.1 Sample Collection

Shallow soil samples will be collected either prior to or after demolition of the buildings, depending on accessibility. The samples will be collected using a direct-push rig if field work is performed prior to demolition while hand sampling equipment will be used to collect the samples if field work is performed following building demolition.

The samples will be collected from immediately below the asphaltic concrete pavement and within the drip line at the midpoint of each wall, for a total of eight samples (four around each building).

SHOULD DESCRIBE HERE THE SAMPLING PROCEDURES FOR DIRECT PUSH RIG - need more description here??? check Ken chiang

If a direct-push rig is used during field work, soil samples will be collected in disposable 4-foot-long, 1.75-inch-diameter, butyrate sample tubes. The sample tubes will be advanced inside a sample probe. Retrieved tubes containing soil will be cut to the desired length (approximately 6 inches) to yield sufficient material for the specified analyses upon recovery from the sample probe.

If hand sampling equipment is used, NEED HAND SAMPLING PROCEDURES - in brass or stainless steel tubes

4.2.2 Sample Handling Procedures

Sample containers will be sealed and labeled with the sampler's initials, time and date of collection, project number, project name, and a unique sample identification number, then placed in an ice-chilled cooler for delivery to the laboratory under chain-of-custody (COC) protocols. Types of containers; preservation methods, holding times and analytical methods to be used at the Site are summarized in Table 2.

4.2.3 Chain-of-Custody Records

COC records are used to document sample collection and shipment for analysis. A COC record will accompany all sample shipments.. Forms will be completed and sent with the samples for each laboratory and each shipment. If multiple coolers are sent to a single laboratory on a single day, individual COC forms will be completed and sent with the samples in each cooler. The COC record will identify the contents of each shipment and maintain the custodial integrity of the samples.

Information contained on COC records includes sampler name(s), sample date and time, sample identification, sample type, number of containers associated with each sample, analyses requested, and the names, dates, and times of custody. Generally, a

sample is considered to be in someone's custody if it is either in someone's physical possession, in someone's view, locked up, or kept in a secured area that is restricted to authorized personnel. The custody of the samples will be the responsibility of the sample collector until shipped to the laboratory.

4.2.4 Decontamination Procedures

Disposable equipment intended for one-time use will be packaged after use for appropriate disposal. Reusable equipment that comes into contact with potentially contaminated soil or groundwater will be decontaminated using high-pressure hot water (steam cleaned) followed by a distilled water rinse, or by the following three-stage procedure:

- laboratory-grade detergent and tap-water wash using a brush; in a 5-gallon bucket
- initial tap water rinse; in a 5-gallon bucket
- final distilled water rinse; in a 5-gallon bucket

Equipment will be decontaminated over plastic sheeting in a predetermined area, and clean bulky equipment will be stored on plastic sheeting in uncontaminated areas. Cleaned small equipment will be stored in plastic bags. Materials to be stored more than a few hours will also be covered. As a final measure, decontaminated reusable sampling equipment will be rinsed with distilled water immediately prior to use.

4.2.5 Analytical Methods

The eight surface soil samples will be analyzed for lead using United States Environmental Protection Agency (U.S. EPA) Method 6010B.

4.3 Soil Gas Survey

LFR will perform a soil gas survey that will include collection of soil gas samples from eight locations across the Site. The sampling locations are shown on the Site Plan, Figure 2. Soil gas sample collection will be conducted in accordance with DTSC's advisory for soil gas investigations issued in January, 2003. Target sampling depths will be approximately 7 feet and 15 feet bgs. Sample collection methods are described below.

8 locations

4.3.1 Probe Construction

Soil gas probes will be constructed of 5/8- or 1-inch-outer-diameter chrom-moly steel, equipped with a hardened reverse-threaded steel tip or drop off tip. A larger diameter probe will be used, if needed. Nominal lengths are 4 or 5 feet, although additional

lengths may be added. An inert 1/8-inch Nylaflow tube is placed through the center of the probe to sampling ports beneath the tip.

4.3.2 Probe Insertion

The probe will be driven into the ground with an electric rotary hammer, or with the direct push rig. Once advanced to the desired depth, the probe will be rotated in a clockwise direction, or retracted slightly to open the tip and expose the gas sampling ports.

4.3.3 Sample Collection

Soil gas will be withdrawn from the Nylaflow tubing using a small calibrated syringe connected via an on/off valve. A purge test will be conducted at the initiation of the investigation to establish a site-specific number of dead volumes to be flushed before sample collection. After the specified number of dead volumes have been flushed, the next 20 cubic centimeters of soil gas will be withdrawn using the syringe and immediately transferred to the mobile laboratory for analysis within minutes of collection.

Additional soil gas samples will be collected for quality assurance/quality control purposes as discussed below in Section 5.0 (Quality Assurance/Quality Control Procedures).

4.3.4 Flushing and Decontamination Procedures

To minimize the potential for cross contamination between sampling locations, all external probe parts will be cleaned of excess dirt and moisture before insertion. The internal Nylaflow tubing and sampling ports will be changed between samples and replaced with fresh tubing. Sampling syringes will be opened and purged to remove VOCs after each use. If moderate concentrations are detected for any compound, the syringe will be discarded and a new syringe used. A leak check compound will be used to evaluate potential air leaks from the surface.

4.3.5 Analytical Methods

Soil gas samples collected from each probe using the syringe will be transferred directly to the on-site mobile laboratory and analyzed immediately for VOCs using U.S. EPA Method 8260B. Samples will be analyzed on a gas chromatograph equipped with capillary columns and a combination of mass spectrometer (MS), electrolytic conductivity detector, photoionization detector (PID), and flame ionization detector, as needed. For U.S. EPA Method 8260B analysis, the MS detector is required. Output signals from the MS detector will be processed by computer chromatography software and the results entered into a laboratory computer for on-site processing.

The soil gas samples collected for quality assurance/quality control purposes will be analyzed as discussed below in Section 5.0 (Quality Assurance/Quality Control Procedures).

4.3.6 Daily Instrument Calibration

Daily continuing calibration will be performed at the start and end of each field day by injecting a mid-range calibration standard and a check standard. Acceptable continuing calibration agreement is ±25 percent relative to the calibration curve.

4.4 Soil and Groundwater Investigation

Depending on the results of the soil gas survey, soil and groundwater samples may be collected in the vicinity of the former UST to assess potential risks to human health and the environment. Up to eight soil borings may be advanced on-site in the vicinity of the former UST for collection of soil and "reconnaissance" groundwater samples, as described below. Figure 3 presents the proposed boring locations. MAY NEED TO CHANGE FIGURE NUMBERS

Sample collection procedures for soil and "reconnaissance" groundwater samples are presented in Section 4.4.1 below. Sample handling procedures, COC records, decontamination procedures are presented in Section 4.2.2, Section 4.2.3, and Section 4.2.4 above.

4.4.1 Sample Collection

Soil borings will be advanced using a direct-push rig with samples collected using the sampling procedure described in Section 4.2.2 above. Groundwater is expected at depths of 35 feet bgs or less on the Site, based on the field work for the PEA at the Batarse Site. Borings advanced on the Site will therefore extend to depths of up to 35 feet bgs. Soil samples obtained from the borings will be screened for VOCs using a PID.

Based on information obtained during the PEA at the Batarse Site, LFR anticipates that soil samples will be collected from the following depth intervals: immediately below baserock/native soil interface (upper 1.5 feet bgs), 4.5 to 5 feet bgs, 9.5 to 10 feet bgs, 14.5 to 15 feet bgs, 19.5 to 20 feet bgs, and 24.5 to 25 feet bgs. 6 samples

"Reconnaissance" groundwater samples will be collected using a Hydropunch™ groundwater sampler advanced through the direct-push probes. Groundwater samples will be collected in disposable bailers and decanted into appropriate clean, laboratory-supplied bottles for submittal to the analytical laboratory. After sampling is complete, the Hydropunch™ sampler is removed from the subsurface.

4.4.2 Analytical Methods

Up to 48 soil and 8 groundwater samples may be collected from eight borings and analyzed for the following:

- TPHg using U.S. EPA Method 8015 Modified
- VOCs, including benzene, toluene, ethylbenzene, and total xylenes (BTEX), and methyl tertiary-butyl ether (MTBE) using U.S. EPA Method 8260, with only U.S. EPA Method 8010/8020 compounds reported

CAN WE USE PHYSICAL TESTING RESULTS FROM BATARSE SITE? DID WE DO PHYSICAL TESTING????

DO WE NEED FIVE SAMPLES CAN WE JUST DO ONE????/ Five selected soil samples from the borings will be analyzed for physical parameters for use in modeling. The physical parameters analyzed for will include the following:

- total organic carbon using the Walkley-Black method
- grain size and bulk density using American Society for Testing and Materials (ASTM) D422M
- porosity and moisture content using American Petroleum Institute RP40

physical parameters

If soil results of the soil gas survey show that soil and groundwater sampling for VOCs is not required then soil sample data from the Batarse PEA will be used to assess soil physical parameters for modeling purposes.

4.5 Investigation-Derived Waste

Soil and wastewater generated from sampling activities will be temporarily stored on the Site in United States Department of Transportation-approved 55-gallon drums with ring-top sealed lids. The drums will be labeled as nonhazardous waste soil or nonpotable water and identified with the generator's name (OUSD), the sampling locations from which the waste was generated, and the date the waste was generated.

Analytical data generated from the SSI will be used to meet waste-acceptance and profiling criteria set by the disposal facility.

5.0 QUALITY ASSURANCE/QUALITY CONTROL PROCEDURES

The QA/QC procedures discussed below will be employed in both the field and the laboratory.

5.1 Field

The following field QA/QC procedures will be performed:

- COC forms will be used when submitting samples to the laboratory

- One field duplicate soil-gas sample will be collected during the soil-gas survey and analyzed in the on-site mobile laboratory for VOCs using U.S. EPA Method 8260B. In addition, two field duplicate soil-gas samples will be collected in SUMA canisters and submitted to a fixed laboratory for VOC analysis using Method TO-14. These duplicates will help evaluate the precision of analytical procedures and methods employed by the laboratory.

- One field duplicate (or split) sample will be collected for every 10 discrete samples. Such duplicates will help evaluate the precision of analytical procedures and methods employed by the laboratory. Duplicate soil samples will be collected immediately below the depth interval of the primary soil sample. Duplicate groundwater samples will be collected by decanting water into separate containers using the same bailer used for collection of the primary sample.

  Up to five duplicate soil samples and one duplicate groundwater sample will be collected during the SSI and analyzed for TPHg using U.S. EPA Method 8015 Modified and VOCs, including BTEX and MTBE, using U.S. EPA Method 8260, with only U.S. EPA Method 8010/8020 compounds reported.

- One trip blank sample, consisting of a 40-milliliter volatile organic analysis (VOA) vial filled with ASTM Type II water at the laboratory, will accompany each cooler containing samples for VOC analysis. Trip blanks are used to detect VOC contamination during sample shipping and handling. These VOA vials are not opened in the field.

  Up to two trip blank samples will be collected during this SSI and analyzed for VOCs, including BTEX and MTBE, using U.S. EPA Method 8260, with only U.S. EPA Method 8010/8020 compounds reported.

- Field blanks will be collected by pouring distilled water directly from the original container into clean, laboratory-supplied bottles once per field day. Their purpose is to evaluate the presence of chemicals for which environmental samples are being analyzed in the water used for equipment decontamination. The field blank samples will be stored and processed in the same manner as the other aqueous samples.

  At least three OR TWO CHECK PROPOSAL field blanks will be collected during this SSI and analyzed for TPHg using U.S. EPA Method 8015 Modified

and VOCs, including BTEX and MTBE, using U.S. EPA Method 8260, with only U.S. EPA Method 8010/8020 compounds reported.

- Equipment rinsate blanks (equipment blanks) will be collected from water rinsed over any reusable equipment (e.g., a sampling shoe or drive sampler) after decontamination is completed. Distilled water will be poured over or through the sampling equipment and collected in the appropriate sample container. Equipment blank samples will be labeled, stored, and submitted to the analytical laboratory using the same procedures as those for field samples.

  At least three OR TWO CHECK PROPOSAL field blanks will be collected during this SSI and analyzed for TPHg using U.S. EPA Method 8015 Modified and VOCs, including BTEX and MTBE, using U.S. EPA Method 8260, with only U.S. EPA Method 8010/8020 compounds reported.

5.2 Laboratory

The following laboratory QA/QC procedures will be performed:

- Laboratory analyses will be performed within required holding times. Appropriate minimum reporting limits will be used for each analysis; they will be less than corresponding U.S. EPA Region 9 Preliminary Remediation Goals for residential land use. For groundwater samples, detection limits for "low concentration volatiles in water" by gas chromatograph/mass spectrometer system will be used. LFR will confirm DTSC's minimum reporting limits with the selected laboratory before submitting samples for analysis. Proposed laboratory reporting limits are included in Appendix C.

- A laboratory certified by DHS for the requested analyses will be used. The laboratory will report the following information for each sample delivery group:

  - a discussion of how the QA/QC criteria were met
  - a discussion of hold times
  - matrix spike/matrix spike duplicate results
  - relative percent differences
  - method blank data
  - surrogate recovery, instrument tuning, and calibration data
  - exceptions
  - signed laboratory reports including the sample designation, date of sample collection, date of sample analysis, laboratory analytical method employed, sample volume, and the minimum reporting limit (any discrepancies will be detailed in a letter provided by the laboratory)

6.0 HUMAN HEALTH SCREENING EVALUATION

A human health screening evaluation (HHSE) will be completed as part of the SSI. Data obtained from the Lloyd Wise SSI will be incorporated into data from the Batarse PEA HHSE.

6.1 Data Evaluation and Selection of COPCs

The data sets to be evaluated include on-site soil and groundwater sample results from the original Batarse Site PEA, Lloyd Wise SSI, and if needed, the Case Closure Summary Report of the former UST. Past known land use and current site operations show that detectable concentrations of COPCs in groundwater in the form of BTEX and petroleum hydrocarbons (gasoline range) are known to have existed at the Site. Current data suggests that detectable COPCs in soil related to the UST at the Site should not be present. Lead from lead based paint in surface soils near the existing buildings will be evaluated to establish if lead is a COPC.

VOCs detected as part of the soil-gas survey and soil lead concentrations detected in soils around buildings will be selected as COPCs for evaluation in the HHSE. Additional COPC's may be identified in soil and groundwater as part of the site investigation process.

6.2 Exposure Assessment

The exposure assessment (including fate and transport modeling), will be conducted by including data from the SSI with data from the previously completed Batarse PEA investigation. The assessment will follow U.S. EPA and DTSC risk assessment guidelines and use the reasonable maximum exposure methods recommended by the U.S. EPA. The objective of the exposure assessment is to identify potential exposure pathways to individuals who may come in contact with COPCs at the Site, to characterize potentially exposed populations, and to estimate the extent of exposure.

The proposed future land use for the Site is a school campus. The anticipated populations to be evaluated would include students, full-time school workers, and maintenance/utility workers. However, for purposes of this HHSE, the land use of the Site will be assumed to be residential in accordance with DTSC (1999). A conceptual site model will be included in the PEA report. The exposure pathways assumed applicable under residential land use include:

- inhalation of airborne dust and VOC emissions from soil and groundwater in outdoor air
- inhalation of VOC emissions from soil and groundwater in indoor air
- incidental ingestion of soil

- direct dermal contact with soil
- ingestion of groundwater used as a potable water source

Potential direct and indirect soil and groundwater contact will be evaluated using maximum detected concentrations or 95% UCLs (upon approval by DTSC) of identified COPCs as exposure-point concentrations for estimating potential chronic health hazards. Potential indoor air inhalation exposures will be evaluated by estimating air-exposure concentrations using fate and transport modeling of VOCs in soil and groundwater. The Johnson-Ettinger model will be used for this evaluation.

The results of the soil-gas survey at the Site will be included in the risk assessment calculations. Soil samples will be analyzed for physical parameters to provide input data for VOC transport modeling. The physical parameters to be quantified include TOC, grain-size distribution, bulk density, porosity, and moisture content.

The toxicity assessment section will provide a list of available toxicity values and the potential adverse health effects attributable to each of the COPCs included in the HRA. The toxicity assessment considers the following: (1) the types of adverse health or environmental effects associated with individual and multiple chemical exposures, (2) the relationship between magnitude of exposures and adverse effects, and (3) related uncertainties such as the weight of evidence for a COPC's potential carcinogenicity and other deleterious health effects on humans.

6.3 Risk Characterization

Quantitative estimates of the noncarcinogenic and carcinogenic risk to identified human receptor populations will be presented for the COPCs at the combined Lloyd Wise and Batarse site(s). Estimates of risk are obtained by integrating information developed during the exposure and toxicity assessments to characterize potential or actual risks. Noncarcinogenic and carcinogenic risk estimates for individual chemicals will be summed across all pathways and separately for each exposure scenario to obtain total estimated noncarcinogenic hazard index (HI) and carcinogenic risk. The total estimated noncarcinogenic hazard index will be compared to the EPA and DTSC acceptable hazard index of 1.0. The total estimated carcinogenic risk will be compared to the acceptable National Contingency Plan incremental lifetime cancer risk range of 1×10^{-4} to 1×10^{-6} and the California Environmental Protection Agency–acceptable incremental lifetime cancer risk level of 1×10^{-6}.

In the event that lead is selected as a COPC in soil, it will be evaluated using the DTSC Lead-Spread model (Version 7) with the home-grown produce pathway turned off to calculate blood lead levels for residential receptors.

7.0 COMMUNITY INVOLVEMENT

OUSD will provide a notice to residents in the immediate area prior to the commencement of fieldwork utilizing a format developed by DTSC. A community profile was developed during the PEA for the Batarse Site.

8.0 REPORT PREPARATION

The findings of the SSI will be incorporated into the Batarse PEA report. Discussions of the site background, environmental setting, field procedures, and analytical results (including laboratory report sheets and a table summarizing analytes, detection limits, minimum concentrations, maximum concentrations) will be included. The HHSE will combine data from the SSI with data previously obtained from the PEA at the Batarse Site. A summary and conclusions section will also be included in the report.

The summary and conclusions section of the SSI report will address the following four questions:

- Have current or past practices resulted in a release or threat of a release at the Site?
- If a release has occurred or a threatened release exists, does it pose a significant threat to public health or the environment and if not, why not?
- Does a release pose an immediate potential hazard to human health or the environment so as to necessitate an emergency removal action and, if so, why?
- What further specific information and/or removal/remediation actions are necessary in order to better assess or mitigate health/environmental threats posed by the Site?

Recommendations will be made regarding the need for additional action to further assess conditions at the Site, or for limited removal action(s), if appropriate, based on the investigative findings. If further action is recommended, the report will identify and propose additional investigations and/or remediation needs and strategies.

Additional investigation and/or remediation, if any, will be included in the Batarse Removal Action Workplan. A no further action recommendation will be made if concentrations of COPCs are less than risk-based screening levels.

9.0 PROPOSED WORK SCHEDULE

Approximately10 days will be required to conduct fieldwork. Laboratory analyses will require 10 working days after sample submittal. The report will require an estimated three to five weeks to complete after analytical results are received from the laboratory.

10.0 REFERENCES

Alameda County Department of Environmental Health. UST Closure Report, Lloyd Wise Site.

California Environmental Protection Agency, Department of Toxic Substances Control (DTSC). 1999. Preliminary Environmental Assessment Guidance Manual. June.

DTSC. 2003. Advisory – Active Soil Gas Investigations. January.

ENSR. 2000. Phase I Limited Environmental Site Assessment, Lloyd Wise Property, Oakland, California. March.

Helley, E.J. and R.W. Graymer. 1997. Quaternary Geology of Alameda County, and Parts of Contra Costa, Santa Clara, San Mateo, San Francisco, Stanislaus, and San Joaquin Counties, California: A digital database. U.S. Geological Survey Open File Report 97-97.

LFR, 2001. Draft PEA Report for the Batarse Site, Oakland, CA

Nelson, D.W. and L.E. Sommers. 1996. Total Carbon, Organic Carbon, and Organic Matter. Chapter 34 in *Methods of Soil Analysis, Part 3: Chemical Methods.* Soil Science Society of America, Inc., Book Series No. 5. Madison, WI. pp. 961–1010.

APPENDIX A

Site-Specific Health and Safety Plan

APPENDIX B

Phase I Report

(To conserve paper, we have not included this document. It is available upon request.)

APPENDIX C

Proposed Laboratory Reporting Limits