

**Request to Amend the COGCC Table 910-1 Analyte List Specific for the Rangely C4 Incident
Remediation Workplan**

Submitted by

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Chevron Pipe Line Company (CPL) has prepared this Form 27 workplan update to request that electrical conductivity (EC), sodium absorption ratio (SAR), and all metals and non-metals (arsenic, barium, boron, cadmium, chromium, Cr-species, copper, lead, magnesium, mercury, nickel, selenium, silver, sodium and zinc) be removed from future sampling plans including confirmation sampling events, and that these constituents are considered as “not a site constituent of concern” requiring further evaluation for the Rangely C4 incident site.

The validity of this request is based on site analytical data for the afore mentioned analytes above from samples with known hydrocarbon exposure (RC4-CLU07-0.25, RC4-CLU09-0.25, and RC4-CLU11-0.25; collected between March 10 and 11, 2017) in comparison to ten background samples (RC4-BA-01 to RC4-BA-10; collected April 11, 2017) without hydrocarbon exposure from this event. Full analytical datasets for these samples have been previously submitted to COGCC as part of the Form 27 work plan and Response Phase Sampling Report. Analyte concentrations for EC, SAR, and all metals/non-metals in samples with known hydrocarbon exposure (RC4-CLU07-0.25, RC4-CLU09-0.25, RC4-CLU11-0.25) were all below the mean analyte concentration levels of the ten background samples and only arsenic levels in these samples were reported greater than the Table 910-1 limits. Arsenic levels around the incident site location are known to be natural occurring sources above Table 910-1 limits and thus are not present in site soils due to the incident release. Table 1 below illustrates sampling results from the ten background sample locations in comparison to three known samples with hydrocarbon exposure.

In summary, the findings presented in Table 1 below sufficiently allow CPL to conclude that EC, SAR, and metals/non-metals from Table 910-1 are not site constituents of concern since analyte concentrations in known hydrocarbon exposure samples are less than the mean of background samples and are significantly below Table 910-1 limits except for arsenic which its concentration in soils are due to natural occurrence. Therefore, CPL is requesting that COGCC grant approval to remove EC, SAR, and metals/non-metals from future sampling and evaluation for the Rangely C4 incident.

Table 1. Table 910-1 Analyte Concentrations (i.e. EC, SAR, and metals/non-metals) in Ten Background Sample Sites and Three Sampling Sites with Known Hydrocarbon Exposure from the Rangely C4 Incident.

	Units	Table 910-1 Limit	Background Samples*				Incident Samples with Hydrocarbon Exposure			Does Analyte Concentration in Incident Samples Exceed Mean Background Concentrations?	Site Constituent of Concern?
			RC-BA-01 to RC-BA-10				RC4- CLU07- 0.25	RC4- CLU09- 0.25	RC4- CLU11- 0.25		
			Maximum	Minimum	Average	Standard Deviation	--	--	--		
General Chemistry											
Electrical Conductivity, Lab	mmhos/cm	< 4 or 2x BG	11	0.57	2.41	3.3	0.38	0.53	0.32	No	No
Sodium Adsorption Ratio (SAR)	none	< 12	22	1.2	9.7	9.2	1.2	1.5	1.5	No	No
pH **	none	6 - 9	9.3	7.9	8.3	0.5	8.5	8.2	8.5	No	No
Metals											
Arsenic	mg/kg	0.39	9.2	6.0	7.2	0.88	5.7	5.9	6.4	No	No
Barium	mg/kg	15,000	440	130.0	210	89.07	100	91	110	No	No
Boron	mg/kg	--	19	11.0	13.6	2.27	10 B	10 B	9.0 B	No	No
Cadmium	mg/kg	70	0.47	0.29	0.37	0.06	0.2 J	0.17 J	0.19 J	No	No
Calcium	mg/kg	--	25000	22000	23200	1135.3	19000 B	19000 B	17000 B	No	No
Chromium, hex	mg/kg	23	57	5.1	11.0	16.17	5.8 J	6.2 J	4.6 J	No	No
Chromium, trivalent	mg/kg	120,000	23	12.0	15.6	3.24	6.2	5.8 J	6.4	No	No
Copper	mg/kg	3,100	20	14.0	15.9	2.13	11	11	9.8	No	No
Lead	mg/kg	400	19	14.0	16.2	1.62	12	12	12	No	No
Magnesium	mg/kg	--	14000	10000	11900	1286.7	8600 B	8500 B	7700 B	No	No
Mercury	mg/kg	23	0.09	0.019	0.034	0.024	0.017 J	0.012 J	0.0078 J	No	No
Nickel	mg/kg	1,600	21	15.0	17.1	2.02	12	11	12	No	No
Selenium	mg/kg	390	2	0.79	1.4	0.44	<1.3	<1.5	<1.3	No	No
Silver	mg/kg	390	1.3	0.84	1.1	0.17	<0.89	<1.0	<0.87	No	No
Sodium	mg/kg	--	2000	240.0	781	663.6	200 JB	250 JB	130 JB	No	No
Zinc	mg/kg	23,000	130	71.0	85.4	18.85	51	49	50	No	No
Total Petroleum Hydrocarbons (TPH as GRO & DRO)	mg/kg	500	441.3	4.2	72.5	131.5	27800	29000	7380	Yes	Yes

Notes:

* For results reported as below the analytical laboratory practical quantification limit (PQL), the PQL was used in the calculations.

** pH is a field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.

B - Indicates analyte was found in associated blank, as well as in the sample.

J - The reported result is an estimated value below the PQL.

Figure 1. Locations of the Ten Background Sample Sites and Three Sampling Sites with Known Hydrocarbon Exposure from the Rangely C4 Incident.

