

Reduced tension to 70,000# and set slips. Lifted 10" 900 manual BOP and installed hand slips on 7" casing. Removed hand slips, pulled 72,000# and set 7" casing slips. Cut off 7" casing, installed packing 7-1/16" 3M x 11' 3M tubing spool and tested packing to 2,500 psi. TIH with 6-1/4" string mill, and rotated and reciprocated mill through patch at 2,455'. TIH with a 7" Elder fullbore packer set at 2,741' and attempted to test casing from 0' to 2,471', with no success. Found BOP leaking. Replaced rams in BOP and found BOP would not hold pressure. TIH with 13 jts. 2-7/8" tbg. Set packer at 2,859' and pressure tested casing from 2,859' to 3,529'. Pressure decreased from 570 psi to 565 psi in 30 mins. Reset packer repeatedly, pulling 2 jts. per setting. Circulated through both 9-5/8" x 7" and 7" x 2-7/8" annuli, while pumping down tubing at 3.0 BPM and 500 psi. Set packer at 2,529'. Attempted to circulate through annuli with no success. Found that 7" casing from 2,529' to 2,859' would appear to hold 600 psi. Pumped down casing-tubing annulus with packer at 2,529' and circulated through 9-5/8" x 7" annulus at 2.0 BPM and 500 psi. TOH with 7" fullbore packer. Removed 6" 900 manual BOP and installed a new 6" 900 manual BOP. TIH with a 7" Elder Lok-set RBP set at 2,480' & set packer at 2,477'. Tested RBP to 500 psi for 10 mins. Pulled 2 jts. 2-7/8" tbg., reset packer at 2,414' and tested casing patch. Pressure decreased from 580 to 575 PSI in 10 min. Released packer, TIH with 2 jts. 2-7/8" tbg., released RBP at 2,480', TIH with 13 jts. 2-7/8" tbg. and set RBP at 2,859'. TOH with 13 jts. 2-7/8" tbg. Set packer at 2,414' and established an injection rate into leak interval from 2,480' to 2,858' at 2.8 BPM and 400 psi. Established circulation through intermediate-production casing annulus at 2.8 BPM and 400 psi. Dropped 5 lbs. red dye and followed with 100 bbls. fresh water. Had dye recovery to pit after 98 bbls. pumped. Released packer and TIH with 4 jts. 2-7/8" tbg. Set packer at 2,530' and pumped down casing-tubing annulus with full circulation out intermediate-production casing annulus. Released packer, TOH with 1 jt. and reset packer at 2,501'. Attempted to circulate through intermediate-production casing annulus, pumping down casing-tubing annulus, with no success. Testing indicates top circulation leak is between 2,501' and 2,530'. Released packer and TIH with 12 jts. 2-7/8" tbg. Released 7" Lok-set RBP and TOH with 7" Model "R" packer, and 7" RBP. TIH with 96 jts. 2-7/8" tbg. Set tbg. open ended at 2,880'. Halliburton established circulation through casing-tubing and intermediate-production casing annuli. Pumped 100 sks. class "C" slurry with 2% CACLs at 2.0 BPM. Followed with a total displacement of 14.5 bbls. fresh water. TOH with 12 jts. 2-7/8" tbg. Bottom of tubing set at 2,519'. Reversed out an estimated 8.5 sks. to pit with 40 bbls. fresh water. Pumped 90 bbls. fresh water down tubing, circulating through intermediate-production casing annulus at 1.5 BPM and 800 psi to circulate cement through top circulation hole. TIH with a 7" SV EZ drill cement retainer, set at 2,411'. Pressured casing-tubing annulus to 500 psi. Pumped 20 bbls. fresh water at 2.0 BPM and 500 psi, with full circulation through intermediate-production casing annulus. Pumped 250 sks. class "C" slurry with 4% Bentonite Gel, 1/4 lb./sk. Flocele and 176 sks. class "C" slurry with 2% CACL2 at 2.0 BPM. With 105 bbls. slurry pumped had good cement circulation to pit. Stung out of cement retainer and reversed out an estimated 19 sks. Left an estimated 2 sks. on retainer, 19.6 sks. below retainer, 349 sks. behind 7" casing and 33.6 sks. circulated to pit. TIH with a 6-1/4" drill bit & tagged top of cement at 2,406'. Established reverse circulation at 3.0 BPM and drilled cement from 2,406' to 2,411', cement retainer from 2,411' to 2,413' and cement from 2,413' to 2,470'. Circulated clean. Drilled out cement from 2,470' to 2,571'. TIH with bit and located top of cement plug at 2,607'. Drilled out cement from 2,607' to 2,802'. Circulated clean. Drilled cement from 2,802' to 2,876' and cement stringers from 2,876' to 2,906'. TIH with drill bit to 2,922'. Pressure tested casing from 0' to 3,529'. Pressure decreased from 565 psi to 555 psi in 30 mins. TIH with drill bit and tagged fill at 3,505'. Reverse circulated from sulfide scale, from o.d. of 7" casing from 3,505' to 3,529'. Drilled cement plug and washed sand from 3,529' to 3,676'. TOH with bit. TIH with a retrieving tool. Released RBP at 3,676' and TOH with 7" Elder Lok-set RBP. TIH with a 5-3/4" shoe & 5-3/4" concave mill. Tagged top of 3-1/2" tubing at 3,762', worked shoe over fish and milled from 3,762' to 3,763.5' & TOH. Mill showed slight wear on cutting surface, with wear at water course, indicating 3-1/2" tbg. may be split. RIH with a 5-3/4" Lead Impression Block. Tagged top of fish and POH. Impression block showed one-half of a rough circle, with a 3-5/16" O.D. TIH with 5-3/4" shoe & 5-3/4" concave mill. Tagged top of 3-1/2"

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tbg. at 3,764' and milled from 3,763.5' to 3,767' & TOH. Mill showed a circular wear pattern with a 3-1/2" diameter. Ran tools repeatedly & attempted to recover fish. TIH with a 5-3/4" cut lip guide & 5-3/4" overshot, with a 4-1/2" spiral grapple. Tagged top of fish at 3,813', worked grapple over fish to 3,816' and set grapple. Pulled 22,000# over string weight to actuate jars and fish pulled free. TOH with tools & fish. Recovered the 3-1/2" x 2.4' tbg. stub, 3-1/2" tbg. collar, 3-1/2" SN, 3-1/2" tbg. collar, 3-1/2" x 2-7/8" swage, 2-7/8" tbg. collar, 2-7/8" nipple, 2-7/8" tbg. collar, 2-7/8" x 5-1/2" Lane wells formation packer, 2-7/8" tbg. collar, 2-7/8" MT x 3-1/2" FT crossover 3-1/2" x 4' perforated tbg. sub, 2 jts. 3-1/2" tbg., and 1 jt. 3-1/2" tbg., orange peeled and slotted. Tally length of junk recovered was 112.13'. Based on actual packer set depth of 3,817'. TIH with a 6-1/8" drill bit and tagged top of fill at 3,910'. Cleaned out fill from 3,910' to 3,925' and had indications that bit was rotating on junk metal at 3,925'. Drove unknown junk to 3,932', with good returns of formation and possible Barium Sulfate scale. Pulled drill bit to 3,930' and circulated for one hour, with good returns of formation. TOH with bit. Rigged up Schlumberger and RIH with GR-CCL-LDT, with no source. Found TD at 3,933' and casing shoe at 3,772'. Gamma Ray readings were from 200 to 1000 API units from 3,933' to 3,828' and less than 60 API units from 3,828' to 3,772'. Caliper log showed openhole diameter to range from 6.125" to 6.5". Casing collar locator indicated junk in borehole wall at 3,852', 3,872' and 3,885' to 3,898'. Ran tool string to 3,598'. TIH with a 5-3/4" Smith underreamer. Established conventional circulation with 2400 CFM air and 14 GPM water at 600 psi. Underreamed openhole from 3,775' to 3,886', at a depth of 3,886', underreamer progress stopped. Pulled to 3,880' and underreamer would not rotate freely. Circulated hole clean and pulled underreamer into casing shoe, with no dragging. TIH with underreamer and attempted to pass below junk from 3,886' to 3,896', with no success & TOH. TIH with a 6-1/8" drill bit. Established circulation with 2400 CFM air and 14 GPM water at 500 psi. Cleaned out from 3,890' to 3,932'. Rigged up Schlumberger and RIH with a GR-CCL-LDT-CNL and found that tools would not pass below 3,916'. Logged from 3,916' to 2,900'. Found openhole diameter greater than 8-5/8" from 3,779' to 3,890'. TIH with 2-1/2" x 2-1/4" x 24' pump barrel & 7" Baker tubing anchor catcher, on 2-7/8" J-55 EUE 8rd tbg. Removed 6" 900 manual BOP and installed tubinghead flange, wraparound and slip assembly. Set TAC at 3,731', with 12,000# tension and SN at 3,846'. TIH with a 2-1/4" x 4' pump plunger on rods. Install pumping unit and electrical connection. RDPU, clean location & resumed prod. well.

Test of 05-16-93: Prod. 23-B0, 247-BW, & 8 MCFGPD in 24 hours.

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