MCF 32AA

DIVISION OF WATER RESOURCES
WELL DRILLER'S REPORT

Log No. 110274
Permit No.
Basin 212

PRINT OR TYPE ONLY
DO NOT WRITE ON BACK

1. OWNER Basic Environmental Co. Inc.
MAILING ADDRESS 875 Warm Springs Rd
Henderson NV 89011

ADDRESS AT WELL LOCATION Henderson
NOTICE OF INTENT NO. 33835
Subdivision Name:
County: Clark

2. LOCATION NW ¼ SW ¼ Sec 05 T 22 N/S R 63 E
PERMIT/WAIVER NO. H000 688 | 17905301004
Issued by Water Resources
Parcel No.

Latitude 36.03 36 27
Longitude 114 58 3353
UTM E
☐ NAD 27
☒ NAD 83/WGS 84

3. WORKED PERFORMED
☒ New Well ☐ Replace ☐ Recondition
☐ Deepen ☐ Other

4. PROPOSED USE
☐ Domestic ☐ Irrigation ☐ Test
☐ Municipal/Industrial ☒ Monitor ☐ Stock

5. WELL TYPE
☐ Cable ☐ Rotary ☐ RVC
☐ Air ☒ Other Sonic DR

6. LITHOLOGIC LOG

Material	Water Strata	From	To	Thickness
attached Lag				

Date started: 12 8 , 20 09
Date completed: 12 11 , 20 09

7. Water Level
Static water level: feet below land surface
Artesian Flow: G.P.M. P.S.I.
Water Temperature: °F
Quality:

8. WELL TEST DATA
TEST METHOD: ☐ Bailer ☐ Pump ☐ Air Lift

G.P.M.	Draw Down (Feet Below Static)	Time (Hours)

9. WELL CONSTRUCTION
Depth Drilled 371 Feet Depth Cased 370 Feet

HOLE DIAMETER (BIT SIZE)

		From		To	
8"	Inches	0	Feet	371	Feet
	Inches		Feet		Feet
	Inches		Feet		Feet

CASING SCHEDULE

Size O.D. (Inches)	Weight/Ft. (Pounds)	Wall Thickness (Inches)	From (Feet)	To (Feet)
4"	PVC	Sch 80	0	370

Perforations:
Type of perforation Slotted Stretch
Size of perforation 0.010
From 350 feet to 370 feet
From feet to feet
From feet to feet
From feet to feet
From feet to feet

Annular Seal: ☐ Yes ☐ No
☐ Neat Cement to ☐ Pumped ☐ Poured
☐ Cement Grout to ☐ Pumped ☐ Poured
☒ Concrete Grout 0 to 339 ☒ Pumped ☐ Poured
☐ =30% Bentonite Grout to ☐ Pumped ☐ Poured

Gravel Pack: ☒ Yes ☐ No 344 to 371 ☐ Pumped ☒ Poured
Type: Cemex Sand 2/16
Bentonite Chips: ☒ Yes ☐ No 339 to 344 ☐ Pumped ☒ Poured
Type: Time Release Hole Plug 3/8

10. DRILLER'S CERTIFICATION
This well was drilled under my supervision and the report is true to the best of my knowledge.
Name Eagle Drilling
Contractor
Address 7150 Placid Street
Contractor
Las Vegas NV 89119
Nevada contractor's license number issued by the State Contractor's Board 51266
Nevada driller's license number issued by the Division of Water Resources, the on-site driller 2097
Signed
By driller performing actual drilling on site or contractor
Date 1-24-10

(Rev. 06-08)

USE ADDITIONAL SHEETS IF NECESSARY

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GES	Job Name: BRC MONITOR WELLS	Boring No. MCF-32A

Job No. 20092509V1	Start:	Location: See fig. 2
	End:	
Total Depth: 37.1'	Groundwater	Comments:
Elevation:	Depth:	
	Date:	
	Time:	
Equipment: "Sonic" Drill Rig	Type of Bit: 6" o.D. Core Barrel	
Hammer (lbs/inches): 140 #/30"	Driller: Shawn Sears	Surface Dry Density (pcf):
Surface Condition: Leveled Native	Logger: Monty Mehlhorn	Surface Moisture Content (%):

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Depth (feet)	REC	Sample Type	Blows/ 6 inches	USCS	Description	Pene-trometer	Depth (feet)
	Run #1			SM	Very pale brown (10YR 7/3) silty SAND w/gravel (~15% silt, 55% sand (poorly graded, subrounded, ~20%cs, 10%ms, 70%fs), ~30% gravel (sub-angular, well-graded, ~60% cg, ~40% fg), moist, loose, homogeneous, no reaction to HCl. Sand: ~70% felsics, ~30% mafics; Gravel: ~50% dacite, 30% andesite, ~10% basalt, ~10% chalcedony.		
					...to 8.5': dark greenish gray pond material, transitions into same material as above.		
					...very pale brown (10YR 8/4), Qal sample #MCF-32A-10		
		MCF-32A-10, pH=7.67					
	Run #2				...stratified (1.0' beds).		

GES	Job Name: BRC MONITOR WELLS	Boring No. MCF-32A
Job No. 20092509V1	Start: End:	Location: See fig. 2

Depth (feet)	REC	Sample Type	Blows/ 6 inches	USCS	Description	Pene-trometer	Depth (feet)
	Run #2			SM	...same as above.		
13							13
14					...reddish yellow (7.5YR 6/6).		14
15	Run #3						15
16							16
17							17
18	Run #4				...same as above.		18
19							19
20					...gradational contact w/:		20
21	Run #5			SM	Reddish yellow (7.5YR 6/6) silty SAND (~20% silt, 70% sand (subangular-sub-rounded, well-graded, ~40% cs, 20% ms, 40% fs), ~10% gravel (subangular, poorly graded, ~100% fg), moist, v. dense, stratified (1' beds), strong reaction to HCl, same composition as above (sand/gravel).		21
22							22
23							23
24							24
25							25
26					...6-10-09: no core recovery due to drilling problems.		26
27							27
28							28

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GES	Job Name: BRC MONITOR WELLS	Boring No. MCF-32A
Job No. 20092509V1	Start: End:	Location: See fig. 2

Depth (feet)	REC	Sample Type	Blows/ 6 Inches	USCS	Description	Pene-trometer	Depth (feet)
	No core due to difficult drilling			SM	...same as above; no core recovery due to drilling issues.		
29							29
30							30
31							31
32							32
33							33
34							34
35							35
36							36
37							37
38							38
39							39
40					...resume coring		40
41	Run #6			SM	Light brown (7.5YR 6/4) silty SAND w/gravel (~15% silt, 60% mm sand (subrounded, poorly graded, ~20% cs, 5% ms, 75% fs), 25% gravel (sub-angular to subrounded, poorly graded, ~100% fg)), moist, homogenous, strong reaction		41
42							42
43							43
44							44

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GES	Job Name: BRC MONITOR WELLS	Boring No. MCF-32A
Job No. 200925(	Start: / End:	Location: See p. 1

Depth (feet)	REC	Sample Type	Blows/ 6 inches	USCS	Description	Pene-trometer	Depth (feet)
				SM	to HCl, sand: ~80% felsics, 20% matics. Gravel: ~50% dacite, 25% andesite, ~25% basalt.		
45	Run #6						45
46							46
47							47
48		MCF-32A-47, pH=9.7 mm 8.70					48
49	Run #6				abrupt contact w:		49
				SM	Very pale brown (10YR 8/3) silty SAND (~15% silt, 85% sand (subrounded, poorly graded, ~20% ms, ~80% fs), moist, weakly cemented in nodules/0.5" layers, v. dense, stratified, strong reaction to HCl, sand: ~95% felsics, 5% matics, abrupt contact w/:		
50							50
51							51
52							52
53	Run #7						53
54							54
55							55
55.5'							
56				ML	Tertiary Muddy Creek Formation: ML: Greenish gray (Gley 1, 6/10Y) SILT (~95% silt, 5% sand (subrounded, poorly graded, ~100% fs)), moist, weakly cemented, v. stiff, stratified (0.5" layers), weak reaction to HCl. ...@~58': yellowish red (5YR 5/6)		56
57							57
58	Run #8						58
59							59
60							60

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GES	Job Name: BRC MONITOR WELLS	Boring No. MCF-32A

Job No.	Start:	Location:
20092509V1	End:	See p.1

Depth (feet)	REC	Sample Type	Blows/ 6 inches	USCS	Description	Pene-trometer	Depth (feet)
				ML	...same as above		
61							61
62							62
63							63
64							64
65							65
66							66
67	Run #8			ML wet	Layered yellowish red (5YR 5/6, ~80%) and greenish gray (Gley 1, 5/10Y) sandy SILT (~80% silt, ~20% sand (subrounded, poorly graded, ~100% fs)), wet, weakly		67
68		MCF-32A-69, pH = 8.80					68
69							69
70				ML	cemented, v. stiff, stratified (0.5"-0.5' beds), weak reaction to HCl, contact		70
71	Run #9				abrupt with: 69': ML: Strong brown (7.5YR 5/6) SILT (~95% silt, trace sand, 5% gypsum as matrix cement), moist,		71
72							72
73							73
74					weakly cemented, v. stiff, laminated (2mm-5mm thick layers), weak reaction to		74
75					HCl.		75
76							76

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GES	Job Name: BRC MONITOR WELLS	Boring No. MCF-32A
Job No. 20092509V1	Start: / End:	Location: See p. 1

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Depth (feet)	REC	Sample Type	Blows/ 6 inches	USCS	Description	Pene-trometer	Depth (feet)
				ML	...same as above		
77							
78	Run #9				...mottled / layered greenish gray		78
79							79
80					...contact abrupt:		80
81				ML wet	Mottled / layered light brown (7.5YR 6/4, 60%) and light greenish gray (Gley 1, 7/10Y) sandy SILT (~70% silt, 20% sand (subrounded, poorly graded, ~100% fs), 10% gypsum as matrix cement), wet (along bedding/cementation layers), weakly cemented, v. stiff, stratified (5-10 mm thick beds), weak reaction to HCl, contact abrupt w/: 85': ML: Light brown (7.5YR 6/3) SILT (~90% silt, trace sand, ~10% gypsum as matrix cement), moist, weakly cemented, v. stiff, stratified (5-10 mm beds), weak reaction to HCl.		81
82		MCF-32A-82, MCF-32A-82-FD, pH = 8.58					82
83							83
84	Run #10						84
85							85
86				ML			86
87							87
88							88
89							89
90							90
91	Run #11						91
92					...same as above.		92

GES	Job Name: BRC MONITOR WELLS	Boring No. MCF-32A
Job No. 20092509U1	Start: / End:	Location: See p. 1.

Depth (feet)	REC	Sample Type	Blows/ 6 inches	USCS	Description	Pene-trometer	Depth (feet)
				ML	...same as above		
93							93
94							94
95							95
96							96
97	Run #11						97
98		MCF-32A-98, pH = 8.26		ML Wet	Light brown (7.5YR 6/3) sandy SILT (~50% silt,		98
99				CL	40% sand (subrounded, poorly graded, ~20%ms, 80%fs), 10% gypsum as matrix cement, wet, weakly cemented, v. stiff, stratified (5mm beds, wk rxn to HCl, abrupt contact w/		99
100							100
101							101
102							102
103		MCF-32A-102, pH = 8.77		ML Wet	98.5': CL: Light greenish gray (Gley1, 8/10Y) lean CLAY (~90% lean clay,		103
104	Run #12			CL	trace sand, ~10% gypsum), moist, weakly cemented,		104
105					v. stiff, stratified, weak reaction to HCl,		105
106					102': ML: Lt. brown (7.5YR 6/3) SILT w/sand (~80% silt, 15%		106
107					sand (subrounded, poorly graded, ~100%fs), 5% gypsum),		107
108					wet, weakly cemented in nodules,		108

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GES	Job Name: BRC MONITOR WELLS	Boring No. MCF-32A
Job No. 20092509V1	Start: - End:	Location: See p.1.

Depth (feet)	REC	Sample Type	Blows/ 6 inches	USCS	Description	Pene-trometer	Depth (feet)
109	Run# 12			CL	v. stiff, stratified, wk reaction to HCl, abrupt contact w/: 103.5': CL: Light greenish gray (Gley 1, 7/10Y) lean CLAY (~90% lean clay, trace sand, ~10% gypsum), moist, weakly cemented, v. stiff, stratified, weak reaction to HCl.		109
110							110
111							111
112							112
113					...past 110': light brown (7.5YR 6/4)		113
114							114
115					...1.0' thick bed of light greenish gray (Gley 1 7/10GY)		115
116							116
117	Run #13						117
118		MCF-32A-118, pH=8.80		Wet ML CL	117', 118'-120': ML: Light brown (7.5YR 6/4) sandy SILT (~100% silt, 30% sand (subrounded, poorly graded, ~20% ms, 80% fs), 10% gypsum as clear subhedral crystals and matrix cement), wet, stratified (1" thick beds), weak reaction to HCl, sequence generally coarsens downward, w/ basal SM layers deposited directly above CL beds.		118
119				ML wet			119
120							120
121				CL			121
122							122
123							123
124					...past 120': light greenish gray		124

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GES	Job Name: BRC MONITOR WELLS	Boring No. MCF-32A

Job No.	Start:	Location:
20092509V1	End:	Seep.1

Depth (feet)	REC	Sample Type	Blows/ 6 inches	USCS	Description	Pene-trometer	Depth (feet)
				CL	(Gley 1, 8/10Y), strong reaction		
125					to HCl, contact gradational		125
				CH	with:		
126					125': CH: Bluish gray (Gley		126
					2, 6/10B) fat CLAY (~75% fat		
127	Run #4				clay, trace sand, ~25% gypsum		127
					as 2" subhedral, randomly-		
128					oriented, clouded crystals		128
					and matrix cement, ~5%		
129					black, carbonaceous organic		129
					matter), moist, weaky		
130					cemented, v.stiff, stratified		130
					(0.25"-0.5' beds), weak		
131					reaction to HCl; strong H_2S odor.		131
					...128': light olive brown (2.5		
132					Y, 5/4).		132
					...129': light greenish gray		
133					(Gley 1, 7/5GY) with irregular		133
					mottled masses of greenish		
134					gray (Gley 1, 6/10GY) organic		134
					matter.		
135					...to 138.5': dark greenish		135
					gray (Gley 1, 4/10Y), ~20%		
136	Run #5				carbonaceous matter, trace		136
					pyrite, abrupt contact w/:		
137							137
138							138
139				ML	Grayish brown (2.5Y 5/2)		139
					sandy SILT (~70% silt, ~25%		
140					sand (subrounded, poorly		140

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GES	Job Name: BRC MONITOR WELLS	Boring No. MCF-32A

Job No.	Star	Location:
20092509V1	End:	See p.1.

Depth (feet)	REC	Sample Type	Blows/ 6 inches	USCS	Description	Pene-trometer	Depth (feet)
				ML	graded, ~20%ms, 80%fs), 5%		
141					gypsum as matrix cement),		141
				CL	moist, v. stiff, laminated (2-		
142					5mm thick beds), weak		142
					reaction to HCl.		
143	Run #16				141'-144': CL: Light greenish		143
					gray (Gley 1, 7/5GY) lean		
144					CLAY (~80% lean clay, trace		144
				ML Wet	sand, ~20% gypsum as cs-		
145					sized grains), moist, v. stiff,		145
					stratified (1"-2" thick beds),		
146					weak reaction to HCl, abrupt		146
					contact w/:		
147		MCF-32A-147			144': ML: Dark grayish		147
		MCF-32A-147-			brown (2.5Y 4/2) SILT		
148	Run #16	MS/MSD			w/sand (~80% silt, ~20% sand		148
		pH=8.52			(subrounded, poorly graded,		
149					~100%fs), wet (along beds), v.		149
					stiff, laminated (1mm-4mm		
150					laminae), weak reaction to		150
					HCl, grades into:		
151							151
				ML Wet	Light gray (2.5Y 7/1) sandy		
152					SILT (~60% silt, 40% sand		152
					(subrounded, poorly graded,		
153					~5%ms, 95%fs)), wet, v.		153
					stiff, stratified (1"-0.5' beds),		
154					coarsens downward into a		154
					basal SP-SM layer before		
155		MCF-32A-155,			abrupt contact w/ next		155
		pH=8.37			interval.		
156				CL	Light greenish gray (Gley 1, 7/10G)		156

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GES	Job Name: BRC MONITOR WELLS	Boring No. MCF-32A
Job No. 20092509 VI	Start / End:	Location: See p. 1.

Depth (feet)	REC	Sample Type	Blows/ 6 inches	USCS	Description	Pene-trometer	Depth (feet)
157	Run #17			CL	lean CLAY (~85% lean clay, trace sand, ~15% gypsum as clear cs-sized crystals and matrix cement), moist, weakly cemented, v. stiff, stratified (0.5' thick beds), weak reaction to HCl, gradational contact w/:		157
158							158
159							159
160							160
161							161
162	Run #18			CH	Light greenish gray (Gley 1, 7/10GY) w/ layers greenish gray (Gley 1, 6/10GY) fat CLAY (~85% fat clay, trace sand, ~10% gypsum, ~5% organic matter), moist, v. stiff, laminated (1mm-5 mm laminae), weak reaction to HCl.		162
163							163
164							164
165							165
166							166
167							167
168					...mottled dark greenish gray (Gley 1, 4/10Y).		168
169					...light brown (7.5YR 6/4).		169
170							170
171	Run #19				...light greenish gray (Gley 1 7/5GY), ~10% organic matter, strong H_2S decay odor.		171
172							172

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GES	Job Name: BRC MONITOR WELLS	Boring No. MCF-32A
Job No. 20092509V1	Start: / End:	Location: See p. 1.

Depth (feet)	REC	Sample Type	Blows/ 6 inches	USCS	Description	Pene-trometer	Depth (feet)
				CH	...same as above.		
173							173
174							174
175							175
176	Run #19			sm	176': ~1.0" layer of: Greenish		176
177				CL	gray (Gley 1, 7/10Y) silty		177
178					SAND (~20% silt, ~80% sand		178
179					(subrounded, poorly graded, ~		179
180					20% ms, 80% fs)), wet, v. dense,		180
181					stratified (1.0" beds), weak		181
182					reaction to HCl, abrupt		182
183					contact w/:		183
184					176.5': CL: Greenish gray		184
185					(Gley 1, 5/10Y) lean CLAY (~		185
186					90% lean clay, trace sand,		186
187					~10% gypsum as fs-sized		187
188					grains / matrix cement), moist,		188
				CH	weakly cemented, v. stiff,		
					statified (0.5"-0.5' beds),		
					weak reaction to HCl.		
					...180'-182': mottled brown		
					(10YR 5/3), gradational contact		
					with:		
	Run #20				182': CH: Brown (10YR 4/3) fat		
					CLAY (~80% fat clay, trace		
					sand, ~20% gypsum as clouded,		
					randomly oriented sub-euhedral		
					crystals), moist, v. stiff,		
					stratified (0.5' thick beds),		

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GES	Job Name: BRC MONITOR WELLS	Boring No. MCF-32A

Job No.	Start:	Location:
20092509V1	End:	See p.1.

Depth (feet)	REC	Sample Type	Blows/ 6 inches	USCS	Description	Pene-trometer	Depth (feet)
	Run #20			CH	weak reaction to HCl.		
189					...gypsum as 0.25" wide		189
					columnar veinlets / layers.		
190							190
191	Run #21				...gypsum content decreases to		191
					≈15%, same occurance as		
192					above.		192
193							193
194							194
					...same as above		
195							195
196							196
197							197
198							198
					...abrupt contact with:		
199		MCF-32A-199, pH=8.82		SM wet	Brown (10YR 4/3) silty SAND		199
					(≈40% silt, 60% sand (subrounded,		
200				CL	poorly graded, ~20% ms, ~80%		200
	Run #22				fs), wet, v. dense, laminated		
201					(1-5mm thick laminae), strong		201
					reaction to HCl, abrupt contact		
202					w/:		202
					199.5': CL: Brown (10YR 4/3)		
203					lean CLAY (~95% lean clay,		203
					trace sand, ≈5% gypsum), moist,		
204					stratified (0.5' thick beds, wk		204
					reaction to HCl.		

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GES	Job Name: BRC MONITOR WELLS	Boring No. MCF-32A

Job No.	Start	Location:
20092509V1	End:	See p. 1.

Depth (feet)	REC	Sample Type	Blows/ 6 inches	USCS	Description	Pene-trometer	Depth (feet)
				CL	...same as above.		
205							205
206					...abrupt contact with:		206
207	Run #22	MCF-32A-207, pH=9.26		ML wet	Brown (10YR 5/3) sandy SILT (~70% silt, ~30% sand (sub-rounded, poorly graded, ~20% ms, 80% fs), wet, v. stiff, laminated (1mm-2mm laminae), strong reaction to HCl, abupt contact w/:		207
208				CL			208
209							209
210					Dark grayish brown (10YR 4/2) lean CLAY (~95% lean clay, trace sand, ~5% gypsum), moist, v. stiff, laminated (1mm-3mm thick laminae), weak reaction to HCl.		210
211							211
212	Run #23						212
213					...same as above.		213
214							214
215							215
216				ML	Brown (10YR ~~4/2~~ 5/3) sandy SILT (~70% silt, ~30% sand (subrounded, poorly graded, ~20% ms, ~80% fs), moist, v. stiff, laminated (1-2mm laminae), strong reaction to HCl, unit coarsens downward into a silty sand lense before contact w/ next interval.		216
217				CH			217
218							218
219							219
220					216': CH: Light olive brown		220

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GES	Job Name: BRC MONITOR WELLS	Boring No. MCF-32A

Job No.	Start:	Location:
20092509V1	End:	See p.1

Depth (feet)	REC	Sample Type	Blows/ 6 inches	USCS	Description	Pene-trometer	Depth (feet)
				CH	~~216': CH:~~ mm (2.5Y 5/3)		
221					mottled very pale brown		221
					(10YR 7/3) and minor lt.		
222					greenish gray (Gley 1, 7/5G)		222
					fat CLAY (~95% fat clay,		
223					trace sand, ~5% gypsum		223
					as 0.25" crystals), moist, v.		
224					stiff, stratified (3mm-0.5"		224
					thick beds), weak reaction		
225					to HCl, contact w/next interval		225
	Run #24			CL	marked by a 0.5" layer w/		
226					mud cracks (10YR 8/2),		226
					225': CL: Grayish brown (10YR		
227					5/2) lean CLAY (~90% lean		227
					clay, trace sand, ~5%		
228					gypsum, ~5% organic matter		228
					nodules), moist, v. stiff, laminated		
229					(1mm-3mm laminae), with sandy		229
					SILT interbeds @ 228', 229'		
230					(1"-2" thick), contact gradational,		230
					marked by mottling and		
231					increasing CH ~~contact w~~ content w/:		231
				CH	Mottled light greenish gray		
232					(Gley 1, 7/5G) and 10YR 5/2		232
					fat CLAY (~95% fat clay,		
233					trace sand, ~5% gypsum as		233
	Run #25				matrix infilling), moist, v.		
234					stiff, homogenous, weak		234
					reaction with HCl.		
235							235
					... no mottling.		
236							236

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GES	Job Name: BRC MONITOR WELLS	Boring No. MCF-32A
Job No. 20092509V1	Start: / End:	Location: See p.1.

Depth (feet)	REC	Sample Type	Blows/ 6 inches	USCS	Description	Pene-trometer	Depth (feet)
237	Run #25			CH	...same as above		237
238							238
239		MCF-32A-239, pH=8.34		ML wet	Greenish gray (Gley 1, 6/5G) SILT w/ sand (~85% silt, ~15% sand (subrounded, poorly		239
239.5'							
240				CH	graded, ~100% fs), wet, v. stiff, stratified (0.5"-1.0" thick		240
241					beds), weak reaction to HCl, abrupt contact w/:		241
242					239.5': CH: Greenish gray (Gley 1, 6/5G) fat CLAY (~100%		242
243					fat clay, trace sand, trace		243
244				MH	gypsum), moist, v. stiff, homogeneous, weak reaction		244
245					to HCl, contact gradational w/ next interval, marked by		245
246	Run #26				progressive increases in organics, stratification/lamination and gypsum content.		246
247					243': MH: Laminated/stratified light greenish gray (Gley 1, 8/10Y)		247
248					and greenish gray (Gley 1, 6/5GY) elastic SILT (~80%		248
249					elastic silt, ~trace sand, ~5% gypsum as clouded,		249
250					anhedral crystals parallel		250
251	Run #27				to bedding, ~15% organic matter as stems, leaf fragments,		251
252					and seed pods), moist, weakly cemented, v. stiff, laminated		252

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GES	Job Name: BRC MONITOR WELLS	Boring No. MCF-32A

Job No.	Start.	Location:
20092509V1	End:	See p.1.

Depth (feet)	REC	Sample Type	Blows/ 6 inches	USCS	Description	Pene-trometer	Depth (feet)
				MH	to stratified (1mm to 2.0"		
253					tin mm thick beds), weak reaction		253
					to HCl, flame structures/		
254					mud cracks are evident.		254
					...@ 250: laminated/stratified		
255					bluish gray (Gley 2 6/5B),		255
					along with colors listed		
256	Run #27				above; individual beds/		256
256.5'					laminae are 1mm to 1.75"		
257		MCF-32A-			thick; strong H_2S odor.		257
257.5'		257, pH=7.42			...Sample #MCF-32A-257		
258					is 200' below the Qal/TMC		258
					F contact.		
259	Run #27						259
260							260
					...~25% organic matter as		
261					leaf remains deposited along		261
					bedding		
262					...trace secondary bioturbation		262
					as worm trails crossing		
263					bedding planes.		263
264							264
					...gradational contact marked		
265					by gradual dissappearance of		265
				CH mm	organic matter/laminae.		
266	Run #28			CL	265: CL: Light greenish		266
					gray (Gley 1 7/5GY) lean		
267					CLAY (~90% lean clay, trace		267
					sand, ~10% gypsum as matrix		
268					cement/fs-sized grains), moist,		268

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GES	Job Name: BRC MONITOR WELLS	Boring No. MCF-32A

Job No.	Start:	Location:
20092509V1	End:	See p.1.

Depth (feet)	REC	Sample Type	Blows/ 6 inches	USCS	Description	Pene-trometer	Depth (feet)
269	Run #28			CL	weakly cemented, v. stiff, (1mm - 10mm thick beds) laminated -stratified, weak reaction to HCl.		269
270					...at 269.8': ~20% gypsum as cs-sized crystals.		270
271							271
				ML	Bluish gray (Gley 2, 5/5B)		
272				CL	sandy SILT (~60% silt, 40% sand (subrounded, poorly graded, ~100% fs), wet(?), v. dense, stratified (~1" thick beds), no reaction to HCl, abrupt contact w/:		272
273							273
274							274
275					271.5': CL: Bluish gray (Gley 2, 6/5B) lean CLAY (~85% lean clay, trace sand, ~15% gypsum as subhedral, randomly oriented clouded crystals and matrix), moist, v. stiff, laminated (1-4mm laminae), no reaction to HCl.		275
276	Run #29						276
277							277
278							278
279					...light greenish gray (Gley 2, 7/5BG), abrupt contact w/:		279
280							280
281	Run #30			ML	Pale brown (10YR 6/3) SILT (~75% silt, trace sand, ~25% gypsum as fs-sized crystals (matrix cement), moist, weakly -mod. cemented, v. stiff, laminated-stratified (2mm-40mm thick layers), no reaction to HCl.		281
282							282
283							283
284							284

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GES	Job Name: BRC MONITOR WELLS	Boring No. MCF-32A
Job No. 20092509V1	Start: / End:	Location: See p.1.

Depth (feet)	REC	Sample Type	Blows/ 6 inches	USCS	Description	Pene-trometer	Depth (feet)
				ML			
285					...gypsum content increases to ~60%, becomes interbedded w/~2" thick lean clay lenses.		285
286							286
287					...past ~286': ~25% gypsum		287
288	Run #30	MCF-32A-288, pH=~~7.56~~ 7.53 mm		SM wet	Pale brown (10YR 6/3) silty SAND (~1 mm 40% silt, 60% sand (subrounded, poorly graded, ~30% ms, 70% fs), wet, v. dense, stratified (0.5" beds), weak reaction to HCl; contact w/ next interval marked by a sandy SILT lense 0.5" thick.		288
289				ML			289
290							290
291							291
292					288.5': ML: Pale brown (10YR 6/3) SILT (~80% silt, trace sand, ~20% gypsum as 2.0" long, clear, randomly oriented subhedral crystals, cs-fs sized granules, and matrix cement), moist, weakly-moderately cemented, v. stiff, stratified, no reaction to HCl, contact abrupt w/:		292
293							293
294							294
295	Run #31						295
296							296
297		MCF-32A-297, pH=~~7.53~~ mm		wet ML	Pale brown (10YR 6/3) sandy SILT (~60% silt, ~30% sand (subrounded, poorly graded, ~100% fs), ~10% gypsum), wet, v. stiff, stratified, weak reaction to HCl.		297
297.5							
298		7.36		CL			298
299							299
300	Run #32				297.5': CL: Brown (10YR 4/3) lean		300

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GES	Job Name: BRC MONITOR WELLS	Boring No. MCF-32A

Job No.	Start:	Location:
20092509VL	End:	See p. 1.

Depth (feet)	REC	Sample Type	Blows/ 6 inches	USCS	Description	Pene-trometer	Depth (feet)
301	Run #32				CLAY (~75% lean clay, trace sand, ~25% gypsum as 2"+ randomly oriented, subhedral crystals), moist, V. stiff, homogenous, weak reaction to HCl, at ~304', a 2.0" thick bed of ~~sandy SILT (~~ mm silty SAND (~40% silt, ~60% sand (subrounded, poorly graded, ~20% ms, ~80% fs), V. moist, V. dense, stratified (2" strata), strong reaction to HCl.		301
302							302
303							303
304				SM CL			304
305							305
306							306
307							307
308					...pale brown (10YR 6/3), laminated-stratified (2mm-2.0" thick strata/laminae).		308
309							309
310					...abrupt contact w/:		310
311	Run #33			ML	Light Greenish gray (Gley 1, 7/5GY) SILT (~80% silt, trace sand, ~20% gypsum as cs-fs sized grains (matrix cement), moist, weakly-moderately cemented, V. stiff, laminated (2mm thick layers), weak reaction to HCl.		311
312							312
313							313
314							314
315					...0.5' thick granulose gypsum layer, becomes stratified, w/ ~40% gypsum.		315
316							316

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GES	Job Name: BRC MONITOR WELLS	Boring No. MCF-32A

Job No.	Start:	Location:
20092509V1	End:	See p. 1.

Depth (feet)	REC	Sample Type	Blows/ 6 inches	USCS	Description	Pene-trometer	Depth (feet)
				ML	...gypsum as clear, randomly		
317					oriented 0.5" subhedral		317
					crystals.		
318	Run #33				...mottled/layered greenish		318
					gray (Gley 1, 6/10Y) and		
319					light brownish gray (10YR6/2).		319
320					...light brownish gray; contact		320
					with next interval marked		
321					by a 2.0" wide layer @322' of:		321
					sandy SILT (~60% silt, ~40%		
322					sand (subrounded, poorly		322
					graded, ~100% fs), trace		
323				CL	gypsum), moist, v. stiff,		323
					stratified, weak reaction		
324					to HCl.		324
					322.5': CL: Light brownish		
325					gray lean CLAY (~80% lean		325
					clay, trace sand, ~20%		
326	Run #34				gypsum as randomly-oriented,		326
					brownish gray clouded crystals		
327					2.0" long, subhedral), moist,		327
					weakly cemented, v. stiff,		
328					stratified (0.5' thick beds),		328
					weak reaction to HCl.		
329							329
330							330
					...contact abrupt w/:		
331	Run #35	MCF-32A -		ML Wet	Grayish brown (10YR 5/2) sandy		331
		331, pH=7.46			SILT (~70% silt, ~30% sand		
332					(subrounded, poorly graded, ~100% fs)		332

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GES	Job Name: BRC MONITOR WELLS	Boring No. MCF-32A

Job No.	Start:	Location:
20092509U1	End:	See p. 1.

Depth (feet)	REC	Sample Type	Blows/ 6 inches	USCS	Description	Pene-trometer	Depth (feet)
333	Run #35				,wet, v. stiff, laminated (2mm thick laminae), weak reaction to HCl, abrupt contact w/:		333
334					331.5': CL: Pale brown (10YR 6/3) lean CLAY (~90% lean clay, trace sand, ~10% gypsum as fs-sized crystals/matrix infilling), moist,		334
335							335
336					weakly cemented, stratified (2" thick strata), weak reaction		336
337					to HCl, at 333'-334' has 2.0"-3.0" thick beds of: sandy		337
338					SILT, mottled 6/5GY, v. moist.		338
339					... at 339' - contains a 1.0' long gypsiferous zone of		339
340					0.25"-1.0" long clear, randomly oriented gypsum crystals.		340
341	Run #36						341
342					... same as above.		342
343							343
344					... contact gradational, marked by increase in 0.5" silt layers.		344
345		MCF-32A-345, pH=7.60		SM wet	Grayish brown (10YR 5/2) silty SAND (~45% silt, 50% sand (subrounded, poorly		345
346					graded, ~20% ms, 80% fs), 5%		346
347				CL	gypsum as matrix cement), wet, weakly cemented in 0.5" layers/nodules, v. dense, stratified		347
348					(0.5" strata), weak reaction to HCl.		348

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GES	Job Name: BRC MONITOR WELLS	Boring No. MCF-32A
Job No. 20092509V1	Start: / End:	Location: See p.1.

Depth (feet)	REC	Sample Type	Blows/ 6 inches	USCS	Description	Pene-trometer	Depth (feet)
				CL	346': CL: Light yellowish brown		
349	Run #36				(10YR 6/4) lean CLAY (~90% lean		349
					clay, trace sand, ~10% gypsum		
350					as cs-fs sized grains/matrix		350
					cement), moist, weakly cemented,		
351					v. stiff, laminated-stratified		351
				mWet	(2mm-10mm laminae/strata),		
				CL			
352					has silt laminae, weak		352
					reaction to HCl.		
353					350.9'-358.2': Stratified		353
				wet ML	sequence consisting of		
354				CL	lean CLAY (as above) and		354
					lenses of ~~sandy SILT~~ mm		
355					~~w~~ mm: Grayish brown (10YR 5/2)		355
				wet ML	sandy SILT (~65% silt,		
356					35% sand (subrounded,		356
	Run #37	MCF-32A-		CL	poorly graded, ~100% fs),		
357		357/MCF-32A			wet, v. stiff, stratified		357
		-357-FD		wet ML	(2"-6" thick strata), weak		
358		(composite of		CL	reaction to HCl, abrupt		358
		all wet zones),		wet ML	contact w/:		
				CL			
359		pH=7.58			358.2': CL: Brown (10YR		359
					5/2) lean CLAY (~85% lean		
360					clay, trace sand, ~15%		360
					gypsum as matrix infillings		
361					and cs-sized grains), moist,		361
				sm-wet	weakly cemented, v. stiff,		
				CL			
362					laminated (2mm-4mm thick		362
	Run #38			sm-wet	laminae), weak reaction to		
363				CL	HCl, becomes layered/mottled		363
				sm-wet	light greenish gray (Gley1,		
364				CL	7/5GY near contact w/:		364

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GES	Job Name: BRC MONITOR WELLS	Boring No. MCF-32A
Job No. 20092509V1	Start: / End:	Location: See p.1.

Depth (feet)	REC	Sample Type	Blows/ 6 inches	USCS	Description	Pene-trometer	Depth (feet)
				CL	361': Interbedded sequence		
365				sm-wet	of: 0.5'-1.0' layers of brown		365
				CL	(10YR 5/3) lean CLAY (~90%		
366					lean clay, trace sand, 10%		366
				CL	gypsum as fs-sized grains		
367					and matrix cement), moist,		367
					st^mm weakly cemented, stratified,		
368					weak reaction to HCl and		368
					0.5"-2.0" alternating/irregular-		
369					ly spaced lenses of:		369
					Light brownish gray (10YR		
370					6/2) silty SAND (~30% silt,		370
					70% sand (subrounded,		
371					poorly graded, ~30% ms, 70%		371
					fs), wet (water localized along		
372					bedding planes), v. dense,		372
					stratified (2.0" thick beds),		
373					weak reaction to HCl.		373
					,,, wet zone and Total		
374					depth samples not collected		374
					due to core disruption		
375					upon extraction.		375
					366': CL: Light greenish		
376					gray (Gley1, 7/5GY) lean		376
					CLAY (~75% lean clay,		
377					trace sand, ~25% gypsum		377
					as cs-fs sized granules/		
378					matrix cement), moist, weakly		378
					cemented, v. stiff, laminated		
379					(1-4mm laminae), weak		379
					reaction to HCl.		
380					End of Boring @ 37'		380

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GES	Job Name: BRC MONITOR WELLS	Boring No. MCF-32A
Job No. 20092509V1	Start: End:	Location: See fig. 2

Depth (feet)	REC	Sample Type	Blows/ 6 inches	USCS	Description	Pene-trometer	Depth (feet)
	Run #2			SM	...same as above.		
13							13
14					...reddish yellow (7.5YR 6/6).		14
15	Run #3						15
16							16
17							17
18	Run #4				...same as above.		18
19							19
20					...gradational contact w/:		20
21	Run #5			SM	Reddish yellow (7.5YR 6/6) silty SAND (~20% silt, 70% sand (subangular-sub-rounded, well-graded, ~40% cs, 20% ms, 40% fs), ~10% gravel (subangular, poorly graded, ~100% fg), moist, v. dense, stratified (1' beds), strong reaction to HCl, same composition as above (sand/gravel).		21
22							22
23							23
24							24
25							25
26					...6-10-09: no core recovery due to drilling problems.		26
27							27
28							28

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GES	Job Name: BRC MONITOR WELLS	Boring No. MCF-32A
Job No. 20092509V1	Start: End:	Location: See fig. 2

Depth (feet)	REC	Sample Type	Blows/ 6 Inches	USCS	Description	Pene-trometer	Depth (feet)
	No core due to difficult drilling			SM	...same as above; no core recovery due to drilling issues.		
29							29
30							30
31							31
32							32
33							33
34							34
35							35
36							36
37							37
38							38
39							39
40					...resume coring		40
41	Run #6			SM	Light brown (7.5YR 6/4) silty SAND w/gravel (~15% silt, 60% mm sand (subrounded, poorly graded, ~20% cs, 5% ms, 75% fs), 25% gravel (sub-angular to subrounded, poorly graded, ~100% fg)), moist, homogenous, strong reaction		41
42							42
43							43
44							44

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GES	Job Name: BRC MONITOR WELLS	Boring No. MCF-32A
Job No. 200925(	Start: / End:	Location: See p. 1

Depth (feet)	REC	Sample Type	Blows/ 6 inches	USCS	Description	Pene-trometer	Depth (feet)
				SM	to HCl, sand: ~80% felsics, 20% matics. Gravel: ~50% dacite, 25% andesite, ~25% basalt.		
45	Run #6						45
46							46
47							47
48		MCF-32A-47, pH=9.7 mm 8.70					48
49	Run #6				abrupt contact w:		49
				SM	Very pale brown (10YR 8/3) silty SAND (~15% silt, 85% sand (subrounded, poorly graded, ~20% ms, ~80% fs), moist, weakly cemented in nodules/0.5" layers, v. dense, stratified, strong reaction to HCl, sand: ~95% felsics, 5% matics, abrupt contact w/:		
50							50
51							51
52							52
53	Run #7						53
54							54
55							55
55.5'							
56				ML	Tertiary Muddy Creek Formation: ML: Greenish gray (Gley 1, 6/10Y) SILT (~95% silt, 5% sand (subrounded, poorly graded, ~100% fs)), moist, weakly cemented, v. stiff, stratified (0.5" layers), weak reaction to HCl. ...@~58': yellowish red (5YR 5/6)		56
57							57
58	Run #8						58
59							59
60							60

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GES	Job Name: BRC MONITOR WELLS	Boring No. MCF-32A

Job No.	Start:	Location:
20092509V1	End:	See p.1

Depth (feet)	REC	Sample Type	Blows/ 6 inches	USCS	Description	Pene-trometer	Depth (feet)
				ML	...same as above		
61							61
62							62
63							63
64							64
65							65
66							66
67	Run #8			ML wet	Layered yellowish red (5YR 5/6, ~80%) and greenish gray (Gley 1, 5/10Y) sandy SILT (~80% silt, ~20% sand (subrounded, poorly graded, ~100% fs)), wet, weakly		67
68		MCF-32A-69, pH = 8.80					68
69							69
70				ML	cemented, v. stiff, stratified (0.5"-0.5' beds), weak reaction to HCl, contact		70
71	Run #9				abrupt with: 69': ML: Strong brown (7.5YR 5/6) SILT (~95% silt, trace sand, 5% gypsum as matrix cement), moist,		71
72							72
73							73
74					weakly cemented, v. stiff, laminated (2mm-5mm thick layers), weak reaction to		74
75					HCl.		75
76							76

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GES	Job Name: BRC MONITOR WELLS	Boring No. MCF-32A
Job No. 20092509V1	Start: / End:	Location: See p. 1

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Depth (feet)	REC	Sample Type	Blows/ 6 inches	USCS	Description	Pene-trometer	Depth (feet)
				ML	...same as above		
77							
78	Run #9				...mottled / layered greenish gray		78
79							79
80					...contact abrupt:		80
81				ML wet	Mottled / layered light brown (7.5YR 6/4, 60%) and light greenish gray (Gley 1, 7/10Y) sandy SILT (~70% silt, 20% sand (subrounded, poorly graded, ~100% fs), 10% gypsum as matrix cement), wet (along bedding/cementation layers), weakly cemented, v. stiff, stratified (5-10 mm thick beds), weak reaction to HCl, contact abrupt w/: 85': ML: Light brown (7.5YR 6/3) SILT (~90% silt, trace sand, ~10% gypsum as matrix cement), moist, weakly cemented, v. stiff, stratified (5-10 mm beds), weak reaction to HCl.		81
82		MCF-32A-82, MCF-32A-82-FD, pH = 8.58					82
83							83
84	Run #10						84
85							85
86				ML			86
87							87
88							88
89							89
90							90
91	Run #11						91
92					...same as above.		92

GES	Job Name: BRC MONITOR WELLS	Boring No. MCF-32A
Job No. 20092509U1	Start: / End:	Location: See p. 1.

Depth (feet)	REC	Sample Type	Blows/ 6 inches	USCS	Description	Pene-trometer	Depth (feet)
				ML	...same as above		
93							93
94							94
95							95
96							96
97	Run #11						97
98		MCF-32A-98, pH = 8.26		ML Wet	Light brown (7.5YR 6/3) sandy SILT (~50% silt,		98
99				CL	40% sand (subrounded, poorly graded, ~20%ms, 80%fs), 10% gypsum as matrix cement, wet, weakly cemented, v. stiff, stratified (5mm beds, wk rxn to HCl, abrupt contact w/		99
100							100
101							101
102							102
103		MCF-32A-102, pH = 8.77		ML Wet	98.5': CL: Light greenish gray (Gley1, 8/10Y) lean CLAY (~90% lean clay,		103
104	Run #12			CL	trace sand, ~10% gypsum), moist, weakly cemented,		104
105					v. stiff, stratified, weak reaction to HCl,		105
106					102': ML: Lt. brown (7.5YR 6/3) SILT w/sand (~80% silt, 15%		106
107					sand (subrounded, poorly graded, ~100%fs), 5% gypsum),		107
108					wet, weakly cemented in nodules,		108

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GES	Job Name: BRC MONITOR WELLS	Boring No. MCF-32A
Job No. 20092509V1	Start: - End:	Location: See p.1.

Depth (feet)	REC	Sample Type	Blows/ 6 inches	USCS	Description	Pene-trometer	Depth (feet)
109	Run# 12			CL	v. stiff, stratified, wk reaction to HCl, abrupt contact w/: 103.5': CL: Light greenish gray (Gley 1, 7/10Y) lean CLAY (~90% lean clay, trace sand, ~10% gypsum), moist, weakly cemented, v. stiff, stratified, weak reaction to HCl.		109
110							110
111							111
112							112
113					...past 110': light brown (7.5YR 6/4)		113
114							114
115					...1.0' thick bed of light greenish gray (Gley 1 7/10GY)		115
116							116
117	Run #13						117
118		MCF-32A-118, pH=8.80		Wet ML CL	117', 118'-120': ML: Light brown (7.5YR 6/4) sandy SILT (~100% silt, 30% sand (subrounded, poorly graded, ~20% ms, 80% fs), 10% gypsum as clear subhedral crystals and matrix cement), wet, stratified (1" thick beds), weak reaction to HCl, sequence generally coarsens downward, w/ basal SM layers deposited directly above CL beds.		118
119				ML wet			119
120							120
121				CL			121
122							122
123							123
124					...past 120': light greenish gray		124

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GES	Job Name: BRC MONITOR WELLS	Boring No. MCF-32A

Job No.	Start:	Location:
20092509V1	End:	Seep.1

Depth (feet)	REC	Sample Type	Blows/ 6 inches	USCS	Description	Pene-trometer	Depth (feet)
				CL	(Gley 1, 8/10Y), strong reaction		
125					to HCl, contact gradational		125
				CH	with:		
126					125': CH: Bluish gray (Gley		126
					2, 6/10B) fat CLAY (~75% fat		
127	Run #4				clay, trace sand, ~25% gypsum		127
					as 2" subhedral, randomly-		
128					oriented, clouded crystals		128
					and matrix cement, ~5%		
129					black, carbonaceous organic		129
					matter), moist, weaky		
130					cemented, v.stiff, stratified		130
					(0.25"-0.5' beds), weak		
131					reaction to HCl; strong H_2S odor.		131
					...128': light olive brown (2.5		
132					Y, 5/4).		132
					...129': light greenish gray		
133					(Gley 1, 7/5GY) with irregular		133
					mottled masses of greenish		
134					gray (Gley 1, 6/10GY) organic		134
					matter.		
135					...to 138.5': dark greenish		135
					gray (Gley 1, 4/10Y), ~20%		
136	Run #5				carbonaceous matter, trace		136
					pyrite, abrupt contact w/:		
137							137
138							138
139				ML	Grayish brown (2.5Y 5/2)		139
					sandy SILT (~70% silt, ~25%		
140					sand (subrounded, poorly		140

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GES	Job Name: BRC MONITOR WELLS	Boring No. MCF-32A

Job No.	Star	Location:
20092509V1	End:	See p.1.

Depth (feet)	REC	Sample Type	Blows/ 6 inches	USCS	Description	Pene-trometer	Depth (feet)
				ML	graded, ~20%ms, 80%fs), 5%		
141					gypsum as matrix cement),		141
				CL	moist, v. stiff, laminated (2-		
142					5mm thick beds), weak		142
					reaction to HCl.		
143	Run #16				141'-144': CL: Light greenish		143
					gray (Gley 1, 7/5GY) lean		
144					CLAY (~80% lean clay, trace		144
				ML Wet	sand, ~20% gypsum as cs-		
145					sized grains), moist, v. stiff,		145
					stratified (1"-2" thick beds),		
146					weak reaction to HCl, abrupt		146
					contact w/:		
147		MCF-32A-147			144': ML: Dark grayish		147
		MCF-32A-147-			brown (2.5Y 4/2) SILT		
148	Run #16	MS/MSD			w/sand (~80% silt, ~20% sand		148
		pH=8.52			(subrounded, poorly graded,		
149					~100%fs), wet (along beds), v.		149
					stiff, laminated (1mm-4mm		
150					laminae), weak reaction to		150
					HCl, grades into:		
151							151
				ML Wet	Light gray (2.5Y 7/1) sandy		
152					SILT (~60% silt, 40% sand		152
					(subrounded, poorly graded,		
153					~5%ms, 95%fs)), wet, v.		153
					stiff, stratified (1"-0.5' beds),		
154					coarsens downward into a		154
					basal SP-SM layer before		
155		MCF-32A-155,			abrupt contact w/ next		155
		pH=8.37			interval.		
156				CL	Light greenish gray (Gley 1, 7/10G)		156

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GES	Job Name: BRC MONITOR WELLS	Boring No. MCF-32A
Job No. 20092509 VI	Start / End:	Location: See p. 1.

Depth (feet)	REC	Sample Type	Blows/ 6 inches	USCS	Description	Pene-trometer	Depth (feet)
157	Run #17			CL	lean CLAY (~85% lean clay, trace sand, ~15% gypsum as clear cs-sized crystals and matrix cement), moist, weakly cemented, v. stiff, stratified (0.5' thick beds), weak reaction to HCl, gradational contact w/:		157
158							158
159							159
160							160
161							161
162	Run #18			CH	Light greenish gray (Gley 1, 7/10GY) w/ layers greenish gray (Gley 1, 6/10GY) fat CLAY (~85% fat clay, trace sand, ~10% gypsum, ~5% organic matter), moist, v. stiff, laminated (1mm-5 mm laminae), weak reaction to HCl.		162
163							163
164							164
165							165
166							166
167							167
168					...mottled dark greenish gray (Gley 1, 4/10Y).		168
169					...light brown (7.5YR 6/4).		169
170							170
171	Run #19				...light greenish gray (Gley 1 7/5GY), ~10% organic matter, strong H_2S decay odor.		171
172							172

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GES	Job Name: BRC MONITOR WELLS	Boring No. MCF-32A
Job No. 20092509V1	Start: / End:	Location: See p. 1.

Depth (feet)	REC	Sample Type	Blows/ 6 inches	USCS	Description	Pene-trometer	Depth (feet)
				CH	...same as above.		
173							173
174							174
175							175
176	Run #19			sm	176': ~1.0" layer of: Greenish		176
177				CL	gray (Gley 1, 7/10Y) silty		177
178					SAND (~20% silt, ~80% sand		178
179					(subrounded, poorly graded, ~		179
180					20% ms, 80% fs)), wet, v. dense,		180
181					stratified (1.0" beds), weak		181
182					reaction to HCl, abrupt		182
183					contact w/:		183
184					176.5': CL: Greenish gray		184
185					(Gley 1, 5/10Y) lean CLAY (~		185
186					90% lean clay, trace sand,		186
187					~10% gypsum as fs-sized		187
188					grains / matrix cement), moist,		188
				CH	weakly cemented, v. stiff,		
					statified (0.5"-0.5' beds),		
					weak reaction to HCl.		
					...180'-182': mottled brown		
					(10YR 5/3), gradational contact		
					with:		
	Run #20				182': CH: Brown (10YR 4/3) fat		
					CLAY (~80% fat clay, trace		
					sand, ~20% gypsum as clouded,		
					randomly oriented sub-euhedral		
					crystals), moist, v. stiff,		
					stratified (0.5' thick beds),		

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GES	Job Name: BRC MONITOR WELLS	Boring No. MCF-32A

Job No.	Start:	Location:
20092509V1	End:	See p.1.

Depth (feet)	REC	Sample Type	Blows/ 6 inches	USCS	Description	Pene-trometer	Depth (feet)
	Run #20			CH	weak reaction to HCl.		
189					...gypsum as 0.25" wide		189
					columnar veinlets / layers.		
190							190
191	Run #21				...gypsum content decreases to		191
					≈15%, same occurance as		
192					above.		192
193							193
194							194
					...same as above		
195							195
196							196
197							197
198							198
					...abrupt contact with:		
199		MCF-32A-199, pH=8.82		SM wet	Brown (10YR 4/3) silty SAND		199
					(≈40% silt, 60% sand (subrounded,		
200				CL	poorly graded, ~20% ms, ~80%		200
	Run #22				fs), wet, v. dense, laminated		
201					(1-5mm thick laminae), strong		201
					reaction to HCl, abrupt contact		
202					w/:		202
					199.5': CL: Brown (10YR 4/3)		
203					lean CLAY (~95% lean clay,		203
					trace sand, ≈5% gypsum), moist,		
204					stratified (0.5' thick beds, wk		204
					reaction to HCl.		

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GES	Job Name: BRC MONITOR WELLS	Boring No. MCF-32A

Job No.	Start	Location:
20092509V1	End:	See p. 1.

Depth (feet)	REC	Sample Type	Blows/ 6 inches	USCS	Description	Pene-trometer	Depth (feet)
				CL	...same as above.		
205							205
206					...abrupt contact with:		206
207	Run #22	MCF-32A-207, pH=9.26		ML wet	Brown (10YR 5/3) sandy SILT (~70% silt, ~30% sand (sub-rounded, poorly graded, ~20% ms, 80% fs), wet, v. stiff, laminated (1mm-2mm laminae), strong reaction to HCl, abupt contact w/:		207
208				CL			208
209							209
210					Dark grayish brown (10YR 4/2) lean CLAY (~95% lean clay, trace sand, ~5% gypsum), moist, v. stiff, laminated (1mm-3mm thick laminae), weak reaction to HCl.		210
211							211
212	Run #23						212
213					...same as above.		213
214							214
215							215
216				ML	Brown (10YR ~~4/2~~ 5/3) sandy SILT (~70% silt, ~30% sand (subrounded, poorly graded, ~20% ms, ~80% fs), moist, v. stiff, laminated (1-2mm laminae), strong reaction to HCl, unit coarsens downward into a silty sand lense before contact w/ next interval.		216
217				CH			217
218							218
219							219
220					216': CH: Light olive brown		220

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GES	Job Name: BRC MONITOR WELLS	Boring No. MCF-32A

Job No.	Start:	Location:
20092509V1	End:	See p.1

Depth (feet)	REC	Sample Type	Blows/ 6 inches	USCS	Description	Pene-trometer	Depth (feet)
				CH	~~216': CH:~~ mm (2.5Y 5/3)		
221					mottled very pale brown		221
					(10YR 7/3) and minor lt.		
222					greenish gray (Gley 1, 7/5G)		222
					fat CLAY (~95% fat clay,		
223					trace sand, ~5% gypsum		223
					as 0.25" crystals), moist, v.		
224					stiff, stratified (3mm-0.5"		224
					thick beds), weak reaction		
225					to HCl, contact w/next interval		225
	Run #24			CL	marked by a 0.5" layer w/		
226					mud cracks (10YR 8/2),		226
					225': CL: Grayish brown (10YR		
227					5/2) lean CLAY (~90% lean		227
					clay, trace sand, ~5%		
228					gypsum, ~5% organic matter		228
					nodules), moist, v. stiff, laminated		
229					(1mm-3mm laminae), with sandy		229
					SILT interbeds @ 228', 229'		
230					(1"-2" thick), contact gradational,		230
					marked by mottling and		
231					increasing CH ~~contact w~~ content w/:		231
				CH	Mottled light greenish gray		
232					(Gley 1, 7/5G) and 10YR 5/2		232
					fat CLAY (~95% fat clay,		
233					trace sand, ~5% gypsum as		233
	Run #25				matrix infilling), moist, v.		
234					stiff, homogenous, weak		234
					reaction with HCl.		
235							235
					... no mottling.		
236							236

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GES	Job Name: BRC MONITOR WELLS	Boring No. MCF-32A
Job No. 20092509V1	Start: / End:	Location: See p.1.

Depth (feet)	REC	Sample Type	Blows/ 6 inches	USCS	Description	Pene-trometer	Depth (feet)
237	Run #25			CH	...same as above		237
238							238
239		MCF-32A-239, pH=8.34		ML wet	Greenish gray (Gley 1, 6/5G) SILT w/ sand (~85% silt, ~15% sand (subrounded, poorly		239
239.5'							
240				CH	graded, ~100% fs), wet, v. stiff, stratified (0.5"-1.0" thick		240
241					beds), weak reaction to HCl, abrupt contact w/:		241
242					239.5': CH: Greenish gray (Gley 1, 6/5G) fat CLAY (~100%		242
243					fat clay, trace sand, trace		243
244				MH	gypsum), moist, v. stiff, homogeneous, weak reaction		244
245					to HCl, contact gradational w/ next interval, marked by		245
246	Run #26				progressive increases in organics, stratification/lamination and gypsum content.		246
247					243': MH: Laminated/stratified light greenish gray (Gley 1, 8/10Y)		247
248					and greenish gray (Gley 1, 6/5GY) elastic SILT (~80%		248
249					elastic silt, ~trace sand, ~5% gypsum as clouded,		249
250					anhedral crystals parallel		250
251	Run #27				to bedding, ~15% organic matter as stems, leaf fragments,		251
252					and seed pods), moist, weakly cemented, v. stiff, laminated		252

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GES	Job Name: BRC MONITOR WELLS	Boring No. MCF-32A

Job No.	Start.	Location:
20092509V1	End:	See p.1.

Depth (feet)	REC	Sample Type	Blows/ 6 inches	USCS	Description	Pene-trometer	Depth (feet)
				MH	to stratified (1mm to 2.0"		
253					tin mm thick beds), weak reaction		253
					to HCl, flame structures/		
254					mud cracks are evident.		254
					...@ 250: laminated/stratified		
255					bluish gray (Gley 2 6/5B),		255
					along with colors listed		
256	Run #27				above; individual beds/		256
256.5'					laminae are 1mm to 1.75"		
257		MCF-32A-			thick; strong H_2S odor.		257
257.5'		257, pH=7.42			...Sample #MCF-32A-257		
258					is 200' below the Qal/TMC		258
					F contact.		
259	Run #27						259
260							260
					...~25% organic matter as		
261					leaf remains deposited along		261
					bedding		
262					...trace secondary bioturbation		262
					as worm trails crossing		
263					bedding planes.		263
264							264
					...gradational contact marked		
265					by gradual dissappearance of		265
				CH mm	organic matter/laminae.		
266	Run #28			CL	265: CL: Light greenish		266
					gray (Gley 1 7/5GY) lean		
267					CLAY (~90% lean clay, trace		267
					sand, ~10% gypsum as matrix		
268					cement/fs-sized grains), moist,		268

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GES	Job Name: BRC MONITOR WELLS	Boring No. MCF-32A

Job No.	Start:	Location:
20092509V1	End:	See p.1.

Depth (feet)	REC	Sample Type	Blows/ 6 inches	USCS	Description	Pene-trometer	Depth (feet)
269	Run #28			CL	weakly cemented, v. stiff, (1mm - 10mm thick beds) laminated -stratified, weak reaction to HCl.		269
270					...at 269.8': ~20% gypsum as cs-sized crystals.		270
271							271
				ML	Bluish gray (Gley 2, 5/5B)		
272				CL	sandy SILT (~60% silt, 40% sand (subrounded, poorly graded, ~100% fs), wet(?), v. dense, stratified (~1" thick beds), no reaction to HCl, abrupt contact w/:		272
273							273
274							274
275					271.5': CL: Bluish gray (Gley 2, 6/5B) lean CLAY (~85% lean clay, trace sand, ~15% gypsum as subhedral, randomly oriented clouded crystals and matrix), moist, v. stiff, laminated (1-4mm laminae), no reaction to HCl.		275
276	Run #29						276
277							277
278							278
279					...light greenish gray (Gley 2, 7/5BG), abrupt contact w/:		279
280							280
281	Run #30			ML	Pale brown (10YR 6/3) SILT (~75% silt, trace sand, ~25% gypsum as fs-sized crystals (matrix cement), moist, weakly -mod. cemented, v. stiff, laminated-stratified (2mm-40mm thick layers), no reaction to HCl.		281
282							282
283							283
284							284

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GES	Job Name: BRC MONITOR WELLS	Boring No. MCF-32A
Job No. 20092509V1	Start: / End:	Location: See p.1.

Depth (feet)	REC	Sample Type	Blows/ 6 inches	USCS	Description	Pene-trometer	Depth (feet)
				ML			
285					...gypsum content increases to ~60%, becomes interbedded w/~2" thick lean clay lenses.		285
286							286
287					...past ~286': ~25% gypsum		287
288	Run #30	MCF-32A-288, pH=~~7.56~~ 7.53 mm		SM wet	Pale brown (10YR 6/3) silty SAND (~1 mm 40% silt, 60% sand (subrounded, poorly graded, ~30% ms, 70% fs), wet, v. dense, stratified (0.5" beds), weak reaction to HCl; contact w/ next interval marked by a sandy SILT lense 0.5" thick.		288
289				ML			289
290							290
291							291
292					288.5': ML: Pale brown (10YR 6/3) SILT (~80% silt, trace sand, ~20% gypsum as 2.0" long, clear, randomly oriented subhedral crystals, cs-fs sized granules, and matrix cement), moist, weakly-moderately cemented, v. stiff, stratified, no reaction to HCl, contact abrupt w/:		292
293							293
294							294
295	Run #31						295
296							296
297		MCF-32A-297, pH=~~7.53~~ mm		wet ML	Pale brown (10YR 6/3) sandy SILT (~60% silt, ~30% sand (subrounded, poorly graded, ~100% fs), ~10% gypsum), wet, v. stiff, stratified, weak reaction to HCl.		297
297.5							
298		7.36		CL			298
299							299
300	Run #32				297.5': CL: Brown (10YR 4/3) lean		300

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GES	Job Name: BRC MONITOR WELLS	Boring No. MCF-32A

Job No.	Start:	Location:
20092509VL	End:	See p. 1.

Depth (feet)	REC	Sample Type	Blows/ 6 inches	USCS	Description	Pene-trometer	Depth (feet)
301	Run #32				CLAY (~75% lean clay, trace sand, ~25% gypsum as 2"+ randomly oriented, subhedral crystals), moist, V. stiff, homogenous, weak reaction to HCl, at ~304', a 2.0" thick bed of ~~sandy SILT (~~ mm silty SAND (~40% silt, ~60% sand (subrounded, poorly graded, ~20% ms, ~80% fs), V. moist, V. dense, stratified (2" strata), strong reaction to HCl.		301
302							302
303							303
304				SM CL			304
305							305
306							306
307							307
308					...pale brown (10YR 6/3), laminated-stratified (2mm-2.0" thick strata/laminae).		308
309							309
310					...abrupt contact w/:		310
311	Run #33			ML	Light Greenish gray (Gley 1, 7/5GY) SILT (~80% silt, trace sand, ~20% gypsum as cs-fs sized grains (matrix cement), moist, weakly-moderately cemented, V. stiff, laminated (2mm thick layers), weak reaction to HCl.		311
312							312
313							313
314							314
315					...0.5' thick granulose gypsum layer, becomes stratified, w/ ~40% gypsum.		315
316							316

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GES	Job Name: BRC MONITOR WELLS	Boring No. MCF-32A

Job No.	Start:	Location:
20092509V1	End:	See p. 1.

Depth (feet)	REC	Sample Type	Blows/ 6 inches	USCS	Description	Pene-trometer	Depth (feet)
				ML	...gypsum as clear, randomly		
317					oriented 0.5" subhedral		317
					crystals.		
318	Run #33				...mottled/layered greenish		318
					gray (Gley 1, 6/10Y) and		
319					light brownish gray (10YR6/2).		319
320					...light brownish gray; contact		320
					with next interval marked		
321					by a 2.0" wide layer @322' of:		321
					sandy SILT (~60% silt, ~40%		
322					sand (subrounded, poorly		322
					graded, ~100% fs), trace		
323				CL	gypsum), moist, v. stiff,		323
					stratified, weak reaction		
324					to HCl.		324
					322.5': CL: Light brownish		
325					gray lean CLAY (~80% lean		325
					clay, trace sand, ~20%		
326	Run #34				gypsum as randomly-oriented,		326
					brownish gray clouded crystals		
327					2.0" long, subhedral), moist,		327
					weakly cemented, v. stiff,		
328					stratified (0.5' thick beds),		328
					weak reaction to HCl.		
329							329
330							330
					...contact abrupt w/:		
331	Run #35	MCF-32A -		ML Wet	Grayish brown (10YR 5/2) sandy		331
		331, pH=7.46			SILT (~70% silt, ~30% sand		
332					(subrounded, poorly graded, ~100% fs)		332

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GES	Job Name: BRC MONITOR WELLS	Boring No. MCF-32A

Job No.	Start:	Location:
20092509U1	End:	See p. 1.

Depth (feet)	REC	Sample Type	Blows/ 6 inches	USCS	Description	Pene-trometer	Depth (feet)
333	Run #35				,wet, v. stiff, laminated (2mm thick laminae), weak reaction to HCl, abrupt contact w/:		333
334					331.5': CL: Pale brown (10YR 6/3) lean CLAY (~90% lean clay, trace sand, ~10% gypsum as fs-sized crystals/matrix infilling), moist,		334
335							335
336					weakly cemented, stratified (2" thick strata), weak reaction		336
337					to HCl, at 333'-334' has 2.0"-3.0" thick beds of: sandy		337
338					SILT, mottled 6/5GY, v. moist.		338
339					... at 339' - contains a 1.0' long gypsiferous zone of		339
340					0.25"-1.0" long clear, randomly oriented gypsum crystals.		340
341	Run #36						341
342					... same as above.		342
343							343
344					... contact gradational, marked by increase in 0.5" silt layers.		344
345		MCF-32A-345, pH=7.60		SM wet	Grayish brown (10YR 5/2) silty SAND (~45% silt, 50% sand (subrounded, poorly		345
346					graded, ~20% ms, 80% fs), 5%		346
347				CL	gypsum as matrix cement), wet, weakly cemented in 0.5" layers/nodules, v. dense, stratified		347
348					(0.5" strata), weak reaction to HCl.		348

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GES	Job Name: BRC MONITOR WELLS	Boring No. MCF-32A
Job No. 20092509V1	Start: / End:	Location: See p.1.

Depth (feet)	REC	Sample Type	Blows/ 6 inches	USCS	Description	Pene-trometer	Depth (feet)
				CL	346': CL: Light yellowish brown		
349	Run #36				(10YR 6/4) lean CLAY (~90% lean		349
					clay, trace sand, ~10% gypsum		
350					as cs-fs sized grains/matrix		350
					cement), moist, weakly cemented,		
351					v. stiff, laminated-stratified		351
				mWet	(2mm-10mm laminae/strata),		
				CL			
352					has silt laminae, weak		352
					reaction to HCl.		
353					350.9'-358.2': Stratified		353
				wet ML	sequence consisting of		
354				CL	lean CLAY (as above) and		354
					lenses of ~~sandy SILT~~ mm		
355					~~w~~ mm: Grayish brown (10YR 5/2)		355
				wet ML	sandy SILT (~65% silt,		
356					35% sand (subrounded,		356
	Run #37	MCF-32A-		CL	poorly graded, ~100% fs),		
357		357/MCF-32A			wet, v. stiff, stratified		357
		-357-FD		wet ML	(2"-6" thick strata), weak		
358		(composite of		CL	reaction to HCl, abrupt		358
		all wet zones),		wet ML	contact w/:		
				CL			
359		pH=7.58			358.2': CL: Brown (10YR		359
					5/2) lean CLAY (~85% lean		
360					clay, trace sand, ~15%		360
					gypsum as matrix infillings		
361					and cs-sized grains), moist,		361
				sm-wet	weakly cemented, v. stiff,		
				CL			
362					laminated (2mm-4mm thick		362
	Run #38			sm-wet	laminae), weak reaction to		
363				CL	HCl, becomes layered/mottled		363
				sm-wet	light greenish gray (Gley1,		
364				CL	7/5GY near contact w/:		364

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GES	Job Name: BRC MONITOR WELLS	Boring No. MCF-32A
Job No. 20092509V1	Start: / End:	Location: See p.1.

Depth (feet)	REC	Sample Type	Blows/ 6 inches	USCS	Description	Pene-trometer	Depth (feet)
				CL	361': Interbedded sequence		
365				sm-wet	of: 0.5'-1.0' layers of brown		365
				CL	(10YR 5/3) lean CLAY (~90%		
366					lean clay, trace sand, 10%		366
				CL	gypsum as fs-sized grains		
367					and matrix cement), moist,		367
					st^mm weakly cemented, stratified,		
368					weak reaction to HCl and		368
					0.5"-2.0" alternating/irregular-		
369					ly spaced lenses of:		369
					Light brownish gray (10YR		
370					6/2) silty SAND (~30% silt,		370
					70% sand (subrounded,		
371					poorly graded, ~30% ms, 70%		371
					fs), wet (water localized along		
372					bedding planes), v. dense,		372
					stratified (2.0" thick beds),		
373					weak reaction to HCl.		373
					,,, wet zone and Total		
374					depth samples not collected		374
					due to core disruption		
375					upon extraction.		375
					366': CL: Light greenish		
376					gray (Gley1, 7/5GY) lean		376
					CLAY (~75% lean clay,		
377					trace sand, ~25% gypsum		377
					as cs-fs sized granules/		
378					matrix cement), moist, weakly		378
					cemented, v. stiff, laminated		
379					(1-4mm laminae), weak		379
					reaction to HCl.		
380					End of Boring @ 37'		380

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