

Appendix E

Focused Soil Vapor Investigation



northgate
environmental management, inc.

**FOCUSED SOIL VAPOR INVESTIGATION
REPORT AND LOW-THREAT CLOSURE REQUEST
16800 Magnolia Street, and
9025-9063 Recreation Circle
Fountain Valley, California**

Prepared For:
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November 4, 2024

Project No. 2047.28.09

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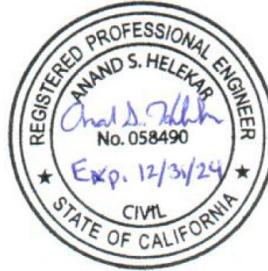
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CERTIFICATION

All information, conclusions, and recommendations in this document have been prepared under the supervision of and reviewed by a Northgate California Professional Engineer.



November 4, 2024

Anand Helekar, PE
Associate Engineer
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Date

A Professional Geologist's or Engineer's certification of conditions comprises a declaration of his or her professional judgment. It does not constitute a warranty or guarantee, expressed or implied, nor does it relieve any other party of its responsibility to abide by contract documents, applicable codes, standards, regulations, and ordinances.



1.0 INTRODUCTION

This report presents soil vapor analytical results from soil vapor probe (SVP) SV2R and a Low-Threat Closure (LTC) Request performed by Northgate Environmental Management, Inc. (Northgate) for Wactor Environmental Law Group, P.C. and its client Holland Acquisition Co., LLC (Holland) at the property located at 16800 Magnolia Street, and 9025-9063 Recreation Circle in Fountain Valley, California (the Site).

The Site consists of approximately seven acres of land covering five parcels identified as Assessor's Parcel Numbers (APNs) 143-294-01, 143-294-02, 143-301-31, 143-301-32, and 143-301-37 in Orange County. The Site was previously developed and operated as an amusement park until June 2020. It is currently a vacant, dirt lot, partially asphalt-paved, used by an automobile dealership for temporary vehicle storage. A Site Vicinity Map is shown on Figure 1 and a Site Plan is shown on Figure 2.

In 2019, the Orange County Health Care Agency (OCHCA) granted regulatory closure under the Low-Threat policy for commercial land use for a remediated release related to a former 2,000-gallon gasoline underground storage tank (UST), which required that the agency be notified of any future land use change (OCHCA, 2019). Since the Holland proposed redevelopment of the Site requires a change in use from commercial to mixed residential, at the request of OCHCA, Northgate conducted this focused soil vapor investigation to answer agency questions about the residual UST-related contamination.

1.1 Objectives

The objectives of the focused soil vapor investigation are to:

1. Assess benzene, ethylbenzene, naphthalene, and oxygen soil vapor concentrations in the vicinity of the former UST in the south-central portion of the Site as specified by OCHCA; and
2. Evaluate the soil vapor analytical results from the 2024 sampling event in conjunction with previously collected soil data as they pertain to the proposed redevelopment plan for mixed residential use to obtain regulatory closure from OCHCA related to the UST assuming residential site use.



1.2 Scope of Work

The scope of work included the following:

- Conducted a Site reconnaissance to mark the proposed drilling locations, and make appropriate notifications for underground utility clearance;
- Updated the Site-specific Health and Safety Plan (HASP; Northgate, 2024a);
- Installed soil vapor probe (SVP) SV2R;
- Collected soil vapor sample from SVP SV2R and analyzed for benzene, ethylbenzene, naphthalene, and oxygen;
- Evaluated current soil vapor concentrations from SVP SV2R and prior soil and soil vapor data to obtain regulatory closure; and
- Prepared this report.



2.0 BACKGROUND

2.1 Site Description

The Site is currently a vacant lot and is located in a mixed residential and retail-commercial area of Fountain Valley. The Site formerly operated as an amusement park until approximately 2020. The Site is generally bordered on the west and south by arterial streets followed by residential and commercial development. The Site is bordered along its entire eastern side by the San Diego Freeway (Interstate 405) with residential development located beyond the freeway to the east. A Site Vicinity Map is shown on Figure 1 and a Site Plan is shown on Figure 2.

2.2 Site History

The Site received regulatory closure for a remediated release related to a former 2,000-gallon gasoline UST under the oversight of the OCHCA. Because low levels of fuel-related contaminants were left in soil under then existing improvements, the closure required that the agency be notified of any future change in land use (OCHCA, 2019).

As part of the notification and closure discussions for the upcoming residential use, Northgate previously submitted a Consolidated Phase II ESA (Northgate, 2024b) to OCHCA describing overall site sampling. The OCHCA approved a conceptual workplan for the sampling it required to evaluate the UST closure for residential site use, requiring sampling of SVP2R and analysis for oxygen and naphthalene, and evaluation of the of the petroleum hydrocarbon data with respect to the Low-Threat Closure Policy (LTCP).

2.3 Regional and Local Geology and Hydrology

The Site is located in the southwestern area of the Coastal Plain of Orange County, which is bordered by Chino Hills to the north, foothills of the Santa Ana Mountains to the northeast, by San Joaquin Hills to the south, the Pacific Ocean to the southwest, and by a low topographic divide approximated by the Orange County - Los Angeles County boundary to the northwest. The Site vicinity is generally underlain by recent age alluvial deposits (ERI, 2003). The Newport-Inglewood fault zone, which is located approximately 1.3 miles southwest of the Site, parallels the coastline and generally forms a barrier to groundwater flow. Based on borings advanced during previous Site investigations, the Site is underlain predominantly by dark brown clay with traces of silt and sand to 16 feet below ground surface (bgs), the maximum investigation depth (Northgate, 2021).

Regional groundwater flow in the basin is variable toward the south, southwest, and southeast. Information from previous subsurface investigations performed at the Site have encountered



groundwater at depths of about 8 to 10 feet bgs with a reported groundwater flow direction to the southeast (Atlas, 2017). During previous investigations, groundwater was encountered at approximately 12 to 14 feet bgs in the southern portion of the Site. In the northern portion of the Site (where ground elevation is lower), groundwater was encountered at approximately 3 to 4 feet bgs (Northgate, 2021). The Site is bisected by an underground concrete stormwater culvert, which transports water from the adjacent freeway to the Pacific Ocean via the Ocean View Channel and East Garden Grove – Wintersburg Channel.



3.0 INVESTIGATION METHODS

In accordance with the OCHCA approved workplan, Northgate installed one new boring (SVP SV2R) on September 27, 2024 adjacent to the former UST and collected two soil vapor samples (one for Environmental Protection Agency [EPA] TO-15 analysis and one for EPA TO-17 analysis) from SV2R on October 2, 2024. The location of SVP SV2R is presented on Figure 3.

3.1 Pre-Field Activities

Prior to SVP installation, Northgate conducted a walk-through of the Site to mark the proposed SVP location and secure access. Other pre-field activities included the tasks outlined below.

3.1.1 Health and Safety Plan

Northgate updated a Site-specific HASP for the Additional Phase II ESA (Northgate, 2024c). The HASP (2024a) was prepared in accordance with applicable federal and state regulations. The HASP addressed the potential for exposure to hazardous constituents and delineated the general safety procedures that are required for the safe operation of mechanical equipment to be used while conducting the field operations at the Site.

3.1.2 Underground Utility Clearance

Underground Service Alert of Southern California (USA) was notified, as required by law, 48 hours prior to any intrusive activities began in order to locate utilities in the vicinity of the borings. Northgate also contracted with Ground Penetrating Radar Systems, Inc. (GPRS), an independent geophysical utility locating company, to identify underground utilities and other subsurface obstructions which may be in conflict with the boring locations advanced during the Additional Phase II ESA. GPRS did not identify any underground utilities or potential obstructions near the proposed sampling areas.

3.2 Soil Boring Advancement

To delineate benzene, ethylbenzene, naphthalene, and oxygen soil vapor concentrations in the vicinity of the former UST, SVP SV2R was installed to a depth of 5 feet bgs on September 27, 2024. Boring SV2R was advanced via hand auger techniques.

3.3 Soil Vapor Survey

SVP SV2R was installed at a depth of approximately 5 feet bgs (Figure 3). The probe consists of a 1/2" x 1" Stone PolyPro vapor probe implant with 1/4-inch Speed Fit installed at 5 feet bgs. Teflon tubing (1/4-inch diameter) was connected from the implant and terminated approximately



1 foot above the ground surface. The borehole annulus around the implant and tubing was filled through the drill rods with sand 6 inches above and below the implant, 12 inches of dry bentonite placed 1 foot above the sand, and hydrated bentonite chips from above the sand to the ground surface.

After installation, SVP SV2R was sampled on October 2, 2024, five days after the SVP was installed, in accordance with the Department of Toxic Substances (DTSC) advisory for active soil gas investigations dated August 2015 (DTSC, 2015) which requires a minimum of 48 hours after construction before sampling. Prior to sampling, SVP SV2R was purged of approximately three well-volumes of air. A vapor sample was then collected from SVP SV2R using an individually-certified, clean summa canister with flow regulator that maintained an air flow rate of 150 milliliters per minute, transported to Jones Environmental, Inc. and analyzed for benzene and ethylbenzene using EPA Method TO-15 and oxygen using EPA Method D-1946. A vapor sample was also collected from SVP SV2R using a sorbent tube, transported to McCampbell Analytical, Inc., and analyzed for naphthalene using EPA Method TO-17 as requested by OCHCA.

3.4 Data Evaluation Criteria

Analytical results from the soil vapor sample collected from SV2R were compared to LTC criteria (SWRCB, 2012) as part of a LTC evaluation for the Site. Details of this evaluation are presented in Section 5.0.



4.0 INVESTIGATION RESULTS

4.1 Subsurface Conditions

SVP SV2R was installed adjacent to the former UST as shown on Figure 3 and described in Section 3.2. Subsurface soils encountered during the advancement of SVP SV2R generally consisted of clayey silt and silty clay to approximately 5 feet bgs. No odors, staining, or elevated photoionization detector (PID) readings were encountered during advancement of the borings. The boring log and SVP construction details are attached in Appendix A.

4.2 Analytical Results

A summary of soil vapor analysis from SVP SV2R is presented in Table 1 and presented below. Copies of the laboratory analytical reports are presented in Appendix B.

4.2.1 Soil Vapor Analytical Results

Soil vapor sampling was conducted at SVP SV2R at approximately 5 feet bgs on October 2, 2024. The leak detection compounds, pentane, hexane, and acetone, were not detected in any of the samples. A summary of soil vapor concentrations is presented below:

- Benzene was not detected above its reporting limit of 1 microgram per cubic meter ($\mu\text{g}/\text{m}^3$);
- Ethylbenzene was detected at $4 \mu\text{g}/\text{m}^3$, which is below soil vapor screening levels for residential land use;
- Naphthalene was not detected above its reporting limit of $1.7 \mu\text{g}/\text{m}^3$; and
- Oxygen was detected at 8.98%.



5.0 LOW-THREAT CLOSURE EVALUATION

This section compares Site data, including soil vapor analytical results from SVP SV2R to the general and media-specific criteria for LTC (SWRCB, 2012). Answers are provided using the 2019 LTC package approved by OCHCA and the Northgate 2024 sampling described in this report. The LTC process looks at several “General Criteria” and “Media-specific Criteria,” as described below.

5.1 “General Criteria” for Low Threat Closure

a. The unauthorized release is located within the service area of a public water system.

Water services in the area are provided by the City of Fountain Valley.

b. The unauthorized release consists only of petroleum.

The unauthorized release associated with the former 2,000-gallon gasoline UST consists only of petroleum.

c. The unauthorized (“primary”) release from the UST system has been stopped.

One gasoline UST and the associated fuel dispenser/piping were removed on December 1, 1998.

d. Free product has been removed to the maximum extent possible.

Free product has not been detected historically at the Site.

e. A conceptual site model that assesses the nature, extent, and mobility of the release has been developed.

Assessment was conducted at the Site between 1999 and 2024. The Site previously received regulatory closure from the OCHCA for the remediated release from the former 2,000-gallon gasoline UST (OCHCA, 2019). SVP SV2R was sampled to evaluate soil vapor concentrations adjacent to the former gasoline UST, and the results indicate that there is no residual benzene or naphthalene and only trace levels (well below screening levels) of ethylbenzene in soil vapor.



f. Secondary source removal has been removed to the extent practicable.

Remediation between 2006 and 2013 consisted of an 8-hour, high-vacuum, dual-phase extraction (DPE) pilot test and groundwater purging events. The DPE pilot test conducted on wells MW-2 and MW-4 recovered less than 0.5 pounds of hydrocarbon vapor and 497 gallons of groundwater. Pilot test results indicated low hydrocarbon mass recovery in the vadose zone. Groundwater overpurging events were conducted from wells MW-4, MW-7, and MW-9 from October 2010 to March 2013 during which approximately 24,220 gallons of groundwater was extracted. Overpurge events were discontinued due to low groundwater concentrations at the Site.

g. Soil or groundwater has been tested for methyl tertiary butyl ether (MTBE) and results reported in accordance with Health and Safety Code section 25296.15.

After remediation activities were completed in 2013, MTBE was not detected above its reporting limit of 2 milligrams per kilogram (mg/kg) in soil, which is below the May 2024 EPA Regional Screening Level (RSL) of 210 mg/kg. After remediation activities, MTBE was detected in groundwater at a maximum concentration of 6.0 micrograms per liter ($\mu\text{g/L}$) in groundwater, which is below the May 2024 EPA RSL of 14 $\mu\text{g/L}$ for tap water.

h. Nuisance as defined by Water Code section 13050 does not exist at the Site.

Based on the remediation, which included source removal in groundwater to the extent practicable, and analytical data from subsequent subsurface investigations, the residual contamination associated with the remediated UST release is not a health risk, does not impact the senses, does not obstruct use of the property, does not affect an entire community or neighborhood, and did not occur due to treatment or disposal of released petroleum. Consequently, no nuisance is present.

Therefore, the former UST release at the Site meets the “General Criteria” for the LTC for residential land use based on the above information.



5.2 Media-Specific Criteria

5.2.1 Groundwater-Specific Criteria

The Site meets Scenario 1 for groundwater-specific criteria.

a. *The contaminant plume that exceeds water quality objectives is less than 100 feet in length.*

Grab groundwater samples collected from GW-2, GW-3, and GW-10 in May 2021 and described in the Consolidated Report were all below the California Maximum Contaminant Level (MCL) for benzene (1 µg/L; Table 2). The maximum MTBE concentration in groundwater after remediation activities were completed in March 2013 was 6 µg/L, which is below the EPA RSL of 14 µg/L for tap water. Therefore, the residual groundwater contamination does not exceed water quality objectives.

b. *There is no free product.*

No free product has been detected at the Site.

c. *The nearest existing water supply well or surface water body is greater than 250 feet from the defined plume boundary.*

No supply wells or surface water bodies are located within 250 feet of the Site.

5.2.2 Petroleum Vapor Intrusion to Indoor Air

The LTC provides several Case Scenario options for evaluating UST contamination. The Site meets Scenario 4, Case 2 for petroleum vapor intrusion to indoor air which calls for the following:

- Oxygen being detected at greater or equal to 4% at a depth of at least 5 feet bgs;
- Total petroleum hydrocarbons as gasoline and diesel (TPH-g and TPH-d, respectively) being less than a total of 100 mg/kg to a depth of at least 5 feet bgs; and
- Benzene, ethylbenzene, and naphthalene being below residential and commercial soil gas criteria. Residential soil gas criteria is 85,000 µg/m³, 1,100,000 µg/m³, and 93,000 µg/m³ for benzene, ethylbenzene, and naphthalene, respectively (Table 1). Commercial soil gas criteria is 280,000 µg/m³, 3,600,000 µg/m³, and 310,000 µg/m³ for benzene, ethylbenzene, and naphthalene, respectively.



For Scenario 4, Case 2, the bioattenuation zone is defined from ground surface to 5 feet bgs. The bioattenuation zone is defined as the area of soil with conditions that support biodegradation of petroleum hydrocarbon vapors. The soil in the vicinity of the former UST has the necessary conditions to promote biodegradation of petroleum hydrocarbon vapors as described below.

a. Oxygen was detected at greater than or equal to 4% at a depth of 5 feet bgs.

Oxygen was detected at 8.98% at SVP SV2R, so oxygen is greater than the requisite 4% level at 5 feet bgs (Table 1).

b. TPH (TPH-g+TPH-d) was less than 100 mg/kg from the surface to 5 feet bgs.

TPH-g and TPH-d were not detected at 1 and 5 feet bgs in Borings SB1 through SB16, so TPH was less than 100 mg/kg from the surface to 5 feet bgs throughout the Site (Table 3).

c. Benzene, ethylbenzene, and naphthalene were below residential and commercial soil gas criteria.

Northgate's 2024 soil vapor sampling established that benzene (not detected; less than $1.0 \mu\text{g}/\text{m}^3$), ethylbenzene ($4.0 \mu\text{g}/\text{m}^3$), and naphthalene (not detected; less than $1.7 \mu\text{g}/\text{m}^3$) were all significantly below the LTC residential and commercial soil gas criteria for Scenario 4, Case 2 (Residential soil gas criteria of $85,000 \mu\text{g}/\text{m}^3$, $1,100,000 \mu\text{g}/\text{m}^3$, and $93,000 \mu\text{g}/\text{m}^3$ for benzene, ethylbenzene, and naphthalene, respectively; Table 1).

5.2.3 Direct Contact and Outdoor Air Exposure

Laboratory analytical results from the soil samples collected at 1 and 5 feet bgs from soil borings from May 2021 (SB1 through SB16) satisfy LTC criteria for direct contact and outdoor air exposure. The sampling results described below show that benzene, ethylbenzene, and naphthalene soil concentrations are below residential and commercial/industrial screening levels from 0 to 5 feet bgs and volatilization to outdoor air screening levels from 5 to 10 feet bgs, as well as utility worker screening levels from 0 to 10 feet bgs (Table 4).

a. Benzene maximum soil concentration and residential screening level from 0 to 5 feet bgs.

Benzene was detected at a maximum concentration of 0.11 mg/kg in SB13 at 5 feet bgs, which is less than its lowest direct contact/outdoor air exposure screening level (1.9 mg/kg) for residential site use from 0 to 5 feet bgs.



b. Ethylbenzene maximum soil concentration and residential screening level from 0 to 5 feet bgs.

Ethylbenzene was detected at a maximum concentration of 0.010 mg/kg in SB13 at 5 feet bgs, which is less than its lowest direct contact/outdoor air exposure screening level (21 mg/kg) for residential from 0 to 5 feet bgs.

c. Naphthalene maximum soil concentration and residential screening level from 0 to 5 feet bgs and volatilization to outdoor air for residential from 5 to 10 feet bgs.

Naphthalene was not detected in any of the soil samples above its lowest direct contact/outdoor air exposure screening level (9.7 mg/kg).

d. Polycyclic aromatic hydrocarbon (PAH) maximum soil concentration and residential screening level from 0 to 5 feet bgs and volatilization to outdoor air for residential from 5 to 10 feet bgs.

Soil samples were not analyzed for PAHs since neither waste oil nor Bunker C fuel was a contaminant of concern at the Site.



6.0 CONCLUSIONS

Pursuant to the OCHCA approved workplan for the Focused Soil Vapor Investigation Report Northgate installed one soil boring and took one soil vapor sample near the former UST to evaluate whether residual concentrations in soil vapor along with previously collected soil data meet the LTCP. The state-certified, fixed laboratory analysis of the sample showed that residual concentrations of soil vapor are well below LTCP criteria for unrestricted land use.

Taken together with the data previously approved in the 2019 LTC package, the 2024 soil gas sampling data shows that the Site meets the conditions for residential use in that benzene, ethylbenzene, and naphthalene concentrations are below all LTC criteria.

Additionally, previous data shows that the Site meets the LTCP since:

- General Criteria for LTCP is met;
- Media-Specific Groundwater Criteria is met since benzene is below the CA MCL (1 µg/L) and MTBE is below the EPA RSL (14 µg/L), there is no free product, and no existing water supply well or surface water body is within 250 feet of the Site; and
- Media-Specific Direct Contact and Outdoor Air Exposure Criteria are met since benzene, ethylbenzene, and naphthalene soil concentrations at 1 and 5 feet bgs are below residential and commercial/industrial screening levels from 0 to 5 feet bgs and volatilization to outdoor air screening levels from 5 to 10 feet bgs, as well as utility worker screening levels from 0 to 10 feet bgs.

Based on these results, we request that the OCHCA conclude that the residual contamination associated with the former gasoline UST meets the LTC criteria for unrestricted residential use and issue a final No Further Action determination for the UST.



7.0 LIMITATIONS

The purpose of this study is to reasonably characterize existing site conditions given practical access constraints. In performing such a study, it is understood that a balance must be struck between a reasonable inquiry into the site conditions and an exhaustive analysis of each conceivable environmental characteristic. The following paragraphs discuss the assumptions and parameters under which such an opinion is rendered.

No investigation is thorough enough to describe all conditions of interest at a given site. If conditions have not been identified during the study, such a finding should not therefore be construed as a guarantee of the absence of such conditions at the site, but rather as the result of the services performed within the scope, limitations, and cost of the work performed.

We are unable to report on or accurately predict events that may change the site conditions after the described services are performed, whether occurring naturally or caused by external forces. We assume no responsibility for conditions we were not authorized to evaluate, or conditions not generally recognized as predictable when services were performed.

Conditions may exist at the site that cannot be identified solely by visual observation. Where subsurface exploratory work was performed, our professional opinions are based in part on interpretation of data from discrete sampling locations that may not represent actual conditions at unsampled locations.



8.0 REFERENCES

- Atlas Environmental Engineering, Inc. (Atlas), 2017, *Active Soil Gas Sampling Report, OCHCA Case #98UT103, Former Family Fun Center, 9063 Recreation Circle, Fountain Valley, California*. September 25, 2017.
- DTSC, 2015. *Advisory – Active Soil Gas Investigations*. August.
- Environmental Resolutions Inc. (ERI), 2003. *Letter Report for the Installation of Two On-Site, Clustered Groundwater Monitoring Well Arrays and a Work Plan Addendum for Relocation of a Proposed Cluster Well Array at Former Exxon Station 7-4283, 8980 Warner Avenue, Fountain Valley, California*. September 3.
- Northgate Environmental Management, Inc. (Northgate), 2021. *Phase I Environmental Site Assessment, 16800 Magnolia Street, and 9025-9063 Recreation Circle, Fountain Valley, California*. April 19.
- Northgate, 2024a. *Health and Safety Plan for Additional Phase II Environmental Site Assessment, 16800 Magnolia Street, and 9025-9063 Recreation Circle, Fountain Valley, California*. March 10.
- Northgate, 2024b. *Consolidated Phase II Environmental Site Assessment Report, 16800 Magnolia Street, and 9025-9063 Recreation Circle, Fountain Valley, California*. August 14.
- Northgate, 2024c. *Additional Phase II Environmental Site Assessment, 16800 Magnolia Street, and 9025-9063 Recreation Circle, Fountain Valley, California*. May 16.
- Orange County Health Care Agency (OCHCA), 2019. *Remedial Action Completion Certification, Underground Storage Tank (UST) Case, Former Family Fun Center, 9063 Recreation Circle, Fountain Valley, CA 92708, OCHCA Case #98UT103*. February 26.
- State Water Resources Control Board (SWRCB), 2012. *Low-Threat Underground Storage Tank Case Closure Property*. August 17.



TABLES



TABLE 1
Summary of Soil Vapor Results from SV2R

Location or Boring ID	Sample Depth in feet bgs	Sample Date	Oxygen	Volatile Organic Compounds		
			ASTM D1946 %	TO-15 (µg/m³ Air)		TO-17 (µg/m³ Air)
			Oxygen	Benzene	Ethylbenzene	Naphthalene
SV2R	5	10/2/2024	8.98	<1.0	4.0	<1.7
SV2	5	5/13/2021	--	1300	1700	--
SV3	5	5/13/2021	--	<3.3	10	--
SV5	5	5/13/2021	--	13	23	--
SV7	5	5/13/2021	--	<3.3	<4.4	--
SV11	5	5/13/2021	--	4.4	6.5	--
SV13	5	5/13/2021	--	<3.3	<4.4	--
B1	5	3/25/2024	--	12	5.6	--
B2	5	3/25/2024	--	3.5	3.2 J	--
B3	5	3/25/2024	--	9.1	7.8	--
B4	5	3/25/2024	--	16	34	--
B5	5	3/25/2024	--	4.4	24	--
B6	5	3/25/2024	--	24	87	--
B7	5	3/25/2024	--	29	43	--
B8	5	3/25/2024	--	4.2	4.1 J	--
B9	5	3/25/2024	--	6.2	200	--
B10	5	3/25/2024	--	3.7	37	--
B11	5	3/25/2024	--	3.7	34	--
B12	5	3/25/2024	--	6.3	5.4	--
B13	5	3/25/2024	--	13	150	--
B14	5	3/25/2024	--	6.4	21	--
B15	5	3/25/2024	A soil vapor sample was not collected from B15 on this date due to the presence of water in the soil vapor			
B16	5	3/25/2024	--	6.0	5.9	--
REGULATORY SCREENING CRITERIA						
LTCP - Residential SL with Bioattenuation Zone - Oxygen ≥ 4% (August 2012)				85,000	1,100,000	93,000
LTCP - Residential SL with No Bioattenuation Zone - Oxygen < 4% (August 2012)				85	1,100	93

Notes/Abbreviations:

	Data from previous investigations.
	Concentrations exceed residential screening levels for default AF of 0.03
	Concentrations exceed residential and commercial screening levels for default AF of 0.03
<	Not detected at or above the indicated laboratory reporting limit, reporting limits vary for each compound
--	Not applicable or no published value
%	percentage
µg/m³	Micrograms per cubic meter (units)
AF	Attenuation factor
bgs	Below ground surface
Bold	Reported chemical concentration
DTSC	Department of Toxic Substances Control
EPA	Environmental Protection Agency
LTCP	Low Threat UST Case Closure Policy, August 2012
ND	Not detected
RSL	US EPA Regional Screening Levels, updated May 2024
DTSC-SL	DTSC-Modified Screening Levels, May 2022
*	Non-cancer endpoint value used as cancer endpoint value when cancer endpoint is not established
1	Value provided is for ambient or indoor air, not soil vapor
J	Estimated value

TABLE 2
Summary of Benzene Groundwater Results

Sample ID	Sample Date	VOCs
		SW 8260B (µg/l)
		Benzene
GW-2	5/11/2021	<0.50
GW-3	5/11/2021	0.79
GW-10	5/11/2021	<0.50
REGULATORY SCREENING CRITERIA		
California MCL (Jan, 2023)		1

Notes/Abbreviations:

<	Not detected at or above the indicated laboratory method reporting limit
VOCs	Volatile Organic Compounds by GC/MS+Oxygenates by SW 8260B
MCL	Maximum Contaminant Level
µg/l	micrograms per liter

TABLE 3
Summary of TPH-g and TPH-d Soil Results

Sample ID	Sample Type	Soil Boring	Sample Depth (feet bgs)	Date Sampled	Total Petroleum Hydrocarbons	
					EPA 8015B/5035 (µg/kg)	EPA 8015B (mg/kg)
					C6-C12 (TPH-g)	C13-C28 (TPH-d)
SB1-1	Soil	SB1	1	5/11/2021	<540	<10
SB1-5	Soil		5	5/11/2021	<79,000	<10
SB2-1	Soil	SB2	1	5/11/2021	<580	<10
SB2-5	Soil		5	5/11/2021	<680	<10
SB3-1	Soil	SB3	1	5/11/2021	<710	<10
SB3-5	Soil		5	5/11/2021	<530	<10
SB4-3	Soil	SB4	3	5/11/2021	<710	<10
SB4-5	Soil		5	5/11/2021	<520	<10
SB5-1	Soil	SB5	1	5/11/2021	<24,000	<10
SB5-5	Soil		5	5/11/2021	<490	<10
SB6-1	Soil	SB6	1	5/11/2021	<37,000	<10
SB6-5	Soil		5	5/11/2021	<36,000	<10
SB7-1	Soil	SB7	1	5/11/2021	<33,000	<10
SB7-5	Soil		5	5/11/2021	<28,000	<10
SB8-1	Soil	SB8	1	5/11/2021	<470	<10
SB8-5	Soil		5	5/11/2021	<590	<10
SB9-1	Soil	SB9	1	5/11/2021	<620	<10
SB9-5	Soil		5	5/11/2021	<620	<10
SB10-1	Soil	SB10	1	5/11/2021	<440	<10
SB10-5	Soil		5	5/11/2021	<560	<10
SB11-1	Soil	SB11	1	5/11/2021	<500	<10
SB11-5	Soil		5	5/11/2021	<650	<10
SB12-1	Soil	SB12	1	5/11/2021	<750	<10
SB12-5	Soil		5	5/11/2021	<570	<10
SB13-1	Soil	SB13	1	5/11/2021	<580	<10
SB13-5	Soil		5	5/11/2021	<520	<10
SB14-1	Soil	SB14	1	5/11/2021	<500	<10
SB14-5	Soil		5	5/11/2021	<500	<10
SB15-1	Soil	SB15	1	5/11/2021	<550	<10
SB15-5	Soil		5	5/11/2021	<460	<10
SB16-1	Soil	SB16	1	5/11/2021	<650	<10
SB16-5	Soil		5	5/11/2021	<480	<10
REGULATORY SCREENING CRITERIA						
LTCP Total TPH (TPH-g and TPH-d combined): <100 mg/kg or <100,000 ug/kg						

Notes/Abbreviations:

- < Not detected at or above the indicated laboratory method reporting limit
- bgs Below ground surface
- LTCP Low Threat UST Case Closure Policy, August 2012
- mg/kg Milligrams per kilogram (units)
- TPH Total petroleum hydrocarbons
- TPH-d Total petroleum hydrocarbons quantified as diesel
- TPH-g Total petroleum hydrocarbons quantified as gasoline
- µg/kg Micrograms per kilogram (units)

TABLE 4
Summary of Benzene, Ethylbenzene, and Naphthalene Soil Results

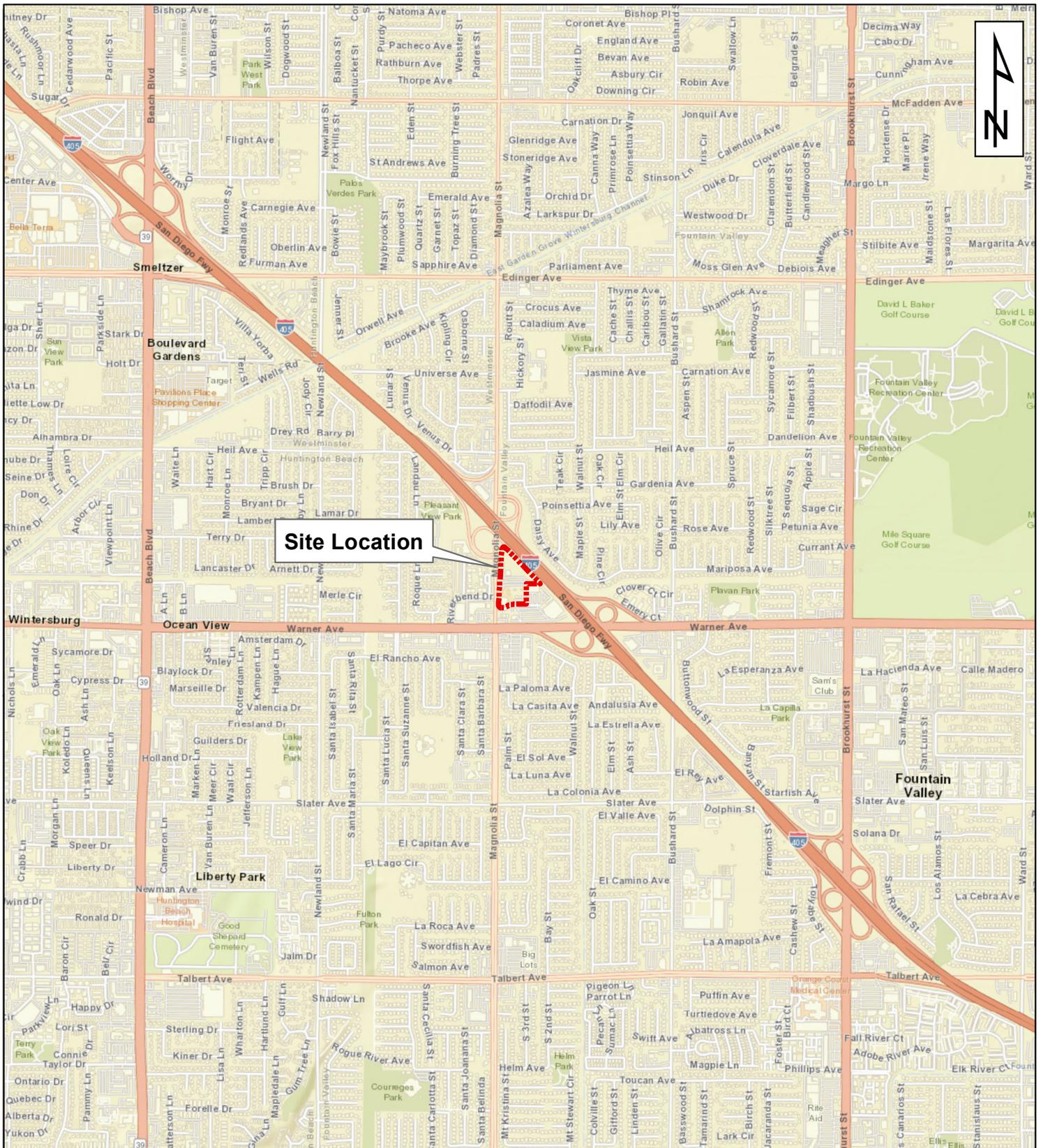
Sample ID	Soil Boring	Sample Depth (feet bgs)	Date Sampled	Volatile Organic Compounds EPA 8260B/5035 (µg/kg)		
				Benzene	Ethylbenzene	Naphthalene
SB1-1	SB1	1	5/11/2021	19	3.0	<2.9
SB1-5		5	5/11/2021	<3.3	<3.3	<3.3
SB2-1	SB2	1	5/11/2021	<3.1	<3.1	<3.1
BS2-5		5	5/11/2021	<2.5	<2.5	<2.5
SB3-1	SB3	1	5/11/2021	<3.0	<3.0	<3.0
SB3-5		5	5/11/2021	<2.5	2.7	<3.0
SB4-3	SB4	3	5/11/2021	8.5	<3.1	<3.0
SB4-5		5	5/11/2021	<3.2	<3.2	<3.2
SB5-1	SB5	1	5/11/2021	2.6	<2.5	<2.5
SB5-5		5	5/11/2021	<2.5	<2.5	<2.5
SB6-1	SB6	1	5/11/2021	<3.6	<3.6	<3.6
SB6-5		5	5/11/2021	<2.8	<2.8	<2.8
SB7-1	SB7	1	5/11/2021	<2.9	<2.9	<2.9
SB7-5		5	5/11/2021	<3.0	<3.0	<3.0
SB8-1	SB8	1	5/11/2021	<5.0	<2.5	<2.5
SB8-5		5	5/11/2021	<2.9	<2.9	<2.9
SB9-1	SB9	1	5/11/2021	3.5	<2.5	<2.5
SB9-5		5	5/11/2021	<3.5	<3.5	<3.5
SB10-1	SB10	1	5/11/2021	5.6	<2.2	<2.2
SB10-5		5	5/11/2021	<2.5	<2.5	<2.5
SB11-1	SB11	1	5/11/2021	<3.0	<3.0	<3.0
SB11-5		5	5/11/2021	<2.5	<2.5	<2.5
SB12-1	SB12	1	5/11/2021	<3.7	<3.7	<3.7
SB12-5		5	5/11/2021	<3.0	<3.0	<3.0
SB13-1	SB13	1	5/11/2021	<2.9	<2.9	<2.9
SB13-5		5	5/11/2021	110	10	<2.5
SB14-1	SB14	1	5/11/2021	11	<2.5	<2.5
SB14-5		5	5/11/2021	<3.1	<3.1	<3.1
SB15-1	SB15	1	5/11/2021	<3.2	<3.2	<3.2
SB15-5		5	5/11/2021	<2.5	<2.5	<2.5
SB16-1	SB16	1	5/11/2021	<3.2	<3.2	<3.2
SB16-5		5	5/11/2021	7.9	<2.5	<2.5
REGULATORY SCREENING CRITERIA						
- Commercial/Industrial Screening Levels						
LTCP Commercial SL 0-5 ft bgs				8,200	89,000	45,000
LTCP Commercial SL Volatilization to Outdoor Air 5-10 ft bgs				12,000	134,000	45,000
- Residential Screening Levels						
LTCP Residential SL 0-5 ft bgs				1,900	21,000	9,700
LTCP Residential SL Volatilization to Outdoor Air 5-10 ft bgs				2,800	32,000	9,700
- Utility Worker						
LTCP Utility Worker SL 0-10 ft bgs				14,000	314,000	219,000

Notes/Abbreviations:

<	Not detected at or above the indicated laboratory method reporting limit
bgs	Below ground surface
DTSC	Department of Toxic Substances Control
EPA	Environmental Protection Agency
LTCP	Low Threat UST Case Closure Policy, August 2012
VOC	Volatile Organic Compound
µg/kg	Micrograms per kilogram (units)
SL	Screening Level

FIGURES





Site Location

Legend



FIGURE 1

Site Vicinity Map

Focused Soil Vapor Investigation Report
and Low-Threat Closure Request
16800 Magnolia Street and 9063 Recreation Circle
Fountain Valley, California

DATE	PROJECT NUMBER
11/04/2024	2047.28





Legend

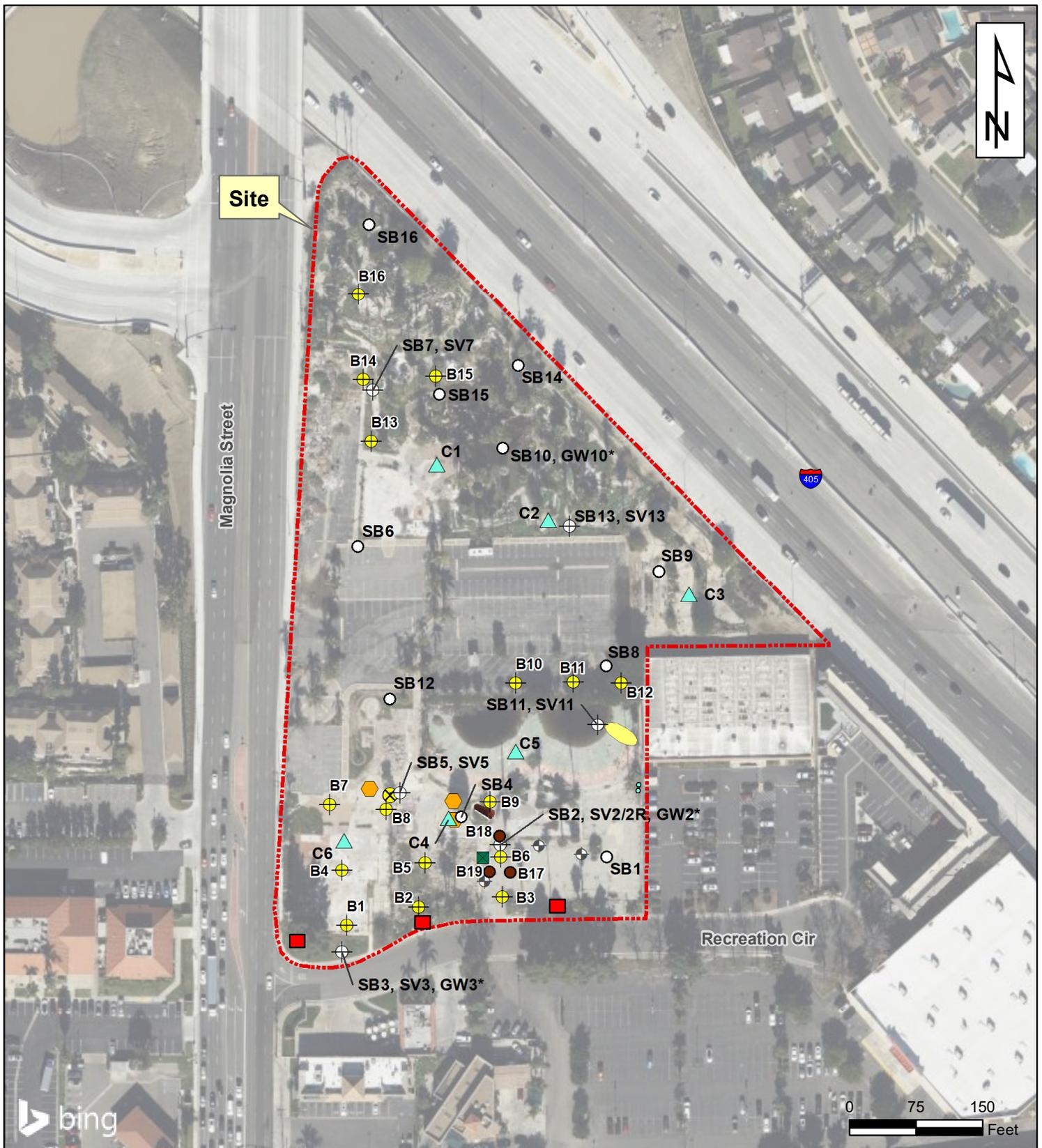
- Concrete Staining
- Leaked motor oil
- Two 55-gallon steel drums with soil
- Pad-mounted Transformer
- 1,000-gallon, steel, gasoline
- Site Boundary
- X Pool chemical and equipment room
- Former UST location
- + Observed abandoned groundwater wells

FIGURE 2

Site Plan

Focused Soil Vapor Investigation Report
and Low-Threat Closure Request
16800 Magnolia Street and
9063 Recreation Circle
Fountain Valley, California

DATE	PROJECT NUMBER	
11/04/2024	2047.28	



Legend

- Soil Boring 2021
- ⊕ Soil Boring and SVP 2021
- * Grab Groundwater sample
- ▲ Concrete Sample
- ⬡ Concrete Staining
- ⊙ Two 55-gallon steel drums with soil
- 1,000-gallon, steel, gasoline
- ⊗ Pool chemical and equipment room
- Former UST location
- ⊕ Observed abandoned groundwater wells
- Leaked motor oil
- Pad-mounted Transformer
- ⬡ Site Boundary
- Soil Boring 2024
- ⊗ Soil Boring and SVP 2024

FIGURE 3

Sampling Locations

Focused Soil Vapor Investigation Report
and Low-Threat Closure Request
16800 Magnolia Street and 9063 Recreation Circle
Fountain Valley, California

DATE	PROJECT NUMBER	
11/04/2024	2047.28	

APPENDIX A

BORING LOG AND SOIL VAPOR PROBE CONSTRUCTION DETAIL



Boring Log

Project Number: 2047.28		Boring No.: SV2R	
Project Name: Holland Boomers		Logged by: Joshua Kajiyama	
Location: Fountain Valley, California		Date Started: 09/27/24	Date Completed: 09/27/24
Drilling Contractor: Northgate Enviromental Management, Inc.		Total Depth (ft bgs): 5.0	Depth to Water (ft bgs):
Drilling Method: HSA		Borehole Dia. (in):	Surface Elevation (ft MSL):

Remarks:

Depth (ft)	Sample I.D. Sample Time	Sample Type	Graphic Log	USCS Code	Material Description	Water Level	10.6 ev PID (ppm)	Well Construction
1				Concrete	concrete			
2				ML	Clayey Silt (ML): With very fine sand, brown, no odor or staining, damp.			
3				CL	Clayey Silt (CL): Clay is stiff with low plasticity, dark brown, no odor or staining, damp.			
4				ML	Clayey Silt (ML): Brown, no odor or staining, damp.			
5					End of boring @ 5 feet at 9:45.			
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								

DRB-ENVIRO BORING 2047.28 10/15/2024 LOG SVP-2.GPJ 10/16/24

Project Number: 2047.28		Vapor Implant Number: SV2R	
Project Name: Holland-Fountain Valley		Location: 16800 Magnolia St., 9025-9063 Recreation Circle, Fountain Valley, CA	
Installed By: Northgate Environmental Management, Inc.		Drawn By: Anand Helekar, PE	
Drilling Method: Hollow Stem Auger	Date Started: 9/27/24	Date Completed: 9/27/24	Time Completed:
Borehole ID: SV2R	Total Depth (ft): 5.0	Borehole Dia. (in): 2.25	Depth to Water (ft): N/A

Remarks:

Type of surface completion: Temporary-No Well Box

Length of Exposed tubing: 2'

Land Surface Elevation (ft): N/A

Concrete Slab Thickness (in): 5

Borehole diameter (in): 2.25

Tubing Type: Nyaflo

Tubing dimensions (in) O.D.: 0.25 **I.D.:** 0.125

Total tubing length (ft): 5

Type of hydrated bentonite upper seal: #8 Granular

Type of dry bentonite pack: #8 Granular

Type of sand pack: #3 Monterey

Depth center of implant (ft bgs): 5

Type of implant and slot size (in): Vapor Probe Implant

Implant length x width (in): 1/2x1

Type of dry bentonite pack: N/A

Type of hydrated bentonite bottom pack: N/A

Depth bottom of boring (ft bgs): 5.5

APPENDIX B
LABORATORY ANALYTICAL REPORTS





714-449-9937
562-646-1611

11007 FOREST PLACE
SANTA FE SPRINGS, CA 90670
WWW.JONESENV.COM

11 October 2024

Derrick Willis
Northgate Environmental Management, Inc.
92 Argonaut, Suite 100
Aliso Viejo, CA 92656

Re: 2047.28.085

Enclosed are the results of analyses for samples received by the laboratory on 10/02/24. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Colby Wakeman".

Colby Wakeman
Lab Director

Northgate Environmental Management, Inc.	Project:	2047.28.085	
92 Argonaut, Suite 100	Project Number:	2047.28.085	Reported
Aliso Viejo, CA 92656	Project Manager:	Derrick Willis	10/11/24 11:28

SV2R-5
J242903-001(Soil Gas)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Analyzed	Method	Notes
Fixed Gases by ASTM D1946								
Oxygen	8.98	0.100	%	1	QC2410171		ASTM D194	
Volatile Organic Compounds by EPA TO-15								
Benzene	ND	1.0	µg/m3	1	QC2410161	10/02/24	EPA TO-15	
Ethylbenzene	4.0	1.0	µg/m3	"	"	"	"	
n-Pentane (LCC)	ND	10.0	µg/m3	"	"	"	"	
n-Hexane (LCC)	ND	10.0	µg/m3	"	"	"	"	
Acetone (LCC)	ND	10.0	µg/m3	"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>	92.29 %	80 - 120						

Jones Environmental, Inc.



Colby Wakeman
Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Northgate Environmental Management, Inc.	Project:	2047.28.085	
92 Argonaut, Suite 100	Project Number:	2047.28.085	Reported
Aliso Viejo, CA 92656	Project Manager:	Derrick Willis	10/11/24 11:28

Fixed Gases by ASTM D1946 - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	%REC Limits	Notes
Batch QC2410171 - ASTM D1946										
LCS 1										
Oxygen	9.96	0.100	%	10		100	80 - 120			
LCSD 1										
Oxygen	9.95	0.100	%	10		100	80 - 120	0.10	120	
Method Blank 1										
Oxygen	20.0	0.100	%							

Jones Environmental, Inc.



Colby Wakeman
Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Northgate Environmental Management, Inc.	Project:	2047.28.085	
92 Argonaut, Suite 100	Project Number:	2047.28.085	Reported
Aliso Viejo, CA 92656	Project Manager:	Derrick Willis	10/11/24 11:28

Volatile Organic Compounds by EPA TO-15 - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	%REC Limits	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-------------	-------

Batch QC2410161 - EPA TO-15

LCS 1

Benzene	0.199	1.0	%	0.1853		107	70 - 130			
Chlorobenzene	0.273	1.0	%	0.267		102	70 - 130			
1,1-Dichloroethene	0.258	1.0	%	0.232		111	70 - 130			
cis-1,2-Dichloroethene	0.235	1.0	%	0.232		101	70 - 130			
Ethylbenzene	0.239	1.0	%	0.2497		96	70 - 130			
Tetrachloroethene	0.401	1.0	%	0.4036		99	70 - 130			
Toluene	0.192	1.0	%	0.2205		87	70 - 130			
1,1,1-Trichloroethane	0.294	1.0	%	0.3274		90	70 - 130			
Trichloroethene	0.349	1.0	%	0.309		113	70 - 130			
1,2,4-Trimethylbenzene	0.255	1.0	%	0.2778		92	70 - 130			
Vinyl chloride	0.142	1.0	%	0.1496		95	70 - 130			

Surrogate: 4-Bromofluorobenzene 92.42 % 80 - 120

LCSD 1

Benzene	0.187	1.0	%	0.1853		101	70 - 130	5.82	130	
Chlorobenzene	0.283	1.0	%	0.267		106	70 - 130	3.65	130	
1,1-Dichloroethene	0.248	1.0	%	0.232		107	70 - 130	4.04	130	
cis-1,2-Dichloroethene	0.249	1.0	%	0.232		107	70 - 130	5.65	130	
Ethylbenzene	0.245	1.0	%	0.2497		98	70 - 130	2.65	130	
Tetrachloroethene	0.399	1.0	%	0.4036		99	70 - 130	0.57	130	
Toluene	0.207	1.0	%	0.2205		94	70 - 130	7.15	130	
1,1,1-Trichloroethane	0.343	1.0	%	0.3274		105	70 - 130	15.28	130	
Trichloroethene	0.317	1.0	%	0.309		103	70 - 130	9.38	130	
1,2,4-Trimethylbenzene	0.272	1.0	%	0.2778		98	70 - 130	6.37	130	
Vinyl chloride	0.156	1.0	%	0.1496		104	70 - 130	9.58	130	

Surrogate: 4-Bromofluorobenzene 94.49 % 80 - 120

Method Blank 1

Benzene	ND	1.0	µg/m3							
Ethylbenzene	ND	1.0	µg/m3							
n-Pentane (LCC)	ND	10.0	µg/m3							
n-Hexane (LCC)	ND	10.0	µg/m3							
Acetone (LCC)	ND	10.0	µg/m3							

Surrogate: 4-Bromofluorobenzene 87.88 % 80 - 120

Jones Environmental, Inc.



Colby Wakeman
Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Northgate Environmental Management, Inc.	Project:	2047.28.085	
92 Argonaut, Suite 100	Project Number:	2047.28.085	Reported
Aliso Viejo, CA 92656	Project Manager:	Derrick Willis	10/11/24 11:28

Notes and Definitions

- ND Analyte NOT DETECTED at or above the reporting limit
- RPD Relative Percent Difference
- E Estimated Concentration; concentration exceeds calibration range.
- LCC Leak Check Compound
- MDL Compound Reported to Method Detection Limit
- 1 Recovery outside of acceptable limits. LCS/LCSD recoveries and %RSD were within QC limits, therefore data was accepted.
- SMSR Sample matrix prevented adequate surrogate recovery.
- J Value less than PQL but greater than MDL.
- HHSR High hydrocarbon concentration in this sample prevented adequate surrogate recovery.
- SMTAR Sample matrix prevented adequate recovery of target analytes.
- OV Sample was filtered in the lab before extraction.
- HHTAR High hydrocarbon concentration prevented in-range recovery of target analytes.
- IHRPD Target analyte recoveries were outside of range but accepted due to passing RPDs
- AROL Target analyte recovery exceeded recovery range but was accepted due to ND of that analyte in MB and sample(s).
- ISO-H Isomers could not be sufficiently chromatographically resolved according to method requirements due to hydrocarbon interference or other matrix effects. The isomers' reported individual concentrations were each calculated as the average of each of the individual isomers' concentrations.
- 2 Recovery outside of acceptable limits for either LCS or LCSD. CCV and LCS or LCSD recoveries were within limits; therefore data was accepted.
- 3 RPD outside of acceptable limits. Target analyte recoveries were within QC limits; therefore, data was accepted.
- 4 LCS and/or LCSD recoveries exceeded acceptability ranges. Target analyte recoveries were accepted due to passing CCV, in-range LCS/LCSD RPDs, and a clean MB in which all target analytes were < RL.
- SMTAR Sample matrix prevented adequate recovery of target analytes.
- RV Surrogate recovery outside of control limits due to required dilution.
- ASP Hydrocarbons in this sample most closely resemble asphalt.
- @ Surrogate is outside acceptable limits. All other QC parameters in control, therefore data was accepted.
- S Sample was subjected to elemental sulfur cleanup by EPA 3660B.

Jones Environmental, Inc.



Colby Wakeman
Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Login Report

Customer Name: Northgate Environmental Management, Inc.

Order ID: J242903

Purchase Order:

Order Date: 10/2/2024

Project ID: 2047.28.085

Comment:

Sample #: J242903-001	Customer Sample #: SV2R-5	Site:
Recv'd: <input checked="" type="checkbox"/>	Collector:	Date Collected: 10/02/24 9:50 AM
Quantity: 1	Matrix: Soil Gas	Date Received: 10/02/24 11:40 AM
Comment:		
Test	Test Group	Method
Fixed Gases		ASTM D1946
TO-15 Full List		EPA TO-15
		Due Date
		10/10/2024
		10/16/2024
		Priority

SAMPLE CONDITION RECORD

1. Are the samples within correct temperature criteria? (0 - 6°C)	N/A
2. If not within temp. criteria, were samples received on ice?	N/A
3. If not within temp. criteria, were samples received on same day of sampling?	N/A
4. Is the Chain of Custody (COC) received filled out completely?	Yes
5. Does the total number of containers received match COC?	Yes
6. Are the sample container label(s) consistent with COC?	Yes
7. Are the sample container(s) intact and in good condition?	Yes
8. Were the proper containers & sufficient volume for analyses requested on COC?	Yes
9. Was the proper preservative indicated on COC/container for analyses requested?	N/A
10. Are the containers for volatile analysis free of headspace? (EPA 8260 water)	N/A
EDF Requested	No



McC Campbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 2410316

Report Created for: Northgate Environmental Management Inc.

92 Argonaut suite 100
Aliso Viejo, CA 92656

Project Contact: Anand Helekar

Project P.O.:

Project: 2047.28.085; Holland Boomers

Project Location: 16800 Magnolia St, Fountain Valley, CA

Project Received: 10/03/2024

Analytical Report reviewed & approved for release on 10/15/2024 by:

Jennifer Lagerbom

Project Manager

McC Campbell Analytical Inc. is not accredited for all the testing in this report. The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested.



Glossary of Terms & Qualifier Definitions

Client: Northgate Environmental Management Inc.

WorkOrder: 2410316

Project: 2047.28.085; Holland Boomers

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
CCV	Continuing Calibration Verification.
CCV REC (%)	% recovery of Continuing Calibration Verification.
CPT	Consumer Product Testing not NELAP Accredited
DF	Dilution Factor
DI WET	(DISTLC) Waste Extraction Test using DI water
DISS	Dissolved (direct analysis of 0.45 µm filtered and acidified water sample)
DLT	Dilution Test (Serial Dilution)
DUP	Duplicate
EDL	Estimated Detection Limit
ERS	External reference sample. Second source calibration verification.
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
LCS2	Second LCS for the batch. Spike level is lower than that for the first LCS; applicable to method 1633.
LQL	Lowest Quantitation Level
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit ¹
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
NA	Not Applicable
ND	Not detected at or above the indicated MDL or RL
NR	Data Not Reported due to matrix interference or insufficient sample amount.
PDS	Post Digestion Spike
PF	Prep Factor
RD	Relative Difference
RL	Reporting Limit ²
RPD	Relative Percent Difference
RRT	Relative Retention Time
RSD	Relative Standard Deviation
SNR	Surrogate is diluted out of the calibration range
SPK Val	Spike Value

¹ MDL is the minimum measured concentration of a substance that can be reported with 99% confidence that the measured concentration is distinguishable from method blank results. Definition and Procedure for the Determination of the Method Detection Limit, Revision 2, 40CFR, Part 136, Appendix B, EPA 821-R-16-006, December 2016. Values are based upon our default extraction volume/amount and are subject to change.

² RL is the lowest level that can be reliably determined within specified limits of precision and accuracy during routine laboratory operating conditions. (The RL cannot be lower than the lowest calibration standard used in the initial calibration of the instrument and must be greater than the MDL.) Values are based upon our default extraction volume/amount and are subject to change.



Glossary of Terms & Qualifier Definitions

Client: Northgate Environmental Management Inc.

WorkOrder: 2410316

Project: 2047.28.085; Holland Boomers

SPKRef Val	Spike Reference Value
SPLP	Synthetic Precipitation Leachate Procedure
ST	Sorbent Tube
TCLP	Toxicity Characteristic Leachate Procedure
TEQ	Toxicity Equivalents
TNTC	"Too Numerous to Count;" greater than 250 colonies observed on the plate.
TZA	TimeZone Net Adjustment for sample collected outside of MAI's Coordinated Universal Time (UTC). (Adjustment for Daylight Saving is not accounted.)
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)

Analytical Qualifiers

c16 The internal standard recovery is below the lower limit. The target analyte(s) were Not Detected (ND); therefore, the data is reportable.



Case Narrative

Client: Northgate Environmental Management Inc.
Project: 2047.28.085; Holland Boomers

Work Order: 2410316
October 15, 2024

TO17:

The reported analyte concentrations are calculated using client supplied sample volume of 1.15L.
The breakthrough Sorbent Tube is not reported since the primary sample did not have a quantitated value of the target analyte, Naphthalene.



Analytical Report

Client: Northgate Environmental Management Inc. **WorkOrder:** 2410316
Date Received: 10/03/2024 9:20 **Extraction Method:** TO17
Date Prepared: 10/14/2024 **Analytical Method:** TO17
Project: 2047.28.085; Holland Boomers **Unit:** µg/m³

Volatile Organic Compounds by TO17

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SV2R-5/ B52616	2410316-001A	Sorbent Tube	10/02/2024 10:21	GC37 F1014240907.D	304037

Analytes	Result	MDL	RL	DF	Sample Volume	Date Analyzed
Naphthalene	ND	0.41	1.7	1	1.15 L	10/14/2024 17:00

Surrogates	REC (%)	Limits
4-BFB (surr)	97	60-140

Analyst(s): JEM

Analytical Comments: c16



Quality Control Report

Client: Northgate Environmental Management Inc.
Date Prepared: 10/14/2024
Date Analyzed: 10/14/2024
Instrument: GC37
Matrix: Sorbent Tube
Project: 2047.28.085; Holland Boomers

WorkOrder: 2410316
BatchID: 304037
Extraction Method: TO17
Analytical Method: TO17
Unit: µg/m³
Sample ID: MB/LCS/LCSD-304037

QC Summary Report for VOCs by TO17

Analyte	MB Result	MDL	RL	SPK Val	MB SS %REC	MB SS Limits
Naphthalene	ND	0.48	2.0	-	-	-
Surrogate Recovery						
4-BFB (surr)	86			100	86	60-140

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Naphthalene	46	49	50	92	98	60-140	6.64	30
Surrogate Recovery								
4-BFB (surr)	85	84	100	85	84	60-140	2.03	30



1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

WaterTrax CLIP EDF

CHAIN-OF-CUSTODY RECORD

WorkOrder: 2410316

ClientCode: NEMAV

EQulS Dry-Weight Email HardCopy ThirdParty J-flag
 Detection Summary Excel [FormatA]

Report to:

Anand Helekar
Northgate Environmental Management I
92 Argonaut suite 100
Aliso Viejo, CA 92656
(949)716-0050 FAX: (949)315-3365

Email: anand.helekar@ngem.com
cc/3rd Party: derrick.willis@ngem.com;
PO:
Project: 2047.28.085; Holland Boomers

Bill to:

Accounts Payable
Northgate Environmental Mngmnt, Inc.
428 13th Street, 4th Floor
Oakland, CA 94612
milton.tso@ngem.com

Requested TAT: 5 days;

Date Received: **10/03/2024**
Date Logged: **10/03/2024**

Lab ID	ClientSampID	Matrix	Collection Date	Hold	Requested Tests (See legend below)												
					1	2	3	4	5	6	7	8	9	10	11	12	
2410316-001	SV2R-5/ B52616	Sorbent Tube	10/2/2024 10:21	<input type="checkbox"/>	A												
2410316-002	SV2R-5/ A01208 (breakthrough)	Sorbent Tube	10/2/2024 10:21	<input type="checkbox"/>	A												

Test Legend:

1	TO17VOC_ST(UGM3)	2		3		4	
5		6		7		8	
9		10		11		12	

Project Manager: Angela Rydelius

Prepared by: Valerie Alfaro

Comments:

NOTE: Soil samples are discarded 60 days after receipt unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.



WORK ORDER SUMMARY

Client Name: NORTHGATE ENVIRONMENTAL MANAGEMENT I **Project:** 2047.28.085; Holland Boomers

Work Order: 2410316

Client Contact: Anand Helekar

QC Level: LEVEL 2

Contact's Email: anand.helekar@ngem.com

Comments:

Date Logged: 10/3/2024

WaterTrax CLIP EDF Excel EQUIS Email HardCopy ThirdParty J-flag

LabID	ClientSampID	Matrix	Test Name	Cont./Comp.	Bottle & Preservative	U**	Head Space	Dry-Weight	Collection Date & Time	TAT	Test Due Date	Sediment Content	Hold	Sub Out
001A	SV2R-5/ B52616	Sorbent Tube	TO17 (VOCs) (µg/m³) <Naphthalene>	1	50mL Digestion Tube	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10/2/2024 10:21	5 days	10/10/2024		<input type="checkbox"/>	<input type="checkbox"/>
002A	SV2R-5/ A01208 (breakthrough)	Sorbent Tube	TO17 (VOCs) (µg/m³) <Naphthalene>	1	50mL Digestion Tube	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10/2/2024 10:21	5 days	10/10/2024		<input type="checkbox"/>	<input type="checkbox"/>

NOTES: * STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

- ISM prep requires 5 to 10 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 6 to 11 days from sample submission). Due date listed on WO summary will not accurately reflect the time needed for sample preparation.

- Organic extracts are held for 40 days before disposal; Inorganic extract are held for 30 days.

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

U** = An unpreserved container was received for a method that suggests a preservation in order to extend hold time for analysis.

 McCAMPBELL ANALYTICAL, INC. 1534 Willow Pass Rd. Pittsburg, Ca. 94565-1701 Telephone: (877) 252-9262 / Fax: (925) 252-9269 www.mccampbell.com main@mccampbell.com					CHAIN OF CUSTODY RECORD																		
					1 Day Rush	2 Day Rush	3 Day Rush	STD	Quote #														
J-Flag / MDL			ESL			Bottle Order #																	
Delivery Format: PDF		GeoTracker EDF		EDD	Detect Summary																		
Report To: <i>Derrick Willis & Anand Helekar</i>					Bill To: <i>Northgate Environmental Mgmt, Inc.</i>					Analysis Requested													
Company: <i>Northgate Environmental Management, Inc.</i>					Helium Shroud SN#					Leak Check Default is IPA													
Email: <i>derrick.willis@agem.com & anand.helekar@agem.com</i>										Helium Leak Check %													
Alt Email:					Telex: <i>(949) 716-0050</i>					IPA µg/m3													
Project Name: <i>Holland Boomers</i>					Project#: <i>2047.28.088</i>					1,1-difluoroethane µg/m3													
Project Location: <i>16800 Magnolia St, Fountain Valley, CA</i>					PO #					Other (Specify)													
Sampler Signature: <i>[Signature]</i>										Matrix		Field Canister (in Hg)											
SAMPLE ID		Sampling Start		Sampling End		Canister SN#	Sample Kit / Manifold #	VOCs TO-15 (µg/m³) - See Notes	VOCs TO-17 (µg/m³) - See Notes	TPH(g) (µg/m³)	TPH(ss) (µg/m³)	LEED: (inc. 4PCH, Formaldehyde, Total VOCs) µg/m3	Fixed Gas (CO, Methane, Ethane, Ethylene, Acetylene, Propane, CO) %	Fixed Gas: (O ₂ or N ₂) %	APH: Aliphatic and/or Aromatic (circle one) µg/m³	Soilgas	Indoor Air	Pressure / Vacuum					
Location / Field Point		Date	Time	Date	Time													Initial	Final				
<i>SU2R-5</i>		<i>10/2/24</i>	<i>1015</i>	<i>10/2/24</i>	<i>1021</i>	<i>See Comments</i>																	
Air media provided for sampling by McCampbell Analytical, Inc. is subject to terms listed in the MAI General Media Agreement															Final Reporting Units								
Client will be charged \$56 for each unused Summa canister.															nL/L	ug/L	ug/m3	u/L					
Relinquished By / Company Name			Date		Time		Received By / Company Name			Date		Time		Comments / Instructions									
<i>Joshua Kajiyama / Northgate</i>			<i>10/2/2024</i>		<i>1215</i>		<i>Fedex</i>			<i>10/3/24</i>		<i>0920</i>		<i>B52616 = Sample Sorben +</i>									
<i>Fedex</i>			<i>10/3/24</i>		<i>0920</i>		<i>Van</i>			<i>10/3/24</i>		<i>0920</i>		<i>A0208 = Breakthrough Tube</i>									
														<i>Sampled at 200ml/min for 1.150 liters total sampled.</i>									

TN: 2801 8474 0950



Sample Receipt Checklist

Client Name:	Northgate Environmental Management Inc.	Date and Time Received:	10/3/2024 09:20
Project:	2047.28.085; Holland Boomers	Date Logged:	10/3/2024
WorkOrder №:	2410316	Received by:	
Carrier:	FedEx	Logged by:	Valerie Alfaro

Chain of Custody (COC) Information

Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample IDs noted by Client on COC?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Date and Time of collection noted by Client on COC?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sampler's name noted on COC?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
COC agrees with Quote?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>

Sample Receipt Information

Custody seals intact on shipping container/cooler?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>
Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper containers/bottles?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>
Samples Received on Ice?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	

(Ice Type: BLUE ICE)

Sample/Temp Blank temperature		Temp: 6°C	NA <input type="checkbox"/>
ZHS conditional analyses: VOA meets zero headspace requirement (VOCs, TPHg/BTEX, RSK)?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>
Sample labels checked for correct preservation?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
pH acceptable upon receipt (Metal: <2)?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>

UCMR Samples:

pH tested and acceptable upon receipt (200.7: ≤2; 533: 6 - 8; 537.1: 6 - 8)?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>
Free Chlorine tested and acceptable upon receipt (<0.1mg/L) [not applicable to 200.7]?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>

 Comments: