

BW musser #11 - facility #100382

FIELD LOG - SOIL BOREHOLE

SITE NAME AND LOCATION

Dominion E+P
Pit Delineation
Craig, CO

DRILLING METHOD: Geoprobe

BORING NO.

P3-B1

SHEET

OF 1

SAMPLING METHOD: Direct-push

DRILLING

WATER LEVEL

TIME

DATE

CASING DEPTH

START

TIME

DATE

FINISH

TIME

DATE

DATUM

ELEVATION

DRILL RIG

Geoprobe

SURFACE CONDITIONS

ANGLE

BEARING

SAMPLE HAMMER TORQUE

FT.-LBS

DEPTH IN FEET
(ELEVATION)

RECOVERY

BLOW/ 6 IN.
ON SAMPLER

SAMPLE NUMBER
AND
DESCRIPTION OF MATERIAL

SAMPLER AND BIT

SAMPLE NUMBER

DEPTH
IN
FEET
FROM TO

DESCRIPTION OF OPERATION
AND
REMARKS

DRILLING CONTR. Henderson

LOGGED BY T. Hall

CHK'D BY

JOB NO.: 14/25681

DATE

4.8
5.0

grayish-brown, compact,
gravelly SILT, dry, no
color

3.5
5.0

7.0 ft
silty very fine sand, compact,
grayish-tan, no color, dry,
trace gravel

4.0
5.0

8.5 ft
Hard SILT, reddish
brown, no color, dry, bedding
apparent

2.0
5.0

10.0 ft
Hard drilling at 8.0 ft
hard grayish-brown
SILT, no color, dry,
trace gravel, bedding
apparent

BOE 20.0 FT

Depth	PID	Cond
0	0.0	160.4
2	0.0	73.2
4	0.0	201.5
6	0.0	442.5
8	0.4	626
10	0.5	883
12	0.6	748
14	0.6	861
16/18	0.8	1,118
20	0.7	709

Sample 14-18

FIELD LOG - SOIL BOREHOLE

SITE NAME AND LOCATION

Dominion E+P
Pit Delineation
Craig, CO

DRILLING METHOD: Geoprobe

BORING NO.

P3-B2

SHEET

1

OF

1

DRILLING

START

TIME

1115

FINISH

TIME

DATE

10/17/19

DATE

DATUM

ELEVATION

DRILL RIG

Geoprobe

SURFACE CONDITIONS

ANGLE

BEARING

SAMPLE HAMMER TORQUE

FT.-LBS

DEPTH IN FEET
(ELEVATION)

RECOVERY

BLOW/6 IN
ON SAMPLER

SAMPLE NUMBER
AND
DESCRIPTION OF MATERIAL

SAMPLER AND BIT

SAMPLE NUMBER

DEPTH
IN
FEET
FROM TO

DESCRIPTION OF OPERATION
AND
REMARKS

DRILLING CONTR Henderson

DEPTH IN FEET (ELEVATION)	RECOVERY	BLOW/6 IN ON SAMPLER	SAMPLE NUMBER AND DESCRIPTION OF MATERIAL	SAMPLER AND BIT	SAMPLE NUMBER	DEPTH IN FEET FROM TO	DESCRIPTION OF OPERATION AND REMARKS
4.2 5.0			Grey-brown SILT w/ trace gravel, dry, no odor, moist = 3cm			0 0.7	123.6
3.0 3.5			compact silty fine SAND w/ trace gravel, no odor, dry, grey-tan			2 1.0	102.7
			Red-brown SILT trace gravel no odor, dry			4 0.1	93.8
			Re fused 8.5 ft			6 0.6	120.5
						8 0.4	251.3

Sample 8-8.5

JOB NO.: 14/25681

LOGGED BY T. Hall

DATE

CHK'D BY

FIELD LOG - SOIL BOREHOLE

SITE NAME AND LOCATION

Dominion E+P
Pit Delineation

Craig, CO

DRILLING METHOD: Geoprobe

BORING NO.

P3-B3

SHEET

OF 1

SAMPLING METHOD: Direct-push

DRILLING

WATER LEVEL

TIME

DATE

CASING DEPTH

START

TIME

DATE

FINISH

TIME

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DATUM

ELEVATION

DRILL RIG

Geoprobe

SURFACE CONDITIONS

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FEET
FROM TO

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REMARKS

DRILLING CONTR. Henderson

LOGGED BY T. Hall

CHK'D BY

JOB NO.: 1412568

DATE

Depth	PIT	End
0	1.0	216.9
2	0.5	237.6
4	0.9	731
6	0.9	612
8	1.3	720
10	1.0	1,009
12	1.5	777
14	934	238.9
16	14,631	143.4
18	784	213.3
20	1013	193.7
22	1,679	241.9
24	1,171	190.4
26	1,451	269

Sample 16-18 ft

FIELD LOG - SOIL BOREHOLE

SITE NAME AND LOCATION Dominion E+P Pit Delineation Craig, CO		DRILLING METHOD: Geoprobe	BORING NO. P3-B3-Stepout
		SAMPLING METHOD: Direct-push	SHEET 1 OF 1
		DRILLING	
DATUM		WATER LEVEL	START TIME
ELEVATION		TIME	FINISH TIME
		DATE	DATE
		CASING DEPTH	11/2/19 11/2/19

DRILL RIG	Geoprobe	SURFACE CONDITIONS
ANGLE	BEARING	
SAMPLE HAMMER TORQUE	FT.-LBS	

DEPTH IN FEET (ELEVATION)	RECOVERY	BLOW/5 IN. ON SAMPLER	SAMPLE NUMBER AND DESCRIPTION OF MATERIAL	SAMPLER AND BIT	SAMPLE NUMBER	DEPTH IN FEET		DESCRIPTION OF OPERATION AND REMARKS
						FROM	TO	

	2.0 5.0	Reddish brown, compact clayey fine SAND, moist, no odor				Depth	PID	Concl
	2.0 5.0	Stiff brown sandy CLAY, moist, no odor				0-5	0.0	012
	3.0 5.0	Compact clayey fine SAND, medium SAND, moist, no odor				5-10	0.0	027
	2.0 5.0	Interbedded clayey fine SAND and sandy SILT, medium brown moist, no odor				10-15	0.0	041
	3.0 5.0	Black clayey SILT + fine SAND, moist, slight hydrocarbon odor				15-20	0.0	060
		BOE 25 ft				22	0.0	085
						24	0.0	096
								PID malfunction possibly

DRILLING CONTR. Hendersson

JOB NO.: 14125681

LOGGED BY: J. Hall

DATE: 11/2/19

CHK'D BY: _____

1" tooling

FIELD LOG - SOIL BOREHOLE

SITE NAME AND LOCATION

Dominion E+P
Pit Delineation
Craig, CO

DRILLING METHOD: Geoprobe

BORING NO.

P3-B3-stepout 2

SHEET 1 OF 1

SAMPLING METHOD: Direct-push

DRILLING

WATER LEVEL

TIME

DATE

CASING DEPTH

START

TIME

DATE

FINISH

TIME

DATE

DATUM

ELEVATION

DRILL RIG

Geoprobe

SURFACE CONDITIONS

ANGLE

BEARING

SAMPLE HAMMER TORQUE

FT.-LBS

DEPTH IN FEET
(ELEVATION)

RECOVERY

BLOW/6 IN.
ON SAMPLER

SAMPLE NUMBER
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SAMPLE NUMBER

DEPTH
IN
FEET
FROM TO

DESCRIPTION OF OPERATION
AND
REMARKS

DRILLING CONTR. Henderson

LOGGED BY T. Hall

CHK'D BY

JOB NO.: 14/25681

DATE

DEPTH IN FEET (ELEVATION)	RECOVERY	BLOW/6 IN. ON SAMPLER	SAMPLE NUMBER AND DESCRIPTION OF MATERIAL	SAMPLER AND BIT	SAMPLE NUMBER	DEPTH IN FEET FROM TO	DESCRIPTION OF OPERATION AND REMARKS
2.0 50			Dense Clayey fine SAND, medium brown, moist, no odor, trace gravel			0-5	0.0 221
3.0 50			Dense Clayey SILT, medium brown, moist, no odor, trace gravel			6/8	0.0 194.7
3.0 50			Firm brown CLAY, moist, no odor			10	0.0 245
3.0 50			Dense clayey fine-medium SAND, medium brown, moist, no odor			10-15	0.0 248
3.0 50			Very fine dense SAND, dense, light brown, moist, no odor			15-20	0.0 199.3
3.0 50			more significant clay content at 24 ft			20-25	0.0 322
3.0 50			Clayey medium SAND, dense, trace gravel, moist, no odor, minor orange staining			25-30	0.0 701

Sample 1

1" tooling

BOE 300 ft

FIELD LOG - SOIL BOREHOLE

SITE NAME AND LOCATION

Dominion E+P
Pit Delineation

Craig, CO

DRILLING METHOD: Geoprobe

BORING NO.

P3-B4

SHEET 1

OF 1

SAMPLING METHOD: Direct-push

DRILLING

START

FINISH

WATER LEVEL

TIME

DATE

CASING DEPTH

TIME

1300

DATE

10/17/19

TIME

1400

DATE

10/17/19

DATUM

ELEVATION

DRILL RIG

Geoprobe

SURFACE CONDITIONS

ANGLE

BEARING

SAMPLE HAMMER TORQUE

FT.-LBS

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(ELEVATION)

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DEPTH
IN
FEET

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TO

DESCRIPTION OF OPERATION
AND
REMARKS

DRILLING CONTR. Henderson

LOGGED BY T. Hall

CHK'D BY

JOB NO.: 19125681

DATE

Depth	PID	Card
0	0.0	99.2
2	0.4	74.3
4	0.4	100.8
6	352	60.7
8	1.792	146.9
10	1.415	242.7
12	1.404	221.9
14	1.406	230.7
16	1.452	249.3
18	1.584	257.7
20	1.430	273.5
22	1.402	237.8
24	1.952	237.7 B4
26	2.224	184.4
28	2.248	184.4
30	2.369	158.6

Sample 28-30 ft

light grey - brown SILT
w/ trace gravel, no odor,
dry

5.0 ft

Interbedded sandy SILT
and silty CLAY, black,
very strong hydrocarbon-like
odor, moist

Similar to above,
occasional fine SAND
intervals, strong odor, moist

15.0 ft

Silty fine SAND w/ gravel,
black, strong hydrocarbon
odor, moist

Similar to above

clayey SILT + silty CLAY
black, strong odor, moist,
stiff - large gravel at

BOE 30.0 FT

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Craig, CO

DRILLING METHOD: Geoprobe

BORING NO.

P3-B4-Stepout

SHEET

1

SAMPLING METHOD: Direct-push

OF

DRILLING

START

FINISH

WATER LEVEL

TIME

DATE

CASING DEPTH

TIME

TIME

DATE

DATE

DATUM

ELEVATION

DRILL RIG

Geoprobe

SURFACE CONDITIONS

ANGLE

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SAMPLE HAMMER TORQUE

FT.-LBS

DEPTH IN FEET
(ELEVATION)

RECOVERY

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REMARKS

DRILLING CONTR. Henderson

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JOB NO.: 14125681

DATE

CHK'D BY

3	2.5 5.0	Hit rock 4' offset dense fine SAND w/ fine gravel, moist, reddish tan & brown in color	6.5
10	5.0 5.0	Dense grey bh tan silt, moist, no odor, bright orange staining	9.0
15	5.0 5.0	Dense tan no odor, bright orange staining, minor black staining	10.0
		Grey SILTSTONE no odor, orange staining	11.0
		Red-brown MUDSTONE, orange staining	
		Refusal 15' off	

Depth Dig Card

0		
2		
4		
0-5	10.0	218
6	0.0	298
8	0.0	532
10	0.0	106.2
12	0.0	97.5
14	0.0	218

*1" liner stuck in
red, switch to
2" & begin
sampling at 4' off

Sample:

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Craig, CO

DRILLING METHOD: Geoprobe

BORING NO.

P3-B5

SHEET 1

OF 1

SAMPLING METHOD: Direct-push

DRILLING

WATER LEVEL

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DRILL RIG Geoprobe

SURFACE CONDITIONS

ANGLE BEARING

SAMPLE HAMMER TORQUE

FT.-LBS

DEPTH IN FEET (ELEVATION)	RECOVERY	BLOW/6 IN ON SAMPLER	SAMPLE NUMBER AND DESCRIPTION OF MATERIAL	SAMPLER AND BIT	SAMPLE NUMBER	DEPTH IN FEET		DESCRIPTION OF OPERATION AND REMARKS
						FROM	TO	
5	4.9 5.0		Hard medium brown silt w/ trace gravel, no odor, dry					
10	5.5 5.0		Very hard medium brown silt, black & red staining, dry, no odor, trace gravel					
15	3.5 5.0		Silty fine SAND w/ gravel, strong hydrocarbon odor, dry					
20	3.5 5.0		BOE 20.0 ft					

Depth	PTD	Cond
0	1.0	118.2
2	0.6	103.7
4	0.5	74.5
6/8	0.7	199.7
8/10	193.7	548
12	337.2	392.6
14	890	225.7
16	2748	208.4
18	2608	2394
20	2111	197.5

Sample 18-20

DRILLING CONTR Henderson

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JOB NO.: 14125681

DATE

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FIELD LOG - SOIL BOREHOLE

SITE NAME AND LOCATION

Dominion E+P
Pit Delineation

Craig, CO

DRILLING METHOD: Geoprobe

BORING NO.

BP3-B5-offset 1

SHEET

OF 1

SAMPLING METHOD: Direct-push

DRILLING

START

FINISH

TIME

TIME

DATE

DATE

11/21/19

11/21/19

WATER LEVEL

TIME

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CASING DEPTH

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ELEVATION

DRILL RIG

Geoprobe

SURFACE CONDITIONS

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SAMPLE NUMBER

DEPTH
IN
FEET

FROM

TO

DESCRIPTION OF OPERATION
AND
REMARKS

30

35

40

3.0
5.0

2.0
2.0

Dense fine-medium
clayey SAND, grey,
moist, strong
hydrocarbon odor

Similar to above:
medium grey SAND
w/ trace gravel, moist,
strong hydrocarbon

Refusal 37.0 ft

Depth	PD	Cond
032	4351	225
234	4053	268
436	4252	309

DRILLING CONTR Henderson

LOGGED BY T. Hall

DATE 10/25/18 CHK'D BY

JOB NO.: 10/25/18