



ENVIRONMENTAL DAILY FIELD REPORT

PROJECT NAME: RA 11 Flowline Investigation

DATE: 7/7/2022

SITE LOCATION: RA 11 Pad

PERSONNEL: Jordan Veith, Tristan Schmalz

PROJECT MANAGER: Vince DeCianne

WEATHER CONDITIONS: Clear, sunny, winds <5mph, temps mid-60s, minimal recent precipitation.

TIME ARRIVED: 7:00AM

TIME DEPARTED: 1:00PM

SUBCONTRACTOR: WCO Oil Field Services

NAME / FIRM: Dave & Louis, WCO.

SITE VISITORS: Jake Janicek (Caerus)

PRIMARY ASSIGNMENTS:

Delineate vertical and horizontal extent of the spill area around the separator flowline via potholing and field screening with photoionization detector (PID) and collect "clean" confirmation soil samples on the vertical and horizontal extent of the spill. Submit these samples to Pace Analytical Laboratories for full COGCC Table 915-1 analytes. Collect photos and GPS points of soil sample locations.

FIELD NOTES:

Jordan Veith and Tristan Schmalz of Kleinfelder arrived onsite at 7:00AM. Utility locate requests through Colorado 811 were completed (Ticket B217400392-02A). Began PID span calibration. PID and PID calibration gas is owned and maintained by Caerus. PID SN: 592-002621. Span calibration passed.

Dave and Louis with WCO Oil Field Services and Jake Janicek with Caerus arrived onsite at approximately 7:45AM. Completed a site walk to review marked utility lines within sampling area with all parties and discussed proposed sampling approach. Standing water was observed within the existing hydrovac excavation at the Point of Release (POR). Jake departed the site at approximately 8:15AM.

One pothole at the POR and ten additional potholes around the POR were used to delineate the spill area. A summary of the pothole delineation is provided below. Additional details on each soil sample can be found in the attached sample log. A sample was only collected if indicated by "Sample Collected" in comments section of sample register. Each sample that was saturated was gray in color and demonstrated gleying conditions common with the presence of groundwater.

- POR at 7 feet below ground surface (bgs). This pothole was field screened at 7 feet bgs. The soil was saturated at 7 feet bgs and a soil sample was collected for lab analysis.
- Pothole #1 (PH01) is flush against east side of south most separator and is to be used for the west horizontal delineation. This pothole was field screened at 2, 5, and 7 feet bgs. The soil was saturated at 7 feet bgs and a soil sample was collected for lab analysis.

Jordan Veith

KLEINFELDER REPRESENTATIVE PRINT NAME

Jordan Veith

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- PH02 is approximately 9 feet east of the POR at the edge of the disturbed pad surface. This pothole was field screened at 5 feet bgs. The soil was saturated at 5 feet bgs and a soil sample was collected for lab analysis.
- PH03 is approximately 5 feet south of the POR at the edge of the disturbed pad surface and is to be used for the south horizontal delineation. This pothole was field screened at 5 feet bgs. The soil was saturated at 5 feet bgs and a soil sample was collected for lab analysis.
- PH04 is approximately 6 feet west of the south most separator. This pothole was field screened at 5 and 7 feet bgs. The soil was saturated. No sample was collected at this pothole due to a PID reading of 76.4 ppm.
- PH05 is approximately 15 feet west of PH04. This pothole was field screened at 6 feet bgs. The soil was less wet than the other soil samples. A PID reading of 111.1 ppm at this pothole. A soil sample was collected for lab analysis.
- PH06 is approximately 6 feet west of the north most separator adjacent to PH07. This pothole was field screened at 6 feet bgs. The soil was saturated at 6 feet bgs and a soil sample was collected for lab analysis.
- PH07 is approximately 15 feet north of the POR along the flowline and is to be used for the vertical delineation. This pothole was field screened at 5, 7, and 9 feet bgs. The soil was saturated beginning at 5 feet bgs. A sample was collected at 9 feet bgs for laboratory analysis.
- PH08 is flush against the east side of the north most separator. This pothole was field screened at 5 feet bgs. The soil was saturated. A soil sample was collected for lab analysis.
- PH09 is approximately 15 feet north along the flowline from PH07 and is to be used for the north horizontal delineation. The pothole was field screened at 5 feet bgs. The soil was saturated. A sample was collected at 5 feet bgs for laboratory analysis.
- PH10 is approximately 6 feet east of PH07 and is to be used for the east horizontal delineation. The pothole was field screened at 5 feet bgs. The sample is moist. A sample was collected at 5 feet bgs for laboratory analysis.

The field screening at PH01 suggested the west delineation had been completed adjacent to the POR. However, the field screening results at PH04 and PH05 which are west of PH01 indicate additional contamination in this area and may not be associated with the spill.

Each sample was collected using a stainless-steel hand soil auger. A PID measurement, GPS way point, and photos were collected at each sampling location. However, a sample was not collected from every pothole location. See the attached sample register, photo log, and sample location map log for additional details. All equipment was decontaminated per standard operating procedures for soil sampling prior to the collection of each sample.

Departed RA 11 at approximately 1:00PM en-route to meet Pace Analytical courier.



COGCC Soil Sampling

by **Jordan Veith** on **7/7/2022**
for **Caerus RA11**

Caerus - 2022 Sampling Support
Services
20231065.001A
DeCianne, Vincent G. (Vince)

Sample Register

Sample ID	Sample Type	Date	Time	Depth	PID (ppmv)	Odor	Staining	Comments
20220707_RA11_PH01@2ft	Spill Area	07/07/2022	08:20 AM	2 to 2	50	N	N	No sample collected.
20220707_RA11_PH01@5ft	Spill Area	07/07/2022	08:43 AM	5 to 5	72	Y	Y	No sample collected.
20220707_RA11_PH02@5ft	Spill Area	07/07/2022	09:20 AM	5 to 5	0.8	N	N	Sample is saturated. Sample collected.
20220707_RA11_PH03@5ft	Spill Area	07/07/2022	09:45 AM	5 to 5	39.1	Y	N	Sample saturated. Sample collected.
20220707_RA11_PH04@5ft	Spill Area	07/07/2022	10:10 AM	5 to 5	76.4	Y	Y	Soil is saturated.
20220707_RA11_PH05@6ft	Spill Area	07/07/2022	10:45 AM	5 to 5	111.1	Y	Y	Soil is drying out. Sample collected.
20220707_RA11_PH07@5ft	Spill Area	07/07/2022	11:29 AM	5 to 5	1946	Y	Y	Very strong hydrocarbon scent.
20220707_RA11_PH08@5ft	Spill Area	07/07/2022	12:10 PM	5 to 5	0.2	N	N	Soil is saturated. Sample collected.
20220707_RA11_PH09@5ft	Spill Area	07/07/2022	12:25 PM	5 to 5	0.2	N	N	Soil is saturated. Sample collected.
20220707_RA11_PH10@5ft	Spill Area	07/07/2022	12:45 PM	5 to 5	0.5	N	N	Soil is moist. Sample collected.
20220707_RA11_PH06@6ft	Spill Area	07/07/2022	11:10 AM	6 to 6	0.2	N	N	Soil is saturated. Sample collected.

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20220707_RA11_ POR@7ft	Spill Area	07/07/2022	08:10 AM	7 to 7	2.4	N	N	Minimal hydrocarbon odor and staining observed. Sample is saturated. Sample collected.
20220707_RA11_ PH01@7ft	Spill Area	07/07/2022	09:00 AM	7 to 7	60	Y	Y	Soil is saturated. Flush against south separator. Sample collected.
20220707_RA11_ PH04@7ft	Spill Area	07/07/2022	10:25 AM	7 to 7	52.4	N	N	Sample is saturated.
20220707_RA11_ PH07@7ft	Spill Area	07/07/2022	11:38 AM	7 to 7	250.5	Y	Y	High hydrocarbon scent.
20220707_RA11_ PH07@9ft	Spill Area	07/07/2022	11:50 AM	9 to 9	17.6	N	N	Sample is saturated. Sample collected.

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Photo Log

Fig. 1: 20220707_RA11_POR@7ft



Fig. 2: 20220707_RA11_PH01@7ft



Fig. 3: 20220707_RA11_PH02@5ft



Fig. 4: 20220707_RA11_PH03@5ft



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Photo Log

Fig. 5: 20220707_RA11_PH05@6ft



Fig. 6: 20220707_RA11_PH06@6ft



Fig. 7: 20220707_RA11_PH07@9ft



Fig. 8: 20220707_RA11_PH08@5ft



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Photo Log

Fig. 9: 20220707_RA11_PH09@5ft



Fig. 10: 20220707_RA11_PH10@5ft



Fig. 11: North



Fig. 12: East



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Photo Log

Fig. 13: South



Fig. 14: West



Fig. 15: Initial excavation



Fig. 16: Initial excavation location.



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