

TABLE 1
K22-596
SOIL ANALYTICAL RESULTS
CAERUS OIL AND GAS LLC
PICEANCE BASIN, COLORADO

PARAMETER	COGCC CONCENTRATION LEVELS	UNITS	POR	N Wall 5'	Bot 5'	S Wall 5'	E Wall 5'	W Wall 5'	SB POR 19 20'	SB POR 34 35'	SB05-10/12	SB05-15/17	SB05-20/22	SB05-25/27	SB05-30/32	SB05-35/37	SB05-40/42	SB04-10/12	SB04-15/17	SB04- 20/22	SB04- 25/27	SB04-30/32
Sample Date			9/7/2018	9/21/2018	9/21/2018	9/21/2018	9/21/2018	9/21/2018	11/8/2018	11/8/2018	7/8/2019	7/8/2019	7/8/2019	7/8/2019	7/8/2019	7/8/2019	7/8/2019	7/8/2019	7/8/2019	7/9/2019	7/9/2019	7/9/2019
Sample Matrix			Spill	Spill	Spill	Spill	Spill	Spill	Soil Boring	Soil Boring	Soil Boring	Soil Boring	Soil Boring	Soil Boring	Soil Boring	Soil Boring	Soil Boring	Soil Boring	Soil Boring	Soil Boring	Soil Boring	Soil Boring
Arsenic	0.39	mg/kg	16	15.8	22.6	25.5	14.8	17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	15,000	mg/kg	340	252	411	251	239	233	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	70	mg/kg	0.46	<0.500	<0.500	<0.500	<0.500	<0.500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (III)	120,000	mg/kg	23	22.4	29	23.1	23.8	27.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (VI)	23	mg/kg	<1.2	<2.00	<2.00	<2.00	<2.00	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	3,100	mg/kg	31	23.1	26.7	25.3	23	28.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	400	mg/kg	14	15.5	15.6	16.6	15	18.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	23	mg/kg	0.023	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	1,600	mg/kg	12	18.5	18.5	20.1	19.1	18.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	390	mg/kg	0.8	<2.00	<2.00	<2.00	<2.00	<2.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	390	mg/kg	<0.37	<1.00	<1.00	<1.00	<1.00	<1.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	23,000	mg/kg	61	54.1	50	64.2	61.2	55.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EC	4 or 2x background	mmhos/cm	1.2	1.7	0.417	2.51	1.24	1.75	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pH	6-9	SU	7.14	7.86	8.48	7.36	7.8	7.74	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SAR	12	unitless	0.67	2.12	0.763	0.684	0.568	0.727	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH-DRO			18000	12400	3650	3220	14200	12400	2120	103	182	152	202	118	239	151	90.3	155	258	251	258	144
TPH-GRO			96000	22600	14100	35500	19400	1630	1740	0.228	<0.100	<0.100	<0.100	0.28	0.137	0.349	0.209	<0.100	0.708	0.42	0.783	0.208
TPH	500	mg/kg	114000	35000	17750	38720	33600	14030	3860	103.228	<182.1	<152.1	<202.1	118.28	239.137	151.349	90.509	<155.1	258.708	251.42	258.783	144.208
Benzene	0.17	mg/kg	<4.0	0.175	<0.125	<0.125	<0.125	<0.125	0.00623	0.00547	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100
Toluene	85	mg/kg	5.2	<1.25	<1.25	<1.25	<1.25	<1.25	0.0216	0.00836	<0.00500	<0.00500	0.0201	0.0075	<0.00500	0.0102	0.00729	<0.00500	<0.00500	0.00939	0.00844	0.00844
Ethylbenzene	100	mg/kg	65	23.9	12.9	26.3	16.1	13.8	0.118	0.00163	<0.00250	<0.00250	0.0028	<0.00250	<0.00250	0.00265	<0.00250	<0.00250	0.00316	0.00384	0.00309	0.00738
Total Xylenes	175	mg/kg	1300	333	107	492	332	15	15.5	0.00847	0.0123	0.0118	0.057	0.0234	0.0086	0.0335	0.0291	<0.0065	0.0311	0.0331	0.0534	0.0355
Acenaphthene	1,000	mg/kg	<0.077	0.218	0.162	<0.00600	0.37	0.498	NA	NA	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600
Anthracene	1,000	mg/kg	0.96	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	NA	NA	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600
Benzo(a)anthracene	0.22	mg/kg	<0.077	0.039	<0.00600	<0.120	0.0146	0.0379	NA	NA	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Benzo(b)fluoranthene	0.22	mg/kg	<0.077	0.0235	<0.00600	<0.120	0.0179	0.0199	NA	NA	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Benzo(k)fluoranthene	2.2	mg/kg	<0.077	<0.00600	<0.00600	<0.120	<0.00600	<0.00600	NA	NA	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Benzo(a)pyrene	0.022	mg/kg	<0.077	0.0188	<0.00600	<0.120	0.0255	0.0197	<0.00600	<0.00600	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Chrysene	22	mg/kg	<0.077	0.0317	<0.00600	<0.120	0.0138	0.0221	NA	NA	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Dibenz(a,h)anthracene	0.022	mg/kg	<0.077	<0.00600	<0.00600	<0.120	<0.00600	<0.00600	NA	NA	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Fluoranthene	1,000	mg/kg	0.58	0.182	0.0245	0.0127	0.145	0.188	NA	NA	<0.006	<0.006	<0.006	0.58	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Fluorene	1,000	mg/kg	2	1	1.06	0.0814	0.313	1.47	NA	NA	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	0.011	<0.00600	<0.00600	<0.00600
Indeno(1,2,3,c,d)pyrene	0.22	mg/kg	<0.077	<0.00600	<0.00600	<0.120	0.00612	<0.00600	NA	NA	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Naphthalene	23	mg/kg	200	112	27.9	17	71.6	123	17.5	<0.0200	<0.0200	<0.0200	0.0211	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200
Pyrene	1,000	mg/kg	<0.077	0.094	0.022	<0.120	0.0438	0.101	NA	NA	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	0.00819	<0.00600	<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

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CAERUS OIL AND GAS LLC
PICEANCE BASIN, COLORADO

PARAMETER	COGCC CONCENTRATION LEVELS	UNITS	SB03- 10/12	SB03-15/17	SB03- 20/22	SB03- 25/27	SB03- 30/32	SB02- 10/12	SB02- 15/17	SB02- 20/22	SB02-25/27	SB02-30/32	SB01-10/12	SB01-15/17	SB01-20/22	SB01-25/27	SB01-30/32
Sample Date			7/9/2019	7/9/2019	7/9/2019	7/9/2019	7/9/2019	7/9/2019	7/9/2019	7/9/2019	7/9/2019	7/9/2019	7/10/2019	7/10/2019	7/10/2019	7/10/2019	7/10/2019
Sample Matix			Soil Boring	Soil Boring	Soil Boring	Soil Boring	Soil Boring	Soil Boring	Soil Boring	Soil Boring	Soil Boring	Soil Boring	Soil Boring	Soil Boring	Soil Boring	Soil Boring	Soil Boring
Arsenic	0.39	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	15,000	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	70	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (III)	120,000	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (VI)	23	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	3,100	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	400	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	23	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	1,600	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	390	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	390	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	23,000	mg/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EC	4 or 2x background	mmhos/cm	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pH	6-9	SU	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SAR	12	unitless	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH-DRO			121	134	241	197	203	183	53.9	76.9	136	124	127	179	152	240	92.3
TPH-GRO			0.452	0.29	0.401	0.333	0.444	1.49	0.278	0.275	0.534	0.212	0.201	0.325	0.579	0.291	0.258
TPH	500	mg/kg	121.452	134.29	241.401	197.333	203.444	184.49	54.178	77.175	136.534	124.212	127.201	179.325	152.579	240.291	92.558
Benzene	0.17	mg/kg	<0.00100	<0.00100	<0.00100	<0.00100	0.00112	0.00333	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	<0.00100	0.00115	<0.00100
Toluene	85	mg/kg	0.00698	<0.00500	<0.00500	<0.00500	0.0113	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	0.0231	0.013	0.0378	0.0079
Ethylbenzene	100	mg/kg	0.00597	<0.00250	<0.00250	<0.00250	0.00921	0.0102	<0.00250	<0.00250	0.00519	<0.00250	<0.00250	0.00401	0.00813	0.00598	<0.00250
Total Xylenes	175	mg/kg	0.0432	<0.00650	0.033	0.0221	0.0648	0.225	<0.00650	0.00709	0.0364	<0.00650	<0.00650	0.0984	0.105	0.13	0.0369
Acenaphthene	1,000	mg/kg	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<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	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600
Benz(a)anthracene	0.22	mg/kg	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Benzo(b)fluoranthene	0.22	mg/kg	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Benzo(k)fluoranthene	2.2	mg/kg	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Benzo(a)pyrene	0.022	mg/kg	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Chrysene	22	mg/kg	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Dibenzo(a,h)anthracene	0.022	mg/kg	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Fluoranthene	1,000	mg/kg	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Fluorene	1,000	mg/kg	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600
Indeno(1,2,3,c,d)pyrene	0.22	mg/kg	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Naphthalene	23	mg/kg	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	0.0221	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200
Pyrene	1,000	mg/kg	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	0.00694	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	<0.00600	0.00649	0.00772	<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