REDBOOK SUMMARY

HOLE NAME **Water Well #4** STA. SEQ. NO. 10950
AREA 06 **GROUND ELEV.** 3603 FT
NORTHING 784,999 **LAT** 36.904912 **START** 10/22/81 **HOLE TYPE** WL POT
EASTING 687,900 **LONG** -116.024865 **COMP.** 11/23/81 **STATUS** ACTIVE

BOREHOLE SEGMENTS

Segment Name	Top	Bottom	Diameter	Start	Comp.
	0	1479 FT	20 IN		

CONSTRUCTION OBJECTS

Construction Object	Top	Bottom	Diameter
CASING	0	1438 FT	13.375 IN

COMMENTS: Pump hung at 1353' on 5-1/2" casing, 8-30-89. 20040209 - Saved for environmental monitoring, potable water.

This document has been reviewed by a DC/RO and has been determined to be UNCLASSIFIED, not UCNI, and contains no CUI based on current classification guidance. This review does not constitute a review for CUI outside of classification guidance.
Name: Lani Fellows
Date: 2/13/2026
NNSS eDC/RO ID: 86871

This document has been reviewed by a DC/RO and has been determined to be UNCLASSIFIED, not UCNI, and contains no CUI based on current classification guidance. This review does not constitute a review for CUI outside of classification guidance.
Name: Margaret Townsend
Date: 9/22/2025
NNSS eDC/RO ID: 73522

REVISION #1: June 7, 1982
Corrected Coordinates

FENIX & SCISSON, INC.
HOLE HISTORY DATA

DATE: March 2, 1982

APPROVED: [signature]

E NO.: Water Well #4	W. O. NO.: 4049-104		I. D. NO.:
USER: DOE	TYPE HOLE: Water Well		
LOCATION NTS	COUNTY: Nye	AREA: 6	
SURFACE COORDINATES: N 784,999.41' - E 687,899.86'			
GROUND ELEVATION: 3601.5'	PAD ELEVATION:	TOP CASING ELEVATION:	
RIG ON LOCATION:	SPUDDED: 10-22-81	COMPLETED: 11-23-81	
CIRCULATING MEDIA: Air foam			
MAIN RIG & CONTRACTOR Ideco #37 - REECo		NO. OF COMPRESSORS & CAPACITY:	

BORE HOLE RECORD			CASING RECORD							
FROM	TO	SIZE	I. D.	WT./FT.	WALL	GRADE	CPL'G.	FROM	TO	CU. FT. CMT.
0'	115'	36"	30"		5/16"			0'	112'	400
115'	636.5'	26"								
636.5'	1479'	20"	12.615"	54.50#				0'	1438'	*

TOTAL DEPTH: 1479' GL | AVERAGE MANDREL DEPTH: | FROM REFERENCE ELEVATION @

JUNK & PLUGS LEFT IN HOLE:

SURVEYS PAGE: | CORING PAGE: | CU. FT. CMT. TOTAL IN PLUGS, ETC:

LOGGING DATA: Collar locator, Caliper (2), Fluid Density (2), Magnetometer,**

BOTTOM HOLE COORDINATES: | REFERENCE:

RIGS USED *(Site Prep Rigs *)*

RIG NO.	NAME	TYPE	CLASS	DAYS OPERATING	SECURED W CREW	SECURED W/O CREW	TOTAL DAYS ON LOC.
85134	Auger #2	Williams LL DH-120	VIII	.52	0	.65	1.17
85116	Ideco #37	H-37	III	28.62	0	1.38	30.00

REMARKS: * *Site Prep Items*

* Annulus stemmed to 898' with 1296 ft^3 of pea gravel.

** Electric, Gamma ray, NCTL (2)

PREPARED BY:

TIME BREAKDOWN ON NEXT PAGE

W.W. #4
Area 6

TIME BREAKDOWN

SITE PREPARATION

DRILLING OPERATION TIME (DOT)		OTHER SCHEDULED TIME (OST)		OPERATIONAL DELAY TIME (ODT)	
DRILL		MOVE		RIG REPAIRS	
TRIPS		RUN CASING		W. O. DRILLING SUPPLIES	
SURVEYS		CEMENT CASING		CLEAN OUT FILL	
				SECURED WITH CREWS	
SITE DOT ____ DAYS		SITE OST ____ DAYS		SITE ODT ____	

TOTAL SITE PREP TIME ____ DAYS REMARKS:

MAIN HOLE CONSTRUCTION

DRILLING OPERATION TIME (DOT)		OTHER SCHEDULED TIME (OST)		OPERATIONAL DELAY TIME (ODT)	
DRILL	6.19	MOBILIZATION & DEMOBILIZATION	5.62	RIG REPAIRS	1.29
TRIPS	1.92	CORE		W. O. EQUIPMENT	1.14
DRESS DRILLING ASSEMBLY		LOG	.90	FISH	2.21
SINGLE SHOT DEV. SURVEYS	.19	CASED HOLE DIR. SURVEYS		CLEAN OUT FILL	1.17
OPEN HOLE	1.12	UNLOAD HOLE	1.42	UNLOAD WATER INFLOW	
Trips	.94	RUN MANDREL		REAM CROOKED HOLE	
		HYDROLOGICAL TESTS	.50	PLUG BACK	
		Run Pump	1.42	DRILL OUT PLUGS	
MAIN HOLE DOT 10.36 DAYS				SECURED WITH CREWS	
				Stuck Drill Pipe	.54
				Pull Casing	.37
MAIN HOLE OST 9.86 DAYS				MAIN HOLE ODT 6.72 DAYS	

CASING OPERATION TIME (COT)			
RUN ____	CASING	1.87	
RUN ____	CASING		
CEMENT ____	CASING	.06	
CEMENT ____	CASING		
DRILL OUT SHOE		.13	
Stem Annulus		.23	
MAIN HOLE COT 2.29 DAYS			

TOTAL MAIN HOLE CONST. TIME 29.23 DAYS REMARKS:

TOTAL ELAPSED TIME

TOTAL SITE PREP TIME	____ DAYS	REMARKS:
TOTAL MAIN HOLE CONST. TIME	29.23 DAYS	
SEC. W/O CREW SITE PREP	____ DAYS	
SEC. W/O CREW MAIN HOLE CONST.	2.02 DAYS	
TOTAL SUSPENDED (NO RIG)	.90 DAYS	
TOTAL ELAPSED TIME	32.15 DAYS	

WATER WELL #4
Area 6
HOLE HISTORY

10-22-81 Moved in Auger #2, rig #85134 and rigged up. Drilled 36" hole from 0' to 61'.

10-23-81 Moved in Portadrill rig #85122 and rigged up. Drilled four 12-1/4" anchor holes to 10' and set anchors. Rigged down and moved out. Drilled 36" hole from 61' to 115'. Rigged down and moved out Auger rig. Ran and set 30" I.D., 5/16" wall casing at 112.27' using a crane. Hole suspended at 1830 hours.

10-24-81 Hole suspended from 10-23-81 to 1400 hours. Cemented the annulus using National Cementers as follows:

Stage No.	Interval	Cement Used-Ft^3		Calc.-Ft^3	CIP
1	115' - 107'	50	75% neat & 25% gypsum cement	57	1405 hours
2	107' - 21'	300	"	239	1650 "
3	21' - 0'	50	"	58	1740 "
	Totals	400 Ft^3		354 Ft^3	

Started moving in equipment.

10-25-81 Moved in equipment and Ideco #37, rig #85116. Started rigging up.

10-26-81 Continued rigging up.

10-27-81 Rigged up, drilled 12-1/2" rat and 10-5/8" mouse hole using Dyna-Drill and set pipe. Waited on drilling equipment.

10-28-81 Rigged up. Cleaned out cement and hole from 109' to 115'. Drilled 26" hole from 115' to 397' with conventional circulation using air foam.

10-29-81 Drilled 26" hole from 397' to 537'. Made trip out, orders changed. Made trip in.

10-30-81 Drilled 26" hole from 537' to 560'. Made trip for bit change at 545'.

10-31-81 Drilled 26" hole from 560' to 597'. Repaired rig equipment from 0830 hours to 2200 hours. Cleaned out 8' fill to 597'.

11-01-81 Attempted to drill 26" hole, tools kept torquing. Made trip out, left bit and stabilizer in the hole. Made trip in with overshot. Latched onto fish at 585'. Fish came free with 110,000# pull and made trip out.

11-02-81 Broke and laid down fishing tools and fish. Made up drilling assembly and started in the hole.

11-03-81 Made trip in. Drilled 26" hole from 597' to 636.5'. Made trip out for 17-1/2" drilling assembly.

11-04-81 Made trip in with 17-1/2" bit on 6-5/8" drill pipe. Drilled 17-1/2" hole from 636.5' to 652' using air foam and polymer. Made trip for bit change.

11-05-81 Drilled 17-1/2" hole from 652' to 930'.

11-06-81 Drilled 17-1/2" hole from 930' to 1093', hole water inflow between 941' and 971'. Cleaned out 15' fill at 941', 12' fill at 971', 11' fill at 1003', 4' fill at 1034' and 10' fill at 1065'.

11-07-81 Drilled 17-1/2" hole from 1093' to 1359'. Cleaned out 30' fill at 1097' and 25' fill at 1342'.

11-08-81 Drilled 17-1/2" hole from 1359' to 1466'. Worked stuck drill pipe up 30', pipe stopped. Ran Birdwell collar locator log to 1418'. Ran and shot Birdwell string shot (6' of 800 grain per ft. primacord) at 1350'. Laid down five 7-3/4" drill collars. Made up fishing tools and jars.

11-09-81 Made trip in, cleaned out bridge at 1203' and fill from 1291' to top of fish at 1350.78'. Washed over fish and made trip out. Laid down fishing tools and fish. Ran Birdwell caliper log to fill at 1360'. Ran fluid density log, checked fluid level at 890'. Waited on orders.

11-10-81 Made up 20" hole opener. Made trip in and opened 17-1/2" hole to 20" from 636.5' to 793.67' using air foam. Pulled tools up into 30" casing and secured rig at 2400 hours.

11-12-81 Rig secured from 11-10-81 to 0900 hours, 11-12-81. Made trip in and opened 17-1/2" hole to 20" from 794' to 1203'.

11-13-81 Opened 17-1/2" hole to 20" from 1203' to 1466' and drilled 20" hole to 1479'. Conditioned hole and made trip out. Ran LLNL magnetometer using Birdwell equipment.

11-14-81 Ran electric log to 1430' T.D. Ran fluid density log to 1431' T.D., checked fluid level at 849'. Ran gamma ray and caliper logs to 1430' T.D. Started in with 20" I.D., 3/8" wall casing.

11-15-81 Set 20" casing at 636'. Installed flange and Grant rotating head on the 20" casing. Made trip in with 17-1/2" bit and cleaned out fill from 1430' to 1468'. Started out of hole.

11-16-81 Made trip out. Ran and set 13-3/8" O.D., 54.50# casing with Baker float and guide shoe on bottom at 1435.15'. Casing was slotted between 939' and 1433'. Laid down drill pipe.

11-17-81 Ran Birdwell cement top locator log to 1432'. Stemmed the annulus from 1435' to 800' with 1296 ft^3 pea gravel. Lost 800' of Halliburton monitor line and weight down the annulus. Pulled all of 20" casing.

11-18-81 Landed 13-3/8" casing on landing plate at 1438.41'. Ran Birdwell cement top locator log to fill at 1435', top of pea gravel indicated at 898'. Rigged up and made trip in with 6-5/8" drill pipe open ended to 1430'.

11-19-81 Attempted to circulate hole, air returns between 30" casing and 13-3/8" casing. Pulled up to 1125' and circulated hole using air.

11-20-81 Laid down 6-5/8" drill pipe. Rigged up to run Centrilift, model HPHS pump, overall pump length 61.74'.

11-21-81 Ran and set Centrilift pump on 5-1/2" casing, pump intake at 1373.75' and 2-3/8" Hydril monitor line at 1351.54'. Bottom joint of monitor line was slotted and orange peeled. Started pumping out water at approximately 700 gpm with fluid level at 733' using USGS monitor.

11-22-81 Continued pumping test at 700 gpm to 689 gpm. Started rigging down.

11-23-81 Moved out rig. Continued monitoring water pumping rate. Hole completed 11-23-81.

11-24-81 Continued monitoring water pumping rate.

11-25-81 Monitored water pumping rate to 0800 hours.

13-3/8" O.D., 54.50# CASING RECORD
1/4" x 8" vertical slots 3" apart in full joints.

	Joint No.	Length	Depth	Joint No.	Length	Depth
Shoe		1.80'	1.80'	19	40.11'	796.02'
	1	40.20'	42.00'	20	40.25'	836.27'
Slotted	2	40.03'	82.03'	21	40.21'	876.48'
	3	44.33'	126.36'	22	40.20'	916.68'
	4	40.02'	166.38'	23	40.16'	956.84'
Slotted	5	40.28'	206.66'	24	40.18'	997.02'
	6	44.83'	251.49'	25	40.22'	1,037.24'
Slotted	7	40.15'	291.64'	26	40.18'	1,077.42'
	8	43.55'	335.19'	27	40.11'	1,117.53'
Slotted	9	40.23'	375.42'	28	40.24'	1,157.77'
Slotted	10	40.18'	415.60'	29	40.24'	1,198.01'
Slotted	11	40.20'	455.80'	30	40.20'	1,238.21'
Slotted	12	40.17'	495.97'	31	40.20'	1,278.41'
Slotted	13	40.18'	536.15'	32	40.20'	1,318.61'
	14	44.98'	581.13'	33	40.06'	1,358.67'
	15	44.39'	625.52'	34	40.23'	1,398.90'
	16	44.36'	669.88'	35	40.18'	1,439.08'
	17	41.23'	711.11'	36	40.25'	1,479.33'
	18	44.80'	755.91'			

Water Well #4
Area 6
REVIEW OF HOLE CONDITIONS

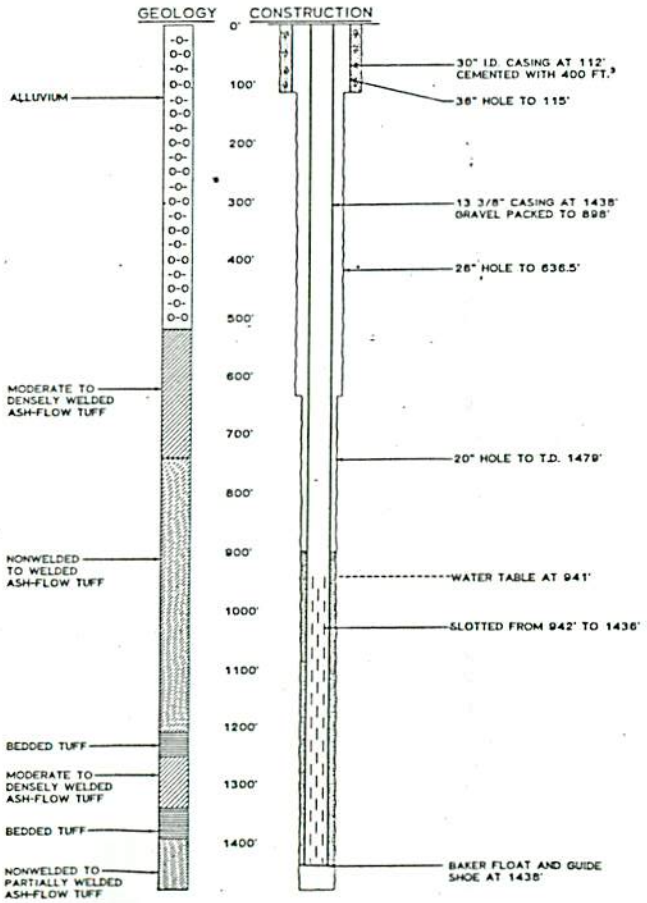
762 mm (30") casing was set at 34.1 m (112') in a 914 mm (36") hole drilled to 35.1 m (115'). The annulus was cemented to surface in 3 stages with 11.33 m^3 (400 ft^3) of cement slurry. Calculated annular volume was 10.02 m^3 (354 ft^3). 660 mm (26") hole was drilled to 194.0 m (636.5') with conventional circulation using air foam. 508 mm (20") hole was then drilled to a total depth of 450.8 m (1479'). Magnetometer, electric, fluid density, gamma ray and caliper logs were run 11-14-81. The average curve on the caliper log indicated hole enlargements beyond the maximum caliper arm length of 1.05 m (41-1/4") between 36.6 m (120') and 57.9 m (190') in the 660 mm (26") hole and up to 787 mm (31") between 292.0 m (958') and 330.7 m (1085') and 851 mm (33-1/2") at 403.9 m (1325') in the 508 mm (20") hole. 340 mm (13-3/8") casing, slotted between 274.9 m (902') and 437.7m (1436'), was set at 438.3 m (1438') and the annulus stemmed to 273.7 m (898') with 36.70 m^3 (1296 ft^3) of pea gravel. A Centrilift pump on 140 mm (5-1/2") casing was run and hung with intake at 418.8 m (1374'). 60 mm (2-3/8") monitor line was hung at 412.1 m (1352'). Hole completed 11-23-81. Water pumping rate was monitored to 11-25-81.

13-3/8" O.D., 54.50# CASING RECORD
1/4" x 8" vertical slots 3" apart in full joints.

	Joint No.	Length	Depth
			1438.41'
Shoe		1.80'	1436.61'
	1	40.20'	1396.41'
Slotted	2	40.03'	1356.38'
	3	44.33'	1312.05'
	4	40.02'	1272.03'
Slotted	5	40.28'	1231.75'
	6	44.83'	1186.92'
Slotted	7	40.15'	1146.77'
	8	43.55'	1103.22'
Slotted	9	40.23'	1062.99'
Slotted	10	40.18'	1022.81'
Slotted	11	40.20'	982.61'
Slotted	12	40.17'	942.44'
Slotted	13	40.18'	902.26'
	14	44.98'	857.28'
	15	44.39'	812.89'
	16	44.36'	768.53'
	17	41.23'	727.30'
	18	44.80'	68.50'

Joint No.	Length	Depth
19	40.11'	642.39'
20	40.25'	602.14'
21	40.21'	561.93'
22	40.20'	521.73'
23	40.16'	481.57'
24	40.18'	441.39'
25	40.22'	401.17'
26	40.18'	360.99'
27	40.11'	320.88'
28	40.24'	280.64'
29	40.24'	240.40'
30	40.20'	200.20'
31	40.20'	160.00'
32	40.20'	119.80'
33	40.06'	79.74'
34	40.23'	39.51'
35	40.18'	+ 0.67'
36	40.25'	+ 40.92'

WATER WELL NO. 4
AREA 6



LOCATION: L/O
N785,000'
E687,900'
ELEV. 3610'

PUMP TEST
DATE. 2110 HOURS 11/21/81
TO 0900 HOURS 11/25/81
PUMPING RATE TO 716 GPM (FLUCTUATING)
91' MAXIMUM DRAW DOWN
WELL IS DEVELOPING BETTER

CENTRILIFT PUMP ON 5 1/2" CASING.
PUMP INTAKE AT 1374', 11/21/81
2 3/8" HYDRIL MONITOR LINE AT 1352',
(MODEL HPHS, TYPE 37L500, SERIES 675 PUMP.)

DEVIATION	RERUN
0°30'-169'	0°0'-100'
0°30'-200'	0°0'-300'
0°15'-275'	0°30'-490'
1°0'-458'	
0°15'-600'	
0°30'-800'	
0°0'-1000'	

NO.	DATE	REVISION	BY	CHK.	A.E.	AGY.	DOE

ITEM	REQ'D	MATERIAL	DESCRIPTION	DWG. NO.

U. S. DEPARTMENT OF ENERGY
NEVADA OPERATIONS OFFICE — LAS VEGAS, NEVADA

TOLERANCES: FRACTIONS ± 1/16" · DECIMAL .00 ± .01" · .000 ± .005" · ANGULAR ± 1/2° · UNLESS OTHERWISE SPECIFIED

DRAWN B. FISHER
CHECKED
PROJ. ENGR.
SUBMITTED
AGENCY APPROVAL
APPROVED
DOE

FENIX & SCISSON, INC.
ENGINEERS AND CONTRACTORS
MERCURY, NEVADA

TITLE
WATER WELL NO. 4

DRAWING NO. M3328-02 REV.

SCALE NOT TO SCALE DATE 3/1/82 SHT. ___ OF ___

4 3 2 1

RAYTHEON SERVICES NEVADA
HOLE HISTORY DATA

Draft

Approved: _____
Date: _____

Hole No.: Water Well #4A | Type Hole: Water Supply
User: DOE/NTSO | Area: 6 | Site Prep. W.O.#: None
Location: NTS | County: Nye | W.O.#: 4068-100
Surface Coordinates: L/O N 784,350' E 686,900'
Ground Elevation: 3605.67' | Pad Elevation: N/A | Top Casing Elevation: N/A
Bottom Hole Coordinates: None @ | Reference:
Rig On Location: --------- | Spudded: 01-23-90 | Completed: 02-22-90
Circulating Media: Conventional - mud to 536' - air foam to 1516 T.D.
Main Rig & Contractor: Cardwell 500 - REECo
No. Of Compressors & Capacity: 2/CP-44

Bore Hole Record			Casing Record						
From	To	Size	I.D.	Wt/Ft	Wall	Grade	From	To	Ft³ Cmt.
0'	31'	48"	35-1/8"	166#	7/16"	N/A	0'	30'	375
31'	536'	30"	23-1/4"	94.62#	3/8"	N/A	0'	535'	995 *
536'	1516'	20-1/2"	12.615"	54.50#	0.380"	N/A	0'	1501'	Gravel **

Total Depth: 1516' | Plugs: None
Junk: None
Logging Data: Caliper (2), Electric, Density, Fluid density, Cement annular, Gamma ray, (See "Logs-Data Display" attached.)

Rigs Used

Rig No.	Name	Type	Class	Days Operating	Sec. W/Crew	Sec. W/O Crew	Total Days On Location
85134	Auger #2	Williams LL DH-120	VIII	0.92	0.00	2.06	2.98
85142	Cardwell 500	KB-500	III	18.75	0.00	9.27	28.02

Remarks: * Annulus cemented to surface in 3 stages, cement inside casing at 529'.
** 13-3/8" casing slotted between 1457' and 1066'. Annulus gravel packed to 944' with 1296 ft³ of 5/8" x 3/4" washed pea gravel.

Prepared By:MJB:llh

Reviewed By:JEC

Time Breakdown On Next Page

Water Well #4 A Area 6

TIME BREAKDOWN

MAIN HOLE CONSTRUCTION

Drilling Operation Time (DOT)		Other Scheduled Time (OST)		Operational Delay Time (ODT)	
Drill 48" Hole	0.19	Mobe & Demobe	2.38	Rig Repairs	0.73
Trips	0.83	Core Hunt SWS		W.O. Equipment	0.08
Dress Drlg. Assembly		Log	0.61	Fish	1.31
Fluid Probe		Unload Hole		Clean Out Fill	0.06
Connections		Run Mandrel		Ream Hole	
Drill 30" Hole	5.90	Hydrological Tests	0.21	Plug Back	
Drill 20-1/2" Hole	3.02	Unload Cased Hole		Drill Out Plugs	
		Rat/Mouseholes	0.23	Secured W/Crews	
Main Hole DOT 9.94	Days	Install Pump	0.81	Cond. Hole	0.06
Casing Operation Time (COT)				Dewater Hole	
Run Casing/36" O.D.	0.04				
Run Casing/24" O.D.	1.02				
Cement Casing/36"	0.08				
Cement Casing/24"	0.92				
Drill Out Cement	0.27				
Run Casing/13-3/8"	0.42				
Gravel Pack Casing	0.50				
Main Hole COT 3.25	Days	Main Hole OST 4.24	Days	Main Hole ODT 2.24	Days

TOTAL Main Hole Const. Time 19.67 Days | Remarks:

TOTAL ELAPSED TIME

TOTAL Site Prep Time	Days	Remarks:
TOTAL Main Hole Const. Time	19.67 Days	
Secured W/O Crew Site Prep	Days	
Secured W/O Crew Main Hole Const.	11.33 Days	
TOTAL Suspended (No Rig)	0.17 Days	
TOTAL ELAPSED TIME	31.17 Days	

Water Well #4A Area 6
HOLE HISTORY

01-22-90 Moved in Auger #2, rig #85134.

01-23-90 Rigged up Auger #2. Auger drilled 48" hole from 0′ to 26′.

01-24-90 Drilled 48" hole from 26′ to 31′. Set 36" O.D., 7/16" wall, 166# casing at 30′. Cemented the casing annulus using BJ Titan as follows:

Stage	Interval	Cement Used - Ft³	Calc.-Ft³	CIP
1	31′ - 27′	95 75% Neat & 25% gypsum cement	50.24	1054 Hours
2	27′ - 7′	205 " "	110.0	1121 "
3	7′ - 0′	75 " "	38.5	1210 "
	Total	375 Ft³	198.74 Ft³	

Moved Auger #2 rig and drilled a 26" x 29′ rathole for Cardwell 500.

01-25-90 Drilled a 26" x 20′ mousehole on west side. Drilled 104" x 4′ sump hole. Rigged down and moved out Auger #2. Moved in and rigged up drilling support equipment.

01-26-90 Moved in and rigged up Cardwell 500, rig #85142 and drilling support equipment. Rig secured at 2400 hours.

01-29-90 Rig secured from 01-26-90 to 01-29-90. Completed rigging up. Picked up 30" drilling assembly and drilled cement from 26′ to 31′.

01-30-90 Drilled 30" hole from 31′ to 153′ using conventional circulation with bentonite mud.

01-31-90 Drilled 30" hole from 153′ to 262′.

02-01-90 Drilled 30" hole from 262′ to 345′.

02-02-90 Drilled 30" hole from 345′ to 421′. Made trip out, changed bit, and secured rig at 2400 hours.

02-05-90 Rig secured from 02-02-90 to 02-05-90. Made trip in hole, 1.5′ fill. Drilled 30" hole from 421′ to 479′.

02-06-90 Drilled 30" hole from 479′ to 522′.

02-07-90 Drilled 30" hole from 522′ to 536′. Laid down drilling assembly. Ran AWS caliper log to 535′ T.D.. Cut off 36" casing at ground level. Ran 18 joints of 1.9", 2.9#, P-105 Hydril tubing with the bottom joint slotted and bull plugged; set at 535′. Started running 24" O.D. x 3/8" wall, 94.62# intermediate casing.

02-08-90 Completed running 14 joints, 562.60', of 24" O.D. x 3/8" wall, 94.62# welded joint casing; set at 535'. Cemented the casing annulus using BJ Titan as follows:

Stage	Interval	Cement Used - Ft³		Calc.-Ft³	CIP
1	536'- 434'	150	Type II cement + 3% $CaCl_2$	180	1840 Hours

Welded gussets from 24" intermediate casing to 36" surface casing.

02-09-90 Cut off 24" casing 2' above ground level. AWS checked top of cement using NCTL tool at 534' inside casing and 430' in casing annulus. Lowered 1.9" tubing to obstruction at 313'. Pulled tubing and replaced slotted joint with muleshoe joint. Lowered tubing to 424'. AWS checked top of cement using NCTL tool at 431' in annulus. Cemented the annulus using BJ Titan and AWS monitored as follows:

Stage	Interval	Cement Used - Ft³		Calc.-Ft³	CIP
2	434' - 233'	370	Type II cement + 3% $CaCl_2$	310	0710 Hours
3	233' - 0'	475	"	431	1130 "
	Total	995 Ft³		921 Ft³	

Pulled 1.9" tubing to 192' prior to pumping stage #3. BJ Titan dropped a 3# hammer inside the 24" casing. Laid down 1.9" tubing. Welded on 24" casing flange and picked up 20" bottom hole assembly on 6-5/8" drill pipe. Tagged top of cement at 529'. Drilled cement from 529' to 532'. Tagged hammer at 532'. Rig secured at 2400 hours.

02-12-90 Rig secured from 02-09-90 to 02-12-90. Made trip out of hole. Ran 10-1/8" O.D. magnet followed with 19-1/2" O.D. Globe junk basket, no recovery. Made three magnet runs, no recovery. Made trip in hole with 17-1/2" bit. Set in 200 ton spider, lost insert in hole. Pulled 17-1/2" bit and found insert on bottom stabilizer. Made trip in hole and drilled on junk from 536' to 539'.

02-13-90 Circulated and conditioned hole. Made two magnet runs; 14" and 8" magnets. Recovered small pieces of iron. Made trip in hole with 20-1/2" bit and reamed hole from 536' to 539'. Drilled 20-1/2" hole from 539' to 875' using conventional circulation with air foam.

02-14-90 Drilled 20-1/2" hole from 875' to 1172'.

02-15-90 Drilled 20-1/2" hole from 1172' to 1382'.

02-16-90 Drilled 20-1/2" hole from 1382' to 1517' T.D.. Made trip out and laid down bottom hole assembly; steel line measurement indicated T.D. at 1516.21'. Ran AWS dual induction focused log to 1508' T.D. and started caliper log.

02-17-90 Completed running AWS caliper log to 1504' T.D.. Ran density borehole compensated log to 1505' T.D. and gamma ray log to 1504' T.D..

02-20-90 Rig secured from 02-17-90 to 02-20-90. Ran AWS fluid density log to 1502' T.D., fluid at 836'. Cut off 24" casing 1' above ground level. Ran 37 joints of 13-3/8" O.D., 54.5#, K-55 casing with tack welded guide shoe; set at 1501'. (Note: Joints #2, #3, and #5 thru #10 were pre-slotted.) Ran AWS cement annulus density log (NCA) to 1500' T.D.. Gravel packed the casing annulus from 1502' to 944' with 1296 ft^3 of 3/4" gravel; monitored gravel rise with AWS NCA tool. Landed casing.

02-21-90 Nippled up rotating head and made trip in hole with 6-5/8" drill pipe. Jetted hole with air at 220 psi. Laid down 6-5/8" drill pipe. Cut off 13-3/8" casing 2.5' above ground level. Ran 48 joints, 1481.93', of 2-3/8" O.D., 4.7# Hydril monitor tubing. Picked up 6-3/4" O.D., 400 hp, 700 gpm BJ Centrilift pump inside an 8-3/4" O.D. x 46.65' shroud; pump assembly is 67.15' with shroud 4.89' below pump. Ran pump assembly in hole on 43 joints of 5-1/2" O.D., 15.5#, 8 rd, K-55 casing with electric cable banded to casing. Landed pump assembly at 1461.21' with suction at 1414.06'. Landed 2-3/8" monitor tubing at 1478.13'. Wired pump for flow test.

02-22-90 Flow tested pump at 800 gpm. Rigged down and moved out Cardwell 500. Hole completed 02-22-90.

02-26-90 Ran USGS fluid check, fluid at 834.87'.

01-14-91 Ran USGS fluid check, fluid at 834'.

02-19-91 Ran USGS fluid check, fluid at 835'.

03-18-91 Ran USGS fluid check, fluid at 835'.

04-26-91 Ran USGS fluid check, fluid at 835'.

05-06-91 Ran USGS fluid check, fluid at 835'.

06-10-91 Ran USGS fluid check, fluid at 835'.

07-05-91 Ran USGS fluid check, fluid at 835'.

08-16-91 Ran USGS fluid check, fluid at 834'.

08-23-91 Ran USGS fluid check, fluid at 835'.

Water Well #4A
Fluid Recieved

	Mud Plant		Vacuum Truck		
Date	#24 Bent. Bbl.	#3 Air Foam Bbl.	Water Bbl.	Air Foam Bbl.	Mud Bbl.
01-24-90			120		
01-29-90	600		120		600
01-30-90	720		120		720
01-31-90	840		120		840
02-01-90	480				720
02-02-90	360				360
02-05-90	240		240		360
02-06-90			120		
02-07-90	120		120		120
02-08-90			*720		
02-09-90			*480		
02-12-90		120	360	240	
02-13-90		720	240	720	
02-14-90		240	240	480	
02-15-90		480		600	
02-16-90		240		240	
Total	3,360	1,800	3,000	2,280	3,720

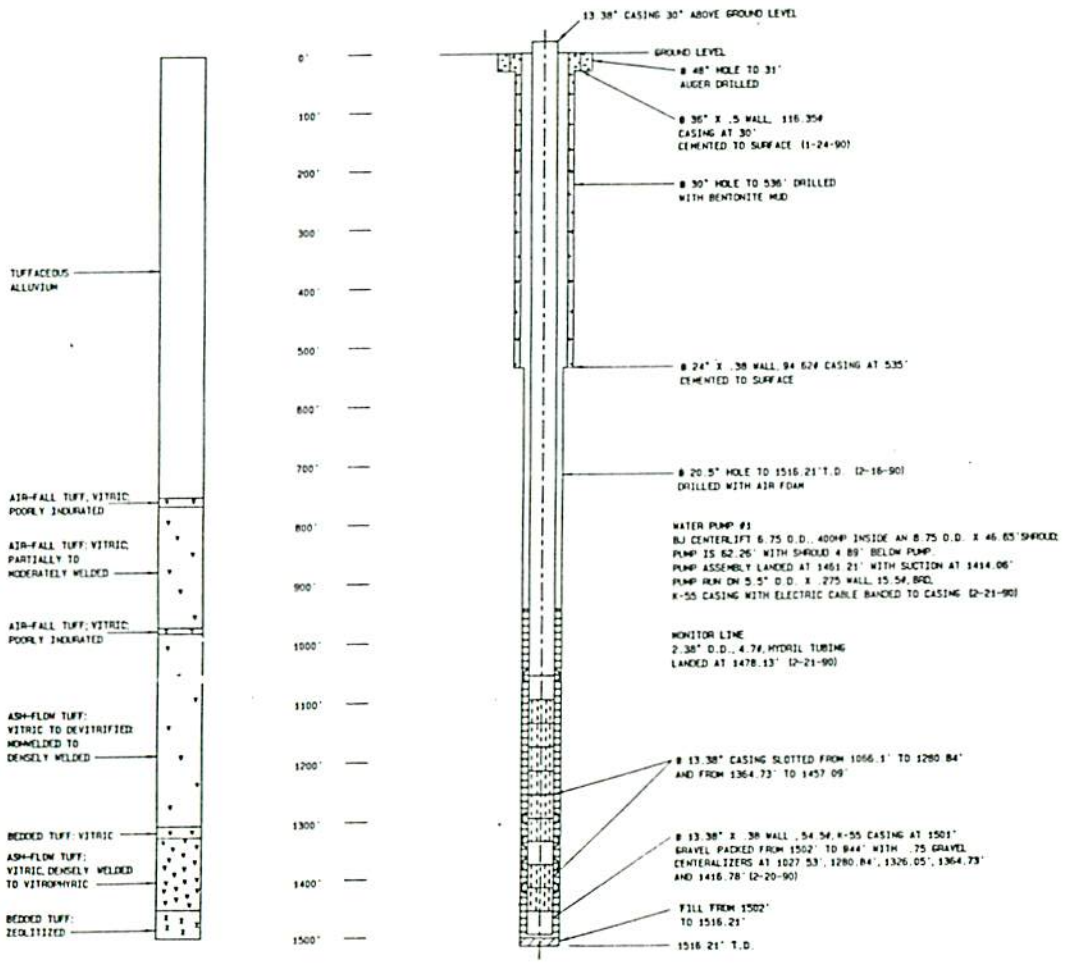
* Water recieved during casing operation.

Water Well #4A

REVIEW OF HOLE CONDITION

914 mm (36") casing was set at 9.1 m (30′) in a 1.22 m (48") hole drilled to 9.4 m (31′) using an Auger rig and the annulus cemented to surface in 3 stages with 10.62 m^3 (375 ft^3) of 75% neat & 25% gypsum cement 01-24-90. Calculated volume based on gauge hole was 5.63 m^3 (198.74 ft^3). Used 89% more cement than calculated. 762 mm (30") hole was drilled to 163.4 m (536′) using the conventional bentonite mud circulating method. The average curve on caliper log #1 run 02-07-90 to 163.1 m (535′) T.D. indicated a near gauge hole. 610 mm (24") casing set at 163.1 m (535′) and the annulus cemented to surface in 3 stages with 28.18 m^3 (995 ft^3) of Type II +3% $CaCl_2$ cement 02-08-90. Calculated volume based on caliper log #1 was 26.08 m^3 (921 ft^3). Used 8% more cement than calculated. 521 mm (20-1/2") hole was drilled to a total depth of 462.1 m (1516′) using air foam 02-16-90. AWS electric, caliper, density, and gamma ray logs were run 02-16-90 and 02-17-90. The average curve on caliper log #2 run to 458.4 m (1504′) T.D. indicated a varied hole size between 533 mm (21") and 737 mm (29"). Fluid density log run 02-20-90 to 457.8 m (1502′) T.D. indicated fluid at 254.8 m (836′). 340 mm (13-3/8") casing was set at 457.5 m (1501′) with casing slotted from 444.1 m (1457′) to 416.1 m (1365′) and 390.4 m (1281′) to 324.9 m (1066′). The annulus was gravel packed using AWS monitor from fill at 457.8 m (1502′) to 287.7 m (944′) with 36.70 m^3 (1296 ft^3) of washed 16 mm x 19 mm (5/8" x 3/4") pea gravel. Centrilift pump on 140 mm 5-1/2" casing was run and well flow tested. Hole completed 02-22-90. USGS fluid check run 02-26-90 indicated fluid level at 254.5 m (835′).

NO	DATE	REVISION	DRAWN	CHK	P.E.	SAFETY	Q.A.	A.E.	ABY	DOE



LOCATION L/D
N784,350
E686,900
ELEVATION 3605.67'
COMPLETED 2-22-90

HYDROLOGY
PRODUCTION TESTS

DISCHARGE

RATE	HOURS	DATE
700GPM	23	2-23-90

DRAWDOWN 23' (23HOURS)

SPECIFIC CAPACITY: 31 GPM/FT OF DRAWDOWN

WATER LEVEL CHECKS

LEVEL	MEASUREMENT	DATE
836'	AMS LOG	2-20-90
835'	USGS PROBE	2-26-90

ITEM	REQ'D	MATERIAL	DESCRIPTION	DWG. NO.

U. S. DEPARTMENT OF ENERGY

NEVADA OPERATIONS OFFICE — LAS VEGAS, NEVADA

DESIGNED: H. BENNETT
DRAWN: M. HOGE
CHECKED:
FIELD WORK:
SAFETY:
SUBMITTED:
APPROVED:

FENIX & SCISSON OF NEVADA
ENGINEERS AND CONTRACTORS
NEVADA, NEVADA

TITLE: WATER WELL #4A
AREA 6

FILE NAME: M4298-001
DRAWING NO.: M4298-001
REV.: 0
SCALE:
DATE: 5-4-90
SHT. 1 OF 1

4 3 2 1

Code	Tool Description
ABC	Acoustic Borehole Compensated
AIN	Annulus Investigation, Nuclear
AINU	Annulus Invest, Neutron
C/O	Carbon/Oxygen Ratio
CA	CAliper, small hole
CA3	CAliper, 3 arm
CA6	CAliper, 6 arm
CNL	Compensated Neutron Porosity
CTN	Cement Top Location
CTNU	Cement Top Locator, Nuclear
DBC	Density, Borehole Compensated
DBS	Density, Borehole Special
DD	Depth Determination
DF	Density, Fluid location
DLL	Focus, E-log, Lateralog, etc.
DIF	Dual Induction, Focus
ENP	Epithermal Neutron, Porosity
ENS	Epithermal Neutron, Special
ES	Electric Survey
ESL	Electric Survey, Large
FDD	Formation Density, Dual Prox.
FDL	Formation Density, Single Prox.
FDS	Formation Density, Borehole

Code	Tool Description
GR	Gamma Ray
GRSL	Gamma Ray Spectral, Large
GS	Gravity Survey
HRT	High Resolution Temperature
IEL	Induction Electric Survey
MS	Magnetic Survey
NUNU	Neutron-Neutron
RDL	Resistivity, Dry Large hole
RDS	E-log, Dry Small hole.
SGG	Seismic, Air Gun, Std. size
SGH	Seismis, Air Gun, Hydraulic Tool
SGS	Seismic, Air Gun, Spring Tool
SGR	Spectral Gamma Ray
SGUN	Sidewall Sampler, Core Gun
SVG	Seismic, Vibroseis, Std. size
SVH	Seismic, Vibroseis, Hyd. Tool
SVS	Seismic, Vibroseis, Spring Tool
TL	Temperature Log
V3D	Velocity, 3-D
WTL	Water Top Locator
XHR	High Resolution Induction

Logs - Data Display * (- No. = No Check)

1-MAY-1990 10:05:56

Report on logs run

Wellname	Logtype	run no.	date	Top log	Bot log	water lev
WATER WELL 4A	CTN	2	20-feb-1990	788	1496	0
	DF	1	20-feb-1990	800	860	836
	GR	1	17-feb-1990	490	1500	834
	DBC	1	17-feb-1990	494	1499	834
	CA6	2	16-feb-1990	474	1494	834
	DIL	1	16-feb-1990	528	1501	834
	CTN	1	09-feb-1990	53	436	0
	CA6	1	07-feb-1990	12	522	0

Water Well #4A
Area 6

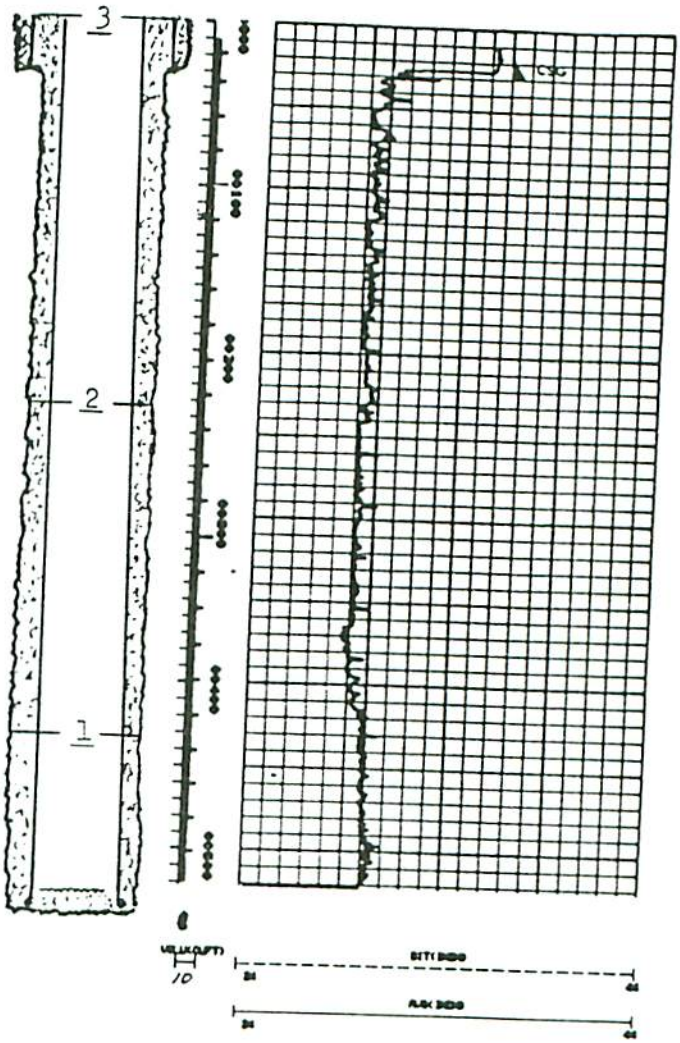
Hole Conditions

48" hole drilled to 31'.
36" O.D., 1/2" wall casing @ 30'.

30" hole drilled to 536'.
24" O.D., 3/8" wall casing @ 535'.

Caliper Log

Run: #1
Date: 02-07-90
Drlg. TD: 536'
Log TD: 535'
Log RD: 522'
Max. Temp.: 56° F



Cementing Record

36" casing @ 30'.

Stage #1 to 27' with 95 ft^3, calc. - 50 ft^3.
Stage #2 to 7' with 205 ft^3, calc. - 110 ft^3.
Stage #3 to 0' with 75 ft^3, calc. - 39 ft^3.

24" casing @ 535'.

Stage #1 to 434' with 150 ft^3, calc. - 180 ft^3. (Tag top inside @ 529'.)
Stage #2 to 233' with 370 ft^3, calc. - 310 ft^3.
Stage #3 to 0' with 475 ft^3, calc. - 431 ft^3.

65-65 JEC

Water Well 4A

Area 6

FSN

CALIPER LOGS

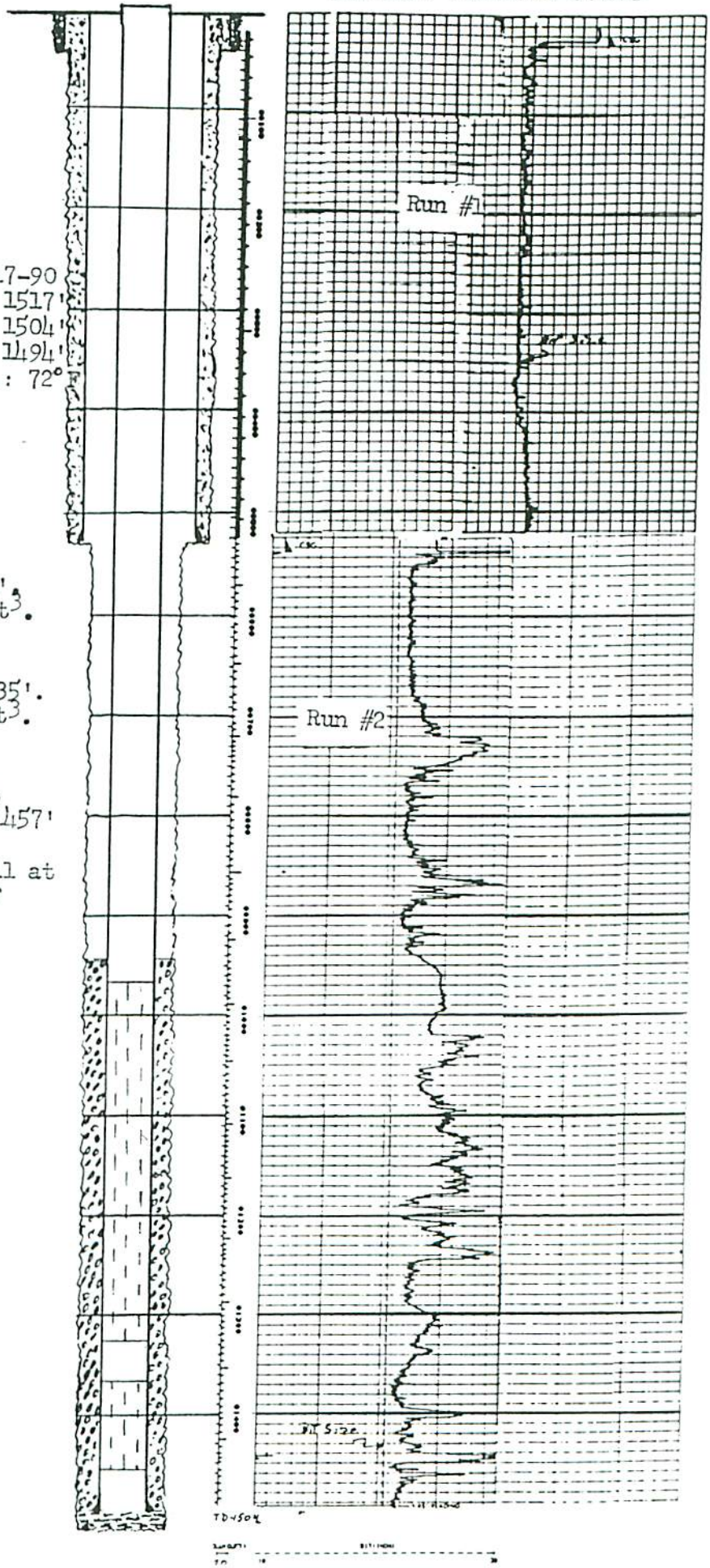
Run: #1	Run: #2
Date: 02-07-90	Date: 02-17-90
Drlg. TD: 536'	Drlg. TD: 1517'
Log TD: 535'	Log TD: 1504'
Log RD: 522'	Log RD: 1494'
Max. Temp.: 56° F	Max. Temp.: 72° F

HOLE CONDITIONS

48" hole drilled to 31'.
36" OD, 1/2" wall casing @ 30'.
Annulus cem. to 0' with .375 ft^3.

30" hole drilled to 536'.
24" OD, 3/8" wall casing @ 535'.
Annulus cem. to 0' with 995 ft^3.

20" hole drilled to 1516' TD.
13-3/8" OD, 0.38" wall, 54.5#,
casing @ 1501'. Slotted from 1457'
to 1365' and 1281' to 1066'.
Annulus gravel packed from fill at
1502' to 944' with 1296 ft^3 of
3/4" gravel.



65-65-74
JEC

MSTS
MISSION SUPPORT AND TEST SERVICES LLC

Daily Rig Operations Report

Day:	Date: 10-7 thru 10-8	Time:	Initials: RL
Station: WW 4A	Rig: Franks	Project: Run in New pump	
Present Activity:	Bit Size:(Inches)	Last Csg. Size	Casing Depth:
Hole Program Total Depth: 1516.21			

Total Depth:(feet)	Drilled from:(feet)	Footage Drilled:	Rotate Hrs:	ROP: (ft./hr)	Wt. on Bit:	RPM:

Comps. on loc.:	Using:	CFM:	PSI:	GPM in/GPM out	Type fluid:

Time Log: **Report Period**

Hours	Activities	Tally Count	
Joint 1.	33.33 = 33.33		
2.	33.60 = 66.93		
3.	33.60 = 100.53		
4.	33.62 = 134.15		
5.	33.63 = 167.77		
6.	33.75 = 201.52		
7.	33.59 = 235.11		
8.	33.66 = 268.77		
9.	33.61 = 302.38		
10.	33.72 = 336.10		
11.	33.77 = 369.87		
12.	33.64 = 403.51		
13.	33.68 = 437.19		
14.	33.35 = 470.57		
15.	33.40 = 503.94		
16.	33.52 = 537.46		
17.	33.70 = 571.16		
18.	33.72 = 604.88		
19.	33.19 = 638.07		
20.	33.70 = 671.77		
21.	33.26 = 705.03		
22.	42.78 Coated = 747.81		
23.	40.91 Coated = 788.72		
24.	45.28 Coated = 834.00		
25.	43.30 Coated = 877.30		
26.	44.82 coated = 922.12		
~~Pup~~ 27.	~~14.90~~ Dump valve .82 = 922.94		
Pup 28.	14.90 = 937.84		

Notes: 10-7-22

Tallied pipe and set up white electricians got ready. Baker Hughes tech showed up and made up unit. Tested new unit after pluping in and we started runing in. We changed out Pup joint above pump. Ran in 5 joints and secured rig and well. (5 coated)

Last Survey ° / Depth:

MSTS
MISSION SUPPORT AND TEST SERVICES LLC

Daily Rig Operations Report

Day:	Date: 10-7- thru 10-8	Time:	Initials: RC
Station: WW4A	Rig: Franks	Project: New Pump "Install"	
Present Activity:	Bit Size:(inches)	Last Csg. Size	Casing Depth:	Hole Program Total Depth:
Total Depth:(feet)	Drilled from:(feet)	Footage Drilled:	Rotate Hrs:	ROP: (ft./hr)	Wt. on Bit:	RPM:
Comps. on loc.:	Using:	CFM:	PSI:	GPM in/GPM out	Type fluid:	

Time Log: **Report Period**

Hours	Activities	Tally Count
Discharge	.65 = 938.49	
Pump	7.73 = 946.22 MTR Shroud 33.00	
Seal.	6.90 = 953.12	
Motor	16.84 = 969.96	
	BTM of MTR shroud = 979.27	
	2.68 - Stick up = 976.54	

Notes: 10-8-22	Last Survey ° / Depth:
Baker tech tested unit down hole. Tested good so we started to run in. Once we hit bottom Baker tested unit then we landed well. We pulled 1 joint from tubbing string and torqued all joints to 1500 to 1600 PSI.	

MSTS
MISSION SUPPORT AND TEST SERVICES LLC

Daily Rig Operations Report

Day:	Date: 7-8-22	Time:	Initials: RL

Station: Well 4-A	Rig: franks	User:

Present activity: Pull Bit Unit	Bit size:(inches)	Last csg. Size	Casing Depth:	Hole Program Total Depth:

Total Depth:(feet)	Drilled from:(feet)	Footage Drilled:	Rotate Hrs:	ROP: (ft./hr)	Wt. on Bit:	RPM:

Comps. on loc.:	Using:	CFM:	PSI:	GPM in/GPM out	Type fluid:

Time log: 7-8-22 Rigged up Report Period and started to pull 5" casing out. Pulled 22 joints 5 coated joints and 1 coated pup. Laid down Baker Hughes pump, seal, motor and motor shroud. sucred well and rigged off on 7-9-22.

REDBOOK SUMMARY

HOLE NAME **Water Well 5B** STA. SEQ. NO. 10858
AREA 05 **GROUND ELEV.** 3092 FT
NORTHING 747,359 **LAT** 36.801211 **START** **HOLE TYPE** WL POT
EASTING 704,263 **LONG** -115.969841 **COMP.** 5/7/51 **STATUS** ACTIVE

BOREHOLE SEGMENTS

Segment Name	Top	Bottom	Diameter	Start	Comp.
	0	900 FT	0 IN		

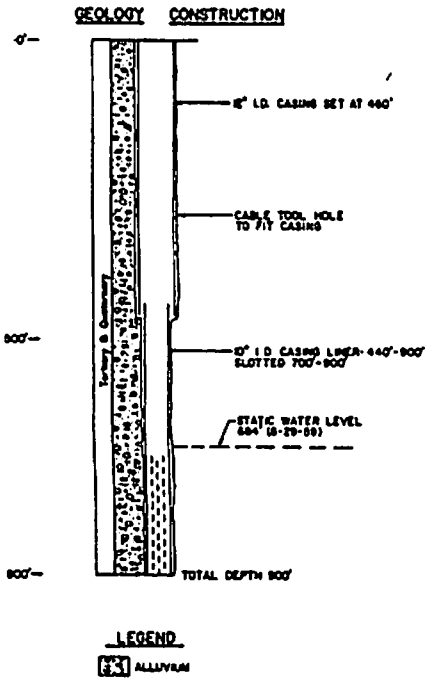
CONSTRUCTION OBJECTS

Construction Object	Top	Bottom	Diameter
CASING	0	460 FT	12 IN
LINER	400	900 FT	10 IN

COMMENTS: 20040209 - Saved for environmental monitoring.

WELL 5B

LOCATION: N 747,358.84' E 704,262.59'
ELEVATION: 3092.1' G.L. AREA 5C
COMPLETED: 5-7-51



HYDROLOGY

PRODUCTION TESTS

DISCHARGE RATE	HOURS	DATE
250 g.p.m.	0.5	5-25-51
162 g.p.m.	11.5	5-27-51
161 g.p.m.	47.4	5-29-51
270 g.p.m.	60.0	10-13-64
233 g.p.m.	4.0	3-21-69

DRAWDOWN: 69' (190 ft. test on 10-13-64)
SPECIFIC CAPACITY: 3.9 g.p.m./ft. of drawdown

WATER LEVEL CHECKS

LEVEL	DATE
665'	5-25-51
667'	5-27-51
684'	5-29-51
684'	10-13-64
662'	3-21-69
663'	10-29-71

AQUIFER
ALLUVIUM: 665'-900'

9-18-30 Toka Green
300 gpm pump
on 5½"
intake @ 850'
SWL 676'

U. S. ATOMIC ENERGY COMMISSION
NEVADA OPERATIONS OFFICE, LAS VEGAS, NEVADA

J. CROSS
H.A.K./S.F.
G. BRUESCH

WELL 5B

FENIX & SCISSON, INC.
ENGINEERS AND CONTRACTORS
NEVADA

REDBOOK SUMMARY

HOLE NAME **Water Well 8 (USGS HTH-8)** STA. SEQ. NO. 12592

AREA 18 **GROUND ELEV.** 5695 FT

NORTHING 879,468 **LAT** 37.165535 **START** 8/24/62 **HOLE TYPE** WL POT

EASTING 609,999 **LONG** -116.290033 **COMP.** 1/12/63 **STATUS** ACTIVE

BOREHOLE SEGMENTS

Segment Name	Top	Bottom	Diameter	Start	Comp.
	0	5499 FT	7.625 IN		

CONSTRUCTION OBJECTS

Construction Object	Top	Bottom	Diameter
CASING	0	2041 FT	11.75 IN
LINER	1951	2946 FT	7.625 IN

COMMENTS: 20040210 - Saved for EM and potable water. YMP list. 20080313 [15-18].

FENIX & SCISSON, INC.
HOLE HISTORY DATA
NNWSI

Approved: Jerry Neil Covington
Date: Jan 9, 1989

Hole No.: Water Well #8/ HTH #8 | Type Hole: Hydro Test/ Water Supply
User: USGS | Area: 18 | Contract W.O. #: AT (29-2)-1302
Location: NTS | County: Nye | W.O. #: None
Surface Coordinates: N 879,468.16' E 609,999.44'
Ground Elev.: 5694.6' | Pad Elev.: | Top Casing Elev.:
Bottom Hole Coord: None @ | Ref:
Rig On Location: 08-24-62 | Spudded: 08-24-62 | Completed: 01-12-63
Circulating Media: Conventional-air-air foaming agent-mud-areated mud
Main Rig & Contractor: Rig #17-Western Republic Drilling
No. Of Compressors & Capacity: 3/1000 compressors, 1-3000 compressor

Bore Hole Record			Casing Record					
From	To	Size	I.D.	Wt/Ft.	Wall	From	To	Ft^3 Cement
0'	30'	20"	17.855"	78#	0.385"	0'	30'	112
30'	2031'	15"	11.000"*			0'	2031'	150
2031'	2940'	10-5/8"	7.025"**	24#	0.300"	1942'	2936'	None
2940'	5483'	7-5/8"						
5483'	5490'	6-1/8"						

Total Depth: 5490' | Plugs: 1941' to 1862' w/40 ft^3 Cal-Seal, 01-08-63.
Junk: None
Logging Data: Electric, Focus, Densilog, Caliper, Gamma ray-Neutron, Acoustic, Fluid density

Rigs Used

Rig No.	Name	Class	Days Operating	Sec. W/Crew	Sec. W/O Crew	Total Days On Location
#17	Cardwell "L"					141.17
	(145 HP Waukesha)					

Remarks: * 33.43' of 12.615" I.D., 0.380" wall, 54.50# wall casing swaged onto 1493.01' of 11.084' I.D., 0.375" wall, 42.00# casing and onto 513.77' to bottom of 11.000" I.D., 0.375" wall, 47.00# casing.
* 11-3/4" casing perforations: 1250'-1300', 1450'-1500',1630'-1780'.
** 7-5/8" liner slotted: 2038'-2070', 2137'-2170'.

1/5/89

Prepared By: JEC:llh 1-5-89

Water Well #8
USGS HTH #8
Area 18
Hole History

(Rig kelly bushing measurement 10′ above ground level.)

08-24-62 Moved in Cardwell model "L" rig #17 and rigged up. Dug rat hole. Spudded 9" hole 2330 hours. Drilled 9" hole to 40′ with air.

08-25-62 Opened 9" hole to 20" to 40′. Ran and cemented 18" casing at 40′ with 10 sacks Cal-Seal on bottom. Waited one hour and cemented with 112 C/F neat cement, 2% HA-5. Calculated annular volume was 9 C/F. Drilled mousehole.

08-26-62 Nippled up and worked on rotating head. Drilled out 4′ cement in pipe, drilled 9" hole to 76′. Cored (#1) with 8-7/8" diamond core head 76′-77.5′, recovered 1.3′. (Note: All coring to 1449′ done with 8-7/8" diamond corehead). Drilled 9" hole to 130′.

08-27-62 Cored (#2) 130′-137.2′, recovered 7.2′. Drilled 9" hole to 180.7′. Cored (#3) 180.7′-189.3′, recovered 8.6′.

08-28-62 Drilled 9" hole to 278′. Cored (#4) 278′-298′, recovered 19.2′. Drilled 9" hole to 352′.

08-29-62 Cored (#5) with 352′-373.7′, recovered 16.7′. Drilled 9" hole to 468′. Cored (#6) 468′-485′, recovered 15.2′.

08-30-62 Drilled 9" hole to 588′. Cored (#7) 588′-593′, recovered 2.5′. Ran USGS fluid level locator. Cored (#8) 593′-621′, recovered 26′. Drilled 9" hole to 716′.

08-31-62 Cored (#9) 716′-736′, recovered 10′. Drilled 9" hole to 806′. Cored (#10) 806′-837.7′, recovered 11′.

09-01-62 Drilled 9" hole to 910′. Cored (#11) 910′-928′, recovered 6′. Drilled 9" hole to 1022′.

09-02-62 Cored (#12) 1022′-1027′, recovered 2′. Drilled 9" hole to 1064′. Cored (#13) 1064′-1065′, recovered 0.5′. Cored (#14) 1065′-1085.9′, recovered 2.5′.

09-03-62 Ran USGS fluid level locator in open hole. Fluid level 1080′±. Drilled 9" hole to 1148′. Cored (#15) 1148′-1158′, using air-foam, recovered 8.5′. Drilled 9" hole to 1210′. Cored (#16) 1210′-1231′, recovered 16.5′.

09-04-62 Drilled 9" hole 1231′-1306′. Cored (#17) 1306′-1319.8′, recovered 2.5′. Ran and hung 3-1/2" tubing at 1264′.

09-05-62 Ran USGS swab and fluid level tests in 3-1/2" tubing hung at 1265′±. Drilled 9" hole to 1370′.

09-06-62 Cored (#18) 1370′-1370.6′, no recovery. Cored (#19) 1370.6′-1371.4′, no recovery. Drilled 9" hole to 1383.4′. Cored (#20) 1383.4′-1384.8′, no recovery.

09-07-62 Drilled 9" hole 1449'. Cored (#21) with 7-1/2" diamond corehead 1449'-1460', recovered 6.6'. (Note: All coring to 4862-1/2' with 7-1/2" diamond corehead.)

09-08-62 Drilled 9" hole to 1500'. Blew hole to clear soap. Hung 3-1/2" tubing at 1476'. Ran USGS swab and fluid level tests.

09-09-62 Drilled 9" hole on air-foam to 1552'. Cored (#22) 1552'-1562', recovered 9.5'.

09-10-62 Hung 3-1/2" tubing at 1536'. Ran USGS swab and fluid level tests. Drilled 9" hole to 1634'.

09-11-62 Attempted to core and pulled out after shut-down for rig repair. Account fill.

09-12-62 Drilled 9" hole to 1666'. Cored (#23) 1666'- 1676', recovered 10'. Drilled 9" hole to 1743'.

09-13-62 Cored (#24) 1742'-1767', recovered 3'.

09-14-62 Hung 3-1/2" tubing at 1538' with 1" pipe strapped thereto to 1422'. Ran USGS swab and fluid level tests. Drilled 9" hole to 1803.5'.

09-15-62 Cored (#25) 1803.5'-1813.5', recovered 7.5'. Drilled 9" hole to 1870'.

09-16-62 Cored (#26) 1870'-1879', recovered 4'. Drilled 9" hole to 1933'.

09-17-62 Ran Lane Wells logs 1850'-0'; Gamma ray/Neutron 1850'-40'; Focus 1923'-1050'; Electrolog and Densilog (both defective).

09-18-62 Drilled 9" hole to 2041'.

09-19-62 Ran Lane Wells logs 1923'-1050'; Gamma ray/Neutron 1850'-40'; Densilog 1893'-40'; Focus 1923'-1050'; Caliper 1888'-40'; Electrolog 1930'-974'.

09-20-62 Made up and ran Lynes packer on 3-1/2" tubing and set at 1760'. Filled tubing with water. Ran fluid level locator, static fluid level 1081'±. Set packer at 1630'± and 1413'. Ran swab and fluid level tests. Set dual packers 1325' and 1405', bottom packer collapsed. Set packers 1395' and 1315', F.L. 1086'±. Set packers 1316' and 1236', F.L. 1080'±. Set packer at 1198', fluid level at 1083'±.

09-22-62 Ran Lane Wells Electrolog 1930'-0'. Opened 9" hole to 15", 40'-1080' on air, 1080'-1577' on air-foam.

09-30-62 Twisted off pin on #2 drill collar whole opening hole to 15" at 1577'. Recovered fish with 6" grapple. Opened 9" hole to 15" to 1632'.

10-01-62 Cleaned out with 9" bit to 1920'. Stuck drill string and pulled loose. Cleaned out to 1995'.

10-02-62 Stuck drill string at 1995' and worked loose. Opened 9" hole to 15", 40'-2041'.

10-08-62 Ran 11-3/4" casing to 1880', hole bridged, pulled casing.

10-09-62 Went in hole with 15" bit. Added Bentonite, 45 sacks, Cal-Seal 1 sack to circulatory system. Located bridge at 1880'. Reamed 15" hole to 1983' on air-foam.

10-11-62 Lost circulation at 1983'. Reamed and cleaned out to 2041.6' using aerated mud. Ran blank J-55 casing equipped with Baker guide shoe and float collar and hung at 2041.6', including: 513.77'-11-3/4", 47#, 1493.01'-11-3/4", 42#, 1.40'-11-3/4" x 13-3/8" swage, 33.43'-13-3/8" O.D. 54#.

10-12-62 Cemented casing with 150 cubic feet 1-1 cement-Pozmix with 2% HA-5, preceded by 30 bbls. water and displaced with 1330 cubic feet water, bumped plug with 400 p.s.i., released pressure after 2-1/2 hours. Orange peeled 18" conductor to 13-3/8" casing. Went in hole with 9-7/8" bit and blew water from casing, found top cement 1945' and drilled out through shoe to 2045'. Waited on cement 23-1/2 hours.

10-13-62 Cored (#27) 2045'-2051' on air-foam, recovered 6'. Drilled 7-5/8" hole to 2202'.

10-14-62 Ran fluid level locator in 4-1/2" drill pipe, cored (#28) 2202'-2222', recovered 10'.

10-15-62 Drilled 7-5/8" hole to 2282'. Cored (#29) 2282'-2295', recovered 13'. Drilled 7-5/8" hole to 2363'.

10-16-62 Cored (#30) 2363'-2383', recovered 20'. Drilled 7-5/8" hole to 2453'. Cored (#31) 2453'-2482', recovered 29'.

10-17-62 Drilled 7-5/8" hole to 2545'. Cored (#32) 2545'-2568', recovered 21.5'. Drilled 7-5/8" hole to 2640'.

10-18-62 Cored (#33) 2640'-2666', recovered 25'. Drilled 7-5/8" hole to 2736'.

10-19-62 Cored (#34) 2736'-2765', recovered 29'. Drilled 7-5/8" hole to 2860'.

10-20-62 Cored (#35) 2860'-2885', recovered 25'. Repaired booster compressor 7 hours.

10-21-62 Drilled 7-5/8" hole to 2990'. Cored (#36) 2990'-3019', recovered 29'. Blew hole to clear soap.

10-22-62 Ran Lynes packers on 3-1/2" tubing, set at 2845' and 2650'. Ran swab and fluid level tests of intervals between and below bottom packer.

10-23-62 Set packers 2259′ and 2063′. Tested intervals above, between, and below packers.

10-25-62 Set packers at 2063′ and 1868′, and tested. Drilled 7-5/8" hole to 3115′.

10-26-62 Cored (#37) 3115′-3125′, recovered 10′.

10-27-62 Drilled 7-5/8" hole to 3207′.

10-28-62 Cored (#38) 3207′-3212′, recovered 5′. Drilled 7-5/8" hole to 3299′.

10-30-62 Cored (#39) 3299′-3323′, recovered 24′. Shut down 91 hours for repair of drum and shaft.

11-03-62 Drilled 7-5/8" hole to 3404′.

11-05-62 Cored (#40) 3404′-3424′, recovered 19′. Drilled 7-5/8" hole to 3520′.

11-07-62 Cored (#41) 3520′-3540′, recovered 20′. Drilled 7-5/8" hole to 3640′.

11-08-62 Cored (#42) 3640′-3669′, recovered 29′.

11-09-62 Drilled 7-5/8" hole to 3768′.

11-10-62 Cored (#43) 3768′-3778′, recovered 8′. Drilled 7-5/8" hole to 3840′.

11-11-62 Cored (#44) 3840′-3860′, recovered 20′. Drilled 7-5/8" hole to 3955′.

11-12-62 Cored (#45) 3955′-3975′, recovered 20′.

11-13-62 Drilled 7-5/8" hole to 4080′. Cored (#46) 4080′-4098′, recovered 18′. Cleaned out and blew hole with air.

11-15-62 Ran Lynes packers on 3-1/2" tubing, ran swab and fluid level tests with packers set at 3964′ and 3864′, 4096′ and 3964′, 3960′ and 3864′, 3522′ and 3426′, 3534′ and 3438′, 3439′ and 3343′, 3346′ and 3250, 3254′ and 3158′, 3163′ and 3067′.

11-18-62 Drilled 7-5/8" hole aerated mud to 4129′ and on air-foam to 4180′.

11-20-62 Cored (#47) 4180′-4185′, recovered 5′.

11-21-62 Drilled 7-5/8" hole to 4242′. Reamed out of gauge hole 4200′-4242′.

11-23-62 Drilled 7-5/8" hole to 4383′.

11-27-62 Cored (#48) 4383′-4387′, recovered 0.3′. Drilled 7-5/8" hole to 4585′.

12-01-62 Cored (#49) 4585'-4590', recovered 5'. Drilled 7-5/8" hole to 4861'.

12-05-62 Cored (#50) 4861'-4862.5', recovered 1'. Drilled 7-5/8" hole to 5110'.

12-08-62 Cored (#51) 5110'-5120' with 6-1/8" diamond corehead, recovered 10'. Drilled 7-5/8" hole to 5363'.

12-11-62 Cored (#52) 5363'-5370' with 6-1/8" diamond corehead, recovered 2.5'. Ran Pan Geo Atlas Corp. logs: Electrical 5353'-2039', Gamma ray/Neutron 5353'-2039', Acoustic-S.P. 5355'-2039'. Ran in with Caliper log to 220' and hit bridge.

12-12-62 Rig secured 12 hours by AEC. Drilled 7-5/8" hole to 5390'.

12-13-62 Ran Caliper log, inoperative. Cored (#53) 5390'-5400' with 7-1/2" diamond corehead, recovered 3'.

12-14-62 Ran Caliper log 5376'-2036'. Drilled 7-5/8" hole to 5465'-5466'.

12-15-62 Cored (#54) 5466'-5466.7' with 6-1/8" diamond corehead, recovered 0.5'. Drilled 7-5/8" hole to 5497'.

12-16-62 Cored (#55) 5493'-5499' (corr. depth) with 6-1/8" diamond corehead. Blew hole 8 hours without soap. Pulled core and recovered 6'. Strapped out, corrected depth 5499.46'.

12-17-62 Ran Lynes packers on 3-1/2" tubing, hit bridge at 2224'.

12-18-62 Opened 7-5/8" hole to 10-5/8" 2045'-2950'.

12-21-62 Ran and hung at 2946', 990.92' of 7-5/8", 24#, H-40, 8 round thread liner on Burns liner hanger 3.90'; 0.70' Baker open-end T&C shoe; 765.41' blank, 32.90' slotted, 2" slots, 28 rows, 6" centers; 66.69' blank, 32.52' slotted, ditto, 92.70 blank. Fitted with Baker metal petal baskets 2843' and 2784'; with Baker centralizers 2850' and 2785'. (Shoe 2946', lower slotted 2179.71'-2146.81', upper slotted 2080.12'-2047.60', top hanger 1951'.)

12-27-62 Resumed 1200 hours. Cleaned hole with 6-1/8" bit, bridges at 2946', 3192', 4931', 5248', 5445'. Top fill 5473'.

12-29-62 Ran Lynes packers on 3-1/2" tubing and set at 5300' and 5100'. Ran swab and fluid level tests. Opened lower packer and tested 5100'-5473'. Set packers at 5018' and 4918', 4778' and 4578', 5018' and 4818', 4778' and 4578', 4561' and 4361', 4380' and 4180', 3261' and 3061'. Ran swab and fluid level tests each interval.

12-31-62 Cleaned hole with 6-1/8" bit to 5430'. Set packers at 5300' and 5100', 5240' and 5040', 4565' and 4365', 3450' and 3250'. Ran swab and fluid level tests.

01-02-63 Replaced drum flanges. Went in with 6-3/4" diamond point bit on 3-1/2" tubing to 5000'.

01-03-63	Ran and hung Reda pump on 3-1/2" tubing, 1" pipe and cable strapped thereto, intake at 1717'. Began pump test, generator inoperative.
01-04-63	Pump tested.
01-06-63	Pulled pump. Laid down 3-1/2" tubing.
01-07-63	Ran 8-3/4" diamond point bit on 3-1/2" tubing to 5000', no bridges. Laid down 3-1/2" tubing. Gun perforated 11-3/4" casing with P.G.A.C. equipment 2-1/2" hole/foot 1780'-1630', 1500'-1450', 1300'-1250'. Scraped casing. Ran 11-3/4" Baker retrievable bridge plug on 4-1/2" drill pipe and set at 1951'. Plugged using Halliburton equipment through 4-1/2" drill pipe hung at 1841' with 40 cubic feet Cal-Seal, displaced with 71 cubic feet water. Tagged top plug at 1872' with 4-1/2" drill pipe.
01-08-63	Ran Reda J-400, 240 H.P. pump on 5-1/2" casing, 1" pipe and cable strapped thereto, to 1422', intake at 1396'. Ran pump test.
01-11-63	Pulled pump and ran fluid levels.
01-12-63	Laid down drill pipe. Rig released 1200 hours. Rigged down.
	No record of activity available.
01-28-65	Pulled and replaced Reda pump on 6-5/8" casing. Set pump at 1218'.
02-15-65	Pulled Reda pump.
02-22-65	Lowered and landed pump on 6-5/8" casing.
01-28-67	Pulled Reda pump.
01-29-67	Replaced pump with Reda model J-400, 19 stage pump. Lowered and landed pump on 6-5/8" casing at 1212'.
10-29-68	Pulled Reda pump.
10-30-68	Replaced pump, lowered, and landed Reda pump on 6-5/8" casing at 1199.54'.
02-27-70	Pulled Reda pump.
02-28-70	Replaced pump with Reda model J-400 pump. Lowered and landed pump on 6-5/8" casing at 1262'.
03-03-70	Pulled and replaced Reda pump.
03-04-70	Lowered and landed pump on 6-5/8" casing.
	No record of activity available.
06-26-78	Moved in Hopper Hoist rig #85115, rigged up and pulled 32 joints of 5-1/2" O.D. casing.

06-27-78	Completed pulling 5-1/2" O.D. casing with Reda pump. Picked up new Reda pump and serviced it. Started running 5-1/2" casing with pump in hole.
06-28-78	Ran 6-5/8" Reda pump in the hole on 5-1/2" O.D., 15.50#, J-55 casing landed at 1261.17'. Pump quit operating.
06-29-78	Pulled 5-1/2" O.D. casing and Reda pump. Ran Birdwell fluid density log to 1845' and checked fluid level at 1078'.
07-01-78	Rig secured from 06-29-78 to 07-01-78. Ran 5-1/2" casing with Reda pump in hole to 1261', intake at 1203'.
07-03-78	Rig secured from 07-01-78 to 0800 hours, 07-03-78. Rigged down and moved off location.
07-14-82	Moved Hopper Hoist rig #85115 and rigged up to pull Reda pump.
07-15-82	Pulled 5-1/2" casing and Reda pump. Made trip in with new Centrilift pump on 5-1/2" casing. Landed pump intake at 1251' with bottom of tail pipe at 1274'. Started rigging down.
07-16-82	Rigged down and moved out.
03-18-84	Moved in Hopper Hoist, rig #85115 and rigged up. Pulled and laid down 5-1/2" casing and Centrilift pump.
03-19-84	Replaced pump. Made trip in with Centrilift L-500, 200 HP pump on 5-1/2", 15.50# casing. Landed pump at 1276.31' with intake at 1247.64'. Made up well head connections, rigged down and moved out at 1200 hours.
12-01-84	Moved in Hopper Hoist, rig #85115 and rigged up.
12-02-84	Rig secured to 0800 hours. Pulled 5-1/2" casing and laid down Centrilift pump. Serviced new Centrilift pump and started in the hole with pump on 5-1/2", 15.50# casing.
12-03-84	Ran and landed Centrilift pump in hole with intake at 1246.88' and bottom of pump at 1275.55'. Rigged down and moved out.
01-02-86	Moved in Hopper Hoist rig #85115 and rigged up. Started to pull pump out of hole, dropped electric power cable down the hole. Started out of hole with Centrilift pump on 5-1/2" casing as directed.
01-03-86	Laid down Centrilift pump, left approximately 1200' of power cable in the hole. ran in the hole with spear, bumper sub, and jars on 3-1/2" drill pipe to cable at 545'. Set down on fish with 10,000# weight and made trip out, complete recovery. Welded and extended 11-3/4" surface casing 19" above surface.
01-04-86	Rigged up and lowered Centrilift on 5-1/2", 15.50# casing along with power cable strapped on the casing in the hole. Landed bottom of pump at 1264.17' with intake at 1236.39'.

01-05-86	Installed surface connections and tested pump. Pump only tested approximately 50 gpm output.
01-06-86	Pulled 5-1/2" casing and Centrilift pump. Replaced pump, lowered pump on 5-1/2" casing, and landed bottom of pump at 1264.17, top at 1219.90', and intake at 1236.37'. Installed wellhead.
01-07-86	Ran pump test at 380 gpm. Rigged down and moved out.
02-26-87	Moved in Hopper Hoist, rig #85115 and rigged up. Started laying down 5-1/2" casing.
02-27-87	Completed laying down 5-1/2" casing and Centrilift pump. Replaced pump and electric cable and lowered pump on 5-1/2" casing in the hole. Landed pump at 1265.53', top at 1222.73', and intake at 1236.23'.
03-01-87	Rig secured from 02-27-87 to 0800, 03-01-87. Moved out rig.

Water Well #8
USGS HTH #8
Area 18

REVIEW OF HOLE CONDITIONS

457 mm (18") casing was set at 9.1 m (30′) in a 508 mm (20") hole drilled to 9.1 m (30′) using air. The annulus was cemented to surface with 10 sacks of Cal-Seal and 3.17 m^3 (112 ft^3) of neat cement + 2% HA-5, 08-25-62. Calculated annular volume based on gauge hole was 0.34 m^3 (12 ft^3). 229 mm (9") hole was drilled to 619.1 m (2031′) using air and soap. Lane Wells gamma ray-neutron, focus, densilog, caliper, and electrolog logs were run 09-17-62 and 09-19-62. Hydrologic tests were run 09-20-62. Hole was opened to 381 mm (15") using air to 329.2 m (1080′) then air foam and 298 mm (11-3/4") casing set at 619.1 m (2031′). Bottom of casing annulus was cemented with 4.25 m^3 (150 ft^3) of 50% neat & 50% Pozmix + 2% HA-5, 10-12-62. 194 mm (7-5/8") hole was drilled to 1631.6 m (5353′) and 156 mm (6-1/8") core hole to 1633.7 m (5360′) using air foam. Pan Geo Atlas electric, gamma ray-neutron, acoustic-SP, and caliper logs were run 12-11-62 and 12-14-62. 194 mm (7-5/8") hole was drilled to 1672.4 m (5487′) and 156 mm (6-1/8") core hole to a total depth of 1673.4 m (5490′), 12-16-62. A total of 55 cores were drilled as directed. 194 mm (7-5/8") hole was opened to 270 mm (10-5/8") to 896.1 m (2940′) and 194 mm (7-5/8") liner set at 894.9 m (2936′) with top of liner hanger at 591.6 m (1941′). Liner was preslotted between 621.2 m (2038′) and 630.9 m (2070′) and between 651.4 m (2137′) and 661.4 m (2170′). Hydro tests were run between 12-29-62 and 01-06-63. 298 mm (11-3/4") casing was gun perforated from 542.5 m (1780′) to 496.8 m (1630′), 457.2 m (1500′) to 442.0 m (1450′), and 396.2 m (1300′) to 381.0 m (1250′). Baker retrievable bridge plug was set at 591.6 m (1941′) and inside of 298 mm (11-3/4") casing cemented to 567.5 m (1862′) with 1.13 m^3 (40 ft^3) of Cal-Seal, 01-07-63. Pump test was run using a Reda J-400 pump. Hole completed 01-12-63. Hole used for water supply. Fluid density log run 06-29-78 to 562.4 m (1845′) T.D. indicated fluid level at 328.6 m (1078′). Latest pump in use is a Centrilift pump on 140 mm (5-1/2") casing with bottom of pump at 385.9 m (1266′), top at 372.8 m (1223′), and intake at 376.7 m (1236′), 02-27-87.

FENIX & SCISSON, INC.
HOLE HISTORY DATA
NNWSI

Approved: Jerry Neff Covington
Date: Nov 8, 1988

Hole No.: J-12 Water Well		Type Hole: Water Supply
User: AEC	Area: 25	Contract #: AT (29-2)-565 *
Location: NTS	County: Nye	W.O. #: N/A
Surface Coordinates: N 733,508.2'	E 581,011.7'	
Ground Elev.: 3128'	Conc. Pad Elev: 3129.8'	Top Casing Flange: 3131.6'
Bottom Hole Coord: Not Measured	@ N/A	Ref: N/A
Rig On Location: 08-04-57	Spudded: 08-04-57	Completed: 10-09-57 *
Circulating Media: Mud as needed		Recompleted: August 1968 ***

Main Rig & Contractor: Cable Tools-Perry Brothers Drlg. Co., Flagstaff, AZ
No. Of Compressors & Capacity: None

Bore Hole Record			Casing Record					
From	To	Size	I.D.	Wt/Ft.	Wall	From	To	Ft3 Cement
0'	889'*	15-3/4"	12.125"**	41.51#	0.3125"	0'	887'	** None
889'	1139'***	11-3/4"	---	---	---	---	---	---

Total Depth: 1139' Plugs: None
Junk: None
Logging Data: Electric (2), Caliper (1), Gamma Ray-Neutron (1), Radioactive Tracer (2)

Rigs Used

Rig No.	Name	Class	Days Operating	Sec. W/Crew	Sec. W/O Crew	Total Days On Location
Contract	Perry Brothers Drlg. Co.	---	---	---	---	66.17

Remarks: * Well put in service June 1960.
** Casing was installed with preslotted section from 793'-868'. (Slots - 1/4" x 2" and 51 per ft.) 2' concrete plug on bottom used for casing seat.
*** Drilling records not available for deepening hole.

Prepared By:JEC:llh J E Clarke 11-9-88
Reviewed By:MJB M J Barnett 11/8/88

Perry Brothers
RECORD OF HOLE DRILLED BY CABLE TOOL

Hole No.: J-12 Project: NTS 400
Driller: Lloyd Perry & Ralph Barber Spud Date: 08-04-57

Contractor: Perry Brothers Observer: _____ Compl.Date: 10-09-57

Depth (Ft)	Day	Ft. Drilled Per Shift	Description of Sample	Remarks
	August 4			
0 - 5		15	Sand & Gravel	Setting up rig
5 - 10				Drilled 1:00-6:00 pm
10 - 15				
	August 5			
15 - 20		25	Sand & Gravel	Drilling 8:00 am-6:00 pm
20 - 25				6:00-8:00 pm put in casing
25 - 30				
30 - 35				
35 - 40				
	August 6			
40 - 45		20	Sand & Gravel	8:00-10:00 am reverse cable
45 - 50				10:00 am-2:00 pm drilling
50 - 55				2:00-3:00 pm put in more casing
55 - 60				3:00-8:00 pm drilling
	August 7			
60 - 65		25	Sand & Gravel	8:00 am-8:00 pm drilling
65 - 70				
70 - 75				
75 - 80				
80 - 85				
	August 8			
85 - 90		40	Sand & Gravel	Casing hole 8:00-10:00 am
90 - 95				Drilling 10:00 am-5:00 pm
95 - 100				Casing hole 5:00-6:00 pm
100 - 105				Drilling 6:00 pm-12:00 am

Depth (Ft)	Day	Ft. Drilled Per Shift	Description of Sample	Remarks
	August 8 (cont.)			
105 - 110				
110 - 115				
115 - 120				
120 - 125				
	August 9			
125 - 130		25	Sand & Gravel	Building up bit 8:00-9:00 am
130 - 135				Drilling 9:00 am-12:00 pm
135 - 140				Casing Hole 12:00-2:00 pm
140 - 145				Drilling 2:00 pm-12:00 am
145 - 150				
	August 10-11			
150 - 165				
	August 12			
165 - 170		30	Sand & Gravel-Gray	8:00-10:00 am built up 12" bit
170 - 175				10:00 am-5:30 pm drilling
175 - 180				
180 - 185				
185 - 190				
190 - 195				
	August 13			
195 - 200		45	Sand & Gravel-Gray	8:00 am-1:00 pm drilling
200 - 205				1:00-2:00 pm built up bit
205 - 210				2:00-8:00 pm drilling
210 - 215				
215 - 220				
220 - 225				
225 - 230				
230 - 235				
235 - 240				8:00 pm-12:00 am drilling
	August 14			
240 - 245		50	Sand & Gravel-Gray	12:00-8:00 am drilling
245 - 250				

Depth (Ft)	Day	Ft. Drilled Per Shift	Description of Sample	Remarks
	August 14 (cont.)			
250 - 255			Brown Clay & Gravel	8:00 am-1:00 pm hauling water
255 - 260				1:00-2:00 pm built up bit
260 - 265				2:00-7:30 pm drilling
265 - 270				7:30-10:00 pm water
270 - 275				10:00 pm-12:00 am drilling
275 - 280				
280 - 285				
285 - 290				
	August 15			
290 - 295		75	Brown Clay & Gravel	12:00-9:00 am drilling
295 - 300				9:00-10:00 am repair waterpump
300 - 305				10:00-11:00 am drilling
305 - 310				11:00 am-12:00 pm built up bit
310 - 315				12:00-7:30 pm drilling
315 - 320				7:30-9:00 pm water
320 - 325				9:00 pm-12:00 am drilling
325 - 330				
330 - 335				
335 - 340				
340 - 345				
345 - 350				
350 - 355				
355 - 360				
360 - 365				
	August 16			
365 - 370		80	Brown Clay & Gravel	12:00-8:00 am drilling
370 - 375				8:00-9:30 am building up bit
375 - 380				9:30 am-3:30 pm drilling
380 - 385				3:30-6:00 pm drilling
385 - 390				6:00-7:00 pm built up bit
390 - 395				7:00 pm-12:00 am drilling
395 - 400				
400 - 405				

Depth (Ft)	Day	Ft. Drilled Per Shift	Description of Sample	Remarks
	August 16			
405 - 410				
410 - 415				
415 - 420				
420 - 425				
425 - 430				
430 - 435				
435 - 440				
440 - 445				
	August 17			
445 - 450		30	Brown Clay & Gravel	12:00-8:00 am drilling
450 - 455				8:00-9:30 am running rope socket
455 - 460				
460 - 465				9:30 am-12:00 pm drilling
465 - 470				
470 - 475				
	August 18			No work
	August 19			
475 - 480		30	Brown Clay & Gravel	7:30-9:00 am water
480 - 485				9:00-10:30 am built up bit
485 - 490				10:30 am-8:00 pm drilling
490 - 495				
495 - 500				
500 - 505				
	August 20			
505 - 510		10		Went to Mercury after test pump for J-11 8:00 am-2:00 pm
510 - 515				2:00-4:00 pm water
				4:00-7:30 pm drilling
	August 21			
515 - 520		10	Igneous Rock-Very Hard	

Depth (Ft)	Day	Ft. Drilled Per Shift	Description of Sample	Remarks
	August 21 (cont.)			
520 - 525				8:00 am-8:00 pm drilling
525 - 530		20	Igneous Rock Purple-Very Hard	
530 - 535				8:00-10:00 am built up bit
535 - 540				10:00 am-6:00 pm drilling
540 - 545				
	August 23			
545 - 550		5	Igneous Rock	8:00-10:00 am built up bit
				10:00 am-8:00 pm drilling
	August 24			
550 - 553		3	Igneous Rock	8:00-9:00 am built up bit
				9:00 am-8:00 pm drilling
	August 25			No work Sunday
	August 26			
553 - 563		10	Igneous Rock	8:00 am-1:00 pm went to Mercury after casing 1:00-8:00 pm drilling
	August 27 thru September 25			No drilling
	September 26			
563 - 565		2	Purple Igneous Rock-Very Hard	9 Hours
	September 27			
565 - 570		25	Purple Igneous Rock-Very Hard	11 Hours built up bit while bailing out
570 - 575				
575 - 580				
580 - 585				
585 - 590			Brown Igneous Rock-Hard	
	September 28			
590 - 595		25	Brown Igneous Rock-Hard	12 Hours built up bit while bailing out
595 - 600				
600 - 605				

Depth (Ft)	Day	Ft. Drilled Per Shift	Description of Sample	Remarks
	September 28			
605 - 610			Purple & Black Rock	
610 - 615				
	September 29			
615 - 620		20	Purple & Black Rock	12 Hour built up bit while bailing out
620 - 625				
625 - 630				
630 - 635			Brown Rock	
	September 30			
635 - 640		45	Brown Rock	12 Hours built up bit while bailing out
640 - 645				
645 - 650				
650 - 655			Brown & Gray Rock	
655 - 660				
660 - 665				
665 - 670				
670 - 675				
675 - 680				
	October 1			
680 - 685		50	Brown & Gray-Hard Rock	12 Hours built up bit while bailing out
685 - 690				
690 - 695				
695 - 700				
700 - 705				
705 - 710				
710 - 715				
715 - 720				
720 - 725				
725 - 730				
	October 2			
730 - 735		55	Brown & Gray Rock	12 Hours built up bit while bailing out

Depth (Ft)	Day	Ft. Drilled Per Shift	Description of Sample	Remarks
	October 2 (cont.)			
735 - 740				
740 - 745				
745 - 750			Brown, Purple & Gray Hard Rock	Struck water at 750'
750 - 755				
755 - 760				
760 - 765				
765 - 770				
770 - 775			Brown & Gray Igneous Rock	
775 - 780				
780 - 785				
	October 3			
785 - 790		30	Brown & Gray Igneous Rock	9 Hours built up bit while bailing out
790 - 795				
795 - 800				
800 - 810				
810 - 815				
	October 4			
815 - 820		35	Brown & Gray Igneous Rock	12 Hours built up bit while bailing out
820 - 825				
825 - 830				
830 - 835				
835 - 840				
840 - 845				
845 - 850				
	October 9			
850 - 855		40.5	Brown & Gray Igneous Rock	9 Hours in hard rock
855 - 860				
860 - 865				
865 - 870				
870 - 875				
875 - 880				
880 - 885				
885 - 887.5				

J-12 Water Well
ADDITIONAL WORK

10-08-57	Ran Schlumberger electric log to 851' T.D. with drillers depth at 850'.
10-09-57	Drilled 15-3/4" hole from 850' to 889'. Hole completed 10-09-57.
10-31-57	Hydrologic test was run. Test indicated a 3' drawdown at 200 g.p.m. and static water level at 734'.
11-05-57	12-3/4" O.D., 41.51#, 0.3125" wall casing was set at 887' on 2' concrete plug. Casing was preslotted with slotted section from 793' to 868'. Vertical slots were 1/4" x 2" on 4" centers with 3 rows per foot.
June 1960	Well was put in service.
August 1968	11-3/4" hole was drilled from 889' to 1139'. Hole recompleted in early August 1968.
05-10-69	Moved in Allen Drilling Co. rig and pulled Reda pump on 6-5/8" galvanized casing with 1.9" O.D. monitor line strapped on the outside.
05-11-69	Replaced Reda pump and ran pump on the 6-5/8" casing in the hole along with 1.9" O.D. monitor line and power cable banded on the outside. Moved out rig.
04-17-74	Moved in Portadrill #2, rig #85122. Drilled 4 anchor holes and set anchors.
04-19-74	Rig secured from 04-17-74 to 04-19-74. Rigged down and moved out.
04-22-74	Moved in Hopper Hoist rig #85115 and rigged up. Worked days only.
04-23-74	Rig secured to 1000 hours. Started pulling 6-5/8" casing along with 1.9" monitor line and power cable strapped on the outside.
04-24-74	Pulled and replaced 7" Reda pump. Started in the hole with pump on 6-5/8" casing banding 1.9" O.D. monitor line and power cable on the outside.
04-25-74	Lowered and set pump intake at 832.39' and bottom of monitor line at 783'. Installed surface equipment.
04-26-74	Moved out rig. Pumped 860 gpm of water for 10 minutes, fluid level at 744'.
09-22-76	Moved in Hopper Hoist rig #85115 and rigged up.
09-23-76	Started pulling 6-5/8" casing, 1.9" monitor line, and power cable.
09-24-76	Laid down casing and 7" Reda pump.
09-25-76	Made up BJ pump on 5-1/2" casing. Lowered and landed pump in the hole.

09-26-76 Rigged down and moved out.

04-20-77 Moved in Ideco #37, rig #85116 and rigged up. Pulled pump out of the hole.

04-21-77 Serviced pump and lowered BJ pump on 5-1/2" casing in the hole. Installed surface equipment, rigged down, and moved out.

05-28-80 Moved in Ideco #37, rig #85116 and rigged up.

06-06-80 Rig secured from 05-28-80 to 06-06-80. Made up Reda pump on 5-1/2" casing. Lowered and set pump intake at 824'. Rigged down.

06-09-80 Rig secured from 06-06-80 to 06-06-80. Moved out rig.

02-04-81 Moved Hopper Hoist rig #85115 on location.

02-05-81 Rigged up. Pulled 5-1/2" casing, Reda pump, along with 1.9" O.D. monitor line, and power cable strapped on the outside.

02-06-81 Laid down pump. Made up BJ Centrilift pump on 5-1/2" casing. Lowered and set pump intake at 817' along with 1.9" monitor line and power cable strapped on the outside. Installed surface equipment.

02-07-81 Rigged down and moved out.

03-18-81 Ran USGS temperature survey to 810', temperature was 27.22°C (81°F) and fluid level at 748'.

05-18-82 Moved in Ideco #37, rig #85116, rigged up, and started pulling pump.

05-19-82 Pulled 5-1/2" casing and Centrilift pump with 1.9" monitor line and power cable on the outside. Replaced pump, lowered and set Centrilift pump intake at 821.64' along with 1.9" monitor line and power cable strapped on the outside.

05-20-82 Installed surface equipment, rigged down, and moved out.

06-15-82 Moved in Joy #1, rig #85172 and rigged up. Started pulling 5-1/2" casing and 1.9" monitor line.

06-16-82 Pulled 5-1/2" casing, monitor line, and laid down pump. Serviced new Centrilift pump and changed drilling line. Ran and landed 1.9" Hydril monitor line at 839.93'.

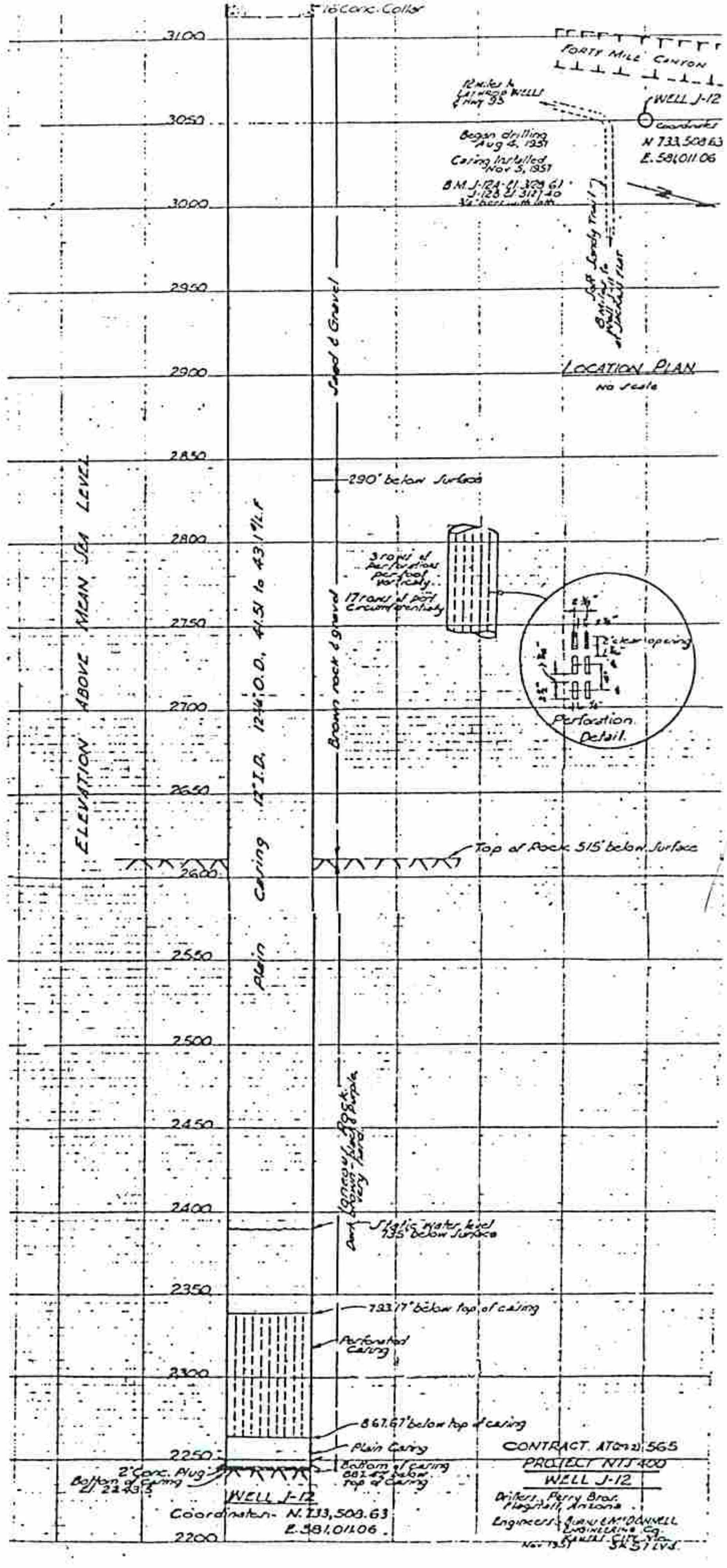
06-17-82 Made up pump on 5-1/2" casing. Ran and landed pump at 877.15' with intake at 821.64'. Installed surface equipment, rigged down, and moved out.

08-12-82 Moved in Joy #1, rig #85172 and rigged up. Pulled 5-1/2" casing and pump. Replaced pump with new Centrilift pump and lowered pump on 5-1/2" casing in the hole. Installed surface equipment, rigged down, and moved out.

06-06-84	Moved in Ideco #40, rig #85117 and rigged up. Pulled 5-1/2" casing and laid down pump.
06-07-84	Made up new Centrilift pump on 5-1/2" casing and landed pump at 874.64' with intake at 821.08'. Installed surface equipment, rigged down, and moved out.
08-05-85	Moved Ideco #37, rig #85116 on location.
08-06-85	Pulled 5-1/2" casing and laid down pump.
08-07-85	Disassembled Centrilift pump and sent electric power cable to Mercury for testing.
08-08-85	Made up new Centrilift pump on 5-1/2", 15.50#, J-55 casing.
08-09-85	Lowered and landed pump at 875.20' with intake at 821.65'. Made up surface equipment, rigged down, and moved out.
11-04-87	Moved in Hopper Hoist, rig #85115 and rigged up.
11-05-87	Completed rigging up. Started pulling 5-1/2" casing and Centrilift pump.
11-06-87	Completed pulling 5-1/2" casing and removed cable from Centrilift pump.
11-09-87	Rig secured from 11-06-87 to 11-09-87. Laid down old pump and prepared to run new Centrilift pump in hole.
11-10-87	Rigged up and made trip in with new Centrilift pump on 5-1/2", 15.50# casing. Landed bottom of pump at 865.04' with intake at 831.58'. Tested pump, rigged down, and started moving out Hopper Hoist.
11-12-87	Rig secured from 11-10-87 to 0800 hours, 11-12-87. Completed rigging down and moving out Hopper Hoist.

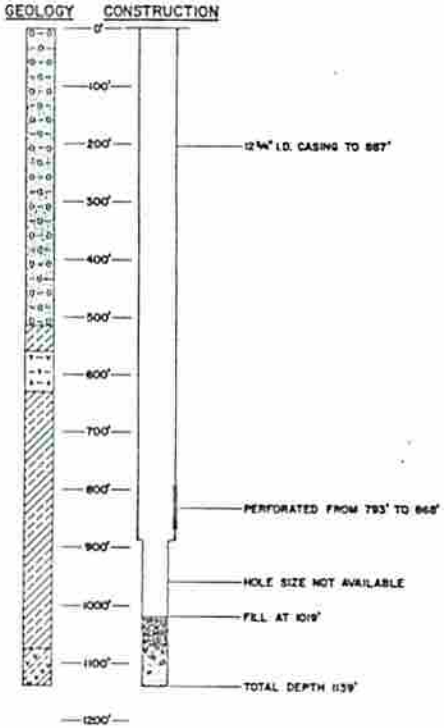
J-12 Water Well
REVIEW OF HOLE CONDITIONS

400 mm (15-3/4") hole was drilled to a total depth of 271.0 m (889') between 08-04-57 and 10-09-57 using Perry Brothers Drilling Co. cable tools. Electric log was run 10-08-57 to 259.4 m (851') T.D. Hydrologic test run 10-31-57 indicated static water level at 223.7 m (734') and 0.9 m (3') drawdown at 757.1 L.p.m. (200 g.p.m.). 324 mm (12-3/4") casing was set at 270.4 m (887') on a 0.6 m (2') concrete plug, 11-05-57 with a preslotted section between 264.6 m (868') and 241.7 m (793'). The well was put in service June 1960. 298 mm (11-3/4") hole was drilled to a total depth of 347.2 m (1139'). Well recompleted August 1968. Reda and Centrilift submersible pumps were used for production. Latest pump was a Centrilift pump on 140 mm (5-1/2") casing with intake at 253.6 m (832') and bottom of 48 mm (1.9") monitor line at 256.0 m (840') 11-10-87.



16" Conc. Collar
3100
3050
3000
2950
2900
2850
2800
2750
2700
2650
2600
2550
2500
2450
2400
2350
2300
2250
2200
FORTY MILE CANYON
12 miles to Lathrop Wells & Hwy 95
WELL J-12
Coordinates
N 733,508.63
E. 581,011.06
Began drilling Aug 4, 1957
Casing Installed Nov 5, 1957
LOCATION PLAN
No scale
ELEVATION ABOVE MEAN SEA LEVEL
Sand & Gravel
290' below Surface
3 rows of perforations per foot vertically
17 rows of perf. circumferentially
2" clear opening
Perforation Detail.
Brown rock & gravel
Plain Casing 12" I.D. 12 3/4" O.D. 41.51 to 43.1 #/L.F.
Top of Rock 515' below Surface
Dense Igneous Rock: brown-black & purple very hard
Static water level 735' below Surface
733.17' below top of casing
Perforated Casing
867.67' below top of casing
Plain Casing
Bottom of casing 881.67 below Top of Casing
2" Conc. Plug
Bottom of Casing El 2243.5
WELL J-12
Coordinates- N. 733,508.63
E. 581,011.06
CONTRACT AT(29-2)-565
PROJECT NTS 400
WELL J-12
Drillers - Perry Bros. Flagstaff, Arizona
Engineers - Burns & McDonnell Engineering Co. Kansas City, Mo.
Nov 1957
SK 57 LVS

J-12
JACKASS FLATS



LOCATION:
N733,509' E581,011'
ELEVATION G.L. 3128'
COMPLETED - 1957
RECOMPLETED - AUG. 1968

PUMP TEST:
DATE: 4/21/69
SPECIFIC CAPACITY: 90 g.p.m. per ft.
DRAWDOWN: 9.9'
DURATION OF TEST: 4 hours
PUMPING RATE: 890 g.p.m.
S.W.L.: 742'

LEGEND

- ALLUVIUM
- SLIGHTLY WELDED ASH-FLOW TUFF
- BEDDED & REWORKED TUFF
- PARTLY TO DENSELY WELDED TUFF
- VITRIC TUFF

DEVIATION:
No deviation surveys available.

1/30/74

U. S. ATOMIC ENERGY COMMISSION
NEVADA OPERATIONS OFFICE — LAS VEGAS, NEVADA

J. GESIN
B. FISHER
G. BRUESCH

J-12

FENIX & SCISSON, INC.
ENGINEERS AND CONTRACTORS
MERCURY, NEVADA

RDS

N 733,508.2'
E 581,011.7'
HE N revised 2-27-86
Top Concrete Slab 3129.8'
Top of Flange 3124.6'

Well J-12 (73-58)

Well J-12 was drilled to supply water for operations of the Atomic Energy Commission in Jackass Flat. It is in Jackass Flat about 23 miles northwest of Mercury. The Nevada State Coordinates of the site are N 733,509 and E 581,011 and the land-surface altitude at the well is 3,128 feet.

The well was drilled in 1957 by the Perry Drilling Co., using the cable-tool method. It is 887 feet deep and is cased from the surface to the bottom with 12 3/4-inch casing, which in the interval from 793 to 868 feet is perforated.

The yield of the well during a 2-hour pumping test was reported to be 380 gallons per minute with only 4 feet of drawdown. The specific capacity was 95 gallons per minute per foot of drawdown. The well was put in service in June 1960.

Details of construction and test pumping are given in reports prepared in 1959 and 1961 by the Burns and McDonnell Engineering Co., Kansas City, Mo.

The well penetrated alluvium from the surface to 515 feet and tuff from 515 to 887 feet. An electrical log of the well is given in figure 2.

The static water level in the well in January 1960 was 741.4 feet below the land surface.

Geologist's log of well J-12

By George E. Walker

	Thickness (feet)	Depth (feet)
Alluvium		
Sand and gravel; very pale brown to yellowish brown; consisting of sedimentary tuff (pale red to very pale orange), silicified tuff (light brown to pale yellowish brown), and crystals of quartz and feldspar (clear to pink) with minor amounts of argillite (light gray) welded tuff (brown and pale red), felsite (medium gray to light brownish gray), perlite (light gray), and glass (black) . . .	515	515
Bedrock		
Tuff, welded; pale red; consisting of flattened pumice 40 percent, crystals of quartz and feldspar 20 percent with minor amounts of black pumice, hornblende, and lithics	35	550
Tuff, welded; grayish red; consisting of flattened pumice 60 percent, and crystals of quartz and feldspar 10 percent with minor amounts of black pumice, and lithics; some manganese-oxide coatings	10	560

Geologist's log of J-12--Continued

	Thickness (feet)	Depth (feet)
Tuff, pumiceous; grayish orange; consisting of pumice (pale orange pink) 65 percent, and crystals of quartz and feldspar 30 percent with minor amounts of black pumice and lithics . . .	30	590
Tuff, vitrophyre; grayish red; consisting of pitchstone (grayish red), pumice with shards, and crystals of quartz and feldspar 30 percent with a minor amount of biotite and lithics	20	610
Tuff, vitrophyre; grayish black; consisting of obsidian (grayish black), pitchstone (pale orange, as streaks in obsidian), crystals of quartz and feldspar 30 percent, and biotite 5 percent . .	20	630
Tuff, welded (altered); pale red to pinkish gray; consisting of elongated pumice (some altered) 30 to 45 percent and crystals of quartz and feldspar 15 to 45 percent with minor amounts of biotite and lithics	100	730
Tuff, welded (altered); pinkish gray; consisting of flattened pumice (altered, some eutaxitic structure) and crystals of quartz and feldspar with minor amounts of biotite and lithics . . .	150	880
Not recorded, probably tuff	7	887

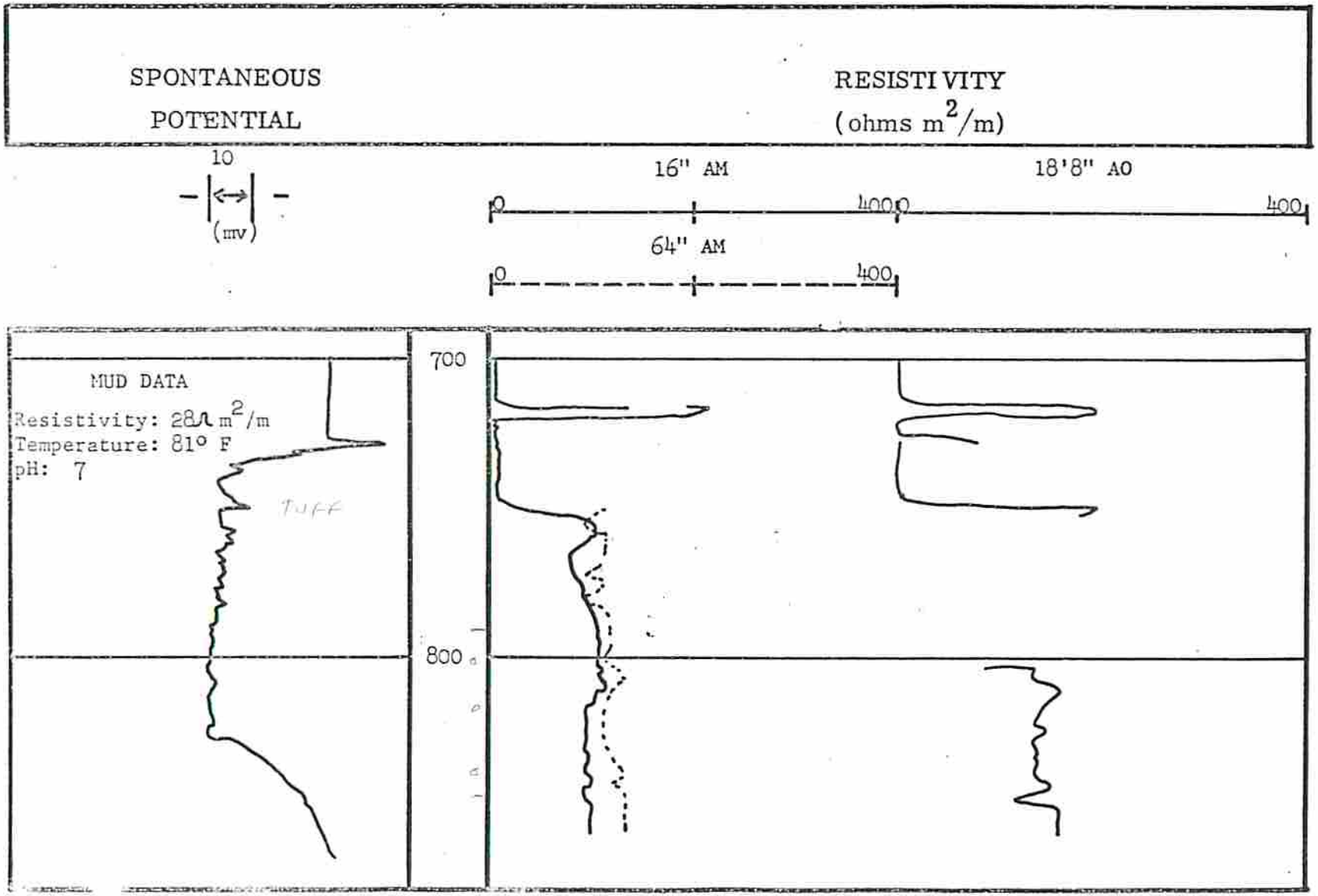


FIGURE 2. --ELECTRICAL LOG OF WELL J-12.

REDBOOK SUMMARY

HOLE NAME **UE-16d Eleana Water Well** STA. SEQ. NO. 12501

AREA 16 **GROUND ELEV.** 4684 FT

NORTHING 844,878 **LAT** 37.070063 **START** 5/17/77 **HOLE TYPE** WL POT

EASTING 646,567 **LONG** -116.165157 **COMP.** 3/5/81 **STATUS** ACTIVE

BOREHOLE SEGMENTS

Segment Name	Top	Bottom	Diameter	Start	Comp.
	0	2321 FT	6.25 IN		
UE-16D ELEANA SIDETRACK	2130	3000 FT	6.25 IN		

CONSTRUCTION OBJECTS

Construction Object	Top	Bottom	Diameter
CASING	0	80 FT	10.75 IN
CASING	0	2117 FT	7 IN

COMMENTS: 20040210 - Saved for EM and potable water. YMP list. Waste Isolation Hole. Plugged with cement from 2228' to 2130'; bridge plug at 2020'. 7" casing perforated from 1310' to 1145'. Recompleted. 20060607 [25,26] - water supply well.

FENIX & SCISSON, INC.

HOLE HISTORY DATA

DATE: November 4, 1977 APPROVED: J. Gesin

HOLE No.: UE-16d Eleana	W. O. No.: 9080-105	I. D. No.:
USER: DOE	TYPE HOLE: Exploratory	
LOCATION: NTS	COUNTY: Nye	AREA: 16
SURFACE COORDINATES: N 844,877.64' E 646,566.91'		GROUND ELEVATION: 4684.2'
RIG ON LOCATION: 5-16-77	SPUDDED: 5-17-77	COMPLETED: 8-8-77
CIRCULATING MEDIA: Air to 830', air foam from 830' to 2436', mud from 2436' to 3000'		
No. of COMPRESSORS & SIZE:		

BORE HOLE RECORD			CASING RECORD							
FROM	TO	SIZE	I. D.	WT./FT.	WALL	GRADE	CPL'G	FROM	TO	CU. FT. CMT.
0'	81'	26"	10.05"	40.5#	.35"			0'	80'	485
81'	2119'	9-7/8"	6.456	20#	.272"			0'	2117'	190
2119'	*2321'	6-1/4"								
2130'	3000'	6-1/4"								

TOTAL DEPTH: 3000' MANDREL DEPTH PLUGS: *Plugged with cement from 2130' to 2228'.

JUNK:

LOGGING DATA: Caliper (7), density (2), electric (3), ** SURVEYS PAGE: CORING PAGE:

BOTTOM HOLE COORDINATES: @ REFERENCE:

NON-OPERATIONAL TIME		OPERATIONAL DELAY TIME		WORKING TIME	
Move Rig up & down	3.39 days	Equipment Repair	1.42 days	Drilling Time, Conn, Survey	19.03 days
Secured	6.08 days	Caving	5.42 days	Trip Time	5.09 days
Bail & Run Mandrel	____ days	Condition Hole	2.71 days	Single Shot Survey Time	____ days
Logging	4.56 days	Fishing	5.42 days		____ days
Work Stuck Pipe	.71 days	W.O. Equipment	3.25 days	Total	24.12 days
Casing	.54 days	Safety Meetings	.37 days	Total Suspended Time	____ days
Cement	2.08 days	Drill Out Shoe	.17 days	Non-Operational Time	24.79 days
Coring	5.39 days	Hydrological Tests	16.71 days	Operational Delay Time	35.76 days
Plugback & Drill Out	2.04 days	Blow Hole	.29 days	Working Time	24.12 days
TOTAL	24.79 days	TOTAL	35.76 days	TOTAL ELAPSED TIME	84.67 days

REMARKS: ** guard, dipmeter, microlaterolog (2), epithermal neutron (2), gamma (2), NCTL (2), NAIL (2), CCL (2), radioactive tracer, seisviewer, temperature (2), 3-D velocity (3).

Rig No.	Name	Type	
85127	Auger	LL DH-110	1.23 days
85116	Ideco 37	1 -- 37	82.67 days
			____ days
			____ days
			____ days
			____ days

UE-16d Eleana
HOLE HISTORY

5-16-77 Moved in Auger rig #85127 and set up. Moved in Portadrill #2, rig #85122, drilled for and set 4 anchors. Moved out rig.

5-17-77 Drilled 26" hole from 0' to 81'. Set 10-3/4" O.D., 40.50# casing at 80' and moved out rig. Cemented annulus using Dowell as follows:

	Stage No.	Interval	Cement Used - Ft^3	Calc. Ft^3	CIP
	1	81' - 73'	35 neat cement + 2% $CaCl_2$	24	1905 Hours
	2	73' - 30'	315 ditto	131	2300 Hours
5-18-77	3	30' - 6'	100 ditto	73	0015 Hours
	4	6' - 0'	35 ditto	18	0740 Hours
		TOTALS	485 ft^3	246 ft^3	

Moved in Ideco #37, rig #85116 and started rigging up.

5-19-77 Rigged up. Drilled out cement and 8-3/4" hole from 81' to 108' using air.

5-20-77 Drilled 8-3/4" hole from 108' to 343'.

5-21-77 Drilled 8-3/4" hole from 343' to 596'. Made trip for bit at 585'.

5-22-77 Drilled 8-3/4" hole from 596' to 767'.

5-23-77 Drilled 8-3/4" hole from 767' to 830'. Blew hole with air and pulled bit. Ran USGS fluid probe, fluid level at 752'. Made up 6-7/32" coring assembly and cut core #1 from 830' to 840', recovered 7' - 1". Made up 8-3/4" bit and reamed core hole using air foam.

5-24-77 Drilled 8-3/4" hole from 840' to 944'. Cut core #2 from 944' to 947-1/2', recovered 3-1/2'. Secured rig at 2400 hours.

5-25-77 Rig secured to 1230 hours. Cut core #3 from 947½' to 955', recovered 8'.

5-26-77 Reamed core hole and drilled 8-3/4" hole from 955' to 987'. Cut core #4 from 987' to 1002', recovered 15'. Reamed core hole and drilled 8-3/4" hole from 1002' to 1020'.

5-27-77 Drilled 8-3/4" hole from 1020' to 1117'. Made up 6-7/32" coring assembly and cut core #5 from 1117' to 1127', recovered 6'. Reamed core hole and drilled 8-3/4" hole from 1127' to 1162'.

5-28-77 Drilled 8-3/4" hole from 1162' to 1312'.

5-29-77 Drilled 8-3/4" hole from 1312' to 1330'. Made up 6-7/32" coring assembly and cut core #6 from 1330' to 1345', recovered 15'. Reamed core hole and drilled 8-3/4" hole from 1345' to 1380'. Blew fluid from hole and pulled out of hole. Monitored fluid level, water at 755'. Secured rig at 2400 hours.

5-31-77 Rig secured from 5-29-77 to 0 hours on 5-31-77. Ran 8-3/4" bit in the hole, no fill. Measured drill pipe out of the hole and corrected total depth to 1373'. Made up 4" O.D. centrilift pump on 2-3/8" O.D. tubing. Picked up tubing and monitor line.

6-1-77 Ran pump in the hole on 2-3/8" O.D. tubing to 1082' pump suction at 1065'. Landed 2-3/8" O.D. monitor line at 1038'. USGS monitored fluid level, fluid level at 762'. Ran pump for 4 hours. Laid down pump and tubing. Secured rig at 2400 hours.

6-2-77 Rig secured to 1200 hours. Drilled 8-3/4" hole from 1373' to 1455'.

6-3-77 Cut core #7 from 1455' to 1470', recovered 15'. Reamed core hole, and drilled 8-3/4" hole from 1470' to 1501'. Secured rig at 2400 hours.

6-5-77 Rig secured from 6-3-77 to 0 hours on 6-5-77. Drilled 8-3/4" hole from 1501' to 1588'. Lost circulation at 1566' and regained.

6-6-77 Drilled 8-3/4" hole from 1588' to 1645'. Pulled out of hole, hole tight from 1595' to 1605'. Cut core #8 from 1645' to 1648', recovered 2'. Reamed core hole and prepared to drill.

6-7-77 Drilled 8-3/4" hole from 1648' to 1673' and lost circulation. Pulled out of hole, bit plugged. Drilled 8-3/4" hole from 1673' to 1769'.

6-8-77 Drilled 8-3/4" hole from 1769' to 1890'. Cut 6-7/32" core #9 from 1890' to 1891', recovered 6". Cut core #10 from 1891' to 1895, recovered 3'.

6-9-77 Reamed core hole and drilled 8-3/4" hole from 1895' to 2109'. Cleaned out 8' of fill on connection at 1923'. Made up 6-7/32" core assembly Cleaned out 4' of fill and cut core #11 from 2109' to 2114'.

6-10-77 Completed core #11 from 2114' to 2119', recovered 5.5'. Ran Schlumberger dipmeter and microlaterolog - microlog to 2105'. Ran Birdwell caliper log to 2108', electric log to 2105', induction to 2102' and epithermal neutron to 2098'.

6-11-77 Ran Birdwell density and gamma logs to 2091', guard log to 2088, temperature log to 2089', 3-D logs to 2087', electric log to 2084', and radioactive tracer log to 1766'.

6-12-77 Ran BJ pump in the hole on 4½" O.D. casing along with a 1.6" O.D. monitor line. Landed pump at 1041' with suction 1039'. Ran USGS fluid probe in the monitor line, tool stopped at 530', line plugged with cement. Pulled casing and tubing out of the hole.

6-13-77 Ran BJ pump back in the hole to 1085', pump suction at 1037'. 1.6" O.D. monitor line at 1015'. Started water test.

6-14-77 Continued water testing.

6-15-77 Completed water testing and pulled pump out of the hole. Ran Birdwell seisviewer, tool stopped at 1794'.

6-16-77 Ran 8-3/4" bit in the hole, cleaned out fill and reamed core hole to 2119'. Ran Birdwell seisviewer and caliper logs to 2094'.

6-17-77 Ran Lynes packer in the hole on 2-7/8" O.D. tubing and set at 1923'. Swabbed tubing to 1286' and opened ports. Monitored fluid level in the tubing.

6-18-77 Continued testing to 0300 hours. Released packer and pulled tubing. Made up Lynes straddle packers and set from 1534' to 1750'. USGS monitored fluid levels.

6-19-77 Continued water testing. Reset packers from 1328' to 1524' and ran water tests. Released packers and pulled out of hole. Respaced packers and set from 1030' to 1200'. Ran water tests. Reset packers from 860' to 1030' and ran test. Pulled out of hole. Ran Birdwell seisviewer log.

6-20-77 Completed seisviewer log, could not get below 1825'. Opened 8-3/4" hole to 9-7/8" from 81' to 1074' using mud, no returns.

6-21-77 Opened 8-3/4" hole to 9-7/8" from 1074' to 1453'. Made trip for new reamer. Reamed tight hole from 1237' to 1453' and opened 8-3/4" hole to 9-7/8" from 1453' to 1569'. Made trip for new cutters. Reamed hole from 1500' to 1554' and twisted off leaving 5 - 6" drill collars, hole opener and 8-3/4" bit in the hole. Overall length was 150.12'.

6-22-77 Ran overshot in the hole and worked over fish, recovered all of same. Made up hole opener and reamed tight hole from 1490' to 1569'. Opened 8-3/4" hole to 9-7/8" from 1569' to 1805'.

6-23-77 Changed out hole opener and reamed tight hole from 1773' to 1801'. Made trip for 8-3/4" bit and cleaned out fill from 1801' to 2018'.

6-24-77 Cleaned out fill from 2078' to 2110' with an 8-3/4" bit. Made up 9-7/8" reamer and opened 8-3/4" hole from 1805' to 1885'.

6-25-77 Opened 8-3/4" hole to 9-7/8" from 1885' to 2119'. Pulled up to 1790' and waited on fill, cleaned out fill from 2070' to 2119'. Waited on fill again, tagged top at 2080'. Pulled out of hole. Ran Birdwell caliper log to 2079'. Started running 7" O.D. casing.

6-26-77 Ran 7" O.D., 20#, flush joint casing with a float shoe on bottom. Washed casing down from 2070' to 2117'. Cemented stage #1 using Dowell with 100 ft^3 of neat cement + 2% $CaCl_2$. Displaced with

85 barrels of water. Plug did not leave cementing head. CIP at 0330 hours. At 1000 hours pumped 45 barrels of water in the casing, pressure rose to 300 psi and bled to 0 psi. Pumped in 42 barrels with 0 psi. Ran Birdwell NCTL log, no cement indicated. Cemented stage #2 with 90 ft^3 of neat cement + 2% $CaCl_2$. Displaced plug with 85 barrels of water. CIP at 1515 hours. Ran NCTL log, top of cement at 1944'.

6-27-77 Waited on cement. Set slips around the 7" casing in the 10-3/4" casinghead with 30,000# net tension on the casing. Laid down drill pipe, drill collars and 4½" kelly.

6-28-77 Blew fluid out of the 7" O.D. casing. Drilled out cement and shoe from 2104' to 2117', cleaned out to 2119' and drilled 6¼" hole from 2119' to 2132' with air. USGS monitored fluid level.

6-29-77 Cleaned out fill from 2122' to 2132' and drilled 6¼" hole from 2132' to 2310' with air foam.

6-30-77 Cut 6-1/8" core #12 from 2310' to 2320', recovered 3'. Ran 6¼" bit in the hole and reamed core hole to 2320'. Ran 6-1/8" core bit in the hole and could not get returns to surface. Pulled core bit and ran 6¼" bit, tagged obstruction at 250'. Pulled on 7" O.D. casing and recovered 6 joints (242.58') of 7" O.D., 20# Security thread flush joint casing.

7-1-77 Ran casing sizing mill in the hole and milled on 7" O.D. casing. Ran Bowen casing patch tool and attempted to latch onto the casing, came loose at 25,000# and could not relatch. Ran a casing reamer to open up the 7" O.D. casing, pulled reamer.

7-2-77 Made trip with a casing cutter and attempted to cut 7" O.D. casing. Made trip with a spear and could not pull casing. Made trip with a casing sizing mill and milled on casing. Made trip with the cutter and cut casing at 255'. Ran 242' of 7" O.D. casing with a casing patch tool on bottom and made up on casing. Set slips in the casing head and cut off pipe. Ran 6¼" bit in the hole and could not get thru casing patch. Ran 5-3/4" reamer and reamed on casing.

7-3-77 Pulled reamer and ran casing roller, rolled casing from 235' to 265'. Made trip with a 6¼" bit and a 6" flat bottom mill, neither would go thru patch. Ran a tapered mill and reamed 70' to bottom and drilled from 2320' to 2350'. Secured rig at 2400 hours.

7-5-77 Rig secured from 7-3-77 to 0 hours on 7-5-77. Worked stuck drill pipe loose. Cleaned out fill from 2270' to 2350'. Pulled out of hole and removed protector rubbers from drill pipe. Ran 6¼" bit in the hole and cleaned out fill from 2290' to 2318'.

7-6-77 Conditioned hole at 2318' and pulled out of hole. Waited on Birdwell. Made trip with bit, tagged fill at 2309' and pumped water in the hole. Fluid level at 1680'. Ran Birdwell electric and caliper logs to 2293'.

7-7-77 Corrected total depth to 2321'. Ran Lynes packer in the hole on 2-7/8" O.D. tubing and set at 2054'. Ran hydrologic test. Reset packer at 1957' and ran hydrologic test.

7-8-77 Continued running hydrologic test.

7-9-77 Completed running hydrologic test. Pulled packer out of the hole. Ran 2-3/8" O.D. tubing in the hole, tagged fill at 2228'. Plugged back hole using Dowell as follows:

Plug No.	Interval	Cement Used-Ft^3	Calc. Ft^3	CIP
1	2228' - 2225'	50 neat cement + 2% $CaCl_2$		2000 Hrs.
7-10-77 2	2225' - 2148'	50	ditto	0245 Hrs.
3	2148' - 1858'	50	ditto	0945 Hrs.

Pulled tubing to 1926'. Ran Birdwell NAIL log tagged cement inside the 2-3/8" O.D. Hydril tubing at 1854', no cement outside the tubing indicated, fluid level at 753'. Prepared to shoot tubing.

7-11-77 Ran Birdwell NAIL log to 1844', no cement indicated outside the 2-3/8" O.D. tubing. Ran Birdwell tubing cutter and shot at 1830', tubing did not part. Ran tubing cutter and shot off at 1830', pulled tubing out of the hole. Ran 4-1/2" wash pipe, tagged fish at 1830'. Worked over fish and tagged cement at 1858', cleaned out to 1863'. Pulled out of hole and made up 4-1/2" wash pipe with a diamond shoe on bottom. Ran in hole to 1863' and could not wash deeper. Pulled out of hole.

7-12-77 Made 2 trips with the 4-1/2" wash pipe and could not get below 1863'. Ran 2-15/16" bit in the hole, tagged fish at 1830' worked by fish and tagged cement at 1863'. Drilled beside the 2-3/8" O.D. tubing to 1936'.

7-13-77 Pulled out of hole and left 3 cones off of the 2-15/16" bit. Ran 4" wash over pipe in the hole, worked over fish to cement at 1863' and washed out cement to 1936'. Laid down wash pipe and ran in hole with an overshot. Worked over fish at 1830' and recovered 3 joints of 2-3/8" O.D. Hydril tubing and 1 perforated joint, overall length was 100.15'.

7-14-77 Ran 6-1/4" bit in the hole, tagged cement at 1920' and drilled out cement stringers to 1952' with air foam. Made trip with Globe junk basket and drilled from 1952' to 1954' with no circulation, recovered 15 small pieces of the 2-3/8" O.D. tubing. Ran 6-1/4" bit in the hole and drilled on junk from 1954' to 1955'. Made trip for Globe junk basket.

7-15-77 Pulled 6" Globe basket, recovered pieces of 2-3/8" O.D. tubing and pieces of 2-15/16" bit cones. Made trip with Globe junk basket to 1955', recovered pieces of tubing and bit cones. Ran 6¼" bit in the hole and drilled on junk from 1955' to 1959' using air

foam. Made trip for 6" Globe junk basket and drilled on junk from 1959' to 1961' with no circulation, recovered 1-1/2# of junk. Made trip with junk basket and drilled on junk from 1961' to 1964, recovered 1/2# of junk and 6" of solid cement. Ran 6-1/4" bit in the hole, reamed and drilled on cement from 1964' to 2080'.

7-16-77 Drilled out cement from 2080' to 2130' and sidetracked hole. Drilled 6-1/4" hole from 2130' to 2320' using air foam. Ran Birdwell caliper log to 2301'.

7-17-77 Cleaned out 15' of fill and drilled 6-1/4" hole from 2320' to 2436', hole caving. Made trip for bit at 2409' and cleaned out 21' of fill.

7-18-77 Worked bit out of tight hole. Ran Birdwell caliper log to 2222'. Rigged up to drill with mud. Ran 6-1/4" bit in the hole.

7-19-77 Cleaned out fill from 2220' to 2346', hole caving. Pulled bit into into casing and raised mud weight from 9 to 11.5# per gallon. Cleaned out fill from 2330' to 2346'.

7-20-77 Cleaned out fill from 2346' to 2436' and drilled 6-1/4" hole from 2436' to 2458'. Made trip for bit at 2441' and cleaned out 111' of fill.

7-21-77 Drilled 6-1/4" hole from 2458' to 2485'. Started out of hole and stuck drill pipe at 2445'. Pumped mud down the drill pipe with very little returns. Mud pump ran out of fuel after pumping 5 minutes. Worked pipe from 2445' to 2435'. Pumped 20 barrels of diesel in the hole, worked pipe to 2417'. Pumped in 3 barrels of mud, 1 barrel at a time and worked drill pipe after each barrel. Worked pipe to 2414'.

7-22-77 Worked pipe free and pulled out of hole. Made up 6-1/4" drilling assembly and ran in hole. Cleaned out bridges and fill from 2347' to 2485' and drilled 6-1/4" hole from 2485' to 2494' using mud. Pulled out of hole, tight hole from 2417' to 2325'.

7-23-77 Ran 6-1/4" bit in the hole, cleaned out fill and bridges from 2380' to 2394' and 6-1/4" hole from 2394' to 2529'.

7-24-77 Drilled 6-1/4" hole from 2429' to 2558'. Made trip for bit at 2529', cleaned out bridge at 2482' and 3' of fill on bottom.

7-25-77 Drilled 6-1/4" hole from 2558' to 2602'.

7-26-77 Drilled 6-1/4" hole from 2602' to 2695'. Made trip for bit at 2626' and drilled out bridge from 2555' to 2570'.

7-27-77 Drilled 6-1/4" hole from 2695' to 2815'. Made trip for bit at 2733', no fill. Secured rig at 2400 hours.

7-28-77 Rig secured to 0930 hours. Drilled 6-1/4" hole from 2815' to 2897'.

7-29-77 Drilled 6-1/4" hole from 2897' to 3000'.

7-30-77 Ran Eastman gyroscopic survey on 50' stations in and out of the hole to 2950'. Ran Birdwell density log to 2986'. Ran Schlumberger microlaterolog and dipmeter to 2994'. Ran Birdwell electric log to 2989' and gamma log to 2992'.

7-31-77 Ran Birdwell epithermal neutron, 3-D and gamma logs to 2992'. Ran temperature and caliper logs to 2994'. Started in hole with Lynes packer on 2-7/8" O.D. tubing.

8-1-77 Set Lynes packer at 2830' and ran hydrologic test as directed Released packer and pulled out of hole. Serviced packer and recorders. Ran back in hole.

8-2-77 Set bottom of Lynes packer at 2491' and ran hydrologic test.

8-3-77 Completed test. Pulled Lynes packer and ran 6-1/4" bit in the hole. Secured rig at 2400 hours.

8-4-77 Rig secured to 1130 hours. Cleaned out bridge from 2598' to 2610' and fill from 2920' to 3000'. Pulled out of hole, tight from 3000' to 2875' and 2400' to 2375'. Pulled up to 2100', reamed and cleaned out from 2360' to 2491'. Made connection and stuck drill pipe at 2480'.

8-5-77 Worked drill pipe free and pulled up to 2015'. Mixed and conditioned mud. Ran back in hole, stopped at 2460'.

8-6-77 Cleaned out bridges and fill from 2460' to 3000'. Waited on fill and tagged at 2989'. Pulled out of hole and ran Lynes packer. Set top at 1830' and ran hydrologic test as directed.

8-7-77 Completed hydrologic test. Laid down tubing and packer. Ran Birdwell seisviewer and guard logs, tools failed. Guard total depth 2978'.

8-8-77 Ran Birdwell guard log to 2973'. Filled hole with mud and rigged down. Hole completed 8-8-77.

9-29-77 Ran Birdwell depth check, tagged bottom at 2141'.

UE-16d Eleana

REVIEW OF HOLE CONDITIONS

660 mm (26") hole was drilled to 24.7 m (81') and 273 mm (10-3/4") casing was set at 24.4 m (80'). The annulus was cemented to surface in 3 stages with 13.73 m^3 (485 ft^3) of cement slurry. Calculated annular volume was 6.97 m^3 (246 ft^3). 222 mm (8-3/4") was drilled and cored to 645.9 m (2119") then opened to 251 mm (9-7/8") to 645.9 m (2119'). Caliper, dipmeter, microlaterolog - microlog, electric, induction, epithermal neutron, density, gamma, guard, temperature, seisviewer, 3-D velocity and radioactive tracer logs were run and hydrological tests were made. 178 mm (7") casing was set at 645.3 m (2119') and the annulus was cemented with 5.38 m^3 (190 ft^3) of cement slurry. The NCTL log indicated the top of the cement in the annulus at 592.5 m (1944'). The 178 mm (7") casing parted then was rerun to 77.7 m (255'). 159 mm (6-1/4") hole was drilled and cored to 707.4 m (2321') then plugged back from fill at 679.1 m (2228') to 566.3 m (1858'). The cement plugged was drilled out to 649.2 m (2130') where the hole sidetracked then 159 mm (6-1/4") hole was drilled to a total depth of 914.4 m (3000'). A gyroscopic survey and density, microlaterolog, dipmeter, electric, gamma, epithermal neutron, 3-D velocity, temperature seisviewer, guard, and caliper logs were run. Hydrological tests were made. The hole was filled with mud, 8-8-77.

UE-16d
ADDITIONAL WORK

2-24-81 Moved in Ideco #37, rig #85116 and equipment. Rig secured at 1600 hours.

3-02-81 Rig secured from 2-24-81 to 0800 hours, 3-2-81. Rigged up. Made trip in with 6-1/4" bit on 3-1/2" EUE tubing to 2110'.

3-03-81 Circulated and cleaned casing using 240 barrels of water. Laid down tubing. Ran Gearhart Owens gamma ray and collar log to 2116' and gauge ring to 2088'. Ran and set GO Elite bridge plug to 2020'. Perforated the 7" casing from 1310' to 1145' with a total of 260 holes. Started in the hole with 3-1/2" EUE tubing open ended.

3-04-81 Set tubing at 1406'. Blew out water from 0530 hours to 1200 hours. Made trip out. Ran Birdwell fluid density log, checked fluid level at 753'. Ran and set 5.40" O.D., model H56-90 Reda pump on 3-1/2" EUE tubing at 1119.18' with intake at 1099.03'. Tested pump and started rigging down.

3-05-81 Rigged down and moved out. Hole recompleted, 3-5-81.

2-5-82 Tested new water line to shaker plant using National pump to 200 psi. Line leaked approximately 1 mile west of plant.

2-10-82 Tested water line to 225 psi for 1 hour. Increased pressure to 290 psi, line leaked.

vrm

D-010-007

FENIX & SCISSON, INC.
ENGINEERS-CONTRACTORS

TO: REECo

RE: COST ESTIMATE TO REENTER & COMPLETE UE-16D AS A WATER SUPPLY WELL FOR AREA 1 SHAKER PLANT

LOCATION: N 844,877' E 646,566'

PROJECT ENGINEER: Wm Mathis 2/12/81

W.O.#: 1090 - 878

LETTER: J.Berry/H&N 5-20-80

VERBAL: McMahan/Hammer 6-12-80

VERBAL: Huckabee/Mathis

DATE: ~~October 9, 1980~~ Feb 12, 1981

PRESENT CONDITIONS:

1. 10-3/4", 40.5#/ft. surface pipe is set at 80'.
2. A 9-7/8" hole is drilled to 2119' and a 6-1/4" hole from 2119' to 3000'.
3. 7" O.D., 20#/ft. (6.456" I.D.) is set at 2117' and cemented with 190 ft^3. NAIL log indicates cement top in annulus at 1954'.
4. Last Birdwell depth check was at 2141' on 9-29-77.
5. Static fluid level per USGS at ± 750'.

PROGRAM:

1. Mobilize Class III rig.
2. Pick up and run 2-7/8", 6.5# EUE tubing (work string) or drill pipe (2-7/8" O.D. or 3-1/2") and run with 6-1/4" bit to 2110'. Displace mud in 7" casing out with fresh water using mud pump.
3. Pull out of hole laying down 2-7/8" tubing or drill pipe.
4. Rig up Birdwell and run gauge ring-junk basket for 7" 20# casing to 2105'.
5. Set wireline drillable bridge plug at ± 2100'. (Do not run bridge plug into open hole at 2117').
6. Perforate from 1145' to 1310' (150' net) with 2 shots per foot using 3-5/8" O.D. (0.465" diameter hole) jet charges. Net perforating section is 150' allowing a total of 15' stand-off spacing for collars. (Total cross section area of 7" O.D. casing is 35.25 sq.in. and total cross section area of 150' of 0.465" perforations is 50.95 sq.in.)
7. Run 3-1/2" O.D. tubing to ± 1400' and develop with air. Unload water with air at intervals while running tubing to 1400'.
8. After well is cleaned up, perform fluid recovery and static fluid level tests.
9. Run 75hp submersible pump to ± 1250'. A centrilift E-127 or S-175 will suffice. (The 75hp pump and 3-1/2" tubing will deliver 150 GPM of water to surface.)

ESTIMATED TIME:

Class III Rig	(8 hours per day)
1. Mobilize and demobilize	2.0 days
2. Displace mud w/water with mud pump and set wireline bridge plug	1.5 days
3. Perforate	1.0 days

COST ESTIMATE TO REENTER &
COMPLETE UE-16D AS A WATER SUPPLY
WELL FOR AREA 1 SHAKER PLANT

Date: 10-9-80

Estimated Time: cont.

(8 hours per day)

4.	Develop well with air	1.0 days
5.	Fluid recovery tests	2.0 days
6.	Run 75hp submersible pump and electrify	2.0 days
		9.5 Days

WJM:kls

COST ESTIMATE
TO REENTER AND COMPLETE UE-16D
AS A WATER SUPPLY WELL FOR AREA I, SHAKER PLANT

		Days		
A.	Rig Operations			
1.	Mobe and Demobe	2.0	11,306	
2.	Clean out hole to 2110' and set wireline bridge plug	1.5	8,480	
3.	Perforate	1.0	5,653	
4.	Develop well with air	1.0	5,653	
5.	Fluid recovery tests	2.0	11,306	
6.	Run 75hp submersible pump and electrify	2.0	11,306	
	Sub Total	9.5		53,704
B.	Materials and Services			
1.	Bits			
a.	6-1/4" bit	Ea	504	
b.	Bridge Plug	Ea	862	
c.	3-1/2" Tubing @ $6.00	1400'	8,400	
	Material Handling @ 13%		1,270	
	G&A @ 10%		977	
	Sub Total			12,013
2.	Pumps			
a.	One 75hp submersible pump complete with cable		31,000	
	Material Handling @ 13%		4,030	
	G&A @ 10%		3,100	
	Sub Total			38,130

8.7 - 1/4" wall - Range 2

T & C Wire Rio 1293-015

1700' In Stock

COST ESTIMATE
TO REENTER AND COMPLETE UE-16D
AS A WATER SUPPLY WELL
FOR AREA I, SHAKER PLANT

3. Birdwell			
Set Up	1,380		
Set Bridge Plug	375		
Perforate	3,700		
Run Gage Ring & Junk Basket + Freight	1,000		
Sub Total		6,455	
4. Air Compressor's			
Two I.R. 1500's		2,400	
5. Miscellaneous		2,500	
Sub Total			115,202
20% Contingency			23,040
TOTAL			138,242

Tubing / Casing Record

Hole Number	Date Started	Date Completed	Completed By
Well 16d	9/10/2014	9/11/2014	WLW

Total Depth (ft.)	Bit Size	Static Fluid Level	Type Fluid in Hole	Rig/Crane/Equipment
3000	N/A	761	Water	Franks 300

Tbg/Csg Type	Size OD	Size ID	lbs./Ft	Grade	Thread	Coupling	#Slots around	# Rows length	Total slots/jt	Slot size
CS 8 rd	3.5	2.992	9.20		8rd	4.5	N/A	N/A	N/A	N/A
Tbg/Csg Type	Size OD	Size ID	lbs./Ft	Grade	Thread	Coupling	#Slots around	# Rows length	Total slots/jt	Slot size
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Casing Info	To	Annlus cement@	No gravel pack	Perforated	From	To
7"	2117'	1944			1145'	1310'

Remarks: Franklin motor Ser # 00E19-11-0025, Model 2366186025, 3 Phase, 50 HP, 67.7 Amp, (77.0 Max Amp), 3450 RPM, Grundfos Pump, Type 1506500-25, Wt 109 lbs, Model A13B60025P1-0031US745, 60 HZ 3450 RPM, 150 GPM @ 937 ft. Ran with new pump electric cable. Top of slots in 7" casing at 1145' GL. Bottom of motor at 1113.59', Intake at 1108.99'. New 3-1/2" tubing coated on the outside. (Torque tubing to 1800 ft/lbs)

(To view "Set At" and "Reverse Settings", a stick up number must be in place)

Stick up above GL (ft.)	Tbg/Csg Set At (GL/Ft)
2.31	1113.59

Jt#	Description	Joint Length	Cum Length	Set at GL	Reverse Setting: Top At (Ft)	Reverse Setting: Bottom At (Ft)
	Franklin Motor	4.60	4.60	2.29	1108.99	1113.59
	Grunfos Pump	9.06	13.66	11.35	1099.93	1108.99
	XO to 8rd box	0.48	14.14	11.83	1099.45	1099.93
	Dump Valve	0.57	14.71	12.40	1098.88	1099.45
	Pup Jt (New)	10.10	24.81	22.50	1088.78	1098.88
1	New coated 3-1/2" EUE 8rd coated	31.00	55.81	53.50	1057.78	1088.78
2	New coated 3-1/2" EUE 8rd coated	30.98	86.79	84.48	1026.80	1057.78
3	New coated 3-1/2" EUE 8rd coated	30.88	117.67	115.36	995.92	1026.80
4	Rerun 3-1/2" EUE 8rd tubing	30.96	148.63	146.32	964.96	995.92
5	Rerun 3-1/2" EUE 8rd tubing	30.98	179.61	177.30	933.98	964.96
6	Rerun 3-1/2" EUE 8rd tubing	30.94	210.55	208.24	903.04	933.98
7	Rerun 3-1/2" EUE 8rd tubing	30.94	241.49	239.18	872.10	903.04
8	Rerun 3-1/2" EUE 8rd tubing	30.96	272.45	270.14	841.14	872.10
9	Rerun 3-1/2" EUE 8rd tubing	31.04	303.49	301.18	810.10	841.14
10	Rerun 3-1/2" EUE 8rd tubing	31.01	334.50	332.19	779.09	810.10
11	Rerun 3-1/2" EUE 8rd tubing	31.03	365.53	363.22	748.06	779.09
12	Rerun 3-1/2" EUE 8rd tubing	30.97	396.50	394.19	717.09	748.06
13	Rerun 3-1/2" EUE 8rd tubing	31.00	427.50	425.19	686.09	717.09
14	Rerun 3-1/2" EUE 8rd tubing	31.02	458.52	456.21	655.07	686.09
15	Rerun 3-1/2" EUE 8rd tubing	31.06	489.58	487.27	624.01	655.07
16	Rerun 3-1/2" EUE 8rd tubing	31.03	520.61	518.30	592.98	624.01
17	Rerun 3-1/2" EUE 8rd tubing	31.05	551.66	549.35	561.93	592.98
18	Rerun 3-1/2" EUE 8rd tubing	31.02	582.68	580.37	530.91	561.93
19	Rerun 3-1/2" EUE 8rd tubing	31.03	613.71	611.40	499.88	530.91
20	Rerun 3-1/2" EUE 8rd tubing	31.05	644.76	642.45	468.83	499.88
21	Rerun 3-1/2" EUE 8rd tubing	30.93	675.69	673.38	437.90	468.83
22	Rerun 3-1/2" EUE 8rd tubing	31.04	706.73	704.42	406.86	437.90
23	Rerun 3-1/2" EUE 8rd tubing	30.00	736.73	734.42	376.86	406.86

Tubing / Casing Record

Jt#	Description	Joint Length	Cum Length	Set at GL	Top At (Ft)	Bottom At (Ft)
24	Rerun 3-1/2" EUE 8rd tubing	31.02	767.75	765.44	345.84	376.86
25	Rerun 3-1/2" EUE 8rd tubing	31.04	798.79	796.48	314.80	345.84
26	Rerun 3-1/2" EUE 8rd tubing	31.04	829.83	827.52	283.76	314.80
27	Rerun 3-1/2" EUE 8rd tubing	31.54	861.37	859.06	252.22	283.76
28	Rerun 3-1/2" EUE 8rd tubing	31.05	892.42	890.11	221.17	252.22
29	Rerun 3-1/2" EUE 8rd tubing	31.09	923.51	921.20	190.08	221.17
30	Rerun 3-1/2" EUE 8rd tubing	31.02	954.53	952.22	159.06	190.08
31	Rerun 3-1/2" EUE 8rd tubing	31.07	985.60	983.29	127.99	159.06
32	Rerun 3-1/2" EUE 8rd tubing	31.06	1016.66	1014.35	96.93	127.99
33	Rerun 3-1/2" EUE 8rd tubing	31.03	1047.69	1045.38	65.90	96.93
34	Rerun 3-1/2" EUE 8rd tubing	31.03	1078.72	1076.41	34.87	65.90
35	Rerun 3-1/2" EUE 8rd tubing	31.03	1109.75	1107.44	3.84	34.87
36	Rerun Landing jt	6.15	1115.90	1113.59	-2.31	3.84

National Security Technologies LLC

Daily Rig Operations Report

Day:	Date:	Time:	Initials:
Friday	09/12/14	0700	WW

Station:	Rig:	User:
Well 16d	Franks 300	NNSA/NSO

Present activity:	Bit size:(inches)	Last csg. Size	Casing Depth:	Hole Program Total Depth:
No activity	N/A	7"	2117'	N/A

Total Depth:(feet)						
3000'	Casing Annulus	cemented	from 2117' to	1944'	Perforated from	1145'-1310'

Comps. on loc.:	Using:	CFM:	PSI:	GPM in/GPM out	Type fluid:
N/A	N/A	N/A	N/A	N/A	Static Water 761'

Total Hrs	Report Period
24	0700 Hrs. Thursday 09/11/14 to 0700 Hrs. Friday 09/12/14
	Review PTHR and POD as personnel arrive on location
1.00	Travel to location from reporting areas
0.50	Conduct PTHR and POD. Start and warm up equipment. Electricians Meggar test "OK"
1.00	Continue lowering pump on 3-1/2" 8 rd tubing. Ran 6 jts to 859'. (98' below static WL)
	Meggar test pump "OK". Continue running pump and land bottom motor at 1113.59'
	Intake at 1108.99'. Meggar tested pump motor at 1107'. "OK"
1.00	Electricians cut power cable with 50' excess. Make temporary connection to test pump.
0.50	Pipe Fitters connect discharge head. Start pump and flush out "PIG". Ran pump
	for +/- 3 minutes to clear tubing. Shut down pump disconnect power cable.
1.00	Rig down rig and equipment.
0.50	Lunch break
0.50	Continue rig down and load equipment.
0.50	Demobe equipment off location at 1300 hrs.
1.50	Electricians coil up cable into cable box. Make final cable connection to VSD.
	Start pump and flush tubing for +/- 1 hour to sump. Fluid clear after 10 minutes.
	Secure well head.
16.00	No activity

16-9

PO BOX 98521 | BECHTEL NEVADA | Las Vegas, NV 89193-8521

PURCHASING REQUISITION

REQUESTER	ORIG. DATE	DESIRED DUE DATE	EST. WEIGHT	EST. PRICE	REQ. NUMBER
Ron Baugh	6/6/00	7/18/00	lbs	~~$15000~~ 5500	

DELIVER TO	AREA or DROP POINT	BLDG.	ORG. No.	CHARGE NUMBER
Kerry Christian	23	777	4220	R3700001

SIGNATURE OF AUTHORIZED DEPT. REPRESENTATIVE	MAIL STOP	TEL. EXT.	WORK ORDER NO.
	NTS 228	5-6737	

ITEM	DESCRIPTION	U/I	QTY REQ	UNIT PRICE	TOTAL PRICE
1	System, pumping, Grundfos Model 150S500-25, 3" FNPT discharge, with 50 Hp, 6" Franklin motor, 460 volt, 3 phase.	Ea	1	~~15000~~ 5500	

SELLERS NAME AND ADDRESS	REMARKS
Frederick Pump Co Walnut, CA Ph: 909-595-5122 Hector	For Well 16d spare

National Security Technologies LLC
Vision • Service • Partnership

Daily Rig Operations Report

Day:	Date: Start 7-5 Stop 7-	Time:	Initials: RL

Station: Well 16-D	Rig: franks	User:

Present activity: Pull Unit	Bit size:(inches)	Last csg. Size	Casing Depth:	Hole Program Total Depth:	
Total Depth:(feet)	Drilled from:(feet)	Footage Drilled:	Rotate Hrs:	ROP: (ft/hr)	Wt. on Bit:	RPM:
Comps. on loc.:	Using:	CFM:	PSI:	GPM in/GPM out	Type fluid:	

Time log: 7-5-22 Rigged up over hole and set up to pull. unit. 7-6-22 Held tail gate and started to pull unit. Pulled 6 joints and hung sheave. Pulled 35 Joint and layed Down pump and MTR. Closed well and strapped pipe and new pump and MTR 7-7-22 Rigged off well and Moved to 4-A to pull. Rerun new pump at later date

MSTS
MISSION SUPPORT AND TEST SERVICES LLC

Daily Rig Operations Report

Day:	Date:	Time: Tbg. Size 3½ 8RD	Initials: RL
Station: Well 16D	Rig: Frank's	Project: Run in with New Pump & MTR	

Present Activity:	Bit Size:(Inches)	Last Csg. Size 7"	Casing Depth:	Hole Program Total Depth:	
Total Depth:(feet) 3,000	**Drilled from:(feet)**	**Footage Drilled:**	**Rotate Hrs:**	**ROP: (ft./hr)**	**Wt. on Bit:** / **RPM:**
Comps. on loc.:	**Using:**	**CFM:**	**PSI:**	**GPM in/GPM out**	**Type fluid:**

Time Log: **Report Period**

Hours	Activities	Tally Count	
Pup Joint	6.13	6.13	
Joint	31.04	37.17	
	31.04	68.21	
	31.04	99.25	
	31.06	130.31	
	~~31.08~~ 31.02 New Joint	161.39	
	31.04	192.43	
	31.06	223.49	
	31.02	254.51	
	31.55	286.06	
	31.04	317.10	
	31.02	348.12	
	31.02	379.14	
	31.02	410.16	
	31.02	441.18	
	30.94	472.12	
	31.06	503.18	
	31.07	534.20	
	31.02	565.22	
	31.08	596.30	
	31.04	627.34	
	30.98	658.32	
	31.02	689.34	
	30.98	720.32	
	31.02	751.34	
	31.02	782.36	
	31.04	813.40	
	~~30.96~~	844.36	
	30.94	875.30	

Notes: 7-14-22 Rigged up and got ready to run new unit. 7-15-22 Showed up and wire man noticed something wrong with MTR. Returned to Franklin and went on Stand by.

Last Survey ° / Depth:

MSTS
MISSION SUPPORT AND TEST SERVICES LLC

Daily Rig Operations Report

Day:	Date:	Time:	Initials:

Station:	Rig:	Project:

Present Activity:	Bit Size:(inches)	Last Csg. Size	Casing Depth:	Hole Program Total Depth:

Total Depth:(feet)	Drilled from:(feet)	Footage Drilled:	Rotate Hrs:	ROP: (ft./hr)	Wt. on Bit:	RPM:

Comps. on loc.:	Using:	CFM:	PSI:	GPM in/GPM out	Type fluid:

Time Log: **Report Period**

Hours	Activities	Tally Count	
Joint	30.94	906.24	
	30.94	937.18	
	30.96	968.14	
	30.82	998.96	
	30.93 Coated	1029.89	
	30.98 Coated	1060.87	
	31.00 Coated	1091.87	
Pup	10.09	1101.96	
Check/Dump Valve	1.15	1103.11	
Discharge	0.40	1103.51	
Pump	8.87	1112.38	
MTR	4.62	~~1117.00~~	1116.98
	Stick up 1.55		
	Intake set @ 1,110.83		
	7-23-22 Held tail gate meeting and then ran the last 5 joints in hole. Pipe fitters and wire men got well back on line and surfaced water @ 0930. Rigged down and cleaned location.		

Notes: 7-21-22 Picked up unit and made up. Wire men spliced cable and MLE. Once done we started to run in hole. Ran 4 joints in & dogged off. 7-22-22 Did tail gate meeting and started running in hole. Ran in 26 joints with wire men testing every 10 joints. With 5 joints out we busted a hydraulic line on Rig and went on stand by.

Last Survey ° / Depth: