

PROJECT:

KGS ROCK CORE LOG

BOREHOLE NAME / LEASE & WELL NO. HOT-DAM #1		SHEET 1 OF 4	
SITE LOCATION Intersection of Hwy 232 and Ave A, Near Wilson Lake		SITE GEOLOGIST NAME Kate Andrzejewski	
LATITUDE 38.8630119	LONGITUDE -98.4680685	COORDINATE DATUM NAD 83	ELEVATION 1803'
DRILLER(S) Cole Bunker Connor Umbrell	DRILLING METHOD	DRILLING EQUIPMENT Bart Longyear LF90D	ELEVATION DATUM GL
KGS KID #	PERMIT # KDOT ROW 2-2025-0185	SPUD DATE 4-28-25	COMPLETION DATE 5/2/25
	TOTAL DEPTH OF BOREHOLE 280'	TOTAL DEPTH OF CORE 280'	DEPTH TO WATER NA
	CUTTINGS COLLECTED? Y / (N)	WIRELINE LOGGING? Y / (N)	LOG TYPE(S)
			SAMPLING METHOD wireline coring
			PLUG DATE TBD
			PLUGGING MATERIAL TBD

10'4"

DEPTH (FT)	CORE RUN (IN)	RECOV. CORE LENGTH (IN)	SMPLE FOR TEST	GRAPHIC LOG	DESCRIPTION / LITHOLOGY / COMMENTS
11	Roll #1				First pull lost some core due to friable material, bottom is measured at 13ft.
12					Greenhorn Limestone
13					
14					
15	Roll #2	Recovered 6'10"			
16					Greenhorn Limestone
17					
18					
19					
20					
21	Roll #3				Greenhorn Limestone / Graneros Shale contact at 21'
22				Box #1	
23					
24		9'11"			Graneros Shale
25					
26					
27					
28				Box #2	
29					

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DEPTH (FT)	CORE RUN (IN)	RECOV. CORE LENGTH (IN)	SAMPL FOR TEST	GRAPHIC LOG	DESCRIPTION / LITHOLOGY / COMMENTS
31					"X- Bentonite" at ^{29'} 30.00' with some lost recovery; Marker bed
32					
33					Parasequence boundary at 31.85'
34	Run #4	Recovery 10'2"			Parasequence boundary 33.77'
35			Box #2		
36					Candidate Parasequence boundary 35.8'
37			Box #3		Parasequence boundary 36.7'
38					Candidate Parasequence boundary 38.8'
39					
40					
41	Run #5				
42					
43					
44					
45					
46					
47					
48			Box #4		
49	Run #6				
50					
51					
52					
53					
54					

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BOREHOLE NAME / LEASE & WELL NO. **HOT-DAM #1** SHEET **3** OF **4**

DEPTH (FT)	CORE RUN (IN)	RECOV. CORE LENGTH (IN)	SAMPL FOR TEST	GRAPHIC LOG	DESCRIPTION / LITHOLOGY / COMMENTS
5 1					
5 2					Granoso Shale
5 3	Pull #6				Fine sands and silts show wave ripples
5 4					
5 5					
5 6		Recover 9' 10" 2"		Box #4	
5 7					
5 8					
5 9					
6 0	Pull #7				Did a 14" pull to reconcile depth to 60ft Core is measuring 61'5"
6 1		14"			Reset measuring at 60'. Will need to reconcile box depth measurements as they are off by 1.5"
6 2					
6 3	Pull #8	Recover 10' 2"			2" bentonite seam @ 63'
6 4					7" bentonite seam from 64'10" to 65'5"
6 5					
6 6				Box #5	
6 7					
6 8					
6 9					Granoso Shale 67'10"-69'10" Shale with some fine sand lenses before turning to black shale
7 0				Box #6	
7 1	Pull #9				
7 2		Recover 10' 1"			
7 3					
7 4					

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DEPTH (FT)	CORE RUN (IN)	RECOV. CORE LENGTH (IN)	SAMPL FOR TEST	GRAPHIC LOG	DESCRIPTION / LITHOLOGY / COMMENTS
71					Graneros Shale
72					
73					
74					
75					
76	Pull #9				
77					
78					
79					
80					
81	Pull #10				
82					
83					Cemented horizon starting at 83'7" 83'7" to 84'2"
84					
85					
86					
87					
88					
89					
90					
91	Pull #11	1'11"			* Lost circulation on Pull # 11 so stopped and recovered 1'11". Measured hole at 90' but could be debris at bottom. Re-measure after next pull.
92	Pull #12				- Sandstone starts in Pull # 12 [Dakota Fm]
93					
94					

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BOREHOLE NAME / LEASE & WELL NO. HOT DAM # 1 SHEET 5 OF 14

DEPTH (FT)	CORE RUN (IN)	RECOV. CORE LENGTH (IN)	SMP FOR TEST	GRAPHIC LOG	DESCRIPTION / LITHOLOGY / COMMENTS
9 1					
9 2					
9 3					
9 4					
9 5					
9 6					
9 7					
9 8					
9 9					
10 0	Pull #12	Recovered 7'10"			* Hole measured after Pull #12 and was 99ft. Pull #13 will be a 1ft pull to get to 100'
10 1					
10 2	Pull #13	9.5"			Pull #13 End depth measured to 100'
10 3	Pull #14	Recovered 8'7"			
10 4					
10 5					
10 6					
10 7					
10 8					
10 9					* Hole measured after pull #14 to 109 109'
11 0					End of Drilling Day #1
11 1	Pull #15	Recovered 8'11"			Start Day 2 Wet and Rainy
11 2					Boxing core immediately so it can dry
11 3					Dakota Sandstones, likely lost some recovery due to sands not being cemented
11 4					

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DEPTH (FT)	CORE RUN (IN)	RECOV. CORE LENGTH (IN)	SMPLE FOR TEST	GRAPHIC LOG	DESCRIPTION / LITHOLOGY / COMMENTS
111					
112					Dakota Sandstone
113	Pull #15				
114			Box #9		
115					
116					Dakota Sandstone
117					
118					
119					
120					*Measured hole after pull #16 and measured 129ft
121			Box #10		
122	Pull #16	Recovered			
123					Pull #17 was a 2.5ft pull to get depth to 130ft Recovered 14" on sandstone
124					
125					
126					
127					
128					
129	Pull #17	14"			
130			Box #11		
131					
132	Pull #18	Recovered 6'9"			
133					
134					

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BOREHOLE NAME / LEASE & WELL NO. HOT-DAM #1 SHEET 7 OF 14

DEPTH (FT)	CORE RUN (IN)	RECOV. CORE LENGTH (IN)	SAMPL FOR TEST	GRAPHIC LOG	DESCRIPTION / LITHOLOGY / COMMENTS
13.1	Pull #18	Recovered 6'9"			Dakota Sandstone
13.2					Had to use water here to release core
13.3					Some sand loss
13.4					Sandstone w/ charcoal staining bedding
13.5					
13.6					
13.7					
13.8					
13.9					Clay rich horizon @ 139'6" transitions to Mud rich with sandstone lenses
14.0					
14.1	Pull #19	Recovered 8'4"	11 1/2 x 2 1/2	1	Burrows @ 143' 143'
14.2					
14.3					Burrows until 144' 144'
14.4					Becomes more clay rich w/ sand lenses
14.5					
14.6					
14.7					
14.8					
14.9					Sand with charcoal from 149'9" to 150' 155'
15.0					
15.1	Pull #20	Recovered 7'1"			
15.2					
15.3					
15.4					

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BOREHOLE NAME / LEASE & WELL NO. HOT-DAM #1 SHEET 8 OF 14

DEPTH (FT)	CORE RUN (IN)	RECOV. CORE LENGTH (IN)	SAMPL FOR TEST	GRAPHIC LOG	DESCRIPTION / LITHOLOGY / COMMENTS
15.1					
15.2					
15.3	Pull #20	Revised 7' 1"			
15.4					
15.5					
15.6					
15.7					
15.8					
15.9					
16.0					Some core plugged in coupler @ 159' 10" to 160'
16.1					Sandstone ends @ 160' 5" Clay rich likely paleosols begin
16.2	Pull #21	Revised 9' 8"			
16.3					
16.4					
16.5					
16.6					
16.7					
16.8					
16.9					
17.0					Pull #22 lost circulation only revised 7" measured hole after pull to 16.170'
17.1					
17.2					
17.3					
17.4					

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BOREHOLE NAME / LEASE & WELL NO. HOT-DAM #1 SHEET 9 of 14

DEPTH (FT)	CORE RUN (IN)	RECOV. CORE LENGTH (IN)	SMPL FOR TEST	GRAPHIC LOG	DESCRIPTION / LITHOLOGY / COMMENTS
17.1					Dakota Paleosols, clay rich w/ slickensides Large charcoal tree root or branch @ 170.6' to 170.7'
17.2					
17.3					
17.4					
17.5					
17.6					
17.7					
17.8					
17.9					
18.0					
18.1					Dakota Paleosols, grey clay rich * Plugged on Pull #24 so only drilled 6'2" to 186'2" Recovered 6'
18.2					
18.3					
18.4					
18.5					
18.6					
18.7					Pull #25 done to depth 190' Continued grey clay Dakota paleosols
18.8					
18.9					
19.0					
19.1					
19.2					
19.3					
19.4					

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BOREHOLE NAME / LEASE & WELL NO. HOT-DAM # 1 SHEET 10 OF 41

DEPTH (FT)	CORE RUN (IN)	RECOV. CORE LENGTH (IN)	SAMPL FOR TEST	GRAPHIC LOG	DESCRIPTION / LITHOLOGY / COMMENTS
19 1		Recovered 9'10"			
19 2					
19 3	Pull #26				
19 4					
19 5					
19 6					
19 7					Transition from clay rich paleosols to sandstone at 197'7"
19 8					
19 9					Completed Day 2 of drilling with end depth @ 200'
20 0			Box #16		
20 1	Pull #27	Recovered 5'1"			Day 3 Drilling 5/1/25 Plugged in. Pull #27 stopped out 5'5" 5' recovered contains grey clay paleosols then ~2' of sand followed by 1'4" of paleosol About 1.5' of tailings were present in pull #27 that were removed
20 2					
20 3					
20 4			Box #17		
20 5					
20 6					Pull #28 short pull to get back to 210'
20 7	Pull #28	Recovered 4'6"			Grey clay with red mottling of paleosols
20 8					
20 9					
21 0					
21 1	Pull #29	Recovered 10'1"			
21 2					
21 3					
21 4			Box #18		

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BOREHOLE NAME / LEASE & WELL NO. **HOT-DAM #1** SHEET **11** OF **14**

DEPTH (FT)	CORE RUN (IN)	RECOV. CORE LENGTH (IN)	SAMPL FOR TEST	GRAPHIC LOG	DESCRIPTION / LITHOLOGY / COMMENTS
211	Pull #29	Recovered 10'11"	212 X09		Dakota Fm
212					Grey clay paleosols w/ red mottling until
213					Transition to just grey paleosol @ 214'5"
214					Gradually start to see sand mixed into clay
215					until transition to full sand at 219'10"
216					
217					
218					Pyrite @ 218'5"
219					
220	Pull #30	Recovered 9'10"	218 X09		Dakota Fm
221					Quartz Arenite sandstone with crossbedding
222					
223					
224					* Red streaks and patches are from clay inside
225	core barrel. Getting wet smears it, reconsider				
226					waiting till completely dry to scrape off
227					
228					
229					
230					
231	Pull #31	Recovered 9'10"			Dakota Fm
232					Quartz Arenite sandstone w/ crossbedding
233					
234					

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BOREHOLE NAME / LEASE & WELL NO. HOT-DAM #1 SHEET 12 OF 14

DEPTH (FT)	CORE RUN (IN)	RECOV. CORE LENGTH (IN)	SMPLE FOR TEST	GRAPHIC LOG	DESCRIPTION / LITHOLOGY / COMMENTS
23.1					Dakota Fm
23.2					Quartz rich sandstone
23.3					
23.4					Red clay from inside core barrel covering some core, wait to scrape off when dry
23.5					
23.6					
23.7					
23.8					
23.9					
24.0					
24.1					Pull #32 out short at 8'6"
24.2					
24.3					Sandstone appears to coarsen from fine to medium sized grains starting around 240'
24.4					
24.5					Dakota Fm Sandstone
24.6					
24.7					
24.8					
24.9					Pull #33 short to get to 250' Recovered 1'4"
25.0					
25.1					
25.2					Pull #34 Recovered 7'5", likely lost some sand
25.3					
25.4					

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DEPTH (FT)	CORE RUN (IN)	RECOV. CORE LENGTH (IN)	SIMPL FOR TEST	GRAPHIC LOG	DESCRIPTION / LITHOLOGY / COMMENTS
25 1					Dakota Fm
25 2	Pull #34	Recovered 7'5"			Sandstone containing mostly quartz and some feldspars, medial sized grains
25 3					Small bits of pyrite present
25 4					
25 5					
25 6					
25 7					
25 8				12' BOX #2	
25 9					
26 0					
26 1	Pull #35	Recovered 4'5"			Pull #35 was a 10' run but only recovered 4'5" of core
26 2					likely lost a good amount of sandstone
26 3					Medium grain size sandstone
26 4					
26 5					
26 6				7' BOX #22	
26 7					
26 8					
26 9					
27 0					
27 1	Pull #36	Recovered 7'			Pull #36 measured short of 200' so will do a short run to get back on track
27 2					Recovered 7' of sandstone
27 3					Sandstone appears to transition back to fine sand around 270'3"
27 4					

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BOREHOLE NAME / LEASE & WELL NO. HOT-DAM #1 SHEET 14 OF 14

DEPTH (FT)	CORE RUN (IN)	RECOV. CORE LENGTH (IN)	SMPL FOR TEST	GRAPHIC LOG	DESCRIPTION / LITHOLOGY / COMMENTS	
71	Pull #36	Recovered 7'			Dakota Fm.	
72					Pull #36 went ~9' Recovered 7' of core	
73						
74						
75						
76						
77						
78	Pull #37	Recovered 6"			Pull #37 went 1'4", Recovered 6"	
79						
80						
81					Drill plugged @ 200' and pipe stuck	
82					Will have to abandon the hole do to sand collapsing on pipe	
83					May attempt a twinzed hole	
84						
85						
86					* Core depths for each 10' interval were measured from bottom up, so all gaps or missing sections will be at top of each pull	
87						
88						
89						
90						
91						
92						
93						
94						

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