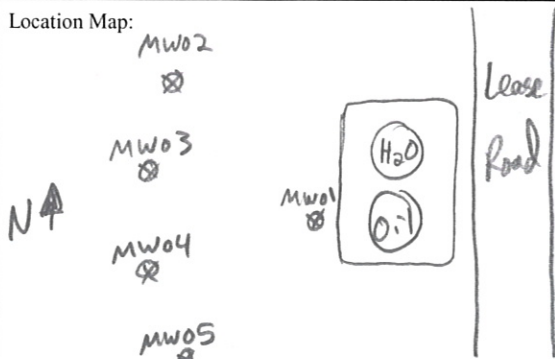

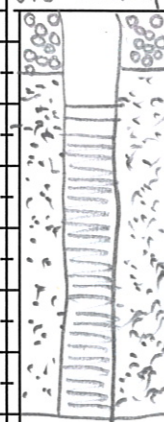


Location Map: <div style="display: flex; align-items: center; justify-content: space-around; margin-top: 10px;">  </div>		 Compliance Engineering Remediation LT Environmental, Inc. 4400 West 46th Ave. Denver, Colorado 80212	
BORING LOG/MONITORING WELL COMPLETION DIAGRAM			
Boring/Well Number: MW01		Project: HSR-Bott 3-23/ HSR-Fisher 6-23	
Date: 1-19-11		Project Number: KMG 10821	
Logged By: Chris Roy		Drilled By: ACI	
Elevation:	Detector: MiniRae 2000 PID	Drilling Method: Direct Push	Sampling Method: Continuous
Gravel Pack:		Seal: Bentonite	Grout: None
Casing Type:	Diameter:	Length:	Hole Diameter: 2.25" Depth to Liquid: 3'
Screen Type:	Slot:	Diameter:	Length:
		Total Depth: 12'	Depth to Water: 4'

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
	dry			NA	0			0'-3' Silty, Gravelly Sand, Brown, Dry, No stain, No odor	
	↓ moist	0.0			2	5'			
	↓ wet				4				
					6			3'-4' Sandy, clayey, Silty, Dark Brown, No stain, No odor, Moist	
					8	5'			
		375		8.5'	10			4'-8' M-F Sand, Brown, Wet, No stain, No odor	
				9.5'	12				
					14				
					16			8'-10' Sandy, Silty Clay, Tan, Wet, Very Cohesive, Mod-High plasticity, Stained w/odor from 8.5'-9.5'	
					18				
					20				
					22				
					24				
					26				
					28				
					30				

TD = 12'
 Screen = 2'-12'
 Sand = 1'-12'
 Bentonite = 0'-1'

2.5' Steel Riser Stickup

Location Map: <div style="font-size: 2em; margin-top: 20px; text-align: center;">See MWA</div>		<div style="text-align: center;"> Compliance Engineering Remediation LT Environmental, Inc. 4400 West 46th Ave. Denver, Colorado 80212 </div>	
BORING LOG/MONITORING WELL COMPLETION DIAGRAM			
Boring/Well Number: MW02		Project: HSR-Bott 3-23/ HSR-Fisher 6-23	
Date: 1-19-11		Project Number: KMG10821	
Logged By: Chris Roy		Drilled By: ACI	
Elevation:	Detector: MiniRae 2000 PID	Drilling Method: Direct Push	Sampling Method: Continuous
Gravel Pack:		Seal: Bentonite	Grout: None
Casing Type:	Diameter:	Length:	Hole Diameter: 2.25" Depth to Liquid:
Screen Type:	Slot:	Diameter:	Length:
		Total Depth:	Depth to Water:

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
	dry		none	NA	0			0'-2.5' Silty Fine Sand, Dark Brown, Dry, No stain, No odor	
	↓ moist	0.0	↓	↓	2	5'			
	↓ wet	0.0	↓	↓	4				
					6			2.5'-8' Clayey Silt, Tan, Gray, Moist @ 3', wet @ 4', No stain, No odor	
					8	5'			
					10			8'-10' Fine Sand, orange-Tan, wet, No stain, No odor, Loose	
					12				
					14				
					16				
					18				
					20				
					22				
					24				
					26				
					28				
					30				

Location Map:

See mw01



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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: mw03	Project: HSR-Bott 3-23/HSP CO-23
Date: 1/19/11	Project Number: KME10821
Logged By: Burkhalter	Drilled By: ACI
Elevation:	Detector: MiniRae 2000
Drilling Method: direct push	Sampling Method: Continuous
Gravel Pack: Sand	Seal: Bentonite
Casing Type: PVC	Diameter: 1"
Screen Type: PVC	Length: 2'
Slot:	Hole Diameter: 2.25"
Diameter: 1"	Depth to Liquid:
Length: 10'	Depth to Water:
Total Depth:	

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
					0			Not Sampled	
					2			TD: 12'	
					4			Screen 2'-12'	
					6			Sand 1'-12'	
					8			bentonite 0'-1'	
					10				
					12				
					14				
					16			2.5' steel stick up	
					18				
					20				
					22				
					24				
					26				
					28				
					30				

Location Map:

See mw01



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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: mw04	Project: HSR Bott 3-23/HSR Fisher 1023
Date: 1/19/11	Project Number: RM610821
Logged By: Burkhalter	Drilled By: ACI
Elevation:	Drilling Method: direct push
Detector: MiniRae3000	Sampling Method: continuous
Gravel Pack: 10-20 silica sand	Seal: bentonite
Casing Type: PVC	Diameter: 1"
Screen Type: PVC	Length: 2'
Slot:	Hole Diameter: 0.25'
Diameter: 1"	Depth to Liquid:
Length: 10'	Depth to Water:
Total Depth:	

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
					0			Not Sampled	
					2			TD: 12'	
					4			Screen 2'-12'	
					6			Sand 1'-12'	
					8			Bentonite 0'-1'	
					10				
					12				
					14			2.5' steel stick up	
					16				
					18				
					20				
					22				
					24				
					26				
					28				
					30				

Location Map:

See map



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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: mw05	Project: HSR-Bot 3-23/HSR Fisher 6-23
Date: 1/19/11	Project Number: KMG10821
Logged By: Burkhalter	Drilled By: ACT
Elevation: Detector: Minirau 2000	Drilling Method: direct push
Gravel Pack: 10-20 silica sand	Seal: bentonite
Casing Type: PVC	Hole Diameter: 2.5"
Screen Type: PVC	Depth to Liquid:
Slot:	Depth to Water:
Diameter: 1"	Length: 2"
Diameter: 1"	Length: 10'
Total Depth:	

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
					0			Not sampled	
					2			TD 12'	
					4			Screen 2'-12'	
					6			Sand 1'-12'	
					8			bentonite 0'-1'	
					10			2.5 steel stick up	
					12				
					14				
					16				
					18				
					20				
					22				
					24				
					26				
					28				
					30				

Well Location Sketch:

MW06

MW07

MW08



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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: MW06	Project: HRR Bot 3-23/ Fischer 6-23
Date: 6/23/11	Project Number: KMG10821
Logged By: Andy Verbonitz	Drilled By: Bill Tro

Elevation:	Detector: PID	Drilling Method: Direct push	Sampling Method: Continuous
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Gravel Pack: 10-20 Silica sand	Seal: Bentonite chips	Grout: none
--------------------------------	-----------------------	-------------

Casing Type: PVC	Diameter: 1"	Length: 5'	Hole Diameter: 2.5"	Depth to Liquid: NA
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Screen Type: PVC	Slot: 0.010	Diameter: 1"	Length: 10'	Total Depth: 12'	Depth to Water: 5'
------------------	-------------	--------------	-------------	------------------	--------------------

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion Diagram, riser 2
low	moist	0.4	none	NA	0	X	60%	CL	0'-1.5' not recovered	
					2	X			1.5'-3' sandy clay, brown, no odor, no stain, medium cohesiveness, moist	
		0.6			4	X	60%	CH		
	wet				6	X			3'-5' - medium to coarse sand, light brown/tan, no odor, no stain, moist	
		0.7			8	X	80%	SW		
					10	X				
					12					
					14				5'-7' - clay w/ silt, tan, no odor, no stain, medium-high plasticity, wet	
					16					
					18					
					20				7'-12' - medium-coarse sand, tan, no odor, no stain, wet	
					22					
					24					
					26					
					28					
					30					
					32					
					34					
					36					
					38					
					40					

Well Location Sketch:

see
mw06

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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring Well Number: mw07	Project: HSR. Boff 3-23 Fischer 6-23		
Date: 6/23/11	Project Number: KM 6 10521		
Logged By: Audy Verbonst & Z	Drilled By: Dell Pro		
Elevation:	Detector: PID	Drilling Method: Direct push	Sampling Method: Continuous
Gravel Pack: 10-20 Silica sand	Seal: Bentonite chips	Grout: none	
Casing Type: PVC	Diameter: 1"	Length: 5'	Hole Diameter: 2.5"
Screen Type: PVC	Slot: 0.010	Diameter: 1"	Length: 6'
		Total Depth: 12'	Depth to Liquid: 2.5'
			Depth to Water: 5'

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion Diagram
low	moist	0.4	none	NA	0				0'-5' sandy clay, brown, no odor, no stain, low plasticity, moist	
					2			CL		
					4					
					6			CH	5'-8' silty clay, tan, no odor, no staining, low-medium plasticity, wet	
					8					
					10			SW		
					12					
					14				8'-12' medium-coarse sand, tan, no stain, no odor, low plasticity	
					16					
					18					
					20					
					22					
					24					
					26					
					28					
					30					
					32					
					34					
					36					
					38					
					40					

Well Location Sketch:

see
mw06

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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring Well Number: MW08

Project: B011 3-23
Fischer 6-23

Date: 8/23/11

Project Number:
KMG 10821Logged By:
not loggedDrilled By:
Drill Pro

Elevation:

Detector: NA

Drilling Method:

Direct push

Sampling Method:

Continuous

Gravel Pack:

10-20 Silica sand

Seal:

Bentonite chips

Grout:

none

Casing Type:

PVC

Diameter:

1"

Length: 5'

Hole Diameter:

2.5"

Depth to Liquid:

NA

Screen Type:

PVC

Slot:

0.010

Diameter:

1"

Length: 10'

Total Depth: 12'

Depth to Water:

NA

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion Diagram
	NA	NA	NA	NA	0				not logged see mw06, mw07	
					2					
					4					
					6					
					8					
					10					
					12					
					14					
					16					
					18					
					20					
					22					
					24					
					26					
					28					
					30					
					32					
					34					
					36					
					38					
					40					

Well Location Sketch:



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See MWOIR

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number:

MW01

Project:

HCR B01 / Fisher

Date:

11-8-2018

Project Number:

KMG 10821

Logged By:

Daniel Thomas
David Stainback

Drilled By:

Drill Pro

Elevation:

N/A

Detector:

PID

Drilling Method:

Direct Push

Sampling Method:

Continuous

Gravel Pack:

Silica Sand

Seal:

Bentonite

Grout:

Casing Type:

PVC

Diameter:

1"

Length:

5'

Hole Diameter:

2.75"

Depth to Liquid:

-

Screen Type:

PVC

Slot:

0.01

Diameter:

1"

Length:

10'

Total Depth:

12'

Depth to Water:

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion Diagram
					0					
					2					
					4					
					6					
					8	2'	2'	CL	6'-7' clay w/ silt some FG sand. CL - Drk. Grey, Low Plasticity, cohesive, saturated, grey stain, no odor	
					10	4'	4'	SP	7'-10' FG-MG Sand w/ clay + silt Gray/Brown, Saturated, grey stain, no odor	
					12			CL	10'-12' clay w/ silt some FG sand, tan, some iron oxidation, mod. plasticity, cohesive, saturated, no stain, no odor	
					14					
					16					
					18					

Completed as Steel River

Well Location Sketch:

See MW01R



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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: MW10	Project: HSR BOT / Fischer
Date: 11-8-2018	Project Number: KM 6 20821
Logged By: Daniel Thomas David Stainback	Drilled By: Drill Pro
Elevation: N/A	Detector: PID
Drilling Method: Direct Push	Sampling Method: Continuous
Gravel Pack: Silica Sand	Seal: Bentonite
Casing Type: PVC	Diameter: 1"
Screen Type: PVC	Slot: 0.01
	Diameter: 1"
	Length: 10'
	Hole Diameter: 2.75"
	Depth to Liquid: -
	Total Depth: 12'
	Depth to Water: -

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion Diagram
					0					
					2					
					4					
					6					
					8	2' 2"		CL	6'-7' Clay w/ Silt some Fk Sand, Li grey w/ iron oxidation, Low plasticity, cohesive, Saturated, some grey stain, no odor.	
					10	4' 4"		SP	7'-9.5' FG-Mk Sand w/ Clay & Silt, Grey/Brown, Saturated, grey stain, no odor	
					12			CL	9.5'-12' Clay w/ Silt some Fk Sand, tan, some iron oxidation, mod. plasticity, cohesive, Saturated, no stain, no odor	
					14					
					16					
					18					

Completed as Steel River

Well Location Sketch:



MW09
MW10

AS:

AS:

0 MW01R

AS

AS



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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number:

MW01R

Project:

HSR Bot / Fischer

Date:

11-8-2019

Project Number:

KMG-10821

Logged By:

Daniel Thomas
David Stamback

Drilled By:

Drill Pro

Elevation:

N/A

Detector:

PID

Drilling Method:

Direct Push

Sampling Method:

Continuous

Gravel Pack:

Silica Sand

Seal:

Bentonite

Grout:

Casing Type:

PVC

Diameter:

1"

Length:

5'

Hole Diameter:

2.75"

Depth to Liquid:

-

Screen Type:

PVC

Slot:

0.01

Diameter:

1"

Length:

10'

Total Depth:

10'

Depth to Water:

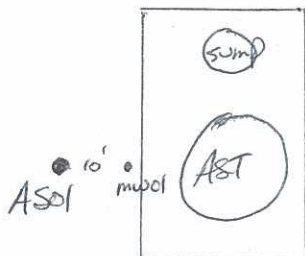
Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion Diagram
					0					
					2					
					4					
					6					
					8	2' 1.5'		SP	6'-8' FG-MG Sand (Backfill) Poorly graded, l.b. brown, saturated no stain, no odor	
					10	4' 4'		CL	8'-10' SAA	
					12				10'-12' FG-MG Sandy Clay, Brown, mod. plasticity, cohesive, saturated, no stain, no odor	
					14					
					16					
					18					

Completed as
Steel Well.

NOTES:

Page ____ of ____

Location Map:



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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: ASOI	Project: HSR-Bott 3-23, HSR- Fischer 6-23
Date: 3/25/14	Project Number: KMG10821
Logged By: M. Unger	Drilled By: High Plains
Elevation:	Drilling Method: Direct Push
Detector: 4-Gas Meter	Sampling Method: Continuous
Gravel Pack: 10-20 Silica Sand 12'-16'	Seal: Bentonite chips 10'-12'
Casing Type: Sch 40 PVC	GROUT: 3'-10' NA
Screen Type: Sch 40 PVC	Hole Diameter: 8"
Slot: 0.010"	Depth to Liquid: —
Diameter: 2"	Length: 14'
Diameter: 2"	Length: 2'
Total Depth: 16'	Depth to Water: 5'

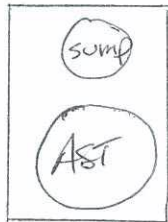
Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
6/24		1	NO	2-4'	0		CL	Clay, brown, sandy, moist	
17/24	179	YES			2	0950	CL		
21/24	214			4-6'	4	0955	SC	Sand, v.f.g.-v.c.g., gray to black stained, wet @ 5' bgs, odor	
30/24	101	YES			6	1000	SC		
28/24	54				8	1005	SC		
	2	NO			10	1010	CL	very Clay, sandy, v.f.g.-f.g., brown, wet, no odor or staining	
17/24	0				12	1015	SC		
22/24	0				14	1020	SC	Sand, v.f.g.-f.g., clayey, brown, no odor or staining, wet	
					16	1030			
					18			TA = 16' BGS	
					20				
					22			Collected groundwater sample @ 1315	
					24				
					26				
					28				
					30				

Location Map:



AS02

AS01

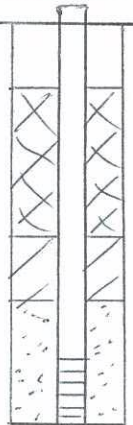


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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: AS02	Project: HSR-Bott 3-23, HSR- Fischer 6-23
Date: 3/25/14	Project Number: KMG10821
Logged By: M. Unger	Drilled By: High Plains
Elevation:	Drilling Method: Direct Push
Detector: 4-Gas Meter	Sampling Method: Continuous
Gravel Pack: 10-20 Silica Sand 9'-13'	Seal: Bentonite chips 7'-9'
Casing Type: Sch 40 PVC	Grout: 3'-7' NA
Screen Type: Sch 40 PVC	Diameter: 2" Length: 11'
Slot: 0.010"	Hole Diameter: 8" Depth to Liquid: —
	Total Depth: 13' Depth to Water: 5'

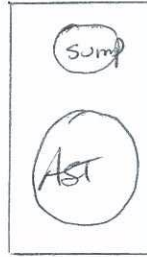
Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
6/24			NO		0		CH	Clay, sandy, brown, moist	
10/24	42		YES	2'-4'	2	1220	SC	Sand, v.f.g.-f.g., clayey, gray to black stained, odor, wet @ 4' bgs	
9/24	30		YES	4'-6'	4	1225	SC		
	13			7'	6	1230			
	3		NO		8	1235	SC	Sand, v.f.g.-f.g., clayey, yellow brown to brown, no odor or staining, wet	
	1		NO		10	1240			
	0		NO		12	1250	SC	Sand, v.f.g.-c.g., clayey, yellow brown, wet	
					14	1300			
					16			TA = 13' BGS	
					18				
					20				
					22			collected groundwater sample @ 1400	
					24				
					26				
					28				
					30				



Location Map:



OW 01 15' 0
ASol



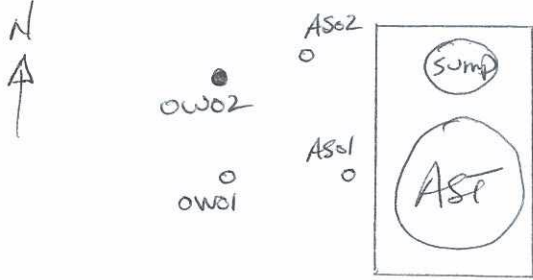
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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: OW 01	Project: HSR-Bott 3-23, HSR- Fischer 6-23
Date: 3/25/14	Project Number: KMG10821
Logged By: M. Unger	Drilled By: High Plains
Drilling Method: Direct Push	Sampling Method: Continuous
Gravel Pack: 10-20 Silica Sand 2'-13'	Seal: Bentonite chips 1'-2'
Casing Type: Sch 40 PVC	Grout: sakrete 0-1' NA
Screen Type: Sch 40 PVC	Hole Diameter: 3 1/4"
Slot: 0.010"	Depth to Liquid: 4'
Diameter: 1"	Depth to Water: 4'
Length: 3'	
Length: 10'	
Total Depth: 13'	

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
					0				Flushmount
		1	NO	15'	2		Ch	Clay, sandy, brown, moist	
		16	YES	4-6'	4	1545	SC	Sand, v.fg - fg, clayey, gray to black stained, wet @ 4' BGS, odor	
		43	YES	6' 1550	6				
		2	NO		8	1550	SC	Sand, v.fg - c.g., slightly clayey to clayey, brown to yellow brown, wet, no staining or odor	
		0	NO		10				
		0	NO		12	1600			
					14			TD = 13' BGS	
					16			collected groundwater sample @ 1630	
					18				
					20				
					22				
					24				
					26				
					28				
					30				

Location Map:



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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number:

OW02

Project:

HSR-Bott 3-23, HSR- Fischer 6-23

Date:

3/25/14

Project Number:

KMG10821

Logged By:

M. Unger

Drilled By:

High Plains

Elevation:

Detector:

4-Gas Meter

Drilling Method:

Direct Push

Sampling Method:

Continuous

Gravel Pack:

10-20 Silica Sand

2'-13'

Seal:

Bentonite chips

1'-2'

Grout:

safety 0-1' NA

Casing Type:

Sch 40 PVC

Diameter:

1"

Length:

Hole Diameter:

3 1/4"

Depth to Liquid:

Screen Type:

Sch 40 PVC

Slot:

0.010"

Diameter:

1"

Length:

10'

Total Depth:

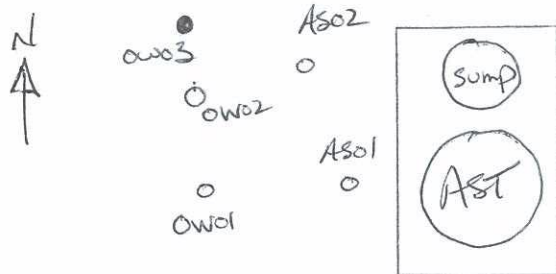
13'

Depth to Water:

4'

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
		0	NO		0		Ch	Clay, sandy, brown, moist	Flushmount
		12	yes	1.5'	2	1520	SC	Sand, v.f.g. - f.g., clayey, gray to black stained, odor, wet @ 2' bgs	
		48	yes	3-5'	4				
		2	yes	6'	6				
			NO		8	1525	SC	Sand, v.f.g. - c.g., clayey to slightly clayey, yellow brown to brown, wet	
			0		10				
			0		12	1535		6" clay lens 11.5' - 12' BGS	
					14				
					16			TD = 13' BGS	
					18			collected groundwater sample @ 16.25	
					20				
					22				
					24				
					26				
					28				
					30				

Location Map:



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 4600 W. 60th Avenue
 Arvada, Colorado 80003

BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: OW03	Project: HSR-Bott 3-23, HSR- Fischer 6-23
Date: 3/25/14	Project Number: KMG10821
Logged By: M. Unger	Drilled By: High Plains
Drilling Method: Direct Push	Sampling Method: Continuous
Seal: Bentonite chips	Grout: NA
Casing Type: Sch 40 PVC	Diameter: 1" Length: 3' Hole Diameter: 3/4" Depth to Liquid:
Screen Type: Sch 40 PVC	Slot: 0.010" Diameter: 1" Length: 10' Total Depth: 13' Depth to Water: ~4'

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
					0				Flushmount
		1	No		2		CL	Clay, sandy, brown, moist	
		11	yes	2'	4	1440	Ch	Clay, sandy, gray stained, moist, odor	
		35	yes	4-6'	6		SC	Sand, v.f.g. - f.g., clayey, gray stained, odor, wet @ 4' BGS	
		1	No	6.5'	8	1445	SC		
		0	No		10		SP	Sand, v.f.g. - c.g., slightly clayey, to clayey, yellow brown to brown, wet, no staining or odor; 6" clay lens @ 11'-11.5'	
					12	1455			
					14				
					16				
					18				
					20				
					22				
					24				
					26				
					28				
					30				

TD = 13' BGS

collected groundwater sample @ 1620



Location Map:



OW03

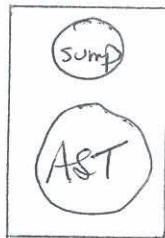
OW04

AS02

OW02

OW01

AS01



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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number:

OW04

Project:

HSR-Bott 3-23, HSR- Fischer 6-23

Date:

3/25/14

Project Number:

KMG10821

Logged By:

M. Unger

Drilled By:

High Plains

Elevation:

Detector:

4-Gas Meter

Drilling Method:

Direct Push

Sampling Method:

Continuous

Gravel Pack:

10-20 Silica Sand

2'-13'

Seal:

Bentonite chips 1'-2'

Grout:

Sokute 0-1' NA

Casing Type:

Sch 40 PVC

Diameter: 1"

Length:

Hole Diameter: 3 1/4"

Depth to Liquid:

Screen Type:

Sch 40 PVC

Slot:

0.010"

Diameter: 1"

Length: 10'

Total Depth:

Depth to Water: ~4'

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Soil/Rock Type	Lithology/Remarks	Well Completion
					0		CL	Clay, sandy, brown, moist	Flushmount
					2				
					3	1405	SC	Sand, v.f.g.-f.g., clayey, gray stained, slight odor, wet @ 4' bgs	
					4				
					6				
					8	1410	SC	Sand, v.f.g.-f.g., clayey, yellow brown to brown, wet, no staining or odor.	
					10				
					12	1420	SC	Sand, v.f.g.-c.g., slightly clayey to clayey, brown, wet	
					14			TD = 13' BGS	
					16				
					18				
					20			collected groundwater sample @ 16' bgs	
					22				
					24				
					26				
					28				
					30				

Well Location Sketch:

ASO3
△Hw
O Tanks

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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: ASO3 Project: HSR-Bott 3-23, HSR-Fisher 6-23

Date: 6/30/14 Project Number: kmg10821

Logged By: Jeremy Espinoza Drilled By: Northern Plains

Elevation: Detector: PID Drilling Method: Auger Sampling Method: Continuous

Gravel Pack: Silica Sand Seal: Bentonite Grout: Cement/Bentonite

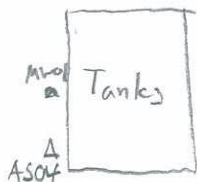
Casing Type: PVC Diameter: 2" Length: 15.5' Hole Diameter: 8" Depth to Liquid:

Screen Type: PVC Slot: 0.01 Diameter: 2" Length: 2' Total Depth: 16' Depth to Water: ~4'

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion Diagram
------------------------	------------------	-------------	----------	----------	------------------	------------	----------	----------------	-------------------	-------------------------

					0					
			Stain		2				Potholed, not logged	Native
					4					Native
					6					
Wet	235.1	Stain	None		8	2	2	SP	6-7 - Sand, med grain, black, wet, stained	
	0.0				10	2	2	CL		
	0.0				12	2	2	SW	7-10' Sandy clay, grey to tan, wet, med plasticity, mod cohesion, stain for 3", then no stain	
	0.0				14	2	2			
	0.0				16	2	2			
					18					
					20				10-16' Clayey sand, tan, wet, no stain, no odor	
					22					
					24					
					26					
					28					
					30					
					32					
					34					
					36					
					38					
					40					

Well Location Sketch:



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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: AS04 Project: HSR-Bott 3-23, HSR-Fisher 6-23

Date: 6/30/14 Project Number: kmg10821

Logged By: Jeremy Espinoza Drilled By: Northern Plains

Elevation: Detector: PID Drilling Method: Auger Sampling Method: Continuous

Gravel Pack: Silica Sand Seal: Bentonite Grout: Cement/Bentonite

Casing Type: PVC Diameter: 2" Length: 15.5' Hole Diameter: 8" Depth to Liquid:

Screen Type: PVC Slot: 0.01 Diameter: 2" Length: 2' Total Depth: 16' Depth to Water: ≈ 4'

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion Diagram
					0					
			Stain		2				Potholed, not logged	Native
					4					Native
					6					
	Wet	135.4	Stain		8	2	2	CL	6-9' Sandy clay, grey to tan, wet mod plasticity, mod cohesion, stain 6-7'	
		0.0	None		10	2	2			
		0.0			12	2	2			
		0.0			14	2	2	CW	9'-16' Clayey sand, tan, wet, no stain, no odor	
		0.0			16	2	2			
					18					
					20					
					22					
					24					
					26					
					28					
					30					
					32					
					34					
					36					
					38					
					40					

NOTES

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Well Location Sketch:



ASOS

Mud

Tanks



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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number: ASOS Project: HSR-Bott 3-23, HSR-Fisher 6-23

Date: 6/30/14 Project Number: kmg10821

Logged By: Jeremy Espinoza Drilled By: Northern Plains

Elevation: Detector: PID Drilling Method: Auger Sampling Method: Continuous

Gravel Pack: Silica Sand Seal: Bentonite Grout: Cement/Bentonite

Casing Type: PVC Diameter: 3" Length: 12.5' Hole Diameter: 8" Depth to Liquid: —

Screen Type: PVC Slot: 0.01 Diameter: 2" Length: 2' Total Depth: 13' Depth to Water: ≈ 4'

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion Diagram
					0					
					2					
					4					
					6					
	Wet	0.0	None		8	2	2	SP	6-8' Med Sand, tan wet, well sorted, no stain, no odor	
		72.3	Stain		10	2	2	SW	8-10' Clayey med sand, tan, wet slight stain	
		0.0	none		12	2	2	SP	10-13, Med Sand, tan, no stain, no odor	
		0.0			14	1	1			
					16					
					18					
					20					
					22					
					24					
					26					
					28					
					30					
					32					
					34					
					36					
					38					
					40					

Well Location Sketch:



Δ
AWOG

Mono
& Tanks



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BORING LOG/MONITORING WELL COMPLETION DIAGRAM

Boring/Well Number:

AS06

Project:

HSR-Bott 3-23, HSR-Fisher 6-23

Date:

6/30/14

Project Number:

kmg10821

Logged By:

Jeremy Espinoza

Drilled By:

Northern Plains

Elevation:

Detector:

PID

Drilling Method:

Auger

Sampling Method:

Continuous

Gravel Pack:

Silica Sand

Seal:

Bentonite

Grout:

Cement/Bentonite

Casing Type:

PVC

Diameter:

2"

Length:

12.5'

Hole Diameter:

8"

Depth to Liquid:

—

Screen Type:

PVC

Slot:

0.01

Diameter:

2"

Length:

2'

Total Depth:

13'

Depth to Water:

≈ 4'

Penetration Resistance	Moisture Content	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Run	Recovery	Soil/Rock Type	Lithology/Remarks	Well Completion Diagram
					0					
					2					
					4					
					6					
	wet	0.0	None		8	2	2	SP	6-10' Med sand, tan, wet	
		83.5	Stain		10	2	2		Stain 7-9'	
		0.0	None		12	2	2	SW	10-13' Clayey med sand,	
		0.0			14	1	1		tan, wet, no stain	
					16					
					18					
					20					
					22					
					24					
					26					
					28					
					30					
					32					
					34					
					36					
					38					
					40					

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LT ENVIRONMENTAL JOB RISK ANALYSIS

B.H 3-23
 FACILITY:
 Drilling / monitoring well installation at an oil and gas facility
 JOB DESCRIPTION:

10/14/15
 DATE:
 Jeremy Espinoza
 SITE SUPERVISOR:

EMERGENCY CONTACT NUMBERS

LTE
 H & S - Jeff Citrone (office): 303-962-5494
 H & S - Jeff Citrone (cell): 720-384-6040
 Project Manager - (office):
 Project Manager - (cell):

BASIC QUESTIONS

Is hydrogen sulfide expected at the site?

JOB STEPS List the steps required to perform this job in the order they are to be carried out.	POTENTIAL RISKS For each task, list the hazard(s) that could cause injury when the task is performed.	RISK MITIGATION TACTICS For each task, list the control measures required to eliminate or minimize the risk from the identified hazard.
Travel to/from job site	1) Vehicle breakdown 2) Accident potential	1) Inspect vehicle prior to leaving office; 2) Cell phone use is prohibited while driving; and 3) Obey all traffic laws and maintain safe driving speeds on dirt roads.
Utility locates and confirmation	1) Hitting a line. Explosion. Injury.	1) Call utility locates in 48 hours prior to work commencing; 2) Gather sketches once onsite to confirm all locates; and 3) Discuss possible unmarked lines.
Drilling/sampling set up	1) Slips, Trips, and Falls 2) Injury from moving equipment	1) Ensure work area is clear of tripping hazards; and 2) Make sure all personnel are clear before equipment is moved onsite.
Preparing to commence work on the job site	1) Endangerment of workers onsite	1) Wear all approved personal protective equipment (PPE) to include: hard hats, steel-toe boots, safety glasses, full-length pants, and any other appropriate PPE for the task; 2) Be aware of the equipment onsite, if unsafe conditions exist cease work immediately and notify the proper personnel; and 3) Utilize appropriate/required personal monitoring devices.
Working in cold/hot weather	1) Cold/Hot stresses on workers and/or equipment	1) Take breaks if needed, drink plenty of fluids, and check equipment for stresses due to weather.
Working in rural areas	1) Wildlife 2) Unpredictable weather 3) Allergic reaction to vegetation	1) Be aware of your surroundings for dangerous wildlife; 2) Review weather reports prior to entering the field; and 3) Identify vegetation that has the potential for allergic reaction.
Drilling and sampling in an area with potential vapors	1) Explosions, fires, noxious vapors	1) Never smoke in the work area or in a vehicle; and 2) Monitor the area for vapors that could spark and/or cause harm to human health with a photoionization detector if necessary.
Ground disturbance / drilling commencement	1) Tripping over drill cuttings and equipment 2) Getting caught on moving equipment	1) Move cuttings to a container or to an approved area as soon as possible; 2) Keep work area clear and organized; and 3) Wear approved PPE to keep from clothing becoming caught on equipment.
Soil Sampling	1) Contact with contaminated soil/liquid and possible injury from sampler 2) Hand injuries from knife use	1) Wear appropriate PPE including nitrile gloves and safety glasses when handling samples and always place sampler on stable surface and use proper tools to open and seal sampler; and 2) Use care and proper gloves while using a knife.
Decontaminating auger and drilling equipment	1) Injury from moving equipment or high pressure equipment	1) Follow proper decontamination procedures utilizing low-phosphate detergent and clean rinse water. Make sure equipment is stable and will not roll or fall during decontamination. Use two crew members to carry heavy equipment and/or employ the use of mechanical lifting device where necessary; and 2) Use care if decontamination is conducted with high pressure water. Proper PPE such as gloves and a face shield should be used.

WORK CREW SIGNATURES

1. [Signature] 4. [Signature] 7. _____ 10. _____
 2. [Signature] 5. [Signature] 8. _____ 11. _____
 3. [Signature] 6. [Signature] 9. _____ 12. _____

