



# LOG OF BOREHOLE

BOREHOLE HN-S-0-2

PAGE 1 OF 6

LOC. or COORDS. <u>6 1/2 R. 50 E sec 27 NE 1/4</u> GROUND ELEV. _____ TOTAL DEPTH <u>455 feet</u> BOREHOLE DIAM. <u>9 7/8 inch</u>	DRILLER <u>Don Mitchell</u> RIG <u>CP RT-1900</u> BIT(S) <u>9 7/8 inch tricone</u> FLUID <u>Bentonite</u>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">START DATE <u>9/6/80</u></td> <td style="width: 50%;">FINISH DATE <u>9/12/80</u></td> </tr> <tr> <td>TIME <u>1300</u></td> <td><u>1555</u></td> </tr> <tr> <td colspan="2">GEOPHYS. LOG <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO</td> </tr> <tr> <td colspan="2">HOW LEFT <u>Cased</u></td> </tr> </table>	START DATE <u>9/6/80</u>	FINISH DATE <u>9/12/80</u>	TIME <u>1300</u>	<u>1555</u>	GEOPHYS. LOG <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		HOW LEFT <u>Cased</u>	
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GEOPHYS. LOG <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO										
HOW LEFT <u>Cased</u>										

LOCATION HOT CREEK VALLEY NEVADA  
 LOGGED BY JEC, SEE HYDROSEARCH

PROJECT 1243-80 Shallow Aquifer Drilling  
 MX Project F480

DEPTH	PENE. RATE	CIRC. LOG	AIRLIFT LOG (ppm)	MATERIAL	SYM-BOL	DESCRIPTION and COMMENTS
0'	15 min					Sand w/ Gravel (0'-50') ( ) grayish tan (d <sub>10</sub> 1/2, d <sub>50</sub> 1/2) cs to sd 75% (carb 25%, chert 10%, sil 20%, mica 15%), sil 20% up to 20mm (carb 20%, chert 5%, sil 5%, mica 10%), p.s., sd - ang to subang; gul - ang to subang; structureless; n.p.; not sticky; no concretions of 100 mm. Any chips prob indication of beds.
10'	22 min					Sand w/ Gravel (10'-20') same as above, except gul increases to 30% and gul size up to 15mm.
20'	12 min					Gravel w/ Sand (20'-30') ( ) grayish tan (d <sub>10</sub> 1/2, d <sub>50</sub> 1/2) cs to sd 40% (carb 20%, chert 5%, sil 5%, mica 10%), sil 60%, up to 15mm (carb 20%, chert 5%, sil 5%, mica 10%), p.s., sd - subang to ang; gul - ang to subang; structureless; n.p.; not sticky; no concretions of 100 mm. Any chips prob indication of beds.
30'	8 min					Gravel w/ Sand (30'-40') same as above except sand increases to 50%, and gravel increases to 50%. Sand pieces of shale approx 100 mm.
40'	8 min					Gravel w/ Sand (40'-50') same as above except sd = 40%, gul = 70%.
50'	14 min					Gravel w/ Sand (50'-60') same as above except sand increases to 30%, and sd decreases to 30%, and sd size fraction decreases to 10mm.
60'	23 min					Sand w/ Gravel (60'-90') ( ) grayish tan (d <sub>10</sub> 1/2, d <sub>50</sub> 1/2) cs to med sd 60% (carb 25%, chert 15%, mica 10%), sil 40%, up to 17mm (carb 20%, chert 5%, sil 5%, mica 10%), p.s., sd - subang to subang; gul - ang to subang; structureless; n.p.; not sticky; no concretions of 100 mm. Any chips prob indication of beds.
70'	21 min					

# LOG OF BOREHOLE

BOREHOLE HC-S-0-2

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LOC. or COORDS. _____ GROUND ELEV. _____ TOTAL DEPTH <u>154</u> BOREHOLE DIAM. _____	DRILLER _____ RIG <u>7-120</u> BIT(S) _____ FLUID _____	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">START</td> <td style="width: 50%;">FINISH</td> </tr> <tr> <td>DATE _____</td> <td>DATE _____</td> </tr> <tr> <td>TIME _____</td> <td>TIME _____</td> </tr> <tr> <td colspan="2">GEOPHYS. LOG <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO</td> </tr> <tr> <td colspan="2">HOW LEFT _____</td> </tr> </table>	START	FINISH	DATE _____	DATE _____	TIME _____	TIME _____	GEOPHYS. LOG <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		HOW LEFT _____	
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DATE _____	DATE _____											
TIME _____	TIME _____											
GEOPHYS. LOG <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO												
HOW LEFT _____												

DEPTH	PENE RATE	CIRC. AIRLIFT	MATERIAL	SYM. BOL	DESCRIPTION and COMMENTS
80'	20min				Sand w/ Gravel (70'-90') (carb 75%, Qz 15%, volc 10%, minor constituents 5%, ps; sd - subang to subrd; gul - ang to subang; struc; n.p.; not stky; no consol; mod HCl rxn. Ang chips prob. indication of older process.
90'	17min				Gravel w/ sand (90'- ) ( ) gray (w/ 10% silt) ( ) cs sand sd 25% (carb 20%, Qz 15%, volc 10%, minor constituents 5%), gul 25% up to 15mm (carb 35%, chert 10%, volc 10%, minor constituents 5%), ps; sd - subang to subrd; gul - ang to subrd; struc; n.p.; not stky; no consol; mod HCl rxn. Ang chips prob. indication of older process.
100'	19min				Gravel w/ sand (100'-110') same as above except sd increases to 35% and gul decreases to 65%.
110'					Gravel w/ sand (110'-120') same as above, sd 35%, gul 65% except buff in gul sz fraction increase to 15%.
120'	24min				Sand w/
130'	19min				Sand w/ some GRAVEL (130'-140') ( ) gray brn (w/ 10yr 5/2) (d 10yr 6/2) med sd to ss sd 80% (50% Qz; 20% carb; 15% tuff; 10% chert; 5% minor constituents); 20% gul (40% carb, 30% Qz, 20% volc, 10% minor constituents); ps; sd - subang to subrd; gul - ang to subrd; no struc; n.p.; not stky; no consol; no HCl rxn; Ang chips probably no older older process.
140'	20min				SAND w/ some GRAVEL (140'-150') ( ) dk. gray brn (w/ 10yr 4/2) (d 10yr 5/2) med sd to ss sd 95% (60% carb, 20% Qz, 10% volc, 10% minor constituents) 5% gul (80% carb, 10% Qz, 10% minor constituents); ms; sd - ang to subrd; gul - ang to subrd; n.p.; no consol; mod HCl rxn; lack of angular chips.
150'	21min				SAND w/ some GRAVEL (150'-160') same as above except more fine ang gul chips, ps, ind. older presence.

LOCATION \_\_\_\_\_  
LOGGED BY \_\_\_\_\_

PROJECT HC-S-0-2

# LOG OF BOREHOLE

BOREHOLE HC-S-0-2  
PAGE 1 OF 6

LOC. or COORDS. <u>T6N, R50E, sec 27ac</u>	DRILLER <u>Dean Mitchell</u>	START DATE <u>9/6/80</u>	FINISH DATE <u>9/7/80</u>
GROUND ELEV. <u>5,522 ft</u>		TIME <u>1300</u>	<u>1555</u>
TOTAL DEPTH <u>455 ft</u>	RIG <u>CP RT-1800</u>	GEOPHYS. LOG <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
BOREHOLE DIAM. <u>9 7/8 inch</u>	BIT(S) <u>9 7/8 inch Tricone</u>	HOW LEFT <u>Cased</u>	
	FLUID <u>Bentonite</u>		

LOCATION Hot Creek Valley, Nevada  
 LOGGED BY JEF, SLR (Hydro-Search)  
 PROJECT 1445-80 Shallow Aquifer Drilling  
MX Project FY80

DEPTH	PENE. RATE	CIRC. CUTTINGS	AIRLIFT (ppm)	MATERIAL	DESCRIPTION and COMMENTS
160	42m				SAND (160-170) ( ) dk gray brn (w. 10% $Fe_2O_3$ ) (d 10 $\mu$ ) $^{5/2}$ except gravel upto 2mm; ang chips; med. $HCl$ rxn
170	27m				SAND (170-180) ( ) dk gray brn (w. 10% $Fe_2O_3$ ) (d 10 $\mu$ ) $^{5/2}$ f sd to med sd (60% carb, 20% $Q_2$ , 10% volc, 10% minor constituents); ws; sd - ang to med; n.p.; not sticky; not calc; $HCl$ rxn mild $HCl$ rxn; NOTE - LACK OF COARSE SAND
180	31m				SAND (180-190) ( ) dk gray brn (w. 10% $Fe_2O_3$ ) (d 10 $\mu$ ) $^{5/2}$ med sd to cs sand 100% (50% carb, 20% $Q_2$ , 20% volc, 10% r. constituents) m.s.; sd - ang to med; streakless; n.p. not sticky; not cons; mild $HCl$ rxn NOTE COARSER THAN ABOVE BUT NO GRAVEL
190	34m				SAND w/ some GRAVEL (190-200) ( ) dk gray brn (w. 10% $Fe_2O_3$ ) (d 10 $\mu$ ) $^{5/2}$ med sd to coarse 85% (60% carb, 20% $Q_2$ , 15% volc, 15% minor constituents) gravel 15% to 16mm (70% carb, 10% $Q_2$ , 10% volc, 10% minor constituents) sd - ang to sub med; gravel - very ang to sub med; streakless; n.p. not sticky; not calc; med. $HCl$ rxn; ang chips may incl. $HCl$ rxn
200	47m				SAND (200-210) ( ) dk gray brn (w. 10% $Fe_2O_3$ ) (d 10 $\mu$ ) $^{5/2}$ med sd to cs sd 100% (50% carb, 20% $Q_2$ , 10% volc, 10% minor constituents) m.s.; sd - ang to med; streakless; n.p.; not sticky; med $HCl$ rxn
210	43m				SAND (210-220) ( ) same as above
220	34m				SAND (220-230) ( ) same as above except material generally finer f sd to med sd
230					SAND (230-240) ( ) same as above except sd - f sd to med sd (60% carb, 20% $Q_2$ , 10% volc, 10% minor constituents)

# LOG OF BOREHOLE

BOREHOLE HC-5-0-2

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RECORDS 1/21/80  
 IN 5,500 ft.  
 TOTAL DEPTH 455 ft.  
 BOREHOLE DIAM. 9 7/8 in.

START DATE 9/6/80 FINISH DATE 9/7/80  
 TIME 1300 1555  
 GEOPHYS. LOG  YES  NO  
 HOW LEFT CASED

DEPTH	DESCRIPTION	REMARKS and COMMENTS
260'	SAND (260-265')	same as above
275'	SAND (265-270')	same as above except for to ss (50% carb, 20% Qz, 10% mica, 10% amorph. const)
375'	SAND (270-280')	same as above
385'	SAND (280-290')	same as above except (40% carb, 20% Qz, 10% mica, 10% amorph. const)
395'	SAND (290-300')	gry brn (w/lyr) (40% carb, 20% Qz, 10% mica, 10% amorph. const) (40% carb, 40% Qz, 10% mica, 10% amorph. const); gvl to 8 in
395'	SAND (290-300')	same as above
395'	SAND (300-310')	gry brn (w/lyr) (40% carb, 20% Qz, 10% mica, 10% amorph. const); gvl to 8 in
395'	SAND (310-320')	same as above

LOGGED BY: JEP/ELR

# LOG OF BOREHOLE

BOREHOLE HC-S-0-2  
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LOC. or COORDS. <u>T6N, R50E, sec 27 ac</u>  GROUND ELEV. <u>5,522 ft.</u> TOTAL DEPTH <u>455 ft.</u> BOREHOLE DIAM. <u>9 7/8 inch</u>	DRILLER <u>DEAN MITCHELL</u>  RIG <u>CP RT -1800</u> BIT(S) <u>9 7/8 inch TRICONE</u> FLUID <u>BENTONITE</u>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">START DATE <u>9/6/80</u></td> <td style="width: 50%;">FINISH DATE <u>9/7/80</u></td> </tr> <tr> <td>TIME <u>1300</u></td> <td><u>1555</u></td> </tr> <tr> <td colspan="2">GEOPHYS. LOG <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO</td> </tr> <tr> <td colspan="2">HOW LEFT <u>CASED</u></td> </tr> </table>	START DATE <u>9/6/80</u>	FINISH DATE <u>9/7/80</u>	TIME <u>1300</u>	<u>1555</u>	GEOPHYS. LOG <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		HOW LEFT <u>CASED</u>	
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LOCATION LOGGED BY

PROJECT

DEPTH	PENE RATE	CIRC RET LOSS	AIRLIFT (gpm)	MATERIAL	SYM-BOL	DESCRIPTION and COMMENTS
320	20min					SILTY SAND w/ some GRAVEL (320-335) (w/ 10yr 1/3) (d 10yr 1/3) silt 20%; f to c ssd 60% (50% carb 30% Qz, 10% volc, 10% minor const) gul to 17mm 20% (60% carb, 20% 20% minor const) p.s.; sd-sub ang to end; gul-ang to sub-rnd; structureless; n.p.; sl. stky; no consol; mild HCl rxn; ang chips may ind. fldr presence.
330	2 1/2 in					SILTY SHALE CLAY w/ very GRAVEL (330-340) (w/ 10yr 1/4) (d 10yr 1/4) clay 50%; silt 13%; f to m sd (60% carb, 20% Qz, 10% volc, 10% minor const); gul to 9mm (70% carb, 20% volc, 10% minor const); p.s.; sd-sub ang to end; gul-ang to sub-rnd; structureless; plastic; stky; no consol no HCl rxn
340	23min					SILTY SAND w/ some GRAVEL same as (325-330) except no HCl rxn and silt 20%, f to c ssd 55%, gul 2 NOTE: high % of coarse sand included in 55%
350	15min					SILTY SAND w/ some GRAVEL (350-360) (w/ 10yr 1/2) (d 10yr 1/2) same as above except silt 20%, f to c ssd 75%, gul 15%
360	20min					SAND w/ some GRAVEL (360-370) (w/ 10yr 1/2) (d 10yr 1/2) med to c ssd 85% (65% carb, 15% Qz, 10% volc, 10% minor const) gul to 13mm (70% carb, 10% Qz, 10% volc, 10% minor const); n.s.; sd-sub ang to end; gul-ang to sub-rnd; structureless; n.p.; not stky; no consol; mild HCl rxn; ang chips may ind. fldr presence.
370	10min					SAND w/ some GRAVEL (370-380) (w/ 10yr 1/2) (d 10yr 1/2) same as above
380	2 1/2 min					SILTY CLAY SAND w/ some GRAVEL (380-390) (w/ 10yr 1/3) (d 10yr 1/3) clay 15%; silt 20%; f to c ssd 55% (60% carb, 20% Qz, 10% volc, 10% minor const) gul to 13mm (50% carb, 30% Qz, 10% volc, 10% minor const); p.s.; sd-sub ang to end; gul-ang to sub-rnd; structureless; n.p.; sl. stky; no consol; mild HCl rxn; ang chips may ind. fldr presence.
390	19min					SILTY CLAY SAND w/ some GRAVEL (390-400) (w/ 10yr 1/3) (d 10yr 1/3) same as above
400						

# LOG OF BOREHOLE

BOREHOLE HC-S-0-2

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LOC. or COORDS. <u>TG, R50E, sec 27ac</u> GROUND ELEV. <u>5,522'</u> TOTAL DEPTH <u>455'</u> BOREHOLE DIAM. <u>9 7/8"</u>	DRILLER <u>DEAN MITCHELL</u> RIG <u>CP - RT 1800</u> BIT(S) <u>9 7/8" TRICONE</u> FLUID <u>BENTONITE</u>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">START DATE <u>9/6/80</u></td> <td style="width: 50%;">FINISH DATE <u>9/7/80</u></td> </tr> <tr> <td>TIME <u>1300</u></td> <td><u>1555</u></td> </tr> <tr> <td colspan="2">GEOPHYS. LOG <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO</td> </tr> <tr> <td colspan="2">HOW LEFT <u>CASED</u></td> </tr> </table>	START DATE <u>9/6/80</u>	FINISH DATE <u>9/7/80</u>	TIME <u>1300</u>	<u>1555</u>	GEOPHYS. LOG <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		HOW LEFT <u>CASED</u>	
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PROJECT 1243-80 SHALLOW AQUIFER DRILLING  
 LOCATION HOT CREEK VALLEY  
 LOGGED BY JEP SLP (HYDROSEARCH)  
 MX PROJECT FY80

DEPTH	PENE. RATE	CIRC. RET. LOSS	AIRLIFT Q (gpm)	MATERIAL	SYM-BOL	DESCRIPTION and COMMENTS
400	16min					SAND w some GRAVEL (400-410) ( ) same as above except: sd 85% (60% ss, 20% Gz, 20% mn crust); gvl 13mm 15% (70% carb, 10% Gz, 20% mn crust); p. s; sd - suborg to rd; gvl - ang to subrd; n.p; not sticky; no. concol; mild HCl sol.
410	11min					SAND w very little GRAVEL (410-420) ( ) same as above except: sd 98%; gvl 2% to 10mm
420	13min					SAND w very little GRAVEL (420-430) ( ) same as above
430	21min					SAND w some GRAVEL (430-440) ( ) same as above except: sd 83%; gvl to 4mm 13% (52% carb, 30% Gz, 20% mn crust)
440	24min					SAND w very little GRAVEL (440-450) ( ) same as above except: sd 98%; gvl 2% to 8mm
450						