



- TOOLS**
- Upload EDD
 - Check EDD
 - VVL_Search_Tool
 - Edit Field Points
 - Other Tools
 - Funding Programs
 - Add Program
 - Guides / Resources
 - Contact Us
 - Account Information
 - Take a Tour
 - Logout

- VIEW SUBMITTALS**
- [By Facility](#)
 - [All Submittals \(20\)](#)
 - [Pending Submittals \(1\)](#)
 - [Denied Submittals \(0\)](#)
 - [Received Submittals \(19\)](#)

- FACILITY MANAGEMENT**
- [Associated Facilities \(3\)](#)
 - [Pending Facilities \(0\)](#)
 - [Denied Facilities \(0\)](#)
 - [Request Additional Facilities](#)
 - [Upload Auth RP Form](#)

- FACILITY REQUESTS**
- [Pending Requests \(0\)](#)
 - [Approved Requests \(0\)](#)
 - [Denied Requests \(0\)](#)

- DOWNLOAD**
- [Associated Global IDs](#)
 - [Field Point Names](#)

LOGGED IN AS:
MTIFFANY (AUTH_RP)

UPLOADING A GEO_REPORT FILE

SUCCESS

Your GEO_REPORT file has been successfully submitted!

<u>Submittal Type:</u>	GEO_REPORT
<u>Report Title:</u>	DFSP Morro Bay Site Assessment Report
<u>Report Type:</u>	Request for Closure
<u>Report Date:</u>	3/31/2022
<u>Facility Global ID:</u>	T10000014042
<u>Facility Name:</u>	Former Estero Bay Defense Fuel Supply Point (DFSP)
<u>File Name:</u>	DFSP Morro Bay Site Assessment Report.pdf
<u>Organization Name:</u>	Analytical Consulting Group, Inc.
<u>Username:</u>	MTIFFANY
<u>IP Address:</u>	23.243.231.116
<u>Submittal Date/Time:</u>	4/8/2022 1:50:25 PM
<u>Confirmation Number:</u>	2323260843

**SITE ASSESSMENT REPORT
and
REQUEST FOR SITE CLOSURE**

Former Estero Bay Defense Fuel Supply Point
3300 Panorama Drive
Morro Bay, California

Site I.D. No. T10000014042

SUBMITTED TO:

Central Coast Regional Water Quality Control Board
Site Cleanup Program
895 Aerovista Place, Suite 101
San Luis Obispo, CA 93401

ATTN: Sarah Treadwell, Engineering Geologist

FOR:

Rhine LP & Morro94, LLC
2304 W. Shaw Ave, Suite 1021
Fresno, CA 93711

ATTN: Mr. Chris Mathys

ACG JOB NO. I1612-1202

March 31, 2022

PREPARED BY



[Handwritten signature in blue ink]

Michael R. Tiffany, PG, CIH
Professional Geologist No. 6750
Certified Industrial Hygienist No. 5056



TABLE OF CONTENTS

	Page
INTRODUCTION	3
SITE DESCRIPTION.....	3
BACKGROUND	4
SITE STATUS AND HISTORY.....	4
PREVIOUS SITE ASSESSMENT WORK	4
SITE INVESTIGATION.....	6
Subsurface Soil Sampling.....	6
Surface Soil Sampling For Lead.....	10
GENERAL FINDINGS.....	13
CONCEPTUAL SITE MODEL	14
Geology and Hydrogeology.....	14
Contaminants of Concern	14
Contamination.....	15
Receptors.....	15
Surface – Onsite	15
Surface – Offsite	16
Groundwater	16
Exposure Pathways	16
HUMAN HEALTH RISK ASSESSMENT	16
Risk Characterization Data Summary.....	16
Risk Assessment.....	18
CONCLUSIONS AND RECOMMENDATIONS	19
REQUEST FOR CLOSURE	20
LIMITATIONS	20
ILLUSTRATIONS	
Figure 1: Vicinity Map	
Figure 2: Soil Boring Location Map	
Figure 3: Lead Sampling Map	
APPENDICES	
I Boring Logs	
II Boring Permit	
III Oilfield Environmental & Compliance Laboratory Reports and Chains of Custody	



INTRODUCTION

The subject property, a former Defense Fuel Supply Point, was a closed Central Coast RWQCB Military Cleanup Site. A new RWQCB case has been opened following removal of the aboveground fuel storage tanks (AGTs) and associated piping and equipment. The new case has been requested by the owners in order to obtain a site closure for unrestricted use. This report includes a Request for Closure of the case based on soil sampling data that demonstrates negligible risk to human health and the environment from historical releases from the AGT system.

Multiple subsurface site assessments were carried out by the US Navy prior to purchase of the property by the current owners, resulting in a low-risk closure for groundwater contamination in 1997. The objective of this site assessment was to assess the current condition of previously identified impacts, to assess areas not previously investigated due to the presence of tanks and other improvements, and to provide information to support a Human Health Risk Assessment (HHRA). Analytical Consulting Group, Inc. (ACG) prepared a *Site Assessment Workplan* dated July 24, 2020, which was approved by the Central Coast Regional Water Quality Control Board in a letter dated October 10, 2020.

The scope of work for this site assessment included:

- ◆ Obtaining well permits for soil borings ≥ 25 feet in depth from the San Luis Obispo County Division of Environmental Health Services.
- ◆ Drilling and sampling of 6 hollow-stem auger borings to a depth of 50 feet or refusal in the tank locations, the pump area, and the sump area.
- ◆ Drilling and sampling of 8 hydraulic push soil borings to a depth of 15-20 feet in areas of previously identified shallow soil contamination and in areas identified during demolition.
- ◆ Logging of soil borings by a California Professional Geologist.
- ◆ Collection, preservation, transportation, and analysis of soil samples in accordance with EPA SW-846 and California DTSC site assessment guidance.
- ◆ Collection of 48 surface soil samples for analysis of lead content.
- ◆ Submittal of soil and groundwater samples to California ELAP-accredited laboratory for analysis of total petroleum hydrocarbons, volatile organic compounds, and title 22 metals.
- ◆ Preparation of this site assessment report including a map of borings, boring logs, laboratory results, findings, and a human health risk assessment.

SITE DESCRIPTION

The Facility is a former United States Government-owned facility located at 3300 Panorama Drive, Morro Bay, California. The Facility included a 10-acre former bulk jet fuel (JP-5) tank farm containing two 125,000-barrel aboveground storage tanks (AGTs; Tank 5 and Tank 6), one water storage tank for firefighting, and a pumping station. The tanks, pumping station, and fuel piping were removed in 2018. The AGTs were located in two containment areas created by earthen berms approximately 20 feet high. An oil/water separator sump was located in the southwest corner of the northern containment. The former pumping station, an electrical switchgear building, office building, storage building and parking lot are located to the west of the containment berm. The site is bounded on the west by Panorama Drive, Whidbey Street, and Tuscan Avenue, with residences beyond, and to the east by undeveloped ranch



land. An Environmentally Sensitive Habitat Area (ESHA) is present along the creek at the north end of the property.

BACKGROUND

SITE STATUS AND HISTORY

The Facility is a former United States Government-owned facility located at 300 Panorama Drive, Morro Bay, California. The Facility included a 10-acre former bulk jet fuel (JP-5) tank farm containing two 125,000-barrel aboveground storage tanks (AGTs; Tank 5 and Tank 6), one water storage tank for firefighting, and a pumping station. An offshore mooring station was used to transfer JP-5 from tankers in Estero Bay through a pipeline to the AGTs located on the Facility. From there, the fuel was pumped through 98 miles of pipeline to the Lemoore Naval Air Station (NAS) in Lemoore, California.

The Facility was closed in 1991 and the pipeline from the mooring station to the Facility was removed in March 1992. At that time, the pipeline from the Facility to Lemoore NAS was purged of JP-5 and filled with pressurized nitrogen gas according to requirements of the California Fire Marshall.

Demolition of the AGTs and associated piping and pumping equipment began on October 25, 2018 and was completed on December 14, 2018.

The AGTs were located in two containment areas created by earthen berms approximately 20 feet high. An Environmentally Sensitive Habitat Area (ESHA) is present along the creek at the north end of the property, The Lemoore pipeline runs between the berm and the ESHA, within a few feet of the ESHA boundary. The section of the pipeline adjacent to the ESHA boundary was abandoned in place to avoid potential disturbance of the ESHA. All other fuel piping and equipment was removed up to the property lines.

PREVIOUS SITE ASSESSMENT WORK

The report titled *Environmental Evaluation for Defense Fuel Supply Point – Estero Bay, Morro Bay, California, 1991*, dated September 23, 2016 by ECC, was reviewed for historical site information. The report was a summary of 7 previous site assessment reports for the site published between 1991 and 1996. Citations below are from the reports referenced in the ECC 2016 report.

ECC performed a review of historical data in the referenced reports. A total of 183 soil samples from over 60 borings and over 40 groundwater samples from 32 monitoring wells were collected and analyzed during numerous environmental investigations completed at the Defense Fuel Supply Point – Estero Bay facility. Additionally, air respirometry, soil gas, and aquifer testing have been performed. These data collection and analysis activities meet or exceed the scope of most Phase II investigations. Analytical sampling suites were consistent with current EPA (RSL) and California RWQCB (ESL) guidance for TPH contaminated sites. Sampling results have clearly identified the contaminants of concern, impacted areas, and potential sources of environmental contamination. Interviews with GSA, GTI, and Rhine employees indicate that the site has not been used except for grazing and storage of equipment since the Environmental Quality Survey was completed in 1991. Based on this assessment, there is no significant chance of additional releases of contamination to the subsurface since approval of the Risk-Based Closure (RBC) Report in 1996. As a result, the soil contaminant concentrations



presented in the RBC Report likely represent a worst-case scenario since TPH naturally biodegrades in the subsurface. As stated by DTSC in their 1996 approval of the RBC Report, “DTSC concurs with RWQCB in the belief that natural biodegradation will continue to effectively reduce TPH concentration in soil and groundwater”. It has been more than 20 years since the RBC Report was approved over which time TPH biodegradation is likely to continue. Therefore, the current TPH concentrations are likely lower than when measured during the environmental assessments conducted between 1990 and 1996.

Available documents indicate benzene was not detected in soil at concentrations greater than the laboratory detection limits. Low concentrations were detected in groundwater in three monitoring wells; each was a single detection at the individual monitoring wells. Detected benzene concentrations were 0.4 µg/L, 0.6 µg/L and 25.8 µg/L. ECC concluded that benzene was included as a COPC in soil for the RBC health risk calculations based on the limited detections in groundwater. The risk calculations for soil presented in the RBC Report did not calculate cumulative risks and hazard quotients for measured COPC concentrations in soil. The RBC Report presents action level concentrations for COCs that were back-calculated based on chemical specific target risks and hazard quotients. Review of the available data indicates that benzene was not detected in soil above laboratory detection limits.

Two 125,000-barrel aboveground jet fuel storage tanks (AGTs; Tank 5 and Tank 6), one water storage tank, the fuel pumping station, and associated fuel piping were demolished and removed from the site between October 25, 2018 and December 14, 2018. The onsite section of the Lemoore pipeline adjacent to the ESHA boundary was abandoned in place to avoid potential disturbance to the ESHA. All other fuel piping was removed up to the property lines. The concrete pad under the pumping equipment was also removed. The oiled sand bed beneath the AGTs was removed and 765 tons of oiled sand were hauled to Cold Canyon Landfill in San Luis Obispo for disposal as petroleum-contaminated soil.

Following removal of the ASTs, piping, and equipment in 2018, Analytical Consulting Group, Inc. issued a report titled *Post-Removal Soil Assessment Report - Removal Of Aboveground Tank System, Former Navy Jet Fuel Storage Site, 3300 Panorama Drive, Morro Bay, California*, dated April 21, 2019.

Soil sampling was conducted beneath the AGTs prior to removal, beneath the ESHA-adjacent portion of the Lemoore pipeline prior to abandonment-in-place, and beneath other piping as it was removed. Petroleum hydrocarbons and volatile organic compounds were non-detect in most samples. Three soil samples contained low levels of petroleum hydrocarbons or xylenes, but all were below soil screening levels. Metal concentrations did not indicate contamination due to a release from the AGT system.

Field evidence indicated probable minor releases of hydrocarbons in several locations beneath the piping but soil samples in those locations were non-detect for petroleum hydrocarbons and VOCs. The observed releases have degraded to non-detect levels.



SITE INVESTIGATION

SUBSURFACE SOIL SAMPLING

Subsurface soil sampling was conducted on November 23-25, 2020. Six hollow-stem-auger (HSA) borings and eight direct-push (DP) borings were drilled and sampled. Borings were located to re-assess previously discovered areas of petroleum impacts and assess potential release locations not previously investigated. Borings B1, B2, B6, B7, B8, and B9 were located to assess possible releases from the tanks and piping within the tank containment areas. Boring B3 was located to assess the north stormwater sump and wastewater clarifier. Boring B10 was located to assess the south stormwater sump. Boring B4 was located to assess the jet fuel piping manifold sump. Boring B11 was located to assess the pumping equipment containment. Borings B5 and B12/12B were located to assess a drainage swale leading from the pumping equipment area. Boring B13 was located to assess the jet fuel intake pipeline.

HSA borings were drilled to bedrock or 50 feet. Soil samples were collected at two feet and five feet below the ground surface and at intervals of five feet thereafter using stainless-steel sample liners in a split-spoon sampler.

Eight DP borings were drilled to 15 feet or refusal. Soil samples were collected at two feet and five feet below the ground surface and at intervals of five feet thereafter using a closed-tube sampler with acetate sample liners.

The borings were logged by the undersigned Professional Geologist. The boring logs are attached in **Appendix I**. The boring locations are shown on **Figure 1: Soil Boring Location Map**.

A sample of serpentine rock was submitted for analysis. The serpentine sample was composited from five randomly selected serpentine cobbles found in the containment berm fill soil. Serpentine cobbles are derived from native serpentinite bedrock that crops out in the eastern portion of the site.

Forty-nine soil samples were collected from the HSA borings. Thirty-one soil samples were collected from the DP borings. Soil samples were sub-sampled for VOCs in accordance with the EPA Method 5035 field extraction method, using a disposable soil syringe to extract 5-gram aliquots of soil and eject them into pre-weighed VOA vials with sodium bisulfite solution. The sample liners were then capped with teflon film and polyethylene caps. The 5035 sample vials and the capped liner were labeled and placed in a chilled ice chest for transport to the laboratory. The soil samples were submitted to Oilfield Environmental & Compliance in Santa Maria, California for analysis of total petroleum hydrocarbons with carbon-chain discrimination for gasoline, diesel, and heavy oil ranges using EPA Method 8015 (modified); for aromatic volatile organic compounds (BTEX) using EPA Method 8260B/5035; and for CAM Metals using EPA Method 6010B. Sample collection and preparation for VOC analysis was in accordance with EPA Method 5035. The laboratory is accredited by the California Department of Health Services Environmental Laboratory Accreditation Program. The chemical laboratory reports and chain of custody form are attached. The results of the chemical laboratory tests are summarized below in **TABLE 1** and **TABLE 2**.



TABLE 1
Laboratory Analysis of Soil Samples
Petroleum Hydrocarbons and Volatile Organic Compounds
 results in mg/kg (ppm)

Sample ID	EPA Method 8015M				EPA Method 8260B/5035				All other 8260 VOCs
	TPH	TPH Oil	TPH Diesel	TPH Gas	Benzene	Toluene	Ethyl-benzene	Total Xylenes	
B1 @ 2 ft	nd	-	-	-	-	-	-	-	-
B1 @ 5 ft	nd	nd	nd	nd	nd	nd	nd	nd	nd
B1 @ 10 ft	96	nd	79	17	nd	nd	nd	nd	nd
B1 @ 15 ft	nd	nd	nd	nd	nd	nd	nd	nd	nd
B1 @ 20 ft	nd	nd	nd	nd	nd	nd	nd	nd	nd
B1 @ 25 ft	nd	nd	nd	nd	nd	nd	nd	nd	nd
B1 @ 30 ft	nd	nd	nd	nd	nd	nd	nd	nd	nd
B2 @ 5 ft	nd	nd	nd	nd	nd	nd	nd	nd	nd
B2 @ 10 ft	0.21	nd	nd	0.21	nd	nd	nd	nd	nd
B2 @ 15 ft	nd	nd	nd	nd	nd	nd	nd	nd	nd
B2 @ 20 ft	nd	nd	nd	nd	nd	nd	nd	nd	nd
B2 @ 25 ft	nd	nd	nd	nd	nd	nd	nd	nd	nd
B2 @ 30 ft	nd	nd	nd	nd	nd	nd	nd	nd	nd
B2 @35 ft	nd	nd	nd	nd	nd	nd	nd	nd	nd
B2 @ 40 ft	nd	nd	nd	nd	nd	nd	nd	nd	nd
B2 @ 45 ft	nd	nd	nd	nd	nd	nd	nd	nd	nd
B2 @ 50 ft	nd	nd	nd	nd	nd	nd	nd	nd	nd
B3 @ 5 ft	nd	nd	nd	nd	nd	nd	nd	nd	nd
B3 @ 10 ft	nd	nd	nd	nd	nd	nd	nd	nd	nd
B3 @ 15 ft	nd	nd	nd	nd	nd	nd	nd	nd	nd
B3 @ 20 ft	nd	nd	nd	nd	nd	nd	nd	nd	nd
B3 @ 25 ft	nd	nd	nd	nd	nd	nd	nd	nd	nd
B3 @ 30 ft	nd	nd	nd	nd	nd	nd	nd	nd	nd
B3 @ 35 ft	nd	nd	nd	nd	nd	nd	nd	nd	nd
B3 @ 40 ft	nd	nd	nd	nd	nd	nd	nd	nd	nd
B3 @45 ft	99	nd	72	27	nd	nd	nd	nd	nd
B3 @ 50 ft	180	nd	130	47	nd	nd	nd	nd	nd
B4 @ 5 ft	nd	nd	nd	nd	nd	nd	nd	nd	nd
B4 @ 10 ft	120	nd	12	110	nd	nd	nd	nd	0.10 sec-Butylbenzene
B4 @ 15 ft	1600	nd	1100	460	nd	nd	nd	nd	0.91 sec-Butylbenzene
B4 @ 20 ft	340	nd	260	77	nd	nd	nd	nd	0.10 sec-Butylbenzene
B4 @ 25 ft	120	nd	98	25	nd	nd	nd	nd	nd
B4 @ 30 ft	8.6	nd	8.2	0.41	nd	nd	nd	nd	nd
B4 @ 34 ft	nd	nd	nd	nd	nd	nd	nd	nd	nd
B4 @ 40 ft	nd	nd	nd	nd	nd	nd	nd	nd	nd



TABLE 1
Laboratory Analysis of Soil Samples
Petroleum Hydrocarbons and Volatile Organic Compounds
 results in mg/kg (ppm)

Sample ID	EPA Method 8015M				EPA Method 8260B/5035				
	TPH	TPH Oil	TPH Diesel	TPH Gas	Benzene	Toluene	Ethyl-benzene	Total Xylenes	All other 8260 VOCs
B5 @ 5 ft	nd	nd	nd	nd	nd	nd	nd	nd	nd
B5 @ 10 ft	nd	nd	nd	nd	nd	nd	nd	nd	nd
B5 @ 15 ft	nd	nd	nd	nd	nd	nd	nd	nd	nd
B5 @ 20 ft	nd	nd	nd	nd	nd	nd	nd	nd	nd
B5 @ 25 ft	nd	nd	nd	nd	nd	nd	nd	nd	nd
B5 @ 30 ft	nd	nd	nd	nd	nd	nd	nd	nd	nd
B5 @ 35 ft	16	nd	16	nd	nd	nd	nd	nd	nd
B5 @ 45 ft	nd	nd	nd	nd	nd	nd	nd	nd	nd
B6 @ 2 ft	nd	nd	nd	nd	nd	nd	nd	nd	nd
B6 @ 5 ft	nd	nd	nd	nd	nd	nd	nd	nd	nd
B6 @ 10 ft	nd	nd	nd	nd	nd	nd	nd	nd	nd
B6 @ 15 ft	nd	nd	nd	nd	nd	nd	nd	nd	nd
B6 @ 20 ft	11	nd	11	nd	nd	nd	nd	nd	nd
B7 @ 2 ft	nd	nd	nd	nd	nd	nd	nd	nd	nd
B7 @ 5 ft	nd	nd	nd	nd	nd	nd	nd	nd	nd
B7 @ 10 ft	9.0	nd	9.0	nd	nd	nd	nd	nd	nd
B7 @ 15 ft	nd	nd	nd	nd	nd	nd	nd	nd	nd
B7 @ 20 ft	nd	nd	nd	nd	nd	nd	nd	nd	nd
B8 @ 5 ft	nd	nd	nd	nd	nd	nd	nd	nd	nd
B8 @ 10 ft	nd	nd	nd	nd	nd	nd	nd	nd	nd
B8 @ 15 ft	nd	nd	nd	nd	nd	nd	nd	nd	nd
B9 @ 5 ft	nd	nd	nd	nd	nd	nd	nd	nd	nd
B9 @ 10 ft	nd	nd	nd	nd	nd	nd	nd	nd	nd
B9 @ 14 ft	nd	nd	nd	nd	nd	nd	nd	nd	nd
B10 @ 2 ft	nd	nd	nd	nd	nd	nd	nd	nd	nd
B10 @ 5 ft	nd	nd	nd	nd	nd	nd	nd	nd	nd
B10 @ 10 ft	nd	nd	nd	nd	nd	nd	nd	nd	nd
B10 @ 15 ft	nd	nd	nd	nd	nd	nd	nd	nd	nd
B11 @ 0 ft	nd	nd	nd	nd	nd	nd	nd	nd	nd
B11 @ 2 ft	nd	nd	nd	nd	nd	nd	nd	nd	nd
B11 @ 5 ft	nd	nd	nd	nd	nd	nd	nd	nd	nd
B11 @ 10 ft	nd	nd	nd	nd	nd	nd	nd	nd	nd
B11 @ 15 ft	nd	nd	nd	nd	nd	nd	nd	nd	nd
B12 @ 5 ft	nd	nd	nd	nd	nd	nd	nd	nd	nd
B12 @ 10 ft	nd	nd	nd	nd	0.0056	0.0054	nd	0.0017	nd



TABLE 1
Laboratory Analysis of Soil Samples
Petroleum Hydrocarbons and Volatile Organic Compounds
 results in mg/kg (ppm)

Sample ID	EPA Method 8015M				EPA Method 8260B/5035				
	TPH	TPH Oil	TPH Diesel	TPH Gas	Benzene	Toluene	Ethyl-benzene	Total Xylenes	All other 8260 VOCs
B12 @ 15 ft	63	nd	40	23	nd	nd	nd	nd	nd
B12-B @ 25 ft	370	nd	260	110	nd	nd	nd	nd	0.30 <i>sec</i> -Butylbenzene
B12-B @ 30 ft	57	nd	40	17	nd	nd	nd	nd	0.016 <i>sec</i> -Butylbenzene
B12-B @ 35 ft	9.0	nd	nd	9.0	nd	nd	nd	nd	0.0023 <i>tert</i> -Butylbenzene
B12-B @ 40 ft	0.45	nd	nd	0.45	nd	nd	nd	nd	nd
B13 @ 5 ft	-	nd	nd	nd	nd	nd	nd	nd	nd
B13 @ 10 ft	-	nd	nd	nd	nd	nd	nd	nd	nd
B13 @ 15 ft	-	nd	nd	nd	nd	nd	nd	nd	nd
Method Reporting Limit (MRL)	-	50	9.9	0.40	0.0040	0.0040	0.0040	0.0040	0.0049
SSL†		12,000	260	430	0.33	1100	5.9	580	-

† Soil Screening Level values are the lower of the California Department Of Toxic Substances Control (DTSC) residential soil screening levels (HHRA Note 3, June 2020), or the San Francisco Regional Water Quality Control Board (SFBRWQCB) Environmental Screening Levels (ESLs, Jan 2019).

TABLE 2
Laboratory Analysis of Soil Samples
Title 22 Metals, EPA Methods 6010B and 7471
 results in mg/kg (ppm)

Sample ID	Sb	As	Ba	Be	Cd	Cr	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Tl	V	Zn
B1 @ 2 ft	nd	9.1	190	0.46	nd	170	18	19	4.5	0.63	0.29	250	nd	nd	nd	28	36
B1 @ 5 ft	nd	18	110	0.36	nd	420	41	25	4.2	1.3	0.46	590	nd	nd	nd	52	45
B1 @ 10 ft	1.2	5.9	190	0.43	nd	290	22	21	4.3	0.29	nd	250	nd	nd	nd	35	42
B2 @ 2 ft	nd	nd	520	0.27	nd	71	18	27	150	0.14	nd	78	nd	nd	nd	75	70
B2 @ 5 ft	nd	4.1	110	0.49	nd	180	21	24	5.6	0.28	nd	260	nd	nd	nd	47	50
B2 @ 10 ft	nd	26	190	0.48	nd	190	31	27	4.3	0.87	0.54	320	nd	nd	nd	50	37
B3 @ 2 ft	nd	nd	98	0.54	nd	130	25	14	5.5	0.11	nd	260	nd	nd	nd	35	24
B3 @ 5 ft	nd	2.0	150	0.47	nd	180	25	22	5.0	0.53	nd	310	nd	nd	nd	34	37
B3 @ 10 ft	nd	93	97	0.48	nd	180	24	34	5.1	0.20	1.8	200	nd	nd	nd	130	40
B4 @ 5 ft	nd	11	190	0.50	nd	170	26	23	4.7	2.3	0.86	290	nd	nd	nd	34	32
B4 @ 10 ft	nd	11	230	0.54	nd	160	22	23	6.3	0.38	0.95	250	nd	nd	nd	34	38
B5 @ 5 ft	2.7	11	200	0.49	nd	150	21	27	5.1	0.23	0.24	270	nd	nd	nd	36	45
B5 @ 10 ft	2.0	8.8	97	0.41	nd	110	18	18	4.9	0.27	nd	180	nd	nd	nd	30	34
B6 @ 2 ft	nd	17	280	0.46	nd	340	53	22	6.1	0.38	0.28	590	nd	nd	nd	45	39
B6 @ 5 ft	nd	6.0	100	0.41	nd	190	22	17	4.3	0.26	nd	250	nd	nd	nd	28	34
B6 @ 10 ft	3.3	20	110	0.43	nd	330	36	23	5.2	0.55	0.30	460	nd	nd	nd	41	48
B7 @ 2 ft	nd	19	43	0.48	nd	330	39	27	3.6	2.5	nd	530	nd	nd	nd	47	30
B7 @ 5 ft	nd	22	75	0.48	nd	280	59	35	4.3	2.1	0.41	600	nd	nd	nd	66	31
B7 @ 10 ft	nd	6.7	39	0.50	nd	150	17	21	3.5	0.67	0.32	200	nd	nd	nd	47	29
B8 @ 2 ft	nd	12	100	0.41	nd	200	25	18	5.7	1.0	nd	250	nd	nd	nd	36	36
B8 @ 5 ft	3.7	19	120	0.42	nd	780	54	22	4.7	0.28	1.3	790	nd	nd	nd	47	39
B8 @ 10 ft	2.0	17	84	0.38	nd	490	43	23	2.1	0.068	1.2	880	nd	nd	nd	48	40
B9 @ 2 ft	nd	12	39	0.42	nd	250	30	21	6.7	0.48	0.96	280	nd	nd	nd	39	41
B9 @ 5 ft	nd	8.9	130	0.46	nd	130	27	22	5.7	0.30	0.78	270	nd	nd	nd	32	42
B9 @ 10 ft	nd	9.4	85	0.46	nd	82	22	26	6.7	0.25	0.91	170	nd	nd	nd	41	39



TABLE 2
Laboratory Analysis of Soil Samples
Title 22 Metals, EPA Methods 6010B and 7471
 results in mg/kg (ppm)

Sample ID	Sb	As	Ba	Be	Cd	Cr	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Tl	V	Zn
B10 @ 2 ft	<i>nd</i>	<i>nd</i>	290	0.49	<i>nd</i>	120	19	23	5.9	0.28	<i>nd</i>	210	<i>nd</i>	<i>nd</i>	<i>nd</i>	36	39
B10 @ 5 ft	<i>nd</i>	2.1	75	0.41	<i>nd</i>	370	40	24	4.3	1.4	<i>nd</i>	560	<i>nd</i>	<i>nd</i>	<i>nd</i>	34	39
B10 @ 10 ft	<i>nd</i>	1.9	52	0.36	<i>nd</i>	98	17	18	6.2	0.12	<i>nd</i>	180	<i>nd</i>	<i>nd</i>	<i>nd</i>	31	32
B11 @ 2 ft	<i>nd</i>	11	220	0.45	<i>nd</i>	140	19	26	5.2	0.41	<i>nd</i>	230	<i>nd</i>	<i>nd</i>	<i>nd</i>	38	37
B11 @ 5 ft	<i>nd</i>	15	420	0.41	<i>nd</i>	440	42	26	6.5	0.20	0.68	390	<i>nd</i>	<i>nd</i>	<i>nd</i>	57	44
B11 @ 10 ft	<i>nd</i>	8.6	86	0.47	<i>nd</i>	120	22	24	5.3	0.23	<i>nd</i>	240	<i>nd</i>	<i>nd</i>	<i>nd</i>	35	39
B12 @ 5 ft	<i>nd</i>	12	210	0.41	<i>nd</i>	160	33	23	5.4	0.21	0.25	240	<i>nd</i>	<i>nd</i>	<i>nd</i>	39	28
B12 @ 10 ft	<i>nd</i>	13	130	0.47	<i>nd</i>	150	29	20	5.2	0.49	0.96	210	<i>nd</i>	<i>nd</i>	<i>nd</i>	30	26
B13 @ 5 ft	<i>nd</i>	9.1	330	0.36	<i>nd</i>	150	23	19	5.1	0.32	0.34	230	<i>nd</i>	<i>nd</i>	<i>nd</i>	35	30
B13 @ 10 ft	<i>nd</i>	10	150	0.53	<i>nd</i>	130	19	23	5.5	0.18	<i>nd</i>	220	<i>nd</i>	<i>nd</i>	<i>nd</i>	35	32
Serpentine*	<i>nd</i>	10	100	<i>nd</i>	<i>nd</i>	1300	74	24	<i>nd</i>	0.028	0.70	1400	<i>nd</i>	<i>nd</i>	<i>nd</i>	54	28
Method Reporting Limit	2.3	1.9	0.93	0.46	0.23	0.46	0.46	0.93	0.46	0.099	0.46	0.46	1.9	0.46	0.93	1.9	1.9
SSL†	31	0.067**	15000	16	78	120,000	23	3100	80	1	390	820	390	390	0.78	390	23000

† Soil Screening Level values are the lower of the California Department Of Toxic Substances Control (DTSC) residential soil screening levels (HHRA Note 3, June 2020), or the San Francisco Regional Water Quality Control Board (SFBRWQCB) Environmental Screening Levels (ESLs, Jan 2019).

* Cr, Co, and Ni concentrations elevated due to naturally occurring serpentine rock.

** Background levels in California are elevated above the EPA residential screening level. Upper limit of typical background is ~12 mg/kg.

SURFACE SOIL SAMPLING FOR LEAD

Surface soil sampling was conducted on November 25 and December 9-10, 2020. Surface soil samples were collected to assess possible lead contamination from lead-based paint on tanks, pipes, and buildings. Samples were collected at approximate 50-60 foot intervals across the active areas of the site – within the aboveground storage tank containment areas and in the area of the pump equipment pad and support buildings. The sample locations are shown on the attached **Lead Sampling Map**.

One composite soil sample was collected at each sample location. At each composite sample location, five sub-samples of soil were be collected from the corners and center of a 1-meter-square area. The top 50-75 mm of soil were sampled using a hand scoop. The sub-samples of soil were then manually homogenized in a 1-gallon zip top bag and labeled with the sample number. After homogenizing, the sample was transferred to 60-ml screw-top plastic digestion vials for laboratory analysis, and labeled with the sample number.

Forty-eight surface soil samples were collected and submitted to Oilfield Environmental & Compliance in Santa Maria, California for analysis of total lead using EPA method 6010B. The laboratory is accredited by the California Department of Health Services Environmental Laboratory Accreditation Program. The chemical laboratory reports and chain of custody form are attached. The results of the chemical laboratory tests are summarized below in **TABLE 3**. The 95% Upper Confidence Limit (95% UCL) of the mean value was calculated using ProUCL 5.



TABLE 3
Laboratory Analysis of Soil Samples
Total Lead, EPA Method 6010B
results in mg/kg (ppm)

Sample ID	Pb, mg/kg
SP-1	3.9
SP-2	7.1
SP-3	24
SP-4	8.4
SP-5	7.2
SP-6	17
SP-7	18
SP-8	7.7
SP-9	45
SP-10	17
SP-11	26
SP-12	29
SP-13	50
SP-14	72
SP-15	100
SP-16	57
SP-17	35
SP-18	6.0
SP-19	9.9
SP-20	22
SP-21	5.3
SP-22	100
SP-23	110
SP-24	29
SP-25	69
SP-26	14
SP-27	10
SP-28	75
SP-29	67
SP-30	88
SP-31	36
SP-32	93
SP-33	51



TABLE 3
Laboratory Analysis of Soil Samples
Total Lead, EPA Method 6010B
results in mg/kg (ppm)

Sample ID	Pb, mg/kg
SP-34	67
SP-35	210
SP-36	41
SP-37	80
SP-38	18
SP-39	11
SP-40	18
SP-41	54
SP-42	27
SP-43	31
SP-44	33
SP-45	27
SP-46	7.1
SP-47	9.5
SP-48	230
Average Pb Concentration	45.3
95% UCL Pb Concentration	57.7
Laboratory Reporting Limit	0.50
Residential Soil, Play Areas, CA Title 17	400
Residential Soil, DTSC Screening Level	80



GENERAL FINDINGS

- ◆ Subsurface soil sampling showed that residual petroleum hydrocarbons and associated volatile organic compounds (BTEX) are still present sporadically in the soil at depths ranging from 10-40 feet. Elevated concentrations of arsenic, cobalt, lead, mercury, and nickel were found at various depths throughout the site. Except for lead, the elevated metals concentrations are attributed to natural background levels.
- ◆ Petroleum hydrocarbon (TPH gas, TPH diesel, and TPH oil) concentrations throughout the site were at or below the residential soil screening levels with the exception of one sample which contained 1,100 mg/kg of TPH-diesel at a depth of 15 feet. The highest benzene, toluene, and xylene concentrations were detected in one sample at well below the residential soil screening level. No ethylbenzene was detected. Low concentrations of *sec*-butylbenzene and *tert*-butylbenzene were detected, but all were below the residential soil screening level.
- ◆ The serpentine sample contained elevated concentrations of chromium, cobalt, and nickel, characteristic of the composition of ultramafic rocks. Much of the native soil and fill soil on the site contains serpentine, resulting in elevated background levels of these metals.
- ◆ Metals concentrations were within the range of normal background concentrations. Arsenic, cobalt, mercury, and nickel exceeded residential soil screening levels in some samples but are not compounds of concern related to the AGT system or any of the fuel storage or pumping activities on site.
- ◆ The elevated concentrations of arsenic, chromium cobalt, and nickel are distributed across the site laterally and in depth, which does not suggest a discrete release. Arsenic concentrations are consistent with typical background concentrations for soil in California. Elevated concentrations of cobalt and nickel in soil are due to presence of serpentinite rock in the soil. The sample of serpentinite contained very high concentrations of chromium, cobalt and nickel.
- ◆ Surface soil lead concentrations were elevated above the DTSC residential screening level in 5 of the 48 samples. With one exception, lead concentrations in soil samples collected at or below 2 feet in depth are at background concentrations. The average surface soil lead concentration was 47 ppm which is below the DTSC residential screening level and the EPA residential screening level for play areas. The elevated lead concentrations are due to residues from lead paint on the AGT system and support buildings.



CONCEPTUAL SITE MODEL

GEOLOGY AND HYDROGEOLOGY

The report titled *Limited Site Assessment and Well Installation Report, DFSP Estero Bay Tank Farm Pump Pad and Oil/Water Separator Areas*, dated October 16, 1996 by Groundwater Technology Government Services, Inc., was reviewed for site geology and groundwater information.

The DFSP Estero Bay tank farm is located in the Coast Ranges of the California Geomorphic Province. The site is underlain by Mesozoic (Jurassic-Cretaceous) Franciscan Complex rocks, comprised of sandstone and siltstone with lesser shale, chert, limestone, and conglomerate. Ultramafic serpentinite rock containing chrysotile asbestos crops out in the eastern portion of the site. Recent alluvial/coastal plain sediments are present near the surface in the western portion of the site. The tank impoundment areas are cut-and-fill and the containment berms are fill derived from the native serpentinite bedrock.

Soils at the site consist primarily of clay, sandy clay, clayey sand, clayey silt, gravel, clay with gravel, sand, and silty sand. A discontinuous layer of sand and sandy clay with occasional layers of gravelly clay from 5 to 10 feet thick occurs immediately above the bedrock. Serpentinite bedrock was found approximately 35- 50 feet below grade (bg). Serpentine cobbles were encountered in B4, B5, and B12-B.

The soil texture underlying the pump pad ranges from silt, clay to clayey sand with sand, silty gravel, and sandy clay. Historical site assessments encountered groundwater in a gravelly clay, silt with sand, and sand layer west of the Operations Building depths ranging from 25 feet to 43 feet bgs. East of the Operations Building groundwater was previously encountered at approximately 40 feet bgs, interpreted as a thin “weep zone” of groundwater at the bedrock contact. An upper perched groundwater zone was previously identified at 24 feet bgs in GTW-6 (B-1). No groundwater was encountered during the current site investigation, which was conducted during a prolonged drought.

The tank farm is located within the drainage area of a small unnamed creek that empties directly into the Pacific Ocean (Estero Bay). The Toro Creek hydrologic basin lies to the north and the Morro Creek basin lies to the south. San Luis Obispo County contains 18 small coastal hydrologic basins similar to the Toro Creek and Morro Creek basins. Groundwater in these basins is present in unconsolidated alluvium and in older indurated sediments, including the Plio-Pleistocene Paso Robles Formation and the Pliocene Careaga Sand.

Excavations during the AGT removal project revealed that the containment berms and other areas of artificial fill at the site contain abundant clasts of serpentinite ranging from sand-size to small cobbles. The fill is believed to have been derived from excavation of the east slope of the containment areas. Serpentinite is exposed on the slope along and above the eastern portion of the site. Serpentinite clasts were found in boring samples from fill beneath the tank containments.

CONTAMINANTS OF CONCERN

The fuel stored in the ASTs on the subject property and transported through the pipelines was JP-5 jet fuel. JP-5 is a complex mixture of hydrocarbons with a carbon range of C8-C16 and a high flash point (min. 60 °C or 140 °F), containing alkanes, cycloalkanes, and aromatic hydrocarbons.



No other fuels are known to have been stored on the property other than in vehicle fuel tanks. Small quantities of lubricants and solvents may have been stored on site for maintenance purposes.

The large ASTs were placed on beds of oiled sand about 6 inches thick. The oiled sand beds are shown on as-built construction drawings of the tanks. The purpose of oiled-sand beds is to protect the underside of the steel tank floors from corrosion. The oiled sand was removed from the site and transported to a landfill following demolition of the tanks.

Lead-based paint was present on the ASTs, aboveground pipelines, equipment, and buildings. Lead from paint may have entered surface soils through weathering or through physical disturbance during maintenance and repair operations.

Metals other than lead are not contaminants of concern at this site. Jet fuel contains negligible concentrations of Title 22 metals. No releases of metal-bearing products other than lead-based paint are known or suspected at the site. Shallow soil at the site has naturally elevated concentrations of nickel, cobalt, mercury, and arsenic. High natural background concentrations of nickel, chromium, cobalt, and mercury are expected in soils derived from serpentinite. Background concentrations of arsenic are commonly elevated above risk-based screening levels in California soils.

Serpentinite bedrock is exposed on slopes in the eastern portion of the property and serpentinite clasts are abundant in fill soil. The serpentinite contains naturally-occurring asbestos (NOA). NOA is a potential hazard during grading operations but will not be further considered in this site assessment. Serpentinite also contains unusually high background concentrations of chromium, cobalt, and nickel.

CONTAMINATION

This site assessment found limited areas of petroleum hydrocarbon impacts in soil. These impacts appear to be associated with spills and leaks from sumps, piping, and equipment. The main areas of petroleum hydrocarbon contamination are in the tank pads, western sump, and along the southern edge of the berm where piping used to be present. The two areas of highest contamination are in the western sump and near the exit location for the piping along the southern berm. Low-level petroleum hydrocarbon contamination extends from 10-50 ft bgs.

The tanks, piping, and buildings at the site were potential sources for lead contamination in surface soil due to deterioration of lead paint. Lead is present in surface soil throughout the site, but the areas of highest lead concentration are around the tank pad areas.

RECEPTORS

Surface – Onsite

The site is currently vacant. There is an Environmentally Sensitive Habitat Area (ESHA) along the creek at the northwest margin of the site. The ESHA can receive runoff from the outer side of the containment berm. The creek is seasonally intermittent.

Following regulatory closure, the subject property will be available for future development, which may include residential development. There is potential for low-level exposure to lead in surface soil for both construction workers and residents. There is no vapor intrusion risk for future residents due to the low



levels of petroleum hydrocarbon contamination. There is also a potential for excavation or grading activities. to encounter minor areas of petroleum hydrocarbon contaminated soil.

Surface – Offsite

The site is bordered to the west by existing residential development and to the east by undeveloped land used for grazing. Residences are located within 50 feet of the west property line. The nearest public school is located ½ mile to the south. A private preschool is located 0.2 mile to the south.

There are no onsite environmental conditions which could plausibly affect offsite receptors.

Groundwater

The site is located in a very small watershed, less than 1½ miles long from the drainage divide to the ocean, with a correspondingly small and local groundwater basin. There is no groundwater production in the vicinity and it is unlikely that a significant groundwater resource exists at or downgradient of the site. Properties in the area are served by the City of Morro Bay water department. The subject property received low-risk closure for groundwater contamination in 1997. There are no receptors for the groundwater pathway.

Exposure Pathways

Potential exposure pathways during redevelopment include the following:

- Direct exposure of onsite construction workers or residents to lead or petroleum hydrocarbon contaminated surface soil.
- Exposure of construction workers to lead and petroleum hydrocarbon contaminated surface soil during grading and/or excavation activities.

HUMAN HEALTH RISK ASSESSMENT

RISK CHARACTERIZATION DATA SUMMARY

Overall the site showed minimal impacts from the JP-5 fuel storage. Impacts of TPH, BTEX and other VOC concentrations in shallow soil are minimal. The highest impacts were in deeper soil where TPH-Diesel reached a maximum concentration of 1100 ppm at a depth of 15 feet. The total petroleum hydrocarbons at that location and depth do not exceed the soil screening level. The maximum concentrations for volatile organic compounds are summarized in **Table 4**.



Table 4
Volatile Organic Compound Maximum Concentrations
 Results in mg/kg (ppm)

	TPH Gas	TPH Diesel	Benzene	Toluene	Ethylbenzene	Xylenes
Maximum Concentration, Depth ≤ 10 ft	<i>nd</i>	79	0.0056	0.0054	<i>nd</i>	0.0017
Maximum Concentration, Depth > 10 ft	110	1100	<i>nd</i>	<i>nd</i>	<i>nd</i>	<i>nd</i>
ESL	430	260	0.33	1100	5.9	580

Metal concentrations other than lead in the shallow subsurface showed no evidence of any discrete releases from the AGT system or other activities at the site. Arsenic, nickel, cobalt, and mercury levels were elevated above the residential screening level. Elevated arsenic concentrations in the soil on the site do not reflect contamination from a discrete release and are instead due to the high background levels of arsenic naturally present in the state of California. Elevated nickel and cobalt concentrations were due to native serpentine rock in the soil. Mercury concentrations are minimally elevated above the 1 ppm residential screening level. The site history contained no evidence of activities that would be expected to generate mercury waste and the distribution of elevated mercury concentrations across the site indicated no evidence of a discrete release. The risk posed by mercury in soil is relatively low. The maximum concentrations for the Title 22 metals are summarized in **Table 5**.

Table 5
Metals Maximum Concentrations
 Results in mg/kg (ppm)

	Sb	As	Ba	Be	Cd	Cr	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Tl	V	Zn
Maximum Soil Concentration	3.7	93	520	0.54	<i>nd</i>	780	59	35	230	2.5	1.8	880	<i>nd</i>	<i>nd</i>	<i>nd</i>	130	70
Serpentinite	<i>nd</i>	10	100	<i>nd</i>	<i>nd</i>	1300	74	24	<i>nd</i>	0.028	0.70	1400	<i>nd</i>	<i>nd</i>	<i>nd</i>	54	28
Site Screening Level	31	0.067**	15000	16	78	120,000	23	3100	80	1	390	820	390	390	0.78	390	23000

** Background levels of arsenic in California are elevated above the EPA residential screening level.

Lead concentrations in the surface soil slightly exceeded the California screening level for residential soil in 5 of the 48 samples. The maximum concentration of lead found was 230 ppm. The average lead concentration on the site is below the California DTSC residential screening level and below the federal EPA residential soil screening level for play areas. The elevated lead concentrations in the surface soil are due to the lead based paint historically present on the AGT, piping system, and support buildings. Lead concentrations in surface soil are summarized in **Table 6**.



Table 6
Lead Concentrations in Surface Soil
Results in mg/kg (ppm)

	Pb
Average Pb Concentration	45
95% Upper Confidence Limit Pb Concentration	58
Maximum Pb Concentration	230
<hr/>	
Federal EPA Screening Level for Soil in Play Areas	400
California DTSC Screening Level for Residential Soil	80

RISK ASSESSMENT

The average concentrations of jet fuel hydrocarbons and associated volatile organic compounds are below all relevant human health risk screening levels. The screening levels set by the California Department of Toxic Substances Control and the San Francisco Bay Regional Water Quality Control Board are very conservative estimates of the concentrations that would produce a 1 per million risk (for carcinogens) or 1 per 10,000 risk (for non-carcinogens) of adverse health effects.

The average concentrations of lead in surface soils are below the California DTSC screening level for residential soil. Lead concentrations are elevated above background levels but are considered to be below the levels that would present a significant risk to children living on the site.

No excess risk to human health is present at the site due to the former tank farm or the demolition of the facility.

Naturally occurring arsenic and asbestos concentrations in the soil may present a higher risk of cancer at this site than at sites where these natural conditions are not present. The risk is similar to that at any other site located on serpentine soils in this area and is not associated with the previous use of the site.



CONCLUSIONS AND RECOMMENDATIONS

The objectives of this site assessment were to assess the current condition of previously identified impacts, to assess areas not previously investigated due to the presence of tanks and other improvements, and to provide information to support a Human Health Risk Assessment (HHRA) for residential use following the removal of the AGT system.

Subsurface soil sampling was conducted throughout the tank pad areas and sumps and beneath piping and equipment locations. Petroleum hydrocarbons and volatile organic compounds were detected in low concentrations throughout the site, mostly at depths greater than 10 feet below the ground surface. All concentrations were below the residential soil screening levels. Concentrations of metals other than lead did not indicate contamination associated with the fuel storage and pumping activities on site.

Surface soil sampling indicated elevated concentrations of lead in a few locations throughout the site. The concentrations were higher than the DTSC residential screening level, but were below the federal EPA screening level for residential play areas. The average lead concentration for the whole site was below the DTSC residential screening level at the 95% upper confidence limit. The elevated lead concentrations are due to the presence of lead based paint on the AGT system.

RECOMMENDATIONS

The petroleum hydrocarbon, volatile organic compound, and metal concentrations (excluding lead) are all below the DTSC and SFBRWQCB environmental screening levels and require no further investigation or remediation.

There is a slight chance of encountering stained or odoriferous soil due to residual petroleum (jet fuel) impacts during site grading. A Soil Management Plan should be developed to provide guidance for proper management of any impacted soils that may be encountered.

Surface soils in the flat areas of the site (the tank impoundments and the areas around the buildings on the west side of the site) contain low-level lead impacts from lead-based paint on the AGT system and buildings. Although average lead concentrations are below the DTSC screening level, surface soil lead concentrations should be as low as feasibly attainable. We recommend that the Soil Management Plan for grading include a plan for moving the surface soil (to a depth of 6-12 inches) from these areas to locations where it will be beneath roadways, building slabs or other hardscape. Lead testing of surface soil in the exposed yard areas of residential lots, school sites, parks, and playgrounds is recommended after final grading.

The site is located in an area of naturally-occurring asbestos (NOA) due to the presence of serpentinite bedrock on and above the site. NOA is not in the scope of this site assessment. Placement of non-asbestos-containing (<0.25%) topsoil from onsite or offsite sources is recommended for residential yards and other potential play areas.

A Dust Control Plan is recommended for grading and construction to prevent potential offsite migration of dust containing low levels of asbestos (NOA) or lead.



REQUEST FOR CLOSURE

Based on the low levels of residual contamination from the historical release(s) from the Navy's aboveground storage tanks and associated piping and equipment, and the results of this site assessment which demonstrate no significant human health risk to future residents of the property, permanent closure of this case is recommended and requested.

LIMITATIONS

The observations and conclusions given above are the professional opinions of Analytical Consulting Group, Inc. based on our observations and on reasonably ascertainable information supplied by government agencies, laboratories, other records sources, and the client. This report was prepared in accordance with the standards of practice commonly used by environmental professionals in this area. No other warranty, expressed or implied, of any kind is made or intended in connection with this report, or by the fact that you are being furnished this report, or by any other oral or written statement.



ILLUSTRATIONS

Figure 1: Vicinity Map

Figure 2: Soil Boring Location Map

Figure 3: Lead Sampling Map





SUBJECT
PROPERTY



SCALE: 1 inch = 500 feet

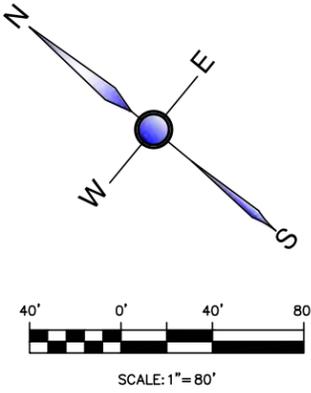
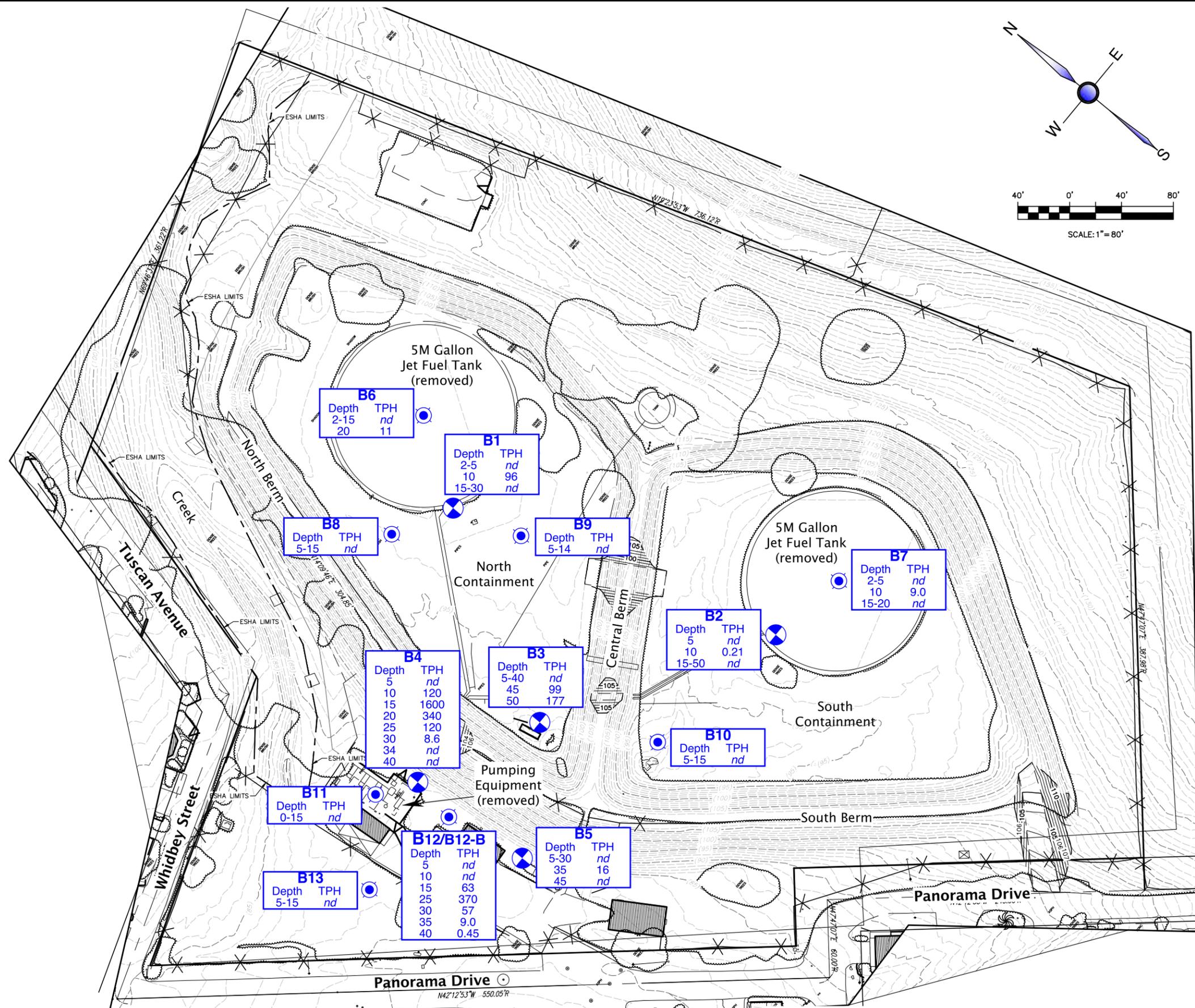


Analytical
Consulting
group, inc.

DRAWN BY:
M. Tiffany
DATE:
July 2020

VICINITY MAP
DFSP Morro Bay
3300 Panorama Road, Morro Bay, California

Figure
1



LEGEND

-  Hollow Stem Auger Boring Location
-  Direct Push Boring Location

B1		TPH Concentration by Depth, in mg/kg
Depth	TPH	
2-5	nd	
10	96	
15-30	nd	

B6	
Depth	TPH
2-15	nd
20	11

B1	
Depth	TPH
2-5	nd
10	96
15-30	nd

B8	
Depth	TPH
5-15	nd

B9	
Depth	TPH
5-14	nd

B7	
Depth	TPH
2-5	nd
10	9.0
15-20	nd

B2	
Depth	TPH
5	nd
10	0.21
15-50	nd

B4	
Depth	TPH
5	nd
10	120
15	1600
20	340
25	120
30	8.6
34	nd
40	nd

B3	
Depth	TPH
5-40	nd
45	99
50	177

B10	
Depth	TPH
5-15	nd

B11	
Depth	TPH
0-15	nd

B12/B12-B	
Depth	TPH
5	nd
10	nd
15	63
25	370
30	57
35	9.0
40	0.45

B5	
Depth	TPH
5-30	nd
35	16
45	nd

B13	
Depth	TPH
5-15	nd



LEGEND

- Location of composite surface soil samples

APPENDIX I

Boring Logs



LOG of B1

JOB NUMBER:	11202	DATE:	11/24/2020
CLIENT NAME:	Rhine LP & Morro94, LLC	DRILL RIG:	Hollow-stem auger
SITE ADDRESS:	3300 Panorama Dr Morro Bay, CA	SAMPLING METHOD:	Split-spoon
LOGGED BY:	Michael Tiffany	BORING DIAMETER:	6-½ inch
		SURFACE CONDITIONS:	Soil

Depth in feet	Sample Type†	LITHOLOGIC DESCRIPTION	USCS Code	PID Reading (ppmv)	Blows per Foot	Graphic Log	Well Diagram
0							
2	SD	Clay, brown, stiff, moist, no odor	CL		6/9/16		
5	SD	Clayey silt, light brown, moist, no odor	ML		6/12/14		
10	SD	Clayey silt, brown stiff, moist, slight petroleum odor	ML		6/12/17		
15	SD	Clay, yellow brown, stiff, moist, slight petroleum odor	CL		8/11/17		
20	SD	Clay, light brown, stiff, moist, no odor	CL		7/13/30		
25	SD	Clay, yellow brown, stiff, moist, no odor	CL		8/10/16		
30	SD	Clayey silt, grey, stiff, moist, no odor	ML		9/15/27		
35	N	Greywacke bedrock, no sample			12/24/40		
		End @ 35 ft., No water. Backfilled with grout.					

†Sample Type: **S** = Soil **W** = Water **V** = Vapor
 D = Drive **G** = Grab **N** = No Recovery

LOG of B2

JOB NUMBER:	11202	DATE:	11/24/2020
CLIENT NAME:	Rhine LP & Morro94 LLC	DRILL RIG:	Hollow-stem auger
SITE ADDRESS:	3300 Panorama Dr Morro Bay, CA	SAMPLING METHOD:	Split-spoon
LOGGED BY:	Michael Tiffany	BORING DIAMETER:	6-½ inch
		SURFACE CONDITIONS:	Soil

Depth in feet	Sample Type†	LITHOLOGIC DESCRIPTION	USCS Code	PID Reading (ppmv)	Blows per Foot	Graphic Log	Well Diagram
0							
2	SD	Clayey silt, light brown, stiff, moist, no odor	ML		4/6/13		
5	SD	Clay, dark brown, stiff, moist, no odor	CL		5/11/16		
10	SD	Clay, dark brown, stiff, moist, slight petroleum odor	CL		7/12/17		
15	SD	Clay, yellow brown, stiff, moist, slight petroleum odor	CL		7/11/12		
20	SD	Clayey silt, red brown, stiff, moist, strong petroleum odor	ML		9/11/16		
25	SD	Clayey silt, brown, stiff, moist, slight petroleum odor	ML		5/14/34		
30	SD	Clay, brown, stiff, moist, no odor	CL		6/15/30		
35	SD	Clayey silt, red brown, stiff, moist, no odor	ML		14/15/2		

†Sample Type: **S** = Soil **W** = Water **V** = Vapor
 D = Drive **G** = Grab **N** = No Recovery

LOG of B3

JOB NUMBER:	11202	DATE:	11/24/2020
CLIENT NAME:	Rhine LP & Morro94, LLC	DRILL RIG:	Hollow-stem auger
SITE ADDRESS:	3300 Panorama Dr Morro Bay, CA	SAMPLING METHOD:	Split-spoon
LOGGED BY:	Michael Tiffany	BORING DIAMETER:	6-½ inch
		SURFACE CONDITIONS:	Soil

Depth in feet	Sample Type†	LITHOLOGIC DESCRIPTION	USCS Code	PID Reading (ppmv)	Blows per Foot	Graphic Log	Well Diagram
0							
2	SD	Clay, brown, stiff, moist, no odor	CL		4/6/10		
5	SD	Clay, brown, stiff, moist, no odor	CL		6/10/14		
10	SD	Clayey silt, brown, stiff, moist, no odor	ML		7/13/19		
15	SD	Clayey silt, brown, stiff, moist, no odor	ML		7/15/19		
20	SD	Clay, dark brown, stiff, moist, no odor	CL		8/13/19		
25	SD	Clayey silt, yellow brown, stiff, moist, no odor, some fragments of Serpentine rock	ML		14/25/5		
30	SD	Clayey silt, yellow brown, stiff, moist, no odor	ML		8/15/17		
35	SD	Clay with sand, light brown, stiff, moist, no odor	SC		10/10/8		

†Sample Type: **S** = Soil **W** = Water **V** = Vapor
 D = Drive **G** = Grab **N** = No Recovery

LOG of B4

JOB NUMBER: 11202	DATE: 11/23/2020
CLIENT NAME: Rhine LP & Morro94, LLC	DRILL RIG: Hollow-stem auger
SITE ADDRESS: 3300 Panorama Dr Morro Bay, CA	SAMPLING METHOD: Split-spoon
LOGGED BY: Michael Tiffany	BORING DIAMETER: 6-½ inch
	SURFACE CONDITIONS: Soil

Depth in feet	Sample Type†	LITHOLOGIC DESCRIPTION	USCS Code	PID Reading (ppmv)	Blows per Foot	Graphic Log	Well Diagram
0							
5	SD	Clay, dark brown, stiff, moist, no odor	CL		3/6/7		
10	SD	Clay, mottled dark brown light brown, stiff, moist, slight petroleum odor	CL		2/4/8		
15	SD	Clay with sand, grey, moist, slight petroleum odor, 6" recovery	SC		16/28/2		
20	SD	Clay, grey, stiff, moist, slight petroleum odor	CL		7/10/14		
25	SD	Clay, grey, stiff, moist, slight petroleum odor	CL		8/12/14		
30	SD	Clayey sand, light brown, stiff, moist, slight petroleum odor, water @ 30 ft	SC		19/50/5		
34	SD	Silty clay, brown, stiff, moist, slight petroleum odor, dry	CL		4/10/11		

†Sample Type: **S** = Soil **W** = Water **V** = Vapor
 D = Drive **G** = Grab **N** = No Recovery

LOG of B5

JOB NUMBER: 11202	DATE: 11/23/2020
CLIENT NAME: Rhine LP & Morro94, LLC	DRILL RIG: Hollow-stem auger
SITE ADDRESS: 3300 Panorama Dr Morro Bay, CA	SAMPLING METHOD: Split-spoon
LOGGED BY: Michael Tiffany	BORING DIAMETER: 6-½ inch
	SURFACE CONDITIONS: Soil

Depth in feet	Sample Type†	LITHOLOGIC DESCRIPTION	USCS Code	PID Reading (ppmv)	Blows per Foot	Graphic Log	Well Diagram
0							
5	SD	Silty clay, dark greyish brown, moist, stiff, no odor	CL		7/11/14		
10	SD	Silty clay, brown, moist, stiff, no odor	CL		5/12/19		
15	SD	Clayey silt, brown, moist, stiff, no odor	ML		8/16/22		
20	SD	Clayey silt, brown, moist, stiff, no odor	ML		5/11/18		
25	SD	Clayey silt, brown, moist, stiff, no odor	ML		6/10/11		
30	SD	Clayey silt, brown, moist, stiff, no odor	ML		5/8/8		
35	SD	Clayey silt, grey, moist, stiff, slight petroleum odor	ML		9/11/16		

†Sample Type: **S** = Soil **W** = Water **V** = Vapor
 D = Drive **G** = Grab **N** = No Recovery

LOG of B12-B

JOB NUMBER:	11202	DATE:	11/23/2020
CLIENT NAME:	Rhine LP & Morro94, LLC	DRILL RIG:	Hollow-stem auger
SITE ADDRESS:	3300 Panorama Dr Morro Bay, CA	SAMPLING METHOD:	Split-spoon
LOGGED BY:	Michael Tiffany	BORING DIAMETER:	6-½ inch
		SURFACE CONDITIONS:	Soil

Depth in feet	Sample Type†	LITHOLOGIC DESCRIPTION	USCS Code	PID Reading (ppmv)	Blows per Foot	Graphic Log	Well Diagram
0							
5							
10							
15							
20	SD	Broken serpentine rock, slight petroleum odor, no sample			15/28/31		
25	SD	Clay with sand, grey, moist, stiff, strong petroleum odor	CL		5/9/34		
30	SD	Clay, grey, moist, stiff, strong petroleum odor	CL		12/18/36		
35	SD	Clay, yellowish brown, moist, stiff, slight petroleum odor	CL		6/12/21		

†Sample Type: **S** = Soil **W** = Water **V** = Vapor
 D = Drive **G** = Grab **N** = No Recovery

APPENDIX II

Soil Boring Permit





COUNTY OF SAN LUIS OBISPO HEALTH AGENCY
ENVIRONMENTAL HEALTH SERVICES DIVISION
 2156 Sierra Way STE B San Luis Obispo, CA 93401
 PO Box 1489 San Luis Obispo, CA 93406
 Phone (805) 781-5544 Fax (805) 781-4111
 Email: ehs@co.slo.ca.us

OFFICE USE	
Permit No	_____
Submittal Complete	<input type="checkbox"/>
Date	____/____/____
WP No	_____
Invoice No	_____
Scanned	____/____/____

MONITORING WELL PERMIT APPLICATION NUMBER OF WELLS 5

SITE INFORMATION

Proposed Well Site Address 3300 Panorama Drive City or Area Morro Bay
 Assessor's Parcel Number 065-038-001 Site served by a water company, agency or district? No Yes
 GPS _____ N _____ W Coastal Zone? _____ Water Co Name _____

WELL OWNER INFORMATION

Well Owner CVI Group LLC & Morro 94 Telephone Number 559-479-1530

PROPERTY OWNER INFORMATION

Property Owner Name Morro 94, LLC
 Mailing Address 2141 Tuolumne St, Suite J City Fresno Zip 93721
 Telephone Number 559-479-1530 Email _____

WELL CONSULTANT INFORMATION

Consultant Company Analytical Consulting Group Telephone Number (805) 340-2617
 Consultant Name Michael Tiffany Email mtiffany@analyticalconsultinggroup.com

WELL TYPE

PURPOSE OF WELL

DRILLING METHOD

<input type="checkbox"/> Construction	<input type="checkbox"/> Monitoring	<input type="checkbox"/> Electric > 50'	<input type="checkbox"/> Cathodic Protection > 50'	<input type="checkbox"/> Rotary	<input type="checkbox"/> Cable Tool
<input type="checkbox"/> Repair/Modify	<input type="checkbox"/> Test Well	<input checked="" type="checkbox"/> Soil Testing > 25'	<input type="checkbox"/> Sparging > 25'	<input type="checkbox"/> Reverse Rotary	<input checked="" type="checkbox"/> Other
<input type="checkbox"/> Vapor Extraction	(Permit required for listed depth or encountering groundwater)				
		<input type="checkbox"/> Air Rotary			

Proposed Depth 50' Casing Diameter 6 1/4" Annular Seal Depth _____ Seal Material Bentonite chips Proposed Length of Work 2 days

Agency requiring monitoring well implementation, and/or reason for monitoring well
Central Coast RWQCB approved site assessment workplan. Soil borings only, no wells.

WELL DRILLER INFORMATION

Drilling Contractor Name W. Randall Glaze C-57 License No 611394
 Drilling Company Name S&G Drilling Company Telephone Number (805) 735-3454
 Mailing Address 308 North First St Lompoc, CA 93436
 Fax (805) 735-3456 Email Address sgdrilling@verizon.net

I hereby agree to comply with all applicable laws and regulations of the County of San Luis Obispo and the State of California pertaining to well construction, destruction, repair or modification. Within sixty days after completion of the well, I will furnish Environmental Health Services with a well completion report. This application becomes a valid permit following sign-off by Environmental Health Services.

DRILLING SHALL NOT COMMENCE UNTIL THIS APPLICATION IS APPROVED

Contractor Signature W. Randall Glaze Contractor Printed Name W. Randall Glaze Date 19/20

FOR OFFICE USE ONLY

RECEIVED BY _____ DATE _____ FEE PAID \$ _____ CK/CC _____

WELL SITE APPROVED: YES NO BY _____ DATE _____

WELL SITE APPROVAL GPS COORDINATES _____ N _____ W _____

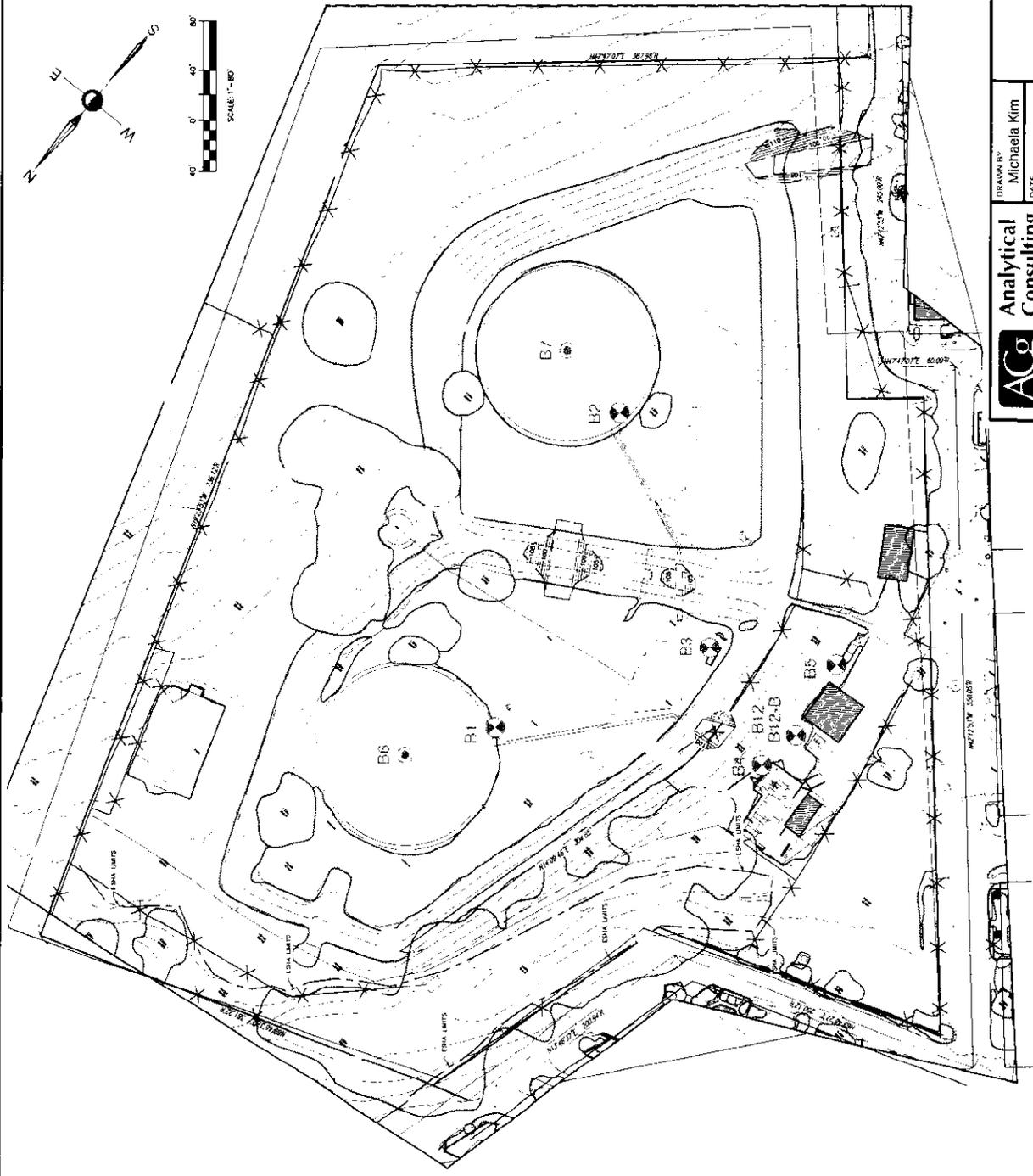
PERMIT EXPIRATION DATE _____

SPECIAL REQUIREMENTS FOR DRILLING CONTRACTOR _____

WELL SEAL WITNESSED: YES NO BY _____ DATE _____ DEPTH _____

WELL SEAL GPS COORDINATES _____ N _____ W _____

WELL COMPLETION REPORT RECEIVED DATE _____



LEGEND

- 
 Hollow Stem Auger Boring Location with TPH and/or other VOC Contamination
- 
 Hollow Stem Auger Boring Location without TPH and other VOC contamination
- 
 Direct Push Boring Location with TPH and/or other VOC contamination
- 
 Direct Push Boring Location without TPH and other VOC contamination

	DRAWN BY: Michaela Kim DATE: February 2021	SOIL SAMPLING MAP DFSP Morro Bay 3300 Panorama Road, Morro Bay, California
		Figure



COUNTY OF SAN LUIS OBISPO HEALTH AGENCY
ENVIRONMENTAL HEALTH SERVICES DIVISION

FILE # 2020-086
11 23 2020
WF 1024720
W 128742

MONITORING WELL PERMIT APPLICATION NUMBER OF WELLS

SITE INFORMATION
Proposed Well Site Address: 3500 Highway 101
Address of Well Location: 3500 Highway 101

WELL OWNER INFORMATION
Well Owner: E.V. Group LLC & Manager

PROPERTY OWNER INFORMATION
Property Owner Name: Morro 94, LLC
Telephone Number: 805-777-8888

WELL CONSULTANT INFORMATION
Consultant Company: Analytical Environmental
Consultant Name: John O'Neil

WELL TYPE **PURPOSE OF WELL** **DRILLING METHOD**

<input type="checkbox"/> Construction	<input type="checkbox"/> Monitoring	<input type="checkbox"/> Observation	<input type="checkbox"/> Other	<input type="checkbox"/> Open Pit	<input type="checkbox"/> Other
<input type="checkbox"/> Repair/Modify	<input type="checkbox"/> Test	<input type="checkbox"/> Other	<input type="checkbox"/> Other	<input type="checkbox"/> Other	<input type="checkbox"/> Other
<input type="checkbox"/> Other	<input type="checkbox"/> Other	<input type="checkbox"/> Other	<input type="checkbox"/> Other	<input type="checkbox"/> Other	<input type="checkbox"/> Other

Drilling Method: Bentonite chips
Additional notes: Central Coast RWQCB approved site assessment workplan. Soil borings only, no wells.

WELL DRILLER INFORMATION
Driller Name: W Randall Glaze
Driller License Number: 1920

FOR OFFICE USE ONLY
X *John O'Neil* 5/24/21
CK # 4018 267-
C.C. # 424804 1048-
11/24/2020
Please see attached email specifying sealing materials method. No bentonite chips not acceptable

LOG OF B1

JOB NUMBER: 11202 CLIENT NAME: Rhine LP & Morro94, LLC SITE ADDRESS: 3300 Panorama Dr Morro Bay, CA LOGGED BY: Michael Tiffany	DATE: 11/24/2020 DRILL RIG: Hollow-stem auger SAMPLING METHOD: Split-spoon BORING DIAMETER: 6-½ inch SURFACE CONDITIONS: Soil
--	--

Depth in feet	Sample Type†	LITHOLOGIC DESCRIPTION	USCS Code	PID Reading (ppmv)	Blows per Foot	Graphic Log	Well Diagram
0							
2	SD	Clay, brown, stiff, moist, no odor	CL		6/9/16		
5	SD	Clayey silt, light brown, moist, no odor	ML		6/12/14		
10	SD	Clayey silt, brown stiff, moist, slight petroleum odor	ML		6/12/17		
15	SD	Clay, yellow brown, stiff, moist, slight petroleum odor	CL		8/11/17		
20	SD	Clay, light brown, stiff, moist, no odor	CL		7/13/30		
25	SD	Clay, yellow brown, stiff, moist, no odor	CL		8/10/16		
30	SD	Clayey silt, grey, stiff, moist, no odor	ML		9/15/27		
35	N	Greywacke bedrock, no sample			12/24/40		
		End @ 35 ft., No water. Backfilled with grout.					

†Sample Type: **S** = Soil **W** = Water **V** = Vapor
 D = Drive **G** = Grab **N** = No Recovery

State of California
Well Completion Report
 Form DWR 188 Submitted 6/15/2021
 WCR2021-006925

Owner's Well Number B2 Date Work Began 11/24/2020 Date Work Ended 11/24/2020
 Local Permit Agency San Luis Obispo County Environmental Health Services
 Secondary Permit Agency _____ Permit Number 2020-086 Permit Date 11/23/2020

Well Owner (must remain confidential pursuant to Water Code 13752)	Planned Use and Activity
Name <u>CVI GROUP LLC MORRO 94 LLC,</u>	Activity <u>Drill and Destroy</u>
Mailing Address <u>2141 Tuolumne St., Ste J</u>	Planned Use <u>Destruction</u>
City <u>Fresno</u> State <u>Ca</u> Zip <u>93721</u>	

Well Location					
Address <u>3300 Panorama CT</u>			APN <u>065038001</u>		
City <u>Morro Bay</u>	Zip <u>93442</u>	County <u>San Luis Obispo</u>	Township <u>29 S</u>		
Latitude <u>35</u> <u>24</u> <u>18.972</u> <u>N</u>	Longitude <u>-120</u> <u>51</u> <u>50.6879</u> <u>W</u>	Range <u>10 E</u>			
Deg. Min. Sec.	Deg. Min. Sec.	Section <u>14</u>			
Dec. Lat. <u>35.40527</u>	Dec. Long. <u>-120.86408</u>	Baseline Meridian <u>Mount Diablo</u>			
Vertical Datum _____	Horizontal Datum <u>WGS84</u>	Ground Surface Elevation _____			
Location Accuracy _____	Location Determination Method _____	Elevation Accuracy _____			
		Elevation Determination Method _____			

Borehole Information	
Orientation <u>Vertical</u>	Specify _____
Drilling Method <u>Auger</u>	Drilling Fluid <u>None</u>
Total Depth of Boring <u>50</u> Feet	
Total Depth of Completed Well _____ Feet	

Water Level and Yield of Completed Well	
Depth to first water _____	(Feet below surface)
Depth to Static _____	
Water Level _____	(Feet) Date Measured _____
Estimated Yield* _____	(GPM) Test Type _____
Test Length _____	(Hours) Total Drawdown _____ (feet)
*May not be representative of a well's long term yield.	

Geologic Log - USCS/ASTM D2488			
Depth from Surface	Soil Class	Soil Color	Soil Description
0	2	(ML) Silt	
2	20	(CL) Lean clay	
45	50	(SP) Poorly graded sand with gravel	
20	25	(ML) Silt	
25	30	(CL) Lean clay	
30	35	(ML) Silt	
35	40	(ML) Silt	
40	45	(CL) Lean clay	

LOG of B2

JOB NUMBER: 11202	DATE: 11/24/2020
CLIENT NAME: Rhine LP & Morro94 LLC	DRILL RIG: Hollow-stem auger
SITE ADDRESS: 3300 Panorama Dr Morro Bay, CA	SAMPLING METHOD: Split-spoon
LOGGED BY: Michael Tiffany	BORING DIAMETER: 6-½ inch
	SURFACE CONDITIONS: Soil

Depth in feet	Sample Type†	LITHOLOGIC DESCRIPTION	USCS Code	PID Reading (ppmv)	Blows per Foot	Graphic Log	Well Diagram
0							
2	SD	Clayey silt, light brown, stiff, moist, no odor	ML		4/6/13		
5	SD	Clay, dark brown, stiff, moist, no odor	CL		5/11/16		
10	SD	Clay, dark brown, stiff, moist, slight petroleum odor	CL		7/12/17		
15	SD	Clay, yellow brown, stiff, moist, slight petroleum odor	CL		7/11/12		
20	SD	Clayey silt, red brown, stiff, moist, strong petroleum odor	ML		9/11/16		
25	SD	Clayey silt, brown, stiff, moist, slight petroleum odor	ML		5/14/34		
30	SD	Clay, brown, stiff, moist, no odor	CL		6/15/30		
35	SD	Clayey silt, red brown, stiff, moist, no odor	ML		14/15/2		

†Sample Type: **S** = Soil **W** = Water **V** = Vapor
 D = Drive **G** = Grab **N** = No Recovery

State of California
Well Completion Report
 Form DWR 188 Submitted 6/15/2021
 WCR2021-006927

Owner's Well Number 83 Date Work Began 11/24/2020 Date Work Ended 11/24/2020
 Local Permit Agency San Luis Obispo County Environmental Health Services
 Secondary Permit Agency _____ Permit Number 2020-086 Permit Date 11/23/2020

Well Owner (must remain confidential pursuant to Water Code 13752)	Planned Use and Activity
Name <u>CVI GROUP LLC MORRO 94 LLC,</u>	Activity <u>Drill and Destroy</u>
Mailing Address <u>2141 Tuolumne St., Ste J</u>	Planned Use <u>Destruction</u>
City <u>Fresno</u> State <u>Ca</u> Zip <u>93721</u>	

Well Location	
Address <u>3300 Panorama CT</u>	APN <u>065038001</u>
City <u>Morro Bay</u> Zip <u>93442</u> County <u>San Luis Obispo</u>	Township <u>29 S</u>
Latitude <u>35</u> <u>24</u> <u>18.972</u> N Longitude <u>-120</u> <u>51</u> <u>50.6879</u> W	Range <u>10 E</u>
Deg. Min. Sec. Deg. Min. Sec.	Section <u>14</u>
Dec. Lat. <u>35.40527</u> Dec. Long. <u>-120.86408</u>	Baseline Meridian <u>Mount Diablo</u>
Vertical Datum _____ Horizontal Datum <u>WGS84</u>	Ground Surface Elevation _____
Location Accuracy _____ Location Determination Method _____	Elevation Accuracy _____
	Elevation Determination Method _____

Borehole Information	
Orientation <u>Vertical</u> Specify _____	
Drilling Method <u>Auger</u> Drilling Fluid <u>None</u>	
Total Depth of Boring <u>50</u> Feet	
Total Depth of Completed Well _____ Feet	

Water Level and Yield of Completed Well	
Depth to first water _____ (Feet below surface)	
Depth to Static _____	
Water Level _____ (Feet) Date Measured _____	
Estimated Yield* _____ (GPM) Test Type _____	
Test Length _____ (Hours) Total Drawdown _____ (feet)	
*May not be representative of a well's long term yield.	

Geologic Log - USCS/ASTM D2488			
Depth from Surface	Soil Class	Soil Color	Soil Description
0 - 2	(CL) Lean clay		
2 - 5	(CL) Lean clay		
5 - 10	(ML) Silt		
10 - 15	(ML) Silt		
15 - 20	(ML) Silt		
20 - 25	(ML) Silt		
25 - 30	(ML) Silt		
30 - 35	(SC) Clayey sand		
35 - 40	(CL) Lean clay		
40 - 50	(ML) Silt		

LOG OF B3

JOB NUMBER: 11202	DATE: 11/24/2020
CLIENT NAME: Rhine LP & Morro94, LLC	DRILL RIG: Hollow-stem auger
SITE ADDRESS: 3300 Panorama Dr Morro Bay, CA	SAMPLING METHOD: Split-spoon
LOGGED BY: Michael Tiffany	BORING DIAMETER: 6-½ inch
	SURFACE CONDITIONS: Soil

Depth in feet	Sample Type†	LITHOLOGIC DESCRIPTION	USCS Code	PID Reading (ppmv)	Blows per Foot	Graphic Log	Well Diagram
0							
2	SD	Clay, brown, stiff, moist, no odor	CL		4/6/10		
5	SD	Clay, brown, stiff, moist, no odor	CL		6/10/14		
10	SD	Clayey silt, brown, stiff, moist, no odor	ML		7/13/19		
15	SD	Clayey silt, brown, stiff, moist, no odor	ML		7/15/19		
20	SD	Clay, dark brown, stiff, moist, no odor	CL		8/13/19		
25	SD	Clayey silt, yellow brown, stiff, moist, no odor, some fragments of Serpentine rock	ML		14/25/5		
30	SD	Clayey silt, yellow brown, stiff, moist, no odor	ML		8/15/17		
35	SD	Clay with sand, light brown, stiff, moist, no odor	SC		10/10/8		

†Sample Type: **S** = Soil **W** = Water **V** = Vapor
 D = Drive **G** = Grab **N** = No Recovery

LOG OF B4

JOB NUMBER: I1202	DATE: 11/23/2020
CLIENT NAME: Rhine LP & Morro94, LLC	DRILL RIG: Hollow-stem auger
SITE ADDRESS: 3300 Panorama Dr Morro Bay, CA	SAMPLING METHOD: Split-spoon
LOGGED BY: Michael Tiffany	BORING DIAMETER: 6-½ inch
	SURFACE CONDITIONS: Soil

Depth in feet	Sample Type†	LITHOLOGIC DESCRIPTION	USCS Code	PID Reading (ppmv)	Blows per Foot	Graphic Log	Well Diagram
0							
5	SD	Clay, dark brown, stiff, moist, no odor	CL		3/6/7		
10	SD	Clay, mottled dark brown light brown, stiff, moist, slight petroleum odor	CL		2/4/8		
15	SD	Clay with sand, grey, moist, slight petroleum odor, 6" recovery	SC		16/28/2		
20	SD	Clay, grey, stiff, moist, slight petroleum odor	CL		7/10/14		
25	SD	Clay, grey, stiff, moist, slight petroleum odor	CL		8/12/14		
30	SD	Clayey sand, light brown, stiff, moist, slight petroleum odor, water @ 30 ft	SC		19/50/5		
34	SD	Silty clay, brown, stiff, moist, slight petroleum odor, dry	CL		4/10/11		

†Sample Type: **S** = Soil **W** = Water **V** = Vapor
 D = Drive **G** = Grab **N** = No Recovery

State of California
Well Completion Report
 Form DWR 188 Submitted 6/15/2021
 WCR2021-006930

Owner's Well Number B5 Date Work Began 11/23/2020 Date Work Ended 11/23/2020
 Local Permit Agency San Luis Obispo County Environmental Health Services
 Secondary Permit Agency _____ Permit Number 2020-086 Permit Date 11/23/2020

Well Owner (must remain confidential pursuant to Water Code 13752)	Planned Use and Activity
Name <u>CVI GROUP LLC MORRO 94 LLC,</u>	Activity <u>Drill and Destroy</u>
Mailing Address <u>2141 Tuolumne St., Ste J</u>	Planned Use <u>Destruction</u>
City <u>Fresno</u> State <u>Ca</u> Zip <u>93721</u>	

Well Location	
Address <u>3300 Panorama CT</u>	APN <u>065038001</u>
City <u>Morro Bay</u> Zip <u>93442</u> County <u>San Luis Obispo</u> Township <u>29 S</u>	
Latitude <u>35</u> <u>24</u> <u>18.972</u> N Longitude <u>-120</u> <u>51</u> <u>50.6879</u> W	Range <u>10 E</u>
Deg. Min. Sec. Deg. Min. Sec.	Section <u>14</u>
Dec. Lat. <u>35.40527</u> Dec. Long. <u>-120.86408</u>	Baseline Meridian <u>Mount Diablo</u>
Vertical Datum _____ Horizontal Datum <u>WGS84</u>	Ground Surface Elevation _____
Location Accuracy _____ Location Determination Method _____	Elevation Accuracy _____
	Elevation Determination Method _____

Borehole Information	Water Level and Yield of Completed Well
Orientation <u>Vertical</u> Specify _____	Depth to first water _____ (Feet below surface)
Drilling Method <u>Auger</u> Drilling Fluid <u>None</u>	Depth to Static _____
Total Depth of Boring <u>50</u> Feet	Water Level _____ (Feet) Date Measured _____
Total Depth of Completed Well _____ Feet	Estimated Yield* _____ (GPM) Test Type _____
	Test Length _____ (Hours) Total Drawdown _____ (feet)
	*May not be representative of a well's long term yield.

Geologic Log - USCS/ASTM D2488			
Depth from Surface	Soil Class	Soil Color	Soil Description
0	5	(CL) Lean clay	
5	10	(CL) Lean clay	
10	15	(ML) Silt	
15	20	(ML) Silt	
20	25	(ML) Silt	
25	30	(ML) Silt	
30	35	(ML) Silt	
35	40	(ML) Silt	
40	50	(ML) Silt	

LOG of B5

JOB NUMBER: 11202	DATE: 11/23/2020
CLIENT NAME: Rhine LP & Morro94, LLC	DRILL RIG: Hollow-stem auger
SITE ADDRESS: 3300 Panorama Dr Morro Bay, CA	SAMPLING METHOD: Split-spoon
LOGGED BY: Michael Tiffany	BORING DIAMETER: 6-½ inch
	SURFACE CONDITIONS: Soil

Depth in feet	Sample Type†	LITHOLOGIC DESCRIPTION	USCS Code	PID Reading (ppmv)	Blows per Foot	Graphic Log	Well Diagram
0							
5	SD	Silty clay, dark greyish brown, moist, stiff, no odor	CL		7/11/14		
10	SD	Silty clay, brown, moist, stiff, no odor	CL		5/12/19		
15	SD	Clayey silt, brown, moist, stiff, no odor	ML		8/16/22		
20	SD	Clayey silt, brown, moist, stiff, no odor	ML		5/11/18		
25	SD	Clayey silt, brown, moist, stiff, no odor	ML		6/10/11		
30	SD	Clayey silt, brown, moist, stiff, no odor	ML		5/8/8		
35	SD	Clayey silt, grey, moist, stiff, slight petroleum odor	ML		9/11/16		

†Sample Type: **S** = Soil **W** = Water **V** = Vapor
 D = Drive **G** = Grab **N** = No Recovery

State of California
Well Completion Report
 Form DWR 188 Submitted 6/15/2021
 WCR2021-006932

Owner's Well Number B12B Date Work Began 11/23/2020 Date Work Ended 11/23/2020
 Local Permit Agency San Luis Obispo County Environmental Health Services
 Secondary Permit Agency _____ Permit Number 2020-086 Permit Date 11/23/2020

Well Owner (must remain confidential pursuant to Water Code 13752)	Planned Use and Activity
Name <u>CVI GROUP LLC MORRO 94 LLC,</u>	Activity <u>Drill and Destroy</u>
Mailing Address <u>2141 Tuolumne St., Ste J</u>	Planned Use <u>Destruction</u>
City <u>Fresno</u> State <u>Ca</u> Zip <u>93721</u>	

Well Location	
Address <u>3300 Panorama CT</u>	APN <u>065038001</u>
City <u>Morro Bay</u> Zip <u>93442</u> County <u>San Luis Obispo</u>	Township <u>29 S</u>
Latitude <u>35 24 18.972 N</u> Longitude <u>-120 51 50.6879 W</u>	Range <u>10 E</u>
Deg. Min. Sec. Deg. Min. Sec.	Section <u>14</u>
Dec. Lat. <u>35.40527</u> Dec. Long. <u>-120.86408</u>	Baseline Meridian <u>Mount Diablo</u>
Vertical Datum _____ Horizontal Datum <u>WGS84</u>	Ground Surface Elevation _____
Location Accuracy _____ Location Determination Method _____	Elevation Accuracy _____
	Elevation Determination Method _____

Borehole Information	Water Level and Yield of Completed Well
Orientation <u>Vertical</u> Specify _____	Depth to first water _____ (Feet below surface)
Drilling Method <u>Auger</u> Drilling Fluid <u>None</u>	Depth to Static _____
Total Depth of Boring <u>45</u> Feet	Water Level _____ (Feet) Date Measured _____
Total Depth of Completed Well _____ Feet	Estimated Yield* _____ (GPM) Test Type _____
	Test Length _____ (Hours) Total Drawdown _____ (feet)
	*May not be representative of a well's long term yield.

Geologic Log - USCS/ASTM D2488			
Depth from Surface	Soil Class	Soil Color	Soil Description
0	10	(CL) Lean clay	
10	15	(ML) Silt	
15	35	(CL) Lean clay	
35	45	(SP) Poorly graded sand	

Casings									
Casing #	Depth from Surface Feet to Feet	Casing Type	Material	Casings Specificatons	Wall Thickness (inches)	Outside Diameter (inches)	Screen Type	Slot Size if any (inches)	Description

Annular Material				
Depth from Surface Feet to Feet	Fill	Fill Type Details	Filter Pack Size	Description

LOG of B12-B

JOB NUMBER: 11202	DATE: 11/23/2020
CLIENT NAME: Rhine LP & Morro94, LLC	DRILL RIG: Hollow-stem auger
SITE ADDRESS: 3300 Panorama Dr Morro Bay, CA	SAMPLING METHOD: Split-spoon
LOGGED BY: Michael Tiffany	BORING DIAMETER: 6-½ inch
	SURFACE CONDITIONS: Soil

Depth in feet	Sample Type†	LITHOLOGIC DESCRIPTION	USCS Code	PID Reading (ppmv)	Blows per Foot	Graphic Log	Well Diagram
0							
5							
10							
15							
20	SD	Broken serpentine rock, slight petroleum odor, no sample			15/28/31		
25	SD	Clay with sand, grey, moist, stiff, strong petroleum odor	CL		5/9/34		
30	SD	Clay, grey, moist, stiff, strong petroleum odor	CL		12/18/36		
35	SD	Clay, yellowish brown, moist, stiff, slight petroleum odor	CL		6/12/21		

†Sample Type: **S** = Soil **W** = Water **V** = Vapor
 D = Drive **G** = Grab **N** = No Recovery

APPENDIX III

Oilfield Environmental & Compliance Laboratory Reports and Chains of Custody

