



Caerus Oil and Gas LLC
1001 Seventeenth Street
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Please note that a previous operator conducted the field work and ownership of this spill prior to the purchase and ownership of this asset by Caerus in July 2017. The spill narrative found below will reference both Encana and Caerus as operators assessing this spill.

Please reference COGCC document numbers 400599754 and 400724439 for information regarding initial spill assessment and investigation.

Following discovery of the spill, Encana field personnel began excavating and stockpiling the material on the surface of the pipeline right-of-way to be characterized for onsite reuse or treatment. Encana collected initial spill path and point of release samples on April 30, 2014 and May 1, 2014. These samples were analyzed for COGCC Table 910-1 concentration levels and demonstrated exceedances for EC, SAR, and arsenic. Encana stockpiled the excavated spoils adjacent to the pipeline trench for characterization and eventual backfilling. Sampling for the stockpiled material was conducted on June 4, 2014, identified as the SE and SW samples, and analyzed for SAR.

Excavation confirmation soil samples were collected on June 19th, 2014 to determine the inorganic concentrations still found in the shallow excavation. Prior to confirmation of sample results, the excavation was backfilled with the stockpiled material and the site was contoured and seeded for reclamation.

Surficial soil sampling events were conducted on the following dates to determine inorganic compound concentrations within the spill area:

- September 25th, 2014
- May 5th, 2016
- May 10th, 2018

Caerus proposes to conduct a soil sampling event from the proposed five locations outlined on the attached "2020 KE Road Soil Sampling Map". From each location identified on the map, soil samples will be collected at depths ranging from 0 – 6" and 18 – 24" below ground surface to delineate inorganic exceedances still present from the 2014 spill. Based on the soil sample laboratory analytical results presented in the attached lab summary table, the point of release demonstrates compliance with COGCC Table 910-1 concentration levels except for EC, SAR, and arsenic. Caerus requests to modify the analytical list for all future sampling events to analyze for EC and SAR. To address the elevated concentrations of arsenic found in both the spill samples and background samples at the site, Caerus is requesting consideration for FAQ 31 outlined below.

Following receipt of laboratory analytical results for the 10 soil samples outlined above, Caerus will provide a supplemental Form 27 summarizing the lab results and proposing activities for remediation or closure moving forward.

FAQ 31 consideration

All spill assessment samples and background samples identified an exceedance to the COGCC Table 910-1 concentration level for arsenic which is 0.39 mg/kg. The Colorado Department of Public Health and Environment (CDPHE) has prepared a risk management guidance document for evaluating arsenic concentrations in soil and has identified an average arsenic concentration within Colorado to be 11 mg/kg



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(CDPHE, <https://www.colorado.gov/pacific/cdphe/air-water-soil-remedial-objectives>). The study identified that if there is no reason to suspect arsenic or arsenic containing materials were used onsite, then an arsenic concentration below 11 mg/kg is not a chemical of concern. Based on process knowledge during the drilling, completion, and production process, Caerus does not use arsenic or arsenic containing materials. Caerus has analyzed produced water samples from multiple fields within the area which have not demonstrated elevated concentrations of arsenic to be found in produced water. Following the flowchart provided in the Risk management guidance, Caerus believes these elevated concentrations are due to background concentrations found in the soil. Caerus is requesting consideration for FAQ 31 and the CDPHE Risk Management Guidance for Evaluating Arsenic Concentrations in Soil as site and background soil samples have demonstrated naturally occurring arsenic in the soil above the COGCC Table 910-1 concentration levels.