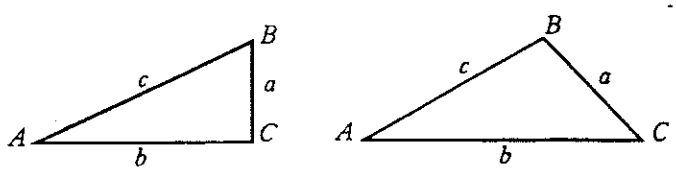
APPENDIX B

INSPECTOR'S FIELD LOGS

FORMULAE FOR SOLVING RIGHT TRIANGLES



$$\text{Sin } A = \frac{a}{c} = \text{Cos } B \qquad \text{Cot } A = \frac{b}{a} = \text{Tan } B$$

$$\text{Cos } A = \frac{b}{c} = \text{Sin } B \qquad \text{Sec } A = \frac{c}{b} = \text{Cosec } B$$

$$\text{Tan } A = \frac{a}{b} = \text{Cot } B \qquad \text{Cosec } A = \frac{c}{a} = \text{Sec } B$$

Given	Required	Solution
A, c	B, a, b	$B = 90° - A, a = c \sin A, b = c \cos A.$
A, b	B, a, c	$B = 90° - A, a = b \tan A,\ c = \dfrac{b}{\cos A}.$
A, a	B, b, c	$B = 90° - A, b = a \cot A,\ c = \dfrac{a}{\sin A}.$
a, c	A, B, b	$\sin A = \dfrac{a}{c} = \cos B, b = \sqrt{(c+a)(c-a)}$
a, b	A, B, c	$\tan A = \dfrac{a}{b} = \cot B, c = \sqrt{a^2 + b^2}$

FORMULAE FOR SOLVING OBLIQUE TRIANGLES

Given	Required	Solution
A, a, b	B, c	$\sin B = \dfrac{b \sin A}{a}, c = \dfrac{a \sin C}{\sin A}$
A, B, a	b	$b = \dfrac{a \sin B}{\sin A}$
a, b, C	A, c	$A + B = 180° - C,\ c = \dfrac{a \sin C}{\sin A}$
a, b, c	Area	side $\dfrac{a+b+c}{2}$, area $= \sqrt{s(s-a)(s-b)(s-c)}$
A, b, c	Area	area $= \dfrac{bc \sin A}{2}$
A, B, C, a	Area	area $= \dfrac{a^2 \sin B \sin C}{2 \sin A}$

WELL No. 108 @ 1306 No. "G" STREET

PILOT BORE DRILLING LOG

MONDAY 04-16-2001

57	60-67'	V. COARSE TO COARSE SAND SOME FINE GRAVEL TO C. GRAVEL RIG SMOOTH.	$60-67	08:17 AM
	67-72'	COARSE SAND TO MED. GRAVEL. RIG SHUTTERS SLIGHTLY		08:44
	72-77'	FINE TO COARSE SAND, SOME FINE TO SMALL GRAVEL RIG SHUTTERS SLIGHTLY, BUT MOSTLY SMOOTH.	$67-77'	08:58
77	77-82	MOSTLY V. FINE TO C. SAND W/ SOME FINE TO MED GRAVEL RIG SMOOTH		09:32
	82-87'	V.C. SAND TO F. SAND W/ FINE TO C. GRAVEL RIG SMOOTH @ 82-86' RIG SHUTTERS @ 86' TO 87'	$77-87'	09:40
	87-92'	V.C. SAND TO FINE SAND W/ F. TO C. GRAVEL TO START (ROCKS) TURNING TO V.F TO C. SAND / TR. BR & GR CLAY. RIG SHUTTERS TO START RIG SMOOTH @ 92'		09:50
97'	92-97'	FINE TO C. SAND W/ SOME F. GRAVEL RIG SMOOTH	$87-97	09:58
	97'-102'	C SAND & FINE GRAVEL TURNING TO C. SAND W/ SOME CLAY @ 100-102' RIG SHUTTERS INITIALLY THEN SMOOTH.		10:16
	102-107'	C. SAND TO FINE SAND W/ SOME F. TO MED. GRAVEL. TRACE (INTERMITTANT LAYER) OF CLAYEY F. SAND RIG SHUTTERS SLIGHTLY	$97-107	10:22

2: 04-16-2001 NOTES

DRILLING PIPE LENGTHS 25 @ 7:30 AM (40' EACH)
2 HEAVY PIPE LENGTHS ON TRAILER
1 HEAVY PIPE LENGTH IN BORE HOLE (OR MORE ?

≈ 1060' OF DRILL PIPE

40
25
×
200
80
1000

MRS → PETE CRISPELL
SAMPLE SCREEN AVAILABLE AFTER 08:50 AM
DRILLING PAUSES 08:58 – 9:24 AM ADD 20' HEAVY.
& CLAY CYCLONE PROBLEMS

DRILLING PAUSES	09:59 – 10:08	ADD 20' PIPE
DRILLING PAUSES	10:39 – 10:44	ADD 20' PIPE
DRILLING PAUSES	11:12 – 11:18	ADD 20' PIPE
DRILLING PAUSES	11:56 – 12:02	ADD 20' PIPE.

	107-112'	C SAND TO F. SAND W/ F. GRAV CHANGING TO F. SAND TO C. SAND CHANGING TO F. CLAYEY SAND RIG SHUTTERS SLIGHTLY.	10:30 AM
	112-117'	GR. CLAY W/ F. GRAVEL SOME BR. CLAY. INTERVALS OF FINE SAND W/ GR. CLAY & C. SAND W/ GR CLAY ^GR. RIG SMOOTH	$ 107-117' 10:38
117	117-122'	C. TO F. SAND & F. TO C. GRAVEL. RIG SMOOTH, SOMETIMES SHUTTERS SLIGHTLY	10:52
	122-127	C. TO F SAND TURNING TO C. GR. SAND TURNING TO GR CLAY W/ SOME BR. SILTY CLAY. SOME F. GRAVEL PRESENT THROUGHOUT RIG SMOOTH OR SHUTTERS SLIGHTLY.	$ 117-127' 10:58
	127-132'	GR. CLAY W/ INTERVALS OF GR C. SAND TO F. SAND TR OF F. GRAVEL RIG SMOOTH	11:06
	132-137'	GR. CLAY TURNING TO F TO C. GR SAND W/ CLAY — RIG SHUTTERS @ 136' SMOOTH ABOVE	$ 127-137' 11:11
137'	137-142'	C. TO F. SAND & MED TO F. GRAVEL W/ SOME C. GRAVEL RIG SHUTTERS THROUGHOUT, BRWN CLAYEY F. SAND @ 142.5' (REORDER)	11:27
	142-147'	C. SAND TO F. SAND W/ MED GRAV TO F. GRAVEL W/ SOME BROWN CLAY RIG SHUTTERS THROUGHOUT	$ 137-147' 11:34
	147-152	C. TO F SAND W/ F. TO C. GRAVEL, TRACES OF RR CLAY APPEARS @ 151' RIG SHUTTERS THROUGHOUT.	11:45
	152-157'	C. SAND TURNING TO BR CLAY TURNING TO GR. CLAY FINE TO MED. GRAVEL THROUGHOUT RIG SHUTTERS THROUGHOUT	11:56

4

75A.5 GALLONS OF FUEL.

DRILLING PAUSES 12:38 - 12:44 ADD 20' PIPE

STEVE ARRIVES @

DRILLING PAUSES 13:33 TO 13:58 ADD 20' P.
& REMOVE WATER FROM ROLL-OFF BIN.
& EMPTY ROLL-OFF BIN.

157 157-162' C. TO F. SAND w/ F. TO C. GRAVEL 12:11 PM
RIG SHUTTERS SLIGHTLY

162-167' C. TO F SAND w/ F. GRAVEL S 157-167 12:19
163' CLAY w/ SAND
165' ~~WOOD~~ CLAY w/ WOOD
CLAY w/ C. SAND
RIG SMOOTH.

167-172 C. TO F SAND w/ INTERVALS OF 12:27
BR. CLAYEY SAND & GR. CLAY
RIG SMOOTH & SHUTTERS SLIGHTLY.

172-177' CLAY (BROWN & REDDISH BROWN) S 167-177 12:38
FOR 2' THEN ALTERNATING
C. SAND TO F. SAND w/ F TO C. GRAVEL
AND BR. CLAY RIG SHUTTERS THROUGHOUT

177'
177-182' V. COARSE TO F. SAND w/ 12:55
F. TO C. GRAVEL
RIG SMOOTH OR SHUTTERS SLIGHTLY

182-187' C. TO F. SAND w/ C. TO FINE GRAVEL S 177-187 13:06
(ABUNDANT) V. COARSE GRAVEL
AT TIMES.
RIG SHUTTERS EXCESSIVELY @ 188'
RIG SHUTTERS THROUGHOUT

187-192' C. TO F. SAND w/ C. TO F. GRAVEL (ABUNDANT) 13:19
SOME V. COARSE GRAVEL.
RIG SHUTTERS THROUGHOUT. EXCESSIVELY @ 192'

192-197' V.C. TO F SAND w/ C. TO F. GRAVEL S 187-197 13:33
SOME V. COARSE GRAVEL.
RIG SHUTTERS THROUGHOUT, EXCESSIVELY @ 196.5'

197'
197-202' V.C. TO MED. SAND w/ FINE TO COARSE 14:13
GRAVEL w/ SOME V.C. GRAVEL
RIG SHUTTERS THROUGHOUT

202-207' V.C. TO MED SAND w/ FINE TO C. GRAVEL 14:24
SOME V.C. GRAVEL S 197-207'
RIG SHUTTERS SLIGHTLY THROUGHOUT

6

197'
217'
237'
257'
277'
297'

ARRIVE @ 7:25 MISSED 10' OF DRILLING
FINE TO MEDIUM SAND ONLY?
RIG PAUSES > 07:32 ADD 20' PIPE

207-211	SAME	14:34
211-212	CLAY w/ SOME C. SAND	
212-217	SAND / SOME GRAVEL	2:42
217	START	2:50
217-222	SAME	3:04
226	RIG CHATTER	
222-227	SAME	3:12
227-232	SAME	3:25
232-237	CLAY-SAND	3:37
237-247	SAND CLAY	3:55
247-252	SAND, FINE SAND, SOME GR. SOME CLAY	4:02
252-257	SAND	4:12
257	START @ 4:20	4:20
257-261	SAME	
261-263	CLAY	
263-267 -	SAND, WOOD, GRAVEL, CLAY	4:40
267-272 -	COARSE SAND, GRAVEL	4:55
272-277	" "	5:10
277	START	5:15
277-282	F. SAND	5:28
282-287	F. SAND SOME GRAVEL	5:45

04-17-2001 S 287-297'

297-302'	GR. CLAY RIG SMOOTH SOME LOOSE C. SAND.	7:47 AM
302-307'	GR CLAY & DK. GR. CLAY, SOME SILTY GR. CLAY. RIG SHUTTERS SLIGHTLY THROUGHOUT	7:55
307-312'	C. SAND TO F. SAND W/ F. TO C. GRAVEL RIG SHUTTERS, SOMETIMES EXCESSIVELY	S 297-307 8:02
312-317'	C. SAND TO MED SAND. ABUNDANT FINE TO C. GRAVEL. RIG SHUTTERS	08:10 S 307-317

8

RIG PAUSES 8:11 – 8:17 AM ADD 20' PIPE

RIG PAUSES 08:54 to 09:00 AM ADD 20' PIPE

RIG PAUSES 09:35 – 09:41 AM ADD 20' PIPE

SIDEWALK REMOVED.

RIG PAUSES 10:30 – 10:36 AM ADD 20' PIPE.

317-322'	SAME R16 SHUTTERS EXCESSIVELY @ 321'		08:26 AM
322-327'	V. SAND TO C. GRAVEL R16 SHUTTERS SHUTTERS EXCESSIVELY @ 327'	S' 317, -327'	08:37
327-332'	V. C. SANDS TO C. GRAVEL CHANGING TO MED. SAND ONLY, THEN C. SAND TO MED. SAND W/ F TO C. GRAVEL. R16 SHUTTERS THROUGHOUT, EXCESSIVELY @ 332'		8:46
332-337'	V. C. TO MED. SAND W/ F. TO C. GRAVEL R16 SHUTTERS THROUGHOUT	S' 327-337	08:54
337-342'	MED TO C. GRAVEL W/ V.C. TO MED SAND R16 SHUTTERS SLIGHTLY THROUGHOUT, EXCESSIVELY @ 342'		09:10
342-347	V.C. TO MED SAND W/ F. TO C. GRAVEL TR. OF CLAY (SANDY. CLAY) @ 343' R16 SHUTTERS SLIGHTLY THROUGHOUT	S' 337-347	09:20
347-352'	V.C TO F. SAND W/ F TO MED GRAVEL CHANGING TO BR. CLAY W/ MED SAND CHANGING TO GR CLAY W/ WOOD R16 SHUTTERS SLIGHTLY, THEN SMOOTH		9:26
352-357'	INTERVALS OF V.C. TO MED SAND W/ F TO M. GRAVEL. INTERMIXED W/ CLAY. (BRWN & GRN.). R16 SHUTTERS SLIGHTLY OR SMOOTH	S' 347-357'	09:35
357-362'	FINE SAND, TR. OF CLAY (BR). R16 SMOOTH. ← SILTY CLAY		09:53
362-367'	FINE SAND W/ ABUNDANT GR & BR SILTY CLAY, R16 SMOOTH UNTIL 367' (SHUTTERS SLIGHTLY).	S' 357-367'	10:08
367-372'	GR. SILTY CLAY & CLAY R16 SHUTTERS SLIGHTLY.		10:16
372-377	V. C. TO F. SAND. W/ F. TO M. GRAVEL R16 SHUTTERS EXCESSIVELY. C. GRAVEL APPEARS W/ ABOVE @ 377'	S' 367-377'	10:30
377-382	V.C. TO. F SAND. MED TO C. GRAVEL		10:52
385	RIG CHATTER		
382-387	C to F SAND GRAVEL		11:08
387-392	SAME		11:23

GATE TO REMAIN CLOSED.

RIG PAUSES 14:16 TO 14:24 ADD 20' PIPE

SAMPLES LABELED AS:
437 - 447'
447 - 457'
457 - 466'
466 - 476'

RIG PAUSES 15:15 TO 15:28 ADD 20' PIPE

392-397	C TO F SAND GRAVEL	11:40
396	HEAVY CHATTER	
397	START DRILLING	11:47
397-407	C TO F SAND SOME CLAY	12:20
407-417	C TO F SAND GRAVEL	12:50
417	BEGIN DRILLING	1:00
417-422	SAND, GRAVEL	1:12
422-427	" " HEAVY CHATTER	~~123~~ 1:48
427-432'	V.C. TO F. SAND. F. TO M. GRAVEL. RIG CHATTERS	14:00
432-437'	V.C. TO MED SAND F. TO C. GRAVEL. HEAVY CHATTER 5' 427-437'	14:15
437-442'	F. TO C. SAND w/ SOME F. TO C. GRAVEL INITIALLY RIG IS CHATTERING SLIGHTLY, THEN CHATTERS EXCESSIVELY	14:39
442-447'	V.C. TO F. SAND w/ F. TO C. GRAVEL RIG CHATTERS EXCESSIVELY " 5' 437-447'	14:51
447-452'	F. SAND & V.C. SAND w/ F TO. V.C. GRAVEL RIG CHATTERS	15:03
452-457'	BR. CLAY (SILTY) w/ SOME GR CLAY & SOME FINE GRAVEL RIG CHATTERS @ 456' REDDISH BR. CLAY w/ SOME G SAND 5' 447-457	15:14
457-462'	GR. ~~CLAY~~ SILTY CLAY & CLAY COARSE SAND LATER RIG SMOOTH, THE SHUTTERS SLIGHTLY	15:42
462-467'	GR. CLAY & SILTY CLAY w/ SOME F. TO C. SAND RIG SHUTTERS AT TIMES. 5' 457-467	15:58
467-472	GR. CLAY w/ MED. SAND LATER RIG SHUTTERS SLIGHTLY	16:22

12

RIG PAUSES 16:42 TO 16:49 ADD 20' PIPE

RIG PAUSES 17:16 TO 17:17

RIG PAUSES 17:42 TO 17:50 ADD 20' PIPE

STOP DRILLING @ 18:11 @ 507'
WILL PULL OUT APPROX. 80 FEET TONITE - PROBLEM

513

ARRIVE 7:21 AM
RIG PAUSES 7:30 - 07:40 AM ADD 20' PIPE

472-477'	GR. CLAY & GR SILTY CLAY W/ INTERVALS OF C. SAND & SM GRAVEL OR M. TO C. SAND W/ SOME CLAY. (BR SILTY CLAY). RIG SHUTTERS. S 467-477'	16:42
477'-482'	BR SILTY/SANDY CLAY W/ F. TO C. SAND RIG SMOOTH	17:01
482-487'	F. TO C. SAND W/ SOME BR SILTY CLAY. RIG SHUTTERS S 477-487'	17:15
487-492'	F. TO C. SAND W/ SOME BR SILTY CLAY SWITCHING TO BR. SILTY CLAY RIG SHUTTERS	17:29
492-497'	INTERVALS OF F. TO C SAND W/ SILTY CLAY OR SILTY CLAY (BR) W/ F. TO C. SAND. RIG SHUTTERS S 487-497' THEN GR CLAY.	17:42
497-502'	GR SILTY CLAY W/ F. SAND. RIG SMOOTH	18:01
502-507'	F. SAND W/ SOME SILTY BR CLAY RIG SHUTTERS SLIGHTLY S 497-507'	~~18:02~~ 18:11
04-18-2001		
~~507-512~~ 506-511	NOT HERE	
~~512-516~~ 511-516	SAND & SOME CLAY SOME CHATTER S 506-516	
516-521'	F. TO C. SAND W/ SOME F. GRAVEL. SOME WOOD & BR SILTY CLAY CHANGING TO TRACES OF GREY CLAY RIG SHUTTERS SLIGHTLY	7:54 A
521-526'	M. TO ~~C. SAND~~ V.C. SAND W/ SOME F. TO M. GRAVEL TR. OF GREY CLAY. RIG SHUTTER SLIGHTLY S 516-526'	08:10

14

RIG PAUSES 8:40 - 8:47AM ADD 20' PIPE

RIG PAUSES 9:43 - 9:49 ADD 20' PIPE

LAYNE CHRISTENSEN
COLLECTING SAMPLES FOR DISCHARGE PERMIT

526 - 531' M. TO V.C. SAND w/ SOME F TO M GRAVEL
TR OF GREY CLAY CHANGES TO SOME BR SILTY CLAY LATER. RIG SHUTTERS SLIGHTLY 08:24 AM

RIG CHATTERS AT 530.5'.

31-536' M. TO. V.C SAND THROUGHOUT w/ ALTERNATING (1') BR SILTY CLAY OR (2') F. TO C. GRAVEL, THEN BR SILTY CLAY. TRACES OF GREY CLAY. 08:40
RIG CHATTERS THROUGHOUT. $ 526-536'

536-541' F. TO. C. SAND SOME F. GRAVEL
TR. OF GR CLAY & BR SILTY CLAY @ 540' 8:57
RIG SMOOTH

541-546' FINE SAND w/ SOME C. SAND & BR. SILTY CLAY 09:12
RIG CHATTERS SLIGHTLY $ 536-546'

546-551' F. TO C. SAND w/ SOME GREY CLAY 09:25
RIG SHUTTERS SLIGHTLY

551-556' V.C. TO F. SAND & F. TO V.C. GRAVEL 09:43
TRACE OF GRAY CLAY
CHATTER EXCESSIVE @ 552.5'-556' $ 546-556'

556-561' M. TO. C. SAND. FINE GRAVEL WITH OCCASIONAL M. TO. C. GRAVEL 10:02
RIG CHATTERS SLIGHTLY THROUGHOUT

561-566' M. TO C SAND w/ FINE GRAVEL INITIALLY CHANGING TO F TO C. GRAVEL 10:14
RIG CHATTERS SLIGHTLY THROUGHOUT, & EXCESSIVELY AT 563'-565' & 566' $ 556-566'

566-571' C. TO M. SAND & FINE GRAVEL w/ OCCASIONAL M. TO V.C. GRAVEL. 10:27
RIG SHUTTERS, EXCESSIVELY AT TIMES (571')

571-576' C. TO F. SAND & FINE TO MED. GRAVEL 10:50
RIG SHUTTERS EXCESSIVELY 573½ TO 576'

16

RIG PAUSES 10:50 AM TO 10:57 ADD 20' PIPE 576

DRILLING STOPS @ 11:09 AM @ ≈ 580.5' 596
AIRLINE BROKE-OFF AT TOP.
DRILL STRING PULLED / BIT CHANGED.
BEE STING @ 11:20 - 11:25

04-19-2001
07:30 to 07:59 AM ~~RIGGING UP~~ INSTALLING DRILL STRING

08:00 - 08:15 CLEAR BOREHOLE OF SEDIMENTS

RIG PAUSES 08:44 - 08:55 ADD 20' PIPE

576 - 581' C. TO. F. SAND W/ F. TO M. GRAVEL
OCCASSIONAL ~~F~~. C. TO ~~[illegible]~~ V.C. GRAVEL
RIG CHATTERS, EXCESSIVELY AT TIMES.

04-19-2001 THURSDAY.

581-586' 08:22 AM
V.C. TO F. SAND W/ F TO M. GRAVEL
RIG SHUTTERS THROUGHOUT, SOMETIMES EXCESSIVELY.
[SAMPLE FOR 576-581 LOST] S 581-586'

586-591' C. TO M. SAND W/ ABUNDANT F. TO V.C. GRAVEL 08:30

RIG SHUTTERS EXCESSIVELY @ 587.5', 589.5-591
VERY EXCESSIVE @ 591', VERY SLOW BIT SPEED.

591-596' C. TO F. SAND W/ ABUNDANT F. TO C. GRAVEL 08:44
RIG SHUTTERS THROUGHOUT, SLOW BIT SPEED.
VERY EXCESSIVE CHATTER @ 595.5'

596-601' F TO C. GRAVEL W/ OCC. VC GRAVEL & 09:05
C. TO M. SAND. CHANGES TO C TO M
SAND W/ SOME SILTY BR. CLAY.
RIG ~~[illegible]~~ CHATTERS @ 597', THEN SMOOTH.

'-606' C TO F SAND W/ BR SILTY CLAY CHANGING TO 09:19
C TO M. SAND W/ MED. GRAVEL CHANGING TO C. TO F
SAND W/ TR GRAY CLAY
EXCESSIVE CHATTER @ 602', STEADY SLIGHT CHATTER
OTHERWISE ↑ @ 605.5'

606'-611' C. TO M. SAND W/ F. TO M. GRAVEL CHANGES 09:31
TO F TO C. SAND W/ SOME F. GRAVEL &
TRACES OF GREY CLAY.

EXCESSIVE CHATTER @ 606.5 - 607', SLIGHT SHUDDER
OTHERWISE.

611-616' CLAYEY SILT CHANGING TO SILTY CLAY (BROWN) 09:45
SILTY CLAY W/ SOME C. SAND 615-616'
RIG SMOOTH.

S 606'-616'

616'-621' M. TO C. SAND W/ SOME BR. CLAYEY F. ~~SAND~~ SILT SOME F. TO M. GRAVEL OCC. 10:12 AM
RIG SHUTTERS SLIGHTLY.

:-626' 1' OF C TO F SAND W/ F. GRAVEL 10:26
2' OF BR CLAYEY SILT, THEN C TO M. SAND W/ F. GRAVEL
RIG SMOOTH OR SHUTTERS SLIGHTLY S' 616-626'

626-631' C. TO F. SAND W/ CLAYEY SILT (BR) 10:40
CHANGING TO CLAYEY BR SILT W/ C. TO F SAND ~~630~~ 630-631'
RIG SHUTTERS SLIGHTLY.

631-636' SILTY BR. CLAY W/ OCC. C. SAND. 10:54
RIG SHUTTERS SLIGHTLY S' 626-636'

636-641' SILTY BR. CLAY W/ SOME C. TO F. SAND & OCC. MED. GRAV. 11:13
RIG SHUTTERS SLIGHTLY.

641-646' CLAYEY BR SILT W/ SOME C. TO F SAND 11:24
RIG SHUTTERS SLIGHTLY S' 636-646'

646-651' M. TO C. SAND W/ SOME CLAYEY SILT 11:39
RIG SHUTTERS SLIGHTLY. CHATTER @ 650'
650-651 SILTY CLAY (BR) W/ MED TO C. SAND

651-656' CLAYEY SILT (BR) W/ MED TO C. SAND (2')
CHANGING TO M. TO C. SAND W/ F. GRAVEL. 11:53
RIG SHUTTERS SLIGHTLY. S' 646-656'
655-656 SILTY BR CLAY W/ M TO C. SAND

656-661' SILTY BR. CLAY W/ M. TO C. SAND CHANGING TO M. TO C. SAND W/ SILTY BR. CLAY. 12:15 PM
SLIGHT SHUTTER.

661'-666' MED. TO C. SAND W/ CLAYEY SILT OR SILTY CLAY (BR). SLIGHT SHUTTER. S' 656-666'

666-671' CLAYEY BR SILT & SILTY BR CLAY W/ SOME M TO C. SAND. SLIGHT SHUTTER 12:48

RIG PAUSES 9:45 - 9:59 ADD 20' PIPE
AIRLINE ADDED ALSO

RIG PAUSES 10:54 - 11:00 ADD 20' PIPE.

RIG PAUSES 11:53 - 12:00 PM ADD 20' PIPE

20

RIG PAUSES 13:05 – 13:12 ADD 20' PIPE

686 - 696

DEPTH INTERVAL CHANGE → 696 - 705

705 - 715

671 - 676' M. TO C. SAND W/ CLAYEY BR SILT ALTERNATING WITH CLAYEY BR SILT W/ M. TO C. SAND (3 CYCLES) 13:05
RIG SHUTTERS SLIGHTLY S 666-676'

676-681' M. TO C. SAND W/ FINE GRAVEL & SOME CLAYEY SILT (BR) TURNING TO M. TO C. SAND W/ F. TO M GRAVEL W/ SOME GREY CLAY 13:29
RIG CHATTERS @ 678.5'

681-686' C. TO M. SAND W/ F. TO M. GRAVEL 13:49
TR OF GREY CLAY S 676-686'
RIG SHUTTERS @ 686'

686-688 V.C. TO M. SAND W/ F. TO C GRAVEL, SOMETIMES V.C. GRAVEL. TRACE OF GREY CLAY. 14:02

RIG CHATTERS STRONGLY 686-688'

688-690	SAME	14:11
690-696	SAME	2:34
696	BEGIN	2:45
696-697	HEAVY CHATTER	
696-702	COARSE SAND - GRAVEL	
702-706	" "	3:25
705	HEAVY CHATTER	3:20
706-716	SAND, GRAVEL SOME CLAY	4:30
716	BEGIN	4:38
716-726	SAND GRAVEL	5:45
726-728	" "	6:20

SHUT DOWN FOR EVENING