

Utah Geological Survey Lithologic Log

Monitor Well # 0818004M00

WIN=431289

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Well ID: PW12

Well Location: Little Valley, 20 miles ENE of intersection of US Hwy 6/50 and Utah/Nevada border

UTM: x 265333 m, y 4333116 m NAD 83 (zone 12N)

N 1660 ft, W 470 ft from NW Corner, Sec 36, T 19 N R 17 E SLBM USM

Start Date 4/29/8 Completion Date 5/20/8 Driller USGS Central Region Drilling

Drilling Method: Air rotary from 0 to 10' Total Depth 1645'
Air hammer from 10 to 1645' Static Water Level 1428.56'
Water Level Date 3/4/9 13:08
Measured From Top of PVC, MP

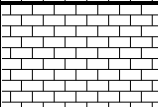
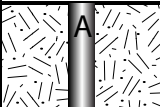
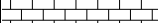
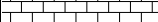
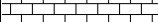
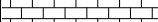
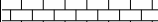
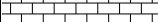
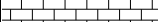
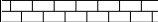
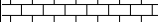
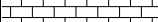
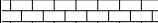
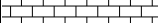
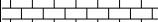
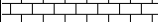
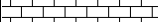
Borehole Diameter 11" from 0 to 10' Casing 6" Steel from 0 to 20'
6" from 10 to 1645' 12" Steel from + ??? to 2.5'
2" Sch 80 PVC from +2.31 to 1593'
2" Sch 80 PVC .020" slot from 1593 to 1633' 2" Sch 80 PVC 1633 1643'
Ground Elevation: 5850'
Screen Type & Diameter from to Logged By: Hugh Hurlow, Mark Yidana, Stefan Kirby, Matt Affolter; UGS
Geophysical Log ☒ Yes ☐ No Other Logs:

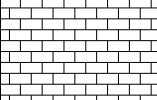
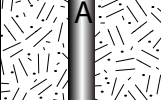
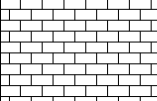
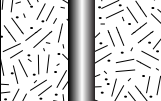
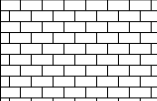
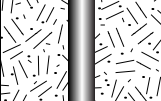
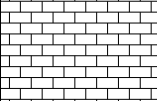
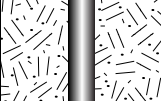
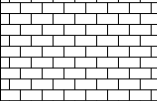
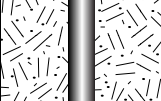
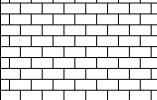
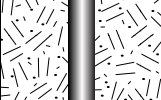
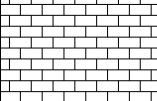
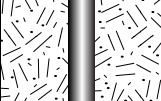
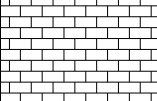
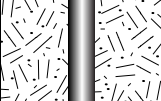
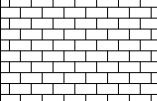
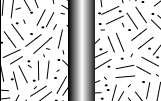
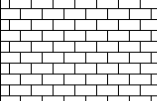
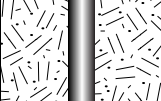
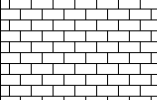
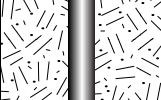
DEPTH	LITHOLOGY	WELL DIAGRAM	DRILLING INFO	LITHOLOGY DESCRIPTION
5				0-35 -- Dark to medium grey, fine- to medium-grained calcarenite, some white calcite and tan/red/orange staining
10			0'-20'= 58 min	
15				
20				
25				
30			20'-40'= 40 min	
35				35-40 -- Like above, increased staining
40				40-65 -- Like above, increased calcite veining, up to 50%
45			40'-60'= 20 min	

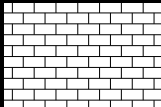
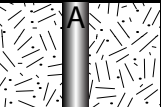
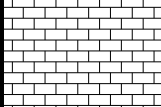
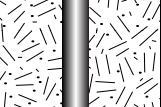
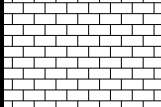
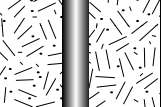
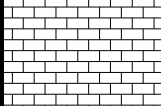
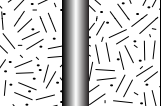
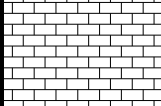
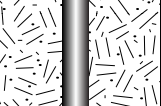
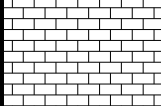
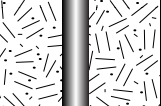
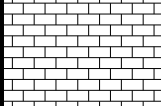
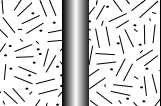
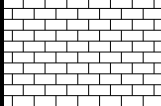
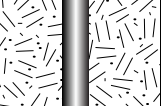
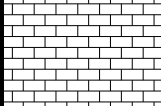
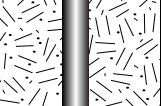
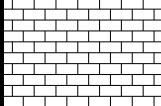
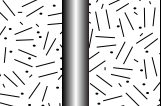
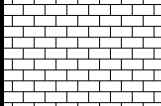
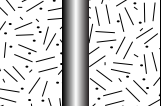
DEPTH	LITHOLOGY	WELL DIAGRAM	DRILLING INFO	LITHOLOGY DESCRIPTION
55		A		40-65 -- Like above, increased calcite veining, up to 50%
60				
65				65-85 -- Dark grey, fine- to medium-grained calcarenite material with 5% grey-white calcite veins
70			60'-80'= 35 min	
75				
80				
85				85-90 -- Like above, increased calcite, up to 35%
90			80'-100'= 31 min	90-110 -- Like above, decreased calcite (5%)
95				
100				
105				
110			100'-120'= 27 min	110-115 -- Like above, increased calcite with orange-brown stains, up to 35%
115				115-135 -- Brownish grey, fine- to medium-grained calcarenite with few calcite veins (2%)
120				
125				
130			120'-140'= 20 min	
135				135-160 -- Like above, increased calcite with brown-orange staining (5%)
140				
145			140'-160'= 25 min	

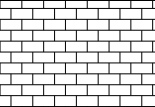
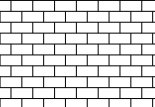
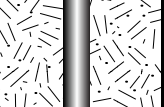
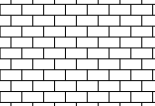
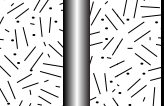
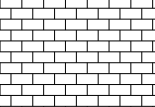
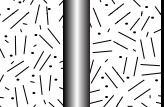
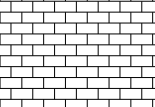
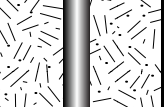
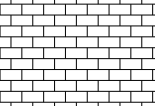
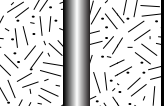
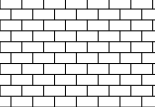
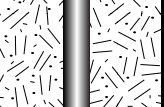
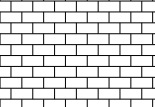
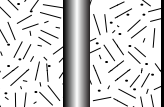
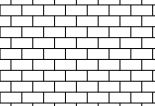
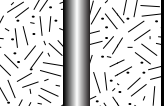
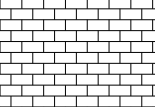
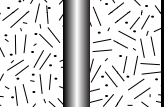
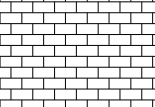
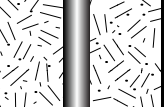
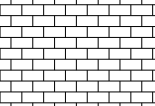
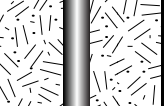
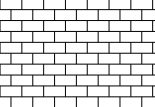
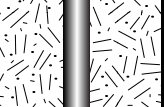
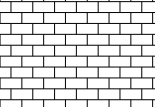
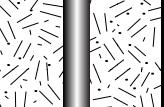
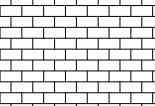
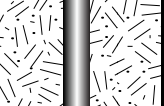
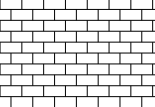
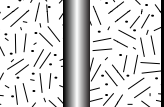
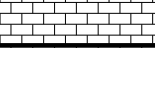
DEPTH	LITHOLOGY	WELL DIAGRAM	DRILLING INFO	LITHOLOGY DESCRIPTION
155				135-160 -- Like above, increased calcite with brown-orange staining (5%)
160				160-190 -- Like above, but more pronounced brown orange staining
165				
170			160'-180'= 27 min	
175				
180				
185				
190			180'-200'= 23 min	190-200 -- Like above, now staining more red
195				
200				200-210 -- Like above, increase in calcite (15%)
205				
210			200'-220'= 30 min	210-230 -- Like above, increase in calcite (35%)
215				
220				
225				
230			220'-240'= 30 min	230-235 -- Like above, increase in calcite (50%) with more orange staining
235				235-240 -- Like above, increased calcite (65%)
240				240-245 -- Like above, increased calcite (75%)
245				245-310 -- Like above, increased calcite (90%)
			240'-260'= 25 min	

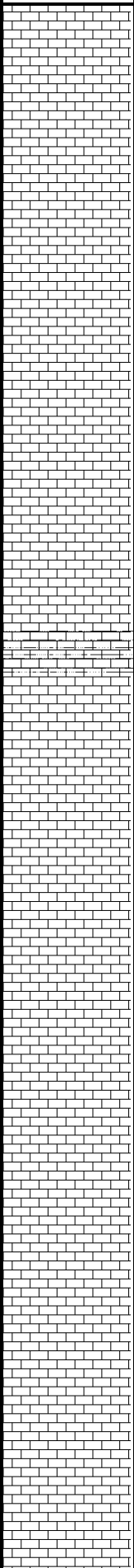
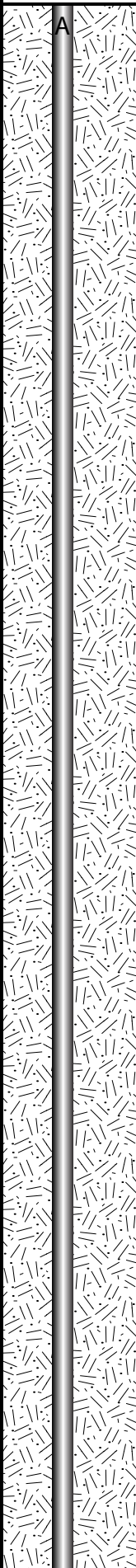
DEPTH	LITHOLOGY	WELL DIAGRAM	DRILLING INFO	LITHOLOGY DESCRIPTION
255				245-310 -- Like above, increased calcite (90%)
260				
265				
270			260'-280'= 30 min	
275				
280				
285				
290			280'-300'= 25 min	
295				
300				
305				
310			300'-320'= 25 min	310-315 -- Like above, with orange-brown stains in host material
315				315-325 -- Dark grey, fine- to medium-grained limestones with white-grey calcite veins and brown/orange stains
320				
325				325-330 -- Like above, increased orange staining
330			320'-340'= 33 min	330-340 -- Like above, increased staining with red tinge, decreased calcite veining
335				
340				340-350 -- Like above, less staining
345			340'-360'= 27 min	

DEPTH	LITHOLOGY	WELL DIAGRAM	DRILLING INFO	LITHOLOGY DESCRIPTION
355				350-355 -- Like above, much more calcite veining and brown stains 355-370 -- Like above, lighter in color, more calcite veining and staining
360				
365				
370			360'-380' = 23 min	370-385 -- Like above, little darker with less calcite veining
375				
380				
385				385-550 -- Interbedded dark grey limestone and thin brown sandstone with thin white calcite veining
390				
395				
400				
405				
410				
415				
420				
425				
430				
435				
440				
445				

DEPTH	LITHOLOGY	WELL DIAGRAM	DRILLING INFO	LITHOLOGY DESCRIPTION
455				385-550 -- Interbedded dark grey limestone and thin brown sandstone with thin white calcite veining
460				
465				
470				
475				
480				
485				
490				
495				
500				
505				
510				
515				
520				
525				
530				
535				
540				
545				

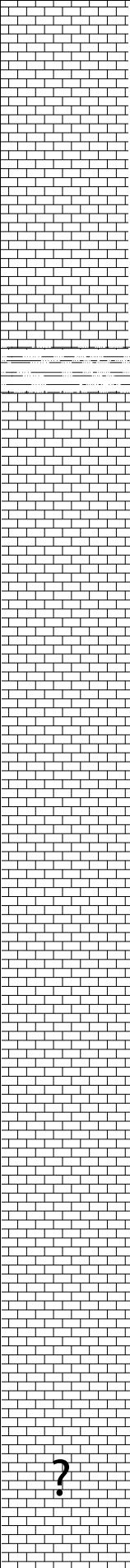
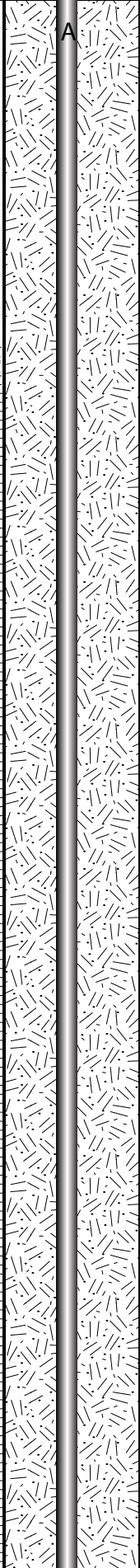
DEPTH	LITHOLOGY	WELL DIAGRAM	DRILLING INFO	LITHOLOGY DESCRIPTION
555				550-560 -- Like above, increase in white calcite veining
560				560-650 -- Like above, decrease in calcite veining
565				
570				
575				
580				
585				
590				
595				
600				
605				
610				
615				
620				
625				
630				
635				
640				
645				

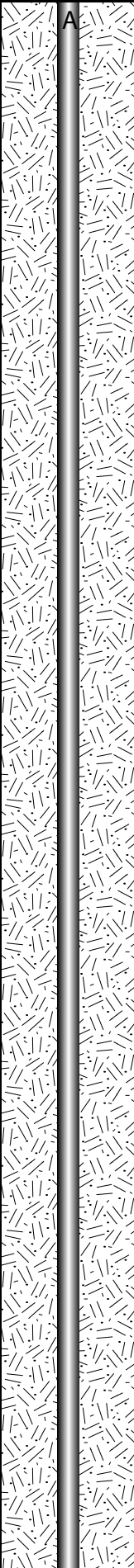
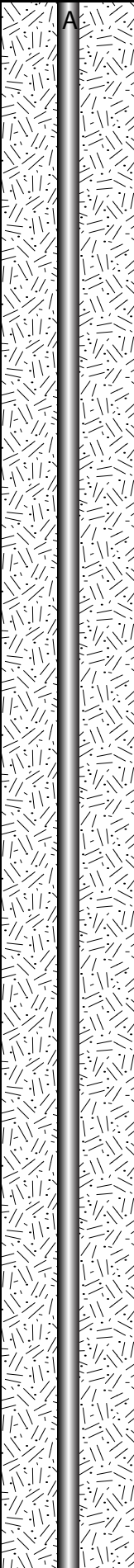
DEPTH	LITHOLOGY	WELL DIAGRAM	DRILLING INFO	LITHOLOGY DESCRIPTION
655				650-790 -- Dark grey limestone with white calcite veins, decrease in sandstone interbeds
660				
665				
670				
675				
680				
685				
690				
695				
700				
705				
710				
715				
720				
725				
730				
735				
740				
745				

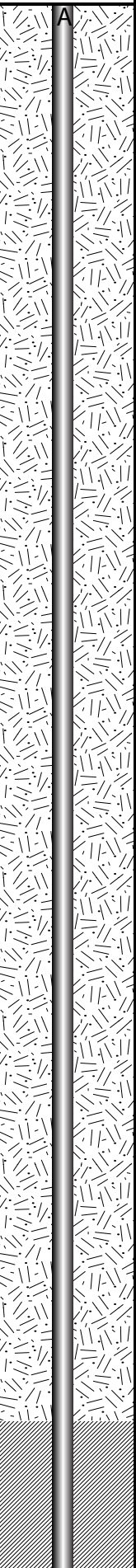
DEPTH	LITHOLOGY	WELL DIAGRAM	DRILLING INFO	LITHOLOGY DESCRIPTION
755				650-790 -- Dark grey limestone with white calcite veins, decrease in sandstone interbeds
760				
765				
770				
775				
780				
785				
790				790-795 -- Distinct brown interbed of thinly-bedded sandstone
795				795-860 -- Dark grey, fine-grained limestone with white calcite veining
800				
805				
810				
815				
820				
825				
830				
835				
840				
845				

DEPTH	LITHOLOGY	WELL DIAGRAM	DRILLING INFO	LITHOLOGY DESCRIPTION
855				795-860 -- Dark grey, fine-grained limestone with white calcite veining
860				860-895 -- Like above, slight increase in sandstone interbeds
865				
870				
875				
880				
885				
890				
895			Tough, slower 895-900'	895-900 -- Resistant, tough brown/orange chert
900				900-935 -- Medium grey, fine-grained limestone (90%), pale brown, fine-grained sandstone (10%), minor calcite in veins
905				
910				
915				
920				
925				
930			925'-945' = 43 min	
935				935-940 -- Like above, increase in sandstone (50%)
940				940-950 -- Like above, decrease in sandstone (15%)
945			945'-965' = 41 min	

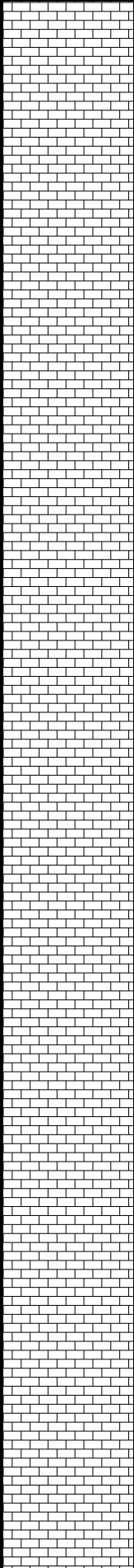
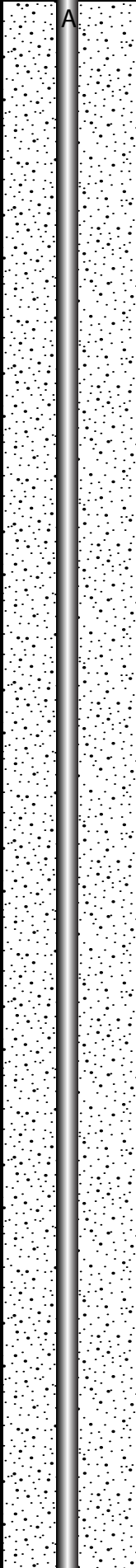
DEPTH	LITHOLOGY	WELL DIAGRAM	DRILLING INFO	LITHOLOGY DESCRIPTION
955				950-980 -- Fine-grained, medium to dark grey limestone, minor rusty/tan staining, very little sandstone
960				
965				
970				
975			965'-985' = 34 min	
980				980-990 -- Medium to dark grey, fine-grained limestone (55%), pale brown, fine-grained sandstone (45%)
985				
990				990-1000 -- Like above, less sandstone (30%)
995			985'-1005' = 47 min	
1000				1000-1010 -- Limestone (85%) sandstone (15%)
1005				
1010				1010-1015 -- Limestone (15%) sandstone (85%)
1015			1005'-1025' = 45 min	1015-1025 -- Limestone (95%) sandstone (5%)
1020				
1025				1025-1035 -- Limestone (15%) sandstone (85%)
1030			1025'-1045' = 41 min	
1035				1035-1050 -- Limestone (75%) sandstone (25%)
1040				
1045			1045'-1065' = 44 min	

DEPTH	LITHOLOGY	WELL DIAGRAM	DRILLING INFO	LITHOLOGY DESCRIPTION
1055				1050-1070 -- Like above (limestone 75%, sandstone 25%), red staining on fracture surfaces
1060				
1065				
1070				1070-1075 -- Like above, limestone (50%) sandstone (50%), no fracture coating
1075				1075-1090 -- Like above, limestone (95%) sandstone (5%)
1080				
1085				
1090				1090-1120 -- Fine-grained limestone with minor calcite in veins
1095				
1100				
1105				
1110				1120-1130 -- Dark grey, fine-grained limestone (70%) with minor calcite (5%) and orange-stained limestone (25%)
1115				
1120				
1125				1130-1135 -- Dark grey limestone (100%)
1130				
1135				1135-1140 -- Dark grey limestone (75%) and orange stained limestone (25%)
1140				1140-1195 -- Powdered sample, possibly altered limestone
1145				

DEPTH	LITHOLOGY	WELL DIAGRAM	DRILLING INFO	LITHOLOGY DESCRIPTION
	?			1140-1195 -- Powdered sample, possibly altered limestone
1155				
1160	?			
1165				
1170	?			
1175				1165'-1185'= 25 min
1180	?			
1185				
1190	?			
1195				1185'-1205'= 32 min
1200	?			1195-1245 -- Like above, powdered limestone, with orange-stained tinge
1205				
1210	?			
1215				
1220	?			
1225				
1230	?			
1235				
1240	?			
1245				1245'-1265'= 26 min
				1245-1250 -- Dark grey, fine-grained limestone with minor tan altered silty limestone

DEPTH	LITHOLOGY	WELL DIAGRAM	DRILLING INFO	LITHOLOGY DESCRIPTION
1255	?			1250-1270 -- Powdered limestone
1260	?			
1265				
1270	?			1270-1315 -- Homogenous medium grey, fine-grained limestone with minor calcite, locally powdered
1275			1265'-1285'= 23 min	
1280				
1285				
1290				
1295			1285'-1305'= 21 min	
1300				
1305				
1310				
1315			1305'-1325'= 37 min	1315-1320 -- Lighter medium grey (95%) with dark grey (5%) limestone
1320				1320-1325 -- 100% Light medium grey limestone
1325				1325-1330 -- Heterogeneous mix of light medium grey (40%) tan (30%) red (25%) and dark grey (5%) limestone/sandstone
1330				1330-1340 -- Heterogeneous mix of mainly orange-tan altered limestone/sandstone
1335			1325'-1345'= 24 min	
1340				1340-1345 -- Like above, mix of lighter tan (50%) and darker grey (50%) calcareous sandstone/dirty limestone
1345			1345'-1365'= 47 min	1345-1365 -- Dark grey, fine-grained limestone (80%) with tan calcareous sandstone (20%)

DEPTH	LITHOLOGY	WELL DIAGRAM	DRILLING INFO	LITHOLOGY DESCRIPTION
1355				1345-1365 -- Dark grey, fine-grained limestone (80%) with tan calcareous sandstone (20%)
1360			100% Bentonite	
1365				1365-1370 -- Like above, with red joint coating
1370				1370-1380 -- Tannish silty (dirty) limestone, with 25% red fracture coating
1375			1365'-1385'= 40 min	
1380				1380-1385 -- Dirty limestone (50%), fine calcareous sandstone (30%), red fracture coating/fill (20%)
1385				1385-1390 -- Grey-tan to yellow-tan calcareous siltstone
1390			#8 Sand	1390-1395 -- Dark grey limestone
1395			1385'-1405'= 46 min	1395-1400 -- Dark grey limestone (75%), tan sandstone (20%), red fracture fill (5%)
1400				1400-1405 -- Tan sandstone (75%) medium to dark grey limestone (25%)
1405				1405-1415 -- Medium to pale grey, fine-grained limestone
1410				
1415			1405'-1425'= 56 min	1415-1420 -- Like above, minor tan fine sandstone
1420				1420-1425 -- Like above, increase in calcite fracture lining
1425				1425-1430 -- Like above, decrease in calcite fracture lining
1430			1425'-1445'= 58 min	1430-1450 -- Medium grey, fine-grained limestone, white calcite fracture fill and yellow-tan fracture staining common
1435				
1440				
1445			1445'-1465'= 50 min	

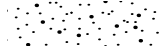
DEPTH	LITHOLOGY	WELL DIAGRAM	DRILLING INFO	LITHOLOGY DESCRIPTION
1455				1450-1460 -- Fine-grained, medium grey limestone with minor calcite
1460				1460-1465 -- Like above, with red staining
1465				1465-1490 -- Like above, now staining is yellow-tan
1470				
1475				
1480				
1485				
1490				
1495				
1500				
1505				
1510				
1515				
1520				
1525				
1530				
1535				
1540				
1545				
			1465'-1485'= 44 min	
			Drillers note fractures this rod 1485-1505'	1490-1500 -- Like above, lack of staining
			1485'-1505'= 49 min	
				1500-1505 -- Very dark grey to black, fine-grained limestone, minor pale grey fine-grained limestone, tan siltstone/silty limestone
				1505-1525 -- Medium to dark grey limestone, minor white calcite
			1505'-1525'= 41 min	
				1525-1530 -- Medium grey limestone (80%) with rusty tan staining and calcite veining (20%)
			1525'-1545'= 24 min	1530-1535 -- Grey limestone (50%), tan staining (50%), trace calcite, sandstone
				1535-1545 -- Like above, increased calcite, decreased tan staining
				1545-1550 -- Like above, limestone (75%)
			1545'-1565'= 1 hr 4 min	

DEPTH	LITHOLOGY	WELL DIAGRAM	DRILLING INFO	LITHOLOGY DESCRIPTION
1555				1550-1565 -- Like above, limestone (95%)
1560				
1565				1565-1570 -- Like above, limestone (75%)
1570				1570-1575 -- Like above, limestone mostly pale grey
1575			1465'-1485'= 44 min	1575-1585 -- Medium (50%) and pale (50%) grey, fine-grained limestone, trace yellow-grey stained limestone, white calcite vein fill
1580				
1585				1585-1590 -- Medium grey, fine-grained limestone (90%), yellow rusty tan weathered dirty limestone, scarce pale grey limestone, white vein fill calcite
1590				1590-1605 -- Like above, less tan limestone
1595			1485'-1505'= 49 min	
1600				
1605			Screen= 1595-1635'	1605-1610 -- Medium grey, fine-grained limestone (75%), tan calcareous siltstone/dirty limestone (25%), some tan coating, white vein calcite, and pale grey, fine-grained limestone
1610				1610-1615 -- Medium grey, fine-grained limestone (50%), tan, fine-grained silty dirty limestone (25%), dull purple-red, calcareous fine siltstone (25%)
1615			1505'-1525'= 41 min	1615-1620 -- Medium grey, fine limestone with pale grey calcite and minor red stained siltstone
1620				1620-1625 -- Limestone (75%), tan siltstone (25%), minor grey shale
1625				1625-1635 -- Medium grey to pale grey, fine-grained limestone
1630			1525'-1545'= 24 min	
1635				1635-1645 -- Medium to pale grey, fine-grained limestone (50%), pale grey to pale tan dirty limestone to fine sandstone (50%)
1640				
1645			1545'-1565'= 1 hr 4 min	

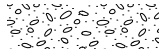
Lithology



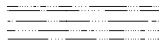
silt



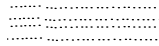
sand



gravel



siltstone



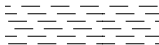
sandstone



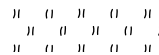
conglomerate



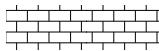
shale



clay



tuff



limestone



dolomite



limestone-shaley



cherty limestone