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Date: July 15, 2024
Our Ref: 30064225
Subject: Second Quarter 2024 Remediation System Operations and
Maintenance Report

Dear Rebekah Reams,

On behalf of Chevron Environmental Management Company, Arcadis US, Inc. has prepared the attached Second Quarter 2024 Remediation System Operations and Maintenance Report for the following facility:

<u>Site Name:</u>	<u>ADEC File No.</u>	<u>Hazard ID:</u>	<u>Location</u>
Unocal - #5057 Former (306450)	2100.26.115	23369	4351 Old International Airport Road, Anchorage, Alaska

If you have any questions, please do not hesitate to contact me at one of the methods below.

Sincerely,

Arcadis U.S., Inc.



Gerald A. Robinson
Project Manager

Email: Gerald.robinson@arcadis.com
Direct Line: 724 934 9507

CC.

James Kiernan, CEMC (*electronic copy*)
Scott Lytle, Anchorage International Airport (*electronic copy*)

Chevron Environmental Management Company

Second Quarter 2024 Remediation System Operations and Maintenance Report

**Unocal - #5057 Former (306450)
4351 Old International Airport Road
Anchorage, Alaska**

**ADEC File No.: 2100.26.115
Hazard ID: 23369**

July 15, 2024

Second Quarter 2024 Remediation System Operations and Maintenance Report

Unocal - #5057 Former (306450)
4351 Old International Airport Road
Anchorage, Alaska
ADEC File No.: 2100.26.115
Hazard ID: 23369

July 15, 2024

Prepared By:

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Prepared For:


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Our Ref:

30064225



Kama Mayne
Project Task Manager I



Gerald A. Robinson
Project Manager

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Contents

Acronyms and Abbreviations.....	iii
1 Introduction.....	1
2 Remediation System Background.....	1
3 Remediation System O&M Methods.....	2
4 SVE Effluent Analytical Results.....	3
5 Remediation System Operation and Performance Results.....	3
6 Laboratory Data Quality Assurance.....	3
7 Summary and Recommendations.....	4
8 References.....	4

Table

Table 1	Soil Vapor Extraction System Analytical Data and Remediation System Performance Results
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Figures

Figure 1	Site Location Map
Figure 2	Site Plan
Figure 3	Influent GRO and BTEX Concentrations
Figure 4	Cumulative GRO Mass Removal

Appendices

- O&M Data Sheets and Field Notes
- Laboratory Analytical Report
- Laboratory Data Review Checklist

Acronyms and Abbreviations

ADEC	Alaska Department of Environmental Conservation
Arcadis	Arcadis U.S., Inc.
AS	air sparge
AST	above-ground storage tank
BTEX	benzene, toluene, ethylbenzene, and total xylenes
CEMC	Chevron Environmental Management Company
GRO	gasoline range organics
LEL	lower explosive limit
LNAPL	light non-aqueous phase liquid
O&M	operations and maintenance
ppmv	part per million by volume
site	former Unocal #5057, located at 4351 Old International Airport Road in Anchorage, Alaska
SVE	soil vapor extraction
USEPA	United States Environmental Protection Agency
UST	underground storage tank
VOC	volatile organic compound

1 Introduction

On behalf of Chevron Environmental Management Company (CEMC), Arcadis U.S., Inc. (Arcadis) has prepared this *Second Quarter 2024 Remediation System Operations and Maintenance Report* for Former Unocal - #5057 (CEMC Facility No. 306450) located at 4351 Old International Airport Road in Anchorage, Alaska (site; Figure 1). Site work was conducted by a Qualified Environmental Sampler under the supervision of a Qualified Environmental Professional in accordance with 18 Alaska Administrative Code 73.333.

Union Oil Company of California (Unocal) operated a service station at the site from 1953 through 1988. CEMC manages environmental matters on behalf of Unocal. The site is currently a vacant lot, leased by Unocal, located in a commercial area on Anchorage International Airport property at the intersection of Old International Airport Road and South Aircraft Drive. The service station historically included a station building, six petroleum underground storage tanks (USTs), three vertical petroleum above-ground storage tanks (ASTs), a dispenser island, and underground piping. The ASTs and five of the six USTs were removed in 1988 when the facility was demolished. The remaining UST is owned by the State of Alaska and was abandoned in place because of its proximity to an offsite building. Approximately 2,800 cubic yards of petroleum hydrocarbon-impacted soil were removed and disposed offsite during facility decommissioning. Limitations of the field equipment prevented complete removal of impacted soil in the former pump island and AST areas, as determined by confirmation soil samples. Site details are shown on Figure 2.

2 Remediation System Background

In 1990, a soil vapor extraction (SVE) system was installed and connected to monitoring wells MW-5A, MW-8, and MW-9. In 1992, a light non-aqueous phase liquid (LNAPL) recovery system was installed, which consisted of a Petro-trap® passive recovery bailer in MW-7A. An additional recovery/SVE well, RW-14, and air sparge (AS) wells S-1 and S-2 were installed in 1995. In 1996, AS wells S-1 and S-2 were operational, and the SVE and LNAPL recovery systems were retrofitted. Recovery well RW-14 was used for vacuum-enhanced LNAPL recovery, and monitoring wells MW-2, MW-5A, and MW-10 were connected to the SVE system (Geo-engineers 1996a; 1996b).

The SVE blower and the AS compressor were inoperable in December 2003 following 10 years of operation. The SVE blower was replaced, and approval for permanent shutdown of the AS system was requested from the Alaska Department of Environmental Conservation (ADEC). The request was approved, and AS wells S-1 and S-2 were decommissioned.

Also in December 2003, ADEC authorized the decommissioning of monitoring wells MW-1, MW-3, MW-4, MW-6, and MW-8. The five monitoring wells were decommissioned in 2004.

In June 2008, the SVE system was shut down because of a faulty lower explosive limit (LEL) meter. The SVE system was restarted in August 2008, after the installment of secondary containment around the SVE knockout tank, which included a high-level shut off float switch. Additional electrical work was performed to bring the remediation system up to City of Anchorage code and CEMC standards.

In September 2009, an additional SVE line was connected to monitoring well MW-14. This well was connected to address petroleum hydrocarbon concentrations detected in soil during 2008 assessment activities.

The SVE system was shut down in June 2011, in preparation for vapor probe installation at the 4510 Old International Airport Road building across the street. Three vapor probes were installed on the west, north, and east sides of the building. The system remained off to allow soil vapor in the subsurface to return to static conditions prior to soil vapor sampling. No remediation system maintenance was conducted during the month of June. The system was restarted in July 2011.

In the third quarter of 2011, monitoring wells MW-7 and MW-7A were connected to the system to optimize performance. As of the end of 2011, the SVE system was connected to MW-5A, MW-7, and MW-7A. Monitoring well MW-10 and recovery well RW-14 were removed from system operation. The SVE system was shut down in October 2012, following a routine operations and maintenance (O&M) system evaluation. In May 2013, the system was restarted following completion of the following upgrades:

- Installation of vacuum relief valve on moisture separator;
- Installation of air filter on dilution air intake on moisture separator;
- Anchoring and securing moisture separator and secondary containment unit; and
- Installation of interior emergency stop button.

In addition to these system upgrades, a bubbler was installed in MW-7A to enhance petroleum hydrocarbon recovery from this well. The bubbler generated micro-bubbles and injected them into groundwater. The injected air aids in the removal of volatile organic compounds (VOCs) from impacted groundwater.

In January 2014, an emergency shutdown button was installed on the exterior fencing of the remediation system. In May and June 2015, Arcadis conducted routine O&M on the system. Tasks included testing the air/water separator high-level switch and LEL meter. The high-level switch was manually engaged confirming operation. The LEL meter was calibrated and confirmed to shut down on high-level alarm at 15 percent. In November 2015, a high-pressure influent shutdown switch was installed on the SVE influent header.

At the beginning of fourth quarter 2020, the system SVE blower was reported as not operational and needed to be replaced. A replacement was ordered; however, when it arrived in June 2021, several parts were missing. A second replacement was ordered and installed after receipt in August 2021.

In 2023, there was an interruption of the system operation due to a power outage. The system was not in operation from October 12 to 27, 2023. The system was restarted on October 27, 2023, and monthly system O&M was completed on October 30, 2023.

In April 2024, a request was made to ADEC to shut down the remedial system based on asymptotic conditions and low hydrocarbon recovery. In a letter dated May 15, 2024, ADEC conditionally approved the request but also requested a plan to monitor for any rebound in groundwater concentrations following system shutdown.

3 Remediation System O&M Methods

Field activities at the site are conducted pursuant to a letter from ADEC to Unocal Alaska dated September 2, 2005. Typically, O&M activities, including system readings and influent air sampling, were conducted monthly. On February 21, 2012, during a meeting with ADEC, Arcadis received approval to discontinue monthly sampling and initiate quarterly influent sampling. However, influent measurements for VOCs using a photoionization detector (PID) have continued monthly.

Current quarter SVE influent air samples were transported to Pace Analytical Laboratory of Mt. Juliet, Tennessee via FedEx under chain-of-custody documentation for the following chemical analyses:

- Total petroleum hydrocarbons (low fraction) (gasoline range organics [GRO]) by United States Environmental Protection Agency (USEPA) Method TO-15; and
- Benzene, toluene, ethylbenzene, and total xylenes (BTEX) by USEPA Method TO-15.

GRO recovery rates were calculated based on the concentration of GRO detected in an influent sample, the flow rate, and the total operational time of the system. GRO recovery rates were used to evaluate the cumulative mass of GRO removed from the subsurface since 1990. The SVE influent air flow rate was measured with a hot wire anemometer in conjunction with SVE influent sampling.

4 SVE Influent Analytical Results

The second quarter 2024 remedial system O&M activities were conducted on April 9, May 13, and June 11, 2024. Data collected during system O&M activities are included on the data sheets and field notes included in Appendix A. On April 9, 2024, SVE system influent sampling was conducted. One influent vapor sample was collected from the system manifold connected to operating SVE wells MW-7 and MW-7A. Benzene was detected at a concentration of 0.00342 parts per million by volume (ppmv), toluene was detected at a concentration of 0.0123 ppmv, ethylbenzene was detected at a concentration of 0.00280, and total xylenes were detected at a concentration of 0.0567 ppmv. GRO was detected at a concentration of 4.09 ppmv. Compared to previous data, the influent concentrations were generally higher.

The analytical results are summarized in Table 1. Laboratory analytical data are included in Appendix B. Historical GRO and BTEX concentration data are shown on Figure 3.

5 Remediation System Operation and Performance Results

From April 9 to June 11, 2024, the SVE system operated for 2,012.8 hours with a run time of approximately 100 percent.

The SVE system influent flow rate measured during the second quarter 2024 ranged from 5.5 to 14.8 standard cubic feet per minute (scfm). Calculations based upon the system flow rates and influent concentration data indicated that approximately 1.44 pounds of GRO was removed by the SVE system during the second quarter 2024. The cumulative mass of GRO removed from the subsurface since system startup is approximately 14,690 pounds. BTEX removal is not calculated based on the limited influent concentrations. Remediation performance results and mass removal calculations for second quarter 2024 are included in Table 1. Cumulative GRO mass removal is shown on Figure 4.

6 Laboratory Data Quality Assurance

As required by ADEC (Technical Memorandum, March 2019), Arcadis completed a laboratory data review checklist for the Pace Analytical laboratory report from the first quarter 2024. The following list summarizes the quality and usability of the data presented in this report based on six quality assurance parameters:

- Precision—Based on the laboratory control sample and laboratory control sample duplicate relative percent differences, the data meet precision objectives.
- Accuracy—The data meet accuracy objectives as indicated by the laboratory quality control samples, which were within method/laboratory limits.
- Representativeness—The data appear to be representative of site conditions and are generally consistent with expected influent air concentrations.
- Comparability— The laboratory results are presented in the same units as previous reports to allow comparison.
- Completeness—The results appear to be valid and usable, and thus, the laboratory results have 100 percent completeness.
- Sensitivity—The sensitivity of the analyses was adequate for the samples.

These parameters are evaluated in the ADEC checklist included in Appendix C.

7 Summary and Recommendations

The SVE system was operational for approximately 100 percent of the reporting period from April 9 through June 11, 2024. Calculations based upon the system flow rates and influent concentration data indicate that approximately 1.44 pounds of GRO were removed by the SVE system during the second quarter 2024. Compared to recent data, the influent concentrations were greater than the previous quarter. Arcadis will continue to collect system readings monthly and influent vapor samples quarterly to monitor system performance until the rebound monitoring plan is submitted and system shutdown is approved.

The cumulative mass of GRO removed since system startup is approximately 14,690 pounds.

8 References

- ADEC. 2019. Technical Memorandum: Minimum Quality Assurance Requirements for Sample Handling, Reports, and Laboratory Data. ADEC Division of Spill Prevention and Response Contaminated Sites Program. October.
- Geoengineers. 1996a. Results of Air Dispersion Modeling, Unocal Service Station No. 5057. March 6.
- Geoengineers. 1996b. Well Installation, Pilot Testing and System Installation, Former Unocal Service Station #5057. September 27.

Table

Table 1
Soil Vapor Extraction System Analytical Data and Remediation System Performance Results
UNOCAL—#5057 Former (306450)
4351 Old International Airport Road
Anchorage, Alaska



Date Sampled	Hours of Operation During Period	Flow Rate	Benzene	Toluene	Ethylbenzene	Total Xylenes	GRO	GRO Recovery Rate	Net GRO Removed	Cumulative GRO Recovery	Notes
	(hours)	(scfm)	(ppmv)	(ppmv)	(ppmv)	(ppmv)	(ppmv)	(lbs/day)	(lbs)	(lbs)	
11/08/90	Not Available		<0.007	0.018	0.01	0.035	NA		Not Available		--
02/22/91	Not Available		<0.007	<0.003	<0.007	<0.005	NA		Not Available		--
08/22/91	Not Available		18	520	280	1,200	NA		Not Available		3
11/4/91	Not Available		540	300	2,400	1,700	NA		Not Available		3
02/25/92	Not Available		<0.005	<0.005	<0.005	<0.005	NA		Not Available		4
05/27/92	Not Available		0.212	0.098	0.943	0.4	NA		Not Available		--
12/18/92	Not Available		<0.001	<0.001	<0.001	<0.001	NA		Not Available		--
03/09/93	Not Available		<0.001	<0.001	<0.001	<0.001	NA		Not Available		--
05/24/93	Not Available		0.018	0.026	0.128	0.104	NA		Not Available		--
08/20/93	Not Available		0.015	0.018	0.119	0.087	NA		Not Available		--
11/30/93	Not Available		0.009	0.005	0.077	0.023	NA		Not Available		--
02/10/94	Not Available		0.006	0.010	0.076	0.052	NA		Not Available		--
06/21/94	Not Available		0.85	0.41	3.71	2.00	NA		Not Available		--
09/06/94	Not Available		1.22	0.85	6.90	4.15	NA		Not Available		--
12/8/94	Not Available		0.25	0.09	0.66	0.41	NA		Not Available		5
03/14/95	Not Available		0.02	<0.012	0.08	<0.023	NA		Not Available		5
06/7/95	Not Available		0.04	<0.012	0.03	<0.03	NA		Not Available		5
09/11/95	Not Available		<0.05	<0.05	<0.05	<0.10	NA		Not Available		5
12/13/96	Not Available		0.29	0.13	1.17	0.69	NA		Not Available		--
03/11/96	Not Available		0.06	0.06	0.34	0.39	NA		Not Available		--
06/11/96	Not Available		NS	NS	NS	NS	NA		Not Available		6
09/25/96	Not Available		1.21	4.10	0.64	4.12	NA		Not Available		--
Data not available for period between 9/25/96 and 3/10/98.											7
03/17/98	Not Available		0.890	1.76	0.118	0.876	42.9		Not Available		--
09/21/98	Not Available		0.601	1.33	0.0969	0.762	28.7		Not Available		--
12/16/98	Not Available		0.674	1.38	0.112	1.31	44.2		Not Available		--
03/22/99	Not Available		0.538	1.09	0.0745	0.756	21.9		Not Available		--
06/30/99	Not Available		0.484	1.33	0.1090	1.050	35.4		Not Available		--
09/23/99	Not Available		0.0959	0.368	0.0571	0.511	10.3		Not Available		--
12/21/99	Not Available		0.344	0.884	0.0557	0.57	19.7		Not Available		--
03/21/00	Not Available		<0.0450	0.327	<0.0227	<0.0850	3.37		Not Available		--
06/01/00	Not Available		<0.150	0.680	0.111	0.866	9.55		Not Available		--
10/02/00	Not Available		0.0795	0.328	0.0575	0.498	8.74		Not Available		--
12/11/00	Not Available		<0.0308	0.156	0.0257	0.153	<2.36		Not Available		--
03/26/01	Not Available		<0.308	0.240	<0.0227	0.158	5.52		Not Available		--
06/28/01	Not Available		0.0503	0.167	0.0247	0.211	6.81		Not Available		--
09/28/01	Not Available		0.0622	0.311	0.0448	0.313	10.1		Not Available		--
12/27/01	Not Available		0.120	0.320	0.0371	0.373	13.1		Not Available		--
03/18/02	Not Available		0.124	0.171	<0.0227	0.111	7.85		Not Available		--
06/24/02	Not Available		0.535	0.575	0.0366	0.269	58.5		Not Available		--
03/31/03	6,720.0	81.0	0.0718	0.0934	0.417	0.856	14.9	0.39	107.9	4,493	8
06/10/03	1,704.0	81.0	1.54	1.84	7.59	15.7	398	10.29	730.6	5,364	8

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UNOCAL—#5057 Former (306450)
4351 Old International Airport Road
Anchorage, Alaska



Date Sampled	Hours of Operation During Period	Flow Rate	Benzene	Toluene	Ethylbenzene	Total Xylenes	GRO	GRO Recovery Rate	Net GRO Removed	Cumulative GRO Recovery	Notes
	(hours)	(scfm)	(ppmv)	(ppmv)	(ppmv)	(ppmv)	(ppmv)	(lbs/day)	(lbs)	(lbs)	
09/25/03	2,568.0	81.0	1.20	1.33	5.49	13.0	326	8.43	901.9	6,439	8
12/16/03	1,968.0	32.0	0.133	0.106	0.368	0.855	27.6	0.28	23.1	6,467	8
03/22/04	2,304.0	49.0	0.163	0.067	0.367	0.405	22.0	0.34	33.0	6,507	8
07/01/04	2,328.0	47.0	4.69	15.8	1.66	19.6	359	5.39	522.4	7,138	8
09/15/04	1,848.0	54.0	8.19	28.3	3.02	26.7	639	11.01	848.1	8,108	8
12/28/04	2,496.0	54.0	4.76	15.6	2.03	20.4	332	5.72	595.2	8,797	8
03/31/05	2,232.0	49.0	2.93	10.6	1.37	15.0	257	4.02	373.8	9,231	8
06/30/05	2,184.0	43.0	2.53	6.80	0.87	9.48	193	2.65	241.1	9,512	8
09/30/05	2,208.0	47.0	4.56	18.0	1.71	18.6	464	6.96	640.4	10,193	8
12/27/05	2,112.0	49.0	3.00	9.94	1.50	13.5	242	3.79	333.1	10,580	8
04/14/06	2,592.0	49.0	1.68	5.38	0.729	7.7	147	2.30	248.3	10,868	8
04/30/07	4,800.0	47.0	1.0	3.0	0.7	5	49	0.74	147.0	11,040	8,9,13
08/31/07	2,952.0	49.0	1.0	<0.8	<0.4	<0.7	80	1.25	153.9	11,194	13
12/06/07	2,328.0	49.0	<0.5	2.0	<0.4	4	50	0.78	75.9	11,270	13
03/13/08	2,184.0	48.3	<1.0	3.0	<0.8	6	76	1.17	106.7	11,376	10,13
04/01/08	228.0	35.0	<2	<3	<2	<3	<4	0.02	0.2	11,377	11,13
05/19/08	576.0	41.0	<1	<2.0	<0.8	4.0	38	0.50	11.9	11,389	13
09/05/08	407.6	31.0	<1	4.0	2.0	20.0	120	1.19	20.2	11,409	12,13
09/23/08	434.8	38.0	<0.5	2.0	<0.4	6.0	50	0.61	11.0	11,420	12,13
10/22/08	695.0	38.6	<0.5	2.0	<0.5	9.0	83	1.02	30	11,449	--
11/12/08	505.0	40.4	<0.5	1.0	<0.5	5.0	54	0.70	15	11,464	--
12/16/08	804.0	78.0	2.0	<2.0	<0.8	4.0	59	1.47	49	11,513	--
01/13/09	672.5	50.5	<1.0	2.0	<0.8	6.0	72	1.16	33	11,546	--
02/17/09	841.8	67.0	1.0	<2.0	<0.8	4.0	48	1.03	36	11,582	--
03/12/09	550.1	73.0	<1	<2.0	<0.8		6	0.15	3	11,585	--
04/29/09	259.2	43.3	2.0	<2.0	<0.8	5.0	82	1.13	12	11,597	--
05/15/09	379.0	61.0	2.0	<2.0	<0.8	7.0	110	2.14	34	11,631	--
06/12/09	618.0	55.0	1.0	<2.0	<0.8	4.0	53	0.92	24	11,655	--
07/09/09	744.0	66.5	2.0	<2.0	<0.8	6.0	82	1.74	54	11,709	--
08/12/09	729.0	70.2	<1.0	3.0	<0.8	10.0	95	2.13	65	11,774	--
09/11/09	705.5	79.0	<1.0	3.0	<0.8	7.0	96	2.42	71	11,845	--
10/15/09	710.0	70.5	<1.0	4.0	0.8	20.0	98	2.21	65	11,910	--
11/17/09	790.0	54.5	<1.0	<2.0	<0.8	4.0	49	0.85	28	11,938	--
12/18/09	719.0	53.0	<1.0	<2.0	<0.8	4.0	34	0.58	17	11,955	--
01/21/10	792.0	47.0	<1.0	<2.0	<0.8	3.0	30	0.45	15	11,970	--
02/26/10	864.0	55.5	<1.0	<2.0	<0.8	4.0	35	0.62	22	11,992	--
03/22/10	576.0	90.5	<1.0	<2.0	<0.8	3.0	30	0.87	21	12,013	--
04/08/10	402.4	63.5	<1.0	<2.0	<0.8	2.0	25	0.51	8	12,022	14
05/12/10	813.6	64.5	<1.0	<2.0	<0.8	4.0	37	0.76	26	12,048	--
06/15/10	148.3	54.0	<1.0	2.0	<0.8	8.0	66	1.14	7	12,055	--
07/29/10	888.0	59.0	<1.0	<2.0	<0.8	4.0	31	0.58	22	12,076	--
08/26/10	643.8	41.9	<1.0	<2.0	<0.8	4.0	26	0.35	9	12,086	--

Table 1
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UNOCAL—#5057 Former (306450)
4351 Old International Airport Road
Anchorage, Alaska



Date Sampled	Hours of Operation During Period	Flow Rate	Benzene	Toluene	Ethylbenzene	Total Xylenes	GRO	GRO Recovery Rate	Net GRO Removed	Cumulative GRO Recovery	Notes
	(hours)	(scfm)	(ppmv)	(ppmv)	(ppmv)	(ppmv)	(ppmv)	(lbs/day)	(lbs)	(lbs)	
09/10/10	360.0	51.5	<1.0	<2.0	<0.8	2.0	22	0.36	5	12,091	--
10/20/10	336.4	43.5	<1.0	<2.0	<0.8	4.0	58	0.81	11	12,102	16
11/30/10	1,127.1	48.1	<1.0	<2.0	<0.8	<1.0	5.6	0.09	4	12,106	--
12/29/10	345.1	39.6	<1.0	<2.0	<0.8	<1.0	16	0.20	3	12,109	--
01/17/11	458.8	44.2	<1.0	<2.0	<0.8	2	54	0.76	15	12,124	--
02/15/11	693.6	32.2	<1.0	<2.0	<0.8	2	26	0.27	8	12,131	--
03/16/11	688.3	47.0	<1.0	2.0	<0.8	4	65	0.98	28	12,159	--
04/04/11	458.0	50.0	<1.0	<2.0	<0.8	4	68	1.09	21	12,180	--
05/18/11	1,050.0	35.7	<1.0	<2.0	<0.8	<1.0	10	0.11	5	12,185	--
06/13/11	530.0	41.2	<1.0	<2.0	<0.8	<1.0	10	0.13	3	12,188	17
07/28/11	75.6	51.5	<1.0	<2.0	<0.8	4.0	240	3.95	12	12,200	18
08/15/11	259.8	51.5	<1.0	<2.0	<0.8	4.0	240	3.95	43	12,243	19
08/15/11	--	--	1.0	4.0	<0.8	3.0	360	--	--	12,243	20
08/15/11	--	--	1.0	4.0	<0.8	4.0	340	--	--	12,243	21
08/16/11	24.9	87.4	1.0	4.0	<0.8	7.0	210	5.86	6	12,249	22
08/25/11	209.7	87.4	<1.0	4.0	<0.8	7.0	140	3.91	34	12,283	
09/15/11	508.4	82.2	<1.0	4.0	<0.8	5.0	100	2.62	56	12,339	23
09/15/11	--	--	<1.0	3.0	<0.8	4.0	110	--	--	12,339	24
10/13/11	663.1	110.0	<1	4	<0.8	7	90	3.16	87	12,426	--
11/22/11	961.7	39.0	<1	<2.0	<0.8	2	50	0.62	25	12,451	--
12/21/11	698.5	30.0	<1	<2.0	<0.8	3	40	0.38	11	12,462	--
01/31/12	310.7	15.7	<1	<2	<0.8	<1	30	0.15	2	12,464	25
02/28/12	670.9	25.7	<1	<2	<0.8	3	50	0.41	11	12,476	--
03/22/12	546.3	53.0	<1	<2	<0.8	2	40	0.68	15	12,491	--
04/26/12	2,368.1	60.7	<1	3	<0.8	8	80	1.55	153	12,644	26
05/21/12	533.2	35.5	--	--	--	--	--	0.91	20	12,664	27
06/22/12	366.4	6.2	--	--	--	--	--	0.16	2	12,667	27, 28
07/17/12	10.7	14.0	<1	10	2	30	360	1.61	1	12,667	29
08/23/12	337.6	73.5	--	--	--	--	--	8.45	119	12,786	30
09/13/12	303.7	51.5	--	--	--	--	--	5.92	75	12,861	31
10/16/12	782.2	31.7	<1	<2	<0.8	<1	30.0	0.30	10	12,871	32, 33
11/30/12	--	--	--	--	--	--	--	--	--	12,871	33
12/31/12	--	--	--	--	--	--	--	--	--	12,871	33
01/31/13	--	--	--	--	--	--	--	--	--	12,871	33
02/28/13	--	--	--	--	--	--	--	--	--	12,871	33
03/31/13	--	--	--	--	--	--	--	--	--	12,871	33
04/30/13	--	--	--	--	--	--	--	--	--	12,871	33
05/16/13	47.0	46.7	<1.0	2	<0.8	2 ^J	70	1.04	2	12,873	34
06/20/13	836.0	20.0	<1.0	2 ^J	<0.8	<0.7	37	0.24	8	12,881	--
07/29/13	938.0	36.3	<1.0	2	<0.8	2 ^J	16 ^J	0.19	7	12,888	--
08/29/13	742.5	35.3	--	--	--	--	--	0.18	6	12,894	--

Table 1
Soil Vapor Extraction System Analytical Data and Remediation System Performance Results
UNOCAL—#5057 Former (306450)
4351 Old International Airport Road
Anchorage, Alaska



Date Sampled	Hours of Operation During Period	Flow Rate	Benzene	Toluene	Ethylbenzene	Total Xylenes	GRO	GRO Recovery Rate	Net GRO Removed	Cumulative GRO Recovery	Notes
	(hours)	(scfm)	(ppmv)	(ppmv)	(ppmv)	(ppmv)	(ppmv)	(lbs/day)	(lbs)	(lbs)	
09/25/13	311.7	28.3	--	--	--	--	--	0.14	2	12,896	--
10/24/13	695.5	28.9	<1.0	<2	<0.8	<0.7	<10	0.05	1	12,897	--
11/25/13	772.2	37.6	--	--	--	--	--	0.06	2	12,899	--
12/12/13	406.9	51.5	--	--	--	--	--	0.08	1	12,901	--
01/30/14	670.3	49.0	<1.0	<2	<0.8	<0.7	<10	0.08	2	12,903	--
02/26/14	1,146.5	30.5	--	--	--	--	--	0.05	2	12,905	--
03/31/14	793.4	27.9	--	--	--	--	--	0.04	1	12,907	--
04/30/14	662.2	36.0	<1.0	<2	<0.8	<0.7	<10	0.06	2	12,908	--
05/21/14	460.4	52.0	--	--	--	--	--	0.08	2	12,910	--
06/20/14	722.4	55.0	--	--	--	--	--	0.09	3	12,912	--
07/25/14	840.8	54.2	<1.0	<2.0	<0.8	<0.7	25	0.43	15	12,928	--
08/13/14	453.0	31.4	--	--	--	--	--	0.05	1	12,929	--
09/25/14	1,001.4	34.0	--	--	--	--	--	0.05	2	12,931	--
10/28/14	791.8	34.0	<1.0	<2.0	<0.8	<0.7	<10	0.05	2	12,933	--
11/24/14	649.0	49.6	--	--	--	--	--	0.08	2	12,935	35
01/09/15	1,103.0	66.0	<1.0	<2.0	<0.8	<0.7	<10	0.11	5	12,940	36
02/06/15	671.0	53.0	--	--	--	--	--	0.08	2	12,942	--
03/03/15	600.0	60.4	--	--	--	--	--	0.10	2	12,944	--
04/09/15	396.3	50.5	<1.0	<2.0	<0.8	<0.7	52	0.84	14	12,958	37, 38
05/01/15	481.7	40.3	--	--	--	--	--	0.67	13	12,972	38
06/01/15	745.0	51.1	--	--	--	--	--	0.85	26	12,998	38
07/15/15	1,061.0	49.2	<1.0	2	<0.8	<1.0	170	2.67	118	13,116	--
08/04/15	473.0	36.5	--	--	--	--	--	1.98	39	13,155	
09/01/15	674.5	76.7	--	--	--	--	--	4.16	117	13,272	
10/01/15	666.8	49.5	<1.0	<2.0	<0.8	3 J	56	0.88	25	13,296	
11/09/15	937.7	30.5	--	--	--	--	--	0.55	21	13,318	
12/03/15	572.0	59.5	--	--	--	--	--	1.06	25	13,343	
01/25/16	1,277.0	39.8	<1.0	<2.0	<0.8	<0.7	<10	0.06	3	13,347	
02/29/16	566.0	46.8	--	--	--	--	--	0.07	2	13,348	
03/24/16	573.0	37.0	--	--	--	--	--	0.06	1	13,350	
04/11/16	434.0	62.5	<1.0	2 J	<0.8	3 J	34	0.68	12	13,362	
05/08/16	330.0	59.5	--	--	--	--	--	0.65	9	13,371	
06/13/16	841.0	29.0	--	--	--	--	--	0.31	11	13,382	
07/11/16	672.0	65.5	<1.0	4	<0.8	3 J	110	2.30	64	13,446	
08/02/16	527.0	100.0	--	--	--	--	--	3.51	77	13,523	
09/01/16	718.0	32.0	--	--	--	--	--	1.12	34	13,557	
10/31/16	455.0	73.5	<1.0	3	<0.8	3 J	120	2.82	53	13,577	40
05/13/17	50.0	69.0	<0.5	<0.8	<0.4	<0.7	21	0.46	1	13,578	41
06/12/17	744.0	80.2	-	-	-	-	-	0.54	17	13,594	
07/11/17	505.0	120.0	-	-	-	-	-	0.80	17	13,611	
08/25/17	1,078.0	92.0	<1.0	<2.0	<0.8	<0.7	<10	0.62	28	13,639	
09/11/17	405.0	122.0	-	-	-	-	-	0.82	14	13,653	

Table 1
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UNOCAL—#5057 Former (306450)
4351 Old International Airport Road
Anchorage, Alaska



Date Sampled	Hours of Operation During Period	Flow Rate	Benzene	Toluene	Ethylbenzene	Total Xylenes	GRO	GRO Recovery Rate	Net GRO Removed	Cumulative GRO Recovery	Notes
	(hours)	(scfm)	(ppmv)	(ppmv)	(ppmv)	(ppmv)	(ppmv)	(lbs/day)	(lbs)	(lbs)	
10/05/17	1,096.0	73.0	<1.0	3	<0.8	6	55	1.28	59	13,711	41
04/04/18	4.9	67.0	<1.0	<2.0	<0.8	<0.7	<10	0.11	0.02	13,711	40
05/16/18	141.1	16.3	-	-	-	-	-	0.03	0.15	13,711	37
06/19/18	816.0	66.2	-	-	-	-	-	0.11	4	13,715	
07/26/18	847.0	36.9	-	-	-	-	-	0.35	12	13,728	37
08/21/18	628.0	14.2	-	-	-	-	-	0.02	1	13,728	
09/27/18	888.0	12.5	<1.0	2	<0.8	5	30	0.12	4	13,733	
10/23/18	178.0	44.5	<1.0	2 J	<0.8	5	64	0.91	7	13,739	41
04/19/19	25.6	9.0	<10	<16	<8	<0.7	55	0.16	0.17	13,739	
05/29/19	650.7	44.0	<1	<2	<0.8	2 J	42	0.59	16	13,755	43
06/17/19	128.7	42.5	-	-	-	-	-	0.57	3	13,759	43
07/26/19	5.0	37.7	0.7	2.8	0.18	9.5	670	8.06	2	13,760	43
08/15/19	32.6	10.9	-	-	-	-	-	2.33	3	13,763	43
09/26/19	49.6	46.5	-	-	-	-	-	9.94	21	13,784	
10/09/19	313.8	12.6	-	-	-	-	-	0.01	0.08	13,784	
11/19/19	958.3	41.0	-	-	-	-	-	0.02	0.84	13,785	
12/20/19	97.7	47.5	<0.022	<0.022	<0.022	0.03	1.60	0.02	0	13,785	43, 44, 45, 46
12/23/19	71.0	47.5	-	-	-	-	-	0.02	0.07	13,785	
01/24/20	768.0	33.0	-	-	-	-	-	0.02	0.54	13,786	
02/12/20	455.9	42.0	-	-	-	-	-	0.02	0.41	13,786	
03/11/20	672.2	13.6	0.0966	0.248	0.0168	0.78	18.70	0.08	2.27	13,788	
04/30/20	1,190.0	49.8	-	-	-	-	-	0.30	14.74	13,803	
05/18/20	433.6	46.0	0.334	0.833	0.172	2.11	90.20	1.32	24	13,827	
06/16/20	246.7	49.2	-	-	-	-	-	1.42	15	13,841	
07/30/20	369.6	48.6	-	-	-	-	-	1.74	27	13,868	47
08/28/20	60.2	48.2	0.339	1.83	0.15	2.835	112	1.72	4	13,873	47
09/22/20	157.6	48.2	-	-	-	-	-	1.72	11	13,884	
10/05/21	4,162.6	88.5	-	-	-	-	-	3.16	549	14,433	
11/04/21	724.3	75.0	-	-	-	-	-	2.68	81	14,514	
12/08/21	816.8	61.0	<0.0002	0.0185	0.000867	0.1075	2.94	0.06	2	14,515	
01/18/22	573.1	74.0	-	-	-	-	-	0.07	2	14,517	
02/08/22	506.8	61.2	<0.0002	0.0253	0.00854	0.15	9.57	0.19	4	14,521	
03/03/22	234.2	75.0	-	-	-	-	-	0.23	2	14,523	
04/08/22	857.9	70.0	<0.0002	0.0248	0.00339	0.156	5.37	0.12	4	14,528	
05/02/22	573.4	43.0	-	-	-	-	-	0.07	2	14,529	
06/06/22	841.7	69.8	-	-	-	-	-	0.12	4	14,534	
07/08/22	766.5	78.0	0.121	1.09	0.101	5.67	51.8	1.29	41	14,575	
08/08/22	746.7	73.3	-	-	-	-	-	1.21	38	14,612	
09/27/22	1,195.5	70.0	-	-	-	-	-	1.16	58	14,670	
10/25/22	675.0	42.2	0.00792	0.00201	0.000867	0.02213	1.62	0.02	0.6	14,671	
11/16/22	528.6	60.2	-	-	-	-	-	0.03	0.7	14,671	
12/20/22	792.8	47.7	-	-	-	-	-	0.02	0.8	14,672	

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UNOCAL—#5057 Former (306450)
4351 Old International Airport Road
Anchorage, Alaska



Date Sampled	Hours of Operation During Period	Flow Rate	Benzene	Toluene	Ethylbenzene	Total Xylenes	GRO	GRO Recovery Rate	Net GRO Removed	Cumulative GRO Recovery	Notes
	(hours)	(scfm)	(ppmv)	(ppmv)	(ppmv)	(ppmv)	(ppmv)	(lbs/day)	(lbs)	(lbs)	
01/17/23	694.2	19.5	<0.0002	0.00112	<0.0002	<0.0006	<0.200	0.00	0.02	14,672	48
02/15/23	697.0	50.5	-	-	-	-	-	0.00	0.05	14,672	
03/14/23	643.7	42.0	-	-	-	-	-	0.00	0.04	14,672	
04/15/23	506.3	55.7	0.00475	0.00111	<0.0002	0.00521	<0.200	0.00	0.04	14,672	
05/10/23	595.1	74.9	-	-	-	-	-	0.00	0.06	14,672	
05/22/23	89.1	112.0	0.013	0.065	<0.0059	2.52	52	0.00	0.01	14,672	Sample collected following system optimization.
06/15/23	578.1	11.7	-	-	-	-	-	0.00	0.07	14,672	Recovery calculated from April 2023 sample results.
07/17/23	770.2	23.7	<0.004	0.1555	<0.004	3.4835	27.55	0.21	6.69	14,679	Average of two sample results
08/25/23	926.0	10.5	-	-	-	-	-	0.09	3.56	14,683	
09/26/23	767.1	8.9	-	-	-	-	-	0.08	2.50	14,685	Recovery calculated from April 2023 sample results.
10/30/23	119.8	34.1	-	-	-	-	-	0.30	1.50	14,687	
11/17/23	433.4	9.6	0.0431	0.2	0.0202	2.809	24.5	0.08	1.36	14,688	
12/13/23	624.5	3.0	-	-	-	-	-	0.02	0.61	14,689	
01/17/24	890.5	9.0	0.0014	0.00208	<0.0002	0.002597	<0.200	0.00	0.01	14,689	
02/13/24	597.7	11.1	-	-	-	-	-	0.00	0.01	14,689	
03/19/24	838.0	7.9	-	-	-	-	-	0.00	0.01	14,689	
04/09/24	502.1	5.5	0.00342	0.0123	0.0028	0.567	4.90	0.01	0.18	14,689	
05/13/24	815.5	14.8	-	-	-	-	-	0.02	0.79	14,690	
06/11/24	695.2	10.4	-	-	-	-	-	0.02	0.47	14,690	

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UNOCAL—#5057 Former (306450)
4351 Old International Airport Road
Anchorage, Alaska



TABLE 1 EXPLANATIONS

REPORTING PERIOD:	2Q2024
POUNDS REMOVED TO DATE:	14,690
PERIOD POUNDS REMOVED:	1.44
PERIOD AVERAGE FLOW RATE (SCFM):	10.2
PERIOD OPERATIONAL HOURS:	2012.8
PERIOD PERCENT OPERATIONAL:	100%

Assumptions:

- a) One-half the detection limit is used for calculations when concentrations are less than the laboratory detection limits.
- b) $GRO\ Recovery\ (lb) = Influent\ (ppmv) * (change\ hours\ (hr)) * Flow\ (scfm) * (1\ mole/379\ scf) * (86.2\ lb/mole) * (60\ min/hr)$
- c) Cumulative GRO Recovery = Sum of GRO Recovery
- d) Molecular weight of GRO (hexane) is approximately 86 grams per mole.

Notes:

- ¹ BTEX Analyzed by USEPA Method 18 modified or TO-15.
- ² GRO Analyzed by USEPA Method 25 modified, TO-3, or TO-15.
- ³ Reported in milligram analyte per milligram carbon.
- ⁴ Reported in total milligrams of analyte.
- ⁵ Air dilution valve open.
- ⁶ Blower not operational for construction.
- ⁷ Blower not operational beginning February 25, 1998, for repairs/replacement.
- ⁸ Values for this reporting period estimated from OilRisk Consultants, Fall/Winter 06-07 Monitoring Report dated September 17, 2007.
- ⁹ SVE unit not operational from June 23, 2006, to December 26, 2006, because of discontinued electrical service.
- ¹⁰ One flow rate measurement and one analytical sample were collected during the reporting period and are assumed to be representative of the entire period.
- ¹¹ GRO value estimated at one-half the laboratory method detection limit.
- ¹² SVE unit not operational from June 2, 2008, to August 18, 2008, because of a faulty lower explosive limit meter, replacement of SVE knockout tank secondary containment, and electrical improvements.
- ¹³ An error was discovered for previous calculations of GRO recovery rate and has been corrected. The effect to cumulative GRO recovery is less than 0.01%.
- ¹⁴ Influent sample analyzed for methane. Analytical result 5.4 ppmv.
- ¹⁵ Flow rate averaged from initial and final readings.
- ¹⁶ Sample collected on October 20, 2010. Hour meter not noted. For calculations, hour meter reading from October 13, 2010, was used resulting in 336.4 hours of operation for period in October entry.
- ¹⁷ SVE system shut down because of vapor probe installation. System up and running until shutdown. Meter reading taken but no sampling performed. Average flow rate (scfm), average GRO, and half of detection values assumed.
- ¹⁸ System restarted after soil vapor sampling on July 25, 2011, at 9:20 a.m. SVE meter read 21,759.4 hours at start up.
- ¹⁹ To determine mass removed from July 28, 2011, and August 15, 2011, prior to system expansion, assumed influent concentration and flow rate equal to values observed on July 28, 2011.
- ²⁰ Remediation system temporarily shutdown from August 8, 2011, to August 15, 2011, for system expansion. Sample collected 20 minutes after restart.

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UNOCAL—#5057 Former (306450)
4351 Old International Airport Road
Anchorage, Alaska



- ²¹ Remediation system temporarily shutdown from August 8, 2011, to August 15, 2011, for system expansion. Sample collected 40 minutes after restart. Valve to MW-7 closed.
- ²² Remediation system temporarily shutdown from August 8, 2011, to August 15, 2011, for system expansion. Sample collected 24 hours after restart. Assumed flow rate equal to reading on August 25, 2011.
- ²³ On September 15, 2011, system was expanded to MW-7A. System was shut down for 30 minutes. Samples were collected before system shutdown.
- ²⁴ On September 15, 2011 system was expanded to MW-7A. System was shut down for 30 minutes. Samples were collected after system shutdown.
- ²⁵ The system was found to be non-operational by Arcadis field staff on January 31, 2012. The system may have shut down because of a power failure in the area.
- ²⁶ Monthly influent sampling moved to a quarterly sampling schedule following ADEC approval.
- ²⁷ Calculations of mass removal rates and total mass recovered were based on analytical influent results from April 26, 2012. See Note 26.
- ²⁸ To optimize LNAPL recovery, vapor extraction was stopped at MW-5A, MW-7, and RW-14, and vacuum was increased at MW-7A on May 21, 2012, during the monthly O&M visit.
- ²⁹ System found off upon arrival on July 5 and July 17; may be because of system settings.
- ³⁰ System found off upon arrival on August 9, 2012. Extraction was restarted at wells MW-5A, MW-7, and RW-14.
- ³¹ System found off upon arrival on September 6 and September 13, 2012. May have been due to power outages in the area.
- ³² System found off upon arrival of O&M visit on October 16, 2012. The SVE influent sample was collected 1 hour after system restart. System shutdown may have been due to power outages in the area.
- ³³ System shutdown on October 17, 2012, following a fit-for-service review and remained off for remainder of the fourth quarter 2012 and first quarter 2013. System will be restarted pending upgrades.
- ³⁴ Following system upgrades (most changes based on comments from fit-for-service review), system was restarted on May 15, 2013.
- ³⁵ Equation error was corrected on January 13, 2015. This resulted in the value of cumulative GRO mass recovery increasing by 0.3 percent.
- ³⁶ No O&M visit conducted in December 2014; it was conducted the first week of January 2015.
- ³⁷ System found off upon arrival. No alarms or sign of mechanical damage. Possibly result of electrical outage in the area.
- ³⁸ Identified error to calculate GRO recovery rate and cumulative mass recovery for 2Q15. Correction made on September 28, 2015.
- ³⁹ System shut down on November 2, 2016.
- ⁴⁰ System restarted for following year operation.
- ⁴¹ For third quarter 2018, analytical data from September 2018 was used to calculate recovery rates.
- ⁴² System shut down for restart in following year.
- ⁴³ System was off on arrival; it was assumed to be shut down because of power outages in the area.
- ⁴⁴ Influent samples were collected in tedlar bags since the laboratory could not supply certified summa canisters for scheduled sampling event. Two tedlars were collected, and both were analyzed by the laboratory; the highest concentration for each analyte was reported.
- ⁴⁵ Influent samples collected in tedlar bags since laboratory could not supply certified summa canisters for scheduled sampling event. Sample was transferred to summa canister at laboratory which dilute samples; results reflect dilution.
- ⁴⁶ Influent samples collected in tedlar bags since laboratory could not supply certified summa canisters for scheduled sampling event. Samples analyzed outside of three-day hold for tedlar bag samples.
- ⁴⁷ System shutdown on arrival. No alarms observed.
- ⁴⁸ Samples collected before 7/26/2019 were analyzed using EPA Method 18mod/25 mod. Samples collected on or after 7/26/2019 were analyzed using Method TO-15/TO-3 .
- Bold** indicates data from the current reporting period.

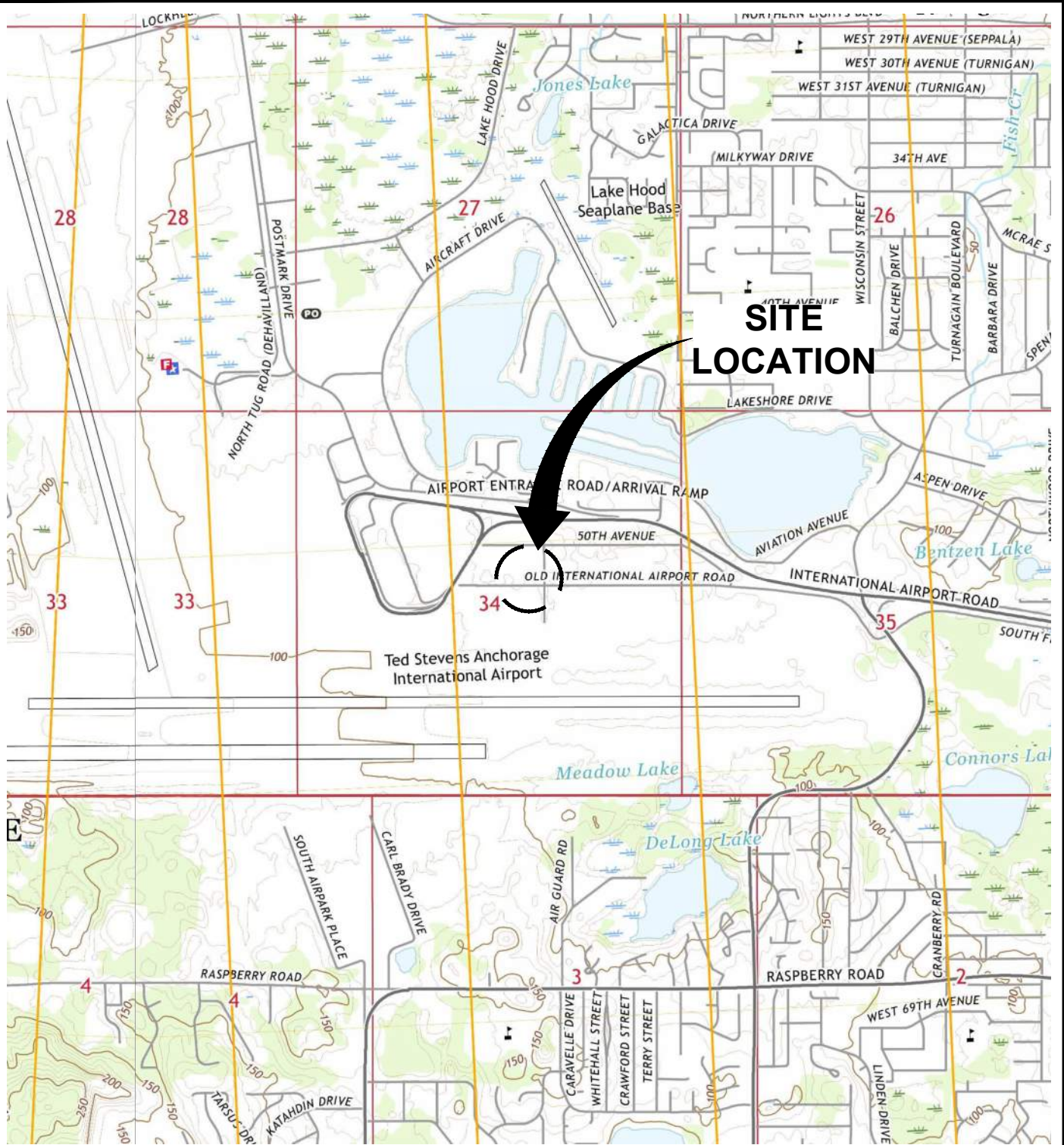
Table 1
Soil Vapor Extraction System Analytical Data and Remediation System Performance Results
UNOCAL—#5057 Former (306450)
4351 Old International Airport Road
Anchorage, Alaska



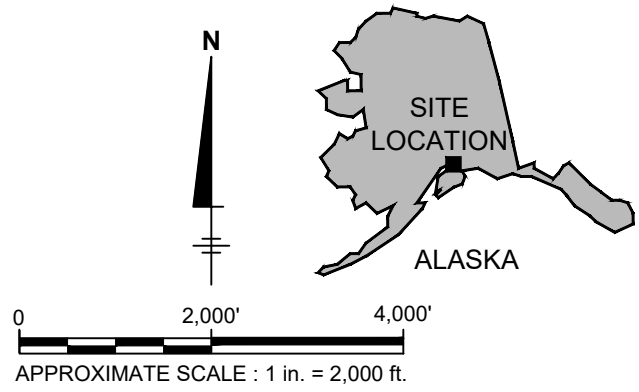
Acronyms and Abbreviations:

-- = not calculated or not measured
< = not detected or below method detection limits
GRO = gasoline range organics
hr = hour
J = results are an estimated value; the result is between the method detection limit and the limit of quantitation
lb = pound
lb/day = pound per day
lb/mole = pound per mole
min/hr = minute per hour
NA = not available or not applicable
NS = not sampled
O&M = operations and maintenance
ppmv = part per million by volume
scf = standard cubic feet
scfm = standard cubic feet per minute
SVE = soil vapor extraction
USEPA = United States Environmental Protection Agency

Figures

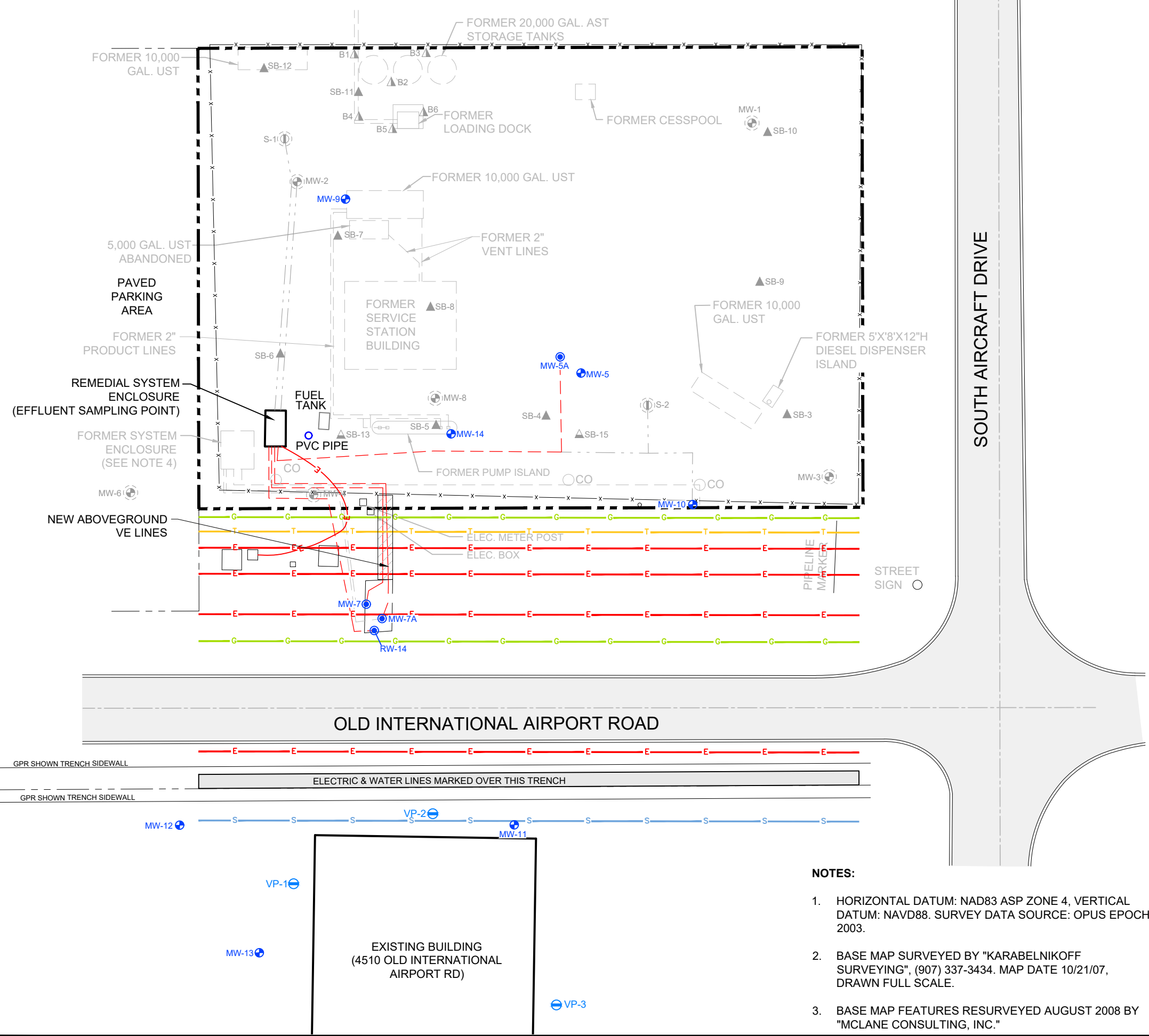


SOURCE: BASE MAP USGS 7.5. MIN. TOPO. QUAD., ANCHORAGE A-8 NW AND TYONEK A-1 NE, ALASKA 2019.



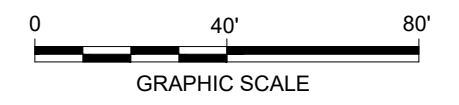
UNOCAL #5057 FORMER (306450) (CHEVRON FACILITY NO. 306450) 4351 OLD INTERNATIONAL AIRPORT RD, ANCHORAGE, AK	
SITE LOCATION MAP	
	FIGURE 1

CITY:\Redd\DIV\GROUP\Redd\DB\Redd\LD\Opt\PIC\Opt\PM\Redd\TM\Opt\LYR\Opt\ON*OFF*REF*
 C:\Users\m52\AD\CAC\CC\Decca\Arcadis\ACC\USA\US-98888888-CHEV_306450_ANCHORAGE_AK\Project Files\10_WIP\107_ARC_ENV\2024\01-DWG\GWM-2023SA1-F02-SITE PLAN.dwg LAYOUT: 2. SAVED: 6/30/2024 5:36 PM ACADVER: 24.25 (LMS TECH) PAGES: 1 OF 1 PLOTSTYLETABLE: PLT\FULL.ctb PLOTTED: 6/4/2024 3:53 PM BY: C. MUNIRAJU
 XREFS: IMAGES: PROJECTNAME: GEN-X-BASE\Arcadis_Logo_2021.PNG



LEGEND:

- PROPERTY LINE
- x-x- CHAIN LINK FENCE (TYPICAL)
- GROUNDWATER MONITORING WELL
- SOIL VAPOR EXTRACTION (SVE) WELL
- VAPOR PROBE (VP)
- ABANDONED OR DESTROYED WELL
- ABANDONED AIR SPARGE (AS) WELL
- VES LINE CLEANOUT
- ▲ SOIL BORING (1996)
- ▲ SOIL BORING (2007)
- ▲ SOIL BORING (2008)
- - - - - FORMER BELOW GROUND AIR SPARGE/ SOIL VAPOR EXTRACTION LINE (2" DIA.)
- - - - - BELOW GROUND SVE LINE (2" DIA.)
- - - - - ABOVEGROUND SVE LINE (2" DIA.)
- ▨ VAPOR EXTRACTION (VE) PROTECTIVE BERM WITH CONDUIT
- AST ABOVE GROUND STORAGE TANK
- UST UNDERGROUND STORAGE TANK
- G NATURAL GAS LINE
- T TELECOM LINE
- E ELECTRICAL LINE
- C PETROLEUM PIPELINE
- S SEWER LINE



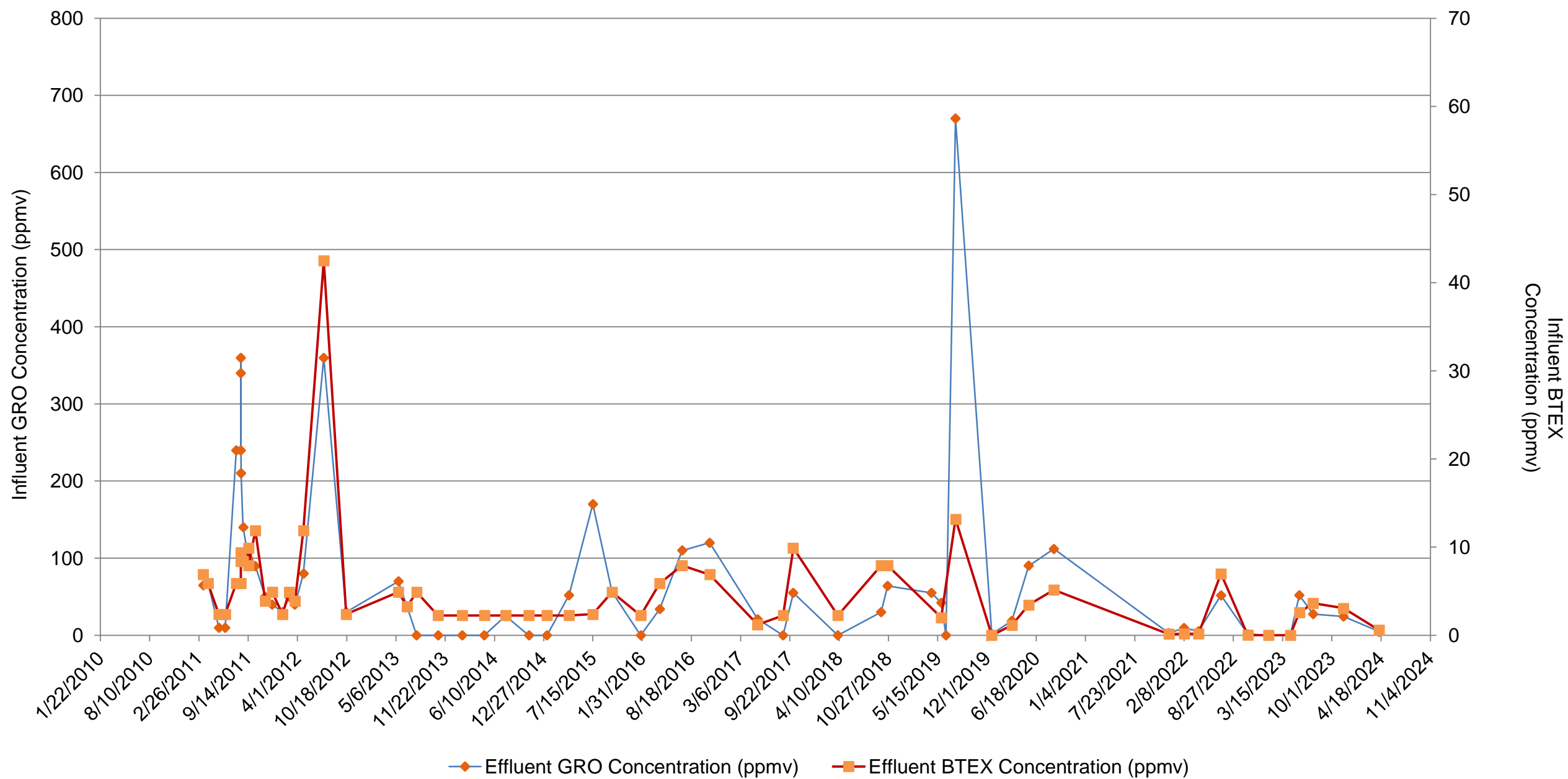
- NOTES:**
- HORIZONTAL DATUM: NAD83 ASP ZONE 4, VERTICAL DATUM: NAVD88. SURVEY DATA SOURCE: OPUS EPOCH 2003.
 - BASE MAP SURVEYED BY "KARABELNIKOFF SURVEYING", (907) 337-3434. MAP DATE 10/21/07, DRAWN FULL SCALE.
 - BASE MAP FEATURES RESURVEYED AUGUST 2008 BY "MCLANE CONSULTING, INC."

UNOCAL #5057 FORMER (306450)
 (CHEVRON FACILITY NO. 306450)
 4351 OLD INTERNATIONAL AIRPORT RD, ANCHORAGE, AK

SITE PLAN

ARCADIS

FIGURE 2



Notes:
 GRO = Gasoline range organics
 BTEX = Benzene, toluene, ethylbenzene and total xylenes
 ppmv = parts per million by volume

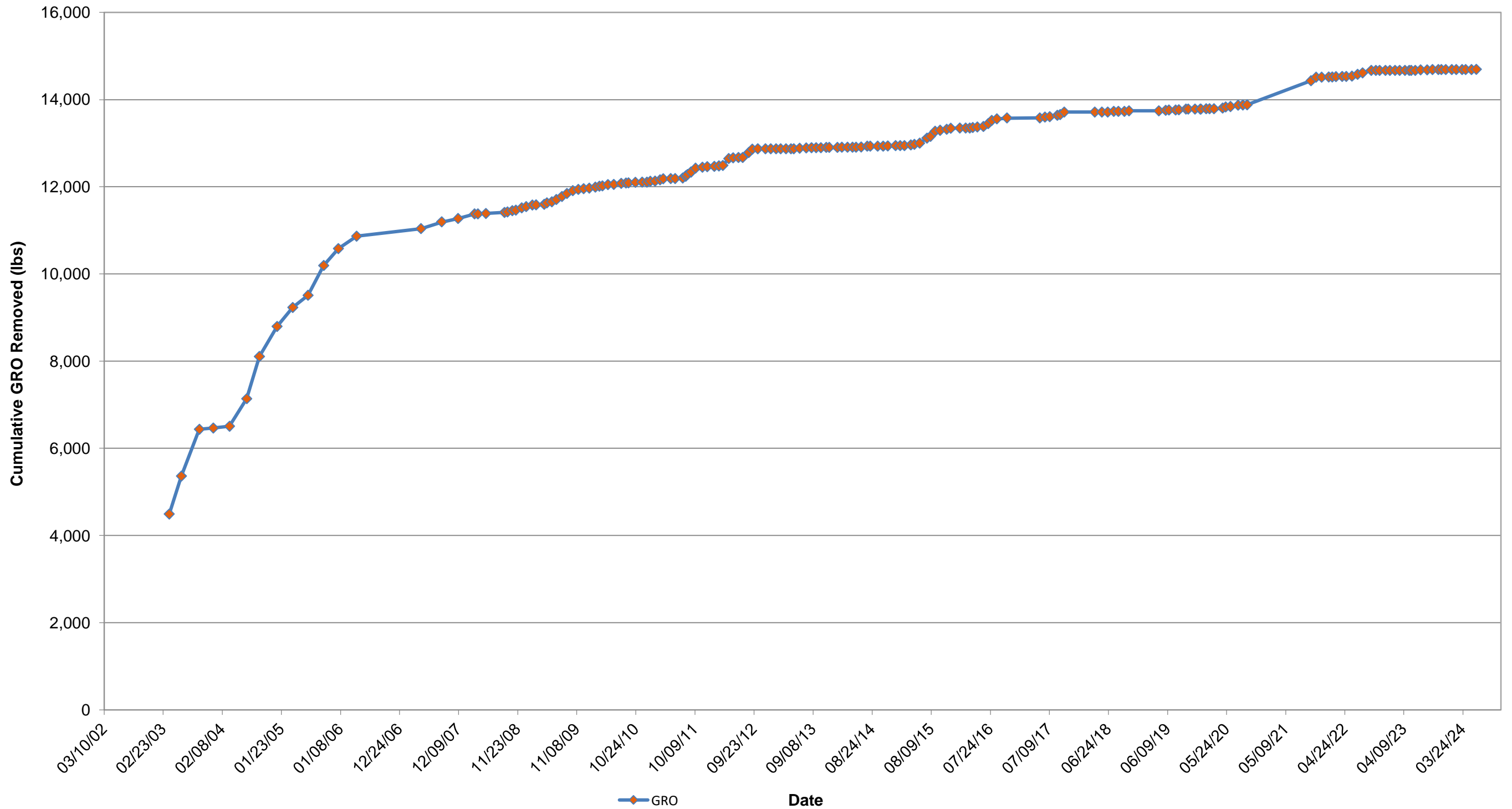
UNOCAL—#5057 Former (306450)
 4351 OLD INTERNATIONAL AIRPORT ROAD, ANCHORAGE, AK

O&M REPORT


INFLUENT GRO AND BTEX CONCENTRATIONS



**FIGURE
3**



Notes:
 GRO = Gasoline range organics
 lbs = pounds

UNOCAL—#5057 Former (306450) 4351 OLD INTERNATIONAL AIRPORT ROAD, ANCHORAGE, AK O&M REPORT	
CUMULATIVE GRO MASS REMOVAL	
	Design & Consultancy for natural and built assets
FIGURE 4	

Appendix A

O&M Data Sheets and Field Notes



Daily Log



Project Number : 30064225

Prepared By: Evan Wujcik

Site ID: 306450

Site Name: Old Airport

City: Anchorage

State: Alaska

Project Manager: Robinson, Gerald

Portfolio: COP 5.0

Subportfolio: West

Inside Chevron Operational Control? Yes No

Staff on Site

Evan Wujcik

Weather(°F)	PPE	Equipment
SNOW, T:32.54 °F, rH:80%, Clouds: 100%, Wind:15.01mph N-NE		4-gas Meter, Velocity meter

Date	Time	Description of Activities
04/09/2024	8:30	Arrive on site
04/09/2024	9:15	System inspected before gauging
04/09/2024	9:45	System gauged at 0% dilution. MW-5A still remains off.
04/09/2024	10:00	Effluent sampled.
04/09/2024	10:45	Emergency stops functional
04/09/2024	11:00	Load vehicle Mobilize offsite

Signature

**SVE SYSTEM
Field Data Sheet**

PART A: GENERAL INFORMATION

Site Location: 306450 Anchorage Airport Date & Time: 4.9.24 @ 0900
 Technician: E. Wujcik Outside Ambient Temperature: 35°F
 SVE Blower: --- Max Amp Rating (amps): ---
 Serial #: --- Electrical Meter Reading (KWh): 65729
 Electrical Power: single phase
 SVE System up/down upon arrival? up
 Knockout Drum on Site: Full Half Full Empty

PART B: SVE SYSTEM DATA

Hour Meter Reading: 95915.5 At Time: 0900

Flow Data		Initial	Final
Dilution Valve (% open)		0	
System Effluent Flowrate - 4" Pipe Dia.(CFM)		5.5	
Knockout Drum Vacuum (inWC)		28	
Manifold Vacuum (inWC)		Gauge	Manometer
	MW-7	29	28.4
	MW-5A	4	5.2
	MW-7A	29	28.4
Stack PID and LEL Data		Effluent	Baseline:
Methane (%LEL)		0	0
Oxygen (%)		20.0	20.9%
Carbon Dioxide (ppm)		0	0.0%
PID (ppm)		10.5	0.0

Well Manifold Data	MW-7	MW-5A	MW-7A
Methane (%LEL)	0	5	2
Oxygen (%)	20.9	11.1	17.2
Carbon Monoxide (ppm)	0	0	0
MiniRAE PID (PPM)	1.0	1.1	34.2
Flow Rate (CFM)	30.1	3.4	31.1

Field instrument used: SSI GX600 Last Calibrated: 4/3/24
 Field instrument used: Velocite Last Calibrated: 9/13/23
 Field instrument used: manometer Last Calibrated: 4/3/24

SUMMA SAMPLE INFORMATION

Effluent Sample ID:
 Summa Canister #:
 Date & Time:
 Initial Vac (inHg):
 Final Vac (inHg):

Influent-A-20290409
 028340
 9.9.24 @ 1000
 -28
 -5

PART C: ADDITIONAL COMMENTS

Give details of system status upon arrival:

system running upon arrival

PART D: MAINTENANCE RECORD

MONTHLY

Any leaks?
 Any rattles?
 Excessive noise?
 Indicator lights out?
 Abnormal wear & tear?
 Any faulty gauges?
 Other?

Yes	No
	X
	X
	X
	X
	X
	X
	X

Action

QUARTERLY

Inspected/cleaned flow gauges?

Yes	No
X	

Action

--

PART E: TREATMENT COMPOUND

MONTHLY

Fence/gate inspected?
 Emergency sign posted?
 Fire extinguisher on site?
 Other?

Yes	No
X	
X	
X	
	X

Action

PART F: PLANNED ACTIVITIES FOR NEXT TRIP

STANDARD O&M

NM = Not Measured
 N/A = Not Applicable

LAB USE ONLY - Affix Workorder/Login Label Here



Scan QR code for instructions

Air Chain-of-Custody Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

Contact/Report To: Skip Robinson
 Phone #: 907-276-8095
 E-Mail: Gerald.Robinson@arcadis.com; Jesse.Wood@arcadis.com; environmentDM.india@arcadis.com; molly.white@arcadis.com
 CC E-Mail: _____

Invoice to: _____
 Invoice #: _____
 E-Mail: _____
 Purchase Order # (if applicable): _____
 Quote #: _____
 State origin of sample(s): _____

Regulatory Program (CAA, RCRA, etc.) as applicable:
 Rush (Pre-approval required): _____
 2 Day 3 day 5 day Other _____
 Date Results Requested: _____
 Permit # as applicable: _____
 Units for Reporting: ug/m³ ppbv mg/m³ ppmv

Company Name: Arcadis - Chevron - AK
 Street Address: 880 H St.
 Anchorage, AK 99501
 City, State Zip: _____
 Customer Project #: 30064225 21.41
 Project Name: 306450
 Site Collection Info/Facility ID (as applicable): CHEVARCAK-306450 4351 W. ITNL AIRPORT RD
 Time Zone Collected: JAK PT MT CT ET
 Data Deliverables:
 Level II Level III Level IV
 EQUIS Other: _____
 Matrix Codes (insert in Matrix box below): Ambient (A), Indoor (I), Soil Vapor (SV), Other (O)

Customer Sample ID	Matrix *	Summa Canister ID	Flow Controller ID	Begin Collection		End Collection	
				Date	Time	Date	Time
T0001 - A-70210109	A	028310	78878	4/2/09	14:50	4/2/09	10:00

Additional Instructions from Pace: _____
 Collected By: _____
 Printed Name: E. Wusick
 Signature: _____
 Received by/Company: (Signature) _____
 Date/Time: 4/2/09/14:00
 Received by/Company: (Signature) _____
 Date/Time: _____
 Relinquished by/Company: (Signature) _____
 Date/Time: _____
 Relinquished by/Company: (Signature) _____
 Date/Time: _____
 Relinquished by/Company: (Signature) _____
 Date/Time: _____
 Relinquished by/Company: (Signature) _____
 Date/Time: _____

LAB USE ONLY - Affix Workorder/Login Label Here

Field Information	Analyses Requested
Canister Pressure / Vacuum Start Pressure / Vacuum (in Hg) -28 -5 End Pressure / Vacuum (in Hg) -5 -5 Duration (minutes) 10 Flow Rate m ² /min or L/min Total Volume Sampled m ³ or L	BTEX/GRO TO-15 Summa

Proj. Manager: **110 - Brian Ford**
 Acct/Num / Client ID: **CHEVARCAK**
 Table #: _____
 Profile / Template: **T233353**
 Prelog / Bottle Ord. ID: **P1066843**
 Lab Use Only

Coolers: _____ Thermometer ID: _____ Obs. Temp. (°C): _____ Corrected Temp. (°C): _____
 Correction Factor (°C): _____
 Tracking Number: _____
 Delivered by: In-Person Courier
 FedEx UPS Other
 Page: _____ of: _____

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace® Terms and Conditions found at: <https://www.pacelabs.com/resource-library/resource/pace-terms-and-conditions/>

Project Number : 30064225

Prepared By: Evan Wujcik

Site ID: 306450

Site Name: Old Airport

City: Anchorage

State: Alaska

Project Manager: Robinson, Gerald

Portfolio: COP 5.0

Subportfolio: West

Inside Chevron Operational Control? Yes No

Staff on Site

Evan Wujcik

Weather(°F)	PPE	Equipment
CLEAR, T:40.91 °F, rH:78%, Clouds: 0%, Wind:4.61mph E-NE		4-gas Meter, Velocity meter

Date	Time	Description of Activities
05/13/2024	10:00	Arrive on site
05/13/2024	10:15	System inspected before gauging
05/13/2024	11:45	System gauged at 0% dilution. MW-5A still remains off.
05/13/2024	12:00	Emergency stops functional
05/13/2024	12:30	Load vehicle Mobilize offsite

Signature

**SVE SYSTEM
Field Data Sheet**

PART A: GENERAL INFORMATION

Site Location: 306450 Anchorage Airport Date & Time: 5.13.24 @ 1000
 Technician: E. Wujcik Outside Ambient Temperature: 50°F
 SVE Blower: - Max Amp Rating (amps): -
 Serial #: - Electrical Meter Reading (KWh): 66689
 Electrical Power: single phase
 SVE System up down upon arrival? up
 Knockout Drum on Site: Full Half Full Empty

PART B: SVE SYSTEM DATA

Hour Meter Reading: 96731.0 At Time: 1030

Flow Data		Initial	Final
Dilution Valve (% open)		0	
System Effluent Flowrate - 4" Pipe Dia.(CFM)		14.8	
Knockout Drum Vacuum (inWC)		28	
Manifold Vacuum (inWC)		Gauge	Manometer
MW-7		28	27.7
MW-5A		4	4.7
MW-7A		29	27.9

Stack PID and LEL Data	Effluentn	Baseline:
Methane (%LEL)	0	0
Oxygen (%)	17.8	20.9%
Carbon Dioxide (ppm)	0	0.0%
PID (ppm)	12	0.0

Well Manifold Data	MW-7	MW-5A	MW-7A
Methane (%LEL)	0	0	0
Oxygen (%)	18.2	10.3	18.4
Carbon Monoxide (ppm)	0	0	0
MiniRAE PID (PPM)	7	0	24
Flow Rate (CFM)	23.9	4.5	51.0

Field instrument used: RKI Engle II Last Calibrated: 5/8/24
 Field instrument used: Velocitek Last Calibrated: 8/28/23
 Field instrument used: manometer Last Calibrated: 5/8/24

SUMMA SAMPLE INFORMATION

Effluent Sample ID:
Summa Canister #:
Date & Time:
Initial Vac (inHg):
Final Vac (inHg):

No Sample

PART C: ADDITIONAL COMMENTS

Give details of system status upon arrival:

system running upon arrival

PART D: MAINTENANCE RECORD

MONTHLY

Any leaks?
Any rattles?
Excessive noise?
Indicator lights out?
Abnormal wear & tear?
Any faulty gauges?
Other?

Yes

No

Action

QUARTERLY

Inspected/cleaned flow gauges?

Yes

No

Action

PART E: TREATMENT COMPOUND

MONTHLY

Fence/gate inspected?
Emergency sign posted?
Fire extinguisher on site?
Other?

Yes

No

Action

PART F: PLANNED ACTIVITIES FOR NEXT TRIP

STANDARD O&M

NM = Not Measured

N/A = Not Applicable



Daily Log



Project Number : 30064225

Prepared By: Evan Wujcik

Site ID: 306450

Site Name: Old Airport

City: Anchorage

State: Alaska

Project Manager: Robinson, Gerald

Portfolio: COP 5.0

Subportfolio: West

Inside Chevron Operational Control? Yes No

Staff on Site

Evan Wujcik

Weather(°F)	PPE	Equipment
RAIN, T:51.91 °F, rH:87%, Clouds: 100%, Wind:3mph W-NW		4-gas Meter, Velocity meter

Date	Time	Description of Activities
06/11/2024	10:00	Arrive on site
06/11/2024	10:15	System inspected before gauging
06/11/2024	11:45	System gauged at 0% dilution. MW-5A still remains off.
06/11/2024	12:00	Emergency stops functional
06/11/2024	12:30	Load vehicle Mobilize offsite

Signature

**SVE SYSTEM
Field Data Sheet**

PART A: GENERAL INFORMATION

Site Location: 306450 Anchorage Airport Date & Time: 6-11-24 @ 1000
 Technician: E Wujcik Outside Ambient Temperature: 58°F
 SVE Blower: - Max Amp Rating (amps): -
 Serial #: - Electrical Meter Reading (KWh): 67492
 Electrical Power: single phase
 SVE System up / down upon arrival? up
 Knockout Drum on Site: Full Half Full Empty

PART B: SVE SYSTEM DATA

Hour Meter Reading: 97426.2 At Time: 1000

Flow Data		Initial	Final
Dilution Valve (% open)		0	
System Effluent Flowrate - 4" Pipe Dia. (CFM)		10.4	
Knockout Drum Vacuum (inWC)		28	
Manifold Vacuum (inWC)		Gauge	Manometer
MW-7		29	29.6
MW-5A		3	4.8
MW-7A		29	29.5

Stack PID and LEL Data	Effluent	Baseline:
Methane (%LEL)	0	0
Oxygen (%)	17.9	20.9%
Carbon Dioxide (ppm)	0	0.0%
PID (ppm)	15	0.0

Well Manifold Data	MW-7	MW-5A	MW-7A
Methane (%LEL)	18.1 0	0	0
Oxygen (%)	18.1	16.6	18.6
Carbon Monoxide (ppm)	0	0	0
MiniRAE PID (PPM)	7	0	28
Flow Rate (CFM)	43.6	3.0	47.5

Field instrument used: RKI Eagle II Last Calibrated: 6/5/24
 Field instrument used: Velocicalk Last Calibrated: 6/5/24
 Field instrument used: Manometer Last Calibrated: 6/6/24

SUMMA SAMPLE INFORMATION

Effluent Sample ID:
Summa Canister #:
Date & Time:
Initial Vac (inHg):
Final Vac (inHg):

No Sample

PART C: ADDITIONAL COMMENTS

Give details of system status upon arrival:

System running upon arrival

PART D: MAINTENANCE RECORD

MONTHLY

Any leaks?
Any rattles?
Excessive noise?
Indicator lights out?
Abnormal wear & tear?
Any faulty gauges?
Other?

Yes

No

X
X
X
X
X
X

Action

QUARTERLY

Inspected/cleaned flow gauges?

Yes

X

No

Action

PART E: TREATMENT COMPOUND

MONTHLY

Fence/gate inspected?
Emergency sign posted?
Fire extinguisher on site?
Other?

Yes

X
X
X

No

X

Action

PART F: PLANNED ACTIVITIES FOR NEXT TRIP

STANDARD O&M

NM = Not Measured

N/A = Not Applicable

Appendix B

Laboratory Analytical Report

Arcadis - Chevron - AK

Sample Delivery Group: L1723900
Samples Received: 04/10/2024
Project Number: 30064225 21.41
Description: 306450
Site: 4351 W. ITNL AIRPORT RD
Report To: Skip Robinson
880 H St.
Anchorage, AK 99501

Entire Report Reviewed By:












Brian Ford
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

Cp: Cover Page	1	
Tc: Table of Contents	2	
Ss: Sample Summary	3	
Cn: Case Narrative	4	
Sr: Sample Results	5	
INFLUENT-A-20240409 L1723900-01	5	
Qc: Quality Control Summary	6	
Volatile Organic Compounds (MS) by Method TO-15	6	
Gl: Glossary of Terms	8	
Al: Accreditations & Locations	9	
Sc: Sample Chain of Custody	10	

SAMPLE SUMMARY

INFLUENT-A-20240409 L1723900-01 Air

Collected by: E. Wujcik
 Collected date/time: 04/09/24 10:00
 Received date/time: 04/10/24 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG2264053	1	04/11/24 02:20	04/11/24 02:20	MNP	Mt. Juliet, TN
Volatile Organic Compounds (MS) by Method TO-15	WG2264885	10	04/11/24 13:59	04/11/24 13:59	GH	Mt. Juliet, TN

- ¹Cp
- ²Tc
- ³Ss
- ⁴Cn
- ⁵Sr
- ⁶Qc
- ⁷Gl
- ⁸Al
- ⁹Sc

CASE NARRATIVE

Unless qualified or notated within the narrative below, all sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Brian Ford
Project Manager

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
TPH (GC/MS) Low Fraction	8006-61-9	101	2000	8260	4090	16900		10	WG2264885
Benzene	71-43-2	78.10	0.200	0.639	3.42	10.9		1	WG2264053
Ethylbenzene	100-41-4	106	0.200	0.867	2.80	12.1		1	WG2264053
Toluene	108-88-3	92.10	0.500	1.88	12.3	46.3		1	WG2264053
m&p-Xylene	179601-23-1	106	4.00	17.3	357	1550		10	WG2264885
o-Xylene	95-47-6	106	2.00	8.67	210	910		10	WG2264885
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		98.0				WG2264053
(S) 1,4-Bromofluorobenzene	460-00-4	175	60.0-140		94.2				WG2264885

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Method Blank (MB)

(MB) R4056411-3 04/10/24 11:00

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ppbv		ppbv	ppbv
Benzene	U		0.0715	0.200
Ethylbenzene	U		0.0835	0.200
Toluene	U		0.0870	0.500
(S) 1,4-Bromofluorobenzene	95.8			60.0-140

L1723904-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1723904-01 04/10/24 20:54 • (DUP) R4056411-4 04/10/24 21:41

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	ppbv	ppbv		%		%
Benzene	2.33	2.36	1	1.28		25
Ethylbenzene	0.802	0.805	1	0.373		25
Toluene	6.52	6.61	1	1.37		25
(S) 1,4-Bromofluorobenzene		97.0				60.0-140

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4056411-1 04/10/24 09:25 • (LCSD) R4056411-2 04/10/24 10:15

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ppbv	ppbv	ppbv	%	%	%			%	%
Benzene	3.75	4.37	4.35	117	116	70.0-130			0.459	25
Ethylbenzene	3.75	4.31	4.32	115	115	70.0-130			0.232	25
Toluene	3.75	4.38	4.36	117	116	70.0-130			0.458	25
(S) 1,4-Bromofluorobenzene				94.4	96.5	60.0-140				

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Method Blank (MB)

(MB) R4056748-3 04/11/24 11:40

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ppbv		ppbv	ppbv
TPH (GC/MS) Low Fraction	U		39.7	200
m&p-Xylene	U		0.135	0.400
o-Xylene	U		0.0828	0.200
(S) 1,4-Bromofluorobenzene	90.3			60.0-140

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R4056748-1 04/11/24 08:54 • (LCSD) R4056748-2 04/11/24 09:26

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ppbv	ppbv	ppbv	%	%	%			%	%
TPH (GC/MS) Low Fraction	188	167	165	88.8	87.8	70.0-130			1.20	25
m&p-Xylene	7.50	8.08	8.18	108	109	70.0-130			1.23	25
o-Xylene	3.75	4.24	4.26	113	114	70.0-130			0.471	25
(S) 1,4-Bromofluorobenzene				98.6	99.5	60.0-140				

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

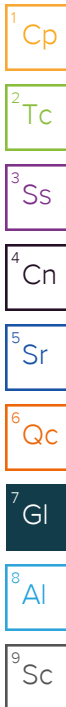
Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier Description

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.



ACCREDITATIONS & LOCATIONS

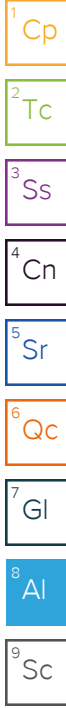
Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1,6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.



Pace* Location Requested (City/State):				Air CHAIN-OF-CUSTODY Analytical Request Document				LAB USE ONLY - Affix Work													
Company Name: Arcadis - Chevron - AK				Contact/Report To: Skip Robinson																	
Street Address: 880 H St. Anchorage, AK 99501				Phone #: 907-276-8095				Sample Receipt Checklist CO2 Seal Present/Intact: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Airs _____ CO2 Signed/Accurate: <input type="checkbox"/> Y <input type="checkbox"/> N Size: <input checked="" type="checkbox"/> 1L <input type="checkbox"/> 5L <input type="checkbox"/> 1.4L Bottles arrive intact: <input type="checkbox"/> Y <input type="checkbox"/> N Tag Color: <input type="checkbox"/> G <input checked="" type="checkbox"/> W <input type="checkbox"/> P <input type="checkbox"/> B Correct bottles used: <input type="checkbox"/> Y <input type="checkbox"/> N Tubing _____ Shunt _____													
City, State Zip: 30064225 21.41				Invoice to:				T/F#: _____													
Project Name: 306450				Invoice E-Mail:																	
Site Collection Info/Facility ID (as applicable): CHEVARCAK-306450 4351 W. ITNL AIRPORT RD				Purchase Order # (if applicable):				Field Information													
Time Zone Collected: <input checked="" type="checkbox"/> AK [] PT [] MT [] CT [] ET				State origin of sample(s):				Analyses Requested													
Data Deliverables: [] Level II [] Level III [] Level IV [] EQUIS [] Other _____				Regulatory Program (CAA, RCRA, etc.) as applicable: Rush (Pre-approval required): 2 Day 3 day 5 day Other _____ Date Results Requested: _____				Permit # as applicable: Units for Reporting: <input type="checkbox"/> ug/m ³ <input type="checkbox"/> PPBV <input type="checkbox"/> mg/m ³ <input type="checkbox"/> PPMV				Canister Pressure / Vacuum		PUF / FILTER		BTEXGRO TO-15 Summa		Proj. Manager: 110 - Brian Ford			
* Matrix Codes (Insert in Matrix box below): Ambient (A), Indoor (I), Soil Vapor (SV), Other (O)								Start Pressure / Vacuum (in Hg)		End Pressure / Vacuum (in Hg)		Duration (minutes)		Flow Rate (m ³ /min or L/min)				Total Volume Sampled (m ³ or L)		AcctNum / Client ID: CHEVARCAK	
Customer Sample ID				Matrix *	Summa Canister ID	Flow Controller ID	Begin Collection (Date Time)		End Collection (Date Time)								Table #: T233353				
Influent - A - 20240409				A	028310	028826	4.9.24 0950		4.9.24 1000		-28		-5		10		m ³ or L		Profile / Template: P1066843		
																			Prelog / Bottle Ord. ID: P1066843		
																			Sample Comment 4723900.01		
Customer Remarks / Special Conditions / Possible Hazards:				Collected By: Printed Name: E. Wojcik Signature: _____				Additional Instructions from Pace*:													
Relinquished by/Company: (Signature) _____				Date/Time: 4.9.24/1200				Received by/Company: (Signature) _____				Date/Time:		# Coolers:		Thermometer ID:		Correction Factor (°C):		Obs. Temp. (°C): Corrected Temp. (°C):	
Relinquished by/Company: (Signature) _____				Date/Time:				Received by/Company: (Signature) _____				Date/Time:		Tracking Number:		Delivered by: In-Person Courier		FedEX UPS Other			
Relinquished by/Company: (Signature) _____				Date/Time:				Received by/Company: (Signature) _____				Date/Time: 4/10/24 0900									
Relinquished by/Company: (Signature) _____				Date/Time:				Received by/Company: (Signature) _____				Date/Time: Cont-1 AMB								Page: ____ of: ____	

Appendix C

Laboratory Data Review Checklist

Laboratory Data Review Checklist

Completed By:

Bhagyashree A Fulzele

Title:

Project Chemist

Date:

May 11, 2024

Consultant Firm:

ARCADIS U.S., Inc

Laboratory Name:

Pace Analytical

Laboratory Report Number:

L1723900

Laboratory Report Date:

04/14/2024

CS Site Name:

4351 W. ITNL AIRPORT RD

ADEC File Number:

2100.26.115

Hazard Identification Number:

23369

Note: Any N/A or No box checked must have an explanation in the comments box.

1. Laboratory

a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?

Yes No N/A Comments:

Yes.

b. If the samples were transferred to another “network” laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?

Yes No N/A Comments:

Not applicable.

2. Chain of Custody (CoC)

a. CoC information completed, signed, and dated (including released/received by)?

Yes No N/A Comments:

Yes.

b. Correct analyses requested?

Yes No N/A Comments:

Yes.

3. Laboratory Sample Receipt Documentation

a. Sample/cooler temperature documented and within range at receipt (0° to 6° C)?

Yes No N/A Comments:

No applicable to air sampling.

b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?

Yes No N/A Comments:

Not applicable.

c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?

Yes No N/A Comments:

Yes.

d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, etc.?

Yes No N/A Comments:

Yes, no discrepancies.

e. Data quality or usability affected?

Comments:

Data quality/usability was not affected.

4. Case Narrative

a. Present and understandable?

Yes No N/A Comments:

Yes.

b. Discrepancies, errors, or QC failures identified by the lab?

Yes No N/A Comments:

Yes.

c. Were all corrective actions documented?

Yes No N/A Comments:

Yes.

d. What is the effect on data quality/usability according to the case narrative?

Comments:

Data quality/usability was not affected.

5. Samples Results

a. Correct analyses performed/reported as requested on COC?

Yes No N/A Comments:

Yes.

b. All applicable holding times met?

Yes No N/A Comments:

Yes.

c. All soils reported on a dry weight basis?

Yes No N/A Comments:

Not applicable.

d. Are the reported LOQs less than the Cleanup Level or the minimum required detection level for the project?

Yes No N/A Comments:

Yes.

e. Data quality or usability affected?

Data quality/usability was not affected.

6. QC Samples

a. Method Blank

i. One method blank reported per matrix, analysis and 20 samples?

Yes No N/A Comments:

Yes.

ii. All method blank results less than limit of quantitation (LOQ) or project specified objectives?

Yes No N/A Comments:

No.

iii. If above LOQ or project specified objectives, what samples are affected?

Comments:

None of the samples were affected.

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes No N/A Comments:

Not applicable.

v. Data quality or usability affected?

Comments:

Data quality or usability was not affected.

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)

Yes No N/A Comments:

Yes.

ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?

Yes No N/A Comments:

Not applicable.

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

Yes No N/A Comments:

Yes.

- iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from LCS/LCSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

Yes No N/A Comments:

Yes.

- v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

None of the samples were affected.

- vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes No N/A Comments:

Not applicable.

- vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

Data quality or usability was not affected.

- c. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

Note: Leave blank if not required for project

- i. Organics – One MS/MSD reported per matrix, analysis and 20 samples?

Yes No N/A Comments:

Not applicable.

- ii. Metals/Inorganics – one MS and one MSD reported per matrix, analysis and 20 samples?

Yes No N/A Comments:

Not applicable.

- iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

Yes No N/A Comments:

Not applicable.

- iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from MS/MSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

Yes No N/A Comments:

Not applicable.

v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

None of the samples were affected.

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes No N/A Comments:

Not applicable.

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

Data quality or usability was not affected.

d. Surrogates – Organics Only or Isotope Dilution Analytes (IDA) – Isotope Dilution Methods Only

i. Are surrogate/IDA recoveries reported for organic analyses – field, QC and laboratory samples?

Yes No N/A Comments:

Yes.

ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods 50-150 %R; all other analyses see the laboratory report pages)

Yes No N/A Comments:

Yes.

iii. Do the sample results with failed surrogate/IDA recoveries have data flags? If so, are the data flags clearly defined?

Yes No N/A Comments:

Not applicable.

iv. Data quality or usability affected?

Comments:

Data quality or usability was not affected.

e. Trip Blanks

i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples? (If not, enter explanation below.)

Yes No N/A Comments:

Trip blank was not collected from this SDG.

ii. Is the cooler used to transport the trip blank and VOA samples clearly indicated on the COC? (If not, a comment explaining why must be entered below)

Yes No N/A Comments:

Not applicable.

iii. All results less than LOQ and project specified objectives?

Yes No N/A Comments:

Not applicable.

iv. If above LOQ or project specified objectives, what samples are affected?

Comments:

None of the samples were affected.

v. Data quality or usability affected?

Comments:

Data quality or usability was not affected..

f. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples?

Yes No N/A Comments:

No.

ii. Submitted blind to lab?

Yes No N/A Comments:

Not applicable.

iii. Precision – All relative percent differences (RPD) less than specified project objectives?
(Recommended: 30% water, 50% soil)

$$\text{RPD (\%)} = \text{Absolute value of: } \frac{(R_1 - R_2)}{((R_1 + R_2)/2)} \times 100$$

Where R_1 = Sample Concentration
 R_2 = Field Duplicate Concentration

Yes No N/A Comments:

Not applicable.

iv. Data quality or usability affected? (Use the comment box to explain why or why not.)

Comments:

Data quality or usability was not affected.

g. Decontamination or Equipment Blank (If not applicable, a comment stating why must be entered below)?

Yes No N/A Comments:

Equipment blank was not collected from this SDG.

i. All results less than LOQ and project specified objectives?

Yes No N/A Comments:

Not Applicable.

ii. If above LOQ or project specified objectives, what samples are affected?

Comments:

None of the samples were affected.

iii. Data quality or usability affected?

Comments:

Data quality or usability was not affected.

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

a. Defined and appropriate?

Yes No N/A

Comments:

Not applicable.

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2100 Georgetown Drive, Suite 402
Sewickley
Pennsylvania 15143
Phone: 724 742 9180
www.arcadis.com