Ninyo & Moore
Geotechnical and Environmental Sciences Consultants

202854
EMERY V.

FINAL SITE CLEANUP PLAN
1333-1379 62ND STREET
EMERYVILLE, CALIFORNIA
CITY OF EMERYVILLE
PROJECT NO. EPW 106-07

PREPARED FOR:
City of Emeryville Redevelopment Agency
1333 Park Avenue
Emeryville, California 94608

PREPARED BY:
Ninyo & Moore
Geotechnical & Environmental Sciences Consultants
1956 Webster Street
Oakland, California 94612

October 19, 2007
Project No. 400582003

Ninyo & Moore Transmittal

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To: Ms. Donna Drogos **Date:** 10/19/07

Firm: Alameda County Environmental Health **Fax No:**

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From: **Total Pages Including Transmittal:**

Subject: Site Cleanup Plan for 1333-1379 62nd Street, Emeryville, CA **Project No:**

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Dear Ms. Dragos,
Enclosed is a copy of the Final Site Cleanup Plan for 1333-1379 62nd Street in Emeryville, CA. Please contact me if you have any questions or comments.

Best regards,

Kris Larson, P.G.
Senior Environmental Geologist

- **Geotechnical Engineering**
- **Engineering Geology**
- **Materials Testing and Inspection**
- **Construction Management**
- **Engineering Design**
- **Environmental Engineering**
- **Environmental Site Assessments**
- **Regulatory Compliance and Permitting**
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- **Asbestos and Lead-Based Paint Surveys**
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- **Forensic Studies**
- **Expert Witness Testimony**

October 19, 2007
Project No. 400582003

Mr. Ignacio Dayrit
City of Emeryville Redevelopment Agency
1333 Park Avenue
Emeryville, California 94608

Subject: Final Site Cleanup Plan
1333-1379 62nd Street
Emeryville, California

Dear Mr. Dayrit:

At your request, we have prepared this Final Site Cleanup Plan for the City of Emeryville for the property located at 1333-1379 62nd Street in Emeryville, California. The purpose of this document is to submit details for implementation of soil remediation prior to redevelopment of the site.

We appreciate the opportunity to be of service to the City on this project.

Sincerely,
NINYO & MOORE

Laura E. Osteen
Project Environmental Scientist

Kris M. Larson, P.G.
Senior Environmental Geologist

BJH/LEO/KML/dhi

Distributions: Ms. Susan Colman
Ms. Mary Rose Casa, San Francisco Bay Regional Water Quality Control Board
Ms. Lynn Nakashima, Department of Toxic Substances Control
Ms. Donna Drogos, Alameda County Environmental Health
Ms. Diane Strassmaier, U.S. Environmental Protection Agency Region IX

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ACRONYMS AND ABBREVIATIONS

ACDEH	Alameda County Department of Environmental Health
ACGIH	American Conference of Governmental Industrial Hygienists
ACMs	asbestos containing materials
AMP	Air Monitoring Plan
bgs	below ground surface
BMPs	best management practices
BTEX	benzene, toluene, ethylbenzene, and xylenes
Cal-OSHA	California Occupational Safety & Health Administration
CAL-HAZ	California Hazardous Waste
CAM	California Assessment Manual
CIH	Certified Industrial Hygienist
COC	constituents of concern
DOT	Department of Transportation
DTSC	Department of Toxic Substance Control
EBMUD	East Bay Municipal Utilities District
EBS	Environmental Bio-Systems, Inc.
EE/CA	Engineering Evaluation/Cost Analysis
EPA	Environmental Protection Agency
ESA	Environmental Site Assessment
ESL	Environmental Screening Level
FSAP	Field Sampling and Analysis Plan
FID	Flame Ionization Detector
GPS	global positioning system
HASP	Health and Safety Plan
HBMS	Hazardous Building Materials Survey
HEPA	high-efficiency particulate air
IARC	International Agency for Research on Cancer
LBP	lead-based paint
LBNL	Lawrence Berkeley National Laboratory
MCL	maximum contaminant levels
mg/kg	milligrams per kilogram
mg/m3	milligrams per cubic meter
µg/dL	micrograms per deciliter
µg/kg	micrograms per kilogram
µg/L	micrograms per liter
µg/m3	micrograms per cubic meters
mph	miles per hour
MSDS	material safety data sheets
MTBE	methyl tertiary butyl ether
NOI	Notice of Intent
OSHA	Occupational Safety & Health Administration
OV	organic vapor

PAH	polynuclear aromatic hydrocarbon
PCB	polychlorinated biphenyl
PEL	Permissible Exposure Limits
PID	Photo Ionization Detector
PPE	personal protective equipment
PPM	parts per million
PRG	Preliminary Remediation Goal
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation & Recovery Act
RWQCB	Regional Water Quality Control Plan
SAP	Sampling Analysis Plan
SCP	Site Cleanup Plan
SGP	Site Grading Plan
SHSO	Site Health and Safety Officer
SVOC	semi-volatile organic compound
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resource Control Board
TCE	trichloroethene
TCLP	Toxic Characteristic Leaching Procedure
TP	Transportation Plan
TPH	total petroleum hydrocarbon
TPH-G	total petroleum hydrocarbon as gasoline
TPH-D	total petroleum hydrocarbon as diesel
TPH-MO	total petroleum hydrocarbon as motor oil
UST	underground storage tank
VOC	volatile organic compound

1. INTRODUCTION

The City of Emeryville Redevelopment Agency contracted Ninyo & Moore to prepare this Site Cleanup Plan (SCP) for the non-time critical removal action at the former Dutro Company site located at 1333-1379 62nd Street in Emeryville, California (Figure 1). The duration of the removal project is anticipated to last 4 weeks. The City of Emeryville's noise ordinance limits the work to Monday through Friday between the hours of 7am to 6pm. This non-time critical removal action will be funded partially under a U.S. Environmental Protection Agency (EPA) cleanup grant and the City of Emeryville (City). The City is acting as the Lead Agency under a Memorandum of Understanding with the California Department of Toxic Substances Control (DTSC) and the Regional Water Quality Control Board (RWQCB). Both agencies reviewed the draft SCP, and the DTSC provided comments in March and July 2007. The DTSC concurred with Ninyo & Moore responses, which have been incorporated in this SCP. A copy of the DTSC comments are in Appendix G. The RWQCB did not issue any comments. Susan G. Colman is acting as the regulatory oversight for the City, and provides regulatory and technical support on the grant to the City. The City of Emeryville Redevelopment Agency will administer the cleanup grant.

1.1. Site Cleanup Plan Organization

This SCP contains a summary of previous environmental investigations conducted on the site, identifies constituents of concern (COCs) and associated proposed cleanup goals, and includes a description of the proposed remedial alternative. Details of the remedial design implementation, including site preparation, soil excavation and stockpiling, loading and off-site disposal, site safety, air quality monitoring, and storm water management are included in this SCP.

This SCP is organized into the following sections:

- Section 1 presents the introduction and summary of previous site investigations.
- Section 2 presents cleanup goals and a discussion of planned future site use.

- Section 3 provides the Removal Action Plan, including pre-field, pre-excavation and soil remediation activities.
- Section 4 provides the cleanup schedule.
- Section 5 provides project reporting.
- Section 6 provides standard limitations.
- Section 7 contains references for the SCP.

The Field Sampling and Analysis Plan (FSAP) contains sampling procedures for delineation of soil excavation areas, stockpile characterization, cleanup confirmation, and clean backfill characterization and is included in Appendix A. The Site Grading Plan (SGP) is provided in Appendix B. The Storm Water Pollution Prevention Plan (SWPPP) is contained in Appendix C. The Transportation Plan (TP) for off-site soil disposal is included in Appendix D. The Health and Safety Plan (HASP) is provided in Appendix E. Appendix F includes the Dust and Air Monitoring Plan (AMP) and best management practices (BMPs) for dust control during excavation. The DTSC comments are presented in Appendix G.

1.2. Summary of Previous Investigations

The site consists of approximately 1.2 acres of land containing one structure, a 32,000-square-foot warehouse. A portion of the site is covered by a concrete slab for parking and storage. A truck-loading dock is located on the northern perimeter of the site. The site was formerly utilized for the manufacture of hand trucks.

1.2.1. Phase I Environmental Site Assessment, January 2002

The Phase I Environmental Site Assessment (ESA) was completed in January 2002 (Ninyo & Moore, 2002). The Phase I ESA discussed several areas of environmental concern on site including a spray booth, compressor and oil storage location, former truck bay, and two former 1,000-gallon underground storage tanks (USTs) containing gasoline and diesel. The Phase I ESA reported that both USTs were removed from the site in 1990, and received regulatory closure from the Alameda County Department of

Environmental Health (ACDEH) in 1998. The ACDEH closure document indicated that trichloroethene (TCE) impacted groundwater was identified within the site boundaries (although no sampling information or analytical data were found during document review), and that further evaluation should be performed to confirm TCE in the groundwater. In 1999, Environmental Bio-Systems, Inc., (EBS) recommended a groundwater monitoring program for the site requiring the installation of three wells, one well located within 10.0 feet of the former USTs, and two additional wells to serve as reference points (EBS, 1999). No evidence was found indicating that these wells were installed or that groundwater monitoring was ever performed on site.

During the site reconnaissance for the Phase I ESA in November 2001, Ninyo & Moore found a hazardous materials storage area in the northern portion of the site warehouse containing paints and solvents. The underlying concrete slab exhibited moderate staining and cracking in this area. Lubricant oil was found in a compressor room located in the southern portion of the site warehouse. Oil containers were improperly stored on a table and heavy staining and evidence of leakage was observed in the vicinity where the concrete flooring appeared to be cracked and stained. The elevation of the western portion of the site was raised approximately 3.0 to 5.0 feet with fill from an unknown source.

1.2.2. Limited Phase II Environmental Site Assessments, July 2004 and July 2005

Two Limited Phase II ESAs were performed, and reports were prepared by Ninyo & Moore in July 2004 (Ninyo & Moore, 2004) and July 2005 (Ninyo & Moore, 2005b). The 2005 report summarized the 2004 and 2005 sample results, and is included on a CD at the end of this report. The Limited Phase II ESAs concluded that soil was impacted by several COCs above RWQCB Residential Environmental Screening Levels (ESLs), including total petroleum hydrocarbons as diesel (TPH-D), total petroleum hydrocarbons as motor oil (TPH-MO), lead, and polynuclear aromatic hydrocarbons (PAHs). The soil contamination was reported in several areas on site

including sections of the site warehouse, the former truck bay vicinity, and in storage areas outside the warehouse.

A total of 23 borings were installed on site during the two Limited Phase II ESAs performed on July 6, 2004, and between January 4 and 5, 2005. Soil samples were collected from 2.0, 3.5, and 5.0 feet below ground surface (bgs) from four borings in areas of environmental concern during the July 2004 sampling event. Select samples were analyzed for total petroleum hydrocarbon as gasoline (TPH-G), TPH-D, TPH-MO, volatile organic compounds (VOCs), semi-volatile organic compounds, PAHs, polychlorinated biphenyl (PCB), and select California Assessment Manual (CAM) 17 metals. Groundwater samples were collected in the vicinity of the former paint spray booth and the waste oil storage and compressor room during the July 2004 sampling event. The groundwater sample collected beneath the spray booth area was analyzed for TPH-D, TPH-MO, TPH-G, benzene, toluene, ethylbenzene, and xylenes (BTEX), methyl tertiary butyl ether (MTBE), VOCs, and metals. The groundwater sample collected in the vicinity of the waste oil and compressor area was analyzed for BTEX, MTBE, and VOCs. During the January 2005 sampling event, soil samples were collected at 2.0, 3.5, and 5.0 feet bgs. The 2.0- and 3.5-foot samples were analyzed for TPH-D, TPH-MO, PAHs, lead, and total chromium. Selected soil samples were also analyzed for PCBs. Soil samples collected at 5.0 feet bgs were analyzed if COCs were reported above regulatory reporting limits in soil samples collected from the 2.0- and 3.5-foot depths.

Soil samples collected during the January 2005 sampling event were analyzed for TPH-D, TPH-MO, and TPH-G. Soil samples impacted with TPH-D were reported above the ESL of 100 milligrams per kilogram (mg/kg) in 15 boring locations at 2.0 feet bgs, in 8 boring locations at 3.5 feet bgs, and in 6 boring locations at 5.0 feet bgs. Soil samples impacted with TPH-MO were reported above the ESL of 500 mg/kg in 11 boring locations at 2.0 feet bgs, 5 boring locations at 3.5 feet bgs, and

2 boring locations at 5.0 feet bgs. TPH-G was not reported above laboratory reporting limits in soil samples collected on site.

VOCs were not reported above the ESLs for the samples collected during either sampling events.

PAHs, specifically benzo(a)pyrene, equaled or exceeded the ESL of 38 micrograms per kilogram (µg/kg) in 5 boring locations at 2.0 feet bgs, 4 boring locations at 3.5 feet bgs, and 2 boring locations at 5.0 feet bgs. The detection limits for benzo(a)pyrene, however, exceeded the benzo(a)pyrene ESLs at nine boring locations including Borings B-2, B-19, and B-22 where soil excavation is not proposed. Because soil was to remain in place in the vicinity of these boring locations, additional soil samples will be collected during a pre-excavation sampling event (see Section 3.2.2) and analyzed for PAHs, TPH-D, and TPH-MO. TPH-D and TPH-MO will be analyzed because the sum of TPH-D and TPH-MO from sample B2-S-2-1 was reported above 100 mg/kg. The benzo(a)pyrene Residential Preliminary Remediation Goal (PRG) of 62 µg/kg was also exceeded in samples collected from eight of these boring locations. Additional PAH ESLs were exceeded in Boring B-13 at 3.5 feet bgs. These PAHs included: phenanthrene (ESL of 11,000 µg/kg), benzo(a)anthracene (ESL of 380 µg/kg), chrysene (ESL of 3,800 µg/kg), benzo(b)fluoranthene (ESL of 380 µg/kg), benzo(k)fluoranthene (ESL of 380 µg/kg), indeno(1,2,3-cd)pyrene (ESL of 380 µg/kg), and dibenz(a,h)anthracene (ESL of 110 µg/kg).

PCBs were not reported above ESLs in the samples collected. ESLs for arsenic, total chromium, cobalt, and lead were exceeded in at least two boring locations during the July 2004 and January 2005 Limited Phase II ESAs. The background concentration for arsenic has been reported by the Lawrence Berkeley National Laboratory (LBNL) Environmental Restoration Program (LBNL, 2005) at 19.1 mg/kg. The maximum arsenic concentration reported was 7.8 mg/kg; therefore, none of the samples collected exceeded the arsenic background concentration. Total chromium exceeded the residential ESL of 58 mg/kg at four boring locations at 2.0 feet bgs, with a maximum

concentration of 71 mg/kg. Total chromium concentrations did not exceed the residential PRG of 210 mg/kg at any sample locations. The cobalt ESL of 10 mg/kg was exceeded in one boring location at 2.0 feet bgs and two boring locations at 5.0 feet bgs, with a maximum concentration of 17 mg/kg. Cobalt concentrations did not exceed the residential PRG of 900 mg/kg at any sample locations. Because there are so few data points for arsenic, chromium, and cobalt, additional soil samples will be collected during the pre-excavation sampling event and analyzed for arsenic, cobalt, total chromium, chromium III, and chromium VI. Soil sample analytical results will be compared to ESLs and PRGs.

The ESL and California-modified PRG for lead are 150 mg/kg. These limits were equaled or exceeded at 6 boring locations at 2.0 feet bgs, 2 locations at 3.5 feet bgs, and 1 boring at 5.0 feet bgs.

Analytical results from three grab groundwater samples reported maximum concentrations of 270 micrograms per liter (µg/L) of TPH-D, 11 µg/L of MTBE, 21 µg/L of 1,1-dichloroethene (1,1-DCE), 18 µg/L of 2-butanone (methyl ethyl ketone). These concentrations were below their respective ESLs. In addition, the maximum concentrations of metals detected in groundwater included 5.2 µg/L of arsenic, 120 µg/L of barium, and 22 µg/L of nickel. These concentrations were below their respective maximum contaminant levels (MCLs) for drinking water.

Based on the soil sample analytical results for the Limited Phase II ESAs, the cleanup goals for on-site soil have been recommended for TPH-D, TPH-MO, benzo(a)pyrene as an indicator for PAHs, and lead, and are discussed in Section 2.2 of this report. Cleanup goals for total chromium and cobalt will be developed, if warranted, subsequent to the pre-excavation sampling event when more data are available for review.

1.2.3. Hazardous Building Materials Survey, February 2005

Based on the age of the on-site warehouse, the use of asbestos containing materials (ACMs) and lead-based paint (LBP) was suspected. A Hazardous Building Materials Survey (HBMS) was conducted by Ninyo & Moore in February 2005 (Ninyo & Moore, 2005a). The objectives of the survey were to identify and quantify ACMs, LBP, potential mercury-containing thermostats/switches, PCB-containing items (e.g., light ballasts, switches, and transformers), fluorescent light tubes, and Freon™ containing refrigeration systems.

The findings of the HBMS concluded that ACMs and LBP were present in samples collected from building materials on site. The report concluded that, although the building materials containing ACMs and LBP were generally in good condition, if and when ACMs and LBP deteriorate or are disturbed (during renovation or demolition operations), hazardous materials may be released creating a potential health hazard for building occupants, maintenance personnel, and contractors. The report also concluded that hazardous or potentially hazardous building materials found at the site may include PCB-containing light ballasts and switches; fluorescent light tubes; exit signs that might contain radioactive sources; an air conditioning system; and Freon™ contained in refrigeration systems. Because non-destructive sample "screening" analysis were used, the report indicated that additional suspect ACMs, LBPs, or other miscellaneous hazardous building materials may be found during building renovations or demolition. The report also recommended that, should additional suspect materials not sampled or assessed in this report be uncovered during building demolition: (a) samples of suspect materials should be collected for laboratory analysis, and activities that may impact the materials should cease until laboratory analytical results are reviewed; or (b) the materials should be assumed to be hazardous and handled as such. This information should be included in the specifications for the lead and/or asbestos remediation contractor. Window putty was also sampled and analyzed for PCBs, which were not detected in the analysis. No concrete caulking was observed.

1.2.4. Engineering Evaluation/Cost Analysis, November 2005

Ninyo & Moore prepared an Engineering Evaluation/Cost Analysis (EE/CA) for the site in November 2005 (Ninyo & Moore, 2005c). The purpose of the EE/CA was to define the nature and extent of site contamination, identify remedial action objectives to mitigate site contamination, develop and analyze alternatives based on cost, effectiveness, and implementability to satisfy the objectives, and provide a recommendation for the most appropriate remedial action.

Other information provided in the EE/CA included a description of local geology and site soils; local hydrogeology; the source, nature, and extent of contamination; a discussion of contaminant migration and mobility in soils, groundwater, and air; and a streamlined risk evaluation.

Alternatives for site remediation were developed and evaluated, and included no action; excavation and off-site disposal; waste excavation, consolidation, and capping; in-situ treatment (bioventing); and excavation and on site, ex-situ treatment (biopiles). Criteria used for alternative evaluation and comparison were effectiveness in reduction of volume and toxicity of contaminants, implementability, and cost.

The excavation and off-site disposal option was considered the most effective and expedient way to address site contamination. This alternative is readily implementable and reduces volume and toxicity of contaminants thereby allowing the City to redevelop the site without the liability and burden of long-term operation, maintenance and monitoring engineering controls, and the enforcement of institutional controls.

2. RECOMMENDED CLEANUP GOALS AND PLANNED FUTURE SITE USE

The primary objective for site cleanup is to reduce the volume, toxicity, and mobility of site contaminants to acceptable, risk-based levels for anticipated future site use. Specifically, the remedial action objective for this site is to reduce the concentration of TPH-D/MO, lead, and PAHs in site soil to below their acceptable cleanup levels in an effective and expedient manner.

2.1. Planned Future Site Use

A City park is proposed for future site use. In August 2005, David Gates and Associates prepared a conceptual schematic of the park plan. Proposed park amenities include multi-use lawn area in the park center, a basketball court in the northwest corner, an amphitheater in the southwest corner, and a children's play area in the southeast corner. Potential exposure pathways for receptors (park patrons and construction workers) include direct contact (dermal) and inhalation of vapors and/or fugitive dust. The western section of the park, where the basketball court and amphitheatre are proposed, will most likely be capped with asphalt and or/concrete, which will minimize dermal contact with impacted soil. The following section describes cleanup goals for planned future site use.

2.2. Recommended Cleanup Goals

Cleanup goals are recommended for TPH-D, TPH-MO, benzo(a)pyrene as an indicator for PAHs, and lead in soil. Site cleanup goals recommended for these COCs are similar to previously established cleanup goals used on other sites in the City, including the Pinnacle property on 64th Street and Christie Avenue (a residential development), and the Union Pacific property west of the Airgas business near Powell and Hollis Streets (a park). Cleanup goals for groundwater were not developed because concentrations of COCs detected in shallow groundwater were below their respective ESLs or MCLs and groundwater is not a source of drinking water and is unlikely to be used for drinking water in the future.

Recommended cleanup goals for TPH constituents are the RWQCB direct ESLs for shallow soil (<3m bgs), residential exposure scenario (Table K-1, RWQCB, 2005). The cleanup goal for TPH-D is 400 mg/kg, and the proposed TPH-MO goal is 1,000 mg/kg. Additionally, the cleanup goal for total TPH concentrations (sum of TPH-D + TPH-MO) is 1,000 mg/kg. Because these ESLs are for residential land use, they provide a conservative estimate for park use by recreational visitors with limited site exposures.

Recommended lead cleanup goals were calculated by the SOMA Corporation using the DTSC lead spread model (Version 7) (SOMA, 2007); the calculations are included as an

attachment to this SCP. Lead cleanup concentrations were calculated for construction worker exposure and recreational visitor exposure to lead concentrations in soil, water, and air. The DTSC lead spread model specifies acceptable blood-lead levels for construction worker and recreational visitor receptor at 10 micrograms per deciliter (µg/dL) (EPA, 1998). A lead in soil/dust concentration of 370 mg/kg calculated for a pregnant Mexican American construction worker would result in a blood level concentration of 10 µg/dL for an exposure period of 90 days per year. Additionally, a lead in soil/dust concentration of 515 mg/kg in soils would result in a blood level concentration of 10 µg/dL for a child recreational visitors exposed to soil for 7 days, and 1,250 for an adult recreational visitor exposed for the same period. Therefore, a lead cleanup concentration of 370 mg/kg in soils is considered a conservative cleanup goal. A cleanup goal for benzo(a)pyrene will be used as an indicator for the other PAHs detected in site soil. The cleanup goal recommended for benzo(a)pyrene in site soils is the residential land use PRG of 62 µg/kg established by EPA Region IX. Because the PRG is for a residential land use, it provides a conservative estimate for park use by recreational visitors and construction workers with much more limited site exposure.

3. REMOVAL ACTION PLAN

Excavation and off-site disposal of soil entails physical removal from the site and transporting those soils to a permitted landfill. Prior to soil excavation, permits will be obtained, existing site structures will be demolished, and additional sampling will be conducted to refine the soil excavation limits. Additional soil sampling for TPH, lead, cobalt, total chromium, and PAH constituents will be conducted once soils are exposed after the warehouse and concrete are demolished and removed from the site to better delineate these constituents. Excavated soil will be directly loaded onto trucks or temporarily segregated into stockpiles of clean; contaminated, but non-hazardous; and hazardous soil stockpiles. Composite samples will be collected from the stockpiles, analyzed, and the results will be included on a waste profile form for landfill review (see Appendix A, FSAP). Upon landfill acceptance, the soil stockpiles would be loaded on trucks and transported to a Class I, II, or III landfill, as appropriate. The TP is included in Appendix D. After soil excavation, confirmation soil samples will be collected and analyzed for site COCs.

Pre-excavation, confirmation, and soil stockpile samples will be collected in accordance with Appendix A, FSAP.

The following summarizes the removal action for impacted soils, including methods and procedures for site preparation and building demolition; soil contamination delineation; excavation; loading and off-site disposal; field sampling; and site backfill. Implementation details are provided in Appendices A through F.

3.1. Pre-Field Activities

Pre-field activities include permitting, health and safety planning, background air sampling, a community meeting, and contractor bidding.

3.1.1. Permitting

Upon the City's conditional approval and the RWQCB's or DTSC's concurrence with this SCP, project-specific permits will be obtained, including:

- Grading permit from the City.
- Demolition permit from the City.
- Notice of Compliance submitted to the Bay Area Air Quality Management District.
- RWQCB General Permit for Storm Water Discharges Associated with Construction Activity (General Permit) Water Quality Order 99-08-DWQ.

A grading permit application package will be submitted to the City for approval, including the pertinent elements of this SCP. A demolition permit application package will be submitted to the City prior to demolition of site buildings and related infrastructure. A Notice of Intent (NOI) will be filed with the State Water Resource Control Board for coverage under the General Permit. Infrastructure management and soil excavation activities will not proceed until the appropriate permits have been obtained.

The NOI process requires that a SWPPP be developed for the project, and the plan must be on site at all times during the remedial activities. The SWPPP is included in Appendix C. The SWPPP includes provisions to minimize contact between soil and measurable precipitation thus controlling water and sediment discharges from the site. The SWPPP also includes appropriate measures for monitoring and documentation during the project.

3.1.2. Health and Safety Plan

The HASP, included in Appendix E, describes methods for protection of site workers and visitors during the remedial activities. The following information is contained in the HASP:

- List of COCs, their characteristics, and potential exposure routes.
- Action levels for various COCs.
- Methods for field monitoring of COCs.
- Emergency procedures and contact information.
- Identification and routes to emergency facilities.
- Identification of potential physical hazards and response actions for specific remedial tasks (job hazard analyses).
- Personal protective equipment (PPE) for specific remedial tasks.

PPE will generally consist of Level D equipment, including hard hats, steel-toed boots, ear protection, eye protection, and reflective orange vests. Respiratory protection is not anticipated, but will be available should particulate dust monitoring indicate such precautions are necessary. Real-time particulate dust monitoring is detailed in the AMP (Appendix F).

The remedial contractor, to be procured at a later date, will be required to develop a HASP for its workers. The remedial contractor's HASP will be provided to the City prior to implementation of site construction.

3.1.3. Background Air Sampling

The land use surrounding the site includes commercial, office space, restaurants, live work, residential, and a city park. Perimeter air monitoring will be performed during the remedial activities to measure the off-site migration of fugitive dust. The real-time perimeter air monitoring results will provide data to make operational decisions, including additional measures for dust control, and/or work stoppage, if necessary.

Background air quality data will be collected 1 week prior to starting remedial construction. Background air quality data are for comparison against data collected during soil excavation activities. The background data collection procedures are detailed in Appendix F. Based on the prevailing wind direction, locations will be selected for the proposed perimeter high-volume air-monitoring stations. One location will be upwind (Station 1) and two locations will be positioned in the downwind direction (Stations 2 and 3). Stations 2 and 3 will provide sampling points between the site and the potential receptors (i.e., park visitors and office workers west, south, and east of the site).

3.1.4. Community Meeting

To fulfill the requirements of public participation for the SCP process, Ignacio Dayrit, Project Coordinator, has been designated the project spokesperson. Mr. Dayrit can be reached at (510) 590-4356 or idayrit@ci.emeryville.ca.us. The spokesperson will coordinate news releases, notify local citizens, establish an administrative record, and notify the public of the administrative record. A mailing list will be generated (for properties located within a minimum of 500-foot radius of the site) and a key contacts list (local elected representatives, school officials, and local organizations) will be created. A public notice, advertising a public meeting, will be published in local newspapers. The public will have a 30-day period to comment on the SCP. Following the 30-day public comment period, a response to comments will be prepared and included in the administrative record and the SCP will be finalized with a Community Profile Report attached.

3.1.5. Bidding

The City will publish in a newspaper a notification of the project work and a deadline for when the bids are due. There will be a mandatory pre-bid meeting at the site for subcontractor to view the site and ask questions regarding the project. Bids received by the deadline and submitted in accordance with the plans, specifications, and contract documents will be considered for the project. Bids will be compared on the basis of the City engineer's estimate.

3.2. Pre-Excavation Field Activities

Several field activities will occur prior to excavating and loading impacted soils for off-site disposal. These activities include hazardous building materials abatement, building demolition, and soil sampling for further delineation of remedial areas. Pre-excavation activities may also include structural reinforcement to prevent caving beneath adjacent streets (Hollis Street and 62nd Street).

3.2.1. Site Clearing and Building Demolition

Soil removal will require demolition of the existing site building, loading dock, and associated concrete slab for parking and storage. Building demolition will be completed under appropriate permit from the City, including required asbestos and LBP abatement. Work will be conducted between the hours of 7:00am to 6:00pm per the City of Emeryville noise ordinance. Details for building demolition will be provided to the City as part of the demolition permit application. Prior to demolition, asbestos and LBP materials will be inventoried and stabilized or abated. Dust will be controlled prior to and during building demolition by continual water wetdown. Demolition materials will be stockpiled, loaded, and hauled from the site for disposal and/or recycling/reuse, as required. Provisions of the SGP, SWPPP, HASP, and AMP (Appendices B through F, respectively) will be implemented during site clearing and demolition

Prior to initiating soil excavation, a subsurface utility locating company will mark active and inactive utilities within and in the proximity of the planned excavations.

Additional active and inactive water, gas and electrical lines may require demolition to facilitate excavation of impacted soil.

3.2.2. Pre-Excavation Soil Sampling for Definition of Remedial Areas

Areas tentatively identified for soil remediation are shown on the Excavation Soil Classifications and Excavation Plan Cross Sections (Figure 6), and the Soil Removal Excavation Plan (Appendix B, Figure B-1). Following building and foundation removal, additional site characterization will be conducted to further delineate the lateral and vertical extent of soil contamination within each grid. The following describes the site characterization activities:

- Samples will be collected from step out borings adjacent to and between existing sample locations where data gaps exist. Samples will be collected using one of several optional sampling techniques including geoprobe, potholing and/or hand auguring. Continuous soil samples will be collected from the surface to a maximum depth of 6.0 feet. Composite samples will be prepared by the laboratory representing the 0- to 2.0-foot, 2.0- to 4.0-foot, and 4.0- to 6.0-foot intervals, depending on the maximum depth of the sample. If the maximum depth of the sample is only 3.0 feet, then composite samples will be collected from 0- to 2.0-foot and 2.0- to 3.0-foot intervals.

- Visual observations of soil conditions and staining and/or odor will be made at each sampling location.

- If significant staining and/or odor are observed, the grid locations and/or sample depths will be adjusted to the maximum observed aerial extent and depth of soil impacts.

- Select soil samples may be collected and analyzed for metals including arsenic, total chromium, chromium III, chromium VI, and cobalt. Additional samples will be collected and analyzed for TPH-D, TPH-MO, PAHs, and lead in the vicinity of boring locations B-2, B-19, and B-22 because of high detection limits for benzo(a)pyrene (which exceeded ESLs) reported in samples from the borings, and because the sum of TPH-D and TPH-MO concentrations in sample B2-S-2-1 was reported above the ESL for TPH of 100 mg/kg. Analytical results will assist in characterizing the stockpiled soil for excavation and disposal. In addition, in areas currently designated as non-impacted based on existing data (Figures 3 through 6), soil samples will also be analyzed for arsenic, cobalt, and chromium because samples from these areas were not analyzed for these metals during previous investigations.

- During pre-excavation sampling analysis, total lead in soil concentrations that are reported above the remediation goal will be characterized for disposal using waste extraction tests (WET). The results will be compared to Soluble Threshold Limit Concentrations (STLCs) for non-hazardous and California hazardous waste characterization. If the soluble lead is above the STLC of 5.0 mg/L, it will be classified as either California Hazardous waste or Resource Conservation & Recovery Act (RCRA) waste. Samples exceeding the STLC of 5.0 mg/L will be reanalyzed and compared to the Toxic Characteristic Leaching Procedure (TCLP). If the TCLP concentrations for lead are greater than 5.0 mg/L and less than 7.5 mg/L, it will be disposed of as RCRA waste and no stabilization will occur. The 7.5 mg/L value is used as the upper limit of RCRA waste per the Universal Treatment Standards (UTS). If the TCLP is above 7.5 mg/L, it will need to be stabilized at the landfill and disposed as California Hazardous Waste (CAL-HAZ) waste. No soil treatment will occur on site.

The results of sampling activities will be presented to the City in a brief letter report including a tabular illustration of the field observations and laboratory analytical data. Remedial areas and depths will be adjusted as necessary based on new information. The final areas for soil removal will be approved by the City prior to initiating excavation activities.

3.2.3. Structural Enforcement

The site boundaries extend to the property line along 62nd Avenue, Hollis Street, 61st Street, and Doyle Street. Structural reinforcement may be needed to prevent caving beneath the roadways and sidewalks. Structural reinforcement can be accomplished using benching/sloping, sheet piles, and/or shoring. The types of reinforcement, if deemed necessary, will be determined based on the soil properties evaluated during potholing. Structural reinforcement plans will be submitted to the City for concurrence prior to implementation and required permits will be obtained.

3.3. Soil Remediation Activities

The soil remediation activities include excavation, stockpiling, loading, hauling, and off-site disposal. During these activities, site work will include implementation of the SGP, SWPPP, TP, HASP, and AMP. The following describes these activities.

3.3.1. Soil Excavation and Loading

Figures B-1 and B-2 show the current areas for remediation based on existing data; however, the excavation limits will be modified based on the findings of the pre-excavation sampling activities. The areas for soil excavation will be pre-marked in the field using appropriate surveying techniques by a California-licensed surveyor or global positioning system (GPS). Soil will be excavated with a backhoe and/or trackhoe equipment. Soil will be pre-profiled with the appropriate off-site disposal facility based on the existing data and the data to be collected during pre-excavation sampling activities. Soil excavation will be performed by a licensed hazardous waste contractor. Ninyo & Moore will oversee excavation activities, perform air monitoring during excavation activities, and collect confirmation samples subsequent to excavation activities.

Based on total concentrations of COCs exceeding proposed cleanup goals, Ninyo & Moore categorized wastes into the Class II non-hazardous waste, CAL-HAZ waste, and RCRA waste volumes. Current estimated volumes of waste for off-site disposal include 1,950 cubic yards (3,300 tons) of Class II non-hazardous waste, 1,650 cubic yards (2,800 tons) of CAL-HAZ waste, and 600 cubic yards (1,050 tons) of RCRA waste (Ninyo & Moore, 2005c).

Small temporary stockpiles may be used to stage soil for loading. If data suggest select soils may be hazardous, these soils will be stockpiled for further testing prior to loading and hauling for off-site disposal. Hazardous waste will be stockpiled following California Health and Safety Code Section 25123.3 guidelines. A copy of the guidelines are presented in Attachment 3. Non-impacted soils, either from overburden excavation or off-site backfill sources, may also be stockpiled. Generally, excavated soil will be placed on, and covered with, 60-mil polyethylene Visqueen sheets pending profiling and disposal. Visqueen sheets covering the stockpiled soil will be anchored in place using sandbags and rocks to prevent windblown dispersion and precipitation run-off. The stockpiles will be inspected weekly to ensure that the controls for windblown dispersion and precipitation are functioning properly. Dust suppression activities consisting of

managed water spray will be practiced during material loading and off haul operations. The excavation, loading, and stockpile methods are detailed in the SGP (Appendix B).

Air monitoring will be performed throughout demolition, excavation and loading activities. Air monitoring will consist of real-time data collection for particulates (MiniRAM), and laboratory analysis of samples collected from the perimeter high-volume air sampling stations. Appendix F provides acceptable particulate levels for the field activities. The MiniRAM data will be used to evaluate when engineering controls, such as additional water application, are required to prevent unacceptable dust levels. If engineering controls are not capable of meeting on-site worker particulate exposure goals, the MiniRAM data will be used to evaluate when upgrades to PPE (such as respiratory protection) are required.

The MiniRAM data will also be used to monitor particulate levels at the site perimeter. If engineering controls in use do not maintain acceptable particulate levels at the site perimeter, the MiniRAM data will be used to justify work stoppage until site conditions improve.

Storm water control features are detailed in the SWPPP (Appendix C). Rainfall is not anticipated during the project because the excavation is scheduled to occur sometime during March through October 2007. Average monthly rainfall include: 3.56 inches in March, 1.38 inches in April, 0.57 inches in May, 0.11 inches in June, 0.07 inches in July, 0.10 inches in August, 0.33 inches in September, and 1.33 inches in October (OCVB, 2006). Should precipitation occur, appropriate control features will be in place to control off-site release of water and sediment. The procedures for installation of control features are detailed in Appendix C.

3.3.2. Materials Hauling and Off-Site Disposal

The TP provides specific details for off-site material hauling. On-site traffic control includes truck staging, speed control, truck routes, and entry/exit locations. Procedures for managing on-site truck traffic are further detailed in Appendix D, including the flag person responsibilities.

The TP contains procedures for hauling and off-site disposal of excavated materials. The plan includes procedures for covering loads, manifesting, and transportation routes to the respective off-site disposal facilities. Transportation routes are shown on Figures D-1 through D-3. Non-hazardous solid waste will be hauled to either Keller Canyon Landfill in Pittsburg, California (Keller) or Vasco Road Landfill in Livermore, California. Keller is a lined landfill permitted to receive non-hazardous designated waste (Class II). Hazardous waste will be hauled to Kettleman Landfill in Kettleman City, California (Kettleman). Kettleman is a lined landfill permitted to receive hazardous waste (Class I).

3.3.3. Dust Control

Dust suppression will be accomplished by lightly spraying or misting stockpiled soil, truck loading areas on site, and the work areas with water. Misting may also be used on soil placed in the transport trucks. Misting will be performed sufficiently to reduce dust and vapors emissions but in small enough quantities so as to avoid puddling and run off. In addition, efforts will be made to minimize the soil drop height from the excavator's bucket onto the soil pile or into the transport trucks. After the soil is loaded into the transport trucks, the soil will be covered to prevent soil from spilling out of the truck during transport to the disposal facility.

While on the property, vehicles will maintain slow speeds (i.e., less than 5 miles per hour [mph]) for safety purposes and for dust control measures. Prior to departure, transport and dump trucks will be cleaned of loose debris clinging to the sides and/or wheels

using dry brooms or brushes to minimize off-site contaminant mobilization. If conditions warrant, a street sweeper may be retained to sweep the local street route.

Generally, excavated soil will be placed on, and covered with, 60-mil high density polyethylene sheets pending profiling and disposal. Polyethylene sheets covering the stockpiled soil will be anchored in place using sandbags and rocks.

In the event of sustained wind speeds that cause visible fugitive emissions, soil-moving activities will be temporarily halted until a sufficient dust control agent is applied to reduce such emissions. In the event wind speeds exceed 30 mph for more than 30 minutes, and visible emissions are observed, soil-moving activities will be halted until wind speeds decrease and no visible emissions are observed.

3.3.4. Materials Storage and Equipment Decontamination

Construction related materials stored on the site may include PPE, greases and oils, and fuels. Appendix C (SWPPP) provides details for appropriate BMPs for this storage area.

The SWPPP provides detailed information for equipment decontamination during remedial activities. Large equipment and vehicles requiring decontamination includes excavation equipment, soil loading equipment, and off-site disposal trucks. Dry decontamination processes will be used primarily. If water is used, the wash water will be collected in a sump and fluids will be tested and hauled off site for appropriate disposal or recycling/reuse.

3.4. Confirmation Sampling

Once COC impacted soil is removed, a sampling grid will be established for the excavation floor and sidewalls. For excavation floor sampling, the excavated areas will be divided into 50- by 50-foot-sampling grids. A discrete soil sample will be collected randomly within each grid cell from the excavation floor and submitted for analytical testing. For excavation sidewall sampling, a discrete soil sample will be obtained for every 25 linear feet of horizontal sidewall, or portion thereof, and every 3.0 feet of vertical sidewall, or portion

thereof. Excavations deeper than 3.0 feet bgs will have multiple sidewall samples taken. Soil samples will be taken at a depth of approximately 6 inches to 1 foot into the exposed surface. Each soil sample will be analyzed for the COCs discussed in Section 2.2. Additional analyses may be performed (e.g., arsenic, cobalt, and total chromium) depending on the data collected during pre-excavation sampling activities.

3.5. Site Restoration

The site is scheduled to be redeveloped following completion of soil remediation activities. The final grade for the redevelopment has not yet been determined; however, preliminary discussions with the architects indicate the western section of the site will be excavated to street level and the eastern section of the site will have varying elevation levels throughout the middle area of the site where the multi-use lawn area is proposed. If backfill is required, soil will be imported and compacted as necessary to achieve construction requirements. Appendix A includes provisions for sampling imported backfill materials to demonstrate contaminated materials are not being imported to the site, and that backfill is suitable for future uses. Backfill will be analyzed per the DTSC Information Advisory Clean Imported Fill Material dated October 2001 (DTSC, 2001). Data and source information on proposed backfill will be provided to the City prior to bringing the backfill soil to the site.

4. CLEANUP SCHEDULE

Hazardous Building Materials abatement and building demolition is scheduled to begin in early 2007. Soil excavation activities are scheduled to begin in Spring 2007.

5. REPORTING

Site activities will be documented in daily field logs and an eventual Final Construction Monitoring Report. Relevant information may include descriptions of demolition, excavation, confirmation sampling, backfill, compaction, and grading activities. This report will include the following:

- Quantities of soil removed from the site,
- Locations and depths where soil was excavated,
- Locations where confirmation testing was performed and analytical results of confirmation sampling,
- Analytical results for samples collected from backfill materials,
- Compaction testing results for imported fill and non-impacted site soils to be reused on site for backfill,
- Results of compaction testing performed on-site documenting that specified compaction and optimal moisture conditioning was achieved, and
- Copies of waste manifests documenting transportation and disposal of site wastes.

6. LIMITATIONS

Our opinions are based on our observations and field investigation test results. If conditions different from those described in this SCP are encountered, our office should be notified and additional recommendations, if warranted, will be provided upon request. It should be understood that the conditions of a site could change with time as a result of natural processes or the activities of man at the site or adjacent and nearby sites. In addition, changes to the applicable laws, regulations, codes, and standards of practice may occur due to government action or the broadening of knowledge. The findings of this SCP may, therefore, be invalidated over time, in part or in whole, by changes over which Ninyo & Moore has no control.

This SCP is intended exclusively for use by the City and assignees. Any use or reuse of this report by parties other than the City and assignees is undertaken at said parties' sole risk.

7. SELECTED REFERENCES

Department of Toxic Substances Control, 2001, Information Advisory Clean Imported Fill Material: dated October.

LBNL, 2004, Lawrence Berkeley National Laboratory Environmental Restoration Program: dated July.

Ninyo & Moore, 2002, Phase I Environmental Site Assessment, 1333-1379 62nd Street, Emeryville, California: dated January 23.

Ninyo & Moore, 2004, Phase II Environmental Site Assessment, 1333-1379 62nd Street, Emeryville, California: dated July 30.

Ninyo & Moore, 2005a, Hazardous Building Materials Survey, 1333-1379 62nd Street, Emeryville, California: dated February 25.

Ninyo & Moore, 2005b, Limited Phase II Environmental Site Assessment, 1333-1379 62nd Street, Emeryville, California: dated July 29.

Ninyo & Moore, 2005c, Engineering Evaluation/Cost Analysis, 1333-1379 62nd Street, Emeryville, California: dated November 21.

Oakland Convention & Visitors Bureau, 2006, Weather: http://www.oaklandcvb.com/visiting_weather.cfm.

San Francisco Bay Regional Water Quality Board, 2002, Erosion and Sediment Control Field Manual.

San Francisco Bay Regional Water Quality Board, 2005, Environmental Screening Levels for Willow Soils (≤3 mbgs) Where Groundwater is Not a Current or Potential Drinking Water Source: dated February.

SOMA Corporation, 2006 Lead Spread Worksheet, Dutro Park.

United States Environmental Protection Agency, 1998, Clarification to the 1994 Revised Interim Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities: dated August.

United States Environmental Protection Agency, 2003, Preliminary Remedial Goals: dated October.

REFERENCE: 1998 THOMAS BROTHERS FOR ALAMEDA AND CONTRA COSTA COUNTIES, STREET GUIDE AND DIRECTORY.

0 2400 4800

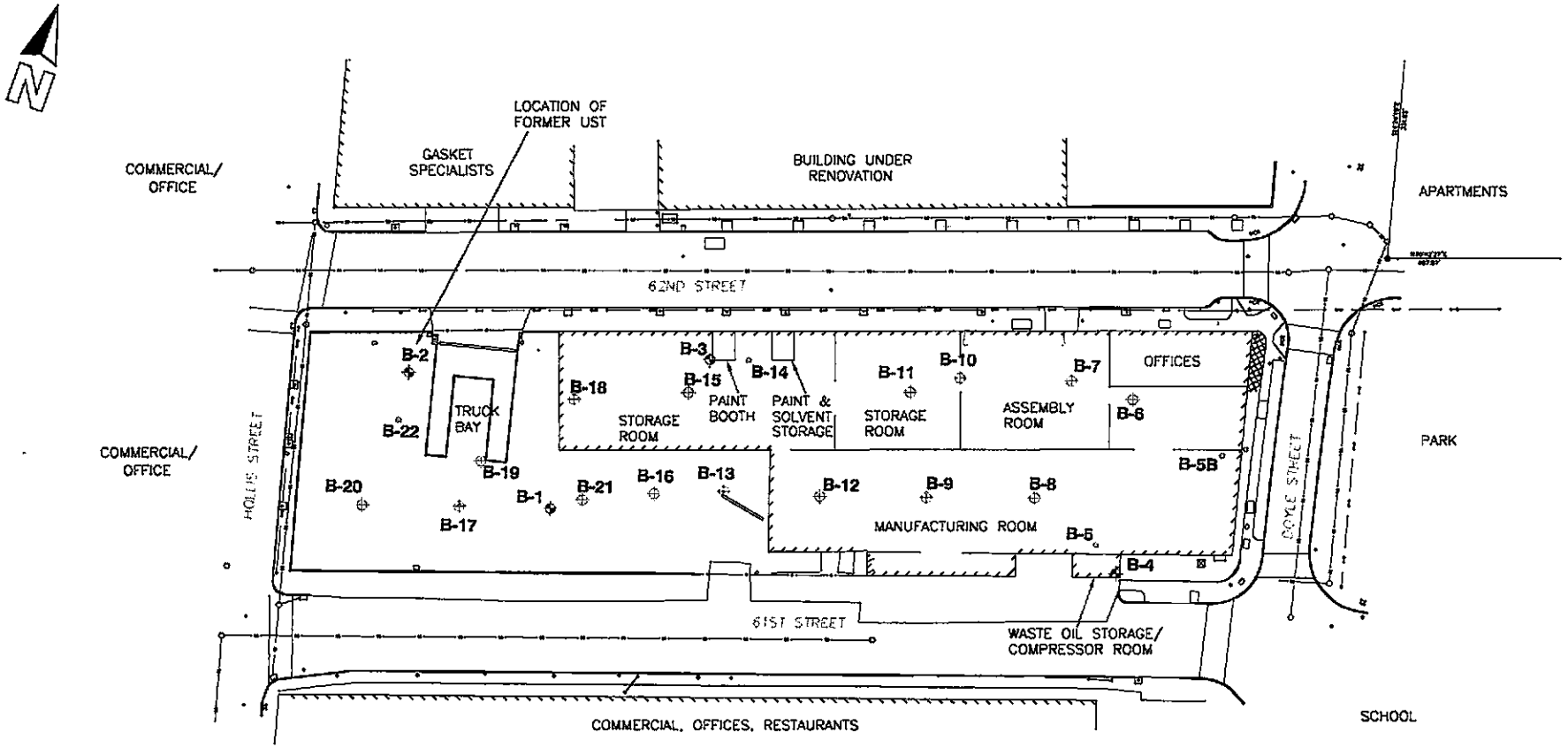
APPROXIMATE SCALE IN FEET

N

NOTE: ALL DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

400582003 sm fig 1

Ninyo & Moore	SITE LOCATION MAP	FIGURE
PROJECT NO. / DATE	CITY OF EMERYVILLE REDEVELOPMENT AGENCY 1333-1379 62ND STREET EMERYVILLE, CALIFORNIA	1
400582003 / 2/07		



LEGEND	
B4	BORING LOCATION (JULY 2004)
B21	SOIL SAMPLE LOCATION (JAN 2005)
B22	SOIL AND GROUNDWATER SAMPLE LOCATION (JAN 2005)

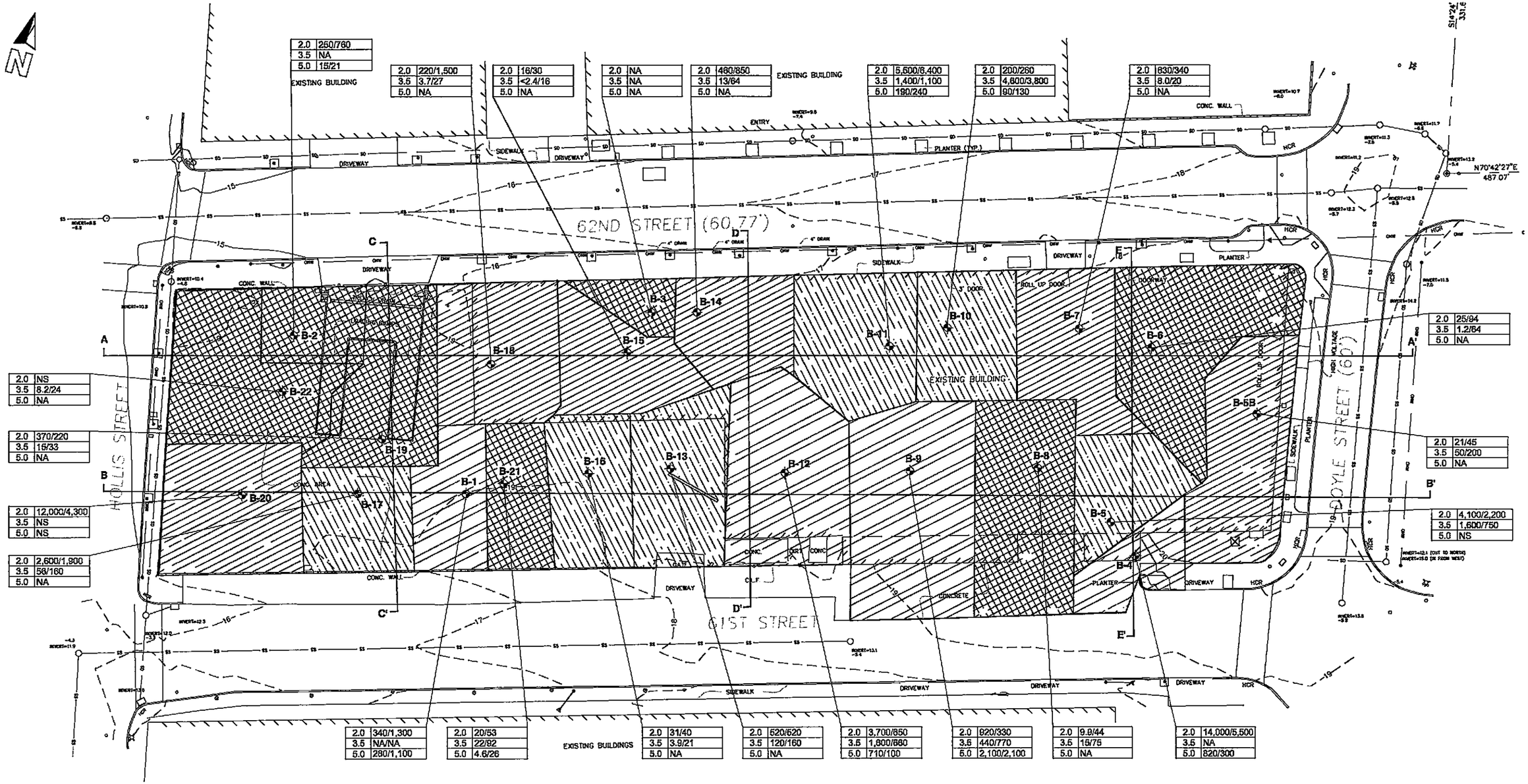
NOTE: ALL DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE

APPROXIMATE SCALE

0 80 160 FEET

Ninyo & Moore		SITE MAP	FIGURE
PROJECT NO.	DATE	CITY OF EMERYVILLE REDEVELOPMENT AGENCY 1333-1379 62ND STREET EMERYVILLE, CALIFORNIA	2
400582003	2/07		

400582003 site fig 2



LEGEND

B-5	APPROXIMATE LOCATION OF EXPLORATORY BORING
E E'	CROSS SECTION (SEE FIGURE 6)
mg/kg	MILLIGRAMS PER KILOGRAM
NS	NO SAMPLE
NA	NOT ANALYZED

DEPTH OF SAMPLE IN FT BGS	TPH-D/TPH-MO CONCENTRATIONS IN mg/kg
2.0	340/1,300
3.5	280/1,100
5.0	820/300

NO REMOVAL-CLEAN

EXCAVATION DEPTH 2.75'

EXCAVATION DEPTH 4.25'

EXCAVATION DEPTH 5.5'

APPROXIMATE SCALE

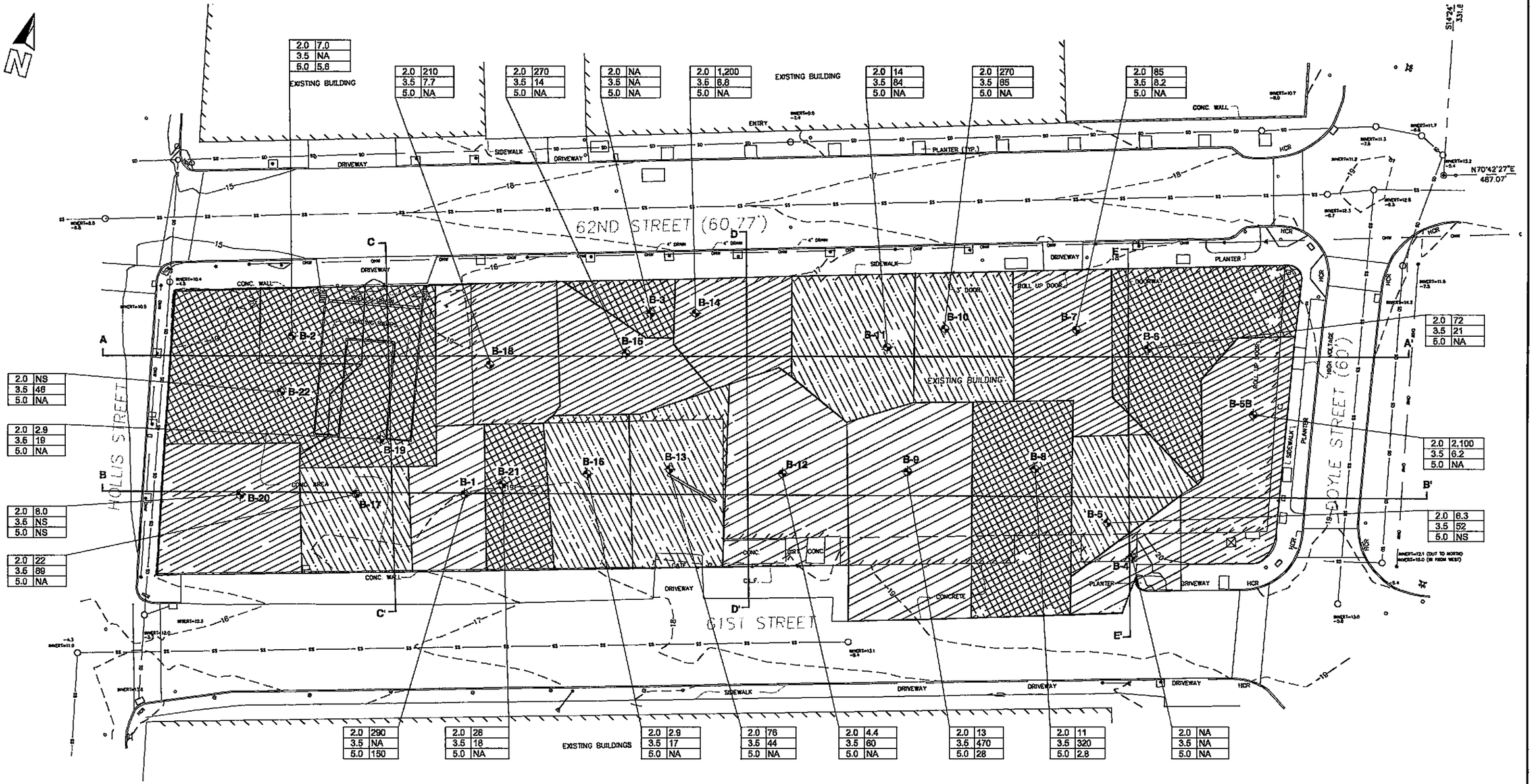
0 40 80 FEET

NOTE: ALL DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE

REFERENCE: BOUNDARY AND TOPOGRAPHIC SURVEY, MORAN ENGINEERING, DATED 2003.

Ninyo & Moore	TOTAL PETROLEUM HYDROCARBONS AS DIESEL (TPH-D) AND MOTOR OIL (TPH-MO) SOIL SAMPLE CONCENTRATIONS	FIGURE
PROJECT NO. / DATE	CITY OF EMERYVILLE REDEVELOPMENT AGENCY 1333-1379 62ND STREET EMERYVILLE, CALIFORNIA	3
400582003 / 2/07		

400582003 tph fig 3



LEGEND

B-5	APPROXIMATE LOCATION OF EXPLORATORY BORING
E E'	CROSS SECTION (SEE FIGURE 6)
mg/kg	MILLIGRAMS PER KILOGRAM
NS	NO SAMPLE
NA	NOT ANALYZED

DEPTH OF SAMPLE IN FT BGS	LEAD CONCENTRATIONS IN mg/kg
2.0	340/1,300
3.5	280/1,100
5.0	820/300

NO REMOVAL-CLEAN

EXCAVATION DEPTH 2.75'

EXCAVATION DEPTH 4.25'

EXCAVATION DEPTH 5.5'

APPROXIMATE SCALE

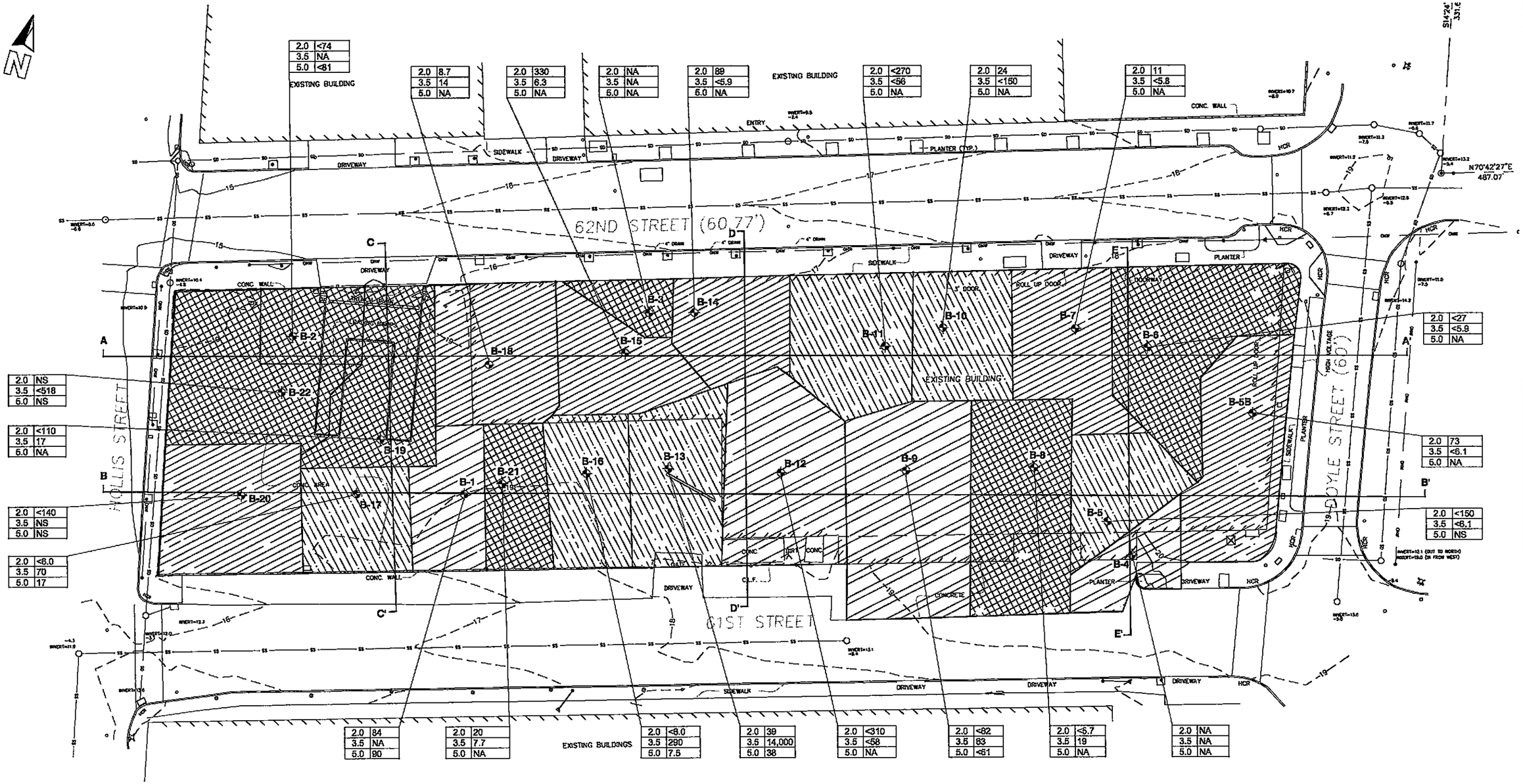
0 40 80 FEET

NOTE: ALL DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE

REFERENCE: BOUNDARY AND TOPOGRAPHIC SURVEY, MORAN ENGINEERING, DATED 2003.

Ninyo & Moore	TOTAL LEAD SOIL SAMPLE CONCENTRATIONS	FIGURE
PROJECT NO. 400582003 / DATE 2/07	CITY OF EMERYVILLE REDEVELOPMENT AGENCY 1333-1379 62ND STREET EMERYVILLE, CALIFORNIA	4

400529003 lead fig 4



LEGEND

B-5	APPROXIMATE LOCATION OF EXPLORATORY BORING
E E'	CROSS SECTION (SEE FIGURE 6)
mg/kg	MILLIGRAMS PER KILOGRAM
NS	NO SAMPLE
NA	NOT ANALYZED

DEPTH OF SAMPLE IN FT BGS	BENZO (a) PYRENE CONCENTRATIONS IN ug/kg
2.0	<6.0
3.5	290
5.0	7.5

NO REMOVAL-CLEAN

EXCAVATION DEPTH 2.75'

EXCAVATION DEPTH 4.25'

EXCAVATION DEPTH 5.5'

APPROXIMATE SCALE

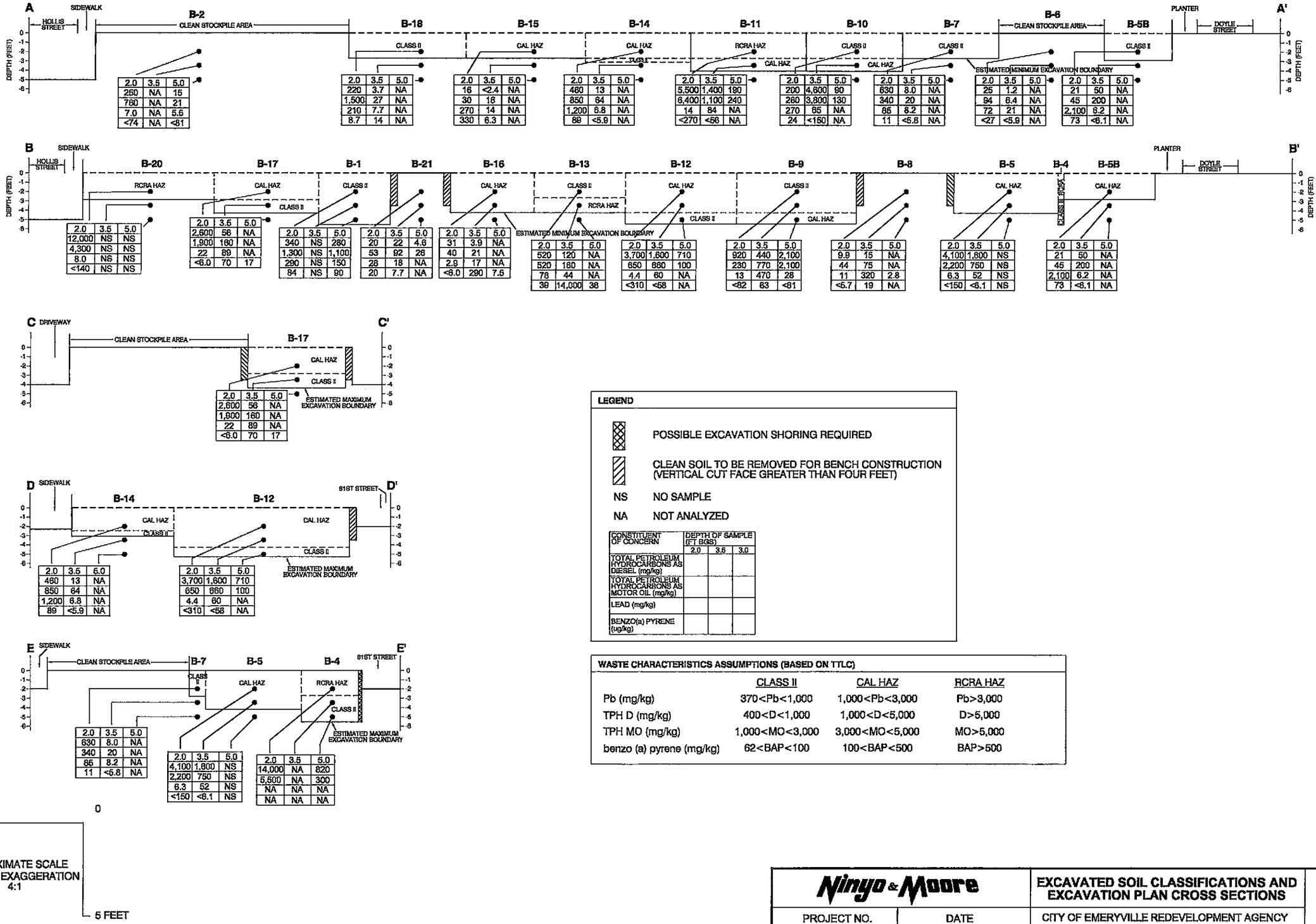
0 40 80 FEET

NOTE: ALL DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE

REFERENCE: BOUNDARY AND TOPOGRAPHIC SURVEY, MORAN ENGINEERING, DATED 2003.

Ninyo & Moore	BENZO (a) PYRENE (BAP) SOIL SAMPLE CONCENTRATIONS	FIGURE
PROJECT NO. 400582003 / DATE 2/07	CITY OF EMERYVILLE REDEVELOPMENT AGENCY 1333-1379 62ND STREET EMERYVILLE, CALIFORNIA	5

400528003 benzo fig 5



LEGEND

- POSSIBLE EXCAVATION SHORING REQUIRED
- CLEAN SOIL TO BE REMOVED FOR BENCH CONSTRUCTION (VERTICAL CUT FACE GREATER THAN FOUR FEET)
- NS NO SAMPLE
- NA NOT ANALYZED

CONSTITUENT OF CONCERN	DEPTH OF SAMPLE (FT BGS) 2.0	3.5	3.0
TOTAL PETROLEUM HYDROCARBONS AS DIESEL (mg/kg)			
TOTAL PETROLEUM HYDROCARBONS AS MOTOR OIL (mg/kg)			
LEAD (mg/kg)			
BENZO(a) PYRENE (ug/kg)			

WASTE CHARACTERISTICS ASSUMPTIONS (BASED ON TTLC)

	CLASS II	CAL HAZ	RCRA HAZ
Pb (mg/kg)	370<Pb<1,000	1,000<Pb<3,000	Pb>3,000
TPH D (mg/kg)	400<D<1,000	1,000<D<5,000	D>5,000
TPH MO (mg/kg)	1,000<MO<3,000	3,000<MO<5,000	MO>5,000
benzo (a) pyrene (mg/kg)	62<BAP<100	100<BAP<500	BAP>500

NOTE: ALL DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE

400582003 cmdy xsec fig 6

Ninyo & Moore	EXCAVATED SOIL CLASSIFICATIONS AND EXCAVATION PLAN CROSS SECTIONS	FIGURE
PROJECT NO. 400582003 / DATE 2/07	CITY OF EMERYVILLE REDEVELOPMENT AGENCY 1333-1379 62ND STREET EMERYVILLE, CALIFORNIA	6

ATTACHMENT 1

LEAD SPREAD WORKSHEETS AND CALCULATIONS

LEAD CLEANUP GOAL BASED ON CHILD RECREATIONAL VISITOR AND 10 UG/DL TARGET
DUTRO PARK, 1333-1379 62ND STREET
EMERYVILLE, CALIFORNIA

VERSION 7

Child Recreational Scenario

INPUT	
MEDIUM	LEVEL
Lead in Air (ug/m^3)	0.019
Lead in Soil/Dust (ug/g)	**515**
Lead in Water (ug/l)	15
% Home-grown Produce	0%
Respirable Dust (ug/m^3)	1.5

OUTPUT							
	Percentile Estimate of Blood Pb (ug/dl)					PRG-99	PRG-95
	50th	90th	95th	98th	99th	(ug/g)	(ug/g)
BLOOD Pb, ADULT	1.6	2.9	3.4	4.2	4.7	2424	3810
BLOOD Pb, CHILD	3.3	6.1	7.2	8.8	10.0	515	878
BLOOD Pb, PICA CHILD	8.8	16.0	19.0	23.1	26.3	129	220
BLOOD Pb, Child REC.VISITC	3.3	6.1	7.2	8.8	**10.0**	515	878

EXPOSURE PARAMETERS			
	units	adults	children
Days per week	days/wk	*7*	
Days per week, child **rec.visitor** [1]			7
Geometric Standard Deviation		1.6	
Blood lead level of concern (ug/dl)		10	
Skin area, residential	cm^2	*5700*	*2900*
Skin area, **child rec. visitor** [2]	cm^2		***2800***
Soil adherence	ug/cm^2	*70*	*200*
Soil adherence, **child rec. visitor** [3]	ug/cm^2		***40***
Dermal uptake constant	(ug/dl)/(ug/day)	0.00011	
Soil ingestion	mg/day	*50*	*100*
Soil ingestion, **child rec. visitor** [4,5,6]	mg/day		***50.0***
Soil ingestion, pica	mg/day		200
Ingestion constant	(ug/dl)/(ug/day)	0.04	0.16
Bioavailability	unitless	0.44	
Breathing rate	m^3/day	20	*6.8*
Inhalation constant	(ug/dl)/(ug/day)	0.08	0.192
Water ingestion	l/day	1.4	0.4
Food ingestion	kg/day	1.9	1.1
Lead in market basket	ug/kg	3.1	
Lead in produce	ug/kg	231.8	

PATHWAYS						
ADULTS	Residential			Occupational		
	Pathway contribution			Pathway contribution		
Pathway	PEF	ug/dl	percent	PEF	ug/dl	percent
Soil Contact	4.2E-5	0.02	1%	0.0E+0	0.00	0%
Soil Ingestion	8.8E-4	0.45	29%	0.0E+0	0.00	0%
Inhalation1		0.03	2%		0.00	0%
Inhalation	2.4E-6	0.00	0%	0.0E+0	0.00	0%
Water Ingestion		0.84	53%		0.84	25%
Food Ingestion1		0.23	15%		0.23	7%
Food Ingestion	0.0E+0	0.00	0%			0%

CHILDREN	typical			with pica		
	Pathway contribution			Pathway contribution		
Pathway	PEF	ug/dl	percent	PEF	ug/dl	percent
Soil Contact	1.2E-5	0.01	0%		0.01	0%
Soil Ingestion	3.5E-3	1.81	54%	1.4E-2	7.25	83%
Inhalation1	1.5E-6	0.00	0%		0.00	0%
Inhalation		0.02	1%		0.02	0%
Water Ingestion		0.96	29%		0.96	11%
Food Ingestion, child		0.54	16%		0.54	6%
Food Ingestion	0.0E+0	0.00	0%		0.00	0%

Notes:

[1] Professional judgement; assumed child visited park seven days/week.

[2] Child resident default value. U.S. Environmental Protection Agency (USEPA), 2004. *Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation (Part E, Supplemental Guidance for Dermal Risk Assesssment), Final.* EPA/540/R/99/005, OSWER 9285.7-02EP, PB999-963312. July.

[3] USEPA, 2004. Exhibit C-3, Overall Body Part-Specific Weighted Soil Adherence Factors for Children Playing (dry soil), Geometric Mean (mg/cm2) for face, forearms, lower legs, and feet.

[4] Professional judgement based on exposure duration of 4 hours per 16 hour day (waking hours), assuming 200 mg/day soil ingestion rate.

[5] USEPA OSWER Directive 9285.6-03, March 25, 1991, Human Health Evaluation Manual, Supplemental Guidance, Standard Default Exposure Parameters.

[6] State of California, Environmental Protection Agency, Department of Toxic Substances Control. 1992. *Supplemental Guidance for Human Health Multimedia Risk Assessments of Hazardous Waste Sites and Permitted Facilities* Prepared by the Office of Science Advisor. July.

LEAD CLEANUP GOAL BASED ON RECREATIONAL VISITOR AND 10 UG/DL TARGET
DUTRO PARK, 1333-1379 62ND STREET
EMERYVILLE, CALIFORNIA

VERSION 7

Adult Recreational Scenario

INPUT	
MEDIUM	LEVEL
Lead in Air (ug/m^3)	0.019
Lead in Soil/Dust (ug/g)	1250
Lead in Water (ug/l)	15
% Home-grown Produce	0%
Respirable Dust (ug/m^3)	1.5

OUTPUT							
	Percentile Estimate of Blood Pb (ug/dl)					PRG-99	PRG-95
	50th	90th	95th	98th	99th	(ug/g)	(ug/g)
BLOOD Pb, ADULT	2.3	4.1	4.9	5.9	6.8	2424	3810
BLOOD Pb, CHILD	10.4	19.0	22.5	27.3	31.1	256	437
BLOOD Pb, PICA CHILD	19.2	35.1	41.5	50.4	57.4	129	219
BLOOD Pb, **REC.VISITOR**	3.4	6.1	7.3	8.8	**10.0**	1241	1951

EXPOSURE PARAMETERS			
	units	adults	children
Days per week	days/wk	*7*	
Days per week, **rec.visitor** [1]		7	
Geometric Standard Deviation		1.6	
Blood lead level of concern (ug/dl)		10	
Skin area, residential	cm^2	*5700*	*2900*
Skin area, **rec.visitor** [2]	cm^2	**5800**	
Soil adherence	ug/cm^2	*70*	*200*
Soil adherence, **rec.visitor** [3,4]	ug/cm^2	***70***	
Dermal uptake constant	(ug/dl)/(ug/day)	0.00011	
Soil ingestion	mg/day	*50*	*100*
Soil ingestion, **rec.visitor** [2]	mg/day	***100***	
Soil ingestion, pica	mg/day		200
Ingestion constant	(ug/dl)/(ug/day)	0.04	0.16
Bioavailability	unitless	0.44	
Breathing rate	m^3/day	20	*6.8*
Inhalation constant	(ug/dl)/(ug/day)	0.08	0.192
Water ingestion	l/day	1.4	0.4
Food ingestion	kg/day	1.9	1.1
Lead in market basket	ug/kg	3.1	
Lead in produce	ug/kg	562.5	

PATHWAYS						
ADULTS	Residential			Occupational		
	Pathway contribution			Pathway contribution		
Pathway	PEF	ug/dl	percent	PEF	ug/dl	percent
Soil Contact	4.2E-5	0.05	2%	4.3E-5	0.05	2%
Soil Ingestion	8.8E-4	1.10	49%	1.8E-3	2.20	65%
Inhalation1		0.03	1%		0.03	1%
Inhalation	2.4E-6	0.00	0%	2.4E-6	0.00	0%
Water Ingestion		0.84	37%		0.84	25%
Food Ingestion1		0.23	10%		0.23	7%
Food Ingestion	0.0E+0	0.00	0%			0%

CHILDREN	typical			with pica		
	Pathway contribution			Pathway contribution		
Pathway	PEF	ug/dl	percent	PEF	ug/dl	percent
Soil Contact	6.1E-5	0.08	1%		0.08	0%
Soil Ingestion	7.0E-3	8.80	85%	1.4E-2	17.60	92%
Inhalation1	1.5E-6	0.00	0%		0.00	0%
Inhalation		0.02	0%		0.02	0%
Water Ingestion		0.96	9%		0.96	5%
Food Ingestion, child		0.54	5%		0.54	3%
Food Ingestion	0.0E+0	0.00	0%		0.00	0%

Notes:

[1] Professional judgement; assumed adult visited park seven days/week.

[2] Adult resident default value. State of California, Environmental Protection Agency, Department of Toxic Substances Control. 1992. *Supplemental Guidance for Human Health Multimedia Risk Assessments of Hazardous Waste Sites and Permitted Facilities. Prepared by the Office of Science Advisor. July.*

[3] U.S. Environmental Protection Agency (USEPA), 2004. *Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assesssment), Final.* EPA/540/R/99/005. July.

[4] USEPA, 2004. Exhibit C-3, Overall Body Part-Specific Weighted Soil Adherence Factors for Residential Adults, Gardeners, Geometric Mean (mg/cm2).

LEAD CLEANUP GOAL BASED ON CONSTRUCTION WORKER AND 10 UG/DL TARGET
DUTRO PARK, 1333-1379 62ND STREET
EMERYVILLE, CALIFORNIA

VERSION 7

Construction Scenario

INPUT	
MEDIUM	LEVEL
Lead in Air (ug/m^3)	0.019
Lead in Soil/Dust (ug/g)	795
Lead in Water (ug/l)	15
% Home-grown Produce	0%
Respirable Dust (ug/m^3)	1.5

OUTPUT							
	Percentile Estimate of Blood Pb (ug/dl)					PRG-99	PRG-95
	50th	90th	95th	98th	99th	(ug/g)	(ug/g)
Blood Pb, ADULT	1.8	3.4	4.0	4.8	5.5	2433	3825
Blood Pb, CHILD	7.2	13.1	15.5	18.8	21.4	256	437
Blood Pb, PICA CHILD	12.8	23.3	27.6	33.5	38.2	129	219
Blood Pb, CONSTRUCTION	3.3	6.1	7.2	8.8	**10.0**	795	1248

EXPOSURE PARAMETERS			
	units	adults	children
Days per week	days/wk	7	
Days per week, **construction** [1]		*5*	
Geometric Standard Deviation		1.6	
Blood lead level of concern (ug/dl)		10	
Skin area, residential	cm^2	5700	2900
Skin area, **construction** [2]	cm^2	***5700***	
Soil adherence	ug/cm^2	70	200
Soil adherence, **construction** [3]	ug/cm^2	***800***	
Dermal uptake constant	ug/dl)/(ug/day)	0.0001	
Soil ingestion	mg/day	50	100
Soil ingestion, **construction** [3]	mg/day	***200***	
Soil ingestion, pica	mg/day		200
Ingestion constant	ug/dl)/(ug/day)	0.04	0.16
Bioavailability	unitless	0.44	
Breathing rate	m^3/day	20	6.8
Inhalation constant	ug/dl)/(ug/day)	0.082	0.192
Water ingestion	l/day	1.4	0.4
Food ingestion	kg/day	1.9	1.1
Lead in market basket	ug/kg	3.1	
Lead in home-grown produce	ug/kg	357.8	

PATHWAYS

ADULTS	Residential			Contruction		
	Pathway contribution			Pathway contribution		
Pathway	PEF	ug/dl	percent	PEF	ug/dl	percent
Soil Contact	3.8E-5	0.03	2%	3.1E-4	0.25	7%
Soil Ingestion	8.8E-4	0.70	38%	2.5E-3	2.00	60%
Inhalation, bkgrnd		0.03	2%		0.02	1%
Inhalation	2.5E-6	0.00	0%	1.8E-6	0.00	0%
Water Ingestion		0.84	46%		0.84	25%
Food Ingestion, bkgrnd		0.23	13%		0.23	7%
Food Ingestion	0.0E+0	0.00	0%			0%

CHILDREN	typical			with pica		
	Pathway contribution			Pathway contribution		
Pathway	PEF	ug/dl	percent	PEF	ug/dl	percent
Soil Contact	5.6E-5	0.04	1%		0.04	0%
Soil Ingestion	7.0E-3	5.60	78%	1.4E-2	11.19	88%
Inhalation	2.0E-6	0.00	0%		0.00	0%
Inhalation, bkgrnd		0.02	0%		0.02	0%
Water Ingestion		0.96	13%		0.96	8%
Food Ingestion, bkgrnd		0.54	8%		0.54	4%
Food Ingestion	0.0E+0	0.00	0%		0.00	0%

Notes:

[1] Professional judgement, assumed 5-day work week for construction worker.

[2] California Environmental Protection Agency (Cal/EPA), Department of Toxic Substances Control (DTSC). 2000. Guidance for the Dermal Exposure Pathway. Draft Memorandum from S. DiZio, M. Wade, D. Oudiz to Human and Ecological Risk Division. January 17.

[3] U. S. Environmental Protection Agency (USEPA), 2002. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites, OSWER 9355 cited in DTSC/HERD Human Health Risk Assessment (HHRA) Note Number 1. October 27, 2005.

Cell: A6
Comment: Human and Ecological Risk Div:
* This version of the DTSC LEAD RISK ASSESSMENT SPREADSHEET (version 7, 1999) is written in Excel 97. It is designed to be self-contained. Site-related data are entered in cells B9 through B13. Default values may be used when site-specific data are not available.
* Cells C18 through D35 contain exposure parameters which are generally not site-specific. Departure from default values in cells C18 through D35 must be justified. Numerical values in other cells are generally formulas, and although they may be changed for various purposes, any results obtained from the modified spreadsheet should not be represented as having come from the DTSC LEAD RISK ASSESSMENT SPREADSHEET.
* Many cells contain notes which explain the cell contents when the cursor is moved over the cell. References are in a note attached to cell A37.
Many default input values have been revised in this version of the DTSC LEAD RISK ASSESSMENT SPREADSHEET. but the basic equations are similar to version 6 with one exception: The equations describing the plant uptake pathway now permit any value between 0 and 100% (inclusive) to be entered in cell B12. However, this cell will usually contain a value of 0% or 7%, depending on the plausibility of gardening occurring at the site.
* Reality check: Using default levels in air, water and food, and 20 ppm in soil, the DTSC LEAD RISK ASSESSMENT SPREADSHEET predicts a median blood lead concentration in children of 1.8 ug/dl. In comparison, an analysis of NHANES data (CDC, 1999) shows that children aged 1-6 years living in the Western United States in housing built since 1974 had a geometric mean blood lead concentration of 1.74 ug/dl (the corresponding value for 1-2 year-old children was 1.9 ug/dl).

Cell: B11
Comment: Lead concentration in air represents the average concentration from the Fremont-Chapel Way monitoring station in Alameda County from 1990 to 2001 (California Air Resources Board 2002).

Cell: B12
Comment: Lead in soil represents the 95UCL concentration based on 0 to 5.0-foot bgs data (for construction worker).

Cell: B13
Comment: Lead in Water concentration taken from Alameda County Water District 2004 Water Quality Report (90th percentile level of lead).

Cell: B14
Comment: Pathway not relevant for construction worker scenario.

Cell: B15
Comment: Human and Ecological Risk Div:
Default value is 1.5 ug/m3, based on the Johnson/Ettinger Model. May be replaced with site-specific data.

Cell: C21
Comment: Assumed 5-day work week for the construction worker at the Site

Empirical Model for Exposure to Soil Lead: Pregnant Construction Workers
USEPA (2003)

			USEPA (2003) Pregnant Workers		
			a	b	c
Soil/Dust Ingestion					
Gastrointestinal absorption	**AF**	unitless	0.12	0.12	0.12
Ingestion rate	**IR**	mg-soil/day	200	200	200
Conversion factor 1	**CF1**	Kg/mg	1E-06	1E-06	1E-06
Exposure frequency [d]	**EF**	days/year	90	90	90
Averaging time [e]	**AT**	days/year	250	250	250
Lead Uptake (calculated)		mg-Pb/day	1.06E-02	9.59E-03	1.65E-02
Lead Uptake		ug-Pb/day	10.59	9.59	16.50
Baseline blood lead [f]	$PbB_{baseline}$	ug-Pb/dL	2.2	2.0	1.7
Biokinetic slope factor	**BSF**	ug-Pb/dL per ug-Pb/day	0.4	0.4	0.4
Geometric std deviation	**GSD**		1.98	2.1	1.89
Ratio of fetal PbB to maternal PbB	R_{ffm}	unitless	0.9	0.9	0.9
Conversion factor 2	**CF2**	$mg^2/ug*Kg$	1000	1000	1000
Blood lead goal	PbB_{goal}	ug-Pb/dL	10	10	10
Risk Based Remedial Goal (RBRG) at specific percentiles to meet PbB_{goal} of 10 ug/dL	**z**	**Percentile**	**Soil Pb** (mg/kg)	**Soil Pb** [g] (mg/kg)	**Soil Pb** (mg/kg)
	0.000	**50**	2,578	2,636	2,723
	0.674	75	1,392	1,370	1,601
	1.036	85	947	911	1,170
	1.282	90	703	664	930
	1.645	**95**	**409**	**370**	**636**
	2.054	98	154	122	378
	2.326	99	20	-6	239

Notes:

[a] Risk based remedial goal for pregnant non-Hispanic black construction worker

[b] Risk based remedial goal for pregnant Mexican American construction worker

[c] Risk based remedial goal for pregnant non-Hispanic white construction worker

[d] Minimum exposure duration (USEPA, 2003).

[e] Work year assumed to be 250 days/year.

[f] Baseline blood lead values derived from Phase 1, third National Health and Nutrition Examination Survey (NHANES III), 1988-1991 reported by Brody et al. (1994).

[g] A negative soil Pb concentration indicates that (PbBbaseline)(GSDz) > PbBgoal.

General formula for calculating RBRG (USEPA, 2003):

$$RBRG = PbS = \frac{(PbB_{adult,central,goal} - PbB_{adult,0}) * AT}{(BKSF * IR_s * AF_s * EF_s)}$$

References:

United States Environmental Protection Agency (USEPA). 2003. Recommendations of the Technical Review Workgroup for Lead for an Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil. Technical Workgroup for Lead. Final (December 1996), EPA-540-R-03-001. Revised January 2003.

Brody, D.J., J.L. Pirkle, R.A. Kramer, K.M. Flegal, T.D. Matte, E.W. Gunter and D.C. Pashal. 1994 *Blood lead levels in the U.S. population.* Phase 1 of the third National Health and Nutrition Examination Survey (NHANES III, 1988 to 1991). JAMA. 272(4): 277-283 as cited in USEPA, 2003.

ATTACHMENT 2

LIMITED PHASE II ENVIRONMENTAL SITE ASSESSMENT, JULY 2005

ATTACHMENT 3

CALIFORNIA HEALTH AND SAFETY CODE SECTION 25123.3

25123.3. (a) For purposes of this section, the following terms have the following meaning:

(1) "Liquid hazardous waste" means a hazardous waste that meets the definition of free liquids, as specified in Section 66260.10 of Title 22 of the California Code of Regulations, as that section read on January 1, 1994.

(2) "Remediation waste staging" means the temporary accumulation of non-RCRA contaminated soil that is generated and held onsite, and that is accumulated for the purpose of onsite treatment pursuant to a certified, authorized or permitted treatment method, such as a transportable treatment unit, if all of the following requirements are met:

(A) The hazardous waste being accumulated does not contain free liquids.

(B) The hazardous waste is accumulated on an impermeable surface, such as high density polyethylene (HDPE) of at least 20 mills that is supported by a foundation, or high density polyethylene of at least 60 mills that is not supported by a foundation.

(C) The generator provides controls for windblown dispersion and precipitation runoff and run-on and complies with any stormwater permit requirements issued by a regional water quality control board.

(D) The generator has the accumulation site inspected weekly and after storms to ensure that the controls for windblown dispersion and precipitation runoff and run-on are functioning properly.

(E) The staging area is certified by a registered engineer for compliance with the standards specified in subparagraphs (A) to (D), inclusive.

(3) "Transfer facility" means any offsite facility that is related to the transportation of hazardous waste, including, but not limited to, loading docks, parking areas, storage areas, and other similar areas where shipments of hazardous waste are held during the normal course of transportation.

(b) "Storage facility" means a hazardous waste facility at which the hazardous waste meets any of the following requirements:

(1) The hazardous waste is held for greater than 90 days at an onsite facility. The department may establish criteria and procedures to extend that 90-day period, consistent with the federal act, and to prescribe the manner in which the hazardous waste may be held if not otherwise prescribed by statute.

(2) The hazardous waste is held for any period of time at an offsite facility which is not a transfer facility.

(3) (A) Except as provided in subparagraph (B), the waste is held at a transfer facility and any one of the following apply:

(i) The transfer facility is located in an area zoned residential by the local planning authority.

(ii) The transfer facility commences initial operations on or after January 1, 2005, at a site located within 500 feet of a structure identified in subparagraphs (A) to (E), inclusive, of paragraph (1) of subdivision (b) of Section 25232.

(iii) The hazardous waste is held for a period greater than six days at a transfer facility located in an area that is not zoned industrial or agricultural by the local planning authority.

(iv) The hazardous waste is held for a period greater than 10 days at a transfer facility located in an area zoned industrial or agricultural by the local planning authority.

(v) The hazardous waste is held for a period greater than six days

at a transfer facility that commenced initial operations before January 1, 2005, is located in an area zoned agricultural by the local planning authority, and is located within 500 feet of a structure identified in subparagraphs (A) to (E), inclusive, of paragraph (1) of subdivision (b) of Section 25232.

(B) (i) Notwithstanding subparagraph (A), a transfer facility located in an area that is not zoned residential by the local planning authority is not a storage facility, if the only hazardous waste held at the transfer facility is hazardous waste that is generated as a result of an emergency release and that hazardous waste is collected and temporarily stored by emergency rescue personnel, as defined in Section 25501, or by a response action contractor upon the request of emergency rescue personnel or the response action contractor, and the holding of that hazardous waste is approved by the department.

(ii) For purposes of this subparagraph, "response action contractor" means any person who enters into a contract with the department to take removal or remedial action pursuant to Chapter 6.8 (commencing with Section 25300) in response to a release or threatened release, including any subcontractors of the response action contractor.

(4) (A) Except as provided in subparagraph (B), the hazardous waste is held onsite for any period of time, unless the hazardous waste is held in a container, tank, drip pad, or containment building pursuant to regulations adopted by the department.

(B) Notwithstanding subparagraph (A), a generator that accumulates hazardous waste generated and held onsite for 90 days or less for offsite transportation is not a storage facility if all of the following requirements are met:

(i) The waste is non-RCRA contaminated soil.

(ii) The hazardous waste being accumulated does not contain free liquids.

(iii) The hazardous waste is accumulated on an impermeable surface, such as high density polyethylene (HDPE) of at least 20 mills that is supported by a foundation, or high density polyethylene of at least 60 mills that is not supported by a foundation.

(iv) The generator provides controls for windblown dispersion and precipitation runoff and run-on and complies with any stormwater permit requirements issued by a regional water quality control board.

(v) The generator has the accumulation site inspected weekly and after storms to ensure that the controls for windblown dispersion and precipitation runoff and run-on are functioning properly.

(vi) The generator, after final offsite transportation, inspects the accumulation site for contamination and remediates as necessary.

(vii) The site is certified by a registered engineer for compliance with the standards specified in clauses (i) to (vi), inclusive.

(5) The hazardous waste is held at a transfer facility at any location for any period of time in a manner other than in a container.

(6) The hazardous waste is held at a transfer facility at any location for any period of time and handling occurs. For purposes of this paragraph, "handling" does not include the transfer of packaged or containerized hazardous waste from one vehicle to another.

(c) The time period for calculating the 90-day period for purposes of paragraph (1) of subdivision (b), or the 180-day or 270-day period for purposes of subdivision (h), begins when the facility has

accumulated 100 kilograms of hazardous waste or one kilogram of extremely hazardous waste or acutely hazardous waste. However, if the facility generates more than 100 kilograms of hazardous waste or one kilogram of extremely hazardous waste or acutely hazardous waste during any calendar month, the time period begins when any amount of hazardous waste first begins to accumulate in that month.

(d) Notwithstanding paragraph (1) of subdivision (b), a generator of hazardous waste that accumulates waste onsite is not a storage facility if all of the following requirements are met:

(1) The generator accumulates a maximum of 55 gallons of hazardous waste, one quart of acutely hazardous waste, or one quart of extremely hazardous waste at an initial accumulation point that is at or near the area where the waste is generated and that is under the control of the operator of the process generating the waste.

(2) The generator accumulates the waste in containers other than tanks.

(3) The generator does not hold the hazardous waste onsite without a hazardous waste facilities permit or other grant of authorization for a period of time longer than the shorter of the following time periods:

(A) One year from the initial date of accumulation.

(B) Ninety days, or if subdivision (h) is applicable, 180 or 270 days, from the date that the quantity limitation specified in paragraph (1) is reached.

(4) The generator labels any container used for the accumulation of hazardous waste with the initial date of accumulation and with the words "hazardous waste" or other words that identify the contents of the container.

(5) Within three days of reaching any applicable quantity limitation specified in paragraph (1), the generator labels the container holding the accumulated hazardous waste with the date the quantity limitation was reached and either transports the waste offsite or holds the waste onsite and complies with either the regulations adopted by the department establishing requirements for generators subject to the time limit specified in paragraph (1) of subdivision (b) or the requirements specified in paragraph (1) of subdivision (h), whichever requirements are applicable.

(6) The generator complies with regulations adopted by the department pertaining to the use and management of containers and any other regulations adopted by the department to implement this subdivision.

(e) (1) Notwithstanding paragraphs (1) and (4) of subdivision (b), hazardous waste held for remediation waste staging shall not be considered to be held at a hazardous waste storage facility if the total accumulation period is one year or less from the date of the initial placing of hazardous waste by the generator at the staging site for onsite remediation, except that the department may grant one six-month extension, upon a showing of reasonable cause by the generator.

(2) (A) The generator shall submit a notification of plans to store and treat hazardous waste onsite pursuant to paragraph (2) of subdivision (a), in person or by certified mail, with return receipt requested, to the department and to one of the following:

(i) The CUPA, if the generator is under the jurisdiction of a CUPA.

(ii) If the generator is not under the jurisdiction of a CUPA, the notification shall be submitted to the agency authorized, pursuant to subdivision (f) of Section 25404.3, to implement and enforce the requirements of this chapter listed in paragraph (1) of subdivision

(c) of Section 25404.

(B) If, after the notification pursuant to subparagraph (A), or during the initial year or the six-month extension granted by the department, the generator determines that treatment cannot be accomplished for all, or part of, the hazardous waste accumulated in a remediation waste staging area, the generator shall immediately notify the department and the appropriate local agency, pursuant to subparagraph (A), that the treatment has been discontinued. The generator shall then handle and dispose of the hazardous waste in accordance with paragraph (4) of subdivision (b).

(C) A generator shall not hold hazardous waste for remediation waste staging unless the generator can show, through laboratory testing, bench scale testing, or other documentation, that soil held for remediation waste staging is potentially treatable. Any fines and penalties imposed for a violation of this subparagraph may be imposed beginning with the 91st day that the hazardous waste was initially accumulated.

(3) Once an onsite treatment operation is completed on hazardous waste held pursuant to paragraph (1), the generator shall inspect the staging area for contamination and remediate as necessary.

(f) Notwithstanding any other provision of this chapter, remediation waste staging and the holding of non-RCRA contaminated soil for offsite transportation in accordance with paragraph (4) of subdivision (b) shall not be considered to be disposal or land disposal of hazardous waste.

(g) A generator who holds hazardous waste for remediation waste staging pursuant to paragraph (2) of subdivision (a) or who holds hazardous waste onsite for offsite transportation pursuant to paragraph (4) of subdivision (b) shall maintain records onsite that demonstrate compliance with this section related to storing hazardous waste for remediation waste staging or related to holding hazardous waste onsite for offsite transportation, as applicable. The records maintained pursuant to this subdivision shall be available for review by any public agency authorized pursuant to Section 25180 or 25185.

(h) (1) Notwithstanding paragraph (1) of subdivision (b), a generator of less than 1,000 kilograms of hazardous waste in any calendar month who accumulates hazardous waste onsite for 180 days or less, or 270 days or less if the generator transports the generator's own waste, or offers the generator's waste for transportation, over a distance of 200 miles or more, for offsite treatment, storage, or disposal, is not a storage facility if all of the following apply:

(A) The quantity of hazardous waste accumulated onsite never exceeds 6,000 kilograms.

(B) The generator complies with the requirements of subdivisions (d), (e), and (f) of Section 262.34 of Title 40 of the Code of Federal Regulations.

(C) The generator does not hold acutely hazardous waste or extremely hazardous waste in an amount greater than one kilogram for a time period longer than that specified in paragraph (1) of subdivision (b).

(2) A generator meeting the requirements of paragraph (1) who does not receive a copy of the manifest with the handwritten signature of the owner or operator of the facility to which the generator's waste is submitted, within 60 days from the date that the hazardous waste was accepted by the initial transporter, shall submit to the department a legible copy of the manifest, with some indication that the generator has not received confirmation of delivery.

(i) The department may adopt regulations that set forth additional

restrictions and enforceable management standards that protect human health and the environment and that apply to persons holding hazardous waste at a transfer facility. A regulation adopted pursuant to this subdivision shall be considered by the Office of Administrative Law to be necessary for the immediate preservation of the public peace, health and safety, and general welfare, and may be adopted as an emergency regulation in accordance with Chapter 3.5 (commencing with Section 11340) of Part 1 of Division 3 of Title 2 of the Government Code.

APPENDIX A

FIELD SAMPLING AND ANALYSIS PLAN

CITY OF EMERYVILLE PROJECT NO. EPW 106-07

TABLE OF CONTENTS

Tables

Figure

1. INTRODUCTION

The purpose of this Field Sampling and Analysis Plan (FSAP) is to provide field sampling procedures and data gathering methods that will be used to support the non-time critical removal action at the former Dutro Company site located at 1333-1379 62nd Street in Emeryville, California. This FSAP will be used by field personnel as a reference during sampling and analysis of soil and groundwater.

2. SAMPLING OBJECTIVES

Sampling will generally be associated with six activities:

- Pre-excavation delineation soil sampling,
- Post-excavation confirmation soil sampling,
- Stockpile soil characterization,
- Debris stockpile characterization,
- Wastewater verification, and
- Backfill.

2.1. Pre-Excavation Delineation Soil Sampling

Delineation of excavation areas has been based on samples collected from a limited number of borings at specific depth intervals. Once building demolition is complete, soils beneath removed concrete slabs and foundations will be sampled for constituents of concern (COCs) to further evaluate potential COC impacted soil between previous soil sample borings (Figure A-1).

During pre-excavation sampling analysis, total lead in soil concentrations that are reported above the remediation goal will be characterized for disposal using waste extraction tests (WET). The results will be compared to Soluble Threshold Limit Concentrations (STLCs) for non-hazardous and California hazardous waste characterization. If the soluble lead is above the STLC of 5.0 mg/L, it will be classified as either California Hazardous waste or

Resource Conservation and Recovery Act (RCRA) waste. Samples exceeding the STLC of 5.0 mg/L will be reanalyzed and compared to the Toxic Characteristic Leaching Procedure. If the TCLP concentrations for lead are greater than 5.0 mg/L and less than 7.5 mg/L, it will be disposed of as RCRA waste and no stabilization will occur. The 7.5 mg/L value is used as the upper limit of RCRA waste per the Universal Treatment Standards (UTS). If the TCLP is above 7.5 mg/L, it will need to be stabilized at the landfill and disposed as Cal-Haz waste. No soil treatment will occur on site.

2.2. Post-Excavation Confirmation Soil Sampling

The objective of the post-excavation confirmation sampling is to evaluate whether the cleanup goals for the site have been accomplished or if additional excavation is necessary. Recommended cleanup levels for soil are discussed in Section 2.2 of the Site Cleanup Plan (SCP).

2.3. Stockpile Soil Characterization

The objective of stockpile sampling is to characterize the excavated materials and assist in making a determination of how these materials should be managed and disposed. It is anticipated that the excavated soils will be segregated, based on previous soil analytical test results, field observations, and screening methods, into two types: (1) soil suspected to not contain COCs (below the site cleanup levels), and (2) soil suspected to contain COCs at or above the site cleanup levels. The segregated soil stockpiles will be managed, sampled, and characterized in accordance with this FSAP and applicable regulatory guidelines.

2.3.1. Stockpile Soil Characterization and Potential On-Site Reuse

Soil suspected as not impacted with COCs with concentrations reported below cleanup levels will be stockpiled and characterized. Soil not impacted with COCs may be reused on-site.

2.3.2. Stockpile Soil Characterization and Off-Site Disposal

Soil suspected as impacted with COCs with concentrations reported at or above cleanup levels will be stockpile and characterized. The soil stockpiles will be segregated into separate stockpiles for non-hazardous waste, California Hazardous Waste (CAL- HAZ) waste, and RCRA waste. Non-hazardous waste will be transported to the Class II Keller Canyon Disposal Facility in Pittsburg, California, or either Republic or Vasco Road Landfill in Livermore, California. CAL-HAZ and RCRA waste will be transported to the Waste Managements Class I Facility in Kettleman City, California. Additional analytical testing may be required to satisfy the profiling and waste acceptance criteria of the receiving facility. Transportation will be in accordance with Appendix D.

2.4. Debris

Debris (concrete slabs, wood, etc.) are considered inert and are not subject to this removal action. However, if these materials are excavated in the course of soil excavation activities, then loose soil will be removed prior to placement onto stockpiles. Debris will be separately stockpiled, transported, and disposed of at the Class III landfill or recycling facility approved by the City of Emeryville (City).

2.5. Wastewater Verification

Wastewater generated from equipment and personnel decontamination and possible excavation de-watering activities will be temporarily stored on-site in appropriately size containers. It is anticipated that this wastewater will be discharged into a sanitary sewer. Analytical testing will be required to obtain the sewer discharge permit. If the wastewater does not meet the discharge requirements, it will be treated before sewer discharge or disposed of at a permitted treatment, storage, and disposal facility.

2.6. Backfill

Once post-excavation confirmation soil samples are reported with COC concentrations below cleanup levels, then excavated areas will be backfilled with soil identified for reuse or clean import fill material. Soil from on-site that has been designated to be used as backfill will be sampled according to Section 3.3.1. Imported backfill materials will also be sampled to ensure that it is suitable for site uses and sampling requirements are detailed in the Department of Toxic Substance Control (DTSC) Information Advisory Clean Imported Fill Material dated October 2001 (DTSC, 2001).

3. SAMPLE LOCATIONS AND FREQUENCY

This section discusses the locations and frequency of soil and wastewater samples that will be collected for analytical testing,

3.1. Pre-Excavation Soil Sampling for Delineation of Remedial Areas

Pre-excavation sampling will be conducted after demolition of the building including concrete foundations and concrete slabs. Samples will be collected from step out borings adjacent to and between existing sample locations where data gaps exist (Figure A-1). Samples will be collected using one of several optional sampling techniques including Geoprobe™, potholing and/or hand auguring. Continuous soil samples will be collected from the surface to a maximum depth of 6.0 feet. Composite samples will be prepared by the laboratory representing the 0- to 2.0-foot, 2.0- to 4.0-foot, and 4.0- to 6.0-foot intervals, depending on the maximum depth of the sample. If the maximum depth of the sample is only 3.0 feet, then composite samples will be collected from 0- to 2.0-foot and 2.0- to 3.0- foot intervals. Select samples will be analyzed for lead, total petroleum hydrocarbon as motor oil range (TPH-MO), total petroleum hydrocarbon as diesel range (TPH-D), and benzo(a)pyrene.

3.2. Post-Excavation Confirmation Soil Sampling

Post-excavation confirmation soil sampling will be conducted after removal of impacted soil. Post-excavation sampling will be performed at the excavation floor and sidewalls

(excluding those sidewalls which correspond to contamination areas not yet excavated) to verify if sufficient soil has been removed to meet cleanup goals. Soil samples will be collected and submitted to the laboratory for analytical testing in accordance with Section 7 of this FSAP. If post-excavation soil sample results indicate the presence of COCs with concentrations greater than cleanup levels, then additional excavation will be performed with another round of soil confirmation samples.

Once COC impacted soil is removed, a sampling grid will be established for the excavation floor and sidewalls. For excavation floor sampling, the excavated areas will be divided into 50 by 50 foot sampling grids. A discrete soil sample will be collected randomly within each grid cell from the excavation floor and submitted for analytical testing. For excavation sidewall sampling, a discrete soil sample will be obtained for every 25 linear feet of horizontal sidewall, or portion thereof, and every 3.0 feet of vertical sidewall, or portion thereof. Soil samples will be taken at a depth of approximately 6 inches to 1 foot into the exposed surface. Each soil sample will be analyzed for the constituents discussed in Section 7.0 of this FSAP. Excavations deeper than 3.0 feet below ground surface will have multiple sidewall samples taken.

3.3. Stockpile Soil Sampling

The following describes stockpile soil sampling procedures for excavated soils that may be reused on-site or subject to disposal off-site.

Stockpile soil will be analyzed for the following analytes.

Analytical Parameter	EPA Test Method
TPH*	8015 M Extended Range c8 to C44
PAH	8270C SIM
Lead	6010B
Cobalt	6010B
Total Chromium	6010B
Chromium III**	6010B
Chromium VI**	7196A

Notes:
*TPH-D and TPH-MO
**Will be analyzed if total chromium is detected in stockpile samples

3.3.1. Stockpiled Soil for On-Site Reuse

This protocol will be in general conformance with the USEPA SW-846. Only discrete soil samples will be collected for characterizing soil stockpiles.

Additional sample analyses may be required to meet the confidence levels specified in SW-846; therefore, archiving samples may be appropriate. Archived samples must be appropriately preserved and analyzed within the maximum holding time specified in SW-846. The minimum number of discrete samples initially required is provided below:

- Stockpiles less than 10 cubic yards: a minimum of two (2) samples must be collected, one from each half of the stockpile. Select sample points randomly within each half.
- Stockpiles from 10 to 20 cubic yards: a minimum of three (3) samples must be collected, one from each third of the stockpile. Sample points will be selected randomly within each third.
- Stockpiles from 20 to 100 cubic yards: a minimum of four (4) samples must be collected, one from each quarter of the stockpile. Sample points will be selected randomly within each quarter.
- Stockpiles from 100 to 500 cubic yards: a minimum of one (1) sample for each 25 cubic yards or portion of must be collected (e.g., a 130-cubic-yard stockpile would require six samples). Section the stockpile into 25-cubic-yard portions and obtain a sample from each 25-cubic-yard portion. Sample points will be selected randomly within each 25-cubic-yard portion of the stockpile.
- Stockpiles over 500 cubic yards: sample as per a 500-cubic-yard stockpile and collect an additional sample for each additional 500 cubic yards, or portion thereof.

Random sample points must be selected from locations on a three-dimensional grid. Each stockpile considered for reuse will be sampled separately. The stockpiled soil documentation must include the following information:

- An estimate of the volume of the stockpile;
- Stockpile type (i.e., burned refuse/ash, impacted soil, or non-impacted soil);
- A description of the sampling methodology and the sample location/selection process;

- A plot plan detailing the stockpile and sample locations;
- A copy of all sample results, chain-of-custody documents, and Quality Assurance and Quality Control (QA/QC) supporting data;
- A one-page summary of the laboratory results for the stockpile sampling; and
- Signature of a registered professional (e.g., P.G., P.E.).

3.3.2. Stockpiled Soil Designated for Off-Site Disposal

Soil stockpiled for off-site disposal is soil suspected to be impacted with COCs at concentrations greater than the cleanup levels. Soil samples will be collected in the same manner as previously described in Section 3.2.1 and analyzed for the COCs. If the results indicate COC concentrations equal to or greater than the established cleanup levels then the stockpiles will be disposed of off-site at either the Class II facility Keller Canyon or Vasco Road Landfill or the Class I facility Kettleman Hills. If the COC concentrations are less than the established cleanup levels, then the soils may be reused on-site.

3.4. Waste Characterization for Off-Site Disposal

Debris may be encountered during removal of the impacted soil. Excavated inert debris will have loose soil removed prior to placement on to stockpiles. Debris will be segregated, stockpiled, and disposed off-site at a Class III landfill or recycled at a City approved facility.

3.5. Wastewater Treatment Verification

Wastewater discharge will be in accordance with East Bay Municipal Utilities District (EBMUD) and the City requirements. Wastewater treatment verification sampling will be performed prior to permitted discharge into the sanitary sewer. Per permit requirements, a grab sample will be collected and analyzed for COC prior to discharge to the sanitary sewer. Analytical results from pre-discharge sampling will be included in the discharge reports to EBMUD.

4. SAMPLE DESIGNATION

Samples sent to an analytical testing laboratory will be assigned a unique sample identification number according to the following conventions described below. Sample numbers will be recorded in a dedicated field logbook, the excavation site plan, and on the chain-of-custody at the time of sample collection. A complete description of the sample, sample circumstances/conditions, date and time of sampling, and the location of the sample will be recorded in the dedicated field logbook.

4.1. Pre-Excavation Confirmation Delineation Soil Samples

Pre-excavation delineation soil samples will be assigned a unique number that will include the project number, followed by the letter 'XS,' to designate that the sample is a pre-excavation delineation sample, then '2.0' to designate the sampling depth, and then a sequential number that uniquely identifies the sample in the excavation (e.g., 400582003- XS-2.0-1). The sample location will be identified using a global positioning system (GPS) and noted in the dedicated field logbook. The sample location will also be referenced to the sample number and description in the dedicated field logbook.

4.2. Post-Excavation Confirmation Soil Samples

Post-excavation verification soil samples will be assigned a unique number that will include the project number, followed by the letter 'C,' to designate that the sample is a confirmation sample, and then a sequential number that uniquely identifies the sample in the excavation (e.g., 400582003-C-2.0-1). The sample location will be identified using GPS and noted in the dedicated field logbook. The sample location will also be referenced to the sample number and description in the field logbook.

4.3. Stockpile Soil Samples

Stockpile soil samples will be assigned a unique number that includes the project number, followed by the letters 'SS' to designate that the sample is from a soil stockpile, followed by a number (xx) indicating the stockpile number, and then a sequential number that uniquely

identifies the sample in the stockpile. For example, sample 400582002-SS3-12 indicates soil sample 12 was collected from stockpile soil 3. The sample location, as indicated and on the stockpile soil map prepared in the field, will be referenced to the sample number and description in the dedicated field logbook.

4.4. Wastewater Treatment Verification Samples

Wastewater samples will similarly be assigned a unique number that includes the project number, followed by the letters 'WW' to designate that the sample is wastewater, followed by a sequential number that uniquely identifies the sample. For samples collected from the sampling port, 'SP' will be added to the sample designation. For example, sample 400582003-WWSP-3 indicates water sample 3 was collected from the sampling port.

5. SAMPLING EQUIPMENT AND PROCEDURES

This section describes sampling equipment and procedures associated with pre-excavation contamination delineation sampling, post-excavation confirmation sampling, stockpile soil sampling, waste characterization sampling, and wastewater sampling verification. This section also includes a discussion of decontamination procedures for sampling equipment.

5.1. Pre-Excavation Delineation Soil Sampling

Pre-excavation delineation samples will be collected using a truck-mounted-direct-push rig. The rig will use 4.0-foot-long-sampling rods that will be decontaminated with a steam cleaner prior to and during field activities. Discrete soil samples will be collected by inserting acetate sleeves into the direct push rods and pushing the rods to the required sample collection depths of 0 to 2.0 feet, 2.0 to 4.0 feet, and 4.0 to 6.0 feet. The acetate sleeves will be removed from the rods and samples will be collected by cutting the sleeve at each sampling depth and covering the sample with Teflon® tape and plastic caps. Personal protective equipment (PPE), including nitrile gloves will be worn to protect the sampler from chemical exposure. The sampler will wear a new set of gloves at each boring. Once the soil samples have been collected, they will be labeled according to sampling labeling

procedures outlined in Section 6.1, and placed in a zip-lock-type baggie and stored in a cooler maintained at 4 degrees Celsius with ice. If groundwater is encountered, groundwater samples will be collected with a disposable Teflon® bailer or a peristaltic pump from the open boring. Soil and groundwater samples will be transported to the laboratory under chain-of-custody as discussed in Sections 6.2 and 6.3.

5.2. Post-Excavation Confirmation Sampling

Confirmation soil samples associated with the remedial excavation(s) will be sampled by following the sampling procedures summarized below:

- Obtain two, pre-cleaned, 8-ounce, wide-mouthed jars, and/or a disposable polyethylene scoop. New jars and/or a new scoop will be obtained for each discrete sample collected.
- Don a new, clean, and chemical-resistant pair of disposable gloves.
- Remove approximately 2 inches of undisturbed soil using a decontaminated hand shovel prior to collecting the sample.
- Completely fill a pre-cleaned, 8-ounce jar with soil either by directly coring the jar into the excavation sidewall or floor or by using the disposable scoop. If the location is not accessible, or is evaluated as unsafe for entry, the samples will be collected from the backhoe or excavator bucket. These soil samples may be collected by directly coring the jar into relatively intact masses of soil in the bucket or by collecting the sample with disposable scoops and transferring the sample into the jar. A minimum of two, laboratory-supplied, 8-ounce jars of soil will be collected at each sampling location.
- Cap the jars and place a sample label on the jar completed with information described in Section 4.2, and the sample labeling protocol described in Section 6.1.
- Samples will be transported to the laboratory under a chain-of-custody documentation as discussed in Sections 6.2 and 6.3.

5.3. Stockpile Soil Sampling for Soils Designated to Remain On-Site

Soil samples collected from stockpiles initially designated to remain on-site will be collected using a hand auger from predetermined sampling locations and depths. The auger will be decontaminated following procedures outlined in Section 5.7 at the start of sampling and between sampling locations. Stockpile soil samples will be removed from the hand auger and carefully placed in an 8-ounce glass jar. The samples will be placed in a cooler

maintained at 4 degrees Celsius with ice. Sample labeling, delivery and chain-of-custody documentation will be completed per Sections 6.1 through 6.3.

5.4. Stockpile Soil Sampling for Soils Designated to be Disposed of Off-Site

Soil samples collected from stockpiles initially designated for off-site disposal will be collected as described in Section 5.3 of this FSAP.

5.5. Wastewater Sampling

Wastewater samples will be collected from the sampling port of the holding tank. The samples will be collected in pre-cleaned, laboratory-supplied containers with the appropriate preservative, if required.

The following generally summarizes the sampling procedures to be used:

- Wear a new, clean, and chemical-resistant pair of disposable gloves.
- Fill laboratory provided bottle(s) with wastewater. Collect wastewater samples in two sets of bottles.
- Cap the bottle(s) and wipe any moisture from the outside of the bottle(s).
- Affix a sample label onto the jar, with the information described in Section 6.1 of this FSAP.
- Place the bottles in a labeled resealable bag.
- Immediately place the resealable bag containing the samples in a cooler maintained at 4 degrees Celsius.
- Samples will be transported as discussed in Sections 6.2 and 6.3.

5.6. Imported Backfill Sampling

Soil samples from imported backfill will be collected for analytical testing prior to transportation and delivery on to the site.

Sample number, location, and frequency will follow the DTSC Information Advisory Clean Imported Fill Material document (DTSC, 2001). A stockpile with a volume of up to 1,000

cubic yards will have a sample taken for every 250 cubic yards. A stockpile of 1,000 to 5,000 cubic yards will have four samples collected for the first 1,000 cubic yards and one sample for each additional 500 cubic yards. A stockpile greater than 5,000 cubic yards will have 12 samples collected for the first 5,000 cubic yards and one sample for each additional 1,000 cubic yards.

The fill material will be analyzed for volatile organic compounds, using EPA Method 8260B; semi-volatile organic compounds, using EPA Method 8270C; total petroleum hydrocarbon (TPH), using EPA Method 8015M; PCBs using EPA Method 8082; CAM 17 metals, using EPA Method 6010B; and Asbestos, using Occupational Safety & Health Administration (OSHA) Method ID-191. Imported backfill will also be analyzed for pesticides using EPA Method 8081A if the source of backfill is from agricultural lands.

5.7. Decontamination Procedures

Whenever possible, disposable sampling equipment will be used for this project. However, if non-disposable sampling equipment is used, it will be decontaminated to prevent cross-contamination between samples. Sampling equipment will be decontaminated by washing with a non-phosphate detergent such as Liquinox™. Decontamination water will be collected and placed in a 55-gallon drum or wastewater holding tank.

The following steps will be followed for decontamination of non-disposable sample equipment:

- Wash with a non-phosphate detergent and water solution. This step will remove visible contamination from the equipment. Fill a 5-gallon bucket approximately 3/4 full and dilute with a non-phosphate detergent as directed by the manufacturer. Use a dedicated long-handled brush to assist with cleaning.

- Rinse with potable water. This step will decrease the gross contamination and reduce the frequency of changing of the non-phosphate detergent and water solution. Fill a 5-gallon bucket, 3/4 full with water. Use a dedicated long-handled brush to assist with cleaning of equipment. Frequent changing of this water will increase its effectiveness.

- Rinse with de-ionized water. Fill a 5-gallon bucket approximately 3/4 full of water and use a dedicated long-handled brush to assist with cleaning. Periodic changing of this water is required.

6. SAMPLE LABELING, DELIVERY, AND CHAIN-OF-CUSTODY

This section describes how samples will be labeled, picked up, delivered, and tracked.

6.1. Sample Labeling

Sample labels will be completed using indelible, black ink, and affixed to each sample container. Sample containers will be placed into a resealable plastic bags to protect the sample from moisture during transportation to the laboratory. Each sample container will be labeled at a minimum with the following:

- Unique sample identification number;
- Sample collection date (month/day/year);
- Time of collection (24-hour clock);
- Project number (e.g., 400582003);
- Sampler initials;
- Analyses to be performed; and
- Preservation, if any.

6.2. Sample Delivery

This section applies to samples that will be picked up by the analytical testing laboratory or samples delivered to the off-site analytical laboratory.

Immediately after sample collection, sample labels will be affixed to each sample container. Each sample will then be placed into a re-sealable plastic bag to keep the sample containers and labels dry.

Samples may be picked up in the field or at the Field Geologist/Engineer's office by the analytical testing laboratory. The samples will be maintained at 4 degrees Celsius. The chain-of-custody documentation will be completed and signed by the laboratory-assigned courier. The cooler may then be relinquished to the courier for transportation to the laboratory.

Each cooler will contain a temperature blank. A temperature blank is a sample container filled with tap water and stored in the cooler during sample collection and transportation.

The laboratory will record the temperature of the temperature blank immediately upon receipt of the samples.

6.3. Chain-of-Custody

A chain-of-custody is a vital tool for tracking samples and is a written record of sample possession from the time the sample is collected until it is analyzed. The following will be recorded on the chain-of-custody forms:

- Project name;
- Project location;
- Project number;
- Project contact;
- Client;
- Project Manager;
- Sample identification;
- Date and time sample was collected;
- Sample type (soil, wastewater etc.);
- Number of sample containers;
- Required analytical test methods;
- Remarks/observations specific to the sample;
- Number of samples to be relinquished to the analytical laboratory;
- Transfer signatures associated with relinquishing samples (the sampler will initiate the chain-of-custody procedure);
- Courier/laboratory representative signature (for commercial carrier, record air bill number);
- Date/time of custody transfer;
- Comments regarding the condition of the samples, (e.g. cooled with ice, etc.);

- Additional comments:
  - Written request for electronic file for all samples analyzed;
  - Information regarding sample storage/disposal; and
  - Turn-around-time requirement.
- Sampler signature.
- Courier signature.

7. ANALYTICAL TESTING METHODS

This section describes analytical test methods, sample container, preservation, and holding time requirements for soil samples. Table A-1 summarizes the analytical test methods for the types of samples to be collected based on regulatory requirements and site cleanup goals. Table A-2 summarizes the COCs that were analyzed for each respective step out sample locations. The soil sample analysis is based on COCs reported during previous soil sampling events within the vicinity of the step-out borings to be sampled. Additional testing may be required for stockpile soil samples by the accepting disposal/recycling facility. Testing requirements for site derived wastewater disposal are not included on Table A-1. Analytical testing requirements will depend upon the method of treatment/disposal selected by the Contractor for this project.

Table A-1 – Analytical Test Method, Sample Container, Preservation, and Holding Time Requirement

Analytical Parameter	EPA Test Method	Sample Volume and Container Type	Preservation	Holding Time
Soil – Mobile or Fixed-base Laboratory				
TPH*	8015M Extended Range C_8 to C_{44}	125g** BST or G-TLC	Cool 4°C	14 days (Extracted), 40 days (Analysis)
PAH	EPA 8270C SIM	125g** BST or G-TLC	Cool 4°C	14 days (Extracted), 40 days (Analysis)
Lead	6010B	125g** BST or G	Cool 4°C	180 days
Cobalt	6010B	125g** BST or G	Cool 4°C	180 days
Total Chromium	6010B	125g** BST or G	Cool 4°C	180 days
Chromium III	6010B	125g** BST or G	Cool 4°C	180 days
Chromium VI	7196A	125g** BST or G	Cool 4°C	24 Hours

Notes:
BST = Brass or Steel Tube
G = Glass
TLC = Teflon™-Lined Cap,
*TPH-D and TPH-MO
**125g is approximately equivalent to 4 oz. and 200g is approximately equivalent to 8 oz.

Table A-2 – Pre-Excavation Sample

Borings	Sample Depths (feet)			Total Samples	Sample Constituents
	0-2	2-4	4-6		
B-1A, B and C	1	1	1	9	**TPH** **Pb, Cr, As, Co** **BAP**
B-2A, B and C	1	1	1	9	**TPH** **Pb, Cr, As, Co** **BAP**
B-4A, B and C	1	1	1	9	**TPH** **Pb, Cr, As, Co** **BAP**
B-5A, C and D	1	1	1	9	**TPH** **BAP**
B-5E, F and G	1	1	1	9	**Pb, Cr, As, Co** **BAP**
B-7A, B and C	1	1	1	9	**TPH**
B-8A, B and C	1	1	1	9	**Pb, Cr, As, Co**
B-9A, B and C	1	1	1	9	**TPH** **BAP** **Pb, Cr, As, Co**
B-10A, B and C	1	1	1	9	**TPH** **Pb, Cr, As, Co**
B-11A, B and C	1	1	1	9	**TPH**

Table A-2 – Pre-Excavation Sample

Borings	Sample Depths (feet)			Total Samples	Sample Constituents
	0-2	2-4	4-6		
					BAP
B-12A, B and C	1	1	1	9	TPH
					BAP
B-13A, B and C	1	1	1	9	BAP
B-14A, B and C	1	1	1	9	TPH
					BAP
					Pb, Cr, As, Co
B-15A, B and C	1	1	1	9	Pb, Cr, As, Co
					BAP
B16A, B and C	1	1	1	9	BAP
B-17A, B and C	1	1	1	9	TPH
	1	1	1	9	BAP
B-18A, B and C	1	1	1	9	TPH
					Pb, Cr, As, Co
B-19A, B and C	1	1	1	9	BAP
B-20A, B and C	1	1	1	9	TPH
	1	1	1	9	BAP
	1	1	1	9	Pb, Cr, As, Co

Notes:
* Refer to Figure A-1 for boring locations.
-- = No sample.
TPH = Total petroleum as diesel and motor oil.
BAP = Benzo(a)pyrene.
Pb = Lead.
Cr = Chromium
As = Arsenic

8. FIELD QUALITY ASSURANCE/QUALITY CONTROL

Field QA/QC samples will be collected and analyzed during the pre-excavation delineation, post-excavation, confirmation, and backfill soil sampling to assess the consistency and performance of the sampling program. Field QC samples for this project will include field duplicates and equipment rinsate samples.

8.1. Field Duplicates

Field duplicates consist of a sample of the same matrix as the primary sample collected. Duplicate samples will be collected, if available, at the same time and location as the primary sample, using the same sampling techniques. The purpose of field duplicate samples is to evaluate the precision of the overall sample collection and analysis process. Field

duplicates will be collected at a frequency of one per 20 samples and will be analyzed using the same method as the primary sample. Field duplicate sample numbers will be similar to the pre-excavation and post-excavation sample nomenclature; however, minor adjustments in the numbering system will be made to ensure that the identities of the duplicate samples are "blind" to the analytical laboratory. Locations of duplicate samples and their identifications will be recorded in the dedicated field logbook and on the appropriate excavation or stockpile map.

8.2. Equipment Rinsate Samples

Equipment rinsate samples will only be collected once every day with the use of non-disposable sampling equipment. Rinsate samples consist of distilled water collected from the final rinse of the decontamination process. Subsequent to equipment decontamination, distilled water will be decanted over the sampling equipment in the appropriate containers. Rinsate samples will be collected, placed in appropriate pre-cleaned containers supplied by the analytical laboratory, and analyzed for the same constituents as the field samples. Rinsate samples analyzed for lead will contain nitric acid (HNO_3) preservation. Equipment rinsate samples evaluate the effectiveness of the decontamination procedure and possible cross–contamination during sampling events.

8.3. Sample Containers, Preservatives, and Holding Times

Sample container requirements, preservatives, and holding time requirements for the soil analytical test methods to be used in this removal action project are summarized on Table A-1.

9. SITE MANAGEMENT AND RECORD KEEPING

Sampling information will be recorded on chain-of-custody forms, in a dedicated field logbook, and on the appropriate excavation or stockpile map/plan. These documents will be completed in the field at the time of sample collection. Entries will be legible and recorded in indelible black ink.

A dedicated bound field logbook with consecutively numbered pages will be assigned to this project. If it is necessary to transfer the logbook to another person, the person relinquishing the

logbook will sign and date the last page used and the person receiving the logbook will sign and date the next page to be used.

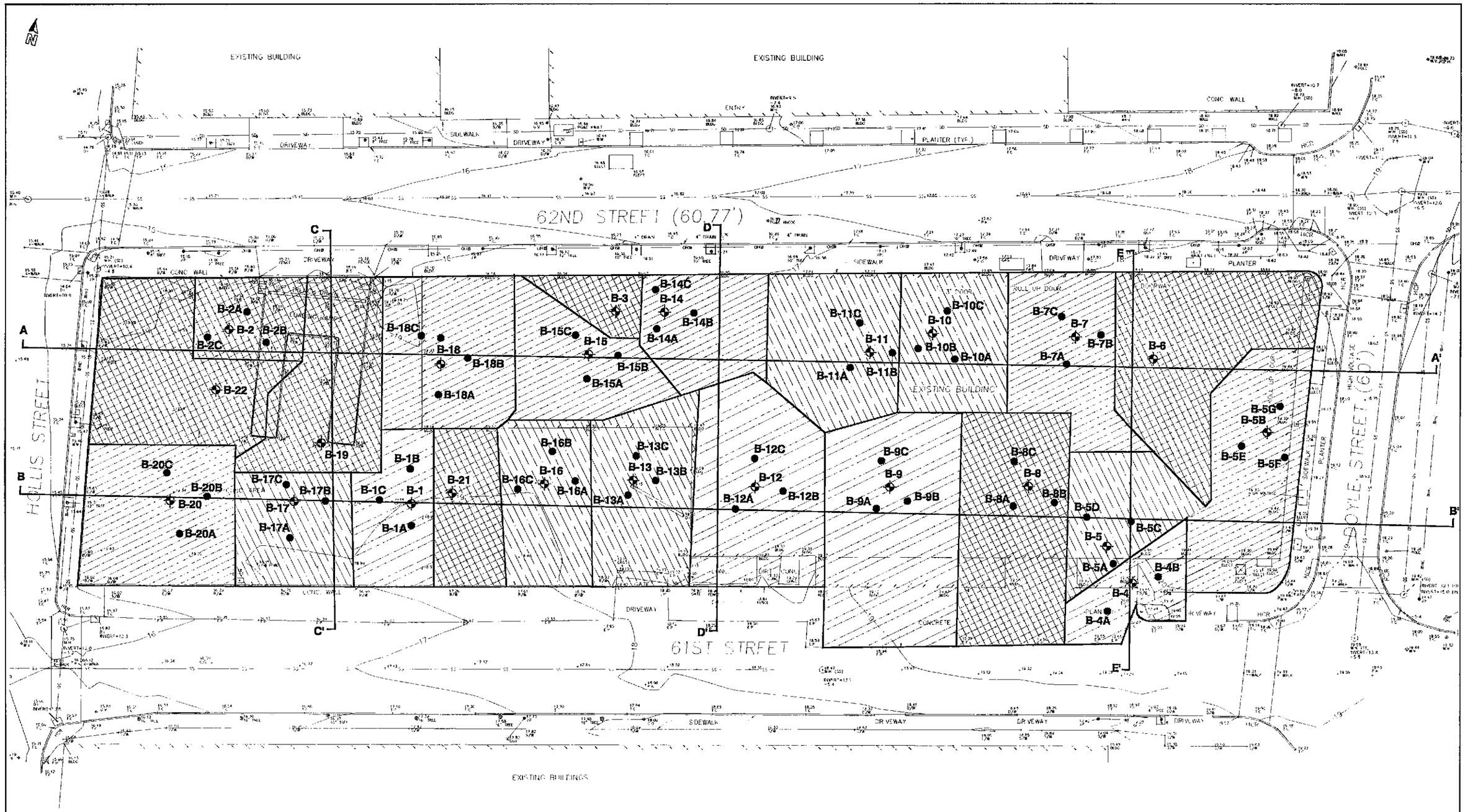
At a minimum, the logbook will contain the following information:

- Project name and location,
- Date and time of entries,
- Personnel in attendance,
- General weather conditions,
- Work performed on a daily basis,
- Field observations,
- Sampling information (including sample identification, sample location, sample description/type, and analytical testing),
- Field measurements data (including air monitoring results, instrument calibration records, and problems, if encountered),
- Descriptions of deviations from the FSAP, if applicable,
- Problems encountered and corrective action taken,
- QC-related activities and identification of field QC samples,
- Detailed record of oral and/or written requests by the regulatory agencies, client, subcontractor, and
- Any other events that may affect the sampling and analyses.

Changes or corrections to any project documentation will be made by crossing out the item with a single line, initialing (by the person performing the correction), and dating the correction. The original item, although erroneous, must remain legible beneath the cross out. The new information should be written above the crossed out entry. Corrections must be written clearly and legibly with indelible black ink

10. LIMITATIONS

Refer to Section 6 of the SCP.



LEGEND

- B-5 APPROXIMATE LOCATION OF EXPLORATORY BORING
- B20C APPROXIMATE LOCATION OF PRE-EXCAVATION SOIL SAMPLE
- E E' CROSS SECTION
- NO REMOVAL-CLEAN
- EXCAVATION DEPTH 2.75'
- EXCAVATION DEPTH 4.25'
- EXCAVATION DEPTH 5.5'

APPROXIMATE SCALE
0 20 40 FEET
NOTE: ALL DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE

Ninyo & Moore		PROPOSED PRE-EXCAVATION SOIL SAMPLE BORING LOCATION MAP	FIGURE
PROJECT NO. 400582003	DATE 9/07	CITY OF EMERYVILLE REDEVELOPMENT AGENCY 1333-1378 62ND STREET EMERYVILLE, CALIFORNIA	A-1

APPENDIX B

SITE GRADING PLAN

CITY OF EMERYVILLE PROJECT NO. EPW 106-07

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1. INTRODUCTION

Ninyo & Moore prepared this Site Grading Plan (SGP) for the planned soil remediation activities at the former Dutro property at 1333–1379 62nd Street located in Emeryville, California. Soil remediation activities are currently anticipated to involve the excavation of soils with elevated constituents of concern (COCs) from areas shown on Figure B-1. Excavated soil will be transported and disposed at permitted disposal facilities. General information for imported clean fill material, backfill (soil reuse), grading, and compaction activities are also addressed in this SGP.

1.1. Background

The site consists of approximately 1.2 acres of land containing one structure, a 32,000- square-foot warehouse. A portion of the site is covered by a concrete slab for parking and storage. A truck-loading dock is located on the northern perimeter of the site. The site was formerly utilized for the manufacture of hand trucks.

A City park is proposed for future site use. Proposed park amenities include multi-use lawn area in the park center, a basketball court in the northwest corner, an amphitheater in the southwest corner, and a children's play area in the southeast corner.

Site remediation requires the excavation and off-site disposal of soils containing COCs exceeding recommended site cleanup levels established for site redevelopment. Primarily constituents include total petroleum hydrocarbons (as diesel and motor oil), lead, and benzo(a)pyrene as an indicator of polynuclear aromatic hydrocarbons.

Based on results of previous site investigations, Ninyo & Moore categorized wastes into the Class II non-hazardous waste and California Hazardous Waste (CAL-HAZ) waste. Current estimated volumes of waste for off-site disposal include 1,950 cubic yards (3,300 tons) of Class II non-hazardous waste, 1,650 cubic yards (2,800 tons) of CAL-HAZ waste, and 600 cubic yards (1,050 tons) of Resource Conservation and Recovery Act (RCRA) waste.

Additional sampling will be conducted after the warehouse and concrete slab are demolished and removed from the site to better delineate COC-impacted shallow soil. Screening for COCs will be conducted by collecting additional soil samples from willow depths as described further in the Site Cleanup Plan (SCP) and Field Sampling and Analysis Plan (FSAP) (Appendix A).

During previous site investigations, minor groundwater contamination was identified (below regulatory screening levels); therefore, no specific measures are proposed for willow groundwater remediation

1.2. Current Site Topography and Drainage

Generally, the site is flat due to placement of fill material. Storm water flows across much of the site to drop inlets located along the western property boundary (see Figure B-1).

2. SITE GRADING OVERVIEW

The objective of this SGP is to provide a description for excavation, backfill, compaction, and limited grading to be performed as part of site soil remediation. It is not the intent of this plan to restore the site to the existing grade. Clean backfill volume estimates were based on the assumption that the site would be built to an elevation of street level at the west-side and east-side of the site with varying elevation levels throughout the middle area of the site where the multi-use lawn area is proposed.

Remedial activities will involve selective excavation and stockpiling of non-impacted soils and soils classified as Class II, non-hazardous; CAL-HAZ, and RCRA hazardous wastes (Figures B-1 through B-3). Imported backfill material will be analyzed per the Department of Toxic Substance Control (DTSC) Information Advisory Clean Imported Fill Material dated October 2001 (DTSC, 2001).

Site grading will generally consist of the following:

- Soil excavation in areas shown on Figures B-1 and B-3.
- Stockpiling soil for on-site reuse or off-site disposal.

- Grading excavated areas and non-excavated areas to form smooth transitions across the site and promote positive drainage.
- Import and compaction of clean backfill materials, as required. Clean backfill will be analyzed per the DTSC Information Advisory Clean Imported Fill Material, dated October 2001 (DTSC, 2001).
- Backfill specified locations with clean fill materials to accommodate future site use. Backfill specifications are discussed in detail in Section 4.3.

Dust generation will be suppressed from backfill stockpiles by water application, application of surfactants or covering with plastic sheeting, as appropriate. Erosion control methods are described in the Storm Water Pollution Prevention Plan (SWPPP) (Appendix C).

3. CLEAN BACKFILL

Backfill materials will be imported and placed on-site to achieve positive drainage, create desired topography, and to maintain the structural integrity of excavations next to roadways. In addition, excavated non-impacted soils may be used for site backfill if free of roots, rocks over 3 inches in diameter, organic matter, debris, or other deleterious materials. Backfill materials will be compacted to the extent necessary to support the use as a park. Fill material will be sampled and laboratory tested to determine maximum dry density, optimum moisture content, and confirm that contaminated materials are not imported to the site. Clean fill will be stockpiled on-site at the areas shown on Figure B-2.

4. EXCAVATION, GRADING, AND BACKFILL

Soil remediation requires excavation of select soils and off-site disposal of the contaminated materials. This section provides the procedures for site excavation, grading, and backfill.

4.1. Excavation

Post-building and foundation removal, further site characterization will be conducted to characterize the lateral and vertical extent of soil contamination. Site characterization activities are described in the FSAP (Appendix A). Areas of site characterization will be

identified using reference points or surveying techniques, including global positioning system (GPS). Following pre-excavation soil activities, excavation depths and waste soil characteristics will be specified for each grid area. Soil within each grid area will be characterized for transport to an off-site disposal facility The use of temporary on-site soil stockpiles will be limited due to minimal area available for this use. Generally, excavated soil will be placed on, and covered with, 6- or 10-mil polyethylene Visqueen sheets pending profiling and disposal. Visqueen sheets covering the stockpiled soil will be anchored in place using sandbags and rocks. Dust suppression activities consisting of managed water spray will be practiced during material loading and off haul operations.

The SWPPP provided in Appendix C describes best management practices for dust control during excavation and loading. The Health and Safety Plan (Appendix E) and the Transportation Plan (Appendix D) provide details related to on- and off-site traffic control.

4.2. Grading

Grading will be necessary to maintain the structural integrity of the excavations during or following soil remediation. Grading will also occur to enhance temporary site drainage.

4.3. Backfill

Excavated areas may be backfilled with clean materials to support future site uses. The backfill material should not contain significant amounts of rocks or lumps in excess of 6 inches in diameter, trash, debris, roots, vegetation, or other deleterious materials. Backfill should be moisture conditioned to near optimum moisture content and compacted to 90 percent of the reference density as evaluated by ASTM D-1557. Fill material should be placed in horizontal lifts. The allowable uncompacted lift thickness will depend on the type of compaction equipment utilized, but generally should not exceed 8 inches in loose thickness. The City should retain a qualified geotechnical engineer to observe the placement and compaction of fill and to perform compaction testing to check that the compaction has been achieved for each lift of soil/backfill. The compaction testing program including testing frequency and field testing methods will be specified by the subcontractor.

5. STORM WATER CONTROL PRACTICES

The storm water control practices and are described in the SWPPP (Appendix C). The following summarizes storm water control features.

- Non-excavated portions of the site may sheet drain towards the northwest.
- Straw waddles will be placed along the site perimeter and waddles or sandbags will be placed to surround drop inlets to the storm sewers to minimize the amount of sediment exiting the property.
- Excavations may be covered, as appropriate, and storm water runoff may be routed to a visqueen-lined "interim collection pond," if additional sediment detention is necessary.

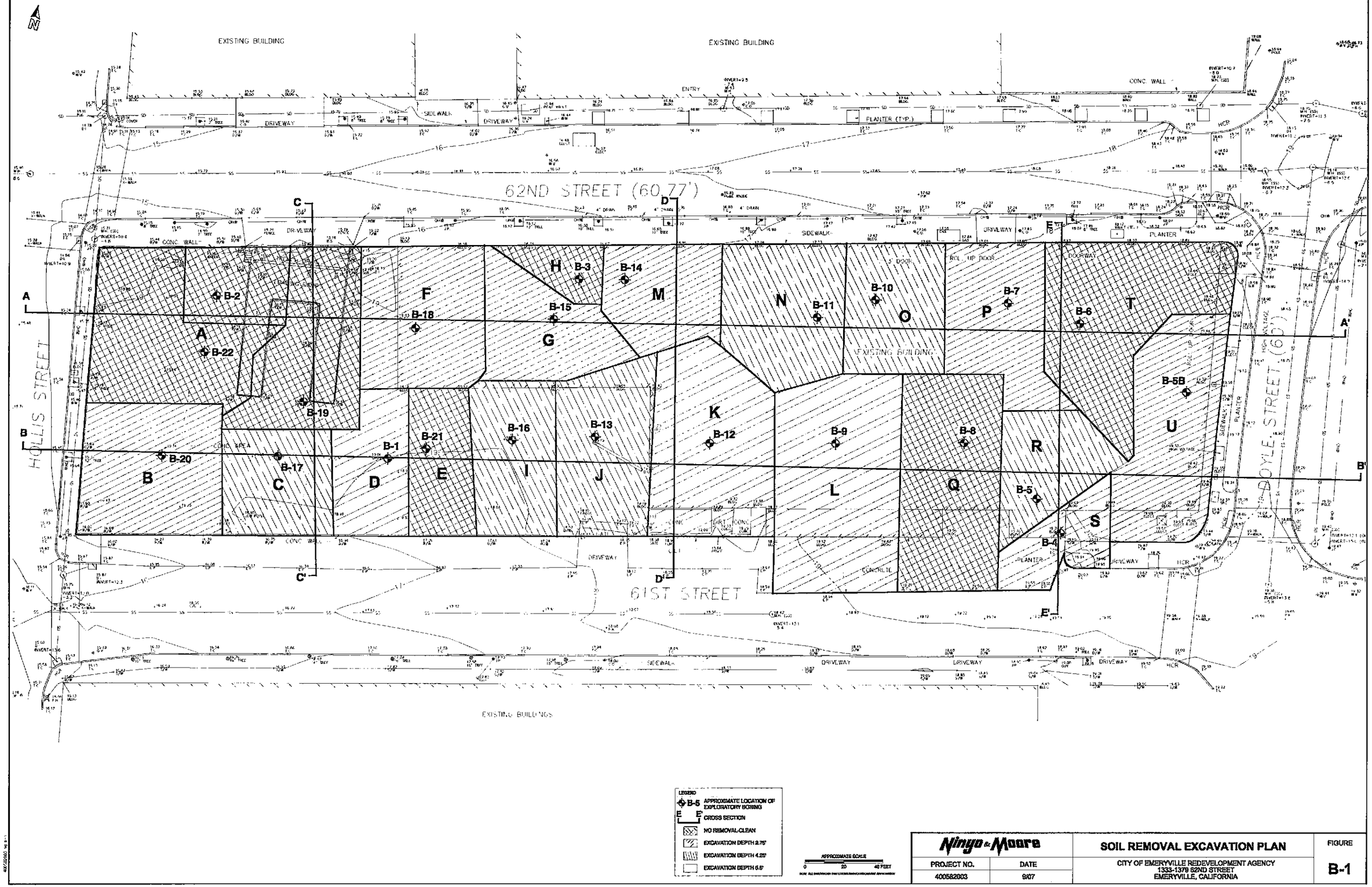
6. REPORTING

Site grading activities will be documented in a Final Construction Report. Relevant information may include descriptions of demolition, excavation, backfill, compaction, and grading activities. This report may include the following:

- Locations where confirmation testing was performed and analytical results of confirmation sampling,
- Analytical results for samples collected from backfill materials,
- Compaction testing results for imported fill and non-impacted soils to be reused on-site for backfill,
- Results of compaction testing performed on-site documenting that specified compaction and optimal moisture conditioning was achieved, and
- Copies of waste manifests documenting transportation and disposal of site wastes.

7. LIMITATIONS

Refer to Section 6 of the SCP.

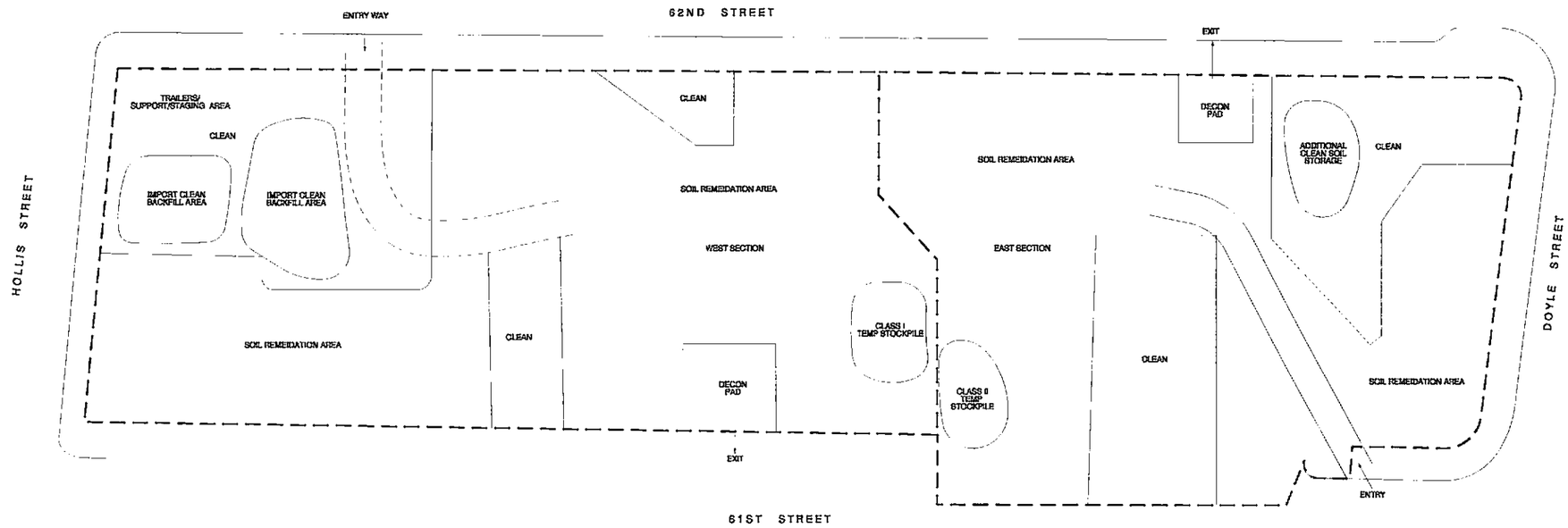


LEGEND

- B-5 — APPROXIMATE LOCATION OF EXPLORATORY BORING
- E E' — CROSS SECTION
- NO REMOVAL-CLEAN
- EXCAVATION DEPTH 2.75'
- EXCAVATION DEPTH 4.25'
- EXCAVATION DEPTH 6.5'

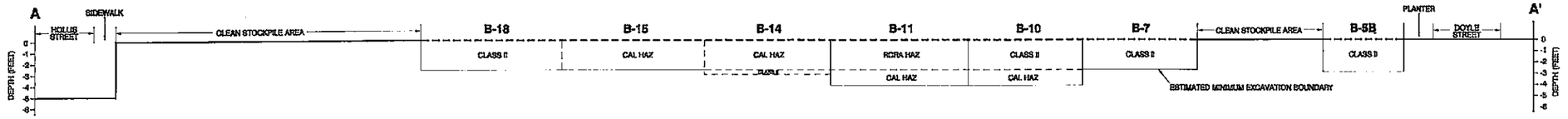
APPROXIMATE SCALE
0 20 40 FEET

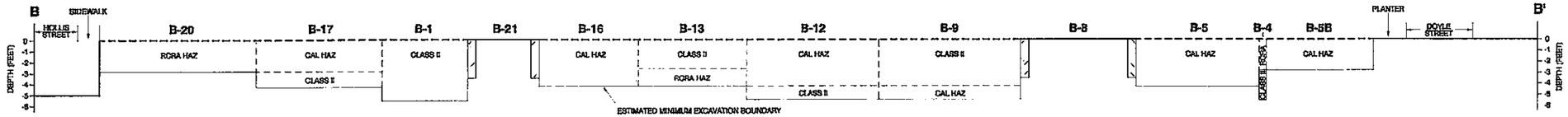
Ninyo & Moore	SOIL REMOVAL EXCAVATION PLAN	FIGURE
PROJECT NO. 400582003 / DATE 9/07	CITY OF EMERYVILLE REDEVELOPMENT AGENCY 1333-1379 62ND STREET EMERYVILLE, CALIFORNIA	B-1

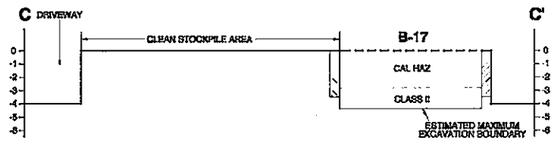


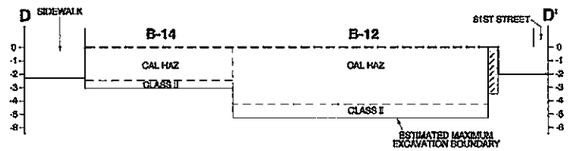
APPROXIMATE SCALE
0 20 40 FEET

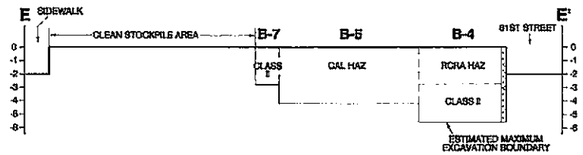
Ninyo & Moore	SOIL REMOVAL PLAN	FIGURE
PROJECT NO. 400582003 / DATE 9/07	CITY OF EMERYVILLE REDEVELOPMENT AGENCY 1333-1379 62ND STREET EMERYVILLE, CALIFORNIA	B-2









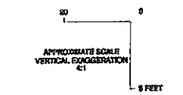


LEGEND

- POSSIBLE EXCAVATION SHORING REQUIRED
- CLEAN SOIL TO BE REMOVED FOR BENCH CONSTRUCTION (VERTICAL CUT FACE GREATER THAN FOUR FEET)

WASTE CHARACTERISTICS ASSUMPTIONS (BASED ON TTLC)

	CLASS II	CAL HAZ	RCRA HAZ
Pb (mg/kg)	970<Pb<1,000	1,000<Pb<3,000	Pb>3,000
TPH D (mg/kg)	400<D<1,000	1,000<D<5,000	D>5,000
TPH MD (mg/kg)	1,000<MD<3,000	3,000<MD<5,000	MD>5,000
benzo (a) pyrene (mg/kg)	62<BAP<100	100<BAP<500	BAP>500



Ninyo & Moore	EXCAVATED SOIL CLASSIFICATIONS AND EXCAVATION PLAN CROSS SECTIONS	FIGURE
PROJECT NO. 400582003 / DATE 9/07	CITY OF EMERYVILLE REDEVELOPMENT AGENCY 1333-1379 62ND STREET EMERYVILLE, CALIFORNIA	B-3

400582003 Fig 3 - 3

APPENDIX C

STORM WATER POLLUTION PREVENTION PLAN

CITY OF EMERYVILLE PROJECT NO. EPW 106-07

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Page

1. INTRODUCTION

The Storm Water Pollution Prevention Plan (SWPPP) has been prepared for the soil remediation project at the former Dutro property at 1333–1379 62nd Street in Emeryville, California (site). The objective of this SWPPP is to outline storm water and sediment control measures at the site. This SWPPP was prepared as an appendix to the Site Cleanup Plan (SCP). It is written specifically for the remediation activities. This SWPPP describes storm water and sediment control methods associated with the remediation activities. The goal of the SWPPP is to minimize potential pollutant, sediment and non-storm water discharges from the site. The SWPPP will identify best management practices (BMPs) for erosion control; and address record keeping with respect to soil removal and stockpiling.

2. POTENTIAL STORM WATER POLLUTION SOURCES

Wastes and soils generated from building demolition and excavation activities can be classified as Class II non-hazardous or Class I hazardous waste (California Hazardous Waste [CAL-HAZ], and Resource Conservation and Recovery Act [RCRA]). Other non-hazardous debris may include concrete slab, wood, and other materials.

The primary source for run-off is soil/sediment eroded from the disturbed soil and excavation areas. Storm water pollution can occur when surface runoff contacts disturbed soils in excavation areas, exposed wastes, or soil stockpiles.

3. BEST MANAGEMENT PRACTICES

3.1. General Practices

The general practice BMPs outlined in this section will be followed at the site when applicable.

3.2. Timing of Soil Remedial Activities

The demolition is scheduled to begin in early 2007 and soil excavation work is to being in spring 2007. If precipitation occurs, BMPs, described in this section, will be in place to minimize erosion and water quality impacts.

3.3. Dust Control

Dust and vapor will be monitored in accordance with the Air Monitoring Plan (AMP, Appendix F). Dust suppression will be accomplished by lightly spraying or misting stockpiled soil, truck loading areas on-site, and the work areas with water. Misting may also be used on soil placed in the transport trucks. Misting will be performed sufficiently to reduce dust and vapors emissions but in small enough quantities so as to avoid puddling and run off. In addition, efforts will be made to minimize the soil drop height from the excavator's bucket onto the soil pile or into the transport trucks. After the soil is loaded into the transport trucks, the soil will be covered to prevent soil from spilling out of the truck during transport to the disposal facility.

While on the property, all vehicles will maintain slow speeds (i.e., less than 5 miles per hour [mph]) for safety purposes and for dust control measures. Prior to departure, transport and dump trucks will be cleaned of loose debris clinging to the sides and/or wheels using dry brooms or brushes to minimize off-site contaminant mobilization. If conditions warrant, a street sweeper may be retained to sweep the local street route.

In the event of sustained wind speeds that cause visible fugitive emissions, soil-moving activities will be temporarily halted until sufficient dust control agent is applied to reduce such emissions. In the event wind speeds exceed 30 mph for more than 30 minutes, and visible emissions are observed, soil-moving activities will be halted until wind speeds decrease and no visible emissions are observed.

Generally, excavated soil will be placed on, and covered with, 6- or 10-mil polyethylene Visqueen sheets pending profiling and disposal. Visqueen sheets covering the stockpiled soil will be anchored in place using sandbags and rocks.

Soil will be segregated and stockpiled as either Class II–waste, or Class I-California hazardous non-RCRA waste or Class I RCRA waste.

3.4. Material Loading, Unloading, Storage, and Disposal

Material loading and unloading will be conducted in the staging area to be determined. Materials that could potentially contaminate storm water runoff are to be protected from rain with plastic sheeting to prevent the materials from coming in contact with storm water runoff.

3.5. Material Storage

BMPs for material storage on-site include the following:

- Materials may be stored covered on pallets to minimize the potential for materials to be incorporated into storm water runoff.
- An up-to-date inventory of all materials on-site will be maintained.
- Good housekeeping will be maintained in the material storage area.
- Minimize the amount of material storage on-site, only those materials necessary to the demolition and remediation activities will be maintained on-site. Those materials that need to be stored will be maintained in their original packaging and handled with care.
- The BMPs from the California Handbook (Caltrans, 2003) will be followed for handling all materials at the site. All potentially polluting materials, when not actively in use, should be covered at all times. These materials include chemicals, paints, and solvents that may be found in dumpsters, waste containers, drums, tanks, boxes, etc.

3.6. Disposal of Materials

Materials will be disposed of off-site at landfills discussed in the Transportation Plan (TP, Appendix D). Construction dumpsters or other waste containers will be covered and watertight to minimize potential to contaminate storm water runoff.

3.7. Equipment Storage, Cleaning, Fueling, and Maintenance

Equipment will be stored outside the proposed soil remediation area. Construction equipment and vehicles will not be serviced or cleaned at the site. Construction equipment should be inspected regularly for leaks and repair needs. Field vehicles and equipment will be fueled off-site or from a mobile service truck. If fueling must occur on-site then a secondary containment system will be used to prevent spillage of fuel. Routine vehicle and equipment maintenance will be performed off-site whenever possible. Decontamination will be preformed according to the TP.

3.8. BMPs for Erosion Control

Structural practices may be used to divert flows from exposed impacted soils, or otherwise limit runoff and the discharge of pollutants from exposed areas of the site containing impacted soil. BMPs will be implemented in a timely manner during the remediation process to minimize erosion and sediment runoff. These practices include, but are not limited to, installation of one or more of the following: silt fences, straw bales, diversion dikes, storm drain inlet protection, outlet protection, visqueen covers, sediment traps, and sediment basins.

Disturbed or stockpiled soil will be water-misted or tarped to prevent wind erosion of the piles.

3.9. Waste Management

Site waste (other than soil) will be removed from the site and disposed of in an appropriate manner.

3.10. Non-Storm Water Control Practices

Water used for dust control will be kept to a minimum so no runoff is generated. Water used for equipment cleaning will not be allowed to discharge into the storm drains and if sufficient volume is generated, will be contained in 55-gallon drums on-site.

3.11. Water Conservation

Defining the appropriate uses and restrictions of water will reduce the potential for erosion and transport of pollutants off-site. BMPs for water conservation include: repair water leaks, apply dust control water sparingly, and inspect water spray equipment to maintain good working order.

4. QUALITY CONTROL

Oversight of the demolition and remediation activities will be provided by Ninyo & Moore. The monitoring, maintenance, and repair of storm water BMPs will be part of Ninyo & Moore's oversight. Oversight will include site inspections, compliance certification, non-compliance reporting and records retention.

4.1. Site Inspections

Site inspections of storm water BMPs should be performed before field activities begin, before a storm event, during a storm event, and after a storm event, as well, as periodically throughout the project. Inspections performed before the start of the project and pre-storm inspections should provide that the storm water BMPs are installed and maintained properly. Inspections during storm events should provide that BMPs are functioning properly and identify additional BMPs needed or repairs to the current practices needed. Post-storm inspections should also be performed to provide that the BMPs practices used functioned adequately, or required repairs are implemented.

4.2. Compliance Certification

Ninyo & Moore personnel will certify that the soil remediation work is in compliance with the General Permit and SWPPP.

4.3. Non-Compliance Reporting

If work is identified as non-compliance with the General Permit or the SWPPP, it must be reported to the Regional Water Quality Control Plan (RWQCB) in writing to within 30 days of the incident.

4.4. Records Retention

Inspection records, permits, compliance and non-compliance reports, and data associated with soil remediation activities will be retained with the SWPPP during site activities for three years by Ninyo & Moore, and included in the final construction report.

5. SPILL PREVENTION AND CONTROL MEASURES

5.1. Preventive Measures

- Perform daily inspections of the material storage area.
- Select flat areas for temporary storage away from high-traffic zones and storm or sewer drains.
- Locate spill containment kit on-site.

5.2. Spill Containment Measures

The following actions will be taken by Ninyo & Moore field personnel assigned to the field activities in the event of a spill:

- The Site Coordinator (field team leader) and Site Health and Safety Officer (SHSO) are to be notified immediately.
- Attempts will be made to stop the source(s) of spillage immediately.
- Attempts will be made to contain the spread of the spill.
- If the spill occurs on a paved or low-permeable surface, contain the spread of spill using absorbent materials (i.e. cat litter, diapers, etc.).

- If the spill occurs on a soil surface, contain the spill by constructing an earthen dike. The soil in the area of the spill will need to be excavated and the soil will need to be disposed of properly. Confirmation soil sampling may need to be performed to confirm the spill has been remediated.
- If the spill occurs during rain, protect the spill by covering the spill area with plastic sheeting to avoid runoff.
- The SHSO will monitor for exposure to chemicals or hazardous substances during spill cleanup work and will stay at the spill area until the area has been cleaned of the spill, inspected, and readied for reentry.
- A spill incident report will be prepared by the SHSO.

In the event that a major spill occurs, the following measures will be performed:

- The Site Coordinator (field team leader) and SHSO are to be notified immediately.
- Call 911 to notify the local emergency response agency of the spill.
- Workers not involved in spill containment and/or cleanup will evacuate the immediate area and designated emergency response personnel attired in appropriate personal protective equipment (PPE), will proceed to the spill area with a spill cleanup and control kit.
- The SHSO will monitor for exposure to chemicals or hazardous substances during spill cleanup work and will stay at the spill area until the area has been cleaned of the spill, inspected, and readied for reentry.
- A spill incident report will be prepared by the SHSO.

5.3. Record Keeping and Notifications

The SHSO will thoroughly document the spill in an Incident Report, which will be forwarded to the Corporate Safety Manager and Project Manager. Records of all hazardous materials releases will be maintained with the project files and the facility operating record. The Project Manager will make any necessary notifications to off-site authorities and the Safety Manager will approve the reentry to the site for routine use and will issue a final release report pertaining to cleanup of the area.

6. PERSONNEL TRAINING PROGRAM

All personnel responsible for the implementation of this SWPPP and compliance with the General Permit will read and understand the SWPPP, the General Permit, and the Erosion and Sediment Control Field Manual (RWQCB, San Francisco Bay Region, 1999). The general contractor and other subcontractors will be responsible for compliance with the SWPPP. Ninyo & Moore personnel will be responsible for the oversight of the SWPPP including the oversight of the general contractor storm water practices, field inspections and the revisions and amendments of the SWPPP.

Before personnel enter the site, they will be given the health and safety requirements for the site, as well as, other environmental considerations necessary for the project.

7. RESPONSIBLE PARTIES

Personnel responsible for the monitoring, reporting and inspections requirements of the SWPPP are identified in Table C-1.

Table C-1 – Responsible Personnel for the Site

Title	Name	Daytime	After Hours
Project Manager	Kris Larson	(510) 301-9446	(510)301-9446
Field Team Leader	Kris Larson	(510) 301-9446	(510) 301-9446
Site Health and Safety Officer(SHSO)	Bill Larkin	(510)385-5054	(510) 385-5054
Ninyo & Moore Environmental Manager	Kris Larson	(510) 301-9446	(510) 301-9446
Subcontractor 1	TBD	TBD	TBD
Subcontractor 2	TBD	TBD	TBD

TBD – To be determined

8. LIMITATIONS

Refer to Section 6 of the SCP.

APPENDIX D

TRANSPORTATION PLAN

CITY OF EMERYVILLE PROJECT NO. EPW 106-07

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1. INTRODUCTION

The Transportation Plan (TP) has been prepared for the soil remediation project at the former Dutro property at 1333–1379 62nd Street located in Emeryville, California (site). The objective of the TP is to outline the off-site transportation of contaminated soil from the site. This plan describes safe transportation and removal methods to minimize potential environmental and human health risks. The plan addresses waste characterization, traffic control, transportation mode, safe truck loading methods, transportation destination and route, record keeping, and health and safety concerns with respect to soil removal and transportation, and contingency plans for emergency situations.

Soil transportation and disposal activities will include stockpile sampling and characterization, loading, transport and disposal of constituents of concern (COCs) impacted soils. Stockpile sampling and characterization will be performed by Ninyo & Moore personnel. Loading of COC impacted soil will be performed by a general transportation contractor.

The general transportation contractor will develop their specific TP (covering their personnel), and it will be submitted to the City of Emeryville (City) for review and approval prior to the start of transportation activities.

2. TRANSPORTED MATERIALS

2.1. Waste Quantities and Classification

Site remediation requires the excavation and off-site disposal of soils containing levels of COCs exceeding specified cleanup levels established for site redevelopment. This project involves the physical removal of the soils from the site and transporting those soils to either a permitted landfill or treatment facility for disposal. Prior to soil excavation, existing site structures would be demolished. Primary constituents include total petroleum hydrocarbons (as diesel and motor oil), lead, and benzo(a)pyrene.

Implementation of the excavation and disposal alternative involves excavation and segregation of soils into stockpiles of non-impacted; contaminated, but non-hazardous; and

hazardous soil into stockpiles. Composite samples would be collected from the stockpiles following the Site Cleanup Plan (SCP) and Field Sampling and Analysis Plan (Appendix A) and the results would be included on a waste profile form for landfill review. Upon landfill acceptance, the soil stockpiles would be loaded onto trucks and transported to a Class I or II landfill, as appropriate.

Confirmation sampling will be performed following excavation to evaluate if soil removal/cleanup goals have been achieved. Sampling activities are outlined in the Sampling Analysis Plan (Appendix A).

2.2. Destination of Material

Both waste and impacted soil will be hauled to an approved disposal facility. Four disposal facilities have been identified to accept waste and impacted soil; Keller Canyon Disposal Facility, Vasco Road (Republic) Landfill, Altamont (Waste Management) Landfill, and Kettleman Hills (Waste Management) Disposal Facility.

Non-hazardous waste will be transported to Allied Waste Materials' Class II Keller Canyon landfill facility located in Pittsburg, California or Vasco Road or Altamont Landfill located in Livermore, California.

Name:	Keller Canyon Disposal Facility
Address:	901 Bailey Road, Pittsburg, California 94565
Phone No.:	925-458-9891

Name:	Vasco Road Landfill
Address:	4001 North Vasco Road, Livermore, California 94551
Phone No.:	925-447-0491

Name: Altamont Landfill
Address: 10840 Altamont Pass Rd., Livermore, CA 94550
Phone No.: (800) 449-6349

Hazardous soil and waste will be transported to the Class I Chemical Waste Management's Kettleman Hills facility located in Kettleman City, California.

Name: Kettleman Hills Disposal Facility
Address: 35251 Old Skyline Road, Kettleman City, CA 93239-0471
Phone No.: 800-222-2964

Inert demolition building materials and excavated debris will be hauled from the site to a nearby recycling facility.

2.3. Staging and Loading Procedures

The soil transport vehicles will be equipped with plastic sheeting and will be loaded using a standard front-end loader. Several dust and vapor control measures will be implemented during the loading activities. The loading will be conducted in a manner to reduce the potential to generate dust and vapor. Dust suppression during the loading will be performed by limiting the height of soil drop from the loader to the truck and by lightly spraying or misting the stockpiles with water. After the soil is loaded into the transport trucks, the soil will be covered with tarps to prevent soil from spilling out of the trucks during transport to the disposal facility. Vapor suppression will be controlled in accordance with the Air Monitoring Plan, (Appendix F).

Prior to departure, the trucks will move to a decontamination area where loose soil will be removed via dry brushing tires and truck body. The loading and decontamination areas will be swept after each vehicle has departed to minimize affected soil contacting the tires of the next vehicle. At the end of each day, each soil hauling and loading vehicle will be swept down in the loading area. A street sweeper may be utilized for the local street route.

Depending on the stage of the excavation activities, trucks will enter from either 61st or 62nd Street and leave from either 62nd or 61st Street. A flagman will be located at this entrance/exit to control traffic during truck exiting and entering the site. Lane closure(s) will be conducted if needed, and traffic signage will be posted along 61st and 62nd Street indicating that trucks are entering and exiting these thoroughfares.

2.4. Transportation Mode

Department of Transportation (DOT) approved, placarded end-dump, or bottom dump trucks will transport excavated soil to the appropriate off-site disposal facility. The trucking hours for the work will be between 7am to 3pm. A total of 20 trucks will be utilized each day. The total anticipated number of truck trips to the Class II facilities, Altamont Landfill, Keller Canyon Disposal Facility and Vasco Road Landfill, will be approximately 140 truckloads. The trucks will be able to take three to four trips to the Class II facilities a day. The total number of truckloads to the Class I facility, Kettleman Hills Disposal Facility, is approximately 160 truckloads. It is estimated that each truck will be able to take one to two trips each day to this facility. Truck drivers will be encouraged to travel before or after peak traffic hours to avoid traffic congestion. The number of vehicles to be used for soil loading and transport will be minimized to avoid generating excess decontamination wastes. Waste haulers will be required to provide proof of valid registrations and permits for hazardous waste transport. The vehicles will be properly registered, operated, and placarded in compliance with local, state, and federal requirements. Trucks will be inspected by the transportation contractor technical staff representative before leaving the site to verify that they are properly registered, operated, and placarded in accordance with the requirements.

2.5. Transportation Route

The truck route to the Keller Canyon Landfill, Vasco Road Landfill, and the Kettleman Hills Landfill are shown in Figures D-1 through D-5.

Depending on the stage of excavation activities, loaded trucks will exit the jobsite onto either 61st or 62nd Street and head west to Hollis Street. At Hollis Street, trucks will turn left

onto Hollis Street and proceed south to Powell Street. Trucks will turn right onto Powell Street and proceed to Highway 80. Figure D-1 shows the city street truck route.

Trucks going to Keller Canyon Landfill will take the northbound ramp onto Highway 80 from Powell Street. Trucks will continue on Highway 80 until the Highway 4 interchange. At the Highway 4 interchange, trucks will take Highway 4 east towards Pittsburg. The time required for a one-way trip from the site to the Keller Canyon Landfill is estimated at about 1 hour. Figure D-2 shows the truck route from the site to Keller Canyon Landfill.

Trucks going to Vasco Road Landfill will take the southbound ramp onto Highway 80 from Powell Street. The trucks will continue on Highway 80 to Highway 880 until the Highway 238 interchange. Trucks will head east on Highway 238 until Highway 238 merges with Highway 580. Trucks will continue east until the Highway 580 to Vasco Road. Trucks will continue north on Vasco Road. Trucks will continue on North Vasco Road until they reach Vasco Road Landfill. The time required for a one-way trip from the site to the Vasco Road Landfill is estimated at about 1 hour. Figure D-3 shows the location of Vasco Road Landfill relative to the site.

Trucks going to Kettleman Hill Landfill will take the southbound ramp onto Highway 80 from Powell Street. The trucks will continue on Highway 80 to Highway 880 until the Highway 238 interchange. Trucks will head east on Highway 238 until Highway 238 merges with Highway 580. Trucks will continue east until the Highway 580 and Highway 5 interchange. At the Highway 580 and Highway 5 interchange, trucks will head south onto Highway 5 to Kettleman City. Figure D-4 and D-5 show the location of Kettleman Hills Class I landfill relative to the site. The time required for a one-way trip from the site to Kettleman Hill Landfill is estimated at about 3 hours.

Prior to initiating soil removal activities, vehicle transportation routes will be agreed upon by the soil transport contractor. In addition, an alternate route will be agreed upon in the event of a traffic accident affecting the original travel route.

Transportation of soil on local streets and highways will be in accordance with applicable City of Emeryville Department of Parking and Transportation, the California Highway Patrol, and the DOT requirements. A street sweeper may be retained to sweep the local street truck route if needed.

Excavated soil loading and import fill unloading will occur at proposed areas designated in Figure B-2 in the SCP (Appendix B). The SCP may be modified prior to commencement of excavation activities pending results of the pre-excavation soil sampling plan. The proposed route for travel from the site to major freeways is shown in Figure D-1.

2.6. Record Keeping

Prior to loading each waste transport vehicle, the vehicle will be inspected for general roadworthiness. The vehicle will be weighed on site, if equipped with a scale; if not, the truck will be weighed at the waste disposal facility. The load weight will be noted on a manifest (or bill of lading). A representative from the City will sign the manifest. The driver will then sign the manifest, leave a copy with the designated on-site records keeper, and depart the site. The contractor will provide weight tickets to the representative designated by the City. Upon receipt of the impacted soil, the disposal facility will weigh the load. The vehicle driver will sign the manifest releasing the soil to the treatment/disposal facility. A representative from the disposal facility will sign the manifest and leave a copy with the driver. A copy of the completed manifest will be forwarded to a representative designated by the City. The same procedure will be used for the removal of soil bins, and 55-gallon drums. Copies of treatment and/or disposal documentation for wastes generated at the site will be included in a report on the field activities.

2.7. Health and Safety Plan

The general contractor will develop a Health and Safety Plan (HASP) for its workers that will be submitted to the City for review prior to the start of transportation activities. The contractor's HASP will present conditions that may be encountered at the site, and includes work activities related to the excavation of soil and the transport and disposal of waste material from

the site. The contractor's HASP must meet or exceed the requirements of the Ninyo & Moore HASP (Appendix E). The contractor's HASP must address the following:

- Identify and describe potentially hazardous substances that may be encountered during field operations.
- Specify protective equipment and clothing for on-site activities.
- Outlines closest hospital and route to hospital in case of an emergency.

Field personnel will review and sign the HASP prior to commencing the field activities. Field monitoring activities will be recorded and the HASP will be maintained in the project files. A copy of the HASP will remain on-site during field activities.

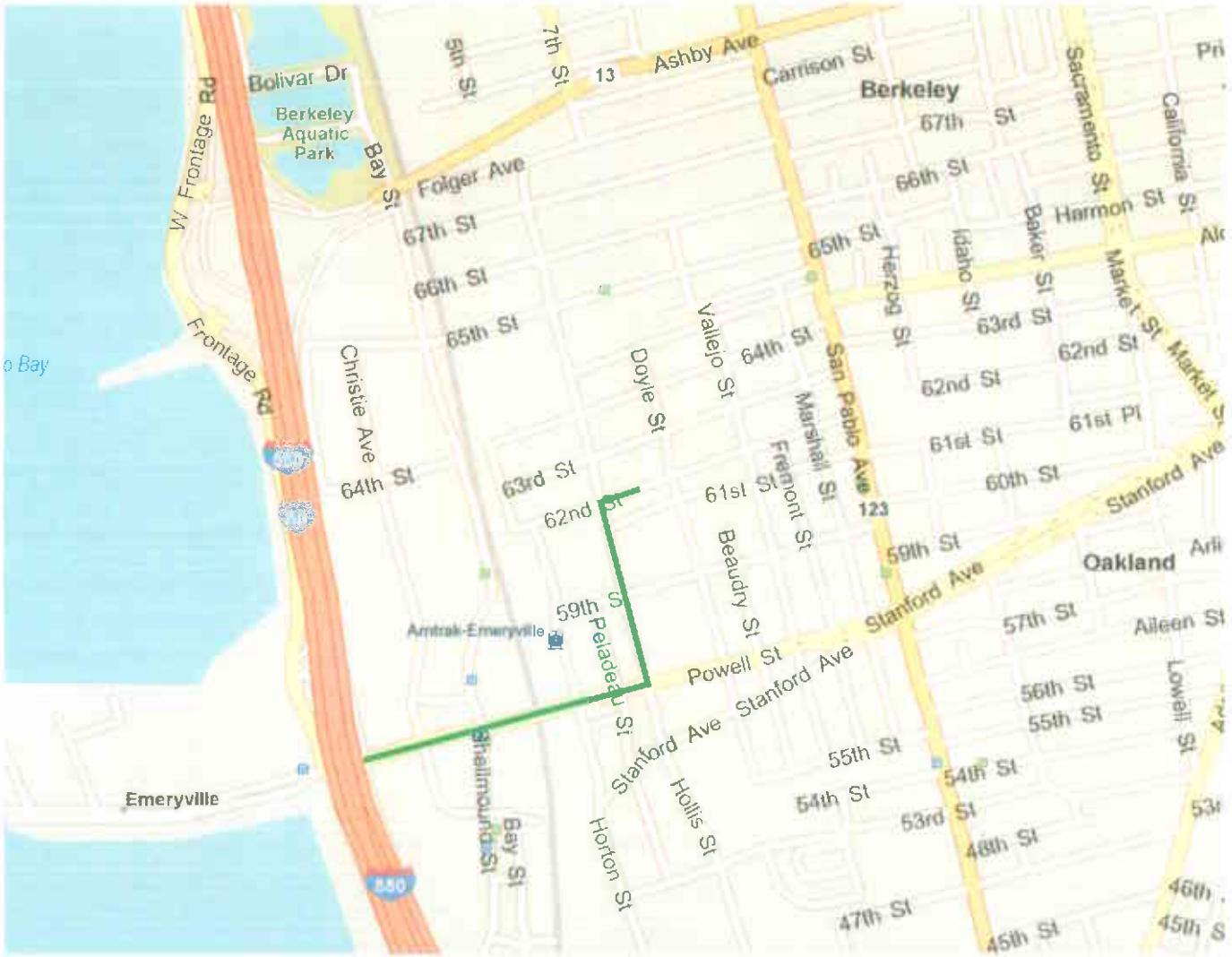
2.8. Contingency Plan

Prior to initiating field activities, contingency plans will be made for the various stages of activities. Multiple transportation routes will be agreed upon in advance between the soil transport contractor and the transportation departments for the cities and counties affected. Multiple staging and loading areas will be identified in the event that access by the vehicles is difficult or wind velocity and/or direction make one location unusable.

An emergency response plan for soil transport will be prepared by the transportation contractor.

3. LIMITATIONS

Refer to Section 6 of the SCP.



Ninyo & Moore

PROPOSED CITY STREET TRUCK ROUTE

CITY OF EMERYVILLE REDEVELOPMENT AGENCY
1333-1379 62ND STREET
EMERYVILLE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
400582002	09/07	D-1

Ninyo & Moore

PROPOSED TRUCK ROUTE TO KELLER CANYON LANDFILL

CITY OF EMERYVILLE REDEVELOPMENT AGENCY
1333-1379 62ND STREET
EMERYVILLE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
400582002	09/07	D-2

0 4

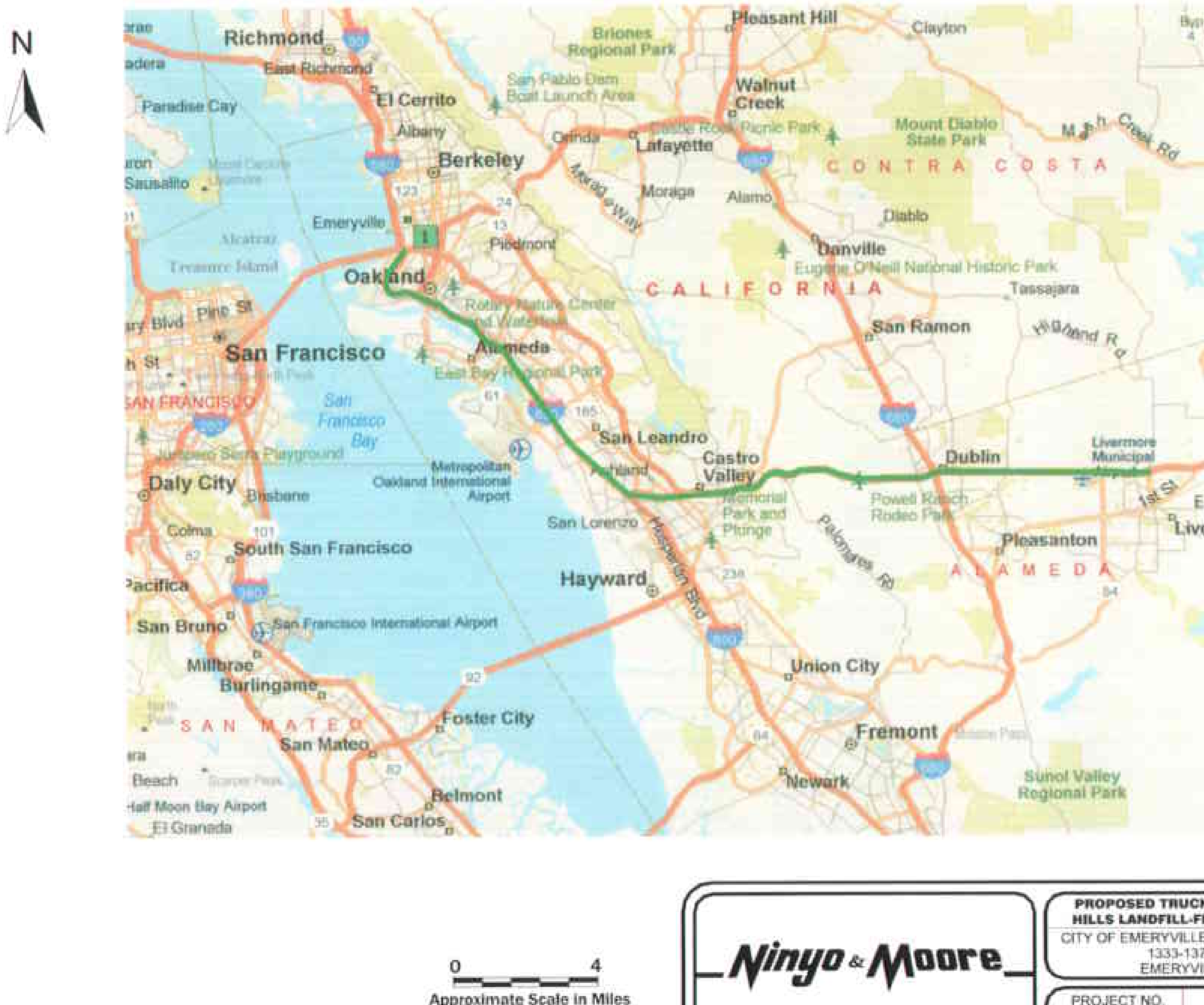
Approximate Scale in Miles

Ninyo & Moore

PROPOSED ROUTE TO VASCO ROAD LANDFILL

CITY OF EMERYVILLE REDEVELOPMENT AGENCY
1333-1379 62ND STREET
EMERYVILLE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
400582002	09/07	D-3



Ninyo & Moore

PROPOSED TRUCK ROUTE TO KETTLEMAN HILLS LANDFILL-FIRST 35 MILES OF ROUTE

CITY OF EMERYVILLE REDEVELOPMENT AGENCY
1333-1379 62ND STREET
EMERYVILLE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
400582002	09/07	D-4

Ninyo & Moore

PROPOSED TRUCK ROUTE TO KETTLEMAN HILLS LANDFILL-FULL ROUTE

CITY OF EMERYVILLE REDEVELOPMENT AGENCY
1333-1379 62ND STREET
EMERYVILLE, CALIFORNIA

PROJECT NO.	DATE	FIGURE
400582002	09/07	D-5

APPENDIX E

HEALTH AND SAFETY PLAN
CITY OF EMERYVILLE PROJECT NO. EPW 106-07

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Tables

Attachments

1. INTRODUCTION

A soil remediation project is being performed at the former Dutro property at 1333–1379 62nd Street located in Emeryville, California. The objective of site remediation is to reduce the risk of exposure from contaminants of concern (COCs) in site soils to levels appropriate for planned future development.

1.1. Purpose of Plan

This Health and Safety Plan (HASP) was prepared by Ninyo & Moore and supplements the Ninyo & Moore Injury and Illness Prevention Program and the Ninyo & Moore Health and Safety Management Standards. It is written specifically for Ninyo & Moore personnel during excavation and demolition activities at the former Dutro property. This HASP describes the work to be performed and addresses health and safety concerns with respect to proposed demolition and excavation activities, as well as, personal protection requirements and safe working practices, monitoring and site control procedures, and contingency plans for emergency situations.

A separate HASP will be prepared for site workers by the general contractor, which will be submitted to the City for review prior to the commencement of field activities.

This HASP was prepared for Ninyo & Moore personnel use while performing the following construction related tasks:

- Task 1: Implementing a Storm Water Pollution Prevention Plan (SWPPP).
- Task 2: Overseeing infrastructure demolition (existing building, concrete pads, loading dock, and on-site buried utilities), and excavation and loading of contaminated soils on-site soil.
- Task 3: Conducting site characterization sampling and confirmation soil sampling of excavation areas, and soil stockpile sampling for waste characterization.
- Task 4: Decontaminating site equipment.
- Task 5: Overseeing site restoration activities including backfilling, compaction, and re-grading of site soils, if necessary.

Site remediation activities will include demolition, excavation, stockpiling (if required), and loading and transport of COC impacted soils.

2. SITE DESCRIPTION

2.1. General

Site remediation requires the excavation and off-site disposal of soils containing levels of constituents exceeding specified site cleanup levels established for site redevelopment. This project involves the physical removal of the soils from the site and transporting those soils to either a permitted landfill or treatment facility for disposal. Prior to soil excavation, existing site structures would be demolished. Primary constituents include total petroleum hydrocarbons (as diesel [TPH-D] and motor oil [TPH-MO]), lead, and benzo(a)pyrene.

On-site field operations will include: excavation and segregation of soils into stockpiles of non-impacted; contaminated, but non-hazardous; and hazardous soil stockpiles. Composite samples will be collected from the stockpiles, analyzed, and the results will be included on a waste profile form for landfill review. Upon landfill acceptance, the soil stockpiles will be loaded on trucks and transported to a Class I or II landfill, as appropriate.

Confirmation sampling will be performed following excavation to evaluate if soil removal/cleanup goals have been achieved.

2.2. Known Contaminants

Contaminants detected during previous site investigations include TPH-D, TPH-MO, and lead, and cleanup goals have been recommended for these COCs. Recommended cleanup goals for TPH constituents are related to the Regional Water Quality Control Plan (RWQCB) Human Health Direct Exposure concentrations for shallow soil screening levels (<3m below ground surface), residential land use, where potentially impacted groundwater is a current or potential drinking water source (RWQCB, 2005). These cleanup goals for TPH-D are 400 milligrams per kilogram (mg/kg); and the TPH-MO goal is 1,000 mg/kg. Additionally, the

total TPH concentrations (sum of concentration of individual fractions for TPH-D + TPH-MO) do not exceed 1,000 mg/kg. Because these cleanup goals were established for a residential land use, they provide a conservative estimate for park use by recreational visitors with much more limited site exposures.

Recommended lead cleanup concentrations were calculated by the SOMA Corporation using the Department of Toxic Substance Control (DTSC) lead spread model (Version 7) (SOMA, 2005). Lead cleanup concentrations were calculated for construction worker exposure and recreational visitor exposure to lead concentration in soil, water and air. The DTSC lead spread model specifies an acceptable blood-lead level for construction worker and recreational visitor receptor at 10 micrograms per deciliter (µg/dL) (DTSC, 2000). If the lead in soil/dust concentration is 370 mg/kg for a pregnant Mexican American construction worker, exposure to this material could result in a blood level of 10 µg/dL for an exposure period of 90 days per year when construction workers are exposed to soil up to 5.0-feet deep. Additionally, a lead in soil/dust concentration of 1,250 mg/kg in soils would result in a blood level concentration of 10 µg/dL for an adult recreational visitor and a lead in dust concentration at 515 mg/kg would result in a concentration of 10 µg/dL for a child visitor exposed to soil for 7 days. Because 370 mg/kg in soils is the most conservative level, it will be used as the cleanup goal.

Concentrations of arsenic were identified above Environmental Screening Levels (ESLs) and Preliminary Remediation Goals (PRGs) in site soils. Because site activities are not believed to have contributed to detected arsenic concentrations, arsenic in site soils is most likely related to naturally occurring arsenic in the region. Arsenic cleanup goals will therefore be consistent with the background arsenic concentrations for the Oakland region, as determined by Lawrence Berkeley National Laboratory (LBNL) Environmental Restoration Program (LBNL, 2005), at 19.5 mg/kg.

Residential ESLs and PRGs have been established for benzo(a)pyrene, which was detected in the soil samples contaminated with other polynuclear aromatic hydrocarbons (PAHs). The cleanup level recommended for benzo(a)pyrene in site soils is the residential land use PRG

limit of 62 micrograms per kilogram (µg/kg). Because this cleanup goal was established for a residential land use, it provides a conservative estimate for park use by recreational visitors with much more limited site exposure.

The material safety data sheets for TPH, arsenic, lead, and benzo(a)pyrene in soil are included in this HASP as Attachment 1. These sheets summarize the physical characteristics and health hazards associated with each chemical.

Groundwater cleanup goals were not developed because COCs were not detected above ESL or maximum contaminant level; groundwater is not a source of drinking water on site; and groundwater was not encountered within 10.0 feet of the surface during groundwater collection activities. Currently planned remedial activities are not expected to extend to depths where groundwater would be encountered.

3. SCOPE OF WORK

3.1. Work Plan Summary

Work will be conducted in a manner consistent with the methods and assumptions outlined in Section 3 of the Site Cleanup Plan.

3.2. Task Summary

The following specific tasks will be performed at the former Dutro property:

3.2.1. Demolition:

- Existing structures will be demolished before excavation activities begin.

3.2.2. Soil Excavation:

- Approximately 7,150 tons of impacted soil may have to be excavated and removed from the site.

3.2.3. Soil Stockpiling, Sampling and Hauling:

- If necessary, excavated soil will be segregated into three stockpiles: non-impacted, contaminated but non-hazardous (Class II) and hazardous soil (Class I).
- If necessary, additional, composite samples will be collected and analyzed from the stockpiles. The results will be included on a waste profile form for landfill review.
- Upon landfill acceptance, the soil stockpiles will be loaded on trucks and transported to either a Class I or Class II landfill.

4. ORGANIZATION AND RESPONSIBILITIES

4.1. General

Personnel responsible for fieldwork are identified in Table E-1.

Table E-1 – Responsible Personnel for the Site

Title	Name	Daytime	After Hours
Project Manager	Kris Larson	(510) 301-9446	(510) 301-9446
Field Team Leader	Kris Larson	(510) 301-9446	(510) 301-9446
Site Health and Safety Officer(SHSO)	Bill Larkin	(510) 385-5054	(510) 385-5054
Ninyo & Moore Corporate Safety and Health Officer	Steve Waide	858-576-1000 X1282	(619) 222-9351
Subcontractor 1	TBD	TBD	TBD
Subcontractor 2	TBD	TBD	TBD

TBD – To be determined

5. HAZARD IDENTIFICATION AND ANALYSIS

5.1. Physical Hazards

The physical hazards associated with this project include noise; heavy equipment; falling, slipping, and tripping; heat stress; and general physical hazards. These physical hazards are discussed in the following sections.

5.1.1. Noise

Working near heavy equipment or a number of other site activities, can subject workers to noise exposures in excess of allowable limits. Nonessential personnel who do not need to be next to loud equipment should stay as far away as possible to lower the risk of noise-induced hearing loss. Personnel who operate or must work next to heavy equipment will be required to wear hearing protection (ear plugs or muffs) to reduce their exposure to excessive noise. Persons who enter work areas where heavy equipment is operating in excess of 85 decibels will be required to wear hearing protection.

Subcontractor personnel will implement equivalent effective hearing conservation programs in accordance with Program requirements.

Work activities will be conducted in accordance with the City of Emeryville's noise ordinance which limits work activities between the hours of 7am to 6pm, Monday through Friday.

5.1.2. Vehicle and Heavy Equipment Operation

Vehicles will only be operated in authorized areas. When moving equipment, caution should be exercised in order not to damage equipment or cause injury. When backing up heavy vehicles (larger than pickup trucks), passenger vehicles, or pickups with obscured rear vision, a guide will be used to direct the vehicle. Extra caution will be exercised during vehicle operation on dike roads, industrial areas, and other close spaces. Personnel directing traffic will wear orange vests. Each vehicle will be equipped with a minimum of one fire extinguisher rated 3A:40B:40C.

5.1.3. Subcontractor-Furnished Equipment

The subcontractor is responsible for proper and safe operation of all the equipment they bring to the site. Only subcontractor employees will operate subcontractor-furnished equipment unless that equipment is expressly provided for use of other site personnel. This section does not prohibit use of power from subcontractor-provided generators, however, if generators will be utilized, it will be only during the noise ordinance times.

5.1.4. Falling, Slipping, and Tripping

Work zone surfaces will be maintained in a neat and orderly state. Foot traffic will avoid areas where materials are stored on the ground. Tools and materials will not be left randomly on surfaces when not in direct use. Hoses and cables will be grouped, routed to minimize hazards, and covered with a ramp or bridge or clearly marked with hazard tape or flags if such material will remain in place for more than one shift.

5.1.5. Work Near Roadways

Work near roadways will occur when equipment is being brought on site and off site and when contaminated soil is being hauled off site. Traffic control is discussed in the Transportation Plan (Appendix D).

5.1.6. Extreme Heat and Heat Stress

Heat stress is an important health consideration on construction sites. Weather conditions, characterized by high temperatures and low humidity, in conjunction with wearing personal protective clothing, may aggravate heat-stress problems. Standard measures, including designating a shaded rest area, taking frequent rest breaks, and performing heat-stress monitoring of workers, will be used to minimize heat-stress-related problems. A readily available supply of liquids, such as water and fluids containing electrolytes, will be provided at the work site to replenish body fluids. Visual observation of workers by the Site Health and Safety Officer (SHSO) for heat-stress-related signs and symptoms, and body core temperature monitoring will be performed when outside temperatures exceed 70 degrees Fahrenheit and impermeable clothing is being worn; when outside temperatures exceed 90 degrees Fahrenheit in street clothes or whenever other conditions warrant. Signs and symptoms of heat stress include profuse sweating, headache, skin flushing, dizziness, confusion, and rapid heart rate. Workers exhibiting a body core temperature of 100.4 degrees Fahrenheit or greater (measured at the ear drum) will be removed to a cooler area or activity until body core temperature returns to below 99 degrees Fahrenheit. Action levels for heat stress and frequency of

physiological monitoring for fit and acclimated workers are summarized in Tables E-2 and E-3.

If persons exhibiting heat-stress symptoms are left untreated, the condition can elevate to heat stroke. Heat stroke is typically manifested by hot, dry skin with a body core temperature of 104 degrees Fahrenheit or greater. Heat stroke can be fatal if treatment is delayed. Therefore, persons exhibiting heat-stroke symptoms need to have their core temperature reduced immediately by use of cold packs, cold water wipes, or immersion. Heat-stroke victims need to be transported to a professional medical facility immediately after the victim's core temperature has been reduced or while the victim's core temperature is being reduced.

Table E-2 – Action Levels for Heat Stress

Type Measurement	Action Level	Action
Ear insertable core temperature	100.4 degrees Fahrenheit or greater	Remove from work
Ear insertable core temperature	<99 degrees Fahrenheit	Return to work

Table E-3 – Frequency of Physiological Monitoring for Fit and Acclimated Workers

Adjusted Temperature[1]	Normal Work Ensemble[2] After Each:	Impermeable Ensemble After Each:
90° F (32.2° C) or above	45 minutes of work	15 minutes of work
86.5° F - 90° F (30.8° C - 32.2° C)	60 minutes of work	30 minutes of work
82.5° F - 86.5° F (28.1° C - 30.8° C)	90 minutes of work	60 minutes of work
76.5° F - 82.5° F (25.3° C - 28.1° C)	120 minutes of work	90 minutes of work
72.5° F - 76.5° F (22.5° C - 25.3° C)	150 minutes of work	120 minutes of work

Notes:

1 Calculate the adjusted air temperature (Ta adj) with the following equation:
Ta adj(°F) = Ta(°F) + (13 X %sunshine / 100)
Measure air temperature (Ta) with a standard mercury-in-glass thermometer with the bulb shielded from radiant heat. Estimate the percent sunshine by judging what percent time the sun is not covered by clouds that are thick enough to attenuate shadow (100% sunshine = no cloud cover and a sharp, distinct shadow; 0% sunshine = no shadow).

2- A normal work ensemble consists of coveralls or other cotton clothing with long sleeves and pants.

5.1.7. General Physical Hazards

The site may have ditches, areas that are poorly drained, rough or uneven terrain, depressed areas (that may present oxygen deficiency or flammable gas collection areas), protruding objects, and impalement hazards. The SHSO will assure that a careful pre-work walkover is made of all work areas and potential access or egress routes. Unsafe areas may be flagged or taped by the SHSO and will be identified to all personnel.

5.1.8. Solar Radiation

The SHSO will encourage program personnel working out of doors to implement skin covering or use sunblock preparations to minimize the harmful effects of the sun's rays on the skin.

5.2. Industrial Hazards

Project activities at this field site may expose personnel to various industrial hazards. The following section presents a summary of the industrial hazards expected and general methods that will be utilized by the employees to assure worker safety.

5.2.1. Soil Excavation/Trenching

Excavation of contaminated soil presents multiple hazards to workers including chemical exposure, fire and explosion hazards, confined space, and exposure to hazards of contacting unidentified energized utility contact. All work areas will be cleared by the independent utility locators prior to soil-intrusive work or movement of heavy equipment into or through utility corridors, and on-site utilities will be shut off and disconnected prior to demolition and excavation activities. A competent person will be on site during all excavation activities to identify potential safety issues associated with trenching and excavation.

5.2.2. Overhead Electrical Hazards

Overhead cables may be present on site. A detailed hazard analysis will be prepared by the subcontractor prior to operating heavy equipment (excavators and cranes) underneath or within 20.0 feet of the maximum reach of the equipment.

5.2.3. Pipelines

Overhead and buried pipelines containing natural gas and petroleum fuels are common on industrial sites. These pipelines present another source of a potential fire and explosion hazard. All work areas will be cleared by the independent utility locators prior to soil-intrusive work or movement of heavy equipment into or through utility corridors. Project personnel will obtain written clearances that set forth the detailed requirements for obtaining clearance to excavate at the site. In addition, when locations of buried lines are uncertain, hand excavation will always be performed until the utility is located or the area is cleared. The responsible installation operations or maintenance department will review the location of emergency shutoff valves with project personnel at the pre-job meeting or tool box safety meeting prior to working in an area of concern.

5.3. Demolition Hazards

Project activities at this field site may expose personnel to various demolition hazards. The following section presents a summary of expected hazards and general methods to be utilized by the employees to assure worker safety.

5.3.1. Asbestos

Asbestos has been identified in building materials on site and is found as a common constituent of many building materials particularly from structures which were constructed before 1980. Often the presence of asbestos cannot be ascertained by visual inspection. Among the building materials that contain asbestos are roofing materials, floor and ceiling tiles, pipe insulation, plaster, stucco, drywall and joint compound, roofing felts and mastics and fireproofing material in high rises.

Ninyo & Moore completed a Hazardous Building Materials Survey (HBMS) in February 2005 that included an asbestos survey of the site building. The results of this survey will be used to guide the removal of asbestos containing material prior to building demolition.

5.3.2. Lead Paint

Lead paint has been used widely on building interiors and exteriors and has been identified in the on-site building. Lead is a toxic heavy metal and a suspected carcinogen and may become a serious health hazard if it becomes airborne during demolition. A lead survey was performed on the site building as part of the HBMS in February 2005 by Ninyo & Moore. Lead was reported in several paint chip samples collected. The results will be used to guide the removal of lead containing paint prior to building demolition. Lead also may be encountered as a soil contaminant in locations near tanks and other process equipment as a result of painting operations, and as a result of spills or leakage of motor fuels containing lead additives. Where lead is identified in sufficiently high concentrations, work will be conducted in accordance with the applicable Occupational Safety & Health Administration (OSHA) standards.

5.3.3. Mold

Mold can be present on building materials as a result of moisture intrusion. Some molds are highly toxic and some are suspected carcinogens. In most cases of heavy mold infestations, negative pressure containments are constructed prior to removal and removal is performed in respiratory protection in a similar fashion to asbestos removal. Where mold is encountered during demolition activity, work should be stopped until an evaluation can be performed by a competent person

5.3.4. Animal Feces

Bird and rodent feces are commonly encountered during demolition activities within abandoned structures, sometimes in significant amounts. Rodent-borne disease which can be contracted from exposure to this contamination includes hantavirus, which re-

sults in severe respiratory distress, plague, and sometimes death. Rodent feces should be decontaminated with a 10 percent hypochlorite (bleach) solution and removed via wet methods (preferably) or with a high-efficiency particulate air (HEPA) equipped vacuum system and respiratory protection. Workers should be advised of the hazard and risks of the work. Workers should be further advised that if a fever or respiratory illness develops within 45 days of the potential exposure, they should seek medical attention and inform the physician of potential hantavirus exposure.

Histoplasmosis is a systemic fungal infection that is most often found associated with bird or bat excreta, but can also be present in soil. The organism is almost always acquired by the respiratory route. A variety of clinical manifestations may result, ranging from overwhelming acute pneumonia to chronic, progressive pulmonary disease, or disseminated disease involving many organ systems. Wetting the material before disturbing it, may prevent airborne dissemination. Respirators with HEPA filters, should be used during cleanup.

5.4. Chemical Hazards

This section describes the toxicological (health) hazards associated with exposure to organic and inorganic chemicals and/or metals which may be encountered during the project.

5.4.1. Petroleum Hydrocarbons

TPH is a term used to describe a large family of several hundred chemical compounds that originally come from crude oil. TPH is a mixture of chemicals, but they are all made mainly from hydrocarbons. Some chemicals that may be found in TPH are hexane, jet fuels, mineral oils, benzene, toluene, xylenes, naphthalene, and fluorene, as well as other petroleum products and gasoline components. Some of the TPH compounds can affect your central nervous system. One compound can cause headaches and dizziness at high levels in the air. Another compound can cause a nerve disorder called "peripheral neuropathy," consisting of numbness in the feet and legs. Other TPH compounds can cause effects on the blood, immune system, lungs, skin, and eyes.

Animal studies have shown effects on the lungs, central nervous system, liver, and kidney from exposure to TPH compounds. Some TPH compounds have also been shown to affect reproduction and the developing fetus in animals. The International Agency for Research on Cancer (IARC) has determined that one TPH compound (benzene) is carcinogenic to humans. IARC has determined that other TPH compounds (benzo[a]pyrene and gasoline) are probably and possibly carcinogenic to humans. Most of the other TPH compounds are considered not to be classifiable by IARC. TPH-D and TPH-MO have been reported above action levels, however neither compound has been classified as a carcinogen.

5.4.2. Lead

Lead may be encountered as a contaminant of soil in locations near tanks and other process equipment as a result of painting operations. Lead may also be encountered as a result of spills or leakage of motor fuels containing lead additives. Lead is a toxic heavy metal and a suspected carcinogen that may be encountered in inorganic or organic forms.

Where lead is identified as present in sufficiently high concentrations, work will be conducted in accordance with the applicable OSHA standards. Lead has been detected above action levels on site.

5.4.3. Asbestos

Asbestos may be a contaminant of soil in locations near overhead pipe racks, process areas, former process areas, or where fill has been imported. Asbestos occurs in soil as a result of deterioration of insulation that contained asbestos. Asbestos occurs as a common constituent of many manufactured products. Often the presence of asbestos cannot be ascertained by visual inspection. Among the products that contain asbestos are pipe, bricks, flooring, friction products, coatings, insulation, plastics, and textiles.

Asbestos is regulated as a carcinogen in accordance with OSHA. Work in areas where asbestos is present will be evaluated by the SHSO, and as applicable, OSHA regulatory requirements will apply to the work.

5.4.4. Polynuclear Aromatic Hydrocarbons

Polynuclear aromatic hydrocarbons (PAHs) are produced from coal tar and other sources and are used in a variety of industrial products. PAH is a recognized human carcinogen. Exposure by any route to PAH and other recognized human carcinogens will be maintained at the absolute practicable minimum level. The only PAH detected on site above action levels is benzo(a)pyrene.

5.5. Biological Hazards

The SHSO will screen the area for biological hazards during the initial site visit and will discuss any problems with the client or installation personnel during this review

Bees, wasps, yellow jackets, and black widow spiders present a potential hazard on this project, especially so for those individuals sensitized to those bites or stings. Prior to initial assignment on this project, personnel with known allergic responses to insect stings will be identified and field supervisors made aware of this condition. These personnel will also carry an antidote kit if so advised by their physician. The SHSO will confirm that the antidote kit is accessible and notify the emergency medical service providers in the event of any incident.

In all cases, a victim suspected of being bitten by either a black widow or brown recluse spider, or stung by a scorpion will receive medical attention. The venom from the brown recluse spider is capable of causing coma and kidney failure in its victim.

Protection methods against insects may be employed, such as the use of protective clothing or insect repellents, as well as extermination measures, and training in recognition and identification of harmful insects.

6. SITE CONTROL

6.1. General Requirements

Work conducted at this project site will have a site control program established appropriate to the hazards on site and in accordance with good industrial hygiene practice. A temporary fence around the site will be used to restrict access to the site.

6.2. Controlled Area Designation

For intrusive field activities such as excavation activities, precautions will be taken to assure that only authorized personnel with the proper training and personal protective equipment (PPE) enter work areas associated with the operation of heavy equipment and/or the potential for exposure to hazardous conditions/materials. In these areas, access is controlled with caution tape and/or barricades.

7. DECONTAMINATION

7.1. General

The field location(s) will have a decontamination station based on the level of exposure established by the SHSO and this plan. When Level C or modified Level D PPE is utilized, the standard decontamination protocol for Level C PPE will be utilized, as set forth in the Ninyo & Moore Injury and Illness Prevention Program. When Level D PPE is utilized, a minimal decontamination procedure (consisting of washing exposed skin with soap and water) will be required.

7.2. Personnel Decontamination

A decontamination system will be established at the site location when demolition and excavation activities begin. Personnel will be required to brush off boots and wash exposed skin with soap and water before leaving the site.

7.3. Vehicle and Equipment Decontamination

The primary focus of any decontamination program is to minimize the spread of contaminated material beyond a given site. During field activities, a variety of heavy equipment, vehicles, and small equipment is anticipated. The level of potential contamination for vehicles and equipment at this site is "low" for support vehicles used in uncontaminated areas and/or for non-intrusive field activities, and "medium" for intrusive activities in potentially contaminated sites.

To minimize the potential for contaminated material being released en route, contamination will be removed from each vehicle before leaving the exclusion zone. Dry decontamination will be used primarily consisting of brushing tires and siding. If water is used, the wash water will be collected in a lined sump and fluids will be tested and hauled off site for appropriate disposal or recycling/reuse. If gross removal of contaminants is impractical for some items, these items will be wrapped in plastic prior to transport. A street sweeper may be utilized for the local street route, if needed.

7.4. Hazardous Waste Minimization Practices

Personnel entering controlled areas will minimize generation of waste that may be classified as hazardous. Disposal materials, wrapping, and packaging will not be brought into controlled areas unless required to prevent cross-contamination. Separate waste containers will be set up for trash, non-hazardous waste, and potentially hazardous waste.

7.5. Testing Requirements Following Decontamination

All items and equipment leaving controlled areas will be inspected by the SHSO for proper decontamination prior to leaving the site. Generally, visual inspection (after dry-wiping) of items used within controlled areas is sufficient to establish adequate decontamination, eliminating the requirement to test for chemical contamination. Subcontractors will notify the SHSO before removing equipment from controlled areas.

7.6. Decontamination Area Arrangements

Specific areas will be designated for waste storage, vehicle and equipment decontamination, emergency supplies, and other necessary equipment.

7.6.1. Waste Storage Area and Decontamination Area

A waste storage area will be established at the site for temporary storage of waste. This area is limited to waste storage activities only. Fieldwork that may cause the spread of contaminated waste outside the waste storage area is prohibited. Waste drum to be temporarily stored on site will be labeled with information regarding contents and waste generation.

8. MEDICAL SURVEILLANCE REQUIREMENTS

8.1. General

All site personnel will be required to participate in their employer's medical surveillance program before being permitted to work on location. The medical surveillance program for Ninyo & Moore employees is described in the Ninyo & Moore Injury and Illness Prevention Program. Teaming partner or subcontractor medical surveillance programs are described in respective company documents. Subcontractors will be required to demonstrate, by document submittal, their maintenance of OSHA-compliant programs and to maintain records as required by the applicable contract. Specific exceptions to the medical surveillance requirements may be granted by the SHSO for site access by specialty subcontractors performing non-intrusive activity.

8.2. Program Personnel

Official copies of all medical surveillance documentation for Ninyo & Moore personnel will be maintained at the Corporate office in order to provide central management and to maintain confidentiality. Medical records of a confidential nature will be maintained by the medical provider or by each employer.

8.3. General

During field activities at 1333-1379 62nd Street., potentially toxic air contaminants, explosive gas mixtures, and hazardous noise levels will be monitored. Monitoring instruments to be used during site activities include a photoionization detector (PID) or a flame ionization detector (FID). Action levels and protection actions are summarized in Table E-5.

8.4. Chemical Agent Monitoring

Chemical monitoring will be conducted during all intrusive operations at 1333-1379 62nd Street. During excavation activities, monitoring will be conducted both at the worker's breathing zone and perimeter air. The action levels for those compounds are summarized in Appendix F (Air Monitoring Plan).

8.5. Environmental (Area) Monitoring

In the event that action levels of contaminants are experienced in workers breathing zones and work continues (in Level "C" protection), perimeter monitoring will be conducted at the outer edge of the controlled area. If action levels are experienced at any perimeter area, work will be suspended until engineering controls or natural ventilation allows ambient area contaminant concentrations to fall below acceptable (action) levels. Table E-4 indicates the frequency of monitoring required for site tasks.

8.6. Personnel Monitoring

Personnel monitoring will be initiated if the action levels for dusts and/or volatile organic compound (VOCs) are equaled or exceeded, and/or personnel are required to work using respiratory protection for periods exceeding one hour. Table E-5 discusses action levels for VOCs and total dust.

Table E-4 – Chemical/Physical Agent Monitoring Requirements

Scope of Work Task	Chemical/Hazard	Instrument	Responsible Group	Initial Frequency
Low Hazard				
Surface soil sampling	TPH, PAHs, Organic vapor	PID/FID	SHSO	Start of task, hourly, continuous if zone of contamination encountered
Moderate hazard				
Excavation and subsurface soil sampling	TPH, PAHs, Organic Vapor	PID/FID	SHSO	Start of task, hourly, continuous if zone of contamination encountered
	Dusts/metals	Mini-RAM	SHSO	At SHSO's discretion
Notes: PID – photoionization detector FID – flame ionization detector				

Table E-5 – Monitoring Methods and Action Levels for Petroleum Hydrocarbon Only[1] Sites Using Screening Survey Instruments

Hazard	Method	Action Level[2]	Protection Action
Total Organic Vapor (benzene suspected)	PID[3] or FID[4]	Background to 5 ppm[5] above background	No action required
		> 5 ppm	Air purifying respirator, half or full face, level C protection with organic vapor cartridges
		> 50 ppm	Supplied air protection, Level B
		> 100 ppm	STOP WORK
Total Organic Vapor (benzene absent[6])	PID[3] or FID[4]	Background to 25 ppm above background	No action required
		> 25 ppm	Air purifying respirator, half or full face, level C protection with organic vapor cartridges
		> 200 ppm	Supplied air protection, Level B
		> 500 ppm	STOP WORK
Total Dust	MiniRAM	5mg/m^3	Use of water, other engineering controls, and respiratory protection, if exceeded.

Notes:
1 Action levels based on gasoline, aviation gasoline, and diesel contaminants only. A conservative 20% benzene is assumed where benzene is not verified absent from atmosphere. Action levels should be reestablished based on periodic analysis of atmosphere.
2 All action levels are readings observed above background
3 photoionization detector
4 flame ionization detector
5 parts per million
6 Confirm benzene is less than 1 ppm with chromatography or colorimetric indicator tube specific for benzene in the presence of petroleum hydrocarbons (Drager, benzene 0.05, #CH24801 or equivalent)

9. PERSONAL PROTECTIVE EQUIPMENT

9.1. General

Based on analytical results for soil and groundwater samples collected and tested during previous investigations, the anticipated level of PPE for most of the field activities will be Level D and modified Level D. Level C PPE will be required at any work site where the levels of contaminants exceed the action levels listed in Table E-3.

As summarized in Table E-6, Level D PPE includes:

- hard hat;
- safety glasses;
- normal work clothes, including long pants; and

Modified Level D PPE includes:

- orange vest;
- ear protection;
- hard hats;
- safety glasses; and
- overboots.

Upgrading to Level C PPE involves modified Level D PPE with the addition of a full-face respirator with HEPA and organic vapor (OV) cartridges.

Table E-6 – Personal Protective Equipment (potential or actual chemical exposure)

Task	Hazard	Level	Body	Respirator	Skin	Other
Soil Excavation Activities	Chemical exposure	D	Normal work clothes Long pants			Hard hat Safety glasses Ear protection
Decontamination of equipment, controlling spread of contamination	Skin contact	Mod. D	PE[b]-coated Tyvek® suit	Half-face with HEPA[c] and OV[d] ready for use	Latex or nitrile gloves	Hard hat Safety glasses
Sampling Activities	Minimal chemical exposure	D	Normal work clothes Long pants		NA	Hard hat Safety glasses

Notes:
[a] where the potential for heat stress exists, modified Level D may be downgraded to Level D if continuous monitoring verifies the absence of organic vapor
[b] PE – polyethylene
[c] HEPA – high-efficiency particulate air
[d] OV – organic vapor filter

10. EMPLOYEE TRAINING ASSIGNMENTS

10.1. General Training Requirements

A matrix summarizing training requirements for Ninyo & Moore personnel, subcontract supervisors and personnel, visitors, and vendors is presented in Table E-7.

Table E-7 – Training Assignment Matrix

Category	40-Hour Basic	8-Hour Refresher	24 Hours Supervised Experience	8-Hour Supervisor Supervisor Refresher[4]	Site-Specific	N&M Safety Orientation	First Aid/CPR	Oxygen Qualified
N&M Employee	X	X	X		X	X	X[1]	X[2]
N&M or Subcontractor Supervisor	X[3]	X[3]	X	X[4]	X[5]	X[5]	X[1]	X[2]
Subcontractor	X[3]	X[3]	X		X[5]	X[5]	X[1]	X[2]
Visitor	X[6]	X[6]	X[7]		X			
Vendor	X[6]	X[6]	X[7]		X			

Notes:
1 At remote locations, (emergency responders more than 10 minutes away) a minimum of two people will be on site, during fieldwork, who have a valid certificate in basic first aid/CPR from the American Red Cross (or equivalent) documented training.
2 At designated remote sites, a minimum of two people will be qualified to deliver oxygen.
3 The requirement for 40-hour basic and 8-hour refresher training for certain non-intrusive work will be made on a case-by-case basis by the Corporate Safety Manager.
4 Employees may take supervisor training in lieu of standard refresher training.
5 A site-specific safety orientation must be given to all visiting/working personnel.
6 For vendors/visitors requiring controlled area access to work on contaminated equipment.
7 Not required if escorted.

11. CONFINED SPACE ENTRY

Confined space entry is not anticipated nor is it authorized for project personnel or subcontractors during this work activity. If it becomes necessary to enter a confined space during this project, appropriate training, equipment and supervision will be put in place and the entry will be made in accordance with a specific confined space entry permit approved by the Corporate Safety Manager. A designated OSHA-competent person for confined space work will be on site during all confined space entry activities. Detailed confined space entry procedures will be maintained for any permit-required confined space work.

12. EMERGENCY RESPONSE

In the event of a medical emergency or fire during fieldwork at 1333-1379 62nd Street in the City of Emeryville, the standard "**911**" emergency telephone number will be called from the on-site mobile phone or any base phone. A mobile telephone will be available during all field activities. On a daily basis, and at each work location, the SHSO and/or field team leader will verify that mobile phones are operational.

Pertinent personnel phone numbers are listed in Section 4. Emergency facility locations and phone numbers are listed in Table E-8. All project vehicles will maintain a copy of this section (Section 12) together with the appropriate emergency maps at all times, in a readily accessible location.

The emergency facility located in closest proximity to the site is the Alameda County Medical Center. The hospital address is 1411 East 31st Street in Oakland. The route from 1333-1379 62nd Street to the hospital is shown in an Attachment 2 to this appendices. In addition, the closest emergency responder is the Emeryville Fire Department Station No. 2, which is located two blocks north at 6303 Hollis Street, Emeryville, California. A Health and Safety Plan Acknowledgement Sheet to be signed by site personnel is included in Attachment 3.

Table E-8 – Emergency Phone Numbers

Emergency	Number	Contact	Notes
Medical, Fire or Police	911	Emergency Operator	
Medical Center (to be used only if local hospital/clinic will be first contact)	(510) 437-4800	Alameda County Medical Center Emergency Room 1411 E. 31st Street Oakland, CA	
Emergency Responder	(510) 596-3750	Emeryville Fire Station No. 2 6303 Hollis Street Emeryville, CA	

13. SPILL PREVENTION AND CONTROL MEASURES

Spill prevention and control measures are covered in the Storm Water Pollution Prevention Plan (Appendix C).

ATTACHMENT 1

MATERIAL SAFETY DATA SHEETS

New Jersey Department of Health and Senior Services

HAZARDOUS SUBSTANCE FACT SHEET

Common Name: **BENZO(a)PYRENE**

CAS Number: 50-32-8
DOT Number: None

RTK Substance number: 0207
Date: August 1992 Revision: July 1998

HAZARD SUMMARY

* **Benzo(a)pyrene** can affect you when breathed in and by passing through your skin.
* **Benzo(a)pyrene** is a CARCINOGEN--HANDLE WITH EXTREME CAUTION.
* Exposure may damage the developing fetus.
* **Benzo(a)pyrene** can cause skin irritation with rash and/or burning sensations. Repeated exposure can cause skin changes such as thickening and darkening.
* Exposure can irritate and/or burn the eyes on contact.
* Except in laboratories, **Benzo(a)pyrene** is usually mixed with other "Coal Tar Pitch" chemicals. CONSULT THE NEW JERSEY DEPARTMENT OF HEALTH and SENIOR SERVICES HAZARDOUS SUBSTANCE FACT SHEETS ON COAL TAR SUBSTANCES.

IDENTIFICATION

Benzo(a)pyrene is a pale yellow, crystalline solid or a powder. In its pure form it is used as a laboratory reagent. **Benzo(a)pyrene** also forms as a gaseous by-product when certain carbon substances burn, such as coal tar pitch chemicals.

REASON FOR CITATION

* **Benzo(a)pyrene** is on the Hazardous Substance List because it is regulated by OSHA and cited by ACGIH, IARC, NIOSH, NTP, EPA, HHAG and DOT.
* This chemical is on the Special Health Hazard Substance List because it is a **CARCINOGEN** and a **MUTAGEN**.
* Definitions are provided on page 5.

HOW TO DETERMINE IF YOU ARE BEING EXPOSED

The New Jersey Right to Know Act requires most employers to label chemicals in the workplace and requires public employers to provide their employees with information and training concerning chemical hazards and controls. The federal OSHA Hazard Communication Standard, 1910.1200, requires private employers to provide similar training and information to their employees.

* Exposure to hazardous substances should be routinely evaluated. This may include collecting personal and area air samples. You can obtain copies of sampling results from your employer. You have a legal right to this information under OSHA 1910.20.
* If you think you are experiencing any work-related health problems, see a doctor trained to recognize occupational diseases. Take this Fact Sheet with you.

WORKPLACE EXPOSURE LIMITS

OSHA: The legal airborne permissible exposure limit (PEL) for *Coal Tar Pitch Volatiles* (*benzene*-soluble fraction) is **0.2 mg/m^3** averaged over an 8-hour workshift.

NIOSH: The recommended airborne exposure limit for *Coal Tar Pitch Volatiles* (*cyclohexane*-extractable fraction) is **0.1 mg/m^3** averaged over a 10-hour workshift.

ACGIH: ACGIH recommends that worker exposures, by all routes, be controlled to levels as low as can be reasonably achieved.

* **Benzo(a)pyrene** is a PROBABLE CARCINOGEN in humans. There may be no safe level of exposure to a carcinogen, so all contact should be reduced to the lowest possible level.
* The above exposure limits are for air levels only. When skin contact also occurs, you may be overexposed, even though air levels are less than the limits listed above.

WAYS OF REDUCING EXPOSURE

* Enclose operations and use local exhaust ventilation at the site of chemical release. If local exhaust ventilation or enclosure is not used, respirators should be worn.
* A regulated, marked area should be established where **Benzo(a)pyrene** is handled, used, stored, or formed.
* Wear protective work clothing.
* Wash thoroughly immediately after exposure to **Benzo(a)pyrene** and at the end of the workshift.
* Post hazard and warning information in the work area. In addition, as part of an ongoing education and training effort, communicate all information on the health and safety hazards of **Benzo(a)pyrene** to potentially exposed workers.

This Fact Sheet is a summary source of information of all potential and most severe health hazards that may result from exposure. Duration of exposure, concentration of the substance and other factors will affect your susceptibility to any of the potential effects described below.

HEALTH HAZARD INFORMATION

Acute Health Effects

The following acute (short-term) health effects may occur immediately or shortly after exposure to **Benzo(a)pyrene**:

* **Benzo(a)pyrene** can cause skin irritation with rash and/or burning sensations. Exposure to sunlight and the chemical together can increase these effects.
* Exposure can irritate and/or burn the eyes on contact.

Chronic Health Effects

The following chronic (long-term) health effects can occur at some time after exposure to **Benzo(a)pyrene** and can last for months or years:

Cancer Hazard

* **Benzo(a)pyrene** is a PROBABLE CARCINOGEN in humans. There is some evidence that it causes skin, lung, and bladder cancer in humans and in animals.
* **Benzo(a)pyrene** has caused CANCER in the offspring of animals exposed to the substance during pregnancy.
* Many scientists believe there is no safe level of exposure to a carcinogen.

Reproductive Hazard

* **Benzo(a)pyrene** may damage the developing fetus.
* There is some evidence that **Benzo(a)pyrene** may affect sperm and testes (male reproductive glands).
* **Benzo(a)pyrene** may be transferred to nursing infants through the exposed mother's milk.

Other Long-Term Effects

* Repeated exposure to **Benzo(a)pyrene** can cause skin changes such as thickening, darkening, and pimples. Later skin changes include loss of color, reddish areas, thinning of the skin, and warts.

MEDICAL

Medical Testing

If warts or other growths on the skin get larger or change color, they should be examined by a doctor for possible early skin cancer. Skin cancer is very often easily cured when detected early.

Any evaluation should include a careful history of past and present symptoms with an exam. Medical tests that look for damage already done are not a substitute for controlling exposure.

Request copies of your medical testing. You have a legal right to this information under OSHA 1910.20.

Mixed Exposures

* Sunlight may cause a rash to develop in people exposed to **Benzo(a)pyrene** and increases the risk of skin cancer.
* Tobacco smoke also contains **Benzo(a)pyrene**. Smoking may increase the risk of lung cancer with exposure to **Benzo(a)pyrene**.

WORKPLACE CONTROLS AND PRACTICES

Unless a less toxic chemical can be substituted for a hazardous substance, **ENGINEERING CONTROLS** are the most effective way of reducing exposure. The best protection is to enclose operations and/or provide local exhaust ventilation at the site of chemical release. Isolating operations can also reduce exposure. Using respirators or protective equipment is less effective than the controls mentioned above, but is sometimes necessary.

In evaluating the controls present in your workplace, consider: (1) how hazardous the substance is, (2) how much of the substance is released into the workplace and (3) whether harmful skin or eye contact could occur. Special controls should be in place for highly toxic chemicals or when significant skin, eye, or breathing exposures are possible.

In addition, the following controls are recommended:

* Where possible, automatically transfer **Benzo(a)pyrene** from drums or other storage containers to process containers.
* Use a Class I, Type B, biological safety hood when working with **Benzo(a)pyrene** in a laboratory.

Good **WORK PRACTICES** can help to reduce hazardous exposures. The following work practices are recommended:

* Workers whose clothing has been contaminated by **Benzo(a)pyrene** should change into clean clothing promptly.
* Do not take contaminated work clothes home. Family members could be exposed.
* Contaminated work clothes should be laundered by individuals who have been informed of the hazards of exposure to **Benzo(a)pyrene**.

* Eye wash fountains should be provided in the immediate work area for emergency use.
* If there is the possibility of skin exposure, emergency shower facilities should be provided.
* On skin contact with **Benzo(a)pyrene**, immediately wash or shower to remove the chemical. At the end of the workshift, wash any areas of the body that may have contacted **Benzo(a)pyrene**, whether or not known skin contact has occurred.
* Do not eat, smoke, or drink where the above chemicals or **Benzo(a)pyrene** are handled, processed, or stored, since the chemical can be swallowed. Wash hands carefully before eating or smoking.
* In laboratories DO NOT DRY SWEEP for clean-up. Use a vacuum or a wet method to reduce dust during clean-up.
* When vacuuming, a high efficiency particulate absolute (HEPA) filter should be used, not a standard shop vacuum.

PERSONAL PROTECTIVE EQUIPMENT

WORKPLACE CONTROLS ARE BETTER THAN PERSONAL PROTECTIVE EQUIPMENT. However, for some jobs (such as outside work, confined space entry, jobs done only once in a while, or jobs done while workplace controls are being installed), personal protective equipment may be appropriate.

OSHA 1910.132 requires employers to determine the appropriate personal protective equipment for each hazard and to train employees on how and when to use protective equipment.

The following recommendations are only guidelines and may not apply to every situation.

Clothing

* Avoid skin contact with **Benzo(a)pyrene**. Wear protective gloves and clothing. Safety equipment suppliers/ manufacturers can provide recommendations on the most protective glove/clothing material for your operation.
* All protective clothing (suits, gloves, footwear, headgear) should be clean, available each day, and put on before work.

Eye Protection

* Wear dust-proof goggles and face shield when working with powders or dust, unless full facepiece respiratory protection is worn.
* Where exposure to volatilized *Coal Tar* products may occur, wear gas-proof goggles and face shield, unless full facepiece respiratory protection is worn.

Respiratory Protection

IMPROPER USE OF RESPIRATORS IS DANGEROUS. Such equipment should only be used if the employer has a written program that takes into account workplace conditions, requirements for worker training, respirator fit testing and medical exams, as described in OSHA 1910.134.

* Where the potential exists for exposures over **0.1 mg/m^3**, use a MSHA/NIOSH approved supplied-air respirator with a full facepiece operated in a pressure-demand or other positive-pressure mode. For increased protection use in combination with an auxiliary self-contained breathing apparatus operated in a pressure-demand or other positive-pressure mode.
* Exposure to **80 mg/m^3** of *Coal Tar Pitch Volatiles* is immediately dangerous to life and health. If the possibility of exposure above **80 mg/m^3** exists, use a MSHA/NIOSH approved self-contained breathing apparatus with a full facepiece operated in a pressure-demand or other positive-pressure mode.

QUESTIONS AND ANSWERS

Q: If I have acute health effects, will I later get chronic health effects?
A: Not always. Most chronic (long-term) effects result from repeated exposures to a chemical.

Q: Can I get long-term effects without ever having short-term effects?
A: Yes, because long-term effects can occur from repeated exposures to a chemical at levels not high enough to make you immediately sick.

Q: What are my chances of getting sick when I have been exposed to chemicals?
A: The likelihood of becoming sick from chemicals is increased as the amount of exposure increases. This is determined by the length of time and the amount of material to which someone is exposed.

Q: When are higher exposures more likely?
A: Conditions which increase risk of exposure include dust releasing operations (grinding, mixing, blasting, dumping, etc.), other physical and mechanical processes (heating, pouring, spraying, spills and evaporation from large surface areas such as open containers), and "confined space" exposures (working inside vats, reactors, boilers, small rooms, etc.).

Q: Is the risk of getting sick higher for workers than for community residents?
A: Yes. Exposures in the community, except possibly in cases of fires or spills, are usually much lower than those found in the workplace. However, people in the community may be exposed to contaminated water as well as to chemicals in the air over long periods. Because of this, and because of exposure of children or people who are already ill, community exposures may cause health problems.

Q: Don't all chemicals cause cancer?
A: No. Most chemicals tested by scientists are not cancer-causing.

Q: Should I be concerned if a chemical causes cancer in animals?
A: Yes. Most scientists agree that a chemical that causes cancer in animals should be treated as a suspected human carcinogen unless proven otherwise.

Q: But don't they test animals using much higher levels of a chemical than people usually are exposed to?
A: Yes. That's so effects can be seen more clearly using fewer animals. But high doses alone don't cause cancer unless it's a cancer agent. In fact, a chemical that causes cancer in animals at high doses could cause cancer in humans exposed to low doses.

Q: Can men as well as women be affected by chemicals that cause reproductive system damage?
A: Yes. Some chemicals reduce potency or fertility in both men and women. Some damage sperm and eggs, possibly leading to birth defects.

Q: But aren't pregnant women at the greatest risk from reproductive hazards?
A: Not necessarily. Pregnant women are at greatest risk from chemicals which harm the developing fetus. However, chemicals may affect the ability to have children, so both men and women of childbearing age are at high risk.

The following information is available from:

New Jersey Department of Health and Senior Services
Occupational Disease and Injury Services
PO Box 360
Trenton, NJ 08625-0360
(609) 984-1863
(609) 292-5677 (fax)

Web address: http://www.state.nj.us/health/eoh/odisweb/

Industrial Hygiene Information
Industrial hygienists are available to answer your questions regarding the control of chemical exposures using exhaust ventilation, special work practices, good housekeeping, good hygiene practices, and personal protective equipment including respirators. In addition, they can help to interpret the results of industrial hygiene survey data.

Medical Evaluation
If you think you are becoming sick because of exposure to chemicals at your workplace, you may call personnel at the Department of Health and Senior Services, Occupational Disease and Injury Services, who can help you find the information you need.

Public Presentations
Presentations and educational programs on occupational health or the Right to Know Act can be organized for labor unions, trade associations and other groups.

Right to Know Information Resources
The Right to Know Infoline (609) 984-2202 can answer questions about the identity and potential health effects of chemicals, list of educational materials in occupational health, references used to prepare the Fact Sheets, preparation of the Right to Know survey, education and training programs, labeling requirements, and general information regarding the Right to Know Act. Violations of the law should be reported to (609) 984-2202.

DEFINITIONS

ACGIH is the American Conference of Governmental Industrial Hygienists. It recommends upper limits (called TLVs) for exposure to workplace chemicals.

A **carcinogen** is a substance that causes cancer.

The **CAS number** is assigned by the Chemical Abstracts Service to identify a specific chemical.

A **combustible** substance is a solid, liquid or gas that will burn.

A **corrosive** substance is a gas, liquid or solid that causes irreversible damage to human tissue or containers.

DEP is the New Jersey Department of Environmental Protection.

DOT is the Department of Transportation, the federal agency that regulates the transportation of chemicals.

EPA is the Environmental Protection Agency, the federal agency responsible for regulating environmental hazards.

A **fetus** is an unborn human or animal.

A **flammable** substance is a solid, liquid, vapor or gas that will ignite easily and burn rapidly.

The **flash point** is the temperature at which a liquid or solid gives off vapor that can form a flammable mixture with air.

HHAG is the Human Health Assessment Group of the federal EPA.

IARC is the International Agency for Research on Cancer, a scientific group that classifies chemicals according to their cancer-causing potential.

A **miscible** substance is a liquid or gas that will evenly dissolve in another.

mg/m^3 means milligrams of a chemical in a cubic meter of air. It is a measure of concentration (weight/volume).

MSHA is the Mine Safety and Health Administration, the federal agency that regulates mining. It also evaluates and approves respirators.

A **mutagen** is a substance that causes mutations. A **mutation** is a change in the genetic material in a body cell. Mutations can lead to birth defects, miscarriages, or cancer.

NAERG is the North American Emergency Response Guidebook. It was jointly developed by Transport Canada, the United States Department of Transportation and the Secretariat of Communications and Transportation of Mexico. It is a guide for first responders to quickly identify the specific or generic hazards of material involved in a transportation incident, and to protect themselves and the general public during the initial response phase of the incident.

NCI is the National Cancer Institute, a federal agency that determines the cancer-causing potential of chemicals.

NFPA is the National Fire Protection Association. It classifies substances according to their fire and explosion hazard.

NIOSH is the National Institute for Occupational Safety and Health. It tests equipment, evaluates and approves respirators, conducts studies of workplace hazards, and proposes standards to OSHA.

NTP is the National Toxicology Program which tests chemicals and reviews evidence for cancer.

OSHA is the Occupational Safety and Health Administration, which adopts and enforces health and safety standards.

PEOSHA is the Public Employees Occupational Safety and Health Act, a state law which sets PELs for New Jersey public employees.

ppm means parts of a substance per million parts of air. It is a measure of concentration by volume in air.

A **reactive** substance is a solid, liquid or gas that releases energy under certain conditions.

A **teratogen** is a substance that causes birth defects by damaging the fetus.

TLV is the Threshold Limit Value, the workplace exposure limit recommended by ACGIH.

The **vapor pressure** is a measure of how readily a liquid or a solid mixes with air at its surface. A higher vapor pressure indicates a higher concentration of the substance in air and therefore increases the likelihood of breathing it in.

>>>>>>>>>>>>>>>>>>> EMERGENCY INFORMATION <<<<<<<<<<<<<<<<<<<

Common Name: **BENZO(a)PYRENE**
DOT Number: **None**
NAERG Code: **No Citation**
CAS Number: **50-32-8**

Hazard rating	NJDHSS	NFPA
FLAMMABILITY	1	-
REACTIVITY	0	-
CARCINOGEN POISONOUS GASES ARE PRODUCED IN FIRE		

Hazard Rating Key: 0=minimal; 1=slight; 2=moderate; 3=serious; 4=severe

FIRE HAZARDS

* **Benzo(a)pyrene** may burn, but does not readily ignite.
* Use dry chemical, CO_2, water spray, or foam extinguishers.
* POISONOUS GASES ARE PRODUCED IN FIRE, including *Carbon Monoxide.*
* If employees are expected to fight fires, they must be trained and equipped as stated in OSHA 1910.156.

SPILLS AND EMERGENCIES

If **Benzo(a)pyrene** or other *Coal Tar* Products are spilled, take the following steps:

* Evacuate persons not wearing protective equipment from area of spill until clean-up is complete.
* Collect powdered material in the most convenient and safe manner and deposit in sealed containers.
* Ventilate the area after clean-up is complete.
* It may be necessary to contain and dispose of **Benzo(a)pyrene** as a HAZARDOUS WASTE. Contact your Department of Environmental Protection (DEP) or your regional office of the federal Environmental Protection Agency (EPA) for specific recommendations.
* If employees are required to clean-up spills, they must be properly trained and equipped. OSHA 1910.120(q) may be applicable.

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FOR LARGE SPILLS AND FIRES immediately call your fire department. You can request emergency information from the following:

CHEMTREC: (800) 424-9300
NJDEP HOTLINE: (609) 292-7172

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HANDLING AND STORAGE

* Prior to working with **Benzo(a)pyrene** you should be trained on its proper handling and storage.
* A regulated, marked area should be established where **Benzo(a)pyrene** is handled, used, stored, or formed.
* **Benzo(a)pyrene** is not compatible with OXIDIZING AGENTS (such as PERCHLORATES, PEROXIDES, PERMANGANATES, CHLORATES, NITRATES, CHLORINE, BROMINE and FLUORINE)
* Store in tightly closed containers in a cool, well-ventilated area.

FIRST AID

In NJ, POISON INFORMATION 1-800-764-7661

Eye Contact

* Immediately flush with large amounts of water for at least 15 minutes, occasionally lifting upper and lower lids.

Skin Contact

* Quickly remove contaminated clothing. Immediately wash contaminated skin with large amounts of soap and water.

Breathing

* Remove the person from exposure.
* Transfer promptly to a medical facility.

PHYSICAL DATA

Vapor Pressure: Greater than 1 mm Hg at 68°F (20°C)
Water Solubility: Insoluble

OTHER COMMONLY USED NAMES

Chemical Name:
Benzo(a)pyrene
Other Names:
B(a)P; BP; 3,4-Benzopyrene

NEW JERSEY DEPARTMENT OF HEALTH AND SENIOR SERVICES
Right to Know Program
PO Box 368, Trenton, NJ 08625-0368
(609) 984-2202

MSDS SUMMARY SHEET

Manufacturer:
Name: PHILLIPS PETROLEUM COMPANY
Address 1:
Address 2:
Address 3:
CSZ: BARTLESVILLE **State:** OK **Zipcode:** 74004
Emergency phone: (800) 424-9300
Business phone: 800-762-0942

Product:

Ferndale MSDS#: 1354 **Version # :** 6
Manufacturer MSDS#: 0041
Current? : 2002
Name:

NO. 2 DIESEL FUEL

Synonyms:

CARB **Diesel** TF3
CARB **Diesel**
CARB **Diesel** 10%
Diesel Fuel Oil
EPA Low Sulfur **Diesel** Fuel
EPA Low Sulfur **Diesel** Fuel – Dyed
EPA Off Road High Sulfur **Diesel** – Dyed
Fuel Oil No. 2 – CAS # 68476-30-2
No. 2 **Diesel** Fuel Oil
No. 2 Fuel Oil – Non Hiway – Dyed
No. 2 High Sulfur **Diesel** – Dyed
No. 2 Low Sulfur **Diesel** - Dyed
No. 2 Low Sulfur **Diesel** - Undyed
Crude column 3rd IR
Crude column 3rd side cut
Atmospheric tower 3rd side cut
Ultra Low Sulfur **Diesel** No. 2
Finished **Diesel**
DHT Reactor Feed
Straight Run **Diesel**
Diesel
Middle Distillate

Product/Catalog Numbers:
MSDS Date: 01/01/2002 **(received:** 01/14/2002)

NFPA codes:
Health: 0 **Flammability:** 2 **Reactivity:** 0

MATERIAL SAFETY DATA SHEET
No. 2 Diesel Fuel

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: No. 2 Diesel Fuel
Product Code: Multiple
SAP Code:
Synonyms:
1354
CARB Diesel TF3
CARB Diesel
CARB Diesel 10%
Diesel Fuel Oil
EPA Low Sulfur Diesel Fuel
EPA Low Sulfur Diesel Fuel – Dyed
EPA Off Road High Sulfur Diesel – Dyed
Fuel Oil No. 2 – CAS # 68476-30-2
No. 2 Diesel Fuel Oil
No. 2 Fuel Oil – Non Hiway – Dyed
No. 2 High Sulfur Diesel – Dyed
No. 2 Low Sulfur Diesel - Dyed
No. 2 Low Sulfur Diesel – Undyed
No. 2 Ultra Low Sulfur Diesel – Dyed
No. 2 Ultra Low Sulfur Diesel - Undyed
Intended Use: Fuel
Chemical Family:
Responsible Party: Phillip's Petroleum Company
Bartlesville, Oklahoma 74004
For Additional MSDSs: 800-762-0942
Technical Information:

The intended use of this product is indicated above. If any additional use is known, please contact us at the Technical Information number listed.

EMERGENCY OVERVIEW

24 Hour Emergency Telephone Numbers:
Spill, Leak, Fire or Accident
Call CHEMTREC
North America: (800) 424-9300
Others: (703) 527-3887 (collect)

California Poison Control System: 800-356-3120

Health Hazards/Precautionary Measures: Causes severe skin irritation. Aspiration hazard if swallowed. Can enter lungs and cause damage. Use with adequate ventilation. Avoid contact with eyes, skin and clothing. Do not taste or swallow. Wash thoroughly after handling.

Physical Hazards/Precautionary Measures: Flammable liquid and vapor. Keep away from heat, sparks, flames, static electricity or other sources of ignition.

Appearance: Straw-colored to dyed red
Physical Form: Liquid
Odor: Characteristic petroleum

HFPA Hazard Class:
Health: 0 (Least)
Flammability: 2 (Moderate)
Reactivity: 0 (Least)

HMIS Hazard Class
Not Evaluated

2. COMPOSITION/INFORMATION ON INGREDIENTS

HAZARDOUS COMPONENTS	% VOLUME	EXPOSURE GUIDELINE		
		Limits	Agency	Type
Diesel Fuel No. 2 CAS# 68476-34-6	100	100* mg/m3	ACGIH	TWA-SKIN
Naphthalene CAS# 91-20-3	<1	10ppm	ACGIH	TWA
		15ppm	ACGIH	STEL
		10ppm	OSHA	TWA
		250ppm	NIOSH	IDLH

All components are listed on the TSCA inventory

Tosco Low Sulfur No. 2 Diesel meets the specifications of 40 CFR 60.41 for low sulfur diesel fuel.

Note: State, local or other agencies or advisory groups may have established more stringent limits. Consult an industrial hygienist or similar professional, or your local agencies, for further information.

*Proposed ACGIH (1999)

3. HAZARDS IDENTIFICATION

Potential Health Effects:

Eye: Contact may cause mild eye irritation including stinging, watering, and redness.

Skin: Severe skin irritant. Contact may cause redness, itching, burning, and severe skin damage. Prolonged or repeated contact can worsen irritation by causing drying and cracking of the skin, leading to dermatitis (inflammation). Not actually toxic by skin absorption, but prolonged or repeated skin contact may be harmful (see Section 11).

Inhalation (Breathing): No information available. Studies by other exposure routes suggest a low degree of toxicity by inhalation.

Ingestion (Swallowing): Low degree of toxicity by ingestion. ASPIRATION HAZARD – This material can enter lungs during swallowing or vomiting and cause lung inflammation and damage.

Signs and Symptoms: Effects of overexposure may include irritation of the nose and throat, irritation of the digestive tract, nausea, diarrhea and transient excitation followed by signs of nervous system depression (e.g., headache, drowsiness, dizziness, loss of coordination, disorientation and fatigue).

Cancer: Possible skin cancer hazard (see Sections 11 and 14).

Target Organs: There is limited evidence from animal studies that overexposure may cause injury to the kidney (see Section 11).

Developmental: Inadequate data available for this material.

Pre-Existing Medical Conditions: Conditions aggravated by exposure may include skin disorders and kidney disorders.

4. FIRST AID MEASURES

Eye: If irritation or redness develops, move victim away from exposure and into fresh air. Flush eyes with clean water. If symptoms persist, seek medical attention.

Skin: Immediately remove contaminated shoes, clothing, and constrictive jewelry and flush affected area(s) with large amounts of water. If skin surface is damaged, apply a clean dressing and seek immediate medical attention. If skin surface is not damaged, cleanse affected area(s) thoroughly by washing with mild soap and water. If irritation or redness develops, seek immediate medical attention.

Inhalation (Breathing): If respiratory symptoms develop, move victim away from source of exposure and into fresh air. If symptoms persist, seek medical attention. If victim is not breathing, clear airway and immediately begin artificial respiration. If breathing difficulties develop, oxygen should be administered by qualified personnel. Seek immediate medical attention.

Ingestion (Swallowing): Aspiration hazard; Do not induce vomiting or give anything by mouth because this material can enter the lungs and cause severe lung damage. If victim is drowsy or unconscious and vomiting, place on the left side with the head down. If possible, do not leave victim unattended and observe closely for adequacy of breathing. Seek medical attention.

5. FIRE FIGHTING MEASURES

Flammable Properties:

Flash Point: >125°F/>52°
OSHA Flammability Class: Combustible liquid
LEL %: 0.3 / UEL %; 10.0
Autoignition Temperature: 500°F/260°C

Unusual Fire & Explosion Hazards: This material is flammable and can be ignited by heat, sparks, flames, or other sources of ignition (e.g., static electricity, pilot lights, or mechanical/electrical equipment, and electronic devices such as cell phones, computers, calculators, and pagers which have not been certified as intrinsically safe). Vapors may travel considerable distances to a source of ignition where they can ignite, flash back, or explode. May create vapor/air explosion hazard indoors, in confined spaces, outdoors, or in sewers. Vapors are heavier than air and can accumulate in low areas. If container is not properly cooled, it can rupture in the heat of a fire.

Extinguishing Media: Dry chemical, carbon dioxide, or foam is recommended. Water spray is recommended to cool or protect exposed materials or structures. Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide in confined spaces. Water may be ineffective for extinguishment, unless used under favorable conditions by experienced fire fighters.

Fire Fighting Instructions: For fires beyond the incipient stage, emergency responders in the immediate hazard area should wear bunker gear. When the potential chemical hazard is unknown, in enclosed or confined spaces, or when explicitly required by DOT, a self contained breathing apparatus should be worn. In addition, wear other appropriate protective equipment as conditions warrant (see Section 8).

Isolate immediate hazard area, keep unauthorized personnel out. Stop spill/release if it can be done with minimal risk. Move undamaged containers from immediate hazard area if it can be done with minimal risk.

Water spray may be useful in minimizing or dispersing vapors and to protect personnel. Cool equipment exposed to fire with water, if it can be done with minimal risk. Avoid spreading burning liquid with water used for cooling purposes.

6. ACCIDENTAL RELEASE MEASURES

Flammable. Keep all sources of ignition and hot metal surfaces away from spill/release. The use of explosion-proof equipment is recommended.

Stay upwind and away from spill/release. Notify persons down wind of the spill/release, isolate immediate hazard area and keep unauthorized personnel out. Stop spill/release if it can be done with minimal risk. Wear appropriate protective equipment including respiratory protection as conditions warrant (see Section 8).

Prevent spilled material from entering sewers, storm drains, other unauthorized drainage systems, and natural waterways. Dike far ahead of spill for later recovery or disposal. Use foam on spills to minimize vapors (see Section 5). Spilled material may be absorbed into an appropriate material.

Notify fire authorities and appropriate federal, state, and local agencies. Immediate cleanup of any spill is recommended. If spill of any amount is made into or upon navigable waters, the contiguous zone, or adjoining shorelines, notify the National Response Center (phone number 800-424-8802).

7. HANDLING AND STORAGE

Handling: Open container slowly to relieve any pressure. Bond and ground all equipment when transferring from one vessel to another. Can accumulate static charge by flow or agitation. Can be ignited by static discharged. The use of explosion-proof equipment is recommended and may be required (see appropriate fire codes). Refer to NFPA-704 and/or API RP 2003 for specific bonding/grounding requirements.

Do not enter confined spaces such as tanks or pits without following proper entry procedures such ASTM D-4276 and 29CFR 1910.146. The use of appropriate respiratory protection is advised when concentrations exceed any established exposure limits (see Sections 2 and 8).

Do not wear contaminated clothing or shoes. Keep contaminated clothing away from sources of ignition such as sparks or open flames. Use good personal hygiene practices.

High pressure injection of hydrocarbon fuels, hydraulic oils or greases under the skin may have serious consequences even though no symptoms or injury may be apparent. This can happen accidentally when using high pressure equipment such as high pressure grease guns, fuel injection apparatus or from pinhole leaks in tubing or high pressure hydraulic oil equipment.

"Empty" containers retain residue and may be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury or death. "Empty" drums should be completely drained, properly bunged, and promptly shipped to the supplier or a drum reconditioner. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.

Before working on or in tanks which contain or have contained this material, refer to OSHA regulations, ANSIZ49.1 and other references pertaining to cleaning, repairing, welding, or other contemplated operations.

Storage: Keep container(s) tightly closed. Use and store this material in cool, dry, well-ventilated areas away from heat, direct sunlight, hot metal surfaces, and all sources of ignition. Post area "No Smoking or Open Flame." Store only in approved containers. Keep away from incompatible material (see Section 10). Protect container(s) against physical damage. Outdoor or detached storage is preferred. Indoor storage should meet OSHA standards and appropriate fire codes.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering controls: If current ventilation practices are not adequate to maintain airborne concentration below the established exposure limits (see Section 2), additional ventilation or exhaust systems may be required. Where explosive mixtures may be present, electrical systems safe for such locations must be used (see appropriate electrical codes).

Personal Protective Equipment (PPE):

Respiratory: A NIOSH certified air purifying respirator with an organic vapor cartridge maybe used under conditions where airborne concentrations are expected to exceed exposure limits (see Section 2).

Protection provided by air purifying respirators is limited (see manufacturer's respirator selection guide). Use a positive pressure air supplied respirator if there is a potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection.

A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrants a respirator's use.

Skin: The use of gloves impervious to the specific material handled is advised to prevent skin contact, possible irritation and skin damage (see glove manufacturer literature for information on permeability). Depending on conditions of use, apron and/or arm covers may be necessary.

Eyes/Face: Approved eye protection to safeguard against potential eye contact, irritation, or injury is recommended. Depending on conditions of use, a face shield may be necessary.

Other Protective Equipment: Eye wash and quick-drench shower facilities should be available in the work area. Thoroughly clean shoes and wash contaminated clothing before reuse. It is recommended that impervious clothing be worn when skin contact is possible.

9. PHYSICAL AND CHEMICAL PROPERTIES

Note: Unless otherwise stated, values are determined at 20°C (68°F) and 760 mm Hg (1atm).

Appearance: Straw-colored to dyed red
Physical State: Liquid
Odor: Characteristic petroleum
pH: unavailable
Vapor Pressure (mm Hg): 0.40
Vapor Densisty (air=1):>3
Boiling Point/Range: 320-700°F /160-371°C
Freezing/Melting Point: No Data
Solubility in Water: Negligible
Specific Gravity: 0.81-0.88 @ 60°F
Percent Volatile: Negligible
Evaporation Rate (nBuAc=1): <1
Viscosity: 32.6-40.0 SUS @ 100°F
Bulk Density: 7.08 lbs/gal
Flash Point: >125°F / >52°C
Flammable/Expolsive Limits (%): LEL: 0.3 / UEL: 10.0

10. STABILITY AND REACTIVITY

Stability: Stable under normal ambient and anticipated storage and handling conditions of temperature and pressure. Flammable liquid and vapor. Vapor can cause flash fire.

Conditions To Avoid: Avoid all possible sources of ignition (see Sections 5 and 7).

Materials to Avoid (Incompatible Materials): Avoid contact with strong oxidants such as liquid chlorine, concentrated oxygen, sodium hypochlorite, calcium hypochlorite, etc.

Hazardous Decomposition Products: The use of hydrocarbon fuels in an area without adequate ventilation may result in hazardous levels of combustion products (e.g., oxides of carbon, sulfur and nitrogen, benzene and other hydrocarbons) and/or dangerously low oxygen levels. ACGIH has included a TLV of 0.05 mg/m3 TWA for diesel exhaust particulate on its 1999 Notice of Intended Changes. See Section 11 for additional information on hazards of engine exhaust.

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Diesel Fuel No. 2 (CAS# 68476-34-6)

Carcinogenicity: Chronic dermal application of certain middle distillate streams contained in diesel fuel No. 2 resulted in an increased incidence of skin tumors in mice. This material has not been identified as carcinogen by NTP, IARC, or OSHA. Diesel exhaust is a probable cancer hazard based on tests with laboratory animals.

Target Organ(s): Limited evidence of renal impairment has been noted from a few case reports involving excessive exposure to diesel fuel No. 2.

Naphthalene (CAS# 91-20-3)

Carcinogenicity: Naphthalene has been evaluated in two year inhalation studies in both rats and mice. The National Toxicology Program (NTP) concluded that there is clear evidence of carcinogenicity in male and female rats based on increased incidences of respiratory epithelial adenomas and olfactory epithelial neuroblastomas of the nose. NTP found some evidence of carcinogenicity in female mice (alveolar adenomas) and no evidence of carcinogenicity in male mice. Naphthalene has not been identified as a carcinogen by IARC or OSHA.

12. ECOLOGICAL INFORMATION

Not evaluated at this time

13. DISPOSAL CONSIDERATIONS

This material, if discarded as produced, would be a RCRA "characteristic" hazardous waste due to the characteristic(s) of ignitability (D001) and benzene (D018). If the material is spilled to soil or water, characteristic testing of the contaminated materials is recommended. Further, this material, once it becomes a waste, is subject to the land disposal restrictions in 40 CFR 268.40 and may require treatment prior to disposal to meet specific standards. Consult state and local regulations to determine whether they are more stringent then the federal requirements.

Container contents should be completely used and containers should be emptied prior to discard. Container ?insate? could be considered a RCRA hazardous waste and must be disposed of with care and in compliance with federal, state and local regulations. Large empty containers, such as drums, should be returned to the distributor or to a drum reconditioner. To assure proper disposal of smaller containers, consult with state and local regulations and disposal authorities.

14. TRANSPORT INFORMATION

DOT Shipping Description: Diesel Fuel, NA1983
Non-Bulk Package Marking: Diesel Fuel, 3, NA 1993, III

Tosco Refining Company *Ferndale Refinery*

UltraLow Sulfur Diesel Product Specification

Ferndale Product Code:34380xx (5) Product Code: ULSD2

(COMETS)

Specification	Unit	Limit	Test Procedure	Typical
Appearance				
Water & Sediment	Vol %	0.05 Max	D 2709	
Color	Number	3.0 Max	D 1500	
Haze Rating	Rating	2 Max	D 4176	
Composition				
Carbon Residue (Ramsbottom)	Wt %	0.35 Max	D 524, D 189	
Volatility				
90% Recovered	Deg; F	540 Min	D 86	
	Deg; F	640 Min	D 86	
Flash Point	Deg; F	125 Min (1)	D 93	130 F
Gravity	API	30 Min	D 287, D4052	
Fluidity				
Pour Point	Deg; F	See Season Table (6)	D 97	
Cloud Point	Deg; F	See Season Table (6)	D 2500	10 F
Viscosity @ 104F	cSt	1.9 Min	D 445	
	cSt	4.1 Max	D 445	
Lubricity, SLBOCLE	grams	3100 Min	D 6078	3300gm
Lubricity, HFRR	mm	.45	D 6079	
Combustion				
Cetane Index or Cetane Number (3,4)	Number	40.0 Min	D 976, D613	47.0
Corrosion				
Copper Strip, 3hr @ 50 deg C	Number	3 Max (2)	D 130	
Aromatics (4)	Vol %	35 Max	D 1319	25 %
Contaminants				
Total Sulfur	PPM	30 Max	D 2622, D4294	15-20ppm
Water & Sediment	Vol %	0.05 Max	D 1796	
Ash	Wt %	0.01 Max	D 482	
Additives				
Cetane Improver	Lb/MBbl	675 Max		
Dye		Undyed		

1. Minimum release specification is 125 deg. F. The refinery should target 135 deg. F.
2. Test result reported as a number and letter (e.g. 1a). Any letter is allowable as long as the number meets the spec shown.
3. Either specification must be met.
4. Either cetane index minimum or aromatics maximum must be met.
5. Winter cloud and pour specifications may be relaxed to the summer specifications by agreement with the customer.
6. Season Table

Month	Product Code	Pour Point	Cloud Point
Jan, Feb, Nov, Dec	WI	0 max (5)	14 max (5)
Mar - Oct	SU	15 max	24 max

15. REGULATORY INFORMATION

EPA SARA 311/312 (Title III Hazard Categories):

Acute Health:	Yes
Chronic Health:	Yes
Fire Hazard:	Yes
Pressure Hazard:	No
Reactive Hazard:	No

SARA 313 and 40 CFR 372:

This material contains the following chemicals subject to the reporting requirements of SARA 313 and 40 CFR 372:

Component	CAS Number	Weight %
-- None known --		

California Proposition 65:

Warning: This material contains the following chemicals which are known to the state of California to cause cancer, birth defects or other reproductive harm, and are subject to the requirements of California Proposition 65 (CA Health & Safety Code Section 25249.5):

Component	Effect
Benzene	Cancer, Developmental and Reproductive Toxicant
Toluene	Developmental Toxicant

Diesel engine exhaust, while not a component of this material, is on the Proposition 65 list of chemicals known to the State of California to cause cancer.

Carcinogen Identification:

This material has not been identified as a carcinogen by NTP, IARC, or OSHA. See Section 11 for carcinogenicity information of individual components, if any. Diesel exhaust is a probable cancer hazard based on tests in laboratory animals. It has been identified as carcinogen by IARC.

EPA (CERCLA Reportable Quantity: None

16. OTHER INFORMATION

Issue Date: 01/01/02
Previous Issue Date: 05/15/01
Product Code: Multiple
Revised Sections: None
Previous Product Code: Multiple
MSDS Number: 0041

Disclaimer of Expressed and Implied Warranties:

The information presented in this Material Data Safety Sheet is based on data believed to be accurate as of the date this Material Data Sheet was prepared. HOWEVER, NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR ANY OTHER WARRANTY IS EXPRESSED OR IS TO BE IMPLIED REGARDING THE ACCURACY OR COMPLETENESS OF THE INFORMATION PROVIDED ABOVE, THE RESULTS TO BE OBTAINED FROM THE USE OF THIS INFORMATION OR THE PRODUCT, THE SAFETY OF THE PRODUCT, OR THE HAZARDS RELATED TO ITS USE. No responsibility is assumed for any damage or injury resulting from abnormal use or from any failure to adhere to recommended practices. The information provided above, and the product, are furnished on the condition that the person receiving them shall make their own determination as to the suitability of the product for their particular purpose and on the condition that they assume the risk of their use. In addition, no authorization is given nor implied to practice any patented invention without a license.

New Jersey Department of Health and Senior Services

HAZARDOUS SUBSTANCE FACT SHEET

Common Name: **LEAD**

CAS Number: 7439-92-1
DOT Number: None

RTK Substance number: 1096
Date: December 1995 Revision: September 2001

HAZARD SUMMARY

* **Lead** can affect you when breathed in and when swallowed.
* **Lead** should be handled as a TERATOGEN--WITH EXTREME CAUTION.
* **Lead** can irritate the eyes on contact.
* Breathing **Lead** can irritate the nose and throat.
* **Lead** can cause headache, irritability, reduced memory, disturbed sleep, and mood and personality changes.
* Repeated exposure can lead to ***Lead*** poisoning. Symptoms include metallic taste, poor appetite, weight loss, colic, upset stomach, nausea and vomiting, and muscle cramps.
* High or repeated exposure may damage the nerves causing weakness, "pins and needles," and poor coordination in the arms and legs.
* High levels can cause muscle and joint pains and weakness.
* **Lead** exposure increases the risk of high blood pressure.
* **Lead** may cause kidney and brain damage, and damage to blood cells causing anemia.

IDENTIFICATION

Lead is a heavy, soft, silvery-gray metal. It is used in the production of storage batteries, ammunition, cable covering, ceramic glazes, casting metals and solders.

REASON FOR CITATION

* **Lead** is on the Hazardous Substance List because it is regulated by OSHA and cited by ACGIH, DOT, NIOSH, DEP, IARC, HHAG and EPA.
* This chemical is on the Special Health Hazard Substance List because it is a **TERATOGEN**.
* Definitions are provided on page 5.

HOW TO DETERMINE IF YOU ARE BEING EXPOSED

The New Jersey Right to Know Act requires most employers to label chemicals in the workplace and requires public employers to provide their employees with information and training concerning chemical hazards and controls. The federal OSHA Hazard Communication Standard, 1910.1200, requires private employers to provide similar training and information to their employees.

* Exposure to hazardous substances should be routinely evaluated. This may include collecting personal and area air samples. You can obtain copies of sampling results from your employer. You have a legal right to this information under OSHA 1910.1020.
* If you think you are experiencing any work-related health problems, see a doctor trained to recognize occupational diseases. Take this Fact Sheet with you.

WORKPLACE EXPOSURE LIMITS

OSHA: The legal airborne permissible exposure limit (PEL) is **0.05 mg/m^3** averaged over an 8-hour workshift.

NIOSH: The recommended airborne exposure limit is **0.1 mg/m^3** averaged over a 10-hour workshift.

ACGIH: The recommended airborne exposure limit is **0.05 mg/m^3** averaged over an 8-hour workshift.

* **Lead** may be a teratogen in humans. All contact with this chemical should be reduced to the lowest possible level.

WAYS OF REDUCING EXPOSURE

Although the primary route of exposure to **Lead** is through inhalation, you can be exposed to **Lead** if it gets into your mouth and is swallowed. To reduce exposure by all routes the following actions are recommended:

* Where possible, enclose operations and use local exhaust ventilation at the site of chemical release. If local exhaust ventilation or enclosure is not used, respirators should be worn.
* Wear protective work clothing including foot coverings.
* Wash thoroughly immediately after exposure to **Lead** and at the end of the workshift.
* Post hazard and warning information in the work area. In addition, as part of an ongoing education and training effort, communicate all information on the health and safety hazards of **Lead** to potentially exposed workers.

This Fact Sheet is a summary source of information of all potential and most severe health hazards that may result from exposure. Duration of exposure, concentration of the substance and other factors will affect your susceptibility to any of the potential effects described below.

HEALTH HAZARD INFORMATION

Acute Health Effects

The following acute (short-term) health effects may occur immediately or shortly after exposure to **Lead**:

* **Lead** can irritate the eyes on contact.
* Breathing **Lead** can irritate the nose and throat.
* **Lead** can cause headache, irritability, reduced memory, disturbed sleep, and mood and personality changes.

Chronic Health Effects

The following chronic (long-term) health effects can occur at some time after exposure to **Lead** and can last for months or years:

Cancer Hazard

* There is no evidence that **Lead** causes cancer in animals. This is based on test results presently available to the New Jersey Department of Health and Senior Services from published studies.

Reproductive Hazard

* **Lead** may be a TERATOGEN in humans since it has been shown to be a teratogen in animals.
* **Lead** may decrease fertility in males and females.

Other Long-Term Effects

* Repeated exposure can lead to ***Lead*** poisoning. Symptoms include metallic taste, poor appetite, weight loss, colic, upset stomach, nausea and vomiting, and muscle cramps.
* High or repeated exposure may damage the nerves causing weakness, "pins and needles," and poor coordination in the arms and legs.
* High levels can cause muscle and joint pains and weakness.
* **Lead** exposure increases the risk of high blood pressure.
* **Lead** may cause kidney and brain damage, and damage to blood cells causing anemia.
* Repeated exposure causes *Lead* to accumulate in the body. It can take years for the body to get rid of excess *Lead*.

MEDICAL

Medical Testing

Before first exposure and every 6 months thereafter, OSHA requires your employer to provide (for persons exposed to **30 micrograms** or more of *Lead* **per cubic meter** of air):

* Blood *Lead* test.
* ZPP test (a special test for effects of *Lead* on blood cells).

Before first exposure and yearly for exposed persons with blood *Lead* over **40 micrograms per 100 grams** of whole blood, OSHA requires a complete medical history and exam with the above tests, and:

* Hemoglobin, hematocrit with complete blood count.
* Kidney function tests.
* Exam of the nervous system.
* EEG.

OSHA requires your employer to provide you and your doctor with a copy of the ***Lead*** Standard: 1910.1025 and 1926.62.

Any evaluation should include a careful history of past and present symptoms with an exam. Medical tests that look for damage already done are not a substitute for controlling exposure.

Request copies of your medical testing. You have a legal right to this information under OSHA 1910.1020.

Mixed Exposures

* Body exposures to *Lead* from hobbies using *Lead* solder or pigments, target practice and drinking moonshine made in *Leaded* containers will increase *Lead* levels. Repeated breathing or handling of *Leaded* gasoline may also add to body *Lead* levels.

WORKPLACE CONTROLS AND PRACTICES

Unless a less toxic chemical can be substituted for a hazardous substance, **ENGINEERING CONTROLS** are the most effective way of reducing exposure. The best protection is to enclose operations and/or provide local exhaust ventilation at the site of chemical release. Isolating operations can also reduce exposure. Using respirators or protective equipment is less effective than the controls mentioned above, but is sometimes necessary.

In evaluating the controls present in your workplace, consider: (1) how hazardous the substance is, (2) how much of the substance is released into the workplace and (3) whether harmful skin or eye contact could occur. Special controls should be in place for highly toxic chemicals or when significant skin, eye, or breathing exposures are possible.

In addition, the following controls are recommended:

* Where possible, automatically transfer **Lead** from drums or other storage containers to process containers.
* Specific engineering controls are required for this chemical by OSHA. Refer to the OSHA Standard: 1910.1025 and 1926.62.

Good **WORK PRACTICES** can help to reduce hazardous exposures. The following work practices are recommended:

* Workers whose clothing has been contaminated by **Lead** should change into clean clothing promptly.

* Do not take contaminated work clothes home. Family members could be exposed.
* Contaminated work clothes should be laundered by individuals who have been informed of the hazards of exposure to **Lead**.
* Eye wash fountains should be provided in the immediate work area for emergency use.
* If there is the possibility of skin exposure, emergency shower facilities should be provided.
* On skin contact with **Lead**, immediately wash or shower to remove the chemical. At the end of the workshift, wash any areas of the body that may have contacted **Lead**, whether or not known skin contact has occurred.
* Do not eat, smoke, or drink where **Lead** is handled, processed, or stored, since the chemical can be swallowed. Wash hands carefully before eating, drinking, applying cosmetics, smoking, or using the toilet.
* Maintain all surfaces as free as possible from accumulations of **Lead** *dust*.
* Use a vacuum or a wet method to reduce dust during clean-up. DO NOT DRY SWEEP.

PERSONAL PROTECTIVE EQUIPMENT

WORKPLACE CONTROLS ARE BETTER THAN PERSONAL PROTECTIVE EQUIPMENT. However, for some jobs (such as outside work, confined space entry, jobs done only once in a while, or jobs done while workplace controls are being installed), personal protective equipment may be appropriate.

OSHA 1910.132 requires employers to determine the appropriate personal protective equipment for each hazard and to train employees on how and when to use protective equipment.

The following recommendations are only guidelines and may not apply to every situation.

Clothing

* Avoid skin contact with **Lead**. Wear protective gloves and clothing. Safety equipment suppliers/manufacturers can provide recommendations on the most protective glove/clothing material for your operation.
* All protective clothing (suits, gloves, footwear, headgear) should be clean, available each day, and put on before work.
* Safety equipment manufacturers recommend *Spunbonded Olefin* as a protective material.

Eye Protection

* Wear impact resistant eye protection with side shields or goggles.
* Wear a face shield along with goggles when working with corrosive, highly irritating or toxic substances.

Respiratory Protection

IMPROPER USE OF RESPIRATORS IS DANGEROUS. Such equipment should only be used if the employer has a written program that takes into account workplace conditions, requirements for worker training, respirator fit testing and medical exams, as described in OSHA 1910.134.

* Where the potential exists for exposure not higher than **0.5 mg/m^3**, use a half-mask, air purifying respirator equipped with high efficiency filters.
* Where the potential exists for exposure not higher than **2.5 mg/m^3**, use a full facepiece, air purifying respirator with high efficiency filters.
* Where the potential exists for exposure not higher than **50 mg/m^3**, use any powered-air purifying respirator with high efficiency filters or a half-mask supplied-air respirator operated in a positive pressure mode.
* If while wearing a filter or cartridge respirator you can smell, taste, or otherwise detect **Lead**, or if while wearing particulate filters abnormal resistance to breathing is experienced, or eye irritation occurs while wearing a full facepiece respirator, leave the area immediately. Check to make sure the respirator-to-face seal is still good. If it is, replace the filter or cartridge. If the seal is no longer good, you may need a new respirator.
* Be sure to consider all potential exposures in your workplace. You may need a combination of filters, prefilters, cartridges, or canisters to protect against different forms of a chemical (such as vapor and mist) or against a mixture of chemicals.
* Where the potential exists for exposure not higher than **100 mg/m^3**, use supplied-air respirators with full facepiece, hood, helmet or suit, operated in a positive pressure mode.
* Exposure to **100 mg/m^3** is immediately dangerous to life and health. If the possibility of exposure above **100 mg/m^3** exists, use a NIOSH approved self-contained breathing apparatus with a full facepiece operated in a pressure-demand or other positive-pressure mode.

QUESTIONS AND ANSWERS

Q: If I have acute health effects, will I later get chronic health effects?

A: Not always. Most chronic (long-term) effects result from repeated exposures to a chemical.

Q: Can I get long-term effects without ever having short-term effects?

A: Yes, because long-term effects can occur from repeated exposures to a chemical at levels not high enough to make you immediately sick.

Q: What are my chances of getting sick when I have been exposed to chemicals?

A: The likelihood of becoming sick from chemicals is increased as the amount of exposure increases. This is determined by the length of time and the amount of material to which someone is exposed.

Q: When are higher exposures more likely?
A: Conditions which increase risk of exposure include dust releasing operations (grinding, mixing, blasting, dumping, etc.), other physical and mechanical processes (heating, pouring, spraying, spills and evaporation from large surface areas such as open containers), and "confined space" exposures (working inside vats, reactors, boilers, small rooms, etc.).

Q: Is the risk of getting sick higher for workers than for community residents?
A: Yes. Exposures in the community, except possibly in cases of fires or spills, are usually much lower than those found in the workplace. However, people in the community may be exposed to contaminated water as well as to chemicals in the air over long periods. This may be a problem for children or people who are already ill.

Q: Can men as well as women be affected by chemicals that cause reproductive system damage?
A: Yes. Some chemicals reduce potency or fertility in both men and women. Some damage sperm and eggs, possibly leading to birth defects.

Q: Who is at the greatest risk from reproductive hazards?
A: Pregnant women are at greatest risk from chemicals that harm the developing fetus. However, chemicals may affect the ability to have children, so both men and women of childbearing age are at high risk.

Q: Should I be concemed if a chemical is a teratogen in animals?
A: Yes. Although some chemicals may affect humans differently than they affect animals, damage to animals suggests that similar damage can occur in humans.

The following information is available from:

New Jersey Department of Health and Senior Services
Occupational Health Service
PO Box 360
Trenton, NJ 08625-0360
(609) 984-1863
(609) 292-5677 (fax)

Web address: http://www.state.nj.us/health/eoh/odisweb/

Industrial Hygiene Information

Industrial hygienists are available to answer your questions regarding the control of chemical exposures using exhaust ventilation, special work practices, good housekeeping, good hygiene practices, and personal protective equipment including respirators. In addition, they can help to interpret the results of industrial hygiene survey data.

Medical Evaluation

If you think you are becoming sick because of exposure to chemicals at your workplace, you may call personnel at the Department of Health and Senior Services, Occupational Health Service, who can help you find the information you need.

Public Presentations

Presentations and educational programs on occupational health or the Right to Know Act can be organized for labor unions, trade associations and other groups.

Right to Know Information Resources

The Right to Know Infoline (609) 984-2202 can answer questions about the identity and potential health effects of chemicals, list of educational materials in occupational health, references used to prepare the Fact Sheets, preparation of the Right to Know Survey, education and training programs, labeling requirements, and general information regarding the Right to Know Act. Violations of the law should be reported to (609) 984-2202.

DEFINITIONS

ACGIH is the American Conference of Governmental Industrial Hygienists. It recommends upper limits (called TLVs) for exposure to workplace chemicals.

A **carcinogen** is a substance that causes cancer.

The **CAS number** is assigned by the Chemical Abstracts Service to identify a specific chemical.

A **combustible** substance is a solid, liquid or gas that will burn.

A **corrosive** substance is a gas, liquid or solid that causes irreversible damage to human tissue or containers.

DEP is the New Jersey Department of Environmental Protection.

DOT is the Department of Transportation, the federal agency that regulates the transportation of chemicals.

EPA is the Environmental Protection Agency, the federal agency responsible for regulating environmental hazards.

A **fetus** is an unborn human or animal.

A **flammable** substance is a solid, liquid, vapor or gas that will ignite easily and burn rapidly.

The **flash point** is the temperature at which a liquid or solid gives off vapor that can form a flammable mixture with air.

HHAG is the Human Health Assessment Group of the federal EPA.

IARC is the International Agency for Research on Cancer, a scientific group that classifies chemicals according to their cancer-causing potential.

A **miscible** substance is a liquid or gas that will evenly dissolve in another.

mg/m^3 means milligrams of a chemical in a cubic meter of air. It is a measure of concentration (weight/volume).

A **mutagen** is a substance that causes mutations. A **mutation** is a change in the genetic material in a body cell. Mutations can lead to birth defects, miscarriages, or cancer.

NAERG is the North American Emergency Response Guidebook. It was jointly developed by Transport Canada, the United States Department of Transportation and the Secretariat of Communications and Transportation of Mexico. It is a guide for first responders to quickly identify the specific or generic hazards of material involved in a transportation incident, and to protect themselves and the general public during the initial response phase of the incident.

NCI is the National Cancer Institute, a federal agency that determines the cancer-causing potential of chemicals.

NFPA is the National Fire Protection Association. It classifies substances according to their fire and explosion hazard.

NIOSH is the National Institute for Occupational Safety and Health. It tests equipment, evaluates and approves respirators, conducts studies of workplace hazards, and proposes standards to OSHA.

NTP is the National Toxicology Program which tests chemicals and reviews evidence for cancer.

OSHA is the Occupational Safety and Health Administration, which adopts and enforces health and safety standards.

PEL is the Permissible Exposure Limit which is enforceable by the Occupational Safety and Health Administration.

PIH is a DOT designation for chemicals which are Poison Inhalation Hazards.

ppm means parts of a substance per million parts of air. It is a measure of concentration by volume in air.

A **reactive** substance is a solid, liquid or gas that releases energy under certain conditions.

A **teratogen** is a substance that causes birth defects by damaging the fetus.

TLV is the Threshold Limit Value, the workplace exposure limit recommended by ACGIH.

The **vapor pressure** is a measure of how readily a liquid or a solid mixes with air at its surface. A higher vapor pressure indicates a higher concentration of the substance in air and therefore increases the likelihood of breathing it in.

>>>>>>>>>>>>>>>>>> EMERGENCY INFORMATION <<<<<<<<<<<<<<<<<

Common Name: **LEAD**
DOT Number: **None**
NAERG Code: **No Citation**
CAS Number: **7439-92-1**

Hazard rating	NJDHSS	NFPA
FLAMMABILITY	Not Found	Not Rated
REACTIVITY	Not Found	Not Rated
POISONOUS FUMES ARE PRODUCED IN FIRE CONTAINERS MAY EXPLODE IN FIRE		

Hazard Rating Key: 0=minimal; 1=slight; 2=moderate; 3=serious; 4=severe

FIRE HAZARDS

* Extinguish fire using an agent suitable for type of surrounding fire. **Lead** itself does not burn.
* POISONOUS FUMES ARE PRODUCED IN FIRE.
* CONTAINERS MAY EXPLODE IN FIRE.
* Use water spray to keep fire-exposed containers cool.
* If employees are expected to fight fires, they must be trained and equipped as stated in OSHA 1910.156.

SPILLS AND EMERGENCIES

If **Lead** is spilled, take the following steps:

* Evacuate persons not wearing protective equipment from area of spill until clean-up is complete.
* Collect solid material in the most convenient and safe manner and deposit in sealed containers.
* Ventilate and wash area after clean-up is complete.
* It may be necessary to contain and dispose of **Lead** as a HAZARDOUS WASTE. Contact your state Department of Environmental Protection (DEP) or your regional office of the federal Environmental Protection Agency (EPA) for specific recommendations.
* If employees are required to clean-up spills, they must be properly trained and equipped. OSHA 1910.120(q) may be applicable.

FOR LARGE SPILLS AND FIRES immediately call your fire department. You can request emergency information from the following:

CHEMTREC: (800) 424-9300
NJDEP HOTLINE: 1-877-WARN-DEP

HANDLING AND STORAGE

* Prior to working with **Lead** you should be trained on its proper handling and storage.
* Violent reactions may occur with **Lead**, in powder or solid form, with HYDROGEN PEROXIDE and AMMONIUM NITRATE.
* **Lead** is not compatible with OXIDIZING AGENTS (such as PERCHLORATES, PEROXIDES, PERMANGA-NATES, CHLORATES, NITRATES, CHLORINE, BROMINE and FLUORINE); STRONG ACIDS (such as HYDROCHLORIC, SULFURIC and NITRIC); ZIRCONIUM; SODIUM AZIDE; SODIUM ACETYLIDE; and CHLORINE TRIFLUORIDE.
* Store in tightly closed containers in a cool, well-ventilated area.

FIRST AID

In NJ, for POISON INFORMATION call 1-800-764-7661

Eye Contact

* Immediately flush with large amounts of water for at least 15 minutes, occasionally lifting upper and lower lids.

Skin Contact

* Remove contaminated clothing. Wash contaminated skin with soap and water.

Breathing

* Remove the person from exposure.
* Begin rescue breathing (using universal precautions) if breathing has stopped and CPR if heart action has stopped.
* Transfer promptly to a medical facility.

PHYSICAL DATA

Vapor Pressure: 0 mm Hg at 68°F (20°C)
Water Solubility: Insoluble

OTHER COMMONLY USED NAMES

Chemical Name:

Lead

Other Names:

Plumbum; Lead Flake

NEW JERSEY DEPARTMENT OF HEALTH AND SENIOR SERVICES
Right to Know Program
PO Box 368, Trenton, NJ 08625-0368
(609) 984-2202 H4985

ATTACHMENT 2

ROUTE AND MAPS FROM SITE TO HOSPITAL

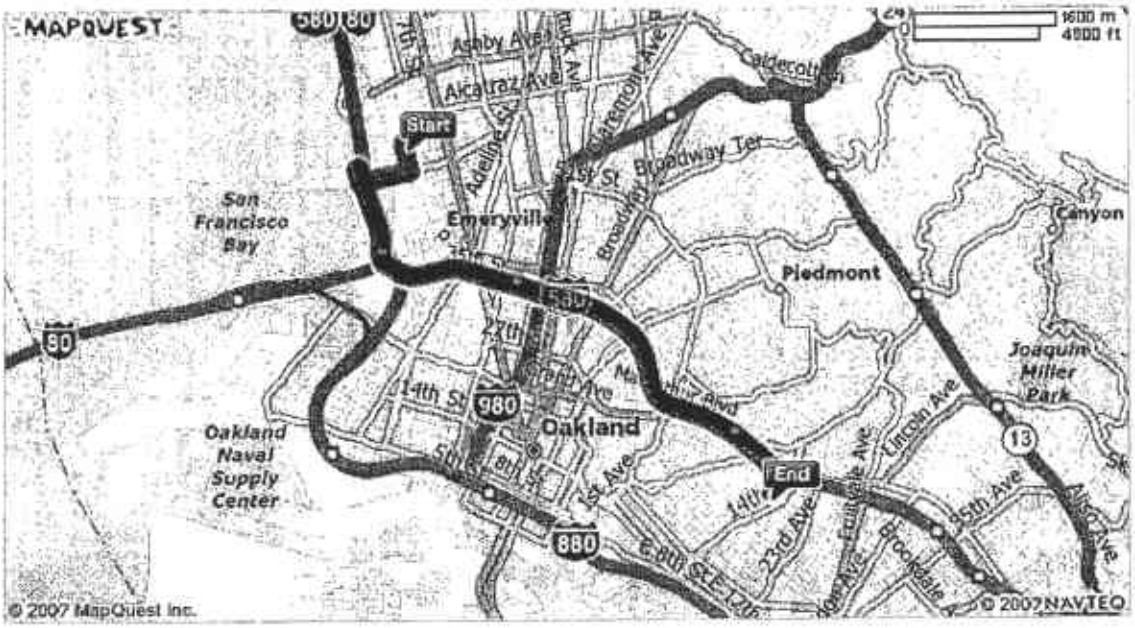
MAPQUEST.

Start: **1379 62nd St**
Emeryville, CA 94608-2119, US

End: **1411 E 31st St**
Oakland, CA 94602-1018, US

Notes:
Only text visible within note field will print.

Directions	Distance
Total Est. Time: 10 minutes **Total Est. Distance:** 6.11 miles	
1: Start out going WEST on 62ND ST toward HOLLIS ST.	<0.1 miles
2: Turn LEFT onto HOLLIS ST.	0.2 miles
3: Turn RIGHT onto POWELL ST.	0.4 miles
4: Turn RIGHT onto FRONTAGE RD.	0.1 miles
5: Merge onto I-580 E.	4.5 miles
6: Take the exit toward PARK BLVD.	0.2 miles
7: Merge onto MACARTHUR BLVD.	0.2 miles
8: Turn RIGHT onto STUART ST.	0.1 miles
9: Turn LEFT onto E 31ST ST.	<0.1 miles
10: End at **1411 E 31st St** Oakland, CA 94602-1018, US	
Total Est. Time: 10 minutes **Total Est. Distance:** 6.11 miles	



Start:
1379 62nd St
Emeryville, CA 94608-2119, US

End:
1411 E 31st St
Oakland, CA 94602-1018, US

ATTACHMENT 3

HEALTH AND SAFETY PLAN ACKNOWLEDGEMENT SHEET

ON-SITE WORKING PERSONNEL SIGN IN

The personnel listed below have 40-hour HAZWOPER training with current refresher status and have read and understood this Health and Safety plan, and agree to abide by its provisions.

On-site Personnel Name	Signature	Company	Date

APPENDIX F

DUST AND AIR MONITORING PLAN

CITY OF EMERYVILLE PROJECT NO. EPW 106-07

TABLE OF CONTENTS

Page

1. INTRODUCTION

The Air Monitoring Plan (AMP) has been prepared by Ninyo & Moore for the soil remediation project at the former Dutro property at 1333–1379 62nd Street in Emeryville, California (site). The objective of the AMP is to describe personal and ambient air monitoring to be performed during remediation activities (both demolition and soil removal). The goal of the AMP is to identify the constituents of concern (COC), air quality action levels, personal and ambient air monitoring protocols, and record keeping.

2. DUST AND AIR MONITORING PLAN OVERVIEW

The Dust and Air Monitoring Plan (DAMP) describes the personal and ambient air monitoring protocol requirements at the site during soil remediation. Air monitoring will be conducted throughout the excavation and loading activities. Air monitoring will consist of real-time data collection for particulates (Mini-RAM), and laboratory analysis of data collected from the perimeter high-volume air sampling stations.

The objectives of the DAMP are to collect qualitative and semi-quantitative real-time air data for purposes of controlling on-site work, and to collect quantitative air sampling data at three stations on the perimeter of the site to document off-site migration of contaminants. The real-time air data will be used to help evaluate when further engineering controls or modified work practices are needed to reduce airborne contaminants. This may include the use of additional water application to prevent unacceptable dust levels, or modified work practices to reduce generation of airborne vapor. If engineering controls are not capable of meeting on-site worker exposure goals, the Mini-RAM and/or photo ionization detector (PID) data will be used to evaluate when upgraded personal protective equipment (PPE) (such as respiratory protection) is required. The perimeter air monitoring will be used during the remedial action to measure the potential off-site migration of COCs. The perimeter air monitoring data will be used in conjunction with real-time particulate and vapor data to make important operational decisions regarding dust control, PPE, and work stoppage. Since the perimeter air monitoring data requires laboratory analysis, the real-time particulate and vapor data will be the most critical method for making operation decisions.

3. CONSTITUENTS OF CONCERN

COC detected during previous site investigations include total petroleum hydrocarbon as diesel (TPH-D), total petroleum hydrocarbon as motor oil (TPH-MO), lead, and benzo(a)pyrene as an indicator of polynuclear aromatic hydrocarbons (PAHs). Cleanup goals have been established for these COCs. Soil contamination was reported in several sections of the warehouse, the former truck bay vicinity, and the remaining storage area outside the warehouse. Results of the Phase II Environmental Site Assessment (ESA), performed by Ninyo & Moore in July 2005, indicated soil COCs s at depths ranging from 0 to 5.0 feet beneath the ground surface.

3.1. Total Petroleum Hydrocarbons as Diesel and Motor Oil

Recommended cleanup goals for TPH constituents are related to the Regional Water Quality Control Plan (RWQCB) Human Health Direct Exposure concentrations for shallow soil screening levels (<3m below ground surface[bgs]), residential land use, where potentially impacted groundwater is not a current or potential drinking water source (RWQCB, 2005). The cleanup goal for TPH-D is 400 milligrams per kilogram (mg/kg); and the TPH-MO goal proposed is 1,000 mg/kg. Additionally, the total TPH concentrations (sum of concentration of individual fractions for TPH-D plus TPH-MO) cannot exceed 1,000 mg/kg. Because these cleanup goals were established for a residential land use, they provide a conservative goal for park use by recreational visitors with much more limited site exposures.

TPH contaminated soils containing diesel and motor oil range hydrocarbons are found throughout the site at concentrations ranging from just over the cleanup level (400 mg/kg) to 14,000 mg/kg for diesel and from just over 1,000 mg/kg to 4,300 mg/kg for motor oil. Impacted soils to be removed ranged in depth from 0 to 5.5 feet bgs.

3.2. Lead

Recommended lead cleanup concentrations were calculated by the SOMA Corporation using the Department of Toxic Substance Control (DTSC) lead spread model (Version 7) (SOMA, 2007); the calculations are included as an attachment to the Site Cleanup Plan (SCP). Lead cleanup concentrations were calculated for construction worker exposure and recreational

visitor exposure to lead concentrations in soil, water, and air. The DTSC lead spread model specifies acceptable blood-lead levels for construction worker and recreational visitor receptor at 10 micrograms per deciliter (µg/dL) (EPA, 1998). A lead in soil/dust concentration of 370 mg/kg was calculated for a pregnant Mexican American construction workers would result in a blood level concentration of 10 µg/dL for a 5-day work week. Additionally, a lead in soil/dust concentration of 515 mg/kg in soils would result in a blood level concentration of 10 µg/dL for a child recreational visitors exposed to soil for 7 days, and 1,250 for an adult recreational visitor exposed for the same period. Therefore, a lead cleanup concentration of 370 mg/kg in soils is considered a conservative cleanup goal.

Soils containing lead concentrations above the cleanup level were reported in boring locations B-5B, B-9, and B-14. Lead concentrations in these borings ranged from 470 to 2,100 mg/kg at depths from the 0 to 4.25 feet bgs.

3.3. Polynuclear Aromatic Hydrocarbons

Residential Environmental Screening Levels and Preliminary Remediation Goals (PRGs) have been established for benzo(a)pyrene, which was detected in the soil samples contaminated with other PAHs. The cleanup level for benzo(a)pyrene in site soils is the residential land use PRG limit of 62 µg/kg. Because this level was established for a residential land use, it provides a conservative cleanup goal for park use by recreational visitors with much more limited site exposure.

Soils containing concentrations of benzo(a)pyrene in excess of cleanup levels occur in the central portion of the site (B-13, B-14, B-15, and B-16) and in the southwest (B-5) and southwest (B-17). Concentrations ranged from 70 to 14,000 mg/kg in these areas; at depths from 0 to 4.25 feet bgs.

4. AIR QUALITY ACTION LEVELS

The following section outlines the air quality action levels for the site and provides a comparison of these action levels against the levels of the COC anticipated during remediation activities.

4.1. Determining Action Levels

The air monitor quantitative perimeter action level for lead will only be conducted during working hours and the results will be compared to the BAAQMD action level of 1.0 micro-grams per cubic meters (µg/m3) (averaged over 24 hours), which will be highly protective of resident health. The total dust action level (50 $\mu g/m^3$) is two orders of magnitude below the action level for worker exposure on site, which is itself half the Occupational Safety & Health Administration (OSHA) Permissible Exposure Limit (PEL) and the American Conference of Governmental Industrial Hygienist's (ACGIH) Threshold Limit Value (TLV). This level is sometimes challenging to maintain; however, should be attainable for proposed operations.

The PID action level is nearly two orders of magnitude below the ACGIH TLV for gasoline and is considered highly protective of the surrounding community while being attainable with field instrumentation. The published exposure limits, site and perimeter action levels are shown in Table F-1 below. The COCs are listed in the first column, and the PELs for the COCs (where applicable) are shown in the second column as the OSHA occupational exposure limit. The PEL for lead is 0.01 milligrams per cubic meter (mg/m^3), for arsenic is 0.5 mg/m^3, and for PAHs is 0.2 mg/m^3. TPH does not have a published PEL although the ACGIH recommends a limit of 300 parts per million (ppm) as a time-weighted 8-hour exposure. Since direct-reading instrumentation cannot quantify the specific COCs, direct-reading instrumentation is used to monitor work in real-time. The worker action levels are based on PID and real-time aerosol monitors and are shown in Column 3. Column 4 lists perimeter action levels designed to protect the surrounding environment and community.

Table F-1 – Published Exposure Limits and Site Action Levels for COCs

Analyte	Occupational Exposure Limit	Worker Site Action Level	Perimeter Action Level
Lead	0.01 mg/m3 (OSHA)	5 mg/m3 total dust1	1.0 ug/m3 (NAAQS)
Arsenic	0.5 mg/m^3 (OSHA)	5 mg/m^3 total dust[1]	N/A
PAHs (Coal Tar Pitch Volatiles)	0.2 mg/m^3 (OSHA)	5 mg/m^3 total dust[1]	N/A
TPH (as gasoline)	300 ppm (ACGIH)	5 ppm as measured with PID[2]	5 ppm as measured with PID
Nuisance dust	10 mg/m3 (OSHA)	5 mg/m3 total dust	50 ug/m3 total dust (DTSC)

Notes:
[1] Total dust can be monitored in real-time and this level has been determined to be highly protective of the specific COC listed (See Section 4.2)
[2] Breathing zone readings; 25 ppm is acceptable if benzene has been verified to be absent from mixture.

4.2. Real-Time Particulate Monitoring

Real-time particulate monitoring will be performed with a Thermo Andersen DataRAM Aerosol Monitor or equivalent, which will be calibrated by the manufacturer at the manufacturer's recommended frequency and source-checked on site daily, prior to use. Laboratory analysis of air samples will be performed by NIOSH Method 7105 (or equivalent) to allow low volume air samplers to be used and still maintain adequate detection limits in accordance with the values set by the National Ambient Air Quality Standards (NAAQS) in Table F-1. The working range of this method is 0.002 mg/m^3 for a 200-liter air sample. Air samplers will be calibrated on site prior to and immediately after use with a field rotameter, which has been calibrated to a primary standard within the last year. The 10.6 eV PID will be calibrated daily, prior to use with isobutylene.

The detection limit of the Thermo Andersen DataRAM Aerosol Monitor or equivalent is reported by the manufacturer to be 0.1 ug/m^3 with a resolution of 0.1 ug/m^3. The limit of detection for quantitative perimeter sampling (lead) is 0.002 mg/m^3 for a 200 liter air sample which will adequately address action limits set by the plan. Sample volumes are expected to be at least twice this level which will drop detection limits even further. The PID has a de-

tection limit of 0.1 ppm of total organic vapor and actually slightly over responds to hydrocarbon mixtures such as those expected on site. Action levels are highly protective of human health but attainable.

Calculations were performed by a Ninyo & Moore Certified Industrial Hygienist (CIH) to estimate the potential for reaching the PELs for lead, arsenic, and PAHs (in particulate form) during site work. These calculations assumed that the highest concentrations found in previous samples (listed in Section 3.2 and 3.3) would be dispersed in ambient air. It was found that even assuming all site soil was contaminated to the level of the "hottest" samples, that the OSHA PEL for total dust would be reached prior to any individual contaminant PEL. This indicates that protecting to the OSHA limit for total dust (at 10 mg/m3) will be highly conservative in protecting against exceeding the individual PELs for lead, arsenic, and PAHs (particulate form). In addition, the action level for this site is set at one-half of this limit (5 mg/m3 total dust).

California Occupational Safety and Health Administration has set a limit of 10 mg/m3 for nuisance particulate dust in areas where workers may be exposed. If one-half of this concentration is detected, engineering controls will be put in place to reduce particulate dust. Engineering controls that will be used to prevent nuisance dust are discussed in the SWPPP (Appendix C).

The DTSC has established a standard of 50 $\mu g/m^3$ above background concentrations for off-site dust emissions during the excavation-type activities in the San Francisco Bay Area. Site work will be stopped if this standard is exceeded. If 50 $\mu g/m^3$ are exceeded at the site boundaries, additional engineering controls will be implemented to reduce dust concentrations. Work will be stopped if engineering controls can not reduce dust emissions to an acceptable level.

5. METEOROLOGICAL MONITORING

Background air quality data will be collected 1 week prior to starting remedial activities. Based on the prevailing wind direction, locations for the proposed perimeter high volume air monitoring stations will be selected. One location will be upwind (Station 1) and two locations will be positioned in the downwind direction (Stations 2 and 3).

Wind speed and direction will also be logged from the site starting one week prior to remedial activities. A meteorological tower and logger will be used to collect this data. The data collected will track wind direction and speed at the site. At wind speeds of 25 miles per hour or more, work may need to be stopped to modify engineering controls and work practices.

6. REAL-TIME AIR MONITORING

Real-time air monitoring is used to ensure workers safety during remediation activities and to prevent unacceptable off-site dust emissions. Real-time air monitoring will be used to verify that both the particulate and vapor levels at the site are below the action levels listed in Table F-1. A DataRAM will be used to collect particulate data and a 10.6 eV PID meter will be used to collect the vapor data. Measurements will be collected every half hour in active work areas and every hour at the site perimeter. If instrument readings indicate that concentrations of contaminants exceed the levels listed in Table F-1, work will stop immediately and engineering controls will be established. If these limits can not be reached with additional engineering controls then the work will be stopped until weather conditions are more favorable.

In cases where engineering controls maintain the action level at the perimeter but not at the active work area, workers may need to wear respirators. Before respirators are used, the construction superintendent will determine if work stoppage is necessary. The use of respirators is used only to supplement engineering controls.

7. SITE PERIMETER AIR MONITORING

Site perimeter air monitoring will be used to monitor off-site dust and vapor emissions, and the COC levels in the dust. Both a DataRAM and PID will be used for site perimeter air monitoring and will help prevent the off-site migration of significant levels of COCs. If engineering controls are not capable of sustaining acceptable contaminant levels at the site perimeter, instrument readings will be used to justify work stoppage until site conditions improve. Three air monitoring stations will be set up on the perimeter of the work site, one upwind (Station 1) and two locations downwind (Stations 2 and 3). The monitoring station locations will be determined by wind direction and surrounding properties.

8. CHAIN OF CUSTODY

A chain of custody will be maintained for all air monitoring samples collected. Every sample taken will be sealed and labeled according to the procedure outlined in Section 6 of the Appendix A, Field Sampling and Analysis Plan.

9. LIMITATIONS

Refer to Section 6 of the SCP.

APPENDIX G

DEPARTMENT OF TOXIC SUBSTANCE CONTROL COMMENTS

CITY OF EMERYVILLE PROJECT NO. EPW 106-07

October 19, 2007
Project No. 400582003

Mr. Ignacio Dayrit
City of Emeryville Redevelopment Agency
1333 Park Avenue
Emeryville, California 94608

Subject: Response to DTSC Comments
Former Dutro Site
1333-1379 62nd Street
Emeryville, California

Dear Mr. Dayrit:

Ninyo & Moore has reviewed the Department of Toxic Substances Control (DTSC) comments to the Conditional Approval and Site Cleanup Plan for the former Dutro site located at 1333-1379 62nd Street, Emeryville, California. Below are our responses to the DTSC comments for your records. The DTSC comments are stated first in bold print, followed by our responses.

Additionally, we would like to modify our pre-excavation sampling program outlined in the Field Sampling Plan (FSP) (Appendix A) in the SCP to include less samples collected, mainly because most of the fill on site needs to be excavated from the site for construction of the park regardless of its quality. Since most of the on-site contamination appears to be in the fill material (which ranges from between 3 to 4 feet in depth over most of the site), large scale pre-excavation sampling does not appear warranted. The pre-excavation sampling that will be conducted will consist of approximately 20 to 25 soil borings to confirm the depth of fill and depth of excavation. Soil samples will be collected beneath the fill and used as confirmation samples for each cell. The sampling will be conducted using a Geoprobe rig as described in Section 3.1 of the FSP, and soil sample identification and sample analysis will follow the guidelines included in the FSP. Soil excavation will not extend below soil samples that are reported below cleanup goals. Stockpiled soils for transport and disposal, and site reuse will be sampled according to the FSP.

Sincerely,
NINYO & MOORE

Kris M. Larson
Senior Environmental Geologist

KML/dhi

Distribution: (1) Addressee
(1) Susan Colman

Ninyo & Moore

Comments to the Conditional Approval

1. **Please include the groundwater flow direction. This information is important in determining whether the groundwater samples collected for VOC analysis were placed in the appropriate locations. Additional groundwater samples should be collected if the initial sample points were not located downgradient of potential source areas.**

   The groundwater flow direction is to the west. Groundwater samples were collected from Borings B-3, B-4, and B-5B. Boring B-3 was located to the west, and immediately downgradient, of the paint booth and the paint and solvent storage container. Boring B-4 was located west, and immediately downgradient, of the waste oil storage/compressor room. The last groundwater sample collected was from Boring B-5B near the east property boundary. An attempt was made to collect groundwater samples from Borings B-2, B-3, B-5, B-14, and B-22; however, samples were not collected due to dry boring conditions. During pre-excavation sampling, an attempt will be made to collect groundwater samples downgradient from the truck bay and former underground storage tank (UST) location, paint and solvent storage area, and the two storage rooms.

2. **Figures 2 through 5 indicate a feature near Boring B-13. At location B-13 elevated concentrations of benzo(a)pyrene (14,000 mg/kg) and other PAHs were detected. Please state what this feature is and if it is a potential source of the contaminant.**

   The feature in the map near Boring B-13 is a typo and will be deleted from the figure. A specific source of PAHs at Boring B-13 was not identified.

3. **Page 3: If California modified PRGs are available, they should be used.**

   Chrysene and lead were the only constituents of concern that have California modified PRGs. The residential Environmental Screening Levels (ESLs) and California modified PRGs for chrysene are the same (0.38 mg/kg). The lead California modified PRG is 150 mg/kg, lower than the lead spread worksheet concentration of 266 mg/kg, which has changed as discussed in comment #8 below.

4. **Page 3, Summary of Investigations: This section states that soil samples were collected 2, 3.5 and 5 feet below ground surface. Please include how deep below the bottom of the concrete slabs the samples were collected. Also, include the sample intervals for the July 2004 samples.**

   Soil samples were collected at 2 and 5 feet below the concrete slab during the July 2004 sampling event and 2, 3.5, and 5 feet below the concrete slab during the July 2005 sampling event.

5. **Page 4, Results of Soil Sampling: The rationale used to delete VOC analysis from the January 2005 sampling was that the VOCs were not previously detected above residential ESLs. Four samples, B-1, B-2, B-3 and B-4 were collected in July 2004. The samples were located to the west of a paint booth, near the location of a former UST, to the southeast of truck bay and near a waste oil storage/compressor room. While the Site map indicates that there was also a "Paint and Solvent Storage" area and two "Storage Rooms" where elevated levels of petroleum hydrocarbons were detected, no additional soil samples were collected to determine if they are potential sources of VOC contamination. DTSC suggests that during the "Additional Investigation" samples be collected at the Paint and Solvent Storage area and the Storage Rooms and analyzed for VOCs.**

   During the pre-excavation sampling event, soil samples will be collected from B-14C (near the paint and storage area), B-18B (storage room), and B-11C (the second storage room) and analyzed for VOCs.

6. **Page 6, Remedial Goals: The U.S. EPA Region IX PRG of 0.062 mg/kg is listed as the remedial goal for benzo(a)pyrene. However, this document does not discuss the other PAHs (phenanthrene (14,000 ug/kg, benzo(a)anthracene 8,300 ug/kg, chrysene 8,900 ug/kg, benzo(b)fluoranthene 12,000 ug/kg, benzo(k)fluoranthene 3,100 ug/kg, ideno(1,2,3-cd pyrene 12,000 ug/kg and dibenz(a,h)anthracene 7,000 ug/kg) that were found to exceed the screening values at boring location B-13. In addition to benzo(a)pyrene, pre-excavation samples should be analyzed for all PNAs in order to define the extent of contamination. Remediation goals should be developed for the remaining PAHs or benzo(a)pyrene equivalents should be calculated and a remediation goal developed.**

   Pre-excavation soil samples will be analyzed for the full suite of PAHs using EPA Method 8270 SIM. Because benzo(a)pyrene (BAP) was the only PAH reported in several site samples above residential ESLs (cleanup goals), it was used as an indicator for PAH contamination. If other PAHs are reported in the pre-excavation samples, they will be compared to residential ESLs, which will be used as the cleanup goals.

7. **Page 9, Dust Control: A specific section discussing dust control measures should be included in the Site Cleanup Plan prepared by Ninyo & Moore.**

   Dust control measures, which are discussed in Section 3.3 of Appendix C, will include light water spraying, maintaining slow truck speeds, covering stockpiles, and in the event of wind speeds exceeding 30 miles per hour (mph) for more than 30 minutes, work will be halted until wind speeds decrease. The following text will be added as Section 3.3.3 of the main report.

   Dust suppression will be accomplished by lightly spraying or misting stockpiled soil, truck loading areas on site, and the work areas with water. Misting may also be used on soil placed

in the transport trucks. Misting will be performed sufficiently to reduce dust and vapors emissions but in small enough quantities so as to avoid puddling and run off. In addition, efforts will be made to minimize the soil drop height from the excavator's bucket onto the soil pile or into the transport trucks. After the soil is loaded into the transport trucks, the soil will be covered to prevent soil from spilling out of the truck during transport to the disposal facility.

While on the property, vehicles will maintain slow speeds (i.e., less than 5 mph) for safety purposes and for dust control measures. Prior to departure, transport and dump trucks will be cleaned of loose debris clinging to the sides and/or wheels using dry brooms or brushes to minimize off-site contaminant mobilization. If conditions warrant, a street sweeper may be retained to sweep the local street route.

Generally, excavated soil will be placed on, and covered with, 60-mil high density polyethylene sheets pending profiling and disposal. Polyethylene sheets covering the stockpiled soil will be anchored in place using sandbags and rocks.

In the event of sustained wind speeds that cause visible fugitive emissions, soil-moving activities will be temporarily halted until a sufficient dust control agent is applied to reduce such emissions. In the event wind speeds exceed 30 mph for more than 30 minutes, and visible emissions are observed, soil-moving activities will be halted until wind speeds decrease and no visible emissions are observed.

8. **Leadspread Calculations: a) The specific references for all non-default exposure parameters that were used in the spreadsheet must be provided. b) The recreational user scenario did not include a child park visitor, but only considered adults. A lead remediation level for the child park visitor must be calculated.**

A lead level for a child park visitor was calculated and is included in the attached lead spread worksheets. References for the non-default exposure parameters are listed on the bottom of the pages. Since the SCP was prepared in October 2005, several input exposure parameters were updated, including: 1) skin surface area, revised from 3160 cm^2 (mean surface area for head, forearms and hands) (U.S. EPA, 1992) to 5700 cm^2 (DTSC, 2000); 2) soil adherence, revised from 240 $\mu g/cm^2$ (maximum geometric mean value for soil loading on hands for construction workers) (Holmes et al., 1999) to 800 $\mu g/cm^2$ (USEPA, 2002 as cited in DTSC/HERD, 2005); and 3) soil ingestion rate, revised from 480 mg/day (assumed outdoor soil ingestion rate for adults engaged in yard work) (USEPA, 1997) to 330 mg/day (USEPA, 2002 as cited in DTSC/HERD, 2005). As a result, the lead in soil dust level for the construction worker exposure scenario has increased from 370 mg/kg to 504 mg/kg.

Additionally, an *Empirical Model for Exposure to Soil Lead: Pregnant Construction Workers* (PCW) (USEPA, 2003) was conducted. This model assumes that ingestion is the primary route of exposure. Inhalation and dermal routes of exposure are not addressed, which is in contrast to the lead spread worksheet discussed above. The PCW model is also driven by a time weighted average (days/work year) to calculate the Risk Based Remedial Goals (RBRG) at specific percentiles to meet lead in blood goals of 10 µg/dL for non-Hispanic black, Mexican American, and non-Hispanic White pregnant construction workers. Since the exposure pathway (ingestion) in the PCW model is different than the lead spread model exposure pathway (inhalation), the number of days/year for exposure were back calculated for each subset of pregnant construction workers to reach 504 mg/kg, equal to the lead in soil dust concentration calculated in the lead spread model. The resulting number of days/work year of exposure included in the 95 percentile range, is 66 for a Mexican American pregnant construction worker, 73 for a non Hispanic Black construction worker, and 114 for a Hispanic White pregnant construction worker.

Comments to the Final Draft Site Cleanup Plan

1. **Please include the anticipated duration of the removal project, the work hours and workdays.**

   The work hours will be subject to the City of Emeryville's noise ordinance which limits the work to Monday through Friday between the hours of 7 am to 6 pm. The duration of the removal project is anticipated to last 4 weeks.

2. **Please provide the rational for classifying soils containing greater that 3,000 mg/kg total lead as a RCRA hazardous waste. RCRA characteristic waste classifications are based on TCLP values rather than total concentrations. In addition, both TTLC and STLC values are used to determine whether a waste is a California waste. RCRA Characteristic hazardous waste must meet Land Disposal Restriction (LDR) treatment standards before being eligible for land disposal. Underlying hazardous constituents must also be treated in order to meet contaminant specific levels. If excavated soil is classified as a characteristic RCRA hazardous waste, other contaminants found in the soil must meet the universal treatment standards listed in 40CFR268.48; therefore, any additional testing needed to meet these requirements and waste classification should be identified in this document.**

   TTLCs of 1,000 mg/kg were used to delineate lead impacted soil as either non-hazardous or hazardous waste. However, we will modify our lead impacted soil waste characterization to analyze both pre-excavation and soil stockpile samples for STLC and TCLP if lead concentrations are greater than the cleanup goal of 504 mg/kg for lead. If STLCs are above 5.0 milligrams per liter (mg/l) and TCLPs are below 5.0 mg/l, the waste will be classified as non-RCRA hazardous waste. If TCLP concentrations range between 5.0 mg/kg and 7.5 mg/kg, the soil will be classified as RCRA hazardous waste. If it is above 7.5 mg/kg, it

will be stabilized to below 5.0 mg/kg to be disposed of as non-RCRA hazardous waste. If the soil is classified as RCRA hazardous waste, underlying hazardous constituent including chromium, cobalt, benzo(a)pyrene, and TPH-D/MO will be analyzed to confirm that the concentrations are below Universal Treatment Standards.

3. **Page 10, Section 1.2.3, Hazardous Building Materials Survey, February 2005: Please state whether window caulking and concrete caulking (if present) was tested for PCBs. If present and not tested, they should be analyzed for PCBs prior to building demolition and disposal.**

   No PCB testing was performed during the Hazardous Building Materials Survey in February 2005. Window putty was noted as being present in the building and will be sampled and tested for PCBs prior to the demolition of the building. Light ballasts and fluorescent light tubes, and an air conditioning unit were also noted to possibly contain PCBs, or have parts that contain PCBs. These materials will be removed and disposed of as universal waste before the demolition of the building.

4. **Page 20, Section 3.3.1, Soil Excavation and Loading: California Health and Safety Code Section 25123.3 contains specific requirement for stockpiling hazardous waste from remediation projects. This section needs to be revised to reflect these requirements.**

   The excavated soil will be stockpiled in a designated location on site that will be certified by a registered engineer for compliance with California Health and Safety Code Section 251233 standards. Excavated soil will be placed on, and covered with, 60-mil high density polyethylene sheets, pending profile and disposal. The polyethylene sheets covering the stockpiled soil will be anchored in place using sandbags and rocks to prevent windblown dispersion and precipitation run off. The stockpiles will be inspected weekly to ensure that the controls for windblown dispersion and precipitation are functioning properly. Dust suppression activities consisting of managed water spray will be practiced during material loading and off haul operations.

5. **Appendix A, Field Sampling and Analysis Plan**

   a. **Page 5, Section 3.3 Stockpiled Soil Sampling: This section needs to state what analysis will be conducted on the stockpiled samples. A table should be provided.**

      Stockpile soil will be analyzed for the following analytes.

Analytical Parameter	EPA Test Method
TPH*	8015 M Extended Range c8 to C44
PAH	8270C SIM
Lead	6010B
Cobalt	6010B
Total Chromium	6010B
Chromium III**	6010B
Chromium VI**	7196A
Notes: *TPH-D and TPH-MO **Will be analyzed if total chromium is detected in stockpile samples	

b. Page 11, Section 4.6, Imported Backfill Sampling: The DTSC information advisory on imported fill material also includes analysis for pesticides if the source of backfill is from agricultural lands. The plan should be modified to include this analysis.

Imported backfill will also be analyzed for pesticides if the source of backfill is from agricultural lands.

6. **Appendix D, Transportation Plan: This Plan should identify the total anticipated number of truck trips, the number of truck trips per day and the hours when trucking will occur. In addition, the need to avoid congested roadways or specific trucking hours to avoid potential traffic impacts should be included.**

The trucking hours for the work will be between 7 am to 3 pm. A total of 20 trucks will be utilized each day. The total anticipated number of truck trips to the Class II facilities, Keller Canyon Disposal Facility and Vasco Road Landfill, will be approximately 140 truckloads. The trucks will be able to take three to four trips to the Class II facilities a day. The total number of truckloads to the Class I facility, Kettleman Hills Disposal Facility, is approximately 160 truckloads. It is estimated that each truck will be able to take one to two trips each day to this facility. Truck drivers will be encouraged to travel before or after peak traffic hours to avoid traffic congestion.

7. **Appendix F, Air Monitoring Plan**

   a. **The Air Monitoring Plan should specify the calibration methods for each type of monitoring equipment that will be used, maintenance requirements, sample collection media, flow rates and specific lamp types where appropriate.**

   Real-time particulate monitoring will be performed with a Thermo Andersen DataRAM Aerosol Monitor or equivalent, which will be calibrated by the manufacturer at the manufacturer's recommended frequency and source-checked on site daily, prior to use. Laboratory analysis of air samples will be performed by NIOSH Method 7105 (or equivalent) to allow low volume air samplers to be used and still maintain adequate detection limits in accordance with the values set by the National Ambient Air Quality Standards (NAAQS) in Table F-1. The working range of this method is 0.002 milligrams per cubic meter (mg/m^3) for a 200 liter air sample. Air samplers will be calibrated on site prior to and immediately after use with a field rotameter, which has been calibrated to a primary standard within the last year. The 10.6 eV PID will be calibrated daily, prior to use with isobutylene.

   b. **The detection limits of each air monitor should be included and compare to the site specific action limits to ensure that the appropriate type of monitor and/or laboratory method is being used.**

   The detection limit of the Thermo Andersen DataRAM Aerosol Monitor or equivalent is reported by the manufacturer to be 0.1 micrograms per cubic meter (ug/m^3) with a resolution of 0.1 ug/m^3. The limit of detection for quantitative perimeter sampling (lead) is 0.002 mg/m^3 for a 200 liter air sample which will adequately address action limits set by the plan. Sample volumes are expected to be at least twice this level which will drop detection limits even further. The PID has a detection limit of 0.1 part per million of total organic vapor and actually slightly over responds to hydrocarbon mixtures such as those expected on site. Action levels are highly protective of human health but attainable.

   c. **Site specific goals that are health protective of the off-site worker and resident need to be calculated for the perimeter action levels.**

   The perimeter action level for lead is based on the NAAQS (quarterly average) of 1.5 ug/m^3, which will be highly protective of resident health. The total dust level action level is two orders of magnitude below the action level for worker exposure on site, which is itself half the Occupational Safety & Health Administration Permissible Exposure Limit and the American Conference of Governmental Industrial Hygienist's (ACGIH) Threshold Limit Value (TLV). This level is sometimes challenging to maintain; however, should be attainable for proposed operations.

   The PID action level is nearly two orders of magnitude below the ACGIH TLV for gasoline and is considered highly protective of the surrounding community while being attainable with field instrumentation.

SELECTED REFERENCES:

California Environmental Protection Agency, Department of Toxic Substances Control, 2000, Guidance for the Dermal Exposure Pathway, Draft Memorandum from S. DiZio, M. Wade, D. Oudiz to Human and Ecological Risk Division, dated January 7.

California Environmental Protection Agency, Department of Toxic Substances Control, Human and Ecological Risk Division, 2005, Human Health Risk Assessment, Note Number 1, dated October 25.

Holmes, et al., 1999, Field Measurements of Dermal Soil Loadings in Occupational and Recreational Activities, Environmental Res, 80:148-157.

United States Environmental Protection Agency, 1992, Dermal Exposure Assessment: Principles and Applications, Interim Report, Environmental Protection Agency/600/8-91/011B, dated January.

United States Environmental Protection Agency, 1997, Exposure Factors Handbook, Volume I: General Factors, Office of Research and Development.

United States Environmental Protection Agency, 2002, Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites, OSWER 9355.4-24.

United States Environmental Protection Agency, 2003, Empirical Model for Exposure to Soil Lead: Pregnant Construction Workers.

October 19, 2007
Project No. 400582003

Mr. Ignacio Dayrit
City of Emeryville Redevelopment Agency
1333 Park Avenue
Emeryville, California 94608

Subject: Second Response to DTSC Comments
Former Dutro Site
1333-1379 62nd Street
Emeryville, California

Dear Mr. Dayrit:

This letter addresses the Department of Toxic Substances Control (DTSC) comments to Ninyo & Moore's Response to DTSC Comments dated May 15, 2007 for the former Dutro site located at 1333-1379 62nd Street, Emeryville, California. The DTSC comments were sent by Ms. Lynn Nakashima in an e-mail to yourself and Ms. Susan Colman on July 10, 2007. Ms. Nakishima's comments are listed below, followed by our response to her comments.

Sincerely,
NINYO & MOORE

Kris M. Larson
Senior Environmental Geologist

KML/amh

Distribution: (1) Addressee
(1) Susan Colman

Conditional Approval Document

DTSC Comment

Comment 8, LeadSpread Calculations:

a. The spreadsheet containing the calculations for the child park visitor was not provided; therefore, it could not be reviewed.

b. As there is no relationship between DTSC's Leadspread model and the US EPA Adult Lead Model (ALM), the rationale used to calculate the acceptable lead value for the pregnant construction worker is not acceptable. DTSC's leadspread model equations do not consider the blood lead level in the developing fetus; therefore, the soil concentration is not considered protective of the females of child-bearing age. The values calculated by DTSC's leadspread model would be protective of the male construction worker. The ALM should be rerun using the standard default parameters for a construction worker. The calculation should not assume a lead concentration of 504 mg/kg as this value is protective of the male construction worker.

Ninyo & Moore Response:

a. **The spreadsheet for child park visitor has been revised to incorporate suggested soil ingestion rates from Ms. Kimiko Klein of the DTSC. The revised Child Recreational Visitor (CRV) cleanup goal for lead is 515 mg/kg. A copy of Ms. Klein's comments and the CRV scenario are attached.**

b. **In the revised calculations, we are no longer back-calculating in the ALM to the same lead remedial goal (504 mg/kg) that was calculated using LeadSpread for the male or non-pregnant construction worker. The ALM was revised to incorporate the suggestion of Ms. Klein to use an exposure frequency of 90 days per year. The cleanup goal for lead has been revised to 370 mg/kg, which is the concentration calculated for a Pregnant Mexican-American construction worker, and the most conservative concentration calculated from the four (construction worker, child visitor, adult visitor, and pregnant**

construction worker) scenarios. Both Ms. Klein's comments and the Pregnant Construction Worker scenario are attached.

Final Draft Site Cleanup Plan

DTSC Comment:

Comment 2: This response states that if TCLP concentrations range between 5.0 and 7.5 mg/kg, the soil will be stabilized to below 5.0 mg/kg and disposed as non-RCRA hazardous waste. Please explain how 7.5 mg/kg was selected, what type of treatment will be used and where the treatment will occur. Also, depending upon the treatment method, you may need to first obtain a hazardous waste permit to conduct the treatment.

Ninyo & Moore Response:

Our response for the disposal of soil between the range of 5.0 and 7.5 mg/L was incorrect. The proper response is that if the TCLP concentrations for lead are greater than 5.0 mg/L and less than 7.5 mg/L, it will be disposed of as RCRA waste and no stabilization will occur. The 7.5 mg/L value is used as the upper limit of RCRA waste per the Universal Treatment Standards (UTS). If the TCLP is above 7.5 mg/L, it will need to be stabilized at the landfill and disposed as Cal-Haz waste. No soil treatment will occur on site. As a side note, we have analyzed TCLPs on all soil samples that reported STLCs above 5.0 mg/L. None of the TCLP results were above 5.0 mg/L, so we anticipate that none of the soil will be classified as RCRA waste.

Final Draft Site Cleanup Plan

DTSC Comment:

Appendix F, Air Monitoring Plan:

Comment 7b.: The detection limit for the quantitative perimeter air monitor for lead was identified as having a detection limit of 0.002 mg/m3. (2 ug/m3). The response states that it is anticipated that the detection limits may be even lower if sample volumes are increased.

However, it appears that the detection limits will not be sufficient to meet the perimeter action level that will be protective of the community or meet BAAQMD standards. Also, see next comment.

Ninyo & Moore Response:

This section will be revised to meet the requirements of BAAQMD, Rule 11-1-302. The perimeter action level has been changed to 1.0 µg/m3 averaged over 8 hours. Air monitoring will only be conducted during working hours and the results will be compared to the BAAQMD action level of 1.0 µg/m3 (averaged over 24 hours). Air sampling strategies will ensure that the limit of detection is sufficient to perform this comparison.

Final Draft Site Cleanup Plan

DTSC Comment:

Comment 7c.: Site specific action levels for perimeter and off-site workers were not calculated as stated in this comment. For example, the lead action level of 1.5 ug/m3 was identified as being based on the NAAQS (quarterly average). No documentation was provided that this level would be protective. In addition, the BAAQMD, Rule 11-1-302 states that: Ground Level Concentration Limit Without Background: A person shall not discharge any emission of lead, or compound of lead calculated as lead, that will result in ground level concentrations in excess of 1.0 ug/m3 averaged over 24 hours. For other action levels, TLVs and PELs were identified as the source. TLVs and PELs are not appropriate action levels for off-site residents.

Ninyo & Moore Response:

See Comment 7b above. Also, this section was not intended to utilize PELs or TLVs as action levels for local residents. The reference to TLVs and PELs was to illustrate that perimeter action levels were over 100 times more restrictive than these occupational limits.