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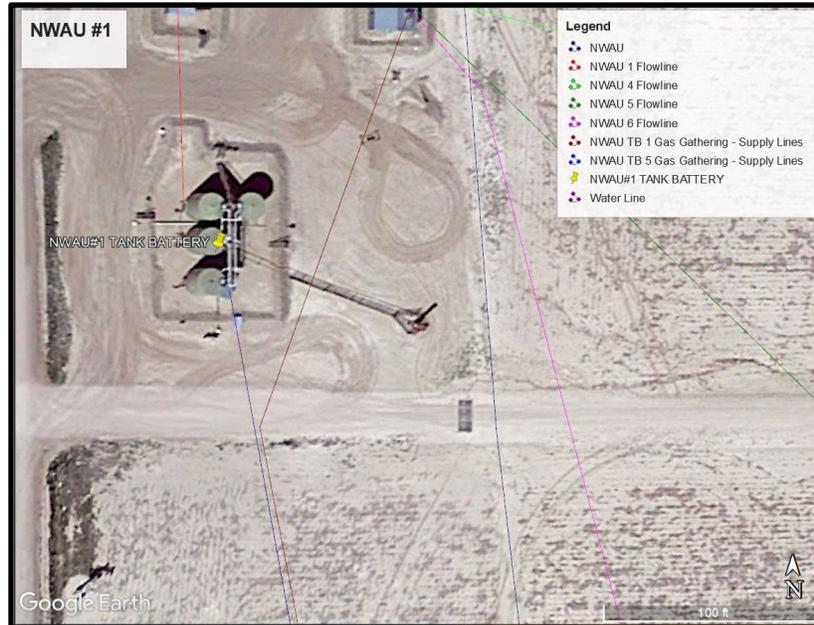
March 22, 2023

Mr. Jason Kosola, P.G.
Acting Southeast Environmental Protection Specialist
Colorado Oil & Gas Conservation Commission
1120 Lincoln Street, Suite 801
Denver, Colorado 80203

RE: NWAU #1 Tank Battery
Supplemental Report
Original Document #403271190

Mr. Kosola:

Mull Drilling Co., Inc (Mull) is providing this report to the Colorado Oil and Gas Commission (COGCC) for remediation and subsequent excavation that took place at the NWAU #1 Unit Tank Battery (Water Tank) subsequent to a flowline failure that took place on 12/23/22. After the failure Mull mobilized to the site the following weeks, as possible due to a weather delay, in order to remove impacted soils and do follow-up assessment.



Site Location

During cleanup the location and impacted berm were excavated of impacted soils down to 4 ft in depth then rebuilt. Clean soils were transported and placed in the excavated area as required to re-contour the area. The impacted zones – the tank battery and the secondary containment -- approximately 3 cubic yards of gravels and soils are currently segregated on location. Mull will

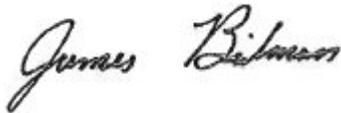
be disposing of these impacted soils to Cheyenne count Landfill in the coming weeks following an approved Waste Profile process.

A field technician mobilized to the location that on 3.8.23 and verified the presence of any lagging impacts by taking secondary samples within the containment and outside of it for Table 915-1 analysis: a total of 3 soil samples were taken from the impacted areas and included an upgradient sample. One of these samples was at 4 ft depth for stratification purposes. All collected soil samples were submitted to Pace Laboratories of Kansas for analysis following approved chain of custody protocols. Sampling indicated that Mull has recovered all the impacted soils from the area as needed for cleanup purposes. Mull is disregarding Arsenic as a cleanup value due to its presence in the upgradient sample.

Please see **Figure I** for sampling locations and extent of original impact. Also attached is **Table 915** that tabulates the results of the subsequent sampling.

Any further environmental assessments at the location will proceed upon final abandonment of the location. At this time Mull is requesting final closure of the spill for cleanup purposes.

Should there be any questions or concerns feel free to contact us,



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Attachments:

Figure 1 – Tank Battery Area
Table 915 – Spill Cleanup Analysis
Lab Report - 60417574

Figure 1: Tank Battery Area

NWAU #1 Tank Battery

NWAU #1



Legend

Highlighted Points are Sampling Locations

Red Highlighted area was impacted area.

Area of Excavation was outside the margins of the impacted area.

Regulatory Limits as COGCC promulgated table 915-1

Location:	Latitude: 38.902003	Longitude: -102.183825	COGCC Project #	403271190
State:	Colorado			
County:	Cheyenne			



Table 915-1 NWAU #1 TB 12.22 Spill -- Cleanup Analysis		3/8/2023		
CLEANUP CONCENTRATIONS		DG-1 1'	DG-1 4'	Upgradient
Contaminant of Concern	Concentrations	Coordinates here	Coordinates here	Coordinates here
Soil TPH (total volatile [C6-C10] and extractable [C10-C36] hydrocarbons)	500mg/kg	ND	ND	ND
Soils and Groundwater - liquid hydrocarbons including condensate and oil	below visual detection limits	None	None	None
Soil Suitability for Reclamation				
Electrical conductivity (EC) (by saturated paste method)	<4mmhos/cm	0.324	0.395	0.613
Sodium adsorption ratio (SAR) (by saturated paste method)	<6	0.829	1.32	0.623
pH (by saturated paste method)	6-8.3	7.96	8.24	7.88
boron (hot water soluble soil extract)	2mg/l	0.323	0.322	0.321
Organic Compounds in Groundwater				
benzene	5µg/l	NA	NA	NA
toluene	560 to 1,000µg/l	NA	NA	NA
ethylbenzene	700µg/l	NA	NA	NA
xylenes (sum of o-, m- and p- isomers = total xylenes)	1,400 to 10,000µg/l	NA	NA	NA
naphthalene	140µg/l	NA	NA	NA
1,2,4-trimethylbenzene	67µg/l	NA	NA	NA
1,3,5-trimethylbenzene	67µg/l	NA	NA	NA
Groundwater Inorganic Parameters				
total dissolved solids (TDS)	<1.25 X local background	NA	NA	NA
chloride ion	250mg/l or <1.25 X local background	NA	NA	NA
sulfate ion	250mg/l or <1.25 X local background	NA	NA	NA

Soils	Residential Soil Screening Level Concentrations (mg/kg)	Protection of Groundwater Soil Screening Level Concentrations (mg/kg)			
Organic Compounds in Soils					
benzene	1.2	0.0026 (M)	ND	ND	ND
toluene	490	0.69 (M)	ND	ND	ND
ethylbenzene	5.8	0.78 (M)	ND	ND	ND
xylenes (sum of o-, m- and p- isomers = total xylenes)	58	9.9 (M)	ND	ND	ND
1,2,4-trimethylbenzene	30	0.0081 (R)	ND	ND	ND
1,3,5-trimethylbenzene	27	0.0087 (R)	ND	ND	ND
acenaphthene	360	0.55 (R)	ND	ND	ND
anthracene	1800	5.8 (R)	ND	ND	ND
benz(a)anthracene	1.1	0.011 (R)	ND	ND	ND
benzo(b)fluoranthene	1.1	0.3 (R)	ND	ND	ND
benzo(k)fluoranthene	11	2.9 (R)	ND	ND	ND
benzo(a)pyrene	0.11	0.24 (M)	ND	ND	ND
chrysene	110	9 (R)	ND	ND	ND
dibenzo(a,h)anthracene	0.11	0.096 (R)	ND	ND	ND
fluoranthene	240	8.9 (R)	ND	ND	ND
fluorene	240	0.54 (R)	ND	ND	ND
indeno(1,2,3-cd)pyrene	1.1	0.98 (R)	ND	ND	ND
1-methylnaphthalene	18	0.006 (R)	ND	ND	ND
2-methylnaphthalene	24	0.019 (R)	ND	ND	ND
naphthalene	2	0.0038 (R)	ND	ND	ND
pyrene	180	1.3 (R)	ND	ND	ND
Metals in Soils					
arsenic	0.68	0.29 (M)	6	6.4	6.1
barium	15000	82 (M)	249	313	204
cadmium	71	0.38 (M)	0.58	0.6	0.59
chromium (VI)	0.3	0.00067 (R)	ND	ND	ND
copper	3100	46 (M)	10.4	11	10.7
lead	400	14 (M)	9	9.3	8.9
nickel	1500	26 (R)	10.8	11.8	10.9
selenium	390	0.26 (M)	ND	ND	ND
silver	390	0.8 (R)	ND	ND	ND
zinc	23000	370 (R)	36.3	40	36.4

The letter "(R)" following a protection of Groundwater soil screening level indicates the concentration is derived from a risk-based approach. The letter "(M)" following a protection of Groundwater soil screening level indicates the concentration is derived from the drinking water MCL.