



MEMORANDUM

September 21, 2023

RE: Third Quarter 2023 Status Report, Boeing Field Chevron, 10805 East Marginal Way South, Tukwila, Washington, Agreed Order DE-10947

**To: Mr. Dale Myers, Washington State Department of Ecology
cc: Mr. Nathan Blomgren, Chevron Environmental Management and Real Estate Company; Mr. Raj Sandhu, Boeing Field Chevron; and Mr. Russ Shropshire, Leidos**

From: Thomas Cammarata

This status report is related to the ongoing environmental remediation effort for the Boeing Field Chevron facility at 10805 East Marginal Way South, Tukwila, Washington (the Site). The status report is developed to inform stakeholders of project progress in the Third Quarter of 2023 and to comply with reporting requirements for the facility under Agreed Order DE-10947 with the Washington State Department of Ecology (Ecology). The project progress in the Third Quarter of 2023 was performed in accordance with *Final Pilot Test Workplan, Boeing Field Chevron, 10805 East Marginal Way South, Tukwila, Washington*, prepared by G-Logics and dated June 21, 2022 (the Pilot Test Workplan).

Efforts completed during the Third Quarter of 2023 included a progress groundwater sampling event.

THIRD QUARTER 2023 TASKS AND MILESTONES

Between July 1, 2023, and September 30, 2023, the following efforts were completed and milestones were reached on the project:

G-Logics
40 2nd Avenue SE
Issaquah, WA 98027
T: 425-391-6874
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- On July 19, 2023, G-Logics performed the three-month post-injection progress groundwater sampling, in accordance with Section 4.3 of the Pilot Test Workplan. Groundwater samples were collected from pilot test target monitoring wells AS-1, IP-3, IP-4, IP-5, IP-7, and TW-1 through TW-5. G-Logics did not collect a groundwater sample from the pilot test target monitoring wells SVE-1 and TW-3, as per the Pilot Test Workplan, because the monitoring wells were dry or contained insufficient volume of water to collect samples for the required analyses. G-Logics measured water levels at all the pilot test target monitoring wells. Using an oil/water interface probe, G-Logics measured product levels in the pilot test target monitoring wells. Product was only observed in the pilot test target monitoring well IP-7. The monitoring well contained approximately 2.66 feet of product. Analytical results for groundwater samples collected from pilot test target monitoring wells are presented in attached Table 1.

PROBLEMS ENCOUNTERED

G-Logics encountered no problems in the Third Quarter regarding the implementation.

SCHEDULE EVALUATION

The provisional schedule for the pilot test program and the remaining tasks under the Agreed Order is included in attached Table 2. G-Logics established June 23, 2022, as “Day Zero” for the attached schedule.

There are no conditions that G-Logics is currently aware of that will require adjustment of the provisional schedule as it relates to the pilot test as presented in Table 2. However, beyond the pilot, the provision will likely need to be modified based on a conversation between G-Logics and Mr. Dale Myers at Ecology on September 14, 2023. In that conversation, Mr. Myers requested that before preparing the Feasibility Study, G-Logics perform an additional round of groundwater sampling and prepare an addendum to the Remedial Investigation Report documenting the findings from the groundwater sampling event. The purpose of the additional round of groundwater sampling is to determine the current concentrations of petroleum hydrocarbons in the groundwater at the Site since groundwater samples have not been collected from the entire monitoring well network since 2018 and/or 2019.

PLANNED FOURTH QUARTER 2023 TASKS AND MILESTONES

The following tasks are expected to be completed in the Fourth Quarter of 2023. (September 30, 2023, through December 30, 2023):

- October 1, 2023 – Submit to Chevron the Draft Pilot Test Results for In Situ Chemical Oxidation (ISCO) and Total Liquids Extraction.
- December 18, 2023 – Chevron completes review, G-Logics completes Response to Comments and submits to Ecology the Final Pilot Test Results for ISCO and Total Liquids Extraction.
- Preparation of a Supplemental Remedial Investigation Workplan (SRI Workplan) that Ecology has requested. The SRI Workplan will include a comprehensive groundwater sampling event and the preparation of an addendum to the current Ecology-approved RI Report.
- Implementation of the SRI, assuming Ecology approves the SRI Workplan by the middle of the Fourth Quarter of 2023.
- Upon approval of the addendum to the RI Report by Ecology, begin preparing a Feasibility Study. This task will likely take place during the First Quarter of 2024.

Attachments Table 1, Groundwater Sample Analytical Results
 Table 2, Project Schedule

Attachments

TABLE 1
Groundwater Sample Analytical Results
Boeing Field Chevron
10805 East Marginal Way
Tukwila, Washington

Sample Identification	Sample Date	Total Petroleum Hydrocarbons (µg/L)			Volatile Organic Compounds (µg/L)				Total Organic Carbon (mg/L)
		Gasoline Range Organics	Diesel Range Organics	Heavy Oil Range Organics	Benzene	Toluene	Ethylbenzene	Total Xylenes ¹	
MTCA Method A Cleanup Level ²		1,000/800 ³	500	500	5	1,000	700	1,000	NE
AS-1	8/15/2022	474	617	478	5.98	<0.750	31.8	26.7	---
	9/27/2022	5,780 D	3,610	<93.0	104 D	14.8 D	464 D	240 D	---
	2/23/2023	6,000	2,900 M	620	32	36	310	710	---
	4/25/2023	3,000	<450 M1 Q U1	<220 Q	16	15	150	350	---
	7/20/2023	2,900	720	<220	25	18	150	380	---
IP-3	8/15/2022	4,450 D	277	612	1,080 DE	21.9	43.1 D	92.1 D	8.43
	2/23/2023	29,000	2,100 M	480	3,100	4,700	1,200	3,410	---
	4/25/2023	21,000	<930 M1 Q U1	<210 Q	2,100	3,700	1,200	3,720	---
	7/20/2023	20,000	1,600	400	1,100	1,600	1,300	3,200	---
IP-4	8/15/2022	126,000 DE	9,500	<1,110	54.6 D	2,140 DE	5,100 DE	14,500 DE	---
	9/27/2022	114,000 D	17,300	<92.7	47.2 JD	2,420 D	4,110 D	17,600 D	---
	2/23/2023	63,000	3,300 M	530	27	81	1,600	6,600	---
	4/25/2023	57,000	<4,500 M1 U1	320	26	110	3,100	10,800	---
	7/19/2023	54,000	6,300	570	41	340	4,800	12,100	---
IP-5	8/15/2022	13,200 D	625	<95.7	1,940 D	346 D	358 D	916 D	7.94
	2/22/2023	21,000	3,400 M	550	3,000	350	1,100	2,990	---
	4/24/2023	14,000	<2,000 M1 U1	460	1,700	190	860	2,050	---
	7/19/2023	25,000	2,600	430	4,900	3,000	1,400	3,240	---
IP-7	8/16/2022	111,000 D	49,300 D	<93.9	1,040 D	3,620 D	2,920 D	15,300 D	20.7
	2/23/2023	82,000	16,000 M	680	850	6,700	2,600	13,600	---
	4/25/2023	53,000	<2,200 M1 U1	260	450	4,400	3,100	10,800	---
	7/20/2023	54,000	4,000	380	840	5,300	2,500	12,500	---
TW-1	8/15/2023	NS	NS	NS	NS	NS	NS	NS	---
	2/22/2023	<100	130	350	<0.20	<1.0	<0.20	<0.40	---
	4/24/2023	<100	<210	<220	<0.20	<1.0	<0.20	<0.40	---
	7/19/2023	<100	170	300	0.30	1.1	0.89	4.9	---
TW-2	8/15/2023	NS	NS	NS	NS	NS	NS	NS	---
	2/22/2023	100	110 M	310	220	9	8	42	---
	4/24/2023	330	<210	<220	<0.40	7.1	6	31	---
	7/19/2023	7,400	170	600	1.3	28	18	90	---
TW-3	8/15/2023	NS	NS	NS	NS	NS	NS	NS	---
	9/29/2022	NS	NS	NS	NS	NS	NS	NS	---
	2/22/2023	14,000	4,800 M	620	2,800	<100	1,500	1,200	---
	4/24/2023	13,000	<3,700 M1 U1	350	2,400	96	1,600	1,900	---
TW-4	8/15/2022	139	561	<94.7	<0.440	4.25	0.811	4.88	---
	9/27/2022	133	381	<91.9	<0.440	6.35	0.978	4.20	---
	2/22/2023	<100	<120	310	<0.20	1.1	0.30	1.28	---
	4/24/2023	<100	<230	<230	<0.40	<2.0	0.86	4.40	---
	7/19/2023	<100	120	300	<0.20	<1.0	<0.20	0.41	---

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TW-5	8/15/2022	214,000 DE	8,850	<94.2	351 D	38,400 DE	6,000 DE	23,800 DE	---
	9/27/2022	178,000 D	8,520	<94.2	258 JD	30,600 D	3,890 D	20,900 D	---
	2/22/2023	140,000	9,200 MQ	540 Q	220	24,000	4,200	21,000	---
	4/24/2023	150,000	<4,400 M1 U1	330	220	25,000	5,400	26,700	---
	7/19/2023	150,000	3,400	440	340	41,000	5,800	29,000	---

Notes:

Only those analytes detected or specifically targeted for evaluation are included in the table. Refer to the laboratory reports in Appendix A for full list of analytes and analytical methods.

¹ Results for Xylenes is the sum of m,p-xylenes and o-xylenes, as indicated in the laboratory analytical package.

² MTCA Standard Method A Groundwater Cleanup Levels for Unrestricted Land Uses. mg/L = milligrams per liter

³ Lower cleanup level applies to groundwater with detectable benzene. µg/L = micrograms per liter

--- Sample not analyzed.

<5.02 The analyte was not detected at a concentration above the indicated reporting limit.

27.2 Bold value indicates contaminant detected.

3,490 Bold value and yellow shading indicates concentration exceeds applicable cleanup level.

D The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

E Value is above the quantitation range.

J Analyte detected below the Reporting Limit.

M Hydrocarbons in the gasoline range are impacting the diesel range result.

M1 Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.

MTCA Model Toxics Control Act

NE Not established

Q Surrogate recovery is out of the control limits.

U1 The practical quantitation limit is elevated due to interferences present in the sample.

NS Not samples due to insufficient volume of water in the well to collect a sample

Table 2
Project Schedule
ISCO/Total Liquids Extraction Pilot Test and FS/CAP Development
Boeing Field Chevron, 10805 East Marginal Way South
Tukwila, Washington

Task/Milestone	Duration	Week Beginning	Week Ending
ISCO/Total Liquids Extraction Pilot Test			
Workplan approval	Day 0	1	1
Field planning and coordination, health and safety plan development, procurement	3 weeks	1	4
BASELINE CONDITIONS EVALUATION			
Monitoring well installation and initial groundwater monitoring	1 week	4	5
Soil and groundwater sample analysis and results review	2 weeks	5	7
PILOT TEST IMPLEMENTATION AND MONITORING			
Reagent Injection Event #1	2 days	8	8
Progress Groundwater Monitoring Event #1	2 days	11	11
Total Liquids Extraction Event #1	1 day	12	12
Reagent Injection Event #2	1 day	13	13
Total Liquids Extraction Event #2	1 day	16	16
Reagent Injection Event #2	1 day	18	18
Total Liquids Extraction Event #2	1 day	21	21
Progress Groundwater Monitoring Event #2 (One Month)	2 days	25	25
Progress Groundwater Monitoring Event #3 (Three Months)	2 days	34	34
Progress Groundwater Monitoring Event #4 (Six Months)	2 days	47	47
REPORTING			
Report Development and Draft Report Submittal	4 weeks	47	51
Review, Response to Comments, and Final Report Submittal	6 weeks	51	57
Feasibility Study Development			
Development and Agency Review Draft Feasibility Study Report Submittal	6 weeks	57	63
Agency Review and Public Comment Draft Feasibility Study Report Submittal	7 weeks	63	70
Public Review of Draft Feasibility Study Report	5 weeks	70	75
Final Feasibility Study Report Development and Submittal	4 weeks	75	79
Cleanup Action Plan Development			
Development and Agency Review Draft Cleanup Action Plan Submittal	6 weeks	79	85
Agency Review and Public Comment Draft Cleanup Action Plan Submittal	7 weeks	85	92
Public Review of Draft Cleanup Action Plan	5 weeks	92	97
Final Cleanup Action Plan Development and Submittal	4 weeks	97	101

Notes:

FS/CAP = Feasibility Study/Cleanup Action Plan

ISCO = In situ chemical oxidation