

TABLE 1 - N23 SPILL ASSESSMENT
SOIL ANALYTICAL RESULTS
CAERUS OIL AND GAS LLC
PICEANCE BASIN, COLORADO

PARAMETER	COGCC CONCENTRATION LEVELS	UNITS	20201029-N23-POR 0-6"	20201029-N23-MID 0-6"	20201029-N23-SE 0- 6"	20201029-N23-SW 0- 6"	20201029-N23-NE 0- 6"	20201029-N23-SW DITCH 0-6"	20201104-N23 POR 5'	20201104-N23 W WALL 4'	20201120-N23-MID 3'
Sample Date			10/29/2020	10/29/2020	10/29/2020	10/29/2020	10/29/2020	10/29/2020	11/4/2020	11/4/2020	11/20/2020
Sample Matix			Spill	Spill	Spill	Spill	Spill	Spill	Spill	Spill	Spill
Arsenic	0.39	mg/kg	45.8	7.39	9.48	6.56	5.11	5.45	4.42	4.45	10.6
Barium	15,000	mg/kg	642	251	263	268	238	390	397	200	297
Cadmium	70	mg/kg	<2.50	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	1.6
Chromium (III)	120,000	mg/kg	28.2	29.2	36.5	19.9	10.2	28.9	11.1	11.8	51.6
Chromium (VI)	23	mg/kg	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
Copper	3,100	mg/kg	26.1	17.6	23	13.4	15.5	23.6	9.76	8.58	25.9
Lead	400	mg/kg	12.4	10.7	18.2	9.74	5.76	13.9	6.39	6.18	20.2
Mercury	23	mg/kg	0.148	<0.0400	<0.0400	<0.0400	<0.0400	<0.0400	<0.0400	<0.0400	0.52
Nickel	1,600	mg/kg	18.3	21.6	33.1	15.5	12.7	21.4	8.62	10.9	30.6
Selenium	390	mg/kg	<10.0	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	2.13
Silver	390	mg/kg	<5.0	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
Zinc	23,000	mg/kg	62.3	50.9	66.2	42.9	31.2	50.7	36.2	30.9	71.1
EC	4 or 2x background	mmhos/cm	3.79	2.02	2.1	3.48	0.948	3.84	1.53	1.68	0.144
pH	6-9	SU	8.31	8.22	7.97	8.36	8.14	8.27	8.57	8.96	8.84
SAR	12	unitless	36	7.23	3.08	11.9	3.7	18.7	19.5	15.4	0.796
TPH-DRO			783	461	17.2	26.5	334	153	202	858	<4.00
TPH-GRO			3950	119	0.665	226	35.6	263	440	503	0.102
TPH	500	mg/kg	4733	580	17.865	252.5	369.6	416	642	1361	<4.102
Benzene	0.17	mg/kg	0.113	0.00218	0.00147	0.0714	0.00895	0.0452	0.008	<0.00800	<0.00100
Toluene	85	mg/kg	16	0.0803	0.0129	0.483	0.158	1.39	0.333	0.259	<0.00500
Ethylbenzene	100	mg/kg	8.6	0.0506	0.00347	0.122	0.0326	0.9	0.621	0.413	<0.00250
Total Xylenes	175	mg/kg	265	1.31	0.0854	2.24	0.643	19.6	24.2	13.7	<0.00650
Acenaphthene	1,000	mg/kg	0.0442	0.0221	<0.00600	<0.00600	0.0154	0.0105	<0.00600	<0.00600	<0.00600
Anthracene	1,000	mg/kg	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600
Benz(a)anthracene	0.22	mg/kg	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600
Benzo(b)fluoranthene	0.22	mg/kg	0.00657	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600
Benzo(k)fluoranthene	2.2	mg/kg	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600
Benzo(a)pyrene	0.022	mg/kg	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600
Chrysene	22	mg/kg	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600
Dibenzo(a,h)anthracene	0.022	mg/kg	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600
Fluoranthene	1,000	mg/kg	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600
Fluorene	1,000	mg/kg	0.142	0.0419	<0.00600	<0.00600	0.0407	0.0364	0.0312	0.152	<0.00600
Indeno(1,2,3,c,d)pyrene	0.22	mg/kg	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600
Naphthalene	23	mg/kg	2.75	0.404	0.0547	0.052	0.778	0.136	0.289	1.9	<0.0200
Pyrene	1,000	mg/kg	0.154	0.0284	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	0.0061	<0.00600

Notes:

< - less than the stated reporting limit

Highlight - indicates result exceeds the COGCC concentration level

COGCC - Colorado Oil and Gas Conservation Commission

EC - electrical conductivity

mg/kg - milligrams per kilogram

mmhos/cm - millimhos per centimeter

NA - not analyzed

ND - non detect

SAR - sodium adsorption ratio

SU - standard unit

TPH-GRO - total petroleum hydrocarbons-gasoline range organics

TPH-DRO - total petroleum hydrocarbons-diesel range organics

TPH - combination of TPH-GRO and TPH-DRO

TABLE 2 - N23 SPILL ASSESSMENT
SOIL ANALYTICAL RESULTS
CAERUS OIL AND GAS LLC
PICEANCE BASIN, COLORADO

PARAMETER	COGCC CONCENTRATION LEVELS	UNITS	20201211-N23 S WALL (8')	20201211-N23 E WALL (8')	20201211-N23 N WALL (8')	20201211-N23 SW Ditch (1')	20201211-N23 SW Ditch (2')	PDC Mesa 16 Background AS-1	PDC Mesa 16 Background AS-2	PDC Mesa 16 Background AS-3	NA
Sample Date			12/11/2020	12/11/2020	12/11/2020	12/11/2020	12/11/2020	5/4/2011	5/4/2011	5/4/2011	NA
Sample Matix			Spill	Spill	Spill	Spill	Spill	Background	Background	Background	NA
Arsenic	0.39	mg/kg	6.62	9.69	14.1	6.05	12	23	28	44	NA
Barium	15,000	mg/kg	244	213	323	282	223	NA	NA	NA	NA
Cadmium	70	mg/kg	0.851	0.617	0.588	<0.500	0.662	NA	NA	NA	NA
Chromium (III)	120,000	mg/kg	15.8	35.7	28.7	34.4	42	NA	NA	NA	NA
Chromium (VI)	23	mg/kg	<2.00	<2.00	<2.00	<2.00	<2.00	NA	NA	NA	NA
Copper	3,100	mg/kg	9.58	18.4	16.9	14.6	19.3	NA	NA	NA	NA
Lead	400	mg/kg	7.53	14.1	11	10.2	14	NA	NA	NA	NA
Mercury	23	mg/kg	<0.0400	0.121	<0.0400	<0.0400	<0.0400	NA	NA	NA	NA
Nickel	1,600	mg/kg	11.6	29	22.9	22.5	23.2	NA	NA	NA	NA
Selenium	390	mg/kg	<2.00	<2.00	<2.00	<2.00	<2.00	NA	NA	NA	NA
Silver	390	mg/kg	<1.00	<1.00	<1.00	<1.00	<1.00	NA	NA	NA	NA
Zinc	23,000	mg/kg	34.7	57.3	45.9	53.3	52.9	NA	NA	NA	NA
EC	4 or 2x background	mmhos/cm	0.51	0.282	0.394	2.24	0.232	NA	NA	NA	NA
pH	6-9	SU	8.54	9.89	8.68	8.25	8.38	NA	NA	NA	NA
SAR	12	unitless	3.99	6.98	6.85	1.7	1.46	NA	NA	NA	NA
TPH-DRO			48.7	76.5	233	<4.00	<4.00	NA	NA	NA	NA
TPH-GRO			7.86	56.9	455	<0.100	<0.100	NA	NA	NA	NA
TPH	500	mg/kg	56.56	133.4	688	<4.100	<4.100	NA	NA	NA	NA
Benzene	0.17	mg/kg	<0.00100	<0.00100	0.0086	<0.00100	<0.00100	NA	NA	NA	NA
Toluene	85	mg/kg	<0.00500	<0.00500	0.0846	<0.00500	<0.00500	NA	NA	NA	NA
Ethylbenzene	100	mg/kg	<0.00250	<0.00250	<0.0200	<0.00250	<0.00250	NA	NA	NA	NA
Total Xylenes	175	mg/kg	0.0204	0.0428	4.59	<0.00650	<0.00650	NA	NA	NA	NA
Acenaphthene	1,000	mg/kg	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	NA	NA	NA	NA
Anthracene	1,000	mg/kg	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	NA	NA	NA	NA
Benz(a)anthracene	0.22	mg/kg	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	NA	NA	NA	NA
Benzo(b)fluoranthene	0.22	mg/kg	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	NA	NA	NA	NA
Benzo(k)fluoranthene	2.2	mg/kg	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	NA	NA	NA	NA
Benzo(a)pyrene	0.022	mg/kg	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	NA	NA	NA	NA
Chrysene	22	mg/kg	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	NA	NA	NA	NA
Dibenzo(a,h)anthracene	0.022	mg/kg	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	NA	NA	NA	NA
Fluoranthene	1,000	mg/kg	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	NA	NA	NA	NA
Fluorene	1,000	mg/kg	0.0239	0.0136	0.027	<0.00600	<0.00600	NA	NA	NA	NA
Indeno(1,2,3,c,d)pyrene	0.22	mg/kg	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	NA	NA	NA	NA
Naphthalene	23	mg/kg	0.0975	0.0274	0.0746	<0.0200	<0.0200	NA	NA	NA	NA
Pyrene	1,000	mg/kg	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	NA	NA	NA	NA

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