

WELL HISTORY GEOTHERMAL

CONFIDENTIAL

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| Operator: C.E. Exploration | Well Name & No.: 76-15 TCH |
| Field: Newberry KGRA County: Deschutes | Sec. 21 T. 21S R. 12E B&M |

DATE

HISTORY

07/23/95
to
07/24/95 Move in and rig up.

07/24/95 Make up BHA. Mix mud. Drill 7 7/8" hole from 11' to 22'. Open 7 7/8" hole to 12 1/4" from 11' to 22'. Circulate hole clean.

07/25/95 Ream hole and circulate clean for conductor. Set and cement 10 3/4" conductor at 22'. WOC. Move equipment from 88-21 to 76-15. Make up BHA.

07/26/95 Drilled 9 1/2" hole from 22' to 31'. Lost returns. Mix and pump LCM Pill. Drilled 9 1/2" hole from 31' to 58'. Losing 12 BPH. POH. Pick up open ended 101 tubing to 56'. Mix and pump 17 sacks cement, 19.5 cubic ft. CIP at 1600 hrs. WOC. RIH. Tag cement at 20'. Hole took 1 BBL cement.

07/27/95 Clean out firm cement from 20' to 58'. Drilled 9 1/2" hole to 150'. Lost 20 BBLs. Regained circulation. Mix LCM. While drilling to 170' lost circulation. Drilled to 174' with partial returns. POH. Rig up to cement. RIH open ended to 160'. Fluid level 150'. Mix and pump 27 sacks cement, 2% CC. 31 cubic ft. = 63 lineal ft. CIP at 2230 hrs. POH. WOC.

07/28/95 WOC. RIH open ended. Feel for cement. No cement. Mix 27 sacks cement with 2% CC. 31 cubic ft. = 63 lineal ft. No circulation while cementing. POH. WOC. RIH open ended. Tag cement at 124' (50' fill out of 63'). Mix 30 sacks cement with 2% CC. 34.5 cubic ft. = 70 lineal ft. Returns half way through cement job. POH. WOC. Tag cement at 60'. Clean out cement to 84'. Forest fire about 3/4 mile N. W. of rig with a N. W. wind. Evacuated drill sit. Removed trailer houses and Sandia equipment.

07/29/95 Rig off day rate as agreed upon by Roger McGee and Lester Brassfield. Escorted to staging area by USFS. Held safety meeting and fire drill. Safety meeting conducted by David McClain, CE Exploration and Bruce Olson, RSFS. Attended by BLM and CEE personnel. Directed traffic, loaded water trucks, cleared all

small equipment off 76-15. Cleared a 100' area around location for fire break. Rig shut down.

- 07/30/95 Rig off day rate as agreed upon by Roger McGee and Lester Brassfield. Clean out cement to 174'. Drill 9½" hole from 174' to 264', losing 80 BPH. While drilling lost total returns at 264'. POH. RIH open ended to 254'. Mix 33 sacks cement with 2% CC, 41.9 cubic ft. = 85 lineal ft. CIP at 2230 hrs. Fluid at 140'. WOC.
- 07/31/95 WOC. Fill hole with 18 BBLs mud. RIH. Tag cement at 245'. 19' cement fill out of 85 lineal ft. plug. POH with open ended pipe. RIH with drilling assembly to 245'. Clean out cement from 245' to 264'. Drilled 9½" hole from 264' to 403'. Lost circulation. Trip for Open ended 101 tubing. Fluid level at 160'
- 08/01/95 Mix plug #6. 22 sacks cement at 243'. 22 cubic ft. = 40 lineal ft. CIP at 0100 hrs. WOC. Fill hole with 17 BBLs. RIH. Tag cement at 242'. Clean out cement to 251'. Lost returns. Trip for open ended 101 rods. Hang at 240'. Mix and pump plug #7. 30 sacks cement, 2% CC, 1 sack CSH. 3.7 cubic ft. = 75 lineal ft. Fill hole, 18 BBLs. RIH and tag cement at 174'. Clean out cement from 174' to 263'. Lost returns. POH with BHA and RIH open ended to 260'.
- 08/02/95 Mix plug #8. 30 sacks cement, 2% CC, 1 CSH. 36 cubic ft. = 74 lineal ft. WOC. Fill with 12 BBLs. RIH. Tag cement at 207'. Clean out cement from 207' to 403'. Drilled from 403' to 475'. No losses.
- 08/03/95 Drilled from 475' to 524'. Circulate and condition mud. POH. Tight hole at 372'. Work and ream up to 347'. POH. Check tools. Change bits. RIH to 313'. Ream from 313' to 446'. No losses.
- 08/04/95 Ream from 446' to 524'. Drilled from 524' to 544'. Circulate bottoms up and survey. POH. Ream tight spot from 354' to 344'. Rigged up and ran 21 joints 26# K-55 surface pipe. Shoe at 538'. Insert at 494'. No hole problems. Pump 5 BBLs H₂O ahead. Pump 10 BBLs Super Flush. Mix and pump lead, 95 sacks Premium, 1-1 Perlite, 3% Gel, 40% Flower. Mix tail slurry, 35 sacks Premium, 40% SSA-1, 0.65% CFR-3. Drop plug and displace with 18.8 BBLs H₂O. Land plug with 700 psi. Float held. CIP at 1630 hrs. WOC. 7" csq
- 08/05/95 WOC. Mixed 88 sacks neat cement top job. 101 cubic ft. Cut casing and weld well head on 7". Nipple up 7 1/16" mud cross, double gate, annular preventer and accumulator.
- 08/06/95 Nipple up and test BOP. RIH to 477'. Dump and clean pits. Mix mud and build volume.

***Note: There is a line missing in the original report that encompasses from 1000 hrs. to 1300 hrs.**

POH with drill string and bit. RIH picking up 4.5" HW liner and set at 491'

- 08/07/95 RIH with core bit and **core** barrel. Work on pump. Drill cement and baffle from 491' to 544'. Core from 544' to 549'. Displace hole with water for leak off test. POH with coring assembly. Top hole off with water and perform 20 minute leak off test. (Watch fluid level from surface and make sure hole does not take any water.) Good test witnessed by BLM. RIH with coring assembly. Core from 549' to 575'. Lost total returns. Mix LCM and sweep hole. Got total returns back. Core from 575' go 583'. Hole sloughing small fluid loss. POH with coring assembly. Pull HW liner out of hole.
- 08/08/95 Finish pulling HW liner. RIH with HQ to 583' and set 78 lineal ft. cement plug #9. WOC. RIH to top of baffle at 491' with 6 1/8" bit. Circulate and clean cement contaminated mud out of hole. POH with 6 1/8" bit. RIH with 4.5" HW liner and set at 491'. Pump 45 viscosity mud between 4.5" liner and 7" casing. RIH with HQ and coring assembly and tag cement at 562'. Circulate with full returns. Clean out cement to 566'. Started losing 12 BPH. Circulate and mix LCM. Clean out cement to 583' with approximately 2 BPH loss. Core new hole from 583' to 600' with small loss.
- 08/09/95 **Core** from 600' to 604'. Lost all returns. POH with coring assembly. Pull 4.5" liner out of hole. RIH with open ended HQ and set cement plug #10. 78 lineal ft. POH with open ended HQ. WOC. RIH with HQ and 6 1/8" bit to 491'. POH with 6 1/8". RIH with 4.5" HW liner and set at 491'. Pump high viscosity Mud between liner and 7" casing. RIH with HQ and coring assembly. Tag cement at 524'. Clean out cement to 604' with small loss. Pump LCM around. Circulate with full returns. Core new hole from 604' to 644'.
- 08/10/95 Core from 644' to 709'. Lost all returns. POH with coring assembly. RIH with open ended HQ to 709'. Set plug #11. 228 lineal ft. cement plug. POH with HQ. Pull HW liner up 2 stands and rotate while WOC. Set HW liner back down. RIH with HQ and coring assembly and tag cement at 604'. Pick up to 602' and break rod off. Pipe stuck without circulation. Work stuck pipe. (More HW pipe and bit coming from yard to wash over HQ.)
- 08/11/95 Work stuck pipe at 602' while waiting on HW pipe and bit from yard to wash over. Back off HQ under BOP. Pull HW liner out of hole. RIH with HW pipe and HW casing shoe over HQ and wash over HQ from 491' to 560'.

- 08/12/95 Wash over HQ from 560' to 575'. Trip for casing shoe #2. Wash over HQ from 575' to 587'. (Circulate with some small losses.) Trip for casing shoe #3. Wash from 585' to 586'. No new hole made. POH with casing shoe #3. Shoe was 50% used and cracked. Screw into HQ. Work stuck pipe. Wait on casing shoes from airport.
- 08/13/95 Work stuck HQ while waiting on casing shoes to arrive from airport. Back off HQ under BOP. RIH with casing shoe and HW pipe over HQ. Wash over HQ from 588' to 602'. POH with casing shoe and HW pipe. HQ loose. POH with HQ. RIH with open ended HQ and set 145 lineal ft. cement plug #12 at 602'. POH and WOC.
- 08/14/95 WOC. RIH to 501' with 6 1/8", no hard cement. Circulate contaminated mud out of. POH with bit. RIH with open ended HQ and circulate out soft contaminated cement to 550'. Pump 146 lineal ft. cement plug #13 at 550'. POH and WOC.
- 08/15/95 WOC. RIH with 6 1/8" and tag good cement at 488'. Clean out cement to 500'. POH and lay down 4" Drill Collars. RIH with HW liner and set at 500'. RIH with HQ and coring assembly to 500'. Core cement from 500' to 612'. Started seeing some formation in core at 600'.
- 08/16/95 Core formation from 612' to 701' with small loss. Lost all returns at 701'. Pump LCM with no returns. POH with coring assembly. RIH with open ended HQ. Set cement plug #13. 229 lineal ft. at 700'. POH and WOC. RIH with coring assembly. Wash from 440' to 518'.
- 08/17/95 Wash from 518' to 571'. Tag cement at 571'. Core cement from 571' to 701' with full circulation. Core from 701' to 707'. Lost returns. Mix LCM and core to 720' with 25% returns. Lost returns at 720'. Trip for open ended pipe. Hang at 718'. Mix plug #14. 15 sacks cement, 2% CC. 18.4 cubic ft. = 225 lineal ft. POH and WOC. RIH with HQ rods and CB. Started washing at 440'. Tagged cement at 590'. Had approximately 40% returns. Drilled cement from 590' to 648' adding LCM. Full returns at 2400 hrs.
- 08/18/95 Drilled cement from 648' to 720' with full circulation. Core from 720' to 729'. Hole sloughing in. Wash and ream sloughing area, 720' to 729'. Core from 729' to 739'. Hole sloughing in. POH. DN CB. RIH open ended to 738'. Mix plug #15 and pump 15 sacks cement, 2% CC. 18.4 cubic ft. = 225 lineal ft. WOC. Make up new core bit. RIH. Wash from 484' to cement at 570'. Drill cement from 570' to 700'.

- 08/19/95 Drilled cement from 700' to 739' with full circulation. Core from 739' to 747'. Hole sloughing in. Lost returns. Pump LCM pill. Regained full circulation. Core from 747' to 761'. Hole sloughing in. POH. Change core bit and core BBL. RIH. Clean out fill from 755' to 761' and condition hole. Core from 761' to 769'. Lost returns. Mix and pump LCM slug. Regained full circulation. Core from 769' to 774'. Hole sloughing in. Pull to 690'. Condition mud to 50 seconds viscosity. Clean out fill from 769' to 774'. Core from 774' to 780'.
- 08/20/95 Core from 780' to 804'. Pump 10 gal. LCM slug every 10'. Survey at 804'. Core from 804' to 838' pumping LCM slugs. POH for cement plug and RIH open ended to 838'. Plug #16, 15 sacks cement, 2% CC, 18.4 cubic ft. = 225 lineal ft. POH. WOC. RIH to 548'. Wash to 568'. Soft cement. Lost circulation. Pumped LCM slugs and regained circulation. Washed to 643' with full returns.
- 08/21/95 Clean out cement from 643' to 838' with full returns. Core from 838' to 872'. POH to change core BBL. Rig up 10' core BBL. RIH to 872'. Core from 872' to 902' with 50 - 75% returns. Pumping LCM slugs. Survey. Core from 902' to 922' with 50 - 75% returns. Pumping LCM slugs.
- 08/22/95 Core from 922' to 1002'. Pump LCM slug on each core run. Core from 1002' to 1008'. Pump LCM slug. Survey. Core from 1008' to 1107' with partial returns.
- 08/23/95 Survey at 1107'. BHT 76° F. Core from 1107' to 1108' with partial returns. Survey at 1208'. BHT 76° F. Core from 1208' to 1268'. Lost returns. Pumped LCM pill. 50 - 75% returns. Core from 1264' to 1304' with partial returns. Survey at 1304'. BHT 74° F. Core from 1304' to 1318'. 50 - 75% returns.
- 08/24/95 Core from 1318' to 1448'. 20 - 70% returns. Pump pressure inc. 300 psi. Pump LCM slugs to clean hole. Psi. still high. POH to check tools. Make up 20' C BBL. RIH to 1200'. Tight hole. Pull to 640'. Wash from 640' to 1050'. 20 - 50% circulation.
- 08/25/95 Wash from 1050' to 1448'. 20 - 50% returns. Core from 1448' to 1489'. 20 - 50% returns. POH for 10' Core BBL. RIH to 640'. Wash from 640' to 1489'. 50% returns. Core from 1489' to 1499'. Lost returns. Mix and pump LCM. Regained circulation. Core from 1499' to 1510'. 50% returns.
- 08/26/95 Core from 1510' to 1518'. 20 - 50% returns. Survey at 1518'. BHT 72° F. Mix and pump LCM slug. Core from 1518' to 1538'. 20 - 50% returns. Mix and pump LCM. Core from 1538' to 1582'. Sandline broke. POH. Inspect tools and change top Reamer. RIH

- with core BHA. Circulate and drop core tube. Core from 1582' to 1591'. Work stuck inner BBL.
- 08/27/95 Work to free stuck inner BBL. POH to retrieve inner BBL. RIH. Mix and pump LCM slug. Regained circulation. Core from 1591' to 1632'. 20 - 70% returns. Mix and pump LCM slug for lost circulation. Core from 1632' to 1664'. 20 - 70% returns.
- 08/28/95 Core from 1664' to 1679'. 25% returns. Slug hole with LCM. Core from 1679' to 1707'. 25% returns. Survey at 1707'. BHT 74° F. Mix and pump LCM. Core from 1707' to 1720'. 0 - 25% returns. Pump LCM sweep. Core from 1720' to 1747'. 0 - 25% returns.
- 08/29/95 Core from 1747' to 1751' 10 - 50% circulation. POH. Change bit. RIH. Mix and pump LCM slug. Core from 1751' to 1807'. Survey and pump slug. BHT 78° F. Core to 1825'.
- 08/30/95 Core from 1825' to 1911'. Pump LCM sweep and survey.
- 08/31/95 Core from 1911' to 1919.5'. No returns. Pumped LCM sweep. Got 70% returns. Core from 1919.5' to 1955'. Worked stuck tube. POH with stuck tube. Removed stuck tube from core barrel. RIH with new bit. Circulate ½ hp. Core from 1955' to 1975'.
- 09/01/95 POH to repair chuck. RIH with HQ rod. No returns. Pump down LCM sweep. Regain 30% returns. Core with HQ from 1975' to 2010'. Survey at 2010'. 3 ½ degrees, N85W. BHT 93° F. Core with HQ from 2010' to 2050'.
- 09/02/95 Cored with HQ from 2050' to 2094' with no returns to surface. Pumped down LCM sweep. Regained 30 - 50% circulation. Cored from 2094' to 2102'. 50% returns. Surveyed at 2102', 3 degrees N84W. BHT 85° F. Cored from 2102' to 2163'. 50% returns.
- 09/03/95 Wiped hole 240'. Hole trying to pack off. Coring HQ from 2163' to 2202'. Surveyed at 2202', N86W, 3 degrees, BHT 91° F. Core from 2202' to 2252'. 30 - 50% returns. Pulled to casing shoe due to forest fire in area. Cored from 2252' to 2282'.
- 09/04/95 Pump down LCM sweeps. Repaired rig pump. Cored HQ from 2283' to 2304'. Surveyed at 2304'. Survey no good. Cored from 2304' to 2314'. Surveyed at 2304', N86W, 2 ¾ degrees, BHT 95° F. Cored from 2314' to 2381'.
- 09/05/95 Cored from 2381' to 2400'. Surveyed at 2400', N86W, 2 ¾ degrees, BHT 98° F. Circulated out excess LCM sweep. Cored from 2400' to 2418'. Getting 50 to 75% returns. POH to recover jammed inner tube. Serviced rig while out of hole. Function tested

- BOE. Made up new bit. RIH o 2416'. No hole problems. Cored from 2418' to 2464'. 30 - 50% returns.
- 09/06/95 Cored with HQ bit from 2484' to 2508' with 30 - 50% returns. Surveyed at 2508', N82W, 2 ¾ degrees, BHT 95° F. Cored with HQ from 2508' to 2593'. Lost returns at 2508'. Mixed and pumped LCM sweeps.
- 09/07/95 Cored HQ from 2593' to 2603'. Surveyed at 2603', N76W, 2 degrees, BHT 95° F. Cored from 2603' to 2718' No returns. Core samples show very broken formation.
- 09/08/95 Surveyed at 2718', N82W, 2 ½ degrees, BHT 111° F. Cored from 2718' to 2748'. Core samples show good solid formation. POH. Stand back 2200' of HQ rod in derrick. Lay down remainder of HQ rod plus core barrel. Unload gel truck with hydrocrane. Move and measure drill collars. Pulled and laid down 4 ½ " sleeve (500'). Changed out transmission on drill drive unit (draw works). Pick up drill collars. Make up BHA.
- 09/09/95 Rig up for reaming. Make up BHA. RIH to 490'. Tried to clean out cement. Pipe plugged. POH with plugged drill collar. Clear out obstruction (scale). RIH to 500'. Clean out 7" casing to 538'. Open HQ hole out to 6 1/8" from 538' to 620'.
- 09/10/95 Open HQ hole out to 6 1/8" from 620' to 1012' with full circulation. POH to check tools.
- 09/11/95 POH. Check bit. Bit good. RIH to 1012'. Open HQ hole to 6 1/8" from 1012' to 1072'. Started losing fluid (25%) at 1040'. Circulate hole clean ½ hr. POH with 101 rods. RIH with HQ rods to 1072'. Circulate ½ hr. Mixed and pumped 124 lineal ft. (20 sacks) of 15 PPH cement (type 1 & 11). Displaced with 325 gal. Water. CIP at 1745 hrs. POH with HQ rods. Filled hole. Shut well in. Put 50 psi at surface with rig pump. WOC.
- 09/12/95 RIH with new 6 1/8" bit. Wash and ream from 820' to 971'. Tagged cement at 971'. Cleaned out cement from 971' to 1072' (lost 23 linear ft.). Opened hole out to 6 1/8" from 1072' to 1229' with good returns.
- 09/13/95 Opened HQ hole out to 6 1/8" from 1229' to 1554'. No fluid losses. Flowline temperature out = 68° F.
- 09/14/95 Open 3.895" hole to 6 1/8" from 1554' to 1694'. POH. Change bit. RIH to 1694'. Condition mud. Open hole from 1694' to 1801'.
- 09/15/95 Repair swivel. Open HQ hole to 6 1/8" from 1801' to 2086'.

- 09/16/95 Open hole from 2086' to 2179'. POH for new bit. Tight hole from 2179' to 1850'. RIH. Break circulation at 1706' and 2179'. Survey. Open hole from 2179' to 2204'.
- 09/17/95 Open hole to 2548' and run casing.
- 09/18/95 Open HQ hole from 2520' to 2748'. Condition hole to run casing. Wiper trip. POH. Wash from 2608' to 2748'.
- 09/19/95 Circulate and condition hole at 2748' for casing. Lay down two joints drill pipe. Drilling line broke. Circulate and change out drilling line. Lay down drill pipe and BHA. Rig up and run 78 joints 4.5", 11.6#, K-55 buttress casing. Total with shoe = 2748'. Set shoe at 2748', baffle at 2690'.
- 09/20/95 Rig up Howco. Circulate 4.5" casing at 2748'. Howco pumped 5 BBLs H₂O ahead. Lead cement, 478 cubic ft. Premium, 35# sack Spherelite, 40% SSA-1, 4% Gel, 0.1% Halad-322, 0.25% HR-7, 0.1% WG-17. Tail, 51 cubic ft. Premium, 40% SSA-1, 0.5% CFR-3. Displace with 41 BBLs H₂O. CIP at 0330 hrs. Circulate 55 BBLs cement to sump. Good returns throughout job. WOC. Mix and pump 36 sacks (54 cubic ft.), 40% SSA-1, 0.5% CFR-3. Top job. 3% CC. CIP 1730 hrs. WOC. Land casing and cut off. Weld on 4.5" head.
- 09/21/95 Weld on 4.5" well head. Clean rams and clean inside of stack. Nipple up BOP. Tested blind rams and pipe rams to 1000 psi. Tested Hydrill to 500 psi. Witnessed by Dennis Davis (BLM) and Dan Wermiel (D. O.G.A.M.I.). Made up core BBL and RIH. Tag top cement at 2438'. Clean out cement from 2438' to 2552'.
- 09/22/95 Clean out cement from 2608' to 2748'. Drilling to 2751'. POH to 2690' for bleed off test. Test to 680 psi. Pressure bled back to 610 psi for 30 minutes. Test witnessed by Dennis Davis and Dan Wermiel. Circulate and condition mud.
- 09/23/95 Circulate and condition mud at 2751'. Core from 2751' to 2848'.
- 09/24/95 Survey at 2848'. Temperature 134° F. POH. Service rig. Pick up mud motor. RIH to 2848'. Survey orient tools. Tried to drill with mud motor. Pumped 57 GPM at 800 psi. Rig up Howco. Pumped 84 GPM at 1600 psi. Mud motor failed to drill. POH. Lay down mud motor. Pick up new mud motor. RIH to 2848'. Fill pipe. Circulate.

- 09/25/95 Attempt to drill with mud motor #2 failed. POH. Lay down mud motor and monel drill collar. Make up Core barrel. RIH to 2848'. Core from 2848' to 2941'. Survey at 2938'. Temperature 140° F.
- 09/26/95 **Core** from 2941' to 3076'. Survey at 3026'. Temperature 150° F.
- 09/27/95 Core from 3076' to 3106'. Survey at 3106'. Temperature 158° F. POH. Lay down 40 joints 3.5" drill pipe. Pick up mud motor. RIH. Pick up 2 3/4" drill pipe. Break circulation. Survey orient tool. Drill with mud motor from 3106' to 3112'.
- 09/28/95 Drill with mud motor from 3112' to 3228'. Trip out hole. Change bits on mud motor. RIH to 3118'. Survey two runs. Orient tool. Core from 3118' to 3135'.
- 09/29/95 Core from 3135' to 3142'. Survey no good. Core from 3142' to 3162'. Survey at 3138'. Temperature 135° F. Core from 3162' to 3181'. Survey at 3158'. Core from 3181' to 3191'.
- 09/30/95 Drill with mud motor from 3191' to 3202'. Survey at 3178'. Drill with mud motor from 3202' to 3222'. Survey at 3198'. POH with NQ pipe. Lay down mud motor. Pick up core barrel. Trip in hole with HQ pipe to 2990'. Wash to 3118'. Ream mud motor run from 3118' to 3147'.
- 10/01/95 Ream out mud motor run from 3147' to 3222'. Core from 3222' to 3238'. Survey at 3238'. Temperature 170° F. POH. Lay down core BBL. Pick up mud motor. RIH with NQ pipe to 3238'. Run two surveys orient tool. Drill with mud motor from 3238' to 3256'.
- 10/02/95 Drill with mud motor from 3256' to 3259'. Survey at 3238'. Drill with mud motor from 3259' to 3282'. Survey at 3258'. Drill with mud motor from 3282' to 3302'. Survey at 3278'. Drill with mud motor from 3302' to 3317'. Survey at 3298'. Drill with mud motor from 3317' to 3329'.
- 10/03/95 Drill with mud motor from 3329' to 3354'. Survey at 3328'. Drill with mud motor from 3354' to 3370'. Survey at 3348'. Drill with mud motor from 3370' to 3388'. Survey at 3368'. Temperature 150° F. POH with mud motor. Lay down NQ pipe.
- 10/04/95 POH with mud motor on NQ pipe. RIH to 2758' with HQ pipe and coring assembly. Wash from 2768' to 3238'. Ream mud motor run from 3238' to 3365'.
- 10/05/95 Ream from 3365' to 3388'. Core from 3388' to 3385'. No losses. Survey at 3395'. BHT 176° F. Core from 3395' to 3420'. BHT

- 176° F. Survey at 3420'. BHT 176° F. Core from 3420' to 3473'. No losses.
- 10/06/95 Core from 3473' to 3508'. Pulling 5-10 over hole sticky. Pull to shoe. Service rig and change oil. Repack pump. POH. Make up new 20" core barrel. Mix new mud. RIH to 2740'. Wash from 2740' to 3000'.
- 10/07/95 Ream from 3118' to 3508'. Survey at 3508'. BHT 185° F. Core from 3508' to 3562'. Temperature in, 67°; out, 65°. No losses.
- 10/08/95 Core from 3562' to 3594'. Tube stuck in core barrel. Made three runs with retrieving tool. Could not recover core. POH to change tube. Remove tube from core barrel. Replace fast feed valve on top drive. Make up core barrel and RIH to 3394'. Ream from 3494' to 3594'.
- 10/09/95 Core from 3599' to 3619'. No losses. Survey at 3619'. BHT 200° F. Core from 3619' to 3659'. No losses. Wipe hole to 3400'. No problems. Core from 3659' to 3719'. No losses. Survey at 3719'. BHT 226° F. Core from 3719' to 3732'. No losses.
- 10/10/95 Core from 3732' to 3819'. No losses. Core from 3819' to 3879'. No losses.
- 10/11/95 Core from 3879' to 3919'. Survey at 3919'. BHT 247° F. Core from 3919' to 4019'. No losses. Survey at 4019'. BHT 252° F. Core from 4019' to 4052'. No losses.
- 10/12/95 Core from 4052' to 4127'. No losses. Survey at 4127'. BHT 255° F. Core from 4127' to 4190'. No losses.
- 10/13/95 **Core** from 4190' to 4229'. Survey at 4229'. BHT 264° F. Core from 4229' to 4329'. No losses.
- 10/14/95 Survey at 4329'. No good. Core from 4329' to 4349'. No losses. Survey at 4349'. BHT 261° F. Short trip to shoe. Circulate bottoms up. POH for logs. Ran temperature log. Ran televiewer to 2900'. Tool failed. Ran temperature log #2. Rig up televiewer. Tool would not function properly. Trip in hole with new bit and core barrel. Break circulation at shoe and stage in hole to 3560'.
- 10/15/95 Wash and ream from 3560' to 4245'. Bridge at 4245'. Ream to bottom at 4349'. Core from 4349' to 4358'. POH to 4218'. Wiper trip, 140'. Wash from 4218' to 4358'. Core from 4358' to 4419'.
- 10/16/95 Survey at 4439'. No good. Temperature, 269° F. Core from 4439' to 4446'. Survey at 4446'. Core from 4446' to 4500'.

***Note: The file on this well now changes to 76-15 TCH Deepening. The PIN changes from Y551030 to Y551032.**

- 10/16/95 (Continued) Core from 4500' to 4544'. Survey at 4544'. Temperature 283° F. Core from 4544' to 4581'.
- 10/17/95 Core from 4581' to 4608'. POH to 4108'. Change out Kelly. Change over to 101 pipe. Repair pipe tongs. RIH to 4608'. Hole in good condition. Core from 4608' to 4658'. Survey at 4658'. Temperature 290° F. Core from 4658' to 4715'.
- 10/18/95 POH from 4716' to 4266' for wiper trip. Core from 4716' to 4756'. Recover core pipe stuck at 4722'. Mix and spot 10 BBL of mineral oil and pipe lax. Move fluid 6 gal. Every 30 min. Work stuck pipe.
- 10/19/95 Work stuck pipe free. Circulate and condition mud at 4756'. POH. Inspect pipe and BHA. O.K. Trip in hole to 2748'. Circulate and condition mud.
- 10/20/95 RIH from 2748' to 3785'. Circulate 30 min. RIH to 4180'. Wash and ream to 4756'. Circulate and condition mud at 4756. Core from 4756' to 4813'.
- 10/21/95 Core from 4813' to 4815'. Attempt to recover core rods slipped in chuck. POH to 4100'. Recover core. Wash back to bottom. Core from 4815' to 4835'. POH to 2800'. Wiper trip. RIH to 4835'. Core from 4835' to 4855'. Recover core pipe stuck at 4842'. Work stuck pipe at 4842'. Rig up to spot oil. Mix and spot 10 BBL of mineral oil and pipe lax. Try to work stuck pipe free.
- 10/22/95 Move fluid 5 gal. Every 30 min. Work stuck pipe free at 0500 hrs. Circulate oil out of hole. POH to 2800. RIH to 4810'. Hole in good condition. POH for logs. Rig up Sandia. Run televiwer log and temperature log. Weld core barrel and bottom two joints with Baker lock. Make up new bit.
- 10/23/95 Weld core barrel and 10 joints drill pipe, 200', with Baker lock. RIH to 2800'. Circulated. Stage in hole to 4839'. Wash out 16' fill to 4855'. Core from 4855' to 4905'. Pump pressure increase from 450 psi to 800 psi. Circulate and condition hole. BHT at 4872', 296° F. Trip for bit.
- 10/24/95 POH. Change bits. RIH to 2800'. Broke circulation. Stage in hole to 4900'. Clean out 5' fill to 4905'. Core from 4905' to 4966'. BHT at 4933', 299° F.

- 10/25/95 Core from 4966' to 4975'. Pump pressure increased. Repair foot valve. POH for new bit. Service rig. Make up new bit. RIH to 2800'. Break circulation. Stage in hole to 4335'. Hit bridge. Plugged core barrel. POH with plugged core barrel.
- 10/26/95 POH with wet string. Lay down core barrel. Unplug same. Mix mud. Build volume. Trip in hole to 3500'. Wash and ream from 3500' to 4953'.
- 10/27/95 Wash and ream from 4953' to 4975'. Core from 4975' to 4992'. Attempt to recover core tube. Head broke off. POH with plugged core barrel. Mix mud. Build volume. POH. Mix mud. POH. Change bits. RIH to 4100'. Hit bridge. Clean out bridge at 4100'
- 10/28/95 Wash and ream from 4100' to 4992'. Core from 4992' to 5000'. Core from 5000' to 5014'. BHT at 5012', 301° F.
- 10/29/95 Core from 5014' to 5044'. POH for new bit. Work BOP. O.K. Make up new bit. RIH to 4337'.
- 10/30/95 Wash and ream from 4337' to 5044'. Core from 5044' to 5103'.
- 10/31/95 Core from 5103' to 5111'. Survey at 5090'. BHT 336° F. Trip for new bit. Dump mud and clean pits. Mix new mud. Trip to 4000'. Wash and ream from 4000' to bottom at 51111'. Core from 5111' to 5124'.
- 11/01/95 Coring from 5124' to 5162'. Pipe trying to stick. Work pipe up to 5105'. Stuck pipe. Work stuck pipe. Pump Gel sweep around work pipe. No success. Spot 13.2 BBL pipe lax and mineral oil solution with 1 BBL around drill pipe and 9.2 BBL inside drill pipe. Displace with 1740 gal. Mud. Move 5 gal. fluid every 30 min. Work stuck pipe. Displace 5 gal. Mud every 30 min. Move pipe lax 42'.
- 11/02/95 Work stuck pipe. Displace 5 gal. Mud every 30 min. Move pipe lax 42'.
- 11/03/95 Stuck depth corrected from 5105' to 5116'. Work pipe. Displace 5 gal. Mud every 30 min. Move pipe lax 42' for 36 hrs. No success. Back off 3 1/2" HQ tubing below rig floor. Pick up 2 3/4" NCQ tubing. Clean out and circulate to 5162'. Circulate hole clean.
- 11/04/95 Trip in hole with tubing. Keep hole full. Attempt to back off 3 1/2" HQ tubing at 19' just below well head backed off at 1781'. POH. Lay down drilling tubing, 28 joints 101 tubing and 123 joints HQ tubing. Left in hole 331 joints 3 1/2" HQ drilling tubing, one core

barrel, two reamers, one 3.895" diameter core bit. Pick up 3 1/2" HQ casing pipe.

- 11/05/95 Picked up 176 joints 3 1/2" HQ casing pipe. **Screw into 3 1/2" HQ tubing at 1781'** with top HQ casing pipe at 20', KB measure. Change pipe rams. RIH with NQ tubing and core barrel. Rerun bit to top of cement stringers at 4692'. Clean out cement stringers to 4907'.
- 11/06/95 Drilling cement with dia. core bit and core barrel from 4957' to 5059'. Attempt to retrieve tube Cable broke. POH. Tube stuck I bit and barrel with cement cuttings. Retrieve same. RIH.
- 11/07/95 RIH with RR dia. Core barrel. 10' core barrel and 2 3/4" NQ pipe to 5059'. Core cement from 5059' to 5124'.
- 11/08/95 Core hard cement to 5125'. POH. Make up 2.980" NQ bit and two stabilizers. Pick up 20' core barrel. Service rig. RIH to 5091'. Ream and wash to 5124'. Core hard cement from 5124' to 5162'.
- 11/09/95 Mixing mud. Repair chuck on power drive. Down time for rig 3 hrs. Ran temperature log. Maximum temperature 336° F. RIH to 5162'. Core 2.980" hole from 5162' to 5170'.
- 11/10/95 Core 2.980" hole from 5170' to 5221'. Core tube broke. POH to retrieve core and bottom half of core tube. Change bit stabilizers. RIH.
- 11/11/95 RIH to 5096'. Ream HQ landing ring. Wash and ream to 5221' with bit #30. **Core 2.980" HQ hole** from 5221' to 5238'. Attempt to retrieve core tube. Hoist cable broke. Try and fish out core tube. No success. POH. Retrieve core tube. RIH with 2.980" HQ bit #31.
- 11/12/95 Finish RIH. Wash and ream from 5158' to 5238'. Bit #31. **Core 2.980" NQ hole** from 5238' to 5273'. Bit torquing up. Pump pressure up. POH. Check core barrel. Make up bit #32. RIH. Core 2.980" NQ hole from 5273' to 5284'
- 11/13/95 Core NQ hole from 5284' to 5287'. Pump pressure came up. Try and pull tube. Stuck and won't come free. POH. Recover core tube and core. Check tools. O.K. Service rig. Clean up around location, mud storage area. Make up bit # 32 and core barrel. RIH to 5267'. Wash to 5287'. Try and core. Pump pressure came up to high. Pull tube. Found tube partially unscrewed. Make up same. Pump tube down. Core NQ hole from 5287' to 5308'.

- 11/14/95 Core from 5308' to 5326'. Pressure came up. POH. Make up new bit and core barrel. Run in hole to 5326'. Core from 5326' to 5336'. Core tube broke. POH.
- 11/15/95 Core from 5336' to 5351'. Core tube broke. POH. Lay down 20' core barrel. Pick up 10' core barrel. RIH to 5351'. Core from 5351' to 5356'. No core recovery. POH for bit change. Change out drilling line.
- 11/16/95 Trip in hole with bit #35. RIH with over shot on wire line. Jar shaft broke. Attempt to fish out same failed. POH. Recover over shot. RIH with bit #35 with 10' core barrel to 5030'. Break circulation. Circulate and wash to bottom at 5356'. Core from 5356' to 5359'. Try to run survey. Core stuck in rods. Circulate and try to wash out core.
- 11/17/95 POH to 4350'. Recover core stuck in rods. RIH to 5359'. Survey at 5358'. BHT 352° F. Core from 5359' to 5360'. No core recovery. POH. Lay down core barrel and bit. Rig up Sandia logging unit. Run temperature log. Rig down. RIH with open ended drill pipe to 5150'. RIH to 5360'. Circulate. Displace mud out hole with water.
- 11/18/95 POH with open ended drill pipe. Screw into HQ pipe set at 20'. Rig up for injection test. Injection test. Pumped down drill pipe. Fluid loss, one gallon per minute at 350 psi. Pump down back side. Fluid loss, two gallons per minute. POH. Lay down 54 joints HQ pipe. Make up inside casing cutter. RIH to 2707'. Cut HQ pipe. POH. Lay down pipe cutter. Pick up spear and bumper sub. RIH to 537'. Latch on to HQ pipe. Try to work pipe free. Failed. POH. Fishing tools hung up in slips and broke pin off NQ pipe. Dropped spear and bumper sub in hole. Pick up taper tap. RIH to 523'. Fish for tools. Failed. POH without fishing tools.
- 11/19/95 Work over fishing tools. Load out pipe. Clean up location and mud storage area. Make up taper tap. RIH 523'. Fish. POH. No fish. Make up 1 5/8" Edgco spear. RIH. Latch onto fish. POH slow with fish. Lay down fish and tools. Lost grapple off 2 5/16" Bowen spear in hole. *↳ HQ pull from 2707' ??*
- 11/20/95 RIH with open end drill pipe to 5320'. Wash from 5320' to 5360'. Push junk to bottom. Circulate bottoms up. POH. Lay down NQ pipe, 536 joints. Fill hole with H₂O. Nipple down BOPE. Drain pumps and mud pit.
- 11/21/95 Nipple down BOPE. Install flange with 2" valve on well head. Rig down. Load out rig.

11/22/95 Load out Longyear Rig #602. Release rig. Rig up Sandia logging unit. Run temperature log. Rig down 1500 hrs., November 22, 1995.

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5/13/97