

WELL CONSTRUCTION SUMMARY

GL04867

LOCATION or COORDS: SPRING VALLEY, NV.
T9N. R68E. SEC. 30 AB (NE 1/4 NW 1/4)

ELEVATION: GROUND LEVEL _____
 TOP OF CASING 1.35' ABOVE GL.

DRILLING SUMMARY:

TOTAL DEPTH 710 ft.
 BOREHOLE DIAMETER 12 1/4" (0-710')
26" (0-39.2') ; 17 1/2" (39.2-707')
 DRILLER DEAN MITCHELL
NORTHWEST AIR DRILLING & DEVELOPMENT
OGDEN, UTAH
 RIG CHICAGO PNEUMATIC RT-1800
 BIT(S) 12 1/4" - TRICONE (MILLTOOTH)
26" & 17 1/2" - TRICONE REAMER (MILLTOOTH)
 DRILLING FLUID BENTONITE
 SURFACE CASING 39.2' OF 22 3/4" O.D. PIPE

WELL DESIGN:

BASIS: GEOLOGIC LOG GEOPHYSICAL LOG
 CASING STRING(S): C=CASING S=SCREEN

<u>+1.35 - 539</u>	<u>C1</u>		
<u>539 - 679</u>	<u>S1</u>		
<u>679 - 699</u>	<u>C1</u>		

CASING: C1 12 3/4" O.D. BLANK STEEL PIPE
 C2 _____
 C3 _____
 C4 _____
 SCREEN: S1 10" I.D. JOHNSON WELL SCREEN
 S2 _____
 S3 _____
 S4 _____

CENTRALIZERS NONE

FILTER MATERIAL #3-12 WASH SAND - (459-699')
1/4" - 1/2" PEA GRAVEL - (80-459')

CEMENT CEMENT & BENTONITE (10:1) - (0-15')
CEMENT, BENTONITE & SAND (MIXTURE) - (15-80')

OTHER SCUMMING TUBE - 24" O.D. BLANK
STEEL PIPE (? - 685')

CONSTRUCTION TIME LOG:

TASK	START		FINISH	
	DATE	TIME	DATE	TIME
DRILLING:				
<u>0-670' (12 1/4")</u>	<u>8-3-80</u>	<u>0810</u>	<u>8-4-80</u>	<u>1120</u>
<u>0-90' (17 1/2")</u>	<u>8-5-80</u>	<u>1125</u>	<u>8-5-80</u>	<u>1410</u>
<u>90-710' (17 1/2")</u>	<u>8-6-80</u>	<u>2230</u>	<u>8-7-80</u>	<u>1045</u>
GEOPHYS. LOGGING:	<u>8-4-80</u>	<u>1315</u>	<u>8-4-80</u>	<u>1715</u>
CASING:				
<u>617-699'</u>	<u>8-7-80</u>	<u>1845</u>	<u>8-7-80</u>	<u>2100</u>
<u>+1.35-619'</u>	<u>8-8-80</u>	<u>0730</u>	<u>8-8-80</u>	<u>1250</u>
FILTER PLACEMENT:	<u>8-14-80</u>	<u>1030</u>	<u>8-14-80</u>	<u>2311</u>
CEMENTING:	<u>8-15-80</u>	<u>0930</u>	<u>8-15-80</u>	<u>1930</u>
DEVELOPMENT:	<u>8-15-80</u>	<u>0100</u>	<u>8-15-80</u>	<u>0645</u>
OTHER:				

WELL DEVELOPMENT

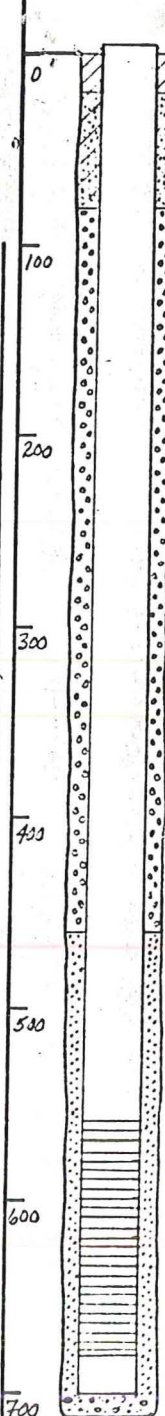
CIRCULATE CLEAN WATER INTO BOREHOLE TO BREAK
DOWN MUD WALL CAKE & THIN MUD WHILE IN-
STALLING SAND AND GRAVEL.
AIRLIFT WITH DRILL BIT MOVING OPPOSITE
ENTIRE SCREENED INTERVAL.

COMMENTS:

DRILLED TO 710' TO INSURE 700' OF CLEAN
HOLE AFTER REAMING.
BOREHOLE DID NOT ACCEPT ESTIMATED VOLUME
OF GRAVEL PACK. GROUT SEAL NOT INSTALLED
BETWEEN 8-12 SAND AND PEA GRAVEL OR AT
SURFACE DUE TO POTENTIAL EXCESSIVE SET-
TILING OF GRAVEL PACK DURING AIRLIFT
DEVELOPMENT.
GRAVEL PACK DROPPED 65' DURING AIRLIFTING.
IT MAY DROP MORE DURING FURTHER DEV-
ELOPMENT AND TESTING.

LOCATION SPRING VALLEY, NEVADA
 PERSONNEL MLB, MKV

PROJECT MX (1243-80)
FLUOR NATIONAL, INC.



LOG OF BOREHOLE

BOREHOLE SP-S-T-1

PAGE 2 OF 9

LOC. or COORDS. <u>SPRING Valley</u> <hr/> GROUND ELEV. _____ TOTAL DEPTH _____ BOREHOLE DIAM. _____	DRILLER _____ <hr/> RIG _____ BIT(S) _____ FLUID _____	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">START</td> <td style="text-align: center;">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 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 type="checkbox"/> YES <input type="checkbox"/> NO		HOW LEFT _____	
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LOCATION LOGGED BY

PROJECT

DEPTH	PENE. RATE	CIRC. RET. LOSS	AIRLIFT Q (gpm)	MATERIAL	SYM-BOL	DESCRIPTION and COMMENTS
80ft				SAND		SAND (80'-90') () <u>GRAVEL (1/4" - 1/2") (15% max)</u> 6/4) SAT - 5% F-MED SD - 95% (GRIT 240-850, 0.15" WS, SD - ANG. to SURFMD, STRUCTLESS, N.P., NO STRY NO CAUSEL, 10K HCL EXN.
90ft				SAND		SAND (90'-100') () SAME AS ABOVE
100ft				SAND		SAND (100'-110') () SAME AS ABOVE EXCEPTION: TR CS SD (1-2% max)
110ft				SAND		SAND (110'-120') () SAME AS ABOVE
120ft				SAND		SAND (120'-130') () SAME AS ABOVE EXCEPTION: CS SD MISSING
130ft				SAND		SAND (130'-140') () SAME AS ABOVE EXCEPTION: CS SD RE APPEAR (1-2% max) 1-2% (10pc)
140ft				SAND		SAND (140'-150') () SAME AS ABOVE
150ft				SAND		SAND (150'-160') () SAME AS ABOVE EXCEPTION: CS SD MISSING

LOG OF BOREHOLE

BOREHOLE SP-1-1
PAGE 3 OF 9

LOC. or COORDS. <u>SPRING VALLEY</u> <hr/> GROUND ELEV. _____ TOTAL DEPTH _____ BOREHOLE DIAM. _____	DRILLER _____ <hr/> RIG _____ BIT(S) _____ FLUID _____	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center;">START</td> <td style="width: 50%; text-align: center;">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 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 type="checkbox"/> YES <input type="checkbox"/> NO		HOW LEFT _____	
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LOCATION LOGGED BY

PROJECT

DEPTH	PENE. RATE	CIRC. RET.	AIRLIFT LOSS	AIRLIFT Q (gpm)	MATERIAL	SYM-BOL	DESCRIPTION and COMMENTS
160ft					SAND		SAND (160'-170') () DEBR (w/ SYR 4A) BRN (d 7.5 yk (6/4) 24-5% F-Med sd-95% (GR FRAG 85%, Q=15%, TR (HRB), WS, sd-AMB to SUPER. STRICKLESS, N.P., No STKY, No CONSOL. LUK HO RXN.
170ft					SAND		SAND (170'-180') () SAME AS ABOVE
180ft					SAND		SAND (180'-190') () SAME AS ABOVE
190ft					SAND		SAND (190'-200') () SAME AS ABOVE
200ft					SAND		SAND (200'-210') () SAME AS ABOVE
210ft					SAND		SAND (210'-220') () SAME AS ABOVE
220ft					SAND		SAND (220'-230') () SAME AS ABOVE
230ft					SAND		SAND (230'-240') () SAME AS ABOVE
240ft					SAND		SAND (240'-250') () SAME AS ABOVE

LOG OF BOREHOLE

LOC. or COORDS. <u>CRINI-Valley</u> GROUND ELEV. _____ TOTAL DEPTH _____ BOREHOLE DIAM. _____	DRILLER _____ RIG _____ BIT(S) _____ FLUID _____	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center;">START</td> <td style="width: 50%; text-align: center;">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 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 type="checkbox"/> YES <input type="checkbox"/> NO		HOW LEFT _____	
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LOCATION LOGGED BY

PROJECT

DEPTH	PENE. RATE	CIRC. RET. LOSS	AIRLIFT Q (gpm)	MATERIAL	SYM-BOL	DESCRIPTION and COMMENTS
240 ft				SAND		SAND (240'-250') () LK BRN (w 7.5yr 4A) BAN (d 7.5yr 6A) Slt-5%, f-Med sd-95% (LP-FIN 80%, 100%) WS, SD-ANG TO SOREND, STRICKS, N.P., No stky, No Consol, LK HCL RXN.
250 ft				SAND		SAND (250'-260') () SAME AS ABOVE
260 ft				SAND		SAND (260'-270') () SAME AS ABOVE
270 ft				SAND		SAND (270'-280') () SAME AS ABOVE
280 ft				SAND		SAND (280'-290') () SAME AS ABOVE
290 ft				SAND		SAND (290'-300') () SAME AS ABOVE
300 ft				SAND		SAND (300'-310') () SAME AS ABOVE
310 ft				SAND		SAND (310'-320') () SAME AS ABOVE
320 ft				SAND		SAND (320'-330') () SAME AS ABOVE

LOG OF BOREHOLE

BOREHOLE SP-5-T-1

PAGE 5 OF 9

LOC. or COORDS. <u>SPRING VALLEY</u> GROUND ELEV. _____ TOTAL DEPTH _____ BOREHOLE DIAM. _____	DRILLER _____ RIG _____ BIT(S) _____ FLUID _____	START _____ FINISH _____ DATE _____ TIME _____ GEOPHYS. LOG _____ YES _____ NO _____ HOW LEFT _____
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DEPTH	PENE. RATE	CIRC. RET. LOSS	AIRLIFT Q (gpm)	MATERIAL	SYM-BOL	DESCRIPTION and COMMENTS
300'H				SAND		SAND (300'-330') () DEEPEN (117.5YR 4/4) BRN (17.5YR 6/4); 31.5% F-MCD SD - 95% (GRATIC 90% (No 10%) W.S. SD-ANG 1/2 SUEWAL STRUCTLESS, N.P., No SKY, No CONSOLE, 10K H2 RXN.
330'H				SAND		SAND (330'-340') () SAME AS ABOVE
340'H				SAND		SAND (340'-350') () SAME AS ABOVE
350'H				SAND		SAND (350'-360') () SAME AS ABOVE
360'H				SAND		SAND (360'-370') () SAME AS ABOVE
370'H				SAND		SAND (370'-380') () SAME AS ABOVE
380'H				SAND		SAND (380'-390') () SAME AS ABOVE
390'H				SAND		SAND (390'-400') () SAME AS ABOVE
400'H				SAND		SAND (400'-410') () SAME AS ABOVE

LOCATION LOGGED BY

PROJECT

LOG OF BOREHOLE

BOREHOLE P-6-T-1
PAGE 6 OF 9

LOC. or COORDS. <u>CAPRINI VALLEY</u> GROUND ELEV. _____ TOTAL DEPTH _____ BOREHOLE DIAM. _____	DRILLER _____ RIG _____ 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 colspan="2">TIME _____</td> </tr> <tr> <td colspan="2">GEOPHYS. LOG <input type="checkbox"/> YES <input type="checkbox"/> NO</td> </tr> <tr> <td colspan="2">HOW LEFT _____</td> </tr> </table>	START	FINISH	DATE _____	DATE _____	TIME _____		GEOPHYS. LOG <input type="checkbox"/> YES <input type="checkbox"/> NO		HOW LEFT _____	
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LOCATION LOGGED BY

PROJECT

DEPTH	PENE. RATE	CIRC. RET.	LOSS	AIRLIFT Q (gpm)	MATERIAL	SYM-BOL	DESCRIPTION and COMMENTS
400 ft					SAND		SAND (400'-410') () DKRN (7.5% R 4/4) BK. (d 7.5% 6/4), SPT 50, F-MED SD - 95% (GR FRAC 90%, 2/10%), 1/2", SD - ANGLE SUBRND, GRUCLSS, N.P., NO STRY, NO CONCL, VWK HEL AX
410 ft					SAND		SAND (410'-420') () SAME AS ABOVE
420 ft					SAND		SAND (420'-430') () SAME AS ABOVE EXCEPTION: TR. CL SD
430 ft					SAND		SAND (430'-440') () SAME AS ABOVE
440 ft					SAND		SAND (440'-450') () SAME AS ABOVE EXCEPTION: TR. CL SD MULLING
450 ft					SAND		SAND (450'-460') () SAME AS ABOVE EXCEPTION: TR. CL SD
460 ft					SAND		SAND (460'-470') () SAME AS ABOVE EXCEPTION: TR. CL
470 ft					SAND		SAND (470'-480') () SAME AS ABOVE
480 ft					SAND		SAND (480'-490') () SAME AS ABOVE

LOG OF BOREHOLE

LOC. or COORDS. <u>SPRING VALLEY</u> _____ GROUND ELEV. _____ TOTAL DEPTH _____ BOREHOLE DIAM. _____	DRILLER _____ _____ RIG _____ 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>_____</td> </tr> <tr> <td>TIME _____</td> <td>_____</td> </tr> <tr> <td colspan="2">GEOPHYS. LOG <input type="checkbox"/> YES <input type="checkbox"/> NO</td> </tr> <tr> <td colspan="2">HOW LEFT _____</td> </tr> </table>	START _____	FINISH _____	DATE _____	_____	TIME _____	_____	GEOPHYS. LOG <input type="checkbox"/> YES <input type="checkbox"/> NO		HOW LEFT _____	
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LOCATION LOGGED BY

PROJECT

DEPTH	PENE RATE	CIRC RET LOSS	AIRLIFT Q (gpm)	MATERIAL	SYM BOL	DESCRIPTION and COMMENTS
480ft				SAND		SAND (480'-490') () OK BENTONITE (7.5 YR 44) (d 7.5 YR 6/4), SILT-5%, F-Med sd-95% (GR FRAG 70%, Q ₃ 10%) TR CS SD, WS, SD-ANGLIC SUBRND, N.P., NO STKY, NO CONSOL, VICK HEL RYN.
490ft				SAND		SAND (490'-500') () SAME AS ABOVE
500ft				SAND		SAND (500'-510') () SAME AS ABOVE
510ft				SAND		SAND (510'-520') () SAME AS ABOVE
520ft				SAND		SAND (520'-530') () SAME AS ABOVE
530ft				SAND		SAND (530'-540') () SAME AS ABOVE
540ft				SAND		SAND (540'-550') () SAME AS ABOVE
550ft				SAND		SAND (550'-560') () SAME AS ABOVE
560ft				SAND		SAND (560'-570') () SAME AS ABOVE

LOG OF BOREHOLE

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LOCATION LOGGED BY _____

PROJECT _____

DEPTH	PENE. RATE	CIRC. RET. LOSS	AIRLIFT Q (gpm)	MATERIAL	SYM. BOL	DESCRIPTION and COMMENTS
560ft				SAND		SAND (560'-570') () ppm (w 7.5% clay) L.P. (2.75% R 6/4) 47-5% F - Med. sd - 95% (Cl. Frag 85%, G. 10%, C. 5%) TR 6% (100% OR FINE) WS - sd - ANG to SUBRNL, N.P., NO STKY. NO CONSOL., MOD. HCl RYN
570ft				SAND		SAND (570'-580') () SAME AS ABOVE EXCLUSION: CARB SD - TR
580ft				SAND		SAND (580'-590') () SAME AS ABOVE
590ft				SAND		SAND (590'-600') () SAME AS ABOVE
600ft				SAND		SAND (600'-610') () SAME AS ABOVE EXCLUSION: TR - 1/2 - G.
610ft				SAND		SAND (610'-620') () SAME AS ABOVE
620ft				SAND		SAND (620'-630') () SAME AS ABOVE
630ft				SAND		SAND (630'-640') () SAME AS ABOVE

LOG OF BOREHOLE

LOC. or COORDS. <u>DRINK VALLEY</u> <hr/> GROUND ELEV. _____ TOTAL DEPTH _____ BOREHOLE DIAM. _____	DRILLER _____ <hr/> RIG _____ 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>_____</td> </tr> <tr> <td>TIME _____</td> <td>_____</td> </tr> <tr> <td colspan="2">GEOPHYS. LOG <input type="checkbox"/> YES <input type="checkbox"/> NO</td> </tr> <tr> <td colspan="2">HOW LEFT _____</td> </tr> </table>	START	FINISH	DATE _____	_____	TIME _____	_____	GEOPHYS. LOG <input type="checkbox"/> YES <input type="checkbox"/> NO		HOW LEFT _____	
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LOCATION LOGGED BY

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DEPTH	PENE. RATE	CIRC. RET. LOSS	AIRLIFT Q (gpm)	MATERIAL	SYMBOL	DESCRIPTION and COMMENTS
640ft				SAND		SAND (640'-650') () BEN (w/ 7.5 YR 4/4) LT LEN (w/ 7.5 YR 6/4) SLT-5%, F-MED SD-95% (GR FINE 85% Q, 15%) US. SD-ANG TO SOIL SAND, N.P., NO STKY. NO CONSOL., V. WK HCl RXN.
650ft				SAND		SAND (650'-660') () SAME AS ABOVE
660ft				SAND		SAND (660'-670') () SAME AS ABOVE EXCEPTION: SD-5% CARB
670ft				SAND		SAND (670'-680') () SAME AS ABOVE
680ft				SAND		SAND (680'-690') () SAME AS ABOVE EXCEPTION: CARB SD = 2%
690ft				SAND		SAND (690'-700') () SAME AS ABOVE
700ft				SAND		SAND (700'-710') SAME AS ABOVE
710ft						