APPENDIX 9
INSPECTORS' DAILY LOG
DRILLING MARLAND INTERCEPT WELL
May 14 to June 14, 1981

5/14/81

1800-2400 Started drilling with 17-1/2" rock bit on 8" drill collar and 2 XO subs. Surface casing to 56'. Spudded in at 56'. Hit sandstone at 58'; hard drilling.

5/15/81

0000-0330 Continued drilling. New 12-1/4" and 17-1/2" bits arrive on site.

0330-0800 Drilling at 89.5', 1' every 25 min. Second pump, triplex, broke down. Continue using only one pump.

0800-1500 Continue drilling.

1500-1930 POOH to change bits at 105.3'. Old bit fairly worn. Did not have the right sub. Hotshot sub from Rangely. Deviation, 1/4° at 90'.

1930-2400 Sub arrived; made up new bit. Finally drilling, but hard.

5/16/81

0000-2100 Drilling with 17-1/2" to 170'.

2100-2130 Run survey at 170'; 1/4° deviation. Problem with pump and swivel.

2130-2400 Repair pump, but more problems. Shut down second pump.

5/17/81

0000-0800 Drill to 188'.

0800-2400 Leaking swivel. Shut down to repair swivel. Change out wash pipe and packing in swivel. Tried to trade for new wash pipe, but new part would not fit. Had to take part to Rangely to machine shop. Returned at 2200. Put back together and it leaked again.

5/18/81

0000-0400	Continued working with swivel to 0400, when started drilling.
0400-0430	Drilled.
0430-0730	Repair swivel again. At 0730, got it back together to start drilling. Still at 188'.
0730-1200	Drill ahead.
1200-1630	Drill ahead.
1630-2030	Crew lifting rotary floor to make up 26" hole opener. TD now 204', with 17-1/2". Made up hole opener, reassemble table.
2030-2400	Begin opening hole to 26"; depth 46'(?).

5/19/81

0000-0745	Continue opening hole to 26". 26" hole now 90'. Footage rate highly variable. Problems with triplex pump.
0745-1200	Continue reaming to 26". TD 26" hole now 106' on geolograph. Continued problems with triplex pump. Much sand being pumped through system. Pumps probably wearing out. Bud Carley will wait for Richard Davis/CWS Pusher and discuss pump and desilters.
1200-1610	I discussed cementing casing with Rich Spillman/ Halliburton. Crew continuing to ream; TD 26" hole is 132' at 1545. Making 2-1/2' to 3' per hour. Checked OW-2 and OW-3; both okay, but rattlesnakes in OW-3 shelter. SWL OW-1 is 121.67' below top of gasket on 10" flange at 1610.
1610-1815	Continue reaming. Make 30' collar connection. Work on triplex pump. TD 26" is 140' at 1745, 15 to 20 min/ft.
1815-2400	Continue reaming. At 2300, TD 147'. Lost 10' in retally.

5/20/81

0000-0700	Ream to 173'.

0700-1300	Ream to 187'.
1300-1515	Ream to 201', making ±8'/hr. Ordered desilter to keep fine sand from eating up pumps.
1515-1700	Ream to 211'. Begin circulating to clear hole. Rig up desilter. Ready to set 20" casing.
1700-2130	POOH; lay back collars. One cone off the 26" reamer missing. Called Dotco; magnet and "poor boy" junk basket being hotshotted from Vernal asap. Ordered at 2130.
2130-2400	Wait for tools.

5/21/81

0000-0300	Tools arrive at 0000. Make up magnet. RIH with 17-1/2" OD magnet first run; nothing. Second run; tagged bottom at 208'. Washed and ran to 210'. POOH with magnet; ±7/8" x 3" pin and large ball bearing retrieved. Checked new cones; ±16 ball bearings.
0300-0400	Make up junk basket and RIH. Tag, turn over, POOH. Junk basket not closed.
0400-0500	RIH with junk basket; tag, turn down ±1'; basket very tight. POOH with basket. Basket closed. Much debris.
0500-0600	Service rig; wait for welder to open basket.
0600-0800	Welder opened basket. Basket contained a bearing cone and race, ±9 ball bearings, 6 roller bearings, small lock pin, large center axle of cone, and considerable rubble rock. Crew RIH with magnet to try for other bearings and roller pins. Made two more runs with magnet; got 1 roller on first run and 3 balls, 1 roller, and 1 small unknown on second run. Sent magnet, junk basket, and hole opener back with hotshot.
0800-1100	Lay down tool string. Welders on site. Welding cementing shoe on bottom joint and elevator ears.
1100-1530	Start running 20" casing at 1100; finish at 1530. No problems. Ran 203' of 94 lb/ft. 20" casing.

1530-2100	Guy down casing. Halliburton lead man on site at 1600. Pumper and bulk truck arrive at 1630, begin setting up. Rig crew continues guying down casing. Halliburton needs equipment. Drivers converging on Rangely from Meeker and Vernal. Equipment arrived site at 1900. Pumped cement to 1940, then pulled and cleaned lines. Pumped 361 sx (404 ft^3) Type G with 4% CaCl and 1/4 lb/sack Flocele through cementing shoe at 203'. Cement lifted to surface in annulus; good cement job.
2100-2400	WOC; begin nippling up.
5/22/81	
0000-0430	WOC.
0430-2000	Welders on site at 0430. Cut conductor pipe and 20" casing to GL. Welded on flange. Crew begins stacking well head apparatus. Finish nippling and rigging up at 2000.
2000-2400	RIH with drill collars and 12-1/4" bit. Pressure test BOPs; surface casing to 1,000 psi; held okay. Spent about 1 hr trying to release BOPs. Crew never bled off pressure, although they said they did.
5/23/81	
0000-0220	Drill on cement in casing at 191' and cementing shoe.
0220-1220	Drilling from 211'; 274' at 1220. Average 6'/1 hr, last ±30'. Mud in old well 3.9' below 3" collar at GL.
1220-1315	Continue drilling. SWL James Well is 2.60' BMP, top of 3" collar at 1310. Lost circulation at 290' at 1315.
1315-1345	Fought LC with LCM. Circulation restored. When LCM reached shaker, shut pumps down to let LCM seal formation.
1345-1800	Drilled to 345'.
1800-2045	Changed bottom hole assembly, added shock sub to reduce bouncing. RIH.

2045-2155	Drill to 362'.
2155-2400	Make connection with 6" collar. Try to make mousehole connection, but cannot. Try to make regular connection, but cannot get back down to bottom. Lack about 10'. Put Kelly back on previous collar and clean hole. Make up new collar and RIH. Tag fill or sloughing shale at same spot. POOH; break off collar. RIH with Kelly . Circulate 20 min. VIS at 37. Make new connection. RIH; no problem with fill. Begin drilling at 2350. Mud hand on site.

5/24/81

0000-0125	Continue drilling, alternating soft and hard. Mud Cl at 2350 is ±600 ppm. Drill to 389'.
0125-0425	As above; TD 425'. Circulate hole. Marland Well SWL 4.6' below 3" collar at 0414. Make connection; begin drilling at 0425.
0425-0700	Drill ahead. TD 456' at 0700. Circulate and clean hole.
0700-0800	Service rig; run survey, 1° at 456'.
0800-1200	Drill ahead; TD 497'.
1200-1530	Drill ahead; TD 504'. Drilling rate slowed way down. Pits gaining water. Cl 2,000, EC 7,200 at 28°C; at 505' at 1341, EC 8,000 at 27°C. Kicked in triplex; made much better hole. TD 518' at 1503. Losing mud, adding LCM. Mud Cl 2,600, EC 8,000 at 32°C. Circulated hole, made connection. No circulation problems.
1530-1615	Continue drilling and circulating LCM. Triplex down, lost pump pressure. Pumped mud onto ground through break in suction line. TD 528'.
1615-1815	Drill and fight pump. TD 534'; no cuttings.
1815-2000	Run survey. Survey tool lost in drill string. POOH; check for survey tool. Survey tool dropped in well when breaking out sub(?) Got past check valve(?) Bit worn out. Change to 12-1/4" M4NJ (harder bit).
2000-2400	RIH with bit. Flowing salt water cutting mud. Mix mud. Mud VIS very low.

5/25/81

0000-0800	Mix mud to 60 VIS and 9.2 lbs/gal weight. EC of fluid in hole 23,000 at 70°C. Cl 7,000 to 8,000 mg/l. Poor mud system; cannot stir well. Shut in pressure 10 to 12 psi.
0800-0900	Run slug of heavy mud. Flow killed. Mud stable in hole. Have to refill mud tank and remix.
0900-1630	Mix mud to 9.2+ ppg and 55 to 60 VIS.
1630-1700	Begin circulation at 1630. Shut down, watch, mud in hole, no gain or loss.
1700-2400	Begin drilling at 534'. Hit survey tool briefly, then went by. Drilling at 2 to 3 min/ft. TD 642' at 2400.

5/26/81

0000-0630	Drill ahead; TD 754'.
0630-1420	Drill ahead. Lost circulation temporarily. Lost most of mud tank. No fresh water. Pull up and stop circulation. TD 754'. Condition mud.
1420-1845	Drill ahead to 853. Mud VIS too high, ±80, for fine sand. Adding water to pit to thin mud.
1845-1930	Drill ahead. Begin losing mud at 858'. Add LCM, drill to 863'. Stop drilling. Mix LCM and pump slugs of heavy LCM down hole. Willard Phillips/DOI WPRS on site. Drill ahead, still losing mud. Mix mud. Tanks emptied at 1930. Zone between 858' and 883' took mud.
1930-0000	Mix mud.

5/27/81

0000-0600	Mix mud.
0600-1200	Drill ahead; losing some mud. TD 966'.
1200-1300	Drill ahead. TD 986'. Hit 6' zone at 967' to 973' that filled mud tank with ±15 bbl.

1300-1900	Drill ahead. TD 1011'. Drilling rate slowed to 1'/15 to 20 min since 992'. Welex coming; Halliburton alerted for packer; tester on days off. May have to get one out of Rock Springs.
1900-2400	Welex on site at 1930. Circulated hole. Run survey, 1/2° at 996'. POOH. Welex sets up.

5/28/81

0000-0730	Welex begins logging at 0015 on mud-filled hole. Log until 0700. Logs run: compensated acoustic velocity, gamma ray, caliper, dual induction guard, SP, and temperature. Lynes tool hand arrived at 0730.
0730-1410	Make up packer tools. RIH; begin pumping to set packer. First interval to be tested, 950' to 1008'; tool is 53' from end to end. 48' interval tested.
1410-1700	Packer would not set at 1008' to 950'. POOH; check pump in packer. Replace pump. RIH with packer to 950' to 1008'. Pump to set.
1700-2400	Packer would not set. Well beginning to flow. Set packer at 840' to 890'. Repump. Packer would not hold. Pump heavy mud on top of flowing water to fill well. Did not work. Well flowing back. POOH with packer. Begin to condition mud.

5/29/81

0000-0700	Condition mud. Sample at flowing water at 0700. Flowing from 500' to 1000'. Temperature 35.6°C; EC 31,000 at 33°C; salinity 16.2%, pH 6.6. Centrifugal mud mixing pump engine threw a rod. New pump ordered.
0700-0830	Condition mud.
0830-1200	Condition mud. Begin circulation at 0830. Tanks losing slightly. Ground Water Sampling Inc. (GWSI) sampling monitoring wells.
1200-1400	Circulate hole; mix mud. Tear down packers to check for LCM, not significant. GWSI pumping James Well; 15 to 18 gpm with 13' of drawdown after 35 min. Ran recovery test on James Well with Willard Phillips.

1400-2400 Mix and condition mud. Circulate hole. Begin to come out of hole with drill pipe at 2200. Rig up packer; RIH.

5/30/81

0000-0500 RIH with packer. Mix mud. Mud mixing very slow, just able to keep ahead of slight downhole loss. Set packer at 480' to 533'; pump up. Packer did not set. Repump packer again, but failed to set. Repump again. Pull up packer. Held at 460' to 510'. Tried to swab out drill pipe. Swab works very poorly. Would not flow, probably not fully set.

0500-0545 Moved packer down to 505 to 560. Begin to pump. New centrifugal mud mixing pump washed out packing.

0545-0900 POOH with packer. Intake screen plugged with sawdust LCM. Mix mud. Schlumberger called to run MagnaRange II log.

0900-1330 RIH open-ended, pump mud; hole killed temporarily, began flowing back. Wait for loggers. Schlumberger arrives on site at 1300.

1330-2400 Tensor (MagnaRange II log) arrived at 1330. Ran Tensor log. Operators went to town to work up data. Schlumberger logging. Temperature and sample tools arrive from Vernal at 2300. Had Schlumberger locate tools for logging a flowing well; could only get temperature and sampler. Sample at 1857, flow 350 gpm, temp. 36.5°C, EC 34,000 at 36°C, salinity 17.7%, pH 6.8. At 1940, flow 375 gpm. At 2045, flow 375 gpm, temp. 37.2°C, EC 33,000 at 34°C, salinity 17%, pH 6.9.

5/31/80

0000-0230 Schlumberger tries sampler. Unsuccessful, tool failure. Schlumberger logging finished at 0200. Second sample taken from discharge, flow 400 gpm, temp. 37°C, EC 31,300 at 37°C, salinity 17.7%.

0230-0400 RIH from 0230 to 0300. Stayed off 1 joint bottom. Mix LCM and RIH with single joint to get on bottom at 0400.

0400-0530	Started circulating at 0430. Circulated and killed flow with 9.1 lb/gal mud with LCM. Pump went out. Casing arrived at 0410.
0530-1030	Worked on pump and circulated hole.
1030-1130	POOH at 1030. Out at 1100. Started picking up and setting casing at 1130.
1130-1500	Run casing. 1025' of 9-5/8 36# K-55 casing.
1500-1800	Pump cement; through shoe at 1026'. Pumped 520 sx Pozmix cement with 12 lb/sx gilsonite, 1/4 lb/sx Flocele, 2% CaCl, 1.34 ft^3/sack, 13.5 lb/gal. Good returns when pumping; no returns when displacing. No cement to surface. End cementing at 1600.
1800-2300	Well beginning to flow back; Welex called for temperature log and perforating. 300 sx Type H ordered from Halliburton. Well flow cutting cement.
2300-2400	Return water no longer carrying cement out of hole. Welex on site at 2330. Run temp. log and perforate at 422' (Datum, top of 9-5/8, 12' above floor). 410' from KB. Perforated above cement basket above TOC at 500'.
<u>6/1/81</u>	
0000-0530	Sampled flow; at 0030, temp. 32.2°C, EC 31,000 at 30°C, salinity 17%; at 0130, flow 72 gpm, temp. 30°C; EC 31,500 at 30°C, salinity 17.7%. Welex continues. Halliburton begins cementing hole at 0400. Good returns until slowed down to displace. Lost returns, displaced to within 15' of perforations. Finished cementing at 0430. No cement to surface top off annulus with mud. No flow; mud holding steady. Pumped 475 sx Type H at 1.18 ft^3/sx and 15.6 lb/sack. Took lab sample at 0300, temp. 31°C; salinity 17.5%; pH 7.2; EC 30,500 at 30°C; flow 65 gpm.
0530-1400	Wait on cement.
1400-1700	Checked between 9-5/8" and 20" casing with sand line; no cement to 200'. Hooked up and pressured casing. No loss of pressure. Called Welex for bond log and perforating. Called Halliburton for 500 sx cement.

1700-1930	B. Earley and CWS hand worked with Butler on OW-5 and James Well. Put 1-1/2" PVC in wells.
1930-2230	At 1930, Welex arrived, ran log. Cement from TD 380' to 325'. Perforate at 300'. Pressure-tested; no pressure. Got returns for short time.
2230-2400	Welex left at 2230. Wait for Halliburton; arrived at 2330. Begin to set up.

6/2/81

0000-0400	Halliburton arrived on site with 500 sx of thixotropic cement; Type H with 12% cal seal, 3% CaCl, 10 lbs/sack gilsonite and 1/4 lb/sack Flocele. Set up and started cementing at 0030. Ran about 325 sx of cement; got good returns. Cement to surface. Displaced and shut in; cement held good. Finished cementing at 0300. Decided too dark to run OW-4 and James Well. Kept trucks and cement and ±75 sx for morning. Arranged to have water on site.
0400-2100	Crew spent morning cleaning up, removing 20" BOPs, and cutting casing. Spent afternoon nippling up 9-5/8" BOPs and Hydrill. Had kept mud volume and characteristics up. Worked on James Well and OW-4. See other field notes.
2100-2400	Bud Earley had crew ran pressure test on BOPs atb2100. Ran up to 1,000 psi and broke through perforations; losing pressure. Got hold of Halliburton and ordered back to rig after they had eaten. Halliburton arrived at 2130. Started setting small plug above perforations at 2200. Mixed 5 bbl (120 sx) and ran low pressure. Displaced with 2.33 bbl. Should leave plug 104' above perforations, or at about 200'.

6/3/81

0000-0300	Held Halliburton on site and checked water levels. No change. Had dropped some at end of displacement. Sent Halliburton home at 0300.
0300-0700	Wait for cement.

0700-1500 Checked cement level; found to be 269', or about 69' below that anticipated. Some cement into formation, but should still cover perforations. Wait for cement; wait for directional drillers, Directional Investment Guidance Inc. (DIG), Casper, Wyoming.

1500-2400 DIG operator arrives on site at 1500. Rig up and wait on cement with bit in hole. Started drilling on cement plugs at 263' at 2330. Hit cement junk on top rubber plug; drilled and washed out. Very soft. Rubber plug at 283'; drilled through rubber plug. It was 4.5' above where the perforations should have been, assuming that Welex started from top of casing 12.5' above K.B.

6/4/81

0000-0300 Open hole to 325', where hit slight obstruction on casing wall. Open hole to 380', where tagged soft cement again. Drilled soft cement to 410'. Open hole below that.

0300-0700 Started running in drill pipe to bottom plug. I went to town. Bud reported that they tagged cement at 972', but because they were going through clear water and LCM came to top, filled bit and when tagged without circulating, forced cement into bit and plugged it.

0700-0900 POOH to clean bit. Stripped threads on bit and in bit sub. Did not have another sub ordered out of Rangely.

0900-1130 DIG hand came on site and suggested using Monel collar for sub. Rig it up until bit and sub came on site. Used Monel collar. RIH very slowly. Crew working poorly; hung over.

1130-1230 Tagged cement again at 972'. Rubber plug on top. Drilled rubber plug and through 40' of cement. Cement soft, but not quite as soft as top two plugs. Down on formation at 1012' at 1230.

1230-1530 Drilled to 1072'; for rat hole for Dynadrill, no problems.

1530-1700 Circulated to 1700. Stripped out LCM.

1700-2230	POOH; pump down. Rig up Dynadrill. Run three surveys for inclination and direction. N8°W at 1072', incl. Not recorded.
2230-2400	Start Dynadrill; began losing water from start.

6/5/81

0000-0500	Run directional survey; 1-1/4° at N15°W at 1107'. Drill ahead. Pump down from 0430 to 0500.
0500-1030	Drill ahead. POOH to change bit.
1030-2400	Put on new bit at 1200; RIH. Run deviation surveys; 3° at N21°W at 1146' and 4° at N11°W at 1168'. Drill ahead. Circulate hole clean; POOH and lay down Dynadrill to change bit. Continue drilling at 2 min/ft. Losing mud.

6/6/81

0000-0300	Put on new bit, RIH, run survey; 5° at N13°W at 1200'.
0300-0900	Drill ahead to 0800; run survey; 8° at N11°W at 1260'. Service rig.
0900-1330	Drill ahead, run survey; 11-1/2° at N24°W at 1322'.
1330-1900	Drill ahead to 1352' at 1900. Losing mud. Set 200' of 5" PVC in original Marland Well, gravel packed, and grouted in with 16 yds. concrete pumped through tremie.
1900-2400	Drill to 1360'. Run survey; 12-1/2° at N28W at 1360'. Hole took all mud, then began to flow. Flowing at 375 gpm. Samples and field data taken at 2300, discharge clear. Temp. 34.7°C; pH 7.4; EC 30,000 at 30°C; salinity 17%. DIG hand thinks we hit old well. Drilling rate not affected, but still possible. DIG hand calculated we are about 6' from old well based on trajectories. Severe lightning storm moving through area, several trees struck and ablaze, visible from rig. POOH and lay down Dynadrill. Refill mud tanks with flowing water. Shut in well at 2315. At 2340, SWL in Marland Well is 24-1/4" BMP. Checked OW-2 and OW-3; no significant change. At 2358, SWL in Marland Well is 26-3/4" BMP.

6/7/81

0000-0630 Start injecting water at 0000. SWL Marland Well 28-1/2" at 0008; 28-1/4" at 0010; 28-7/8" at 0013; 29-1/8" at 0016; 29-3/4" at 0020. Stop injecting at 0020. Flow back into mud pit. SWL in Marland Well is 31-3/4" at 0039. Went to motel, ordered Barite. Crew mixing mud and standing by.

0630-1200 Discussed options with Bud Earley, Bureau personnel, and Vern Butler. Decided to cement here to avoid having to set more casing. Well shut in.

1200-2400 Ordered casing scraper and contacted Halliburton for packer and large cementing. 3,500 sx of cement ordered at 1630 for daylight tomorrow. Well still shut in, static pressure 30 psi at 1730. Scraper arrived at 1945. Made up and RIH. No cement inside casing.

6/8/81

0000-0300 Halliburton began arriving on site at 0000. SWL Marland Well is 16.85' B top of 2" threaded nipple in top of well. Packer to be set at 960'. Set at 964' at 0105. All bulk cement on site at 0300. POOH, make up stinger, RIH, sting through packer.

0300-0730 Nipple up to pump cement; standby water trucks ready at 0500. 780 bbl water on site; water trucks will keep running. SWL Marland Well is 18.15' BMP at 0600; 18.50' BMP at 0647; 18.56' at 0656.

0730-0815 Ready. Began pumping into well with water at 9-1/2 bbl/min at 600 psi. Pressured up back side to 400 psi at 1/2 bbl/min. Casing would not hold pressure. Perfs at 300 not sealed. No change in water level decline in Marland Well, water levels in OW-2 and OW-3 rose in response to pumping into casing.

0815-0840 No change in rate of decline in Marland adjacent well. Injecting water at 9-1/2 bbl/min at 600 psi.

0840-1200 Start pumping cement at 0842. 2760 ft^3 (2,000 sx) Type H at 4% gcl (bentonite), 2% CaCl, 1.38 ft^3/sx, 14.7 lb/gal, at varying rates, 3 to 7 bbl/min; slowed down toward

end. Pressure at varied between 100 and 300 psi. Pumped 1725 ft^3 (1,500 sx) Type H, mixed neat at 1.15 ft^3/sx at 15.8 lb/gal. Staged last 500 sacks, no pressure rise. Displaced 31 bbls at 6 bbl/min at 300 psi. Should have displaced 100' below casing. Halliburton cementers released at 1200. Halliburton tool hand not released until we check on water flow below pacifer.

1200-0300 Clean up and POOH.

0300-2400 Wait for cement to set below packer. At 1500, Dorothy Harvey called, said "if she did not get her money for the wheat (damage) today she would lock the gate." I explained how close we were to finishing and how much equipment we had ready to pull off. She did not care. I called Butler at 1510.

6/9/81

0000-0100 Wait on cement.

0100-0200 RIH; sting through packer. No flow.

0200-0245 POOH.

0245-0400 Discussed results and how to leave well. Released Halliburton tool hand at 0400.

0400-0800 Slept. Rig on standby making preparations to rig down. Water levels in OW-5 wells dropping?!.

0800-1000 Called Butler and Ken Ouellette; reported cementing effort. Richard Davis, CWS, arrived at 1000. Said Harvey gate was locked. I called Butler. Went to inspect; confirmed. Rig standing by.

1000-2400 Stand by; wait for laywers. I escorted crews up backway through Prather's gate.

6/10/81

0000-1600 Wait for lawyers; stand by. Measured stations. Water levels in OW-1, OW-2, and OW-3 definitely dropping.

1600-2100 Gate unlocked. Welex called for bond log and possible perforating. Wait for loggers. Loggers arrive at 2100.

50

2100-2400 Run bond log to 941'. Log shows questionable bond below 560'.

6/11/81

0000-0130 Talked with Welex shop about log interpretation. Welex operator will carry logs to Vernal tonight. Assistant Manager/Welex will look at them first thing in morning.

0130-0600 Welex hand returns to Vernal. Rig standing by.

0600-0700 Discussed log with Cliff White, Welex; log shows free pipe.

0700-1100 Wait for Welex hand to return. Halliburton called at 0800.

1100-1400 Welex perforates 9-5/8" casing at 830', 720', and 585' at total of 10 holes; no flow. Had trouble with perforating guns. Halliburton arrives at 1100 with retrievable packer. Packer set at 520'.

1400-1515 Pump water at 4 bbl/min at 150 psi through perforations. Pumped 300 sx cement at 5 bbl/min at 200 psi. 342 ft^3 (61 bbls) type G mixed 1.15 ft^3/s at 15.8 lb/gal, 4% CaCl, 1/4 lb/sx Flocele.

1515-1700 Stage displacement; begin squeeze with 16-1/2 bbls water, pressure held at 800 psi.

1700-1845 Pull up packer and flush. RIH with 4 stands (248') drill pipe. Close rams and establish injection rate of 2 bbl/min at 400 psi. Difficulty getting injection rate through old perforations at 300'. SWL OW-2 rose when injecting.

1845-1930 Mix cement and slowly squeeze rams closed. Started at 2 bbls/min at 400 psi; end pumping at 1/2 bbl/min. at 700 psi 90 ft^3 (16 bbls) pumped. Open rams, pumped last cement in hopper lines and pump into casing approximately 5 bbls. Filled annulus with cement to 65' close rams and displace to 200'. POOH. Filled annulus with cement. Halliburton released. Cement should fill casing from 300' to 200.

1930-2400 Begin rigging down CWS rig #60.

6/12/81

0000-2400	Rig down. SWL's in OW-1, OW-2, and OW-3 continue decline.

6/13/81

0000-1200	Rig down; rig roaded out. Water levels continue to drop in observation wells.
1200-2400	Continue rigging down and cleaning site.

6/14/81 Site empty.