City of Carson
Report to Mayor and City Council

October 1, 2013
Unfinished Business

SUBJECT:	CONSIDER STATUS REPORT ON THE REGIONAL WATER QUALITY CONTROL BOARD ENVIRONMENTAL INVESTIGATION AND CARSON DECLARATION OF THE EXISTENCE OF AN EMERGENCY WITHIN THE CAROUSEL TRACT
Submitted by Clifford W. Graves Director of Community Development	Approved by Jacquelyn Acosta Acting City Manager

I. SUMMARY

This item is on the agenda at the request of Mayor Pro Tem Santarina to provide updates at all regularly scheduled City Council meetings related to the environmental investigation of the Carousel Tract (Kast Property). An attorney from Girardi & Keese will be present at the meeting to provide a status report on the Carousel litigation. This report also provides information related to the United States Environmental Protection Agency (USEPA) environmental investigation of the Monterey Pines residential community. A general timeline of the Carousel Tract environmental investigation is provided to track past and current activities (Exhibit No. 6).

II. RECOMMENDATION

TAKE the following actions:

1. HEAR the status report on the Carousel litigation.
2. RECEIVE and FILE.

III. ALTERNATIVES

TAKE another action as the City Council deems appropriate consistent with the requirements of law.

IV. BACKGROUND

On March 11, 2011, the Los Angeles Regional Water Quality Control Board (Regional Board) issued Cleanup and Abatement Order (CAO) No. R4-2011-0046 directing Shell Oil Company (Shell) to investigate the Carousel Tract (former Kast Tank Farm Property) and provide remedial action to cleanup and abate the waste in the soil, soil vapor and groundwater associated with contamination from the former tank farm. In accordance with the CAO, Shell submitted a Site-Specific Cleanup Goal Report dated February 22, 2013.

On July 31, 2013, a meeting was held with representatives from the Los Angeles County Fire Department and the Los Angeles County Department of Public Health to discuss the emergency conditions in the Carousel Tract and to allow Mr. Bob

Bowcock, Dr. Lorne Everett, and James T. Wells, PhD (City's Environmental Consultants) to share technical information related to the environmental conditions. Copies of the reports that were submitted on behalf of the City of Carson and Girardi & Keese to the Regional Board commenting on the Site-Specific Cleanup Goal Report were provided to the agency representatives. A follow up meeting will be scheduled in early October to discuss the status of City Council Resolution No. 13-081. Participants will include representatives from the Regional Board, Office of Environmental Health Hazard Assessment, Los Angeles County Fire Department, Los Angeles County Department of Public Health, City Attorney's Office and the City's Environmental Consultants.

On September 17, 2013, the City Council was updated that the Site-Specific Cleanup Goal Report was not approved by the Regional Board and that revisions must be submitted by October 21, 2013. Staff is aware that Shell is discussing the revisions with appropriate Regional Board staff and anticipates that the revised report will be submitted in a timely manner.

Staff also provided information about the status of the City Council action on July 29, 2013, which action adopted City Council Resolution No. 13-081 (Exhibit No. 1) declaring the existence of an emergency within the Carousel Tract. Staff noted that various state and county officials and agencies were provided copies of the resolution. Written correspondence was received from the State of California Attorney General's Office and the Los Angeles County Fire Department (Exhibit Nos. 2 and 3).

On September 24, 2013, staff attended a community scoping meeting and discussed the California Environmental Quality Act (CEQA) process with Regional Board staff. The Regional Board utilized a series of poster boards to explain the purpose of the scoping meeting, to describe the CEQA process and to provide summary information on the environmental investigation and pilot tests to explore potential remediation technologies to be applied in the Carousel Tract. A copy of the poster board presentation is attached as Exhibit No. 4. The Regional Board requires Shell to propose and submit a Remedial Action Plan by the end of 2013 for the cleanup of the Carousel Tract. The approval of the Remedial Action Plan is subject to the CEQA process. For purposes of CEQA, the Regional Board will be evaluating the environmental impacts associated with the implementation of the Remedial Action Plan, in particular, the impacts associated with the possible methods to be used and the extent of the cleanup.

The Regional Board has also requested use of a City Hall office to allow their staff to conduct meetings with interested Carousel Tract residents. A Public Participation Specialist from the Regional Board is expected to schedule meetings

in early October. Staff will facilitate providing meeting space to assist with the community outreach efforts.

Monterey Pines

The Regional Board has also been requested to meet with staff and the City's Environmental Consultants to discuss the Monterey Pines residential community located immediately west of the Carousel Tract. This discussion is expected to occur in conjunction with the early October meeting for the Carousel Tract.

The Monterey Pines site was referred to the United States Environmental Protection Agency (USEPA) in August 2012 for assistance in assessing concentrations of PCE (Tetrachloroethylene) in soils and soil gas and evaluation of potential future remedial or removal actions. The USEPA completed a Site Assessment Report for the Monterey Pines Development Site in August, 2013 (Exhibit No. 5) and determined that concentrations of PCE in 12 residences slightly exceeded the California Human Health Screening Levels (CHHSLs) but they do not exceed the EPA Residential Regional Screening Levels (RSLs). The USEPA also noted that VOCs (volatile organic compounds) were also detected in concentrations exceeding the CHHSLs and/or RSLs in residential air and ambient air samples. The California Human Health Screening Levels (CHHSLs or "Chisels") are concentrations of 54 hazardous chemicals in soil or soil gas that the California Environmental Protection Agency (Cal/EPA) considers to be below thresholds of concern for risks to human health. The USEPA RSLs provide a similar approach to determining chemical-specific concentrations for individual contaminants in air, drinking water and soil that may warrant further investigation or site cleanup. The CHHSLs and RSLs set forth a recommended, but not mandatory, approach based upon currently available information with respect to risk assessment. Based upon the USEPA report, clarification is needed regarding the need for remedial action and the determination of a responsible lead agency since the contaminants of concern that exceed screening levels do not appear to fall under the jurisdiction of the USEPA.

V. FISCAL IMPACT

None.

VI. EXHIBITS

1. Resolution No. 13-081. (pgs. 5-9)
2. Letter from Attorney General's Office dated August 22, 2013. (pg. 10)
3. Letter from Los Angeles County Fire Department dated September 9, 2013. (pg. 11)

4. Regional Board Presentation for September 24, 2013 CEQA Scoping Meeting. (pgs. 12-31)
5. USEPA Site Assessment Report for the Monterey Pines Development Site dated August, 2013. (pgs. 32-85)
6. Carousel Tract Environmental Investigation Timeline. (pgs. 86-87)

Prepared by: Sheri Repp-Loadsman, Planning Officer

TO:Rev06-19-2013

Reviewed by:

City Clerk	City Treasurer
Administrative Services	Public Works
Community Development	Community Services

Action taken by City Council

Date_____ Action_____

_____

RESOLUTION NO. 13-081

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF CARSON, CALIFORNIA, DECLARING THE EXISTENCE OF AN EMERGENCY IN THE VICINITY OF THE CAROUSEL TRACT NEIGHBORHOOD DUE TO THE PERSISTENCE OF EXPLOSIVE METHANE GAS, CARCINOGENIC BENZENE AND OTHER CHEMICALS OF CONCERN, AND ISSUING SUCH FINDINGS OR ORDERS AS ARE AUTHORIZED BY LAW

WHEREAS, on March 11, 2008, the Department of Toxic Substances Control informed the Los Angeles Regional Water Quality Control Board (LARWQCB) about a former Shell Oil Company (Shell) tank farm (Kast Property) and on April 29, 2008, the LARWQCB began its Site Assessment; and

WHEREAS, in May 2008 the LARWQCB initiated an environmental investigation of the former Kast Property; the LARWQCB ordered Shell as the owner and operator of the former tank farm and subsequently ordered Barclay Hollander Curci, Inc., a wholly owned subsidiary of Dole Food Company, Inc., (Responsible Parties) as the entity responsible for the development of the housing tract to conduct a comprehensive environmental investigation by outlining the technical requirements that are consistent with the California Environmental Protection Agency requirements; and

WHEREAS, based on the LARWQCB directive Shell, submitted a work plan for review. Said review was completed and the LARWQCB issued an approval of the proposed work in December 2008. The LARWQCB approved investigation activities included: 1. collecting soil, soil vapor and groundwater samples, and 2. investigating the contaminants of concern, and defining the extent of impact, and 3. evaluation of the potential threat to human health; and,

WHEREAS, Shell conducted an all media (soil, soil vapor and groundwater) investigation as approved by the LARWQCB in its California Water Code § 13267 Investigative Order dated December 31, 2008. The goal of the initial investigation was to evaluate whether the Site poses an immediate risk to those living, visiting or working at the Site. The initial investigation involved taking soil, soil vapor and sub-slab soil vapor samples as well as groundwater investigation following procedures either approved or recommended by both the Cal/EPA and the United States Environmental Protection Agency (USEPA); and

WHEREAS, on August 20, 2009 an interim report followed by an October 15, 2009 "Final Phase I Site Characterization Report" was submitted to the LARWQCB. The review of the report confirmed that soil and groundwater beneath the site is severely impacted by petroleum hydrocarbons. The results indicated the presence of methane gas and benzene in shallow soil gas at high concentration across the Site; and

WHEREAS, methane gas was detected at a concentration as high as 59.7% by volume and just 5 feet below homes as high as 22% by volume which exceeds the lower explosive limit (LEL) of 5% by volume posing a real time emergency safety hazard; methane gas poses a fire and explosion hazard when accumulates in an enclosed space with a source of ignition; and

EXHIBIT NO. 01

[MORE]

WHEREAS, benzene, a known carcinogen, is also detected at a concentration of 3,800,000 micrograms per meter cube (µg/m3), and exceeds the California Human Health Screening Level (CHHSL) value of 36.2 µg/m3 by more than 100,000 times for shallow soil gas for a residential scenario; and

WHEREAS, other extremely dangerous chemicals and heavy metals persist in the yards of the Carousel Tract family homes, the Shell, its consultant URS Corporation and the LARWQCB have all issued written warnings to the residents to avoid outdoor activities and soil contact; and

WHEREAS, three years after the beginning its investigation, the LARWQCB issued Order No. R4-2011-0046 (Order) on March 11, 2011, requiring Shell to Cleanup and Abate Wastes Discharged at the Carousel Tract; and

WHEREAS, Shell has since then spent over 28-months conducting Remedial Pilot Tests, Indoor Air Tests, Soil Vapor Tests and Groundwater Sampling resulting in additional unwarranted exposure to carcinogenic chemicals of concern and causing dangerous migration of explosive soil gas by altering the soil matrix pressure dynamics by creating open excavations and allowing off-gassing from deeper soil; and

WHEREAS, the LARWQCB has granted multiple extensions of time without any meaningful explanation; and

WHEREAS, LARWQCB issued a California Water Code § 13267 Investigative Order to the Responsible Parties without any further action requiring their participation in the cleanup and abatement of wastes discharged at the Carousel Tract; and

WHEREAS, after over five years of study Shell submitted to the LARWQCB its Site Specific Cleanup Goals for Total Petroleum Hydrocarbons, which are 66-times greater than the least protective Standards prescribed in the LARWQCB's own 1996 Guidebook; and

WHEREAS, on or about June, 2013, three (3) technical reports authored by L. EVERETT & ASSOCIATES, and SOIL/WATER/AIR PROTECTION ENTERPRISE were provided to the City and forwarded to the LARWQCB by letter from the City Council dated June 18, 2013, in which the City Council warned LARWQCB that conditions within the Carousel Tract had reached "a pivotal moment in the clean up [of] this site. Action must be taken, and it must be taken NOW;" and

WHEREAS, during direct questioning of Dr. Loren Everett, Ph.D., D.Sc., F.ASCE, an internationally recognized expert in the vadose zone and the behavior of soil gasses, including benzene and methane, by members of the City Council did he describe the true extent of the emergency conditions persisting in the Carousel Tract. Dr. Everett said, "Dangerous levels of carcinogenic benzene and explosive methane are present in soil gas at a depth of only five feet beneath homes in the Carousel Tract. These dangerous conditions are spread widely across the site and the degree of exposure to these chemicals is highly variable and extremely difficult to predict due to numerous factors such as variable soil moisture and atmospheric conditions."

WHEREAS, notwithstanding its June 18, 2013 letter advising LARWQCB that further "delay is unacceptable to the Carson City Council and to our entire community," no further action has been taken to mitigate and remediate conditions within the Carousel Tract requiring the immediate consideration of this resolution.

NOW, THEREFORE, the City Council of the City of Carson, California, does hereby FIND and DETERMINE, and based thereon, ORDERS as follows:

1. The foregoing recitals are true and correct and are incorporated herein by this reference.

2. That, commencing on or about 7:00 p.m. on the 18th day of July, 2013, and continuing to the present, the conditions have arisen and now exist within that certain portion of the City of Carson commonly referred to as the "Carousel Tract," and that the same has been and is caused by the persistent migration of explosive methane gas and carcinogenic benzene, as the same is depicted herein.

3. That the aforesaid conditions warrant and necessitate, and the City Council of the City of Carson hereby declares the existence of an emergency within that certain portion of the City of Carson commonly referred to as the "Carousel Tract."

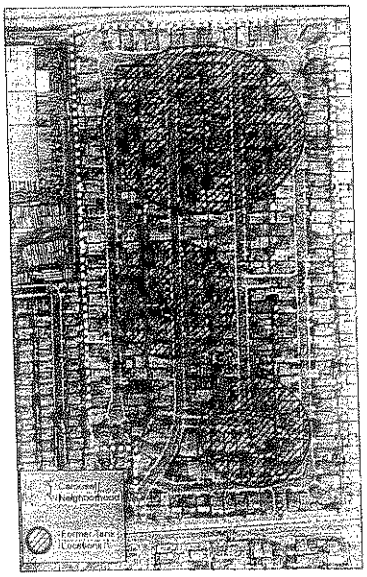
4. The City Council hereby directs the Acting City Manager for the City of Carson to transmit this resolution to the Governor of the State of California and the State Water Resources Control Board to request that the State of California make available to the City of Carson such resources as may exist to address and mitigate the emergency conditions at the Carousel Tract.

5. The City Council hereby directs the Acting City Manager for the City of Carson to transmit this resolution and demand that the Executive Officer of the LARWQCB immediately order and require Shell to fully comply with that certain Cleanup and Abatement Order No. R4-2011-0046.

6. The City Council hereby directs the Acting City Manager for the City of Carson to transmit this resolution and solicit aid and other available resources from the Office of the California Attorney General to support efforts by the LARWQCB to immediately order and require Shell to fully comply with that certain Cleanup and Abatement Order No. R4-2011-0046.

7. The City Council hereby directs the Acting City Manager for the City of Carson to transmit this resolution to the County of Los Angeles Board of Supervisors to request that the County of Los Angeles make available to the City of Carson such resources from the Department of Public Health, the Los Angeles County Fire Department and other services to address and mitigate the emergency conditions at the Carousel Tract.

8. The Kast Property upon which the City Council declares an emergency is described hereinabove and is depicted hereinafter as follows:



PASSED, APPROVED, and ADOPTED this 29th day of July, 2013, at Carson, California.

Jim Dear, Mayor

ATTEST:

City Clerk Donesia L. Gause, CMC

APPROVED AS TO FORM:

City Attorney

STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES) ss.
CITY OF CARSON)

I, Donesia L. Gause, City Clerk of the City of Carson, California, do hereby certify that the whole number of members of the City Council is five; that the foregoing resolution, being Resolution No. 13-081 was duly and regularly adopted by said Council at a special meeting duly and regularly held on the 29th day of July, 2013, and that the same was passed and adopted by the following vote:

AYES:	COUNCIL MEMBERS:	Mayor Dear, Santarina, Davis-Holmes, and Robles
NOES:	COUNCIL MEMBERS:	None
ABSTAIN:	COUNCIL MEMBERS:	None
ABSENT:	COUNCIL MEMBERS:	Gipson

City Clerk Donesia L. Gause, CMC

KAMALA D. HARRIS
Attorney General

State of California
DEPARTMENT OF JUSTICE

455 GOLDEN GATE AVENUE, SUITE 11000
SAN FRANCISCO, CA 94102-7004

Public: (415) 703-5500
Telephone: (415) 703-5860
Facsimile: (415) 703-5480
E-Mail: Robert.Byrne@doj.ca.gov

To: Sheri

August 22, 2013

Jackie Acosta, Acting City Manager
Office of the City Manager
City Hall
701 E. Carson Street
P.O. Box 6234
Carson, CA 90749

RE: 7/30/2013 Carson City Council Correspondence to Attorney General Harris
Shell Oil Tank Farm Remediation(Kast Property)/City Resolution No. 13-081

Dear Ms. Acosta:

Attorney General Harris has asked me to reply on her behalf to your letter of July 30, 2013.

The Attorney General's Office serves as counsel to the Los Angeles Regional Water Quality Control Board when that agency requests our representation. The Board has not requested representation from this Office at this time. However, please know that we are aware of the Board's investigation and its efforts to regulate the remediation of the property within the Carousel Tract, and we remain in close contact with the Board as it continues to monitor Shell's compliance with the Board's March 11, 2011 cleanup and abatement order number R4-2011-0046. In addition, we are in receipt of the Board's August 21, 2013 correspondence to Douglas J. Weimer, PG, disapproving Shell's proposed site-specific cleanup goals (SSCGs) and requiring further response from the company with revised SSCGs.

Please inform the Mayor and Council that the Attorney General's Office will continue to watch events as they proceed at the Carousel Tract and we will maintain close communication with the Board as Shell prepares its response to the Board pursuant to its August 21st letter.

Sincerely,

ROBERT W. BYRNE
Senior Assistant Attorney General

For KAMALA D. HARRIS
Attorney General

EXHIBIT NO. 02

RECEIVED
FINANCE ADMINISTRATION
13 AUG 26 AM 11:03

10

COUNTY OF LOS ANGELES

FIRE DEPARTMENT

1320 NORTH EASTERN AVENUE
LOS ANGELES, CALIFORNIA 90063-3294
(323) 881-6180

To: Sher

DARYL L. OSBY
FIRE CHIEF
FORESTER & FIRE WARDEN

September 9, 2013

Ms. Jackie Acosta
Acting City Manager
P.O. Box 6234
Carson, CA 90749

Dear Ms. Acosta:

This communiqué is in response to your letter dated July 30, 2013, to the Board of Supervisors, requesting that the County of Los Angeles take appropriate steps to address and mitigate the environmental conditions within the Carousel Tract.

The Los Angeles Regional Water Board remains the lead agency overseeing assessment and mitigation of the Carousel Tract. The Fire Department will continue working with all involved agencies and use all necessary resources to ensure that we are informed of site conditions and can respond as needed.

If you have questions, please contact me at (323) 881-6180, or your staff may contact Deputy Chief John Todd, Prevention Services Bureau, at (323) 881-2461.

Very truly yours,

DARYL L. OSBY, FIRE CHIEF

DLO:mt

c: Sergio Vasquez
Monica Garcia
Randi Tahara
Joseph Charney
Susan Nissman
Rick Velasquez
Sussy Nemer
Sachi A. Hamai

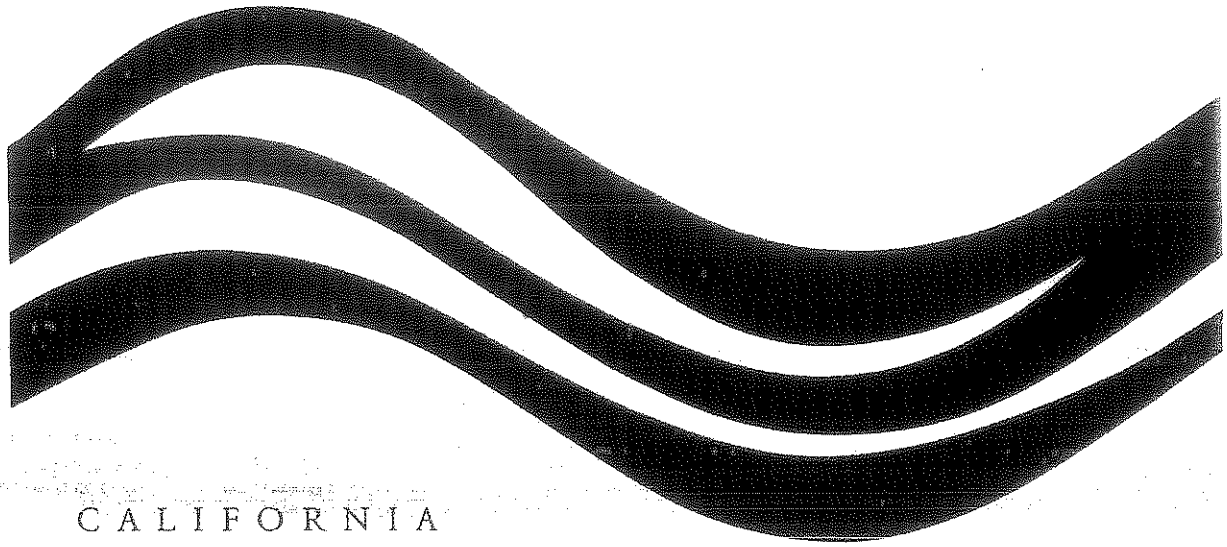
CITY MANAGER
13 SEP 10 AM 10:43

SERVING THE UNINCORPORATED AREAS OF LOS ANGELES COUNTY AND THE CITIES OF:

AGOURA HILLS	CALABASAS	DIAMOND BAR	HIDDEN HILLS	LA MIRADA	MALIBU	POMONA	SIGNAL HILL
ARTESIA	CARSON	DUARTE	HUNTINGTON PARK	LA PUENTE	MAYWOOD	RANCHO PALOS VERDES	SOUTH F ITE
AZUSA	CERRITOS	EL MONTE	INDUSTRY	LAKEWOOD	NORWALK	ROLLING HILLS	SOUTH
BALDWIN PARK	CLAREMONT	GARDENA	INGLEWOOD	LANCASTER	PALMDALE	ROLLING HILLS ESTATES	TEMPLE
BELL	COMMERCE	GLENDORA	IRWINDALE	LAWNDALE	PALOS VERDES ESTATES	ROSEMEAD	WALNUT
BELL GARDENS	COVINA	HAWAIIAN GARDENS	LA CANADA FLINTRIDGE	LOMITA	PARAMOUNT	SAN DIMAS	WEST HOLLYWOOD
BELLFLOWER	CUDAHY	HAWTHORNE	LA HABRA	LYNWOOD	PICO RIVERA	SANTA CLARITA	WESTLAKE VILLAGE
BRADBURY							WHITTIER

EXHIBIT NO. 03

11



CALIFORNIA

Water Boards

STATE WATER RESOURCES CONTROL BOARD

REGIONAL WATER QUALITY CONTROL BOARDS

EXHIBIT NO. 04

12

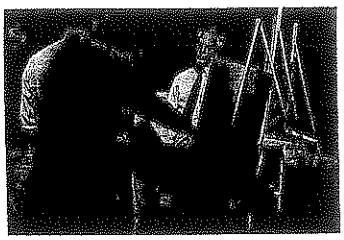
Supporting Agencies

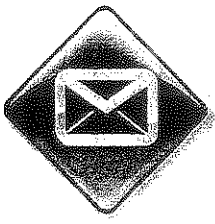
- Office of Environmental Health Hazard Assessment (OEHHA)
- Department of Toxic Substances Control
- Los Angeles County Fire Department
- Los Angeles County Public Health Department; and
- City of Carson

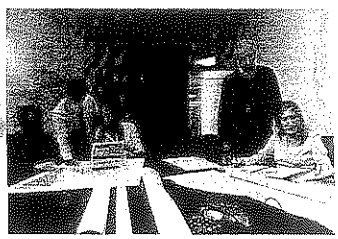
Water Boards

Purpose of Today's Open House

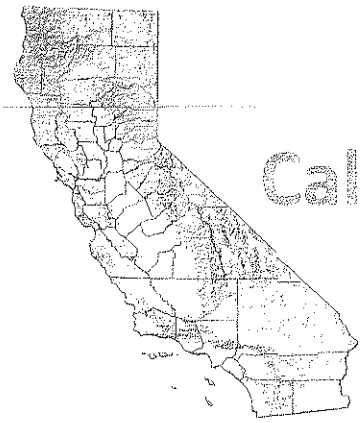
- Receive comments from public on scope of CEQA document.
  - The purpose of scoping is to identify priorities that need to be addressed in considering what impacts the cleanup will have on the environment within the community. Scoping meetings are held early in the CEQA process so as much information as possible can be taken into account.
- This forum enables you to meet with Regional Board staff and provide suggestions that will help us prepare the CEQA analysis. Please:
  - Ask Regional Board staff to clarify any issues you are unclear about.
  - Provide information about site-specific concerns.
  - Provide information about the site that may be unknown to others.
  - Suggest ways in which potential environmental effects or site sensitivities might be addressed.
  - Submit your comments to the Regional Board.







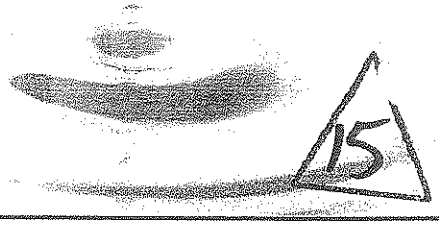
Water Boards



What is CEQA?

California Environmental Quality Act

- 1970 State of California environmental law
- Purpose of CEQA:
  - Provide information to decision makers and public about environmental consequences of actions
  - Evaluate the project's anticipated physical environmental effects
  - Provide the public with an opportunity to comment on the environmental issues
  - Obligation to avoid or reduce harm to the environment when feasible



Water Boards

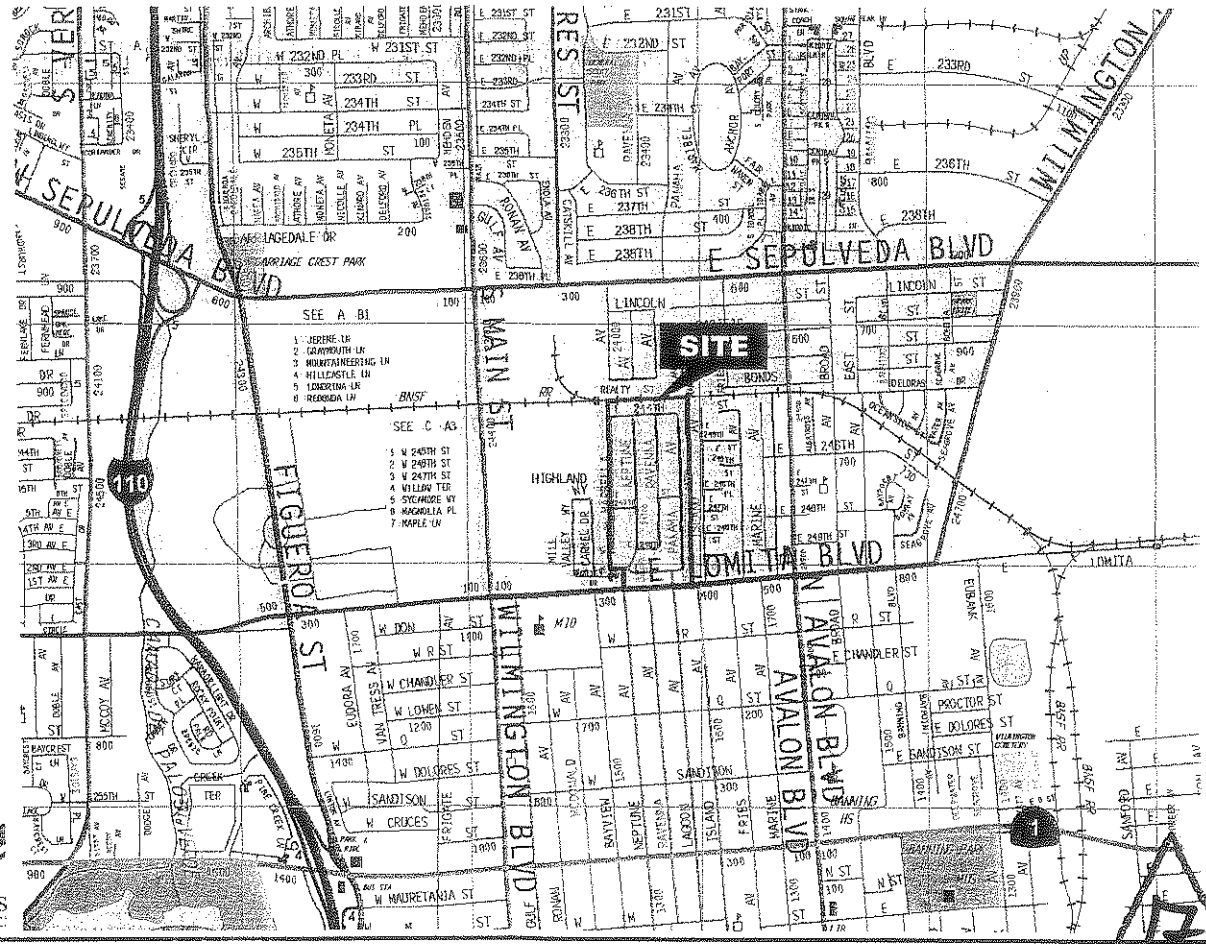
CEQA's Core Principles

- Projects should try to avoid or reduce adverse environmental impacts.
- Public decision makers should make informed decisions about the environmental consequences of their decisions.
- Public participation is integral to the environmental review process.
- Environmental review should occur as early in the life of the project as possible.

Water Boards

Facts and Locations

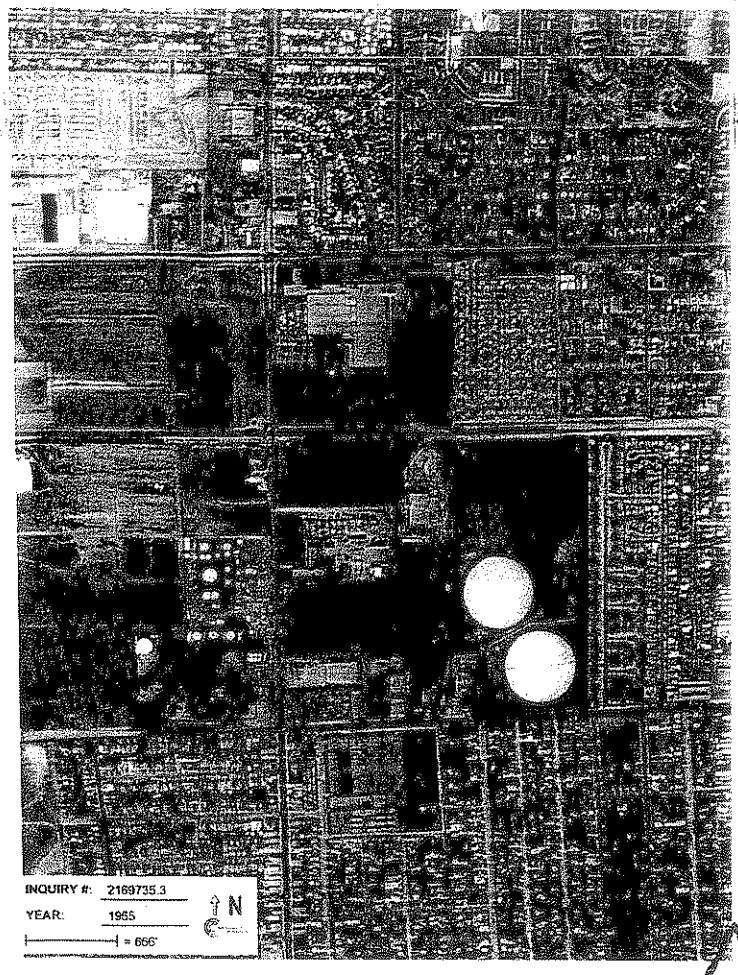
- 44-acre area in Carson, California
- Bounded to the North by East 244th Street, Lomita Boulevard to the South, Marbella Avenue to the West, and to the East by Panama Avenue
- 285 single-family residential properties



Water Boards

Site History

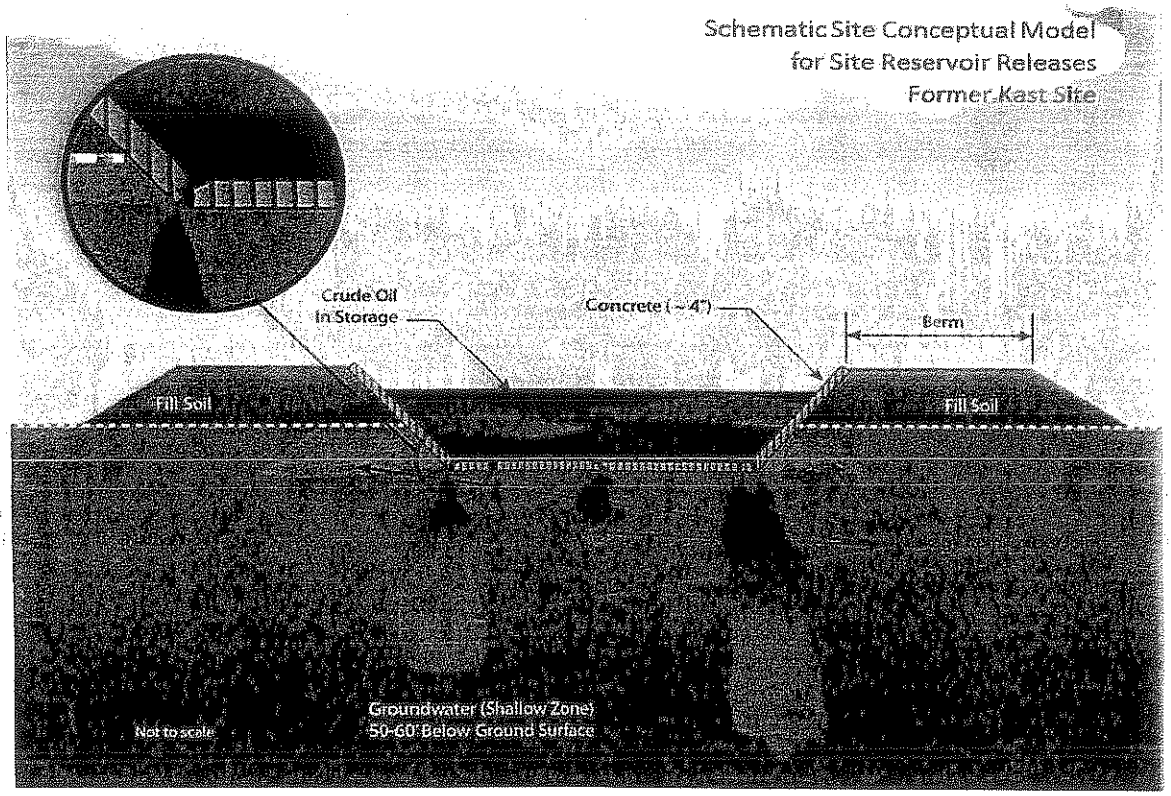
- Kast Property Tank Farm - owned and operated by Shell Oil Company from 1924 through 1965, when it was sold to the developers
- Site included three crude oil reservoirs with a total capacity of 3.5 million barrels
- Reservoirs had concrete-lined earth slopes with frame roofs on wood posts, surrounded by earth levees averaging 20 feet in height with 7 foot-wide walks on top
- Demolition of the three crude oil reservoirs began in 1966
- Site redeveloped into a single-family residential neighborhood from approximately 1966



Water Boards

Site Contamination
Schematic of Leaking Reservoir

How Contamination Occurred between 1920 and 1965



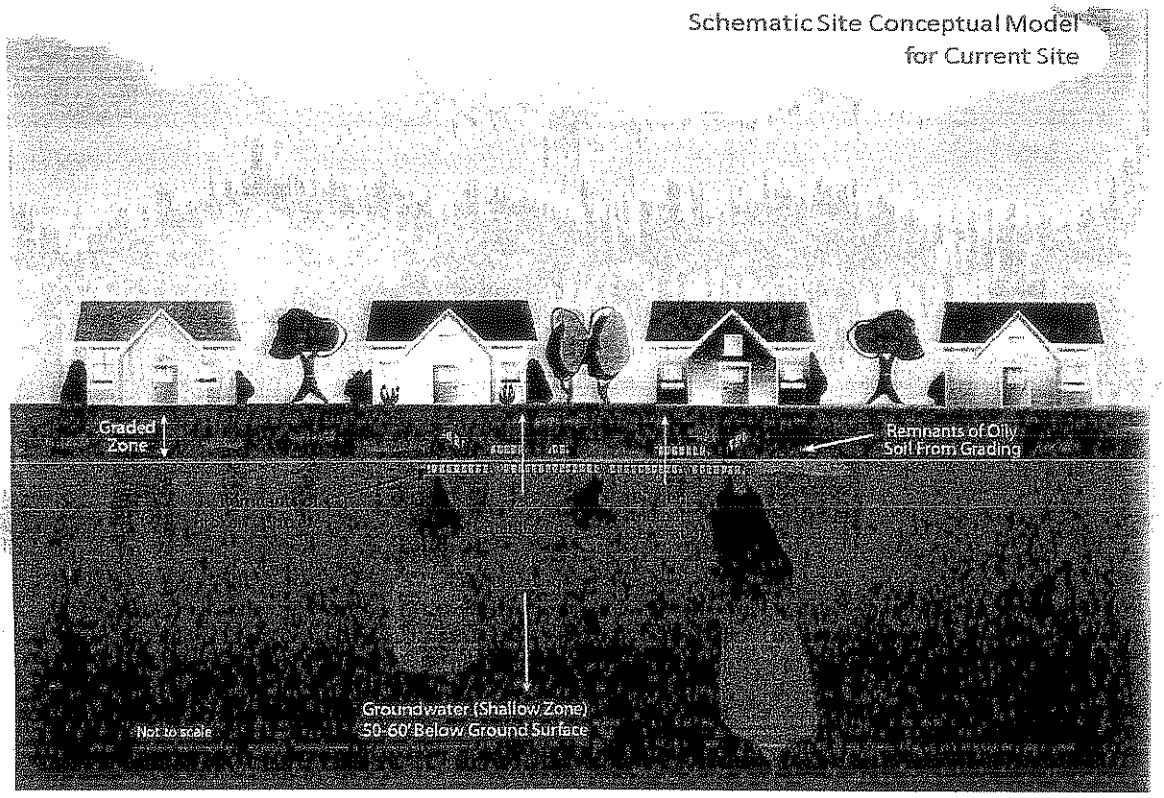
Contaminants of Concern:

- **Methane**
  - Flammable
- **Benzene**
  - Carcinogen
- **Petroleum Hydrocarbons**
  - (Polyaromatic hydrocarbons, naphthalene)

Water Boards

Site Contamination
Schematic of Current Site

Identifying contamination and remediation methods:



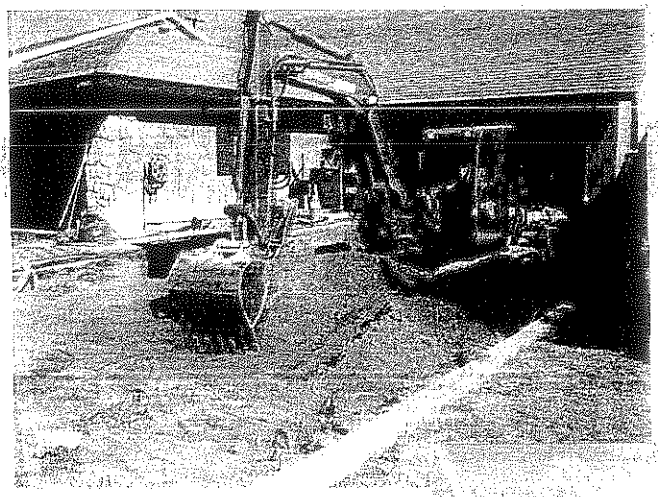
Investigation Process:

- What is the lateral and vertical extent of the contaminants?
- What are the contaminants?
- Which technologies are most effective for the remediation?

Water Boards

Method 1: Excavation

- Removal of Soil;
- Replacement with Certified Clean Soil; and
- Restoration of landscape

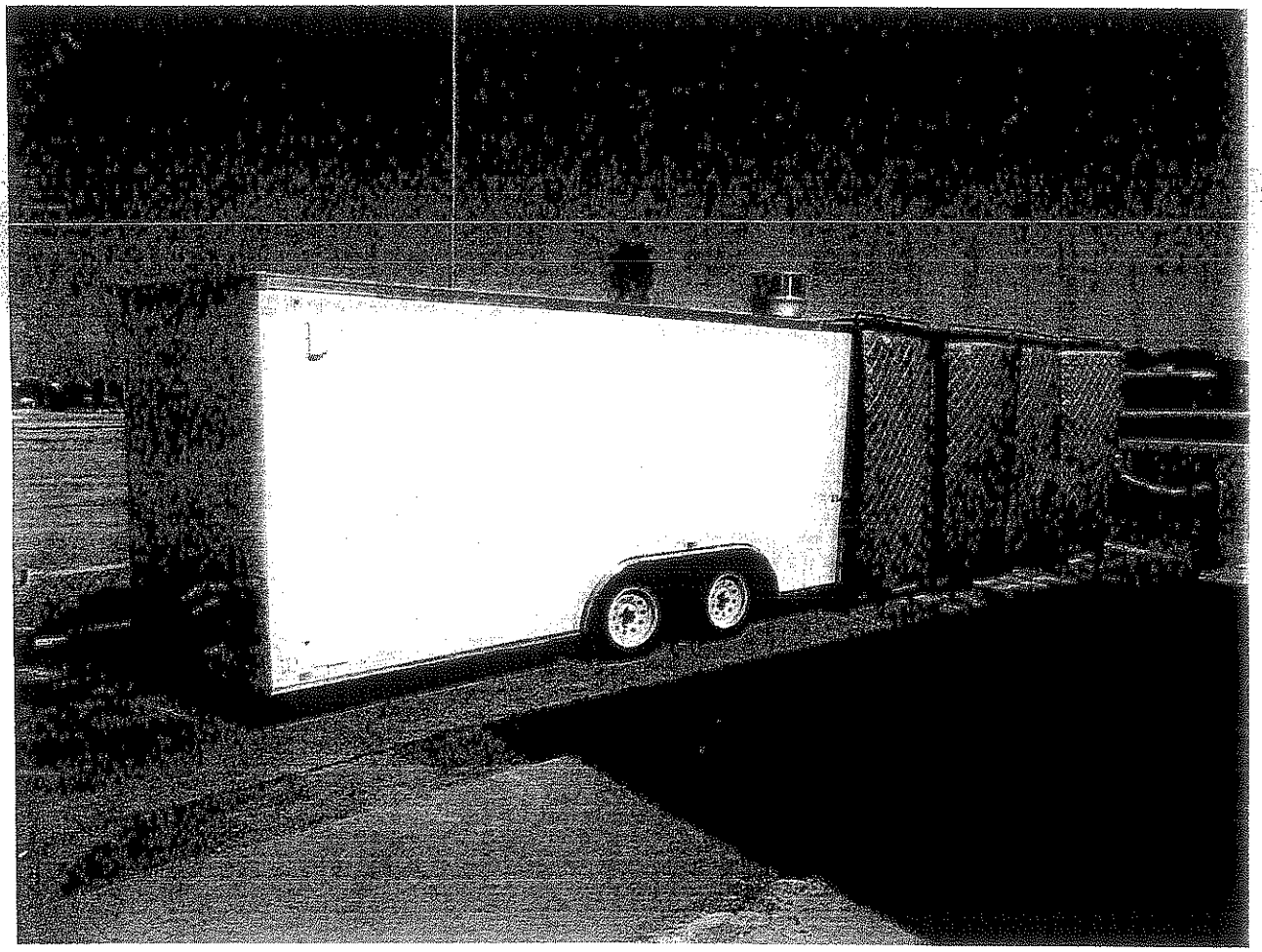


Before

After

Method 2: Bioventing

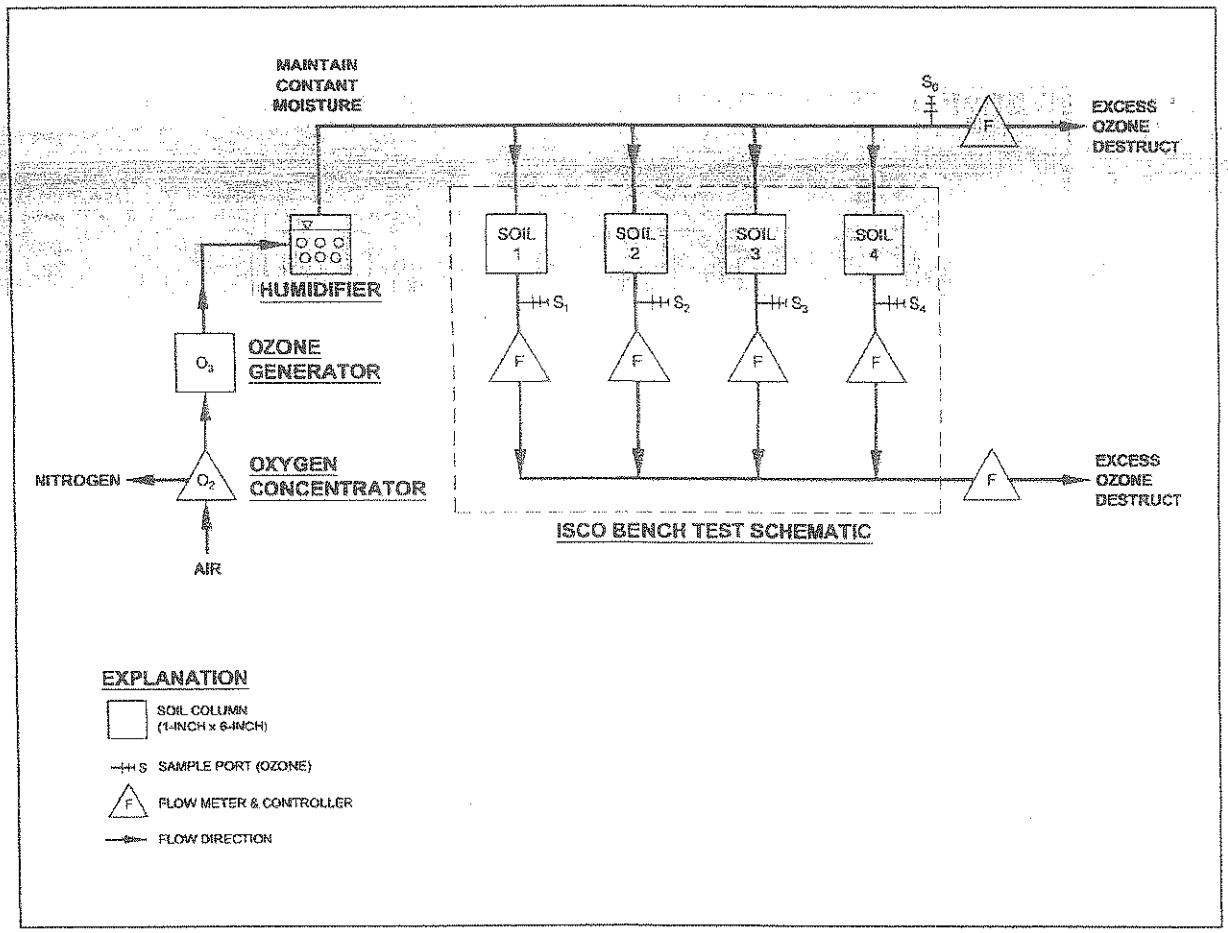
- Enhances the activity of soil bacteria and breaks down hydrocarbons to carbon dioxide and water



Water Boards

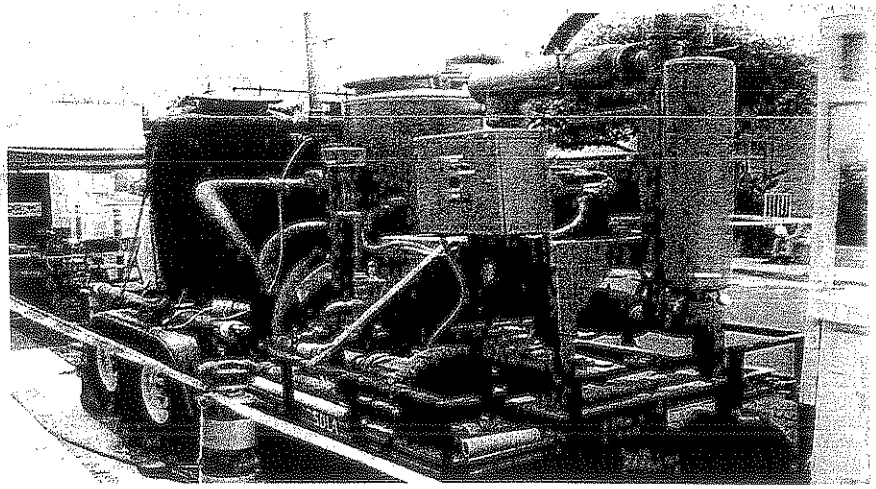
Method 3:
In Situ Chemical Oxidation

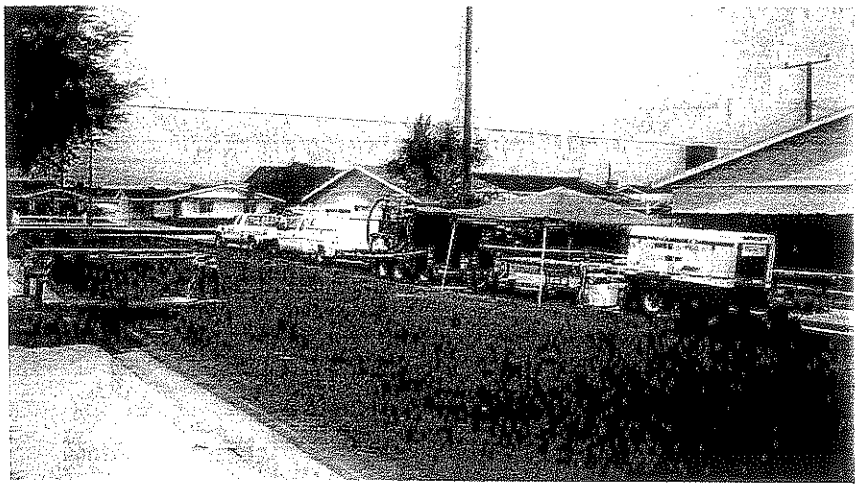
- Strong chemical oxidizers (ozone) are injected directly into soil to destroy chemical contaminants



Method 4:
Soil Vapor Extraction

- Volatilize contaminants from soil into soil vapor
- Extract soil vapors from the ground
- Extracted soil vapors are treated





Water Boards

Environmental Factors

- **The pilot tests that were conducted are among the proposed remedies that are being considered for the cleanup of the community. The Regional Board is seeking public input regarding the environmental factors such as those listed below that may potentially be affected by proposed cleanup activities.**

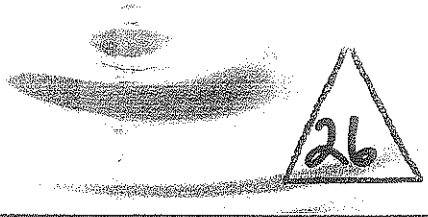
Aesthetics	Agriculture and Forestry	Air Quality
Biological Resources	Cultural Resources	Geology/Soils
Greenhouse Gas Emissions	Hazards and Hazardous Materials	Hydrology/Water Quality
Land Use/Planning	Mineral Resources	Noise
Population/Housing	Public Services	Recreation
Transportation/Traffic	Utilities/Service Systems	

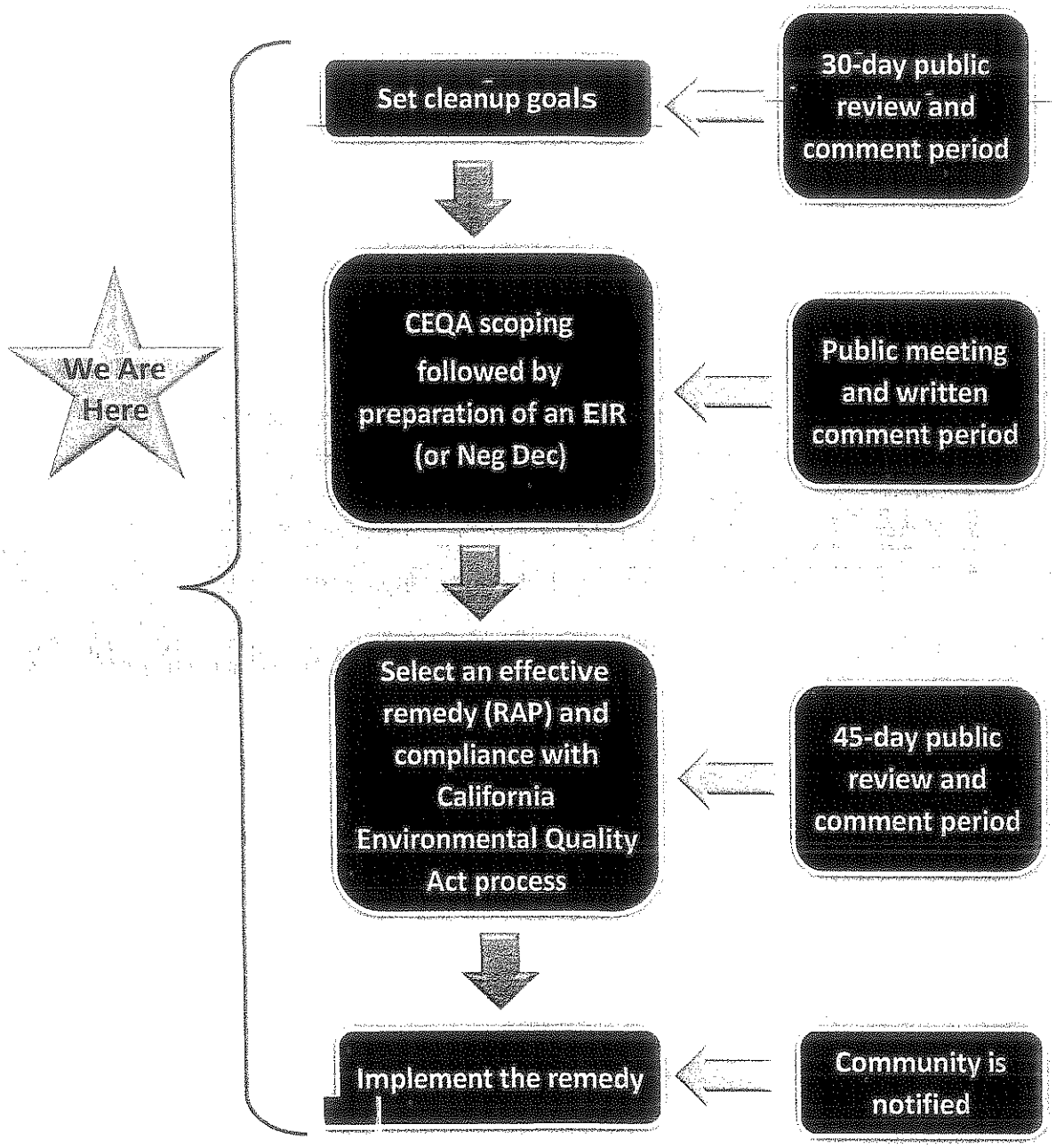
Water Boards

The Regional Board is beginning the CEQA process, which includes the following steps:

- Hold a scoping meeting to receive input from the public, including community members, and other governmental agencies with jurisdiction in the project area.
- Issue a Notice of Preparation if preparing an Environmental Impact Report.
- Prepare a draft EIR or Negative Declaration describing existing conditions in the project area, analyzing the project's significant environmental effects, and identifying measures to avoid, reduce, or mitigate significantly adverse environmental impacts of the remedial process.
- Distribute the draft EIR (or Negative Declaration) and draft RAP for a 30 or 45-day public review period and obtain comments from agencies and the public.
- Prepare written responses to comments received during the public comment period.
- Prepare and certify the final EIR or approve the Negative Declaration.
- Make a decision on the proposed action.
- File the Notice of Determination (NOD).

Water Boards





Water Boards

Public Participation Objectives

- All members of the public shall have access to the decision-making processes of the California Environmental Protection Agency (Cal/EPA). Efforts to engage and inform the public began early and will continue through implementation of the decisions.

Water Boards

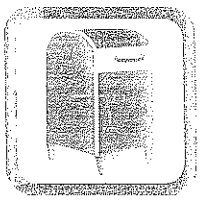
Public Participation Objectives

Public participation is integral to the California Water Boards mission. Each State and Regional Water Board will:

- Keep the public informed about Regional Board activities and the reasons why these activities are pursued;
- Seek input from and conduct dialogue with communities;
- Provide access to the Regional Board's decision-making process;
- Provide meaningful opportunities for the public to provide information and feedback to the Regional Board that can help the Regional Board make, implement, and enforce better decisions about water rights and water quality.

Opportunities to Comment

- You are encouraged to submit your comments by placing your completed comment card in the comment box (located near the entrance way).
- Please limit comments to environmental issues to be analyzed for purposes of CEQA.
- Written comments will be accepted until October 8.
- The draft CEQA document will be available for public review and comment in Spring of 2014.
- If you are unable to submit your comments today, please mail them to:



Regional Water Quality Control Board
320 W. 4th Street, Suite 200
Attn: Cynthia Miller, Public Participation Specialist
Los Angeles, CA 90013
cynthia.miller@waterboards.ca.gov

Water Boards

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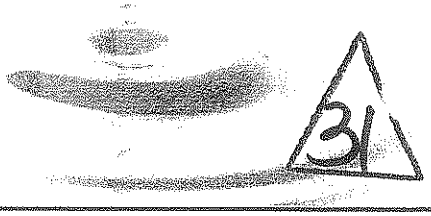
the customer service department:

(310) 257-1400.

Water Boards



Site Assessment Report
Monterey Pines Development Site
Carson, California

August 2013
Contract No.: EP-S5-08-01
TDD No.: 02-09-12-08-0004
Job No.: EE-002693-2197

Prepared for:

U.S. Environmental Protection Agency
Region 9
75 Hawthorne Street
San Francisco, California

Prepared by:

ECOLOGY AND ENVIRONMENT, INC.
3700 Industry Ave, Suite 102
Lakewood, California 90712

EXHIBIT NO. 05

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Appendix

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List of Tables

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List of Abbreviations and Acronyms

bgs	below ground surface
CHHSLs	California Human Health Screening Levels
COPC	contaminant of potential concern
DTSC	Department of Toxic Substances Control
E & E	Ecology and Environment, Inc.
ESA	Environmental Site Assessment
FOSC	Federal On-Scene Coordinator
mg/kg	milligrams per kilogram
mL	milliliter
µg/kg	micrograms per kilogram
$\mu g/m^3$	micrograms per cubic meter
PCE	tetrachloroethylene
QA	Quality Assurance
QC	Quality Control
RSL	Regional Screening Level
RWQCB	Los Angeles Regional Water Quality Control Board
SAP	Sampling and Analysis Plan
SIM	selective ion monitoring
START	Superfund Technical Assessment and Response Team
TCE	trichloroethylene
URS	URS Corporation
U.S. EPA	United States Environmental Protection Agency
UST	underground storage tank
VOC	volatile organic compound
WMS	Wilmington Middle School

1 Introduction

The United States Environmental Protection Agency (U.S. EPA) directed Ecology and Environment, Inc.'s (E & E) Superfund Technical Assessment and Response Team (START) to conduct a U.S. EPA-funded removal assessment at the Monterey Pines Development Site in Carson, Los Angeles County, California. The study area is comprised of approximately 77 acres within the City of Carson, California, including the Monterey Pines residential subdivision and Wilmington Middle School (WMS). The Monterey Pines subdivision portion of the study area consists of single family homes constructed on land formerly occupied by a trucking maintenance facility at which there was documented use of chlorinated solvents (e.g., tetrachloroethylene [PCE]) in a three-stage clarifier.

In early 2010, URS Corporation (URS) discovered elevated PCE concentrations in soil gas as part of a subsurface investigation for the Shell Oil Company. URS was conducting the investigation with oversight by the Los Angeles Regional Water Quality Control Board (RWQCB) beneath the subdivision (the former Kast property) to the east of the Monterey Pines Development, and the project included installation of boreholes and monitoring wells within Monterey Pines. URS and Shell concluded the detected PCE was potentially related to the former clarifier. In June 2010, URS conducted an additional subsurface investigation on the WMS property, which included subsurface soil and soil gas sampling as well as indoor air sampling. The results from the sampling indicated elevated concentrations of PCE in soil, soil gas, and indoor air (URS, 2010). The site was referred to the U.S. EPA by the California Department of Toxic Substances Control (DTSC) in August 2012 for assistance in continued assessment of the study area.

The U.S. EPA determined that their investigation would focus on the former PCE clarifier that had been located within the Monterey Pines development. START was tasked with supporting the U.S. EPA in the characterization of PCE-related constituents through the collection and analysis of soil, soil gas, sub-slab soil gas, and ambient and indoor air samples. Field work described in this site assessment report was conducted in accordance with the *Sampling and Analysis Plan, Monterey Pines Development Site, October 2012,* prepared by E & E (SAP). The removal assessment analytical results for soil, soil gas and air samples were compared to the November 2012 U.S. EPA Region 9 Regional Screening Levels (RSLs) and the current California Human Health Screening Levels (CHHSLs) to provide a preliminary frame of reference prior to a U.S. EPA toxicologist's

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review of data. This report was prepared to describe the scope of work, objectives, methodology, analytical testing procedures and results for the site. Appendix A presents the site figures, Appendix B presents the soil boring logs, Appendix C presents the photo documentation of site work, Appendix D presents summary laboratory analytical data generated during this project, Appendix E presents the data validation summaries, and Appendix F includes the SAP for the project.

2 Background

2.1 Site Location

The study area is comprised of approximately 77 acres, extending northeast and southeast from the intersection of Main Street and Lomita Boulevard and including the Monterey Pines residential subdivision, a portion of the Carousel residential subdivision, and residential areas west and east of the WMS in the City of Carson, Los Angeles County, California (Figures 2-1 and 2-2, Appendix A). The Monterey Pines subdivision portion of the study area consists of single family homes constructed on land formerly occupied by businesses located at 241 and 243 East Lomita Boulevard. The approximate location of the former PCE clarifier is 33° 47' 58" North Latitude, 118° 16' 15" West Longitude. The Monterey Pines Development is situated approximately 1 mile east of Highway 110 and approximately 2.5 miles west of the Dominguez Channel.

2.2 Site Description

The majority of the study area is occupied by single family homes, but it also includes the WMS, a shopping center and associated parking lot, and a street with asphalt surfacing. The majority of the study area is bordered on all sides by residential developments; however, a portion of the adjacent property to the west beyond Main Street is vacant land, and a portion of the adjacent property to the north is a trucking company warehouse and associated parking area.

2.3 Site History

The following site history and use information has been taken from 1995 and 1996 reports written by PIC Environmental Services, and a 2010 report and conceptual site model written by URS Corporation (see Section 2.5).

In the early 1940s, the study area was largely agricultural fields with isolated oil wells. In 1946, the area with the current address of 243 East Lomita was developed into an oil transport company and reportedly contained two oil storage tanks at the property. In 1951, the area with current address of 241 East Lomita Boulevard was developed as a trucking business (Pacific Intermountain Express) with one oil well on its property. In 1959, the trucking business reportedly added a truck repair facility, including a three-stage clarifier. It is documented in file information that activities at the former truck repair facility included the use of

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chlorinated solvents (e.g., PCE) in the three-stage clarifier, which resulted in PCE-impacted soils at the site.

In about 1995, the property consisting of 241 and 243 East Lomita Boulevard was acquired by Blue Jay Housing Partners for the purpose of redevelopment into the existing, single-family home Monterey Pines development (URS, 2010). Construction of the residential community was completed in 1996, and site-use has remained consistent since.

The area north of Lomita Boulevard and east of Main Street is known as the Kast property. Three above-ground Shell Oil crude oil tanks were present from 1923 until 1966, when the tanks were removed from the site for the purpose of residential development. Two tanks were 750,000-barrel capacity and the third was 2,000,000-barrel capacity. The tanks were constructed of concrete and unlined. Single-family residential homes were constructed on the property, which was named Carousel, between 1967 and 1969. The site-use has remained consistent since (URS, 2010).

2.4 Physiographic Conditions, Geology, and Hydrology

The URS Report (URS, 2009) described the geologic and hydrologic characteristics of the region, and a summary of that information is presented in the following two sections.

2.4.1 Geology

The study area is located within the Torrance Plain of the West Coast Groundwater Basin (Basin), in the southwestern part of the Coastal Plain of Los Angeles County. The Basin is bounded on the north by the Ballona Escarpment and Baldwin Hills, on the east by the Newport-Inglewood Uplift, on the south by the San Pedro Bay and the Palos Verdes Hills, and on the west by the Pacific Ocean. The Basin is underlain by over 2,000 feet of unconsolidated to consolidated sediments. The uppermost deposits are composed of sediments ranging in grain size from clays to gravels and are alluvial or marine in origin (USGS, 2003). The stratigraphy of the Basin consists of approximately 2,000 feet of Miocene to Recent marine and continental sediments, overlying a pre-Miocene basement complex. The upper approximately 500 feet of the stratigraphic column is composed, with increasing depth, of man-made fill, the Lakewood Formation, and the San Pedro Formation. Based on characterization activities performed to date in the study area, soils from the ground surface to approximately 85 feet bgs consist primarily of sand and silty sand with occasional silty deposits. The upper 5 feet of native soil encountered in the Monterey Pines Development vicinity was generally uniform, consisting of dark gray to dark grayish brown silt, which was moist and generally included shell fragments (URS, 2009a). From 5 to 10 feet bgs, soils consist primarily of silt, with occasional layers or lenses of silty fine sand. Soils between 10 and 15 feet bgs consist primarily of light olive to olive silts and silty fine sand. Lithology from 15 to 85 feet bgs consists primarily of alternating fine sands to silty fine sand. The estimated percentage of fines varies

from less than 5% to greater than 30%. Occasional silts and sandy silts were encountered, approximately 1 to 8 feet thick.

2.4.2 Hydrology

Four major aquifers have been reported in the southern portion of the Basin in the vicinity of the Site. They are, with increasing depth, the Gaspur aquifer, Gage aquifer, Lynwood aquifer, and Silverado aquifer (CDWR, 1961). The Gaspur aquifer is a channel deposit comprising coarse-grained deposits. The Gaspur aquifer does not underlie the Monterey Pines Development, but it has been found approximately 3 miles east of the Site (CDWR, 1961). The Gage aquifer, which underlies the Monterey Pines Development, is located within the Lakewood Formation. The Gage aquifer is approximately 80 feet thick and extends from approximately 90 to 170 feet bgs. The Lynwood aquifer, also known as the "400-foot Gravel," and the deeper Silverado aquifer are located below the Gage aquifer within the San Pedro Formation and may be merged within the study area (CDWR, 1961). The Lynwood aquifer is dominated by coarse sand and gravel in the vicinity of the Monterey Pines Development (Equilon, 2001). These two aquifers extend from approximately 200 feet bgs to at least 550 feet bgs within the study area.

The Lynwood and Silverado aquifers are the primary sources of groundwater for municipal drinking water wells in the Los Angeles Basin (Equilon, 2001). A significant man-made hydrogeological feature in the vicinity is the Dominguez Gap fresh water injection barrier. Excessive historical pumping of the Gage, Lynwood, Silverado, and Sunnyside aquifers north of the area caused intrusion of salt water inland from the Pacific Ocean, which degraded groundwater quality and threatened future drinking and production water use of these aquifers. This situation is being mitigated by the West Coast Basin Barrier Project, which involves injecting fresh water into these aquifers via the Dominguez Gap injection wells to create a fresh water hydrologic barrier between the Pacific Ocean to the south and drinking water supply wells to the north. The site is located on the inland side of the Dominguez Gap Barrier. The injection programs have been in operation since 1970 (Randell *et. al.*, 1983) and have resulted in a regional water level rise of more than 30 feet during the past 30+ years. Based on results from the groundwater monitoring well installations and sampling performed in the study area in August 2009, the first encountered groundwater beneath the area is located at depths ranging from approximately 53 to 64 feet bgs, which correspond to elevations ranging from approximately -20 to -23 feet mean sea level. The groundwater flow direction is estimated to be toward the northeast at an approximate gradient of 0.002.

2.5 Previous Investigations and Regulatory Involvement

In October 1995, two underground storage tanks (USTs) containing gasoline, three USTs containing diesel, two waste oil USTs, and the three-stage clarifier were removed from the Monterey Pines property by the developer (Blue Jay Housing Partners) in preparation for construction of the Monterey Pines Development. Additionally, approximately 2,600 cubic yards of volatile organic

compound (VOC)-contaminated soils were excavated from beneath the former clarifier. The clarifier was removed as waste, while the soil was reportedly 'subjected to onsite vapor extraction remediation operations' (PIC, 1995a). The soil was land farmed into a soil cell, and VOC vapors were permitted to evaporate over time. On November 14, 1995, 10 soil samples were collected from approximately 1 foot below the surface of the cell and analyzed for VOCs using U.S. EPA SW-846 Method 8240. Analytical results indicated concentrations of PCE ranging from 390 to 12,400 micrograms per kilogram (µg/kg) were still present in soil. Additional samples from the soil cell were collected on January 8, 1996, and analyzed for VOCs using U.S. EPA SW-846 Method 8240. Analytical results indicated PCE concentrations between 6.4 and 43 µg/kg were still present within stockpiled soils. File information regarding the disposition of stockpiled soils is unclear; some portion of the overall soil stockpile from the excavations described above was approved by RWQCB for re-use on site in the planned residential development. However, file information does not indicate that the PCE-impacted stockpile was included in this approval.

In 1996, during excavation associated with construction of the residential development, an area with visually-contaminated soils was discovered in the northwestern corner of the site (PIC, 1996). These soils were sampled and determined to be impacted by Total Recoverable Petroleum Hydrocarbons at a maximum concentration of 18,000 milligrams per kilogram (mg/kg), PCE at a maximum concentration of 1,110 mg/kg, and trichloroethylene (TCE) at a maximum concentration of 2,340 mg/kg. A total of 153.63 tons of soil was excavated and removed for off-site treatment and disposal, and under RWQCB oversight, confirmation samples were collected from the sidewalls and bottom of the excavation, which extended to a depth of 9 feet below ground surface (bgs; PIC, 1996). The file record does not indicate where the excavated soil was sent for disposal.

Subsequent to the 1995 and 1996 site characterization work within the Monterey Pines Development described above, RWQCB indicated in a letter dated October 2, 1996, that no further action was required at the site (RWQCB, 1996).

The area north of Lomita Boulevard and east of Main Street is known as the Kast property and consists of the Carousel housing development. Prior to development of the residential tract housing, three above-ground Shell Oil crude oil tanks were present from 1923 until 1966. Two tanks were 750,000-barrel capacity and the third was 2,000,000-barrel capacity. The tanks were constructed of concrete and unlined. Housing construction was started in 1967 and completed in 1969. Shell Oil began investigating petroleum-related contamination beneath the neighborhood in 2008. As part of a subsurface investigation by Shell Oil at the Kast property, URS conducted soil gas sampling beneath asphalt streets within the Monterey Pines subdivision in early 2010, and elevated PCE concentrations in soil gas potentially related to the former clarifier were discovered at concentrations as high as 12,000 micrograms per cubic meter (µg/m^3).

In June 2010, URS conducted an additional subsurface investigation for Shell Oil at the WMS property that included 20 subsurface soil and soil gas sampling locations as well as indoor air sampling. Concentrations of PCE were discovered in soil gas samples from the WMS property as high as 51,000 $\mu g/m^3$ (URS, 2010).

The site was referred to the U.S. EPA by DTSC in August 2012 for assistance in continued assessment of the study area. Based on the documented concentrations of PCE in soils and soil gas at the site, the U.S. EPA determined that additional assessment was required to evaluate any future remedial and/or removal actions.

Between 1995 and September 2012, numerous documents and reports have been produced by the RWQCB, Shell Oil's contractor (URS Corporation), DTSC, and various other contractors recording actions and investigations within the study area. Site specific documents from the previous investigations include cleanup and abatement orders; Phase I Environmental Site Assessments (ESAs), Phase II ESAs, quarterly monitoring well reports, boring logs, and correspondence documents. To date, project related material has been archived and uploaded to the following websites:

- https://www.envirostor.dtsc.ca.gov/public/profile_report.asp?global_id=19290313
- https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T10000000228

3 Field Activities

A site-specific SAP was completed prior to initiating field work (Appendix F). All work was conducted under E & E's standard operating procedures, a site specific health and safety plan, and the SAP. Photographic documentation collected by START during site activities is presented in Appendix C.

Work conducted as part of the site investigation was completed in multiple phases beginning October 31, 2012, and concluding on February 2, 2013, and included the following:

- Marking and utility clearance was conducted for 17 locations in the County, City and private right-of-way using both public services and a private utility clearance contractor.
- A total of 17 soil borings were completed, with soil and soil gas samples collected for the six locations within the Monterey Pines development, and soil gas samples collected in the remaining 11 locations.
- Based on soil gas data collected, 23 homes were selected for the collection and laboratory analysis of indoor air samples to determine the impact of contaminants of potential concern (COPCs) on indoor air quality.
- Based on historical indoor air and soil gas data collected by URS for Shell Oil, four classrooms at WMS were selected for collection and laboratory analysis of indoor air samples to determine if COPCs have impacted indoor air quality. In addition, sub-slab grab air samples were collected using sample ports installed by URS in these same four classrooms.
- Four outdoor ambient air samples were collected within the study area, in proximity to residences selected for indoor air sample collection activities.

START subcontractor H&P Mobile Geochemistry, Inc., of Signal Hill, CA (H&P), was selected to complete the installation of boreholes and soil gas probes using a truck-mounted Geoprobe®. Although an on-site H&P laboratory was proposed in the SAP for analysis of soil gas samples, Federal On-Scene Coordinator (FOSC) Weden approved off-site analysis at H&P's Carlsbad, CA, laboratory based on the field schedule and unavailability of the mobile lab during the fieldwork (see Section 3.6).

Field decontamination of non-dedicated sampling equipment (including the Geoprobe® drill rods and Macrocore® sampler) was conducted using an Alconox and tap-water mixture, followed by a rinse with distilled water. A rinsate blank was collected that confirmed decontamination procedures were effective. Borehole locations were recorded in the field logbook, and the geographic coordinates were obtained and documented using a Trimble Global Positioning System device.

A summary of the sample collection information is presented in Tables 3-1 (soil), 3-2 (soil gas) and 3-3 (indoor and ambient air).

3.1 Soil Sampling

Soil sampling and analysis was conducted in accordance with the SAP (E & E, 2012; Appendix F) unless otherwise specified in Section 3.6. START used a grid sampling design for soil boring installation, adjusting soil and soil gas sampling locations based on accessibility and field conditions. A total of 17 subsurface sample locations (MP-01 through MP-17) were distributed within the study area (Figure 3-1, Appendix A). A total of 20 discrete soil samples, including QC field duplicate samples, were collected from boreholes MP-01 through MP-06 at three depth intervals (approximately 0.5, 6, and 14 feet bgs) on November 6, 2012. Sample depths were selected to correspond with historical data and based upon observed lithology in combination with planned installation depth of soil gas probes.

Soil samples were collected at approximately 0.5, 6, and 14 feet bgs using a Geoprobe® direct-push drill rig equipped with a 4-foot long Macrocore® sampler. The samplers collected discrete intervals of undisturbed soil encompassing the target sample depth in acetate liners. A TerraCore™ micro-core sampling device attached to a Lock N' Load™ T-handle was used to collect 5-gram aliquots of undisturbed sample from the soil core at the specified target depth, which were placed into pre-preserved vials in accordance with U.S. EPA SW-846 Method 5035. The vials were delivered to EMAX Laboratory in Torrance, CA, for analysis in accordance with U.S. EPA SW-846 Method 5035.

The soils remaining after collection of the samples for laboratory analysis were used for lithologic description and were field screened for organic vapors using a Toxic Vapor Analyzer (TVA). The TVA was calibrated in accordance with the manufacturer's instruction at the beginning of each field day. Boring logs for the six boreholes from which samples were collected are included in Appendix B.

3.2 Soil Gas Sampling

After boring advancement and soil sample collection was completed, soil gas probes were installed in accordance with the SAP in all 17 boreholes (MP-01 through MP-17) at two horizons to correspond with historical sampling methodology: the shallow samples ranged in depth from 6 to 10 feet bgs and the deep samples ranged between 14 to 16 feet bgs. The exact placement of the soil gas probe and sand pack was based on the observed lithology. Due to a subsurface

obstruction encountered at approximately 10 feet bgs, only the 8-foot probe was installed at the MP-17 location. In accordance with EPA and DTSC guidance, soil gas probes were purged of static air prior to sample collection. Samples were collected into pre-cleaned stainless steel, 400 milliliter (mL) Summa canisters and transported to H&P's laboratory in Carlsbad, CA, for analysis of VOCs using U.S. EPA SW-846 Method 8260. Summary analytical results are presented in Appendix D.

Upon completion of sampling activities, the soil gas probes were abandoned in place in accordance with the SAP by removing tubing and sealing the surface with colored concrete to match the road surface. The construction of the boreholes using grout from the soil gas probe terminal depth to the street surface prevented the creation of a preferential pathway for contaminant migration.

3.3 Air Sampling

Based on the analytical results from the soil and soil gas sampling event, FOSCs Christopher Weden and Robert Wise selected 23 homes within the study area for indoor air sampling. Sampling at residences consisted of collecting 24-hour composite air samples using Selective Ion Monitoring (SIM)-certified 6-liter Summa canisters and flow regulators. In addition to the residential sampling, samples were collected at four WMS classroom locations that corresponded to historical sampling events. Both air and soil gas samples were collected at WMS. Soil gas samples were collected using through-slab sampling ports that had previously been installed by URS and were still in place. The U.S. EPA, in cooperation with Los Angeles Unified School District environmental staff, determined that these existing sampling locations would meet project objectives in lieu of completing additional borings for soil gas sampling on school grounds as discussed in the SAP (see Section 3.6). The 24-hour composite air samples at WMS were collected using SIM-certified 6-liter Summa canisters and flow regulators, and the sub-slab samples were collected using 400 mL Summa cylinders with stainless steel quick-connect fittings to interface with existing ports.

To provide data on ambient conditions within the study area, three sampling locations were selected in proximity to residences where indoor air sampling was conducted, and one location was selected at WMS. Ambient, 24-hour composite air samples were collected using SIM-certified 6-liter Summa canisters and flow regulators.

All air samples were submitted via overnight carrier to the Eurofins Air Toxics Ltd. laboratory in Folsom, CA, for analysis by U.S. EPA Method TO-15 SIM.

3.4 Laboratory Analysis

A total of 20 soil samples were submitted to EMAX Laboratories, Inc., in Torrance, CA, for analysis of VOCs by U.S. EPA SW-846 Method 5035/8260B. The 20 samples analyzed included two duplicate samples. Sample results were intended to be definitive data.

A total of 36 soil gas samples were submitted to the H&P Mobile Geochemistry, Inc., laboratory in Carlsbad, CA, for analysis of VOCs by U.S. EPA Method SW-846 8260SV. The 36 samples analyzed included three duplicate samples. Sample results were intended to be screening-level data for the purpose of selecting residences for the indoor air sampling phase (See Section 3.6).

A total of 29 residential indoor air samples (including three duplicate samples), five indoor air samples from WMS (including one duplicate sample), four ambient air samples from within the study area, and five sub-slab air samples from WMS (including one duplicate sample) were submitted to the Eurofins Air Toxics Ltd. laboratory in Folsom, CA, for analysis by U.S. EPA Method TO-15 SIM.

3.5 Site Screening Levels

The site screening levels for COPCs in soils, soil gas and air are their respective residential U.S. EPA Region 9 RSLs, which are presented in the individual media's summary analytical results tables in Appendix D. U.S. EPA Region 9 RSLs are risk-based concentrations (at a 10^{-6} risk) that combine current human health toxicity values with standard exposure factors to estimate contaminant concentrations in environmental media (soil, air, and water) that are considered by the U.S. EPA to be health protective of human exposures (including sensitive groups), over a lifetime.

In addition, for the purpose of further comparison, the California Human Health Screening Levels for Residential Indoor Air and Soil Vapor are also presented on the respective media's summary analytical results table in Appendix D.

3.6 Deviations from the SAP

The following deviations from the SAP (E & E, 2012) occurred during the field investigation:

- The SAP proposed two soil gas samples at approximately 8- and 16-feet bgs in each soil boring location. A subsurface obstruction was encountered at approximately 10 feet bgs while installing the boring at MP-17. As a result, only the 8-foot bgs soil gas probe was installed and sampled.
- The SAP proposed that all soil gas samples collected would be analyzed in the field using the H&P Mobile Geochemistry, Inc., field lab. Due to project scheduling constraints, FOSC Weden approved fixed-base laboratory analysis of the soil gas samples and the use of the data for screening purposes rather than definitive data because certified canisters for sample collection were not available. Project objectives were not compromised, however, since the soil gas data was intended to be used for screening comparison to historical data and to select homes for definitive-level, indoor air sampling.
- The SAP stated that Tier 2 data validation would be conducted for 100% of the off-site fixed laboratory data as well as 100% of the mobile laboratory

data for soil gas. The START project chemist conducted a data review of the soil gas data to evaluate quality assurance/quality control issues. However, as the soil gas data were collected for field screening purposes, Tier 2 data validation does not apply.

- The SAP proposed soil borings for additional soil gas sampling at WMS and in a shopping center parking lot adjacent to WMS. After the SAP had been written, soil boring installation was planned to have been conducted in two phases to coincide with a school holiday. Once it was discovered that Los Angeles Unified School District personnel had maintained the through-slab sampling ports installed during a previous investigation, FOSC Weden determined that indoor air and sub-slab air sampling would be conducted in lieu of the proposed soil boring installation at WMS and the shopping center parking lot.

Table 3-1
Sampling and Analysis Summary – Soil Sampling
Monterey Pines Development Site
Carson, Los Angeles County, California

E & E Project No. EE-002693-2197 TDD No. T02-09-12-08-0004

Analyses					VOCs by EPA Method 5035/8260B	Percent Moisture
Sample Containers					Lock N' Load, ESS Pre-Preserved vials (5035 kits)	2 oz jar
Sample Number	Sample Location	Sample Depth (feet)	Sample Collection Date	Special Designation (QC samples)	No. of Containers	No. of Containers
MPS-01-0.5	MP-1	0.5	11/05/2012		3	1
MPS-01-6		6			3	1
MPS-01-14		14			3	1
MPS-02-0.5	MP-2	0.5	11/05/2012	MS/MSD	6	1
MPS-02-6		6			3	1
MPS-02-14		14			3	1
MPS-03-0.5	MP-3	0.5	11/05/2012		3	1
MPS-03-6		6		MS/MSD	6	1
MPS-03-14		14			3	1
MPS-04-0.5	MP-4	0.5	11/05/2012		3	1
MPS-04-6		6			3	1
MPS-904-6		6		Field Duplicate	3	2
MPS-04-14		14			3	1
MPS-05-0.5	MP-5	0.5	11/06/2012		3	1
MPS-905-0.5		0.5		Field Duplicate	3	2
MPS-05-6		6			3	1
MPS-05-14		14			3	1
MPS-06-0.5	MP-6	0.5	11/05/2012		3	1
MPS-06-6		6			3	1
MPS-06-14		14			3	1

Notes:
VOCs = Volatile Organic Compounds
*Target Volatile Organic Compounds (VOCs) = Tetrachloroethylene, Trichloroethylene, cis-1,2-Dichloroethylene, trans-1,2-Dichloroethylene, 1,1-Dichloroethylene, Vinyl Chloride
QC = Quality Control
MS/MSD = Matrix Spike/Matrix Spike Duplicate

Table 3-2
Sampling and Analysis Summary – Soil Gas Sampling
Monterey Pines Development Site
Carson, Los Angeles County, California

E & E Project No. EE-002693-2197 TDD No. T02-09-12-08-0004

Analyses					Target VOCs* by EPA Method 8260B
Sample Number	Sample Location	Sampling Depth (feet)	Sampling Date	Special Designation (QC samples)	No. of Containers per analysis
MPG-01-10	MP-01	10	11/06/2012		1
MPG-01-16		16			1
MPG-02-8	MP-02	8	11/06/2012		1
MPG-102-8		8		Field Duplicate	1
MPG-02-14		14			1
MPG-03-8	MP-03	8	11/06/2012		1
MPG-03-16		16			1
MPG-04-8.5	MP-04	8.5	11/06/2012		1
MPG-04-16		16			1
MPG-05-6	MP-05	6	11/06/2012		1
MPG-05-14		14			1
MPG-06-6	MP-06	6	11/06/2012		1
MPG-106-6		6		Field Duplicate	1
MPG-06-14.5		14.5			1
MPG-07-8	MP-07	8	11/06/2012		1
MPG-07-16		16			1
MPG-08-8	MP-08	8	11/06/2012		1
MPG-08-16		16			1
MPG-09-8	MP-09	8	11/06/2012		1
MPG-09-16		16			1
MPG-10-8	MP-10	8	11/06/2012		1
MPG-10-16		16			1
MPG-11-8	MP-11	8	11/06/2012		1
MPG-11-16		16			1
MPG-12-8	MP-12	8	11/06/2012		1
MPG-12-16		16			1
MPG-13-8	M-13	8	11/06/2012		1
MPG-13-16		16			1
MPG-14-8	MP-14	8	11/06/2012		1
MPG-14-16		16			1
MPG-15-8	MP-15	8	11/06/2012		1
MPG-15-16		16			1
MPG-16-8	MP-16	8	11/06/2012		1
MPG-16-16		16			1
MPG-17-8	MP-17	8	11/06/2012		1

Table 3-2
Sampling and Analysis Summary – Soil Gas Sampling
Monterey Pines Development Site
Carson, Los Angeles County, California

E & E Project No. EE-002693-2197 TDD No. T02-09-12-08-0004

Analyses					Target VOCs* by EPA Method 8260B
Sample Number	Sample Location	Sampling Depth (feet)	Sampling Date	Special Designation (QC samples)	No. of Containers per analysis

Notes:
VOCs = Volatile Organic Compounds
*Target Volatile Organic Compounds (VOCs) = Tetrachloroethylene, Trichloroethylene, cis-1,2-Dichloroethylene, trans-1,2-Dichloroethylene, 1,1-Dichloroethylene, Vinyl Chloride
QC= Quality Control

Table 3-3
Sampling and Analysis Summary – Air Samples
Monterey Pines Development Site
Carson, Los Angeles County, California

E & E Project No. EE-002693-2197 TDD No. T02-0912-08-0004

Analyses			VOCs by EPA Method TO-15
Sample Containers			Indoor/Ambient Air: 6 Liter Summa Sub-slab Grab Air: 400mL Summa
Sample Number	Date	Sample Designation	Number of Containers per Analysis
MPIA-010213-177	01/02/2013		1
MPIA-010213-9177	01/02/2013	Field Duplicate	1
MPIA-010213-171	01/02/2013		1
MPIA-010213-BRC	01/02/2013		1
MPIA-010213-MUS	01/02/2013		1
MPIA-010213-AMB	01/02/2013		1
MPSS-010413-177	01/04/2013		1
MPSS-010413-9177	01/04/2013	Field Duplicate	1
MPSS-010413-171	01/04/2013		1
MPSS-010413-BRC	01/04/2013		1
MPSS-010413-MUS	01/04/2013		1
A	01/24/2013		1
B	01/24/2013		1
C	01/24/2013		1
D	01/24/2013	Ambient Air	1
E1	01/24/2013		1
E2	01/24/2013	Field Duplicate	1
F	01/24/2013		1
G	01/24/2013		1
H	01/24/2013		1
I	01/24/2013		1
J	01/24/2013	Ambient Air	1
K	01/24/2013		1

Table 3-3
Sampling and Analysis Summary – Air Samples
Monterey Pines Development Site
Carson, Los Angeles County, California

E & E Project No. EE-002693-2197 TDD No. T02-0912-08-0004

Analyses			VOCs by EPA Method TO-15
L	01/24/2013		1
M	01/24/2013		1
N	01/24/2013		1
O	01/24/2013		1
P	01/25/2013		1
Q	01/25/2013		1
R	01/25/2013		1
S	01/25/2013		1
T1	01/25/2013		1
T2	01/25/2013	Field Duplicate	1
U	01/25/2013		1
V	01/29/2013		1
W1	01/29/2013		1
W2	01/29/2013	Field Duplicate	1
X	01/29/2013	Ambient Air	1
Y	01/31/2013		1
Z	01/31/2013		1

4 Results

The analytical results for samples collected during this investigation are discussed in the following sections.

4.1 Soil Sample Analytical Results and Discussion

A total of 20 soil samples, including QC samples, were collected at six locations from target depths ranging from 0.5 to 14 feet bgs and analyzed for VOCs as specified in Section 3.1. Summary analytical results for the target VOCs are presented in Appendix D on Table D-1. Analytical Data Validation Reports are presented in Appendix E.

Although several VOCs (including PCE) were detected in soil samples collected from locations within the Monterey Pines residential development, none of the VOCs detected exceeded their respective site screening level.

In 1995 and 1996 soil sampling events conducted at the site, PCE and TCE were detected in soils at a maximum concentration of 1,110 mg/kg and 2,340 mg/kg, respectively. Although the regulatory record of the final disposition of impacted soils at the site is unclear, the current data indicate that PCE and its breakdown products in soil do not pose a threat to human health or the environment at the locations sampled.

4.2 Soil Gas Sample Analytical Results and Discussion

A total of 36 soil gas samples, including QC samples, were collected at 17 locations from two target depths: the shallow samples ranged in depth from 6 to 10 feet bgs and the deep samples ranged between 14 to 16 feet bgs. All samples were analyzed for VOCs as specified in Section 3.2. Soil gas analytical results were used as screening level data for the purpose of selecting residences for the indoor air sampling phase. Summary analytical results for the target VOCs are presented in Appendix D on Table D-2. Analytical Data Validation Reports are presented in Appendix E.

COPCs were detected at six of the boring locations at concentrations well exceeding the site screening levels for soil gas, and at an additional three boring locations at concentrations just above site screening levels for soil gas. Sample results were generally consistent with historical data from previous investigations,

and the current and past data were used to select clusters of residences for additional indoor air sampling.

4.3 Indoor Air and Sub-Slab Analytical Results and Discussion

A total of twenty-nine 24-hour composite residential indoor air samples, five 24-hour composite indoor air samples from WMS, four 24-hour composite ambient air samples from within the study area, and five sub-slab grab air samples from WMS were submitted to the Eurofins Air Toxics laboratory for VOCs analysis. Summary analytical results for the target VOCs are presented in Appendix D on Tables D-3 for residential indoor air, D-4 for sub-slab soil gas, and D-5 for indoor air at WMS. To protect residents' privacy, the summary analytical results have been tabulated without revealing individual addresses. Analytical Data Validation Reports are presented in Appendix E. To protect residents' privacy, sampling nomenclature used in accordance with the project SAP has been redacted from the data validation reports.

Project-specific COPCs were detected at low levels in 17 of the residences tested, with six of the residences exhibiting results that slightly exceed the site screening levels. Concentrations of PCE in these 12 residences slightly exceed the CHHSL screening level of 0.412 $\mu g/m^3$, but they do not exceed the EPA Residential RSL of 9.4 $\mu g/m^3$. In one residence, the concentrations of TCE slightly exceeded the EPA Residential RSL of 0.43 $\mu g/m^3$, but they did not exceed the CHHSL screening level of 1.22 $\mu g/m^3$. It should be noted that other VOCs not identified by the U.S. EPA as COPCs for the project were also detected at concentrations exceeding CHHSLs and/or RSLs in residential indoor air and ambient air samples. Discussion of these constituents is outside the scope of this investigation.

Outdoor 24-hour composite samples were also collected at four locations within the study area (three in the Monterey Pines Development and one at the WMS) to determine ambient conditions. Project-specific COPCs were detected in all of the ambient air samples, but none of the concentrations exceeded the site screening levels.

At the WMS, COPCs detected in the sub-slab grab samples were consistent with historical sampling results; PCE was detected at all four locations, with one location (Room 171) exceeding both the CHHSL and U.S. EPA RSL site screening levels (180 $\mu g/m^3$ and 94 $\mu g/m^3$, respectively) and one location (Music Room) exceeding the U.S. EPA RSL screening level, but not the CHHSL.

For the indoor air sampling conducted in four classrooms within WMS, the COPCs detected were consistent with historical sampling results; PCE was detected at all four locations, but concentrations did not exceed the site screening levels.

5 Quality Assurance/Quality Control (QA/QC)

5.1 Analytical Data Usability Report

A START project chemist performed a Tier 2 validation of the data generated by EMAX Laboratories, Inc., and the Eurofins Air Toxics Ltd. laboratory in accordance with U.S. EPA Region 9 Superfund Data Evaluation/Validation Guidance R9QA/006.1, December 2001. The quality of the analytical data was found to be acceptable for intended uses under this investigation. Data produced at the off-site laboratories as a result of this removal assessment were found to be acceptable with qualification as definitive analytical data.

Specific data validation or quality assurance/quality control (QA/QC) issues are discussed in the Data Validation Summary Reports presented in Appendix E. Qualifications resulting in the data values being identified as estimated were due to internal standard area counts out of range, surrogate compound recoveries exceeding quality control limits, and duplicate sample pairs exceeding the acceptable relative percent difference as specified in the SAP.

Soil gas analytical data from H&P Mobile Geochemistry, Inc., were reviewed by the START project chemist to evaluate QA/QC issues. As the soil gas data did not meet the requirements to be considered definitive data (see Section 5.2.3), the results are considered screening level data only. However, for the purpose of evaluating whether COPCs were present in soil gas above site-specific screening levels, the data are considered acceptable for use.

5.2 QA/QC Samples

5.2.1 Duplicate Samples

Field duplicate split samples were collected to evaluate field sampling procedures at a rate of approximately one duplicate sample for every ten samples. Field duplicate samples collected for analysis by the off-site fixed laboratories met the specified target rate of 10 percent.

5.2.2 Trip Blanks

A trip blank was prepared and shipped with each of the two groups of samples submitted to EMAX. The trip blanks were analyzed for VOCs by U.S. EPA Method 8260B. A trip blank was not shipped with the group of samples

5C

submitted to the H&P Mobile Geochemistry, Inc., or Eurofins Air Toxics Ltd. laboratory.

None of the trip blanks exhibited detectable concentrations of the target VOCs above laboratory reporting limits.

5.2.3 Rinsate Blanks

A rinsate blank to confirm decontamination of Geoprobe equipment was prepared and submitted to EMAX. The rinsate blank was analyzed for VOCs by U.S. EPA Method 8260B. The rinsate blank exhibited no detectable concentrations of the target VOCs above laboratory reporting limits.

6 Summary

From October 31 to February 2, 2013, START conducted a U.S. EPA-funded removal assessment at the Monterey Pines Development site in Carson, California.

On November 5 and 6, 2012, START collected soil samples from 18 discrete sample intervals at depths ranging from 0.5 to 14 feet bgs from six boreholes located within the Monterey Pines Development boundaries. Soil samples were analyzed for VOCs using EMAX Laboratories, Inc. In addition, START installed soil gas probes at 17 locations throughout the study area and collected a total of 36 soil gas samples, including QC samples from two target depths: the shallow samples ranged in depth from 6 to 10 feet bgs and the deep samples ranged between 14 to 16 feet bgs. Samples were analyzed for VOCs using H&P Mobile Geochemistry, Inc.

Based on the results of the soil and soil gas sampling, 34 indoor air samples were collected at 23 individual residences in the study area and at four classrooms at WMS between January 2 and February 2, 2013. Four ambient air samples within the study area and five sub-slab grab samples from classrooms at WMS were also collected during this period. All air samples were analyzed for VOCs using the Eurofins Air Toxics Ltd. laboratory.

Based on historical site activities, project-specific COPCs include PCE and its breakdown products; these COPCs are present within the study area at concentrations that exceed site screening levels for soil gas and indoor air. In particular, PCE in soil gas was detected above the site screening levels in nine of the 17 soil boring locations in the study area, and beneath two of the four classrooms at WMS. Concentrations of project-specific COPCs in indoor air only slightly exceeded the site screening levels in 12 of the 23 residences tested; in all cases, the concentrations of PCE and/or TCE fell between the CHHSLs and RSLs for residential indoor air, exceeding the CHHSL but not the RSL. PCE was also detected in indoor air samples collected in four WMS classrooms, and in ambient outdoor air samples collected in the study area, but none of the results from these samples exceeded site screening levels.

7 References

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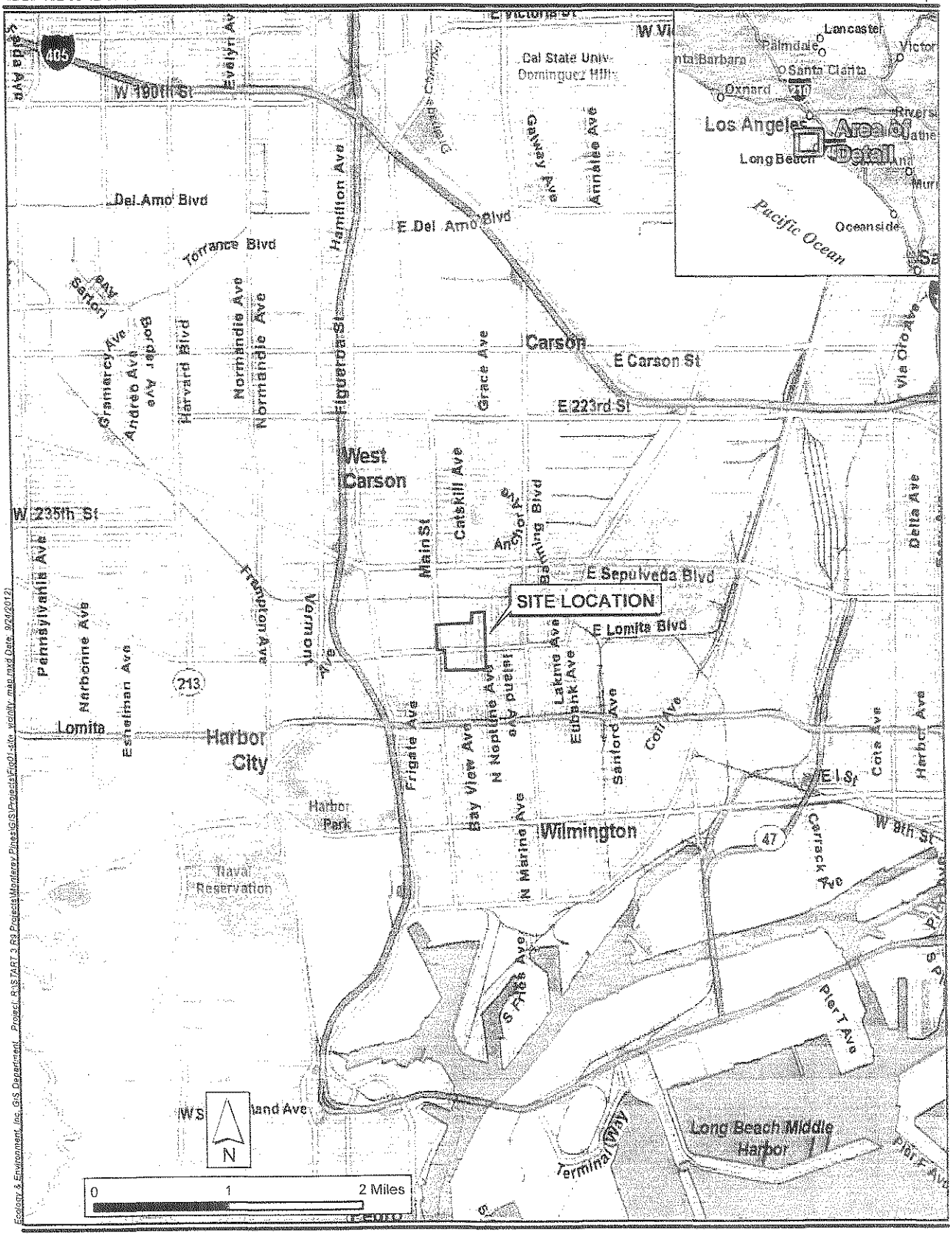
A Figures

Project # EE-002693-2197
TDD# T02-09-12-08-0004

Source: ESRI Streetmaps



Ecology & Environment, Inc. GIS Department Project: R:\START 3.0\Projects\Monterey Pines\GIS\Projects\Fig01-site_vicinity_map.mxd Date: 9/24/2012

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Figure 2-1

Site Vicinity Map

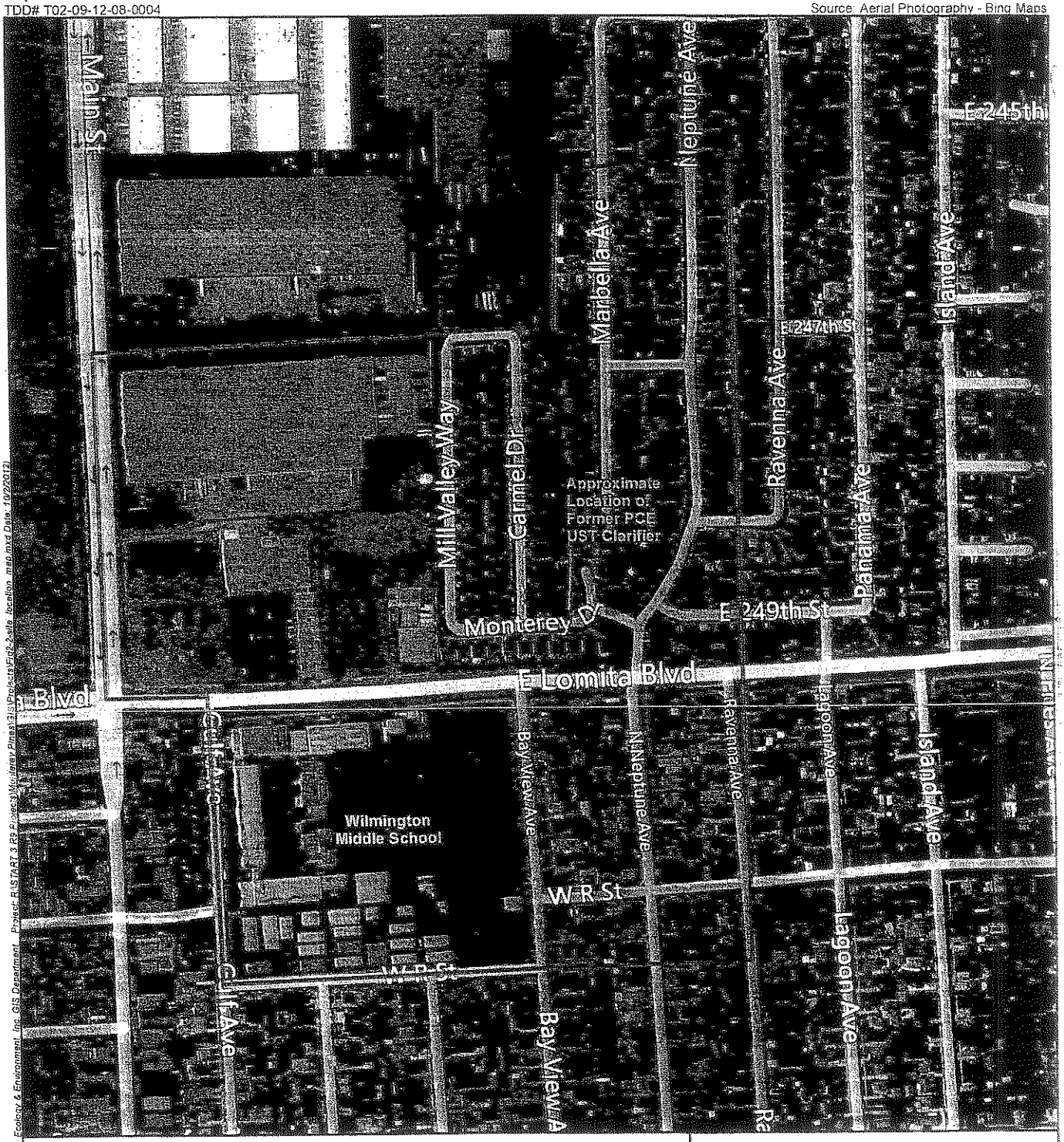
Monterey Pines

24401 Marbella Avenue, Los Angeles County, California

62

Project # EE-002693-2197
TDD# T02-09-12-08-0004

Source: Aerial Photography - Bing Maps



Ecology & Environment, Inc. GIS Department Project: R:\STAT 3 P3 Projects\Monterey Pines\3)\Projects\EE02-2-site location map.mxd Date: 10/2/2012)

LEGEND

- Approximate Location of Former PCE UST and Clarifier
- Study Area Boundary

N

0 400 800 Feet

Figure 2-2
Site Location Map
Monterey Pines
City of Carson,
Los Angeles County, California

Project # EE-002693-2197
TDD# T02-09-12-08-0004

Source: Aerial Photography - Bing Maps

Ecology & Environment, Inc. GIS Department Project: C:\GIS\START Range\Monterey Pines\Maps\MXD\s\Figure 3-1 Field Data.mxd Date: 7/17/2013

Field Data Point

Clarifier

Study Area Boundary

N

0 250 500

Feet

Figure 3-1

Sampling Locations

Monterey Pines

City of Carson,
Los Angeles County, California

B Boring Logs

Boring No.	Project No.	Location	Sheet
MP1	EE-002693-2197	Monterey Pines	1 of 1
Time Start	Drilling Contractor	Drilling Equipment	Date
	H&P Mobil Geochemistry Inc.	Geoprobe 7822 DT	11/5/2012
Time Stop	Driller	Drilling Method	Sampling Method	First Water
		Direct push	Geoprobe	
Total Depth	Casing	Screen	Screen Length
16 ft			
Project Mgr.	Filter Pack	Seal	Final DTW

Depth (ft) Below Surface	Sampler Type	Sample No.	Inches Driven/ Recovered	Blows/6 in	USCS	Log of Material	Well Construction
						Asphalt	
1		MPS-01-0.5			SC	Medium to dark gray, very fine to fine grained clayey sand, tight, some mica; 25 ppm FID; only 3 feet recovery.	
2							
3							
4							
5					SC	Medium to dark gray, very fine to fine grained clayey sand, tight, some mica, some lenses on increasing clay content but not clay, cohesive; 25 ppm FID.	
6		MPS-01-06					
7							
8					SC	Medium to dark gray, very fine to fine grained clayey sand, tight, some mica, some lenses on increasing clay content but not clay, cohesive; 25 ppm FID.	
9							
0					SC	Light to tan, very fine to fine grained clayey sand, some mica; no FID above background.	
1					SC	Light to tan, very fine to fine grained clayey sand, some mica	
2							
3							
4		MPS-01-14					
5					SC	Medium to dark gray, very fine to fine grained clayey sand, mica; no FID above background	
6						Total depth = 16 ft	
7						Soil gas probes installed at 10 and 16 feet below ground surface	
8							
9							
0							

Boring No.	Project No.	Location	Sheet
MP2	EE-002693-2197	Monterey Pines	1 of 1
Time Start	Drilling Contractor	Drilling Equipment	Date
	H&P Mobil Geochemistry Inc.	Geoprobe	11/5/2012
Time Stop	Driller / Drilling Method	Sampling Method	First Water
	Direct push	Geoprobe	
Total Depth	Casing	Screen	Screen Length
16 ft			
Project Mgr.	Filter Pack	Seal	Final DTW

Depth (ft) Below Surface	Sampler Type	Sample No.	Inches Driven/ Recovered	Blows/6 in	USCS	Log of Material	Well Construction
						Asphalt	
1		MPS-02-0.5			SC-SM	Tan to gray-tan, very fine grained silty clayey sand with some gravel; 5 ppm above background FID; only 3.5 feet recovery.	
2							
3							
4							
5					SM	Tan to gray-tan, very fine to medium grained silty sand with some gravel; no FID above background.	
6		MPS-02-06					
7							
8							
9							
10							
11							
12							
13							
14		MPS-02-14					
15							
16					CL	Gray to dark gray sandy clay, cohesive	
						Total depth = 16 ft	
						Soil gas probes installed at 8 and 14 feet below ground surface	

Boring No.	Project No.	Location	Sheet
MP3	EE-002693-2197	Monterey Pines	1 of 1

Time Start	Drilling Contractor	Drilling Equipment	Date
	H&P Mobil Geochemistry Inc.	Geoprobe	11/5/2012

Time Stop	Driller	Drilling Method	Sampling Method	First Water
		Direct push	Geoprobe	

Total Depth	Casing	Screen	Screen Length
16 ft			

Project Mgr.	Filter Pack	Seal	Final DTW

Depth (ft) Below Surface	Sampler Type	Sample No.	Inches Driven/ Recovered	Blows/6 in	USCS	Log of Material	Well Construction
						Asphalt	
1		MPS-03-0.5			SC	Tan to medium gray tan, fine to medium grained clayey sand, mica, friable, not as cohesive; 15 ppm FID.	
2							
3							
4					SC	Dark gray, very fine to fine grained clayey sand, cohesive, very slight odor, 0.5 inch lense of gravel at 5 feet below ground surface.	
5							
6		MPS-03-06			SC-SM	Brown gray to yellow mottled silty clayey sand, very cohesive.	
7							
8							
9							
10							
11							
12							
13					SC-SM	Brown gray to yellow mottled silty clayey sand, very cohesive.	
14		MPS-03-14			CL	Gray to dark gray, very fine to medium grained sandy clay, very cohesive, dense, some motling, mica.	
15							
16						Total depth = 16 ft	
17						Soil gas probes installed at 8 and 16 feet below ground surface	
18							
19							
20							

Boring No.	Project No.	Location	Sheet
MP4	EE-002693-2197	Monterey Pines	1 of 1
Time Start	Drilling Contractor	Drilling Equipment	Date
	H&P Mobil Geochemistry Inc.	Geoprobe	11/5/2012
Time Stop	Driller	Drilling Method / Sampling Method	First Water
		Direct push / Geoprobe	
Total Depth	Casing	Screen	Screen Length
16 ft			
Project Mgr.	Filter Pack	Seal	Final DTW

Depth (ft) Below Surface	Sampler Type	Sample No.	Inches Driven/ Recovered	Blows/6 in	USCS	Log of Material	Well Construction
						Asphalt, 15 ppm FID.	
1		MPS-04-0.5			SM	Brown to gray tan, fine to medium grained silty sand with some gravel in the upper 6 inches, slightly cohesive; 4.5 ppm FID; 3 feet recovery.	
2							
3							
4					SM	Brown to gray tan, fine to medium grained silty sand with some gravel in the upper 6 inches, slightly cohesive; 4.5 ppm FID; 3 feet recovery.	
5							
6		MPS-04-06					
7							
8							
9					SM-SP	Same as above with increasing sand content, fine to coarse	
10					SC	Tan to yellow tan, very fine to medium grained clayey sand, stiff but not plastic, cohesive.	
11					SP	Tan to light brown, very fine to medium grained sand, mica.	
12							
13					SC	Dark gray to medium gray, very fine to medium grained clayey sand, slightly cohesive, not plastic; 4.3 ppm FID.	
14		MPS-04-14			SP	Tan to light brown, very fine to medium grained silty sand, some mica, iron staining.	
15							
16						Total depth = 16 ft	
17						Soil gas probes installed at 8.5 and 16 feet below ground surface	
18							
19							
20							

Boring No.	Project No.	Location	Sheet
MP5	EE-002693-2197	Monterey Pines	1 of 1

Time Start	Drilling Contractor	Drilling Equipment	Date
	H&P Mobil Geochemistry Inc.	Geoprobe	11/5/2012

Time Stop	Driller	Drilling Method	Sampling Method	First Water
		Direct push	Geoprobe	

Total Depth	Casing	Screen	Screen Length
16 ft			

Project Mgr.	Filter Pack	Seal	Final DTW

Depth (ft) Below Surface	Sampler Type	Sample No.	Inches Driven/ Recovered	Blows/6 in	USCS	Log of Material	Well Construction
						Asphalt, 15 ppm FID.	
1		MPS-05-0.5			SC-SG	Light gray to tan, very fine to coarse grained silty clayey sand, with some gravel, slightly cohesive, no odor.	
2					SC	Tan to dark tan, very fine to fine grained clayey sand, slightly cohesive.	
3							
4							
5					SC	Same as above, well sorted, damp at 6 feet below ground surface.	
6		MPS-05-06					
7							
8							
9					SM-SG	Tan to yellow tan, very fine to coarse grained silty sand with gravel, alternating lenses of same as above and very poorly sorted.	
10							
11					SC	Tan to brown, very fine to fine grained, silty clayey sand, tight but not very cohesive.	
12							
13					SC-SM	As above, lense of tan to yellow tan, very poorly sorted. Very fine to coarse silty sand with some gravel at 13 to 13.39 feet below ground surface.	
14		MPS-05-14					
15							
16							
						Total depth = 16 ft	
17						Soil gas probes installed at 6 and 14 feet below ground surface	
18							
19							
20							

Boring No.	Project No.	Location	Sheet
MP6	EE-002693-2197	Monterey Pines	1 of 1
Time Start	Drilling Contractor	Drilling Equipment	Date
	H&P Mobil Geochemistry Inc.	Geoprobe	11/5/2012
Time Stop	Driller	Drilling Method / Sampling Method	First Water
		Direct push / Geoprobe	
Total Depth	Casing	Screen	Screen Length
16 ft			
Project Mgr.	Filter Pack	Seal	Final DTW

Depth (ft) Below Surface	Sampler Type	Sample No.	Inches Driven/ Recovered	Blows/6 in	USCS	Log of Material	Well Construction
						Asphalt	
1		MPS-06-0.5			SC	Gray to dark gray, very fine to coarse grained silty clayey sand, cohesive with some (0.5 inch) lenses of gravel near the top; slightly weathered petroleum odor but no FID above background.	
2							
3							
4							
5					SC	Tan to medium tan, very fine to fine grained clayey sand, cohesive; no odor.	
6		MPS-06-06					
7							
8							
9							
10							
11							
12							
13							
14		MPS-06-14					
15					SC	Tan to medium tan, very fine to medium grained clayey sand, less cohesive.	
16					CL	Tan to medium tan, very fine to medium grained sandy clay.	
						Total depth = 16 ft	
						Soil gas probes installed at 6 and 14 feet below ground surface	

C Photodocumentation

ECOLOGY AND ENVIRONMENT, INC.
Superfund Technical Assessment and Response Team
Monterey Pines Development Site
Carson, Los Angeles County, California

E&E Project. No.: 002693.2197.01RA

TDD No: 02-09-12-08-0004
Contract No. EP-S5-08-01

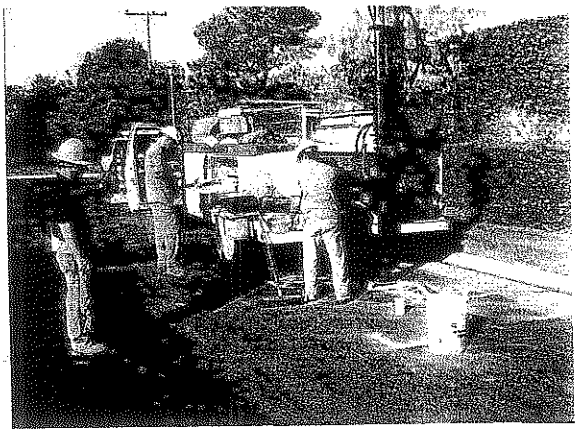


PHOTO 1

Date: 05 November 2012

Direction: West

Photographer: M. Tymkow

Description: View of START and H&P personnel during installation of boring MP-01 on Highland Way, inside the Monterey Pines Development.

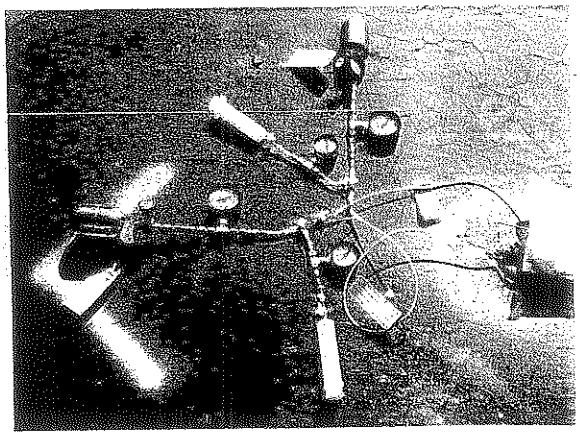


PHOTO 2

Date: 06 November 2012

Direction: South

Photographer: J. Williams

Description: View of START and H&P sampling soil gas from a typical soil boring within the study area. Two probe depths were included in each soil boring, and samples were collected into vacuum cylinders.

PHOTO 3

Date: 06 November 2012

Direction: Southwest

Photographer: J. Williams

Description: U.S. EPA personnel meeting at the Monterey Pines Development site with DTSC personnel to review project progress and objectives.

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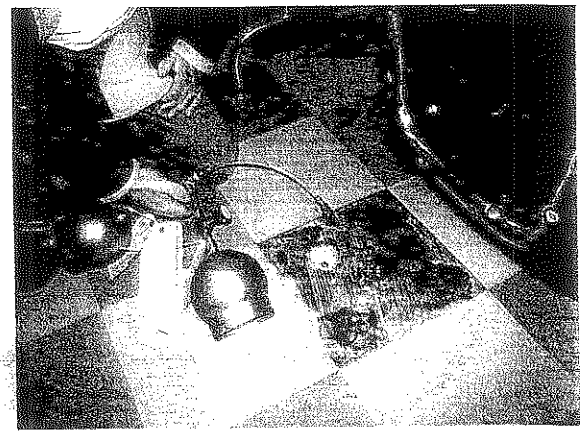

PHOTO 4

Date: 02 January 2013

Direction: South

Photographer: M. Tymkow

Description: START personnel preparing to collect sub-slab soil gas samples at the Wilmington Middle School.

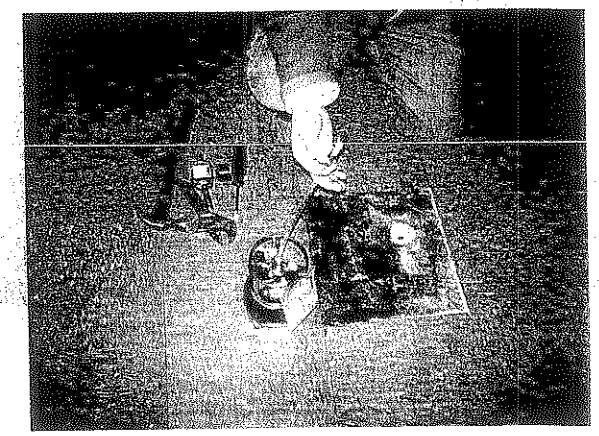

PHOTO 5

Date: 02 January 2013

Direction: Northwest

Photographer: M. Tymkow

Description: START personnel preparing to collect sub-slab soil gas samples at the Wilmington Middle School.

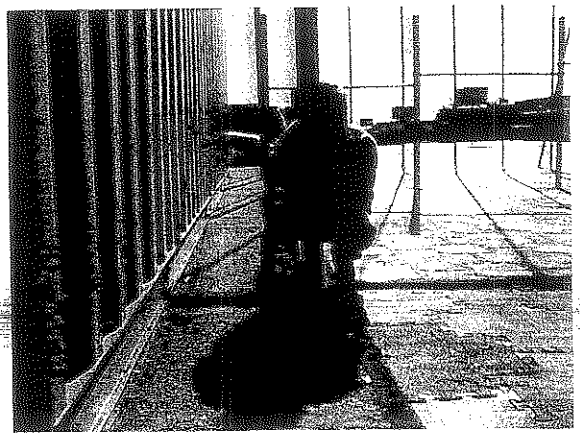

PHOTO 6

Date: 13 March 2013

Direction: North

Photographer: J. Williams

Description: START personnel collecting a 24-hour composite ambient air sample at the Wilmington Middle School.

F4

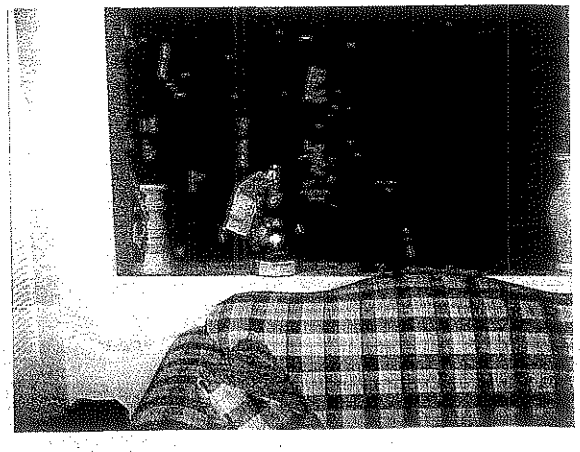

PHOTO 7

Date: 25 January 2013

Direction: South

Photographer: J. Williams

Description: View of the typical deployment of a 6L Summa canister in a residential living space to collect a 24-hour composite air sample.

PHOTO 8

Date: 24 January 2013

Direction: West

Photographer: M. Tymkow

Description: START personnel carefully noting beginning and ending vacuum pressure in 6L Summa canisters deployed in residences within the study area.

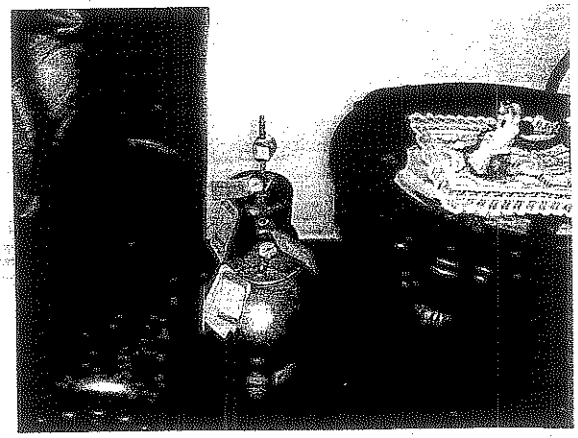

PHOTO 9

Date: 31 January 2013

Direction: East

Photographer: J. Williams

Description: View of the typical method for collecting a field duplicate of indoor air for analysis by collocating 6L Summa canisters in a residence.

D Laboratory Analytical Data Summary

Table D-1 - Residential Soil Analytical Data Summary - November 2012
Vapor Intrusion Investigation, Monterey Pines Development Site

Project No.: EE-002693-2197

TDD No.: TO-02 09-11-11-0001

Compound	Sample ID:	MPS-01-0.5	MPS-01-6	MPS-01-14	MPS-02-0.5	MPS-02-6	MPS-02-14	MPS-03-0.5	MPS-03-6	MPS-03-14	MPS-04-0.5	MPS-04-6	MPS-04-14	MPS-05-0.5	MPS-05-6	MPS-05-14	MPS-06-0.5	MPS-06-6	MPS-06-14
	Sample Location Description:	MP-01 0.5-feet BGS	MP-01 6-feet BGS	MP-01 14-feet BGS	MP-02 0.5-feet BGS	MP-02 6-feet BGS	MP-02 14-feet BGS	MP-03 0.5-feet BGS	MP-03 6-feet BGS	MP-03 14-feet BGS	MP-04 0.5-feet BGS	MP-04 6-feet BGS	MP-04 14-feet BGS	MP-05 0.5-feet BGS	MP-05 6-feet BGS	MP-05 14-feet BGS	MP-06 0.5-feet BGS	MP-06 6-feet BGS	MP-06 14-feet BGS
	Collection Date:	11/5/2012	11/5/2012	11/5/2012	11/5/2012	11/5/2012	11/5/2012	11/5/2012	11/5/2012	11/5/2012	11/5/2012	11/5/2012	11/5/2012	11/6/2012	11/6/2012	11/6/2012	11/5/2012	11/5/2012	11/5/2012
		USEPA Method 8260B Analysis (all units in µg/kg)																	
1,1-Dichloroethane	3,800	<0.56	2.4J	<0.82	<0.77	<0.7	<1.1	<0.91	<1.1	<1.1	<0.93	<1.1 (<1.0)	<1.1	<1 (<1)	<0.97	<1.1	<1.3	<1	<1.1
Benzene	2,100	0.57J	<0.59	<0.82	<0.77	<0.7	<1.1	<0.91	<1.1	<1.1	<0.93	<1.1 (<1.0)	<1.1	<1 (<1)	<0.97	<1.1	<1.3	<1	<1.1
CIS 1,2-Dichloroethene	160,000	4.1	12	<0.82	<0.77	<0.7	<1.1	5.4	<1.1	<1.1	3.1	2.6J (1.7J)	<1.1	1.3J (<1.0J)	7	18	<1.3	<1	<1.1
Toluene	2,100,000	0.59J	<0.59	<0.82	<0.77	<0.7	<1.1	<0.91	<1.1	<1.1	<0.93	<1.1 (<1.0)	<1.1	<1 (<1)	<0.97	<1.1	<1.3	<1	<1.1
Trans-1,2-Dichloroethene	1,500,000	0.56J	<0.59	<0.82	<0.77	<0.7	<1.1	<0.91	<1.1	<1.1	<0.93	<1.1 (<1.0)	<1.1	<1 (<1)	<0.97	<1.1	<1.3	<1	<1.1
Acetone	51,000,000	22	16	<4.1	<3.8	9.1	<5.3	<4.6	35	8.3	34	8.6J (7.4J)	<5.7	7.8J (8.2J)	6.1J	28	40	<5.1	<5.6
2-butanone	51,000,000	4.7J	<2.9	<4.1	<3.8	<3.5	<5.3	<4.6	<5.4	<5.6	93	5.9J (4J)	1.5J	4.8J (2.7J)	4.1J	9.8	<1.3	<1	<1.1
Tetrachloroethylene (PCE)	22,000	<0.56	0.84	<0.82	<0.77	<0.7	<1.1	<0.91	<1.1	<1.1	13	2.8J (1.9J)	<1.1	<1 (<0.93)	3.5J	21	<1.3	<1	<1.1
Trichloroethene (TCE)	1,100	<0.56	5.8	<0.82	<0.77	<0.7	<1.1	<0.91	<1.1	<1.1	15	2.8J (1.9J)	<1.1	<1 (<0.93)	3.5J	21	<1.3	<1	<1.1
Vinyl Chloride	1,500	5	40	<1.6	<1.5	<1.4	<2.1	<1.8	<2.2	<2.2	<1.9	<2.2 (<2.1)	<2.3	<2 (<1.9)	<1.9	<2.2	<2.6	<2	<2.2
USEPA RSL (Residential Soil Regional Screening Level)																			

Lab Notes:

J - The analyte was analyzed for, but the associated numerical value may not be consistent with the amount actually present in the environmental sample or may not be consistent with the sample detection or quantitation limit. The value is an estimated quantity.

General Notes:

µg/kg - micrograms per kilogram

0.13 (0.12) - Sample result (duplicate sample result)

BGS - Below Ground Surface

<0.14 - Analyte not present above the method reporting limit shown

Table D-2 - Soil Gas Analytical Data Summary - November 2012
Vapor Intrusion Investigation, Monterey Pines Development Site
Carson, California

TDD No.: TO-02 09-12-08-0004

Project No.: EE-002693-2197

Compound	Sample ID:		MPG-01-10	MPG-01-16	MPG-02-8	MPG-02-14	MPG-03-8	MPG-03-16	MPG-04-8.5	MPG-04-16	MPG-05-6	MPG-05-14	MP-06-6	MP-06-14.5	MPG-07-8	MPG-07-16
	Sample Location Description:		MP-01 10-feet BGS	MP-01 16-feet BGS	MP-02 8-feet BGS	MP-02 14-feet BGS	MP-03 8-feet BGS	MP-03 16-feet BGS	MP-04 8.5-feet BGS	MP-04 16-feet BGS	MP-05 6-feet BGS	MP-05 14-feet BGS	MP-06 6-feet BGS	MP-06 14.5-feet BGS	MP-07 8-feet BGS	MP-07 16-feet BGS
	Collection Date:		11/6/2012	11/6/2012	11/6/2012	11/6/2012	11/6/2012	11/6/2012	11/6/2012	11/6/2012	11/6/2012	11/6/2012	11/6/2012	11/6/2012	11/6/2012	11/6/2012
USEPA Modified Method TO-15 SIM Analysis (all units in µg/m3)																
TETRACHLOROETHENE (PCE)	180	94	380	300	<100 (<100)	<100	410	380	37,000	150,000	720	1,900	380 (340)	3,200	<100	110
TRICHLOROETHENE (TCE)	528	4.6	520	270	<100 (<100)	<100	<100	<100	7,200	64,000	330	2,100	160 (180)	2,000	<100	<100
VINYL CHLORIDE	13.3	1.5	3,600	5,500	<50 (<50)	<50	<50	<50	<50	70	<50	80	<50 (<50)	<50	<50	<50
CIS 1,2-DICHLOROETHENE	15,900	NA	2,100	560	<500 (<500)	<500	<500	<500	2,800	37,000	910	1,700	<500 (<500)	<500	<500	<500
1,1-DICHLOROETHANE (1,1-DCA	NA	1.7	<500	<500	<500	<500	<500	<500	<500	<700	<500	<500	<500	<500	<500	<500
1,1-DICHLOROETHENE (1,1-DCE	NA	210	<500	<500	<500	<500	<500	<500	<500	3,500	<500	<500	<500	840	<500	<500
CHHSLs (Residential Soil Vapor, California Human Health Screening Levels)																
USEPA RSL with Attenuation of 0.1 (Residential Soil Vapor Regional Screening Levels)																

General Notes:

µg/m3 - micrograms per cubic

BOLD - Exceeds California Human Health Screening Level (CHHSL) for Residential Soil Vapor, January 2005

BOLD - Exceeds USEPA Regional Screening Level (RSL) for Residential Soil Vapor (Attenuation Factor 0.1), November 2012

0.13 (0.12) - Sample result (duplicate sample result)

NA - Not Available

<0.14 - Analyte not present above the method reporting limit shown

BGS - Below ground surface

Table D-2 cont. - Soil Gas Analytical Data Summary - November 2012
Vapor Intrusion Investigation, Monterey Pines Development Site
Carson, California

Project No.: EE-002693-2197

TDD No.: TO-02 09-11-11-0001

Compound	Sample ID:		MPG-08-8	MPG-08-16	MPG-09-8	MPG-09-16	MPG-10-8	MPG-10-16	MPG-11-8	MPG-11-16	MPG-12-8	MPG-12-16	MP-13-8	MP-13-16	MPG-14-8	MPG-14-16
	Sample Location Description:		MP-08 8-feet BGS	MP-08 16-feet BGS	MP-09 8-feet BGS	MP-09 16-feet BGS	MP-10 8-feet BGS	MP-10 16-feet BGS	MP-11 8-feet BGS	MP-11 16-feet BGS	MP-12 8-feet BGS	MP-12 16-feet BGS	MP-13 8-feet BGS	MP-13 16-feet BGS	MP-14 8-feet BGS	MP-14 16-feet BGS
	Collection Date:		11/6/2012	11/6/2012	11/6/2012	11/6/2012	11/6/2012	11/6/2012	11/6/2012	11/6/2012	11/6/2012	11/6/2012	11/6/2012	11/6/2012	11/6/2012	11/6/2012
USEPA Modified Method TO-15 SIM Analysis (all units in ug/m3)																
TETRACHLOROETHENE (PCE)	180	2,100	<100	<100	<100	<100	210	260	<100	110	300	5,400	<100	260	<100	<100
TRICHLOROETHENE (TCE)	528	1,200	<100	<100	<100	<100	<100	<100	<100	<100	290	2,900	<100	<100	<100	<100
VINYL CHLORIDE	13.3	167	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
CIS 1,2-DICHLOROETHENE	15,900	NA	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500
1,1-DICHLOROETHENE (1,1-DCE	NA	2,100	<500	<500	<500	<500	<500	<500	<500	<500	1,500	2,500	<500	<500	<500	<500

CHHSLs (Residential Soil Vapor, California Human Health Screening Levels)

USEPA RSLs with Attenuation Factor of 0.1 (Residential Soil Vapor Regional Screening Levels)

General Notes:

ug/m3 - micrograms per cubic

BOLD - Exceeds California Human Health Screening Level (CHHSL) for Residential Soil Vapor, January 2005

BOLD - Exceeds USEPA Regional Screening Level (RSL) for Residential Soil Vapor (Attenuation Factor 0.1), November 2012

0.13 (0.12) - Sample result (duplicate sample result)

NA - Not Available

<0.14 - Analyte not present above the method reporting limit shown

BGS - Below ground surface

Table D-2 cont. - Soil Gas Analytical Data Summary - November 2012
Vapor Intrusion Investigation, Monterey Pines Development Site
Carson, California

TDD No.: TO-02 09-11-11-0001

Project No. EE-002693-2197

Compound	Sample ID:		MPG-15-8	MPG-15-16	MPG-16-8	MPG-16-16	MPG-17-8
	Sample Location		MP-15 8-feet BGS	MP-15 16-feet BGS	MP-16 8-feet BGS	MP-16 16-feet BGS	MP-17 8-feet BGS
	Collection Date:		11/6/2012	11/6/2012	11/6/2012	11/6/2012	11/6/2012
USEPA Modified Method TO-15 SIM Analysis (all units in µg/m3)							
TETRACHLOROETHENE (PCE)	180	94	<100	<100	<100	<100	<100
TRICHLOROETHENE (TCE)	528	4.3	<100	<100	<100	<100	<100
VINYL CHLORIDE	13.3	1.6	<50	<50	<50	<50	<50
CIS 1,2-DICHLOROETHENE	15,900	NA	<500	<500	<500	<500	<500
CHHSLs (Residential Soil Vapor, California Human Health Screening Levels)							
USEPA RSLs with Attenuation Factor (Residential Soil Vapor, Regional Screening Levels)							

General Notes:

µg/m3 - micrograms per cubic meter
BOLD - Exceeds California Human Health Screening Level (CHHSL)
BOLD - Exceeds USEPA Regional Screening Level (RSL) for
0.13 (0.12) - Sample result (duplicate sample result)
NA - Not Available
<0.14 - Analyte not present above the method reporting limit shown
BGS - Below ground surface

Table D-3 - Indoor Air Analytical Data Summary - January 2013
Vapor Intrusion Investigation, Monterey Pines Development Site
Carson, California

TDD No. TO-02 09-11-11-0001 Project No.: EE-002693-2107

Compound	CHHSLs	USEPA RSLs	A	B	C	D	E1(E2)	F	G	H	I	J	K
Sample ID:			A	B	C	D	E1(E2)	F	G	H	I	J	K
Sample Type:			Residential	Residential	Residential	Ambient	Residential	Residential	Residential	Residential	Residential	Ambient	Residential
Collection Date:			1/24/2013	1/24/2013	1/24/2013	1/24/2013	1/24/2013	1/24/2013	1/24/2013	1/24/2013	1/24/2013	1/24/2013	1/24/2013
USEPA Modified Method TO-15 SIM Analysis (all units in µg/m3)													
Freon 12	NA	100	3.1	2.4	3.2	3.4	3.1 J (<0.57 J)	2.9	3	3.3	3.2	3.1	3
Chloromethane	NA	[illegible]	1.5	2.3	1.5	1.4	1.9 (1.8)	1.8	1.8	1.9	1.2	1.5	1.9
1,3-Butadiene	NA	[illegible]	<0.14	<0.14	<0.14	<0.14	<0.14 (<0.14)	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
Freon 11	NA	[illegible]	1.5	<0.21	2.6	1.5	1.7 (<0.76)	2.8	3	<0.21	1.6	1.8	1.6
Ethanol	NA	NA	760 E,J	2,400 E,J	360 E,J	13	810 E,J (770 E,J	700 E,J	300 E,J	1,300 E,J	480 E,J	15	840 E,J
Acetone	NA	32,000	36	130	69	15	110 (100)	150	140	86	160 E,J	17	180
2-Propanol	NA	NA	49	560 E,J	18	2.3	20 (19)	82	37	130	43	2.3	49
Methylene Chloride	NA	[illegible]	<0.41	<0.41	1.2	<0.41	1.2 (<0.41)	5.3J	1.4	<0.41	1.8	<0.41	<0.41
Carbon Disulfide	NA	730	<1.8	<1.8	<1.8	<1.8	<1.8 (<1.8)	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
Hexane	NA	[illegible]	2	3.1	1.6	1.7	2.1 (2.5)	110	2.6	22	7.5	1.3	1.4
2-Butanone (MEK)	NA	[illegible]	<1.0	3.4 J	<1.0	<1.0	5.5 J (<1.0)	<1.0	3.2 J	<1.0	14 J	<1.0	4.3 J
Tetrahydrofuran	NA	NA	<0.9	<0.9	<0.9	<0.9	6.9 (<0.9)	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9
Chloroform	NA	[illegible]	< 0.21	< 0.21	[illegible]	[illegible]	2.4 (2.0)	< 0.21	[illegible]	< 0.21	< 0.21	< 0.21	< 0.21
Cyclohexane	NA	6,300	1	<0.18	0.79	0.92	1.1 J (2.8 J)	100	15	4	2	0.7	<0.18
Carbon Tetrachloride	0.0579	0.41	<0.18	<0.18	<0.18	<0.18	1.2 (<0.18)	<0.18	<0.18	<0.18	1.2	<0.18	<0.18
2,2,4-Trimethylpentane	NA	NA	< 3.9	< 3.9	< 3.9	< 3.9	< 3.9 (<3.9)	80	< 3.9	< 3.9	3.3	< 3.9	< 3.9
Heptane	NA	NA	1.4	3.7	6.5	1.4	3.2 (3.9)	66	2.5	2.3	4.5	1	1.4
Bromodichloromethane	NA	0.066	<0.18	<0.18	<0.18	<0.18	[illegible]	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
4-Methyl-2-pentanone	NA	NA	1	<0.13	<0.13	<0.13	0.78 (<0.73)	<0.13	<0.13	<0.13	25	<0.13	12
1,4-Dichlorobenzene	NA	0.22	<0.36	<0.36	<0.36	<0.36	<0.36 (<0.36)	<0.36	<0.36	<0.36	<0.36	<0.36	[illegible]
1,4-Dioxane	NA	0.32	<0.14	<0.14	<0.14	<0.14	<0.14 (<0.14)	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
Dibromochloromethane	NA	[illegible]	<0.18	<0.18	<0.18	<0.18	[illegible]	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18
Styrene	NA	1000	< 0.21	< 0.21	1.3	< 0.21	2.4 (2.5)	< 0.21	1	< 0.21	3.9	< 0.21	< 0.21
Propylbenzene	NA	1000	<0.13	<0.13	<0.13	<0.13	<0.13 (<0.13)	<0.13	<0.13	<0.13	1	<0.13	<0.13
4-Ethyltoluene	NA	NA	1.4	<0.13	1.2	1.2	1.4 (<0.13)	86	1.2	<0.13	4.6	<0.13	<0.13
1,3,5-Trimethylbenzene	NA	NA	<0.78	<0.78	<0.78	<0.78	<0.78 (<0.78)	20	<0.78	<0.78	0.9	<0.78	<0.78
1,2,4-Trimethylbenzene	NA	[illegible]	1.6	<0.13	2.2	1.1	1.7 (1.9)	[illegible]	1.9	3	3.7	1	<0.13
1,1,1-Trichloroethane	2,290	[illegible]	0.72	<0.04	<0.04	<0.04	0.42 (0.40)	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
cis-1,2-Dichloroethene	36.5	NA	<0.027	<0.027	<0.027	<0.027	<0.027 (<0.027)	<0.027	<0.027	<0.027	0.9	<0.027	<0.027
Benzene	0.084	[illegible]	1.8	2.8	1.8	1.5	2.3 (2.2)	35	2	1.4	3.4	[illegible]	1.5
1,2-Dichloroethane	0.116	[illegible]	0.2	3	0.62	<0.16	0.48 (0.52)	2.5	0.6	<0.16	[illegible]	<0.16	1.4
Trichloroethene (TCE)	1.22	[illegible]	0.23	<0.041	0.33	0.27	0.25 (<0.24)	<0.041	0.2	<0.041	[illegible]	0.22	<0.041
Toluene	313	[illegible]	6.1	17	8.2	5	10 (13)	252	15	9.9	31	4.4	6.8
Tetrachloroethene (PCE)	0.412	[illegible]	0.51	<0.041	1.6	0.29	1.1 (1.3)	<0.041	0.3	<0.041	0.92	0.24	1
Ethylbenzene	NA	[illegible]	[illegible]	[illegible]	[illegible]	0.66	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.74	[illegible]
m,p-Xylene	730	[illegible]	3.7	4.5	4.6	3.1	5.5 (6.2)	[illegible]	7.3	4.4	11	2.6	3.4
o-Xylene	730	[illegible]	1.3	1.6	1.7	1.1	2.1 (2.2)	76	2.4	1.7	4.1	0.91	1.3

CHHSLs (Residential Indoor Air, California Human Health Screening Levels)

USEPA RSLs (Residential Air Regional Screening Levels)

Lab Notes:

E - The analyte was analyzed for, but the associated numerical value is an estimated quantity because it exceeds the calibration range.

J - The analyte was analyzed for, but the associated numerical value may not be consistent with the amount actually present in the environmental sample or may not be consistent with the sample detection or quantitation limit. The value is an estimated quantity.

General Notes:

µg/m3 - micrograms per cubic meter

BOLD - Exceeds California Human Health Screening Level (CHHSL) for Residential Indoor Air, January 2005

BOLD - Exceeds USEPA Regional Screening Level (RSL) for Residential Air, November 2012

BOLD - Exceeds both the CHHSL and the RSL.

0.13 (0.12) - Sample result (duplicate sample result)

NA - Not Available

<0.14 - Analyte not present above the method reporting limit shown

Table D-3 cont. - Indoor Air Analytical Data Summary - January 2013
Vapor Intrusion Investigation, Monterey Pines Development Site
Carson, California

TDD No.: TO-02 09-11-11-0001 [illegible]

Compound		Sample ID:	L	M	N	O	P	Q	R	S	T1(T2)	U	V
		Sample Type:	Residential	Residential	Residential	Residential	Residential	Residential	Residential	Residential	Residential	Residential	Residential
		Collection Date:	1/24/2013	1/24/2013	1/24/2013	1/24/2013	1/25/2013	1/25/2013	1/25/2013	1/25/2013	1/25/2013	1/25/2013	1/29/2013
USEPA Modified Method TO-15 SIM Analysis (all units in µg/m3)													
Freon 12	NA	100	3.4	3.6	3.4	<0.14	<0.14	<0.14	2.8	3	2.7 (2.4)	3.3	3
Chloromethane	NA	[illegible]	2.2	1.6	1.5	1.2	<0.14	<0.14	1.8	1.8	2.5 (2.6)	1.8	1.2
1,3-Butadiene	NA	[illegible]	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	[illegible]	<0.14 (<0.14)	<0.14	[illegible]
Freon 11	NA	[illegible]	1.7	1.7	1.9	<0.14	<0.14	<0.14	1.4	1.6	1.4 (<1.0)	1.7	1.6
Ethanol	NA	NA	390 E,J	900 E,J	740 E,J	1,500 E,J	2,100 E,J	<0.66	990 E,J	1,800 E,J	630 E,J (630 E,J)	3,700 E,J	34
Acetone	NA	[illegible]	40	70	84	130	220	<0.68	64	77	160 (140)	80	17
2-Propanol	NA	NA	11	32	290 E	480 E	53	<0.68	26	250 E	97 (98)	23	5.7
Methylene Chloride	NA	[illegible]	<0.27	1.9	<0.27	<0.27	<0.27	<0.27	13	1	1.4 (<1.2)	28	1.3
Carbon Disulfide	NA	[illegible]	<1.6	<1.9	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6 (<1.6)	<1.6	<1.6
Hexane	NA	[illegible]	2.3	8	28	2.3	160	<0.14	1.5	2.3	9.4 (7.9)	3	2.9
2-Butanone (MEK)	NA	[illegible]	<0.66	3.7 J	3.3 J	<0.66	<0.66	<0.66	4.2 J	3.9 J	3.5 J (<2.6 J)	6.8 J	2 J
Tetrahydrofuran	NA	NA	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04 (<0.04)	3.1	<0.04
Chloroform	NA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	<0.18	<0.18	[illegible]	[illegible]	[illegible]	[illegible]	<0.18
Cyclohexane	NA	[illegible]	0.73	1.2	5.3	1.2	74	<0.14	1.5	1.1	4.6 (3.6)	1.7	1.2
Carbon Tetrachloride	0.0578	[illegible]	4.4	<0.16	<0.18	<0.16	<0.18	<0.18	<0.18	<0.18	<0.18 (<0.18)	<0.18	<0.18
2,2,4-Trimethylpentane	NA	NA	<1.1	<1.1	7	16	420	<1.1	4.6	<1.1	7.3 (<1.1)	<1.1	<1.1
Heptane	NA	NA	1.9	4.6	6.8	4.3	200	<0.14	6.3	2.2	7.8 (<0.14)	2	7.7
Bromodichloromethane	NA	[illegible]	<0.18	<0.18	<0.16	<0.16	<0.16	<0.18	<0.18	<0.18	[illegible]	[illegible]	<0.16
1,4-Dioxane	NA	[illegible]	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14 (<0.14)	<0.14	<0.18
4-Methyl-2-pentanone	NA	NA	<0.18	<0.18	1.4	<0.18	<0.18	<0.18	1.8	1.6	3.3 J (<0.18 J)	0.99	<0.36
Dibromochloromethane	NA	[illegible]	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	<0.18	[illegible]	[illegible]	<0.18
1,4-Dichlorobenzene	NA	[illegible]	<0.36	<0.36	<0.36	<0.36	<0.36	<0.36	<0.36	<0.36	<0.36 (<0.36)	<0.36	[illegible]
Styrene	NA	1000	<0.18	2	1.7	1.7	<0.18	<0.18	<0.18	2.3	1.4 (<0.18)	1.3	<0.18
Propylbenzene	NA	1000	<0.22	<0.22	1.2	<0.22	18	<0.22	<0.22	<0.22	1.1 (<0.22)	<0.22	<0.22
4-Ethyltoluene	NA	NA	1.1	1.3	5	2	110	<0.14	1.1	1.5	5.5 (5.3)	1.2	0.70
1,3,5-Trimethylbenzene	NA	NA	<0.22	<0.22	1.4	<0.22	41	<0.22	<0.22	<0.22	1.6 (<0.83)	<0.22	<0.22
1,2,4-Trimethylbenzene	NA	[illegible]	1.2	1.4	5.5	2.7	[illegible]	<0.14	1.4	1.7	6.3 (7.2)	1.6	1
1,1,1-Trichloroethane	2,790	5,200	<0.036	<0.036	<0.036	<0.036	<0.036	0.54	<0.036	<0.036	<0.036 (<0.036)	<0.036	<0.036
cis-1,2-Dichloroethene	36.5	NA	<0.027	<0.027	<0.027	<0.027	<0.027	<0.027	<0.027	<0.027	<0.027 (<0.027)	<0.027	<0.027
Benzene	0.084	[illegible]	1.6	1.9	4.8	2.1	61	1.2	1.4	4.8	4.1 (3.8)	2.1	1.9
1,2-Dichloroethane	0.116	[illegible]	0.52	2.9	0.6	0.38	2.1	0.16	0.24	11	7.5 (7.2)	[illegible]	0.24
Trichloroethene (TCE)	1.22	[illegible]	<0.036	0.43	<0.036	<0.036	<0.036	<0.036	<0.036	<0.036	0.2 (<0.16)	<0.036	<0.036
Toluene	313	5,200	4.9	15	46	9	430	5.1	23	12	32 (33)	16	9
Tetrachloroethene (PCE)	0.412	[illegible]	0.55	1.4	0.44	0.61	<0.036	0.25	0.34	3.2	0.66 (0.66)	0.3	<0.036
Ethylbenzene	NA	[illegible]	0.88	[illegible]	[illegible]	[illegible]	[illegible]	0.77	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
m,p-Xylene	730	100	2.9	5.2	22	6	[illegible]	2.5	4.2	4.1	23 (22)	4.6	3.2
o-Xylene	730	100	1	1.8	7	2.1	[illegible]	0.87	1.6	1.6	8.5 (7.5)	1.8	1.1
	CHHSLs (Residential Indoor Air, California Human Health Screening Levels)	USEPA RSLs (Residential Air Regional Screening Levels)											

Lab Notes:

E - The analyte was analyzed for, but the associated numerical value is an estimated quantity because it exceeds the calibration range.

J - The analyte was analyzed for, but the associated numerical value may not be consistent with the amount actually present in the environmental sample or may not be consistent with the sample detection or quantitation limit. The

General Notes:

µg/m3 - microgram per cubic meter

BOLD - Exceeds California Human Health Screening Level (CHHSL) for Residential Indoor Air, January 2005

BOLD - Exceeds USEPA Regional Screening Level (RSL) for Residential Air, November 2012

BOLD - Exceeds both the CHHSL and the RSL

0.13 (0.12) - Sample result (duplicate sample result)

NA - Not Available

<0.14 - Analyte not present above the method reporting limit shown

Table 3 cont. - Indoor Air Analytical Data Summary - January 2013
Vapor Intrusion Investigation, Monterey Pines Development Site
Carson, California

TOD No.: TO-02-09-11-11-0001 Project No.: EE-002693-7197

Compound		Sample ID:	W	X	Y	Z
		Sample Type:	Residential	Ambient	Residential	Residential
		Collection Date:	1/29/2013	1/29/2013	1/31/2013	1/31/2013
USEPA Modified Method TO-15 SIM Analysis (all units in µg/m3)						
Freon 12	NA	100	3 (2.9)	3.2	3	2.9
Chloromethane	NA	94	1.6 (1.4)	1.5	1.8	1.9
1,3-Butadiene	NA	0.081	[illegible]	[illegible]	[illegible]	[illegible]
Freon 11	NA	730	1.7 (1.7)	1.7	1.7	<0.14
Ethanol	NA	NA	720 E,J (740 E,J)	46	280 E,J	3000 E,J
Acetone	NA	32,000	39 (52)	22	130	65
2-Propanol	NA	NA	290 E (280 E)	9.1	46	120
Methylene Chloride	NA	[illegible]	1.4 J (2.6 J)	2.2	1.8	<0.27
Carbon Disulfide	NA	730	<1.8 (<1.8)	<1.8	<1.8	26 J
Hexane	NA	730	5.2 (6.0)	4.1	3.7	3.4
2-Butanone (MEK)	NA	5,200	<0.68 (3.4 J)	2.4 J	4 J	<0.66
Tetrahydrofuran	NA	NA	<0.04 (<0.04)	<0.04	<0.04	<0.04
Chloroform	NA	[illegible]	<0.18 (<0.18)	<0.18	[illegible]	[illegible]
Cyclohexane	NA	6,300	2.3 (2.9)	1.9	2.2	1.7
Carbon Tetrachloride	0.0575	0.41	<0.18 (<0.18)	<0.18	<0.18	<0.18
2,2,4-Trimethylpentane	NA	NA	6.0 (6.3)	4	4.8	<1.1
Heptane	NA	NA	3 (2.8)	2	3	2.2
Bromodichloromethane	NA	0.066	<0.18 (<0.18)	<0.18	<0.18	<0.18
4-Methyl-2-pentanone	NA	NA	<0.18 (0.92)	<0.18	<0.18	<0.18
1,4-Dichlorobenzene	NA	0.22	<0.36 (<0.36)	<0.36	<0.36	[illegible]
Dibromochloromethane	NA	[illegible]	<0.16 (<0.16)	<0.16	<0.16	<0.16
1,4-Dioxane	NA	0.32	<0.14 (<0.14)	<0.14	<0.14	[illegible]
Styrene	NA	1,000	<0.18 (0.77)	<0.18	0.87	<0.18
Propylbenzene	NA	1,000	<0.22 (<0.22)	<0.22	<0.22	<0.22
4-Ethyltoluene	NA	NA	1.8 (1.6)	1.3	3.3	1.9
1,3,5-Trimethylbenzene	NA	NA	<0.22 (<0.22)	<0.22	2.2	<0.22
1,2,4-Trimethylbenzene	NA	7.3	1.8 (1.8)	1.6	4.6	2
1,1,1-Trichloroethane	2,290	5,200	<0.036 (<0.036)	<0.036	<0.036	0.46
cis-1,2 Dichloroethene	36.5	NA	<0.027 (<0.027)	<0.027	<0.027	<0.027
Benzene	0.084	0.31	3.8 (3.8)	2.8	2.6	4
1,2-Dichloroethane	0.116	0.094	0.76 (0.87)	[illegible]	[illegible]	[illegible]
Trichloroethene (TCE)	1.22	0.43	<0.036 (<0.036)	<0.036	<0.036	<0.036
Toluene	313	5,200	14.1 (19)	15	16	11
Tetrachloroethene (PCE)	0.412	[illegible]	0.31 (0.32)	0.32	0.72	0.7
Ethylbenzene	NA	0.97	[illegible]	[illegible]	[illegible]	[illegible]
m,p-Xylene	730	100	9.3 (9.2)	5.2	5.6	5.8
o-Xylene	730	100	3 (2.9)	1.9	2.5	2.2
CHHSLs (Residential Indoor Air, California Human Health Screening Levels)						
USEPA RSLs (Residential Air Regional Screening Levels)						

Lab Notes:

E - The analyte was analyzed for, but the associated numerical value is an estimated quantity because it exceeds the calibration range.

J - The analyte was analyzed for, but the associated numerical value may not be consistent with the amount actually present in the environmental sample or may not be consistent with the sample detection or quantitation limit. The value is an estimated quantity.

General Notes:

µg/m3 - micrograms per cubic meter

BOLD - Exceeds California Human Health Screening Level (CHHSL) for Residential Indoor Air, January 2005

BOLD - Exceeds USEPA Regional Screening Level (RSL) for Residential Air, November 2012

BOLD - Exceeds both the CHHSL and the RSL

0.13 (0.12) - Sample result (duplicate sample result)

NA - Not Available

<0.14 - Analyte not present above the method reporting limit shown

Table D-4 - Sub-Slab Soil Gas Analytical Data Summary - January 2013
Vapor Intrusion Investigation, Monterey Pines Development Site
Carson, California

TDD No.: TO-02-09-12-08-0004 Project No.: EE-002693-2197

Compound	Sample ID:		MPSS-010413-177	MPSS-010413-171	MPSS-010413-BRC	MPSS-010413-MUS
	Sample Location Description:		Wilmington Middle School Room 177	Wilmington Middle School Room 171	Wilmington Middle School Boy's Correctional Room	Wilmington Middle School Music Room
	Collection Date:		1/4/2013	1/4/2013	1/4/2013	1/4/2013
USEPA Modified Method TO-15 SIM Analysis (all units in ug/m3)						
Tetrachloroethene (PCE)	180	94	58 (52)	520	15	180
Ethyl Benzene	NA	97	<4.4 (<4.4)	5.5	<4.4	<4.4
Acetone	NA	120,000	<24 (<24)	24	<24	<24
Freon 11	NA	7,400	<5.7 (<5.7)	8.9	<5.7	<5.7
m,p-Xylene	315,000	1,000	<4.4 (4.8 J)	8.3	<4.4	<4.4
Hexane	NA	7,300	<3.6 (4.0)	5.8	<3.6	<3.6
2-Propanol	NA	NA	<9.9 (23 J)	37	<9.9	<10
Ethanol	NA	NA	<7.6 (25 J)	34	<7.6	10
Toluene	135,000	52,000	6.4 J (42 J)	65	9.2	220
Methylene Chloride	NA	960	330 J (<35)	<35	<35	<35
Freon 113	NA	310,000	270 (240)	1,800	100	660

CHHSLs (Residential Soil Vapor, California Human Health Screening Levels)

USEPA RSLs with Attenuation 0.1 (Residential Soil Vapor, Regional Screening Levels)

Lab Notes:

J - The analyte was analyzed for, but the associated numerical value may not be consistent with the amount actually present in the environmental sample or may not be consistent with the sample detection or quantitation limit. The value is an estimated quantity.

General Notes:

µg/m3 - micrograms per cubic meter

BOLD - Exceeds California Human Health Screening Level (CHHSL) for Residential Soil Vapor, January 2005.

BOLD - Exceeds USEPA Regional Screening Level (RSL) for Residential Soil Vapor (Attenuation Factor 0.1), November 2012

BOLD - Exceeds both the CHHSL and the RSL

0.13 (0.12) - Sample result (duplicate sample result)

NA - Not Available

<0.14 - Analyte not present above the method reporting limit shown

Table D-5 - WMS Indoor Air Analytical Data Summary - January 2013
Vapor Intrusion Investigation, Monterey Pines Development Site
Carson, California

TDD No.: TO-02-09-12-08-0004 | Project No.: EE-002693-21.97

Compound		Sample ID:	MPIA-010213-177	MPIA-010213-171	MPIA-010213-BRC	MPIA-010213-MUS	MPIA-010213-AMB
		Sample Location Description:	Wilmington Middle School Room 177	Wilmington Middle School Room 171	Wilmington Middle School Boy's Correctional Room	Wilmington Middle School Music Room	Wilmington Middle School Outdoor Ambient Location
		Collection Date:	1/2/2013	1/2/2013	1/2/2013	1/2/2013	1/2/2013
USEPA Modified Method TO-15 SIM Analysis (all units in µg/m3)							
Freon 12	NA	3100	2.7 (2.6)	2.5	2.9	2.7	2.6
Chloromethane	NA	3100	1.1 (1.2)	1.4	1.2	1.2	1.2
Freon 11	NA	7300	2.3 (2.4)	1.9	1.3	2.4	1.5
Ethanol	NA	NA	30 (29)	26	17	24	26
Acetone	NA	32000	20 J (29 J)	20	14	19	18
2-Propanol	NA	NA	5.9 J (3.0 J)	3.4	2.0	3.7	3.2
Hexane	NA	7300	3.2 (3.2)	2.9	2.2	2.8	3.1
Chloroform	NA	3100	<0.79 (<0.89)	<0.76	<0.65	<0.82	<0.83
Cyclohexane	NA	30301	1.4 (1.4)	1.2	0.95	1.3	1.4
2,2,4-Trimethylpentane	NA	NA	4.8 (5.0)	4.4	<3.1	4.6	4.8
Heptane	NA	NA	2.6 (2.5)	2.3	1.4	2.2	2.2
4-Ethyltoluene	NA	NA	0.88J (1.3J)	0.87J	0.74J	1.0J	1.6J
1,3,5-Trimethylbenzene	NA	NA	<0.79 (<0.90)	<0.79	<0.65	<0.82	0.86
1,2,4-Trimethylbenzene	NA	730	1.2 (1.5)	<0.79	1.0	1.2	2.0
Benzene	0.0840	310	2.0 (2.2)	2.1	1.5	2.2	2.4
1,2-Dichloroethane	0.116	0.0961	0.15 (0.17)	0.15	0.11	0.15	0.17
Toluene	313	73000	7.0 (7.6)	10	5.4	8.4	7.6
Tetrachloroethene (PCE)	180	3900	0.27 (0.30)	0.29	0.22	0.32	0.32
Ethylbenzene	NA	0.97	1.1 (1.2)	1.1	0.75	1.1	1.1
m,p-Xylene	730	73000	3.8 (4.2)	3.4	2.6	3.9	4.9
o-Xylene	730	7300	1.3 (1.4)	1.1	0.92	1.3	1.7

CHHSLs (Residential Indoor Air; California Human Health Screening Levels)

USEPA RSLs (Residential Air; Regional Screening Levels)

Lab Notes:

J - The analyte was analyzed for, but the associated numerical value may not be consistent with the amount actually present in the environmental sample or may not be consistent with the sample detection or quantitation limit. The value is an estimated quantity.

General Notes:

µg/m3 - micrograms per cubic meter

BOLD - Exceeds California Human Health Screening Level (CHHSL) for Residential Indoor Air, January 2005

BOLD - Exceeds USEPA Regional Screening Level (RSL) for Residential Air, November 2012

BOLD - Exceeds both the CHHSL and the RSL

0.13 (0.12) - Sample result (duplicate sample result)

NA - Not Available

<0.14 - Analyte not present above the method reporting limit shown

Carousel Tract Environmental Investigation Timeline

Date	Significant Actions/Reports	Notes
March 11, 2008	DTSC informed LARWQCB about former Shell Oil Company Tank Farm	
May 2008	LAWRQCB initiated an environmental investigation	
December 2008	LAWRQCB approved proposed work plan submitted by Shell to investigate contaminates of concern	
December 31, 2008	LARWQCB issued California Water Code § 13267 Investigative Order	
October 15, 2009	Shell submitted Final Phase I Site Characterization Report	
March 2011	LARWQCB issued Cleanup and Abatement Order No. R4-201100046	
February 22, 2013	Shell submitted Site Cleanup Goal Report	
May 2013	LAWRQCB issued a fact sheet providing information and advising of comment period for Site-Specific Cleanup Goal Report	30-day comment period ending June 24, 2013
June 24, 2013	City submitted comments to Site-Specific Cleanup Goal Report	Forwarded reports by Everett & Associates and Soil/Water/Air Protection Enterprise
July 18, 2013	City Council conducted workshop to allow presentation by Mr. Sam Unger, Executive Director of LARWQCB	Presentation by Dr. Lorene Everett and James T. Wells PhD raising concerns related to environmental conditions
July 29, 2013	City Council adopted Resolution No. 13-081 declaring the existence of an emergency in the Carousel Tract	
July 30, 2013	Letters sent to the Governor, Attorney General, Los Angeles County Board of Supervisors and Mr. Unger	Requested immediate assistance due to emergency conditions in Carousel Tract
July 31, 2013	City staff, Mr. Bob Bowcock, Dr. Everett and Mr. Wells met with representatives of Los Angeles County Fire Department and Los Angeles County Department of Public Health	City Council declaration of emergency conditions discussed and copies of Everett & Associates reports transmitted for review

EXHIBIT NO. 06

Carousel Tract Environmental Investigation Timeline

August 21, 2013	LARWQCB sent detailed letter to Shell denying proposed site-specific cleanup goals and requiring revisions to be submitted by October 21, 2013	LARWQCB incorporated OEHHA Memorandum dated July 22, 2013 and UCLA Expert Panel Interim Report dated July 24, 2013
September 11, 2013	City letter to Mr. Sam Unger	Expressing appreciation from City Council and community for response to Site-Specific Cleanup Goal Report.
September 24, 2013	LARWQCB community open house CEQA scoping meeting	Request for input from community and public agencies related to evaluation of environmental impacts. Comment period ends on October 8, 2013
September 30 – October 10, 2013	LARWQCB Public Participation Specialist to conduct office hours at city hall	Opportunity for LARWQCB to meet with residents and community stakeholders
October 10, 2013 (tentative)	City staff arranging for a meeting with LARWQCB, LACoFD, Los Angeles County Department of Public Health, OEHHA, Mr. Bowcock, Dr. Everett and Mr. Wells PhD.	Review of technical reports and discussion of public agencies responses and actions