



Summary of Remedial Activities Provided for:



**Location:
Axis Exploration, LLC
Reeves 32-21 Tank Battery
39.689609°, -104.324943°
Unincorporated Arapahoe
County, Colorado**

July 9, 2020

From April 20th to May 7th, 2020, Remington Technologies (Remington) completed excavation and onsite treatment of petroleum impacted soil. A total of 1,800 cubic yards of soil was excavated. Approximately 700 cubic yards of the excavated soil, exhibiting no petroleum hydrocarbon staining and/or had low PID field screening levels, was segregated and stockpiled as clean fill material/overburden. Approximately 1,100 cubic yards of soil exhibiting petroleum hydrocarbon staining and/or PID field screening level greater than the benchmark level were treated onsite.

During initial excavation activities, soil was field screened with a photo-ionization detector (PID), and soil samples were collected for laboratory analyses. Laboratory results from the soil samples were evaluated against PID measurements collected to define a relative benchmark (PID value = soil concentrations below COGCC limits). This benchmark was used for evaluating when petroleum impacted soil has been successfully remediated and when confirmation soil samples were to be collected. Soil samples were analyzed for benzene, toluene, ethylbenzene and xylenes (BTEX), total petroleum hydrocarbons as gasoline (TPH-GRO) and total petroleum hydrocarbons as diesel (TPH-DRO).

Petroleum impacted soil was treated onsite. The soil treatment process included laying out impacted soil in the treatment area approximately 8-inch thick. A proprietary chemical treatment solution was applied and mixed into the soil. Periodically, soil was mixed and then field screen to determine if treatment has reduced soil impacts to below benchmark level. Once soil treatment had reduced impacts to below the benchmark level, a soil sample was collected for confirmation analyses. Once laboratory analytical results from the soil treatment confirmation samples were below COGCC Table 910-1 limits for BTEX and TPH, the treated soil was stockpile and used for excavation backfill.

During excavation, field screening of side walls and the bottom of the excavation was performed to define the vertical and horizontal extent for excavating and treating impacted soil. Once the extent of the excavation was determined, confirmation soil samples were collected and submitted for laboratory analyses. The attached figure illustrates the soil sample locations. The attached table summarizes confirmation soil sample laboratory analytical results. The excavation was backfilled utilizing the overburden and treated soil. The excavation was wheel rolled compacted to match existing grade.