

**Great Bear Petroleum**

**Alcor #1**

**Drilling History**

June 16, 2012 0’ MW (N/A) Vis (N/A) Incl (N/A)

Rack and tally DP and HWDP. Make all of it up in stands and rack back in derrick to pre-load rig. Prepare to cut conductor.

June 17, 2012 0’ MW (N/A) Vis (N/A) Incl (N/A)

Cut off conductor, install 4” outlets. Install landing ring and adapter on conductor and test seals to 500 psi. Measure and cut riser sleeve and install on adapter sleeve. NU 21-1/4” diverter tee and diverter. Install knife valve on diverter tee, assemble and secure diverter line. Install riser from diverter to rig floor.

June 18, 2012 0’ MW 10.0 ppg Vis 300 sec Incl N/A

Function test diverter, PVT sensors and gas alarms. Make dummy run to wellhead with 9-5/8” casing hanger on landing joint and stand back. Perform full test of diverter system, sensors and alarms with AOGCC witness (Jeff Jones). MU BHA #1 and stand back. Rack, tally and drift 9-5/8” casing.

June 19, 2012 800’ MW 10.0 ppg Vis 300 sec Incl 0.46˚

Rack, tally and drift 9-5/8” casing. RIH w/ drlg assy, tag btm at 97’. Drill 12-1/4” hole 97’ to 250’. POH, MU add’l BHA, RIH. Drill 250’ to 800’.

June 20, 2012 1,920’ MW 10.1 ppg Vis 280 sec Incl 0.65˚

Drill 12-1/4” hole 800’ to 1,920’.

June 21, 2012 2,510’ MW 10.2 ppg Vis 150 sec Incl 0.50˚

Drill 12-1/4” hole 1,920’ to 2,510’. CBU twice and POH to BHA to wipe hole for running casing. RIH to TD, CBU twice, spot new mud on bottom and POH.

June 22, 2012 2,510’ MW 10.2 ppg Vis 170 sec Incl 0.50˚

POH, set back BHA. Run 9-5/8” casing. Stuck at 1,861’, work free. Continue running casing to 2,120’

June 23, 2012 2,510’ MW 10.4 ppg Vis 60 sec Incl 0.50˚

Continue running casing, washing down. Hole very tight below 2,000’. Land casing, MU and RIH w/ inner cmtg string and FC stab-in assy. Pump 440 bbls 11.1 ppg permafrost lead cement. Observe cmt returns at surface, switch to 15.8 ppg Class G tail cement and pump 50.5 bbls. Displace w/ mud and bump plug. Unsting f/ FC, CBU and POH.

June 24, 2012 2,510’ MW 10.4 ppg Vis 52 sec Incl 0.50˚

LD BHA. ND diverter system, NU wellhead components, NU BOPE.

June 25, 2012 2,510’ MW 10.4 ppg Vis 50 sec Incl 0.50˚

NU BOPE and function test.

June 26, 2012 2,510’ MW 10.4 ppg Vis 50 sec Incl 0.50˚

Test BOPE w/ AOGCC witness (Chuck Scheve). MU 8-1/2” BHA. RIH, shallow test MWD/LWD tools. RIH, tag FC at 2,406’. Change pits over to MOBM.

June 27, 2012 3,410’ MW 10.2 ppg Vis 76 sec Incl 0.18˚

Pressure test csg to 3,000 psi for 30 min. Displace spud mud in csg w/ MOBM. Drill shoe track, rat hole and 20’ of new fm to 2,541’. Perform LOT, yielded 13.9 ppg EMW. Drill to 3,410’. Started losing partial returns at 3,220’, commenced adding LCM to mud.

June 28, 2012 3,989’ MW 9.7 ppg Vis 78 sec Incl 0.65˚

Drill 8-1/2” hole 3,410’ to 3,586’. Mud returns about half of mud pumped. Pump LCM pill and circulate. Losses the same. Pump second LCM pill. Losses the same. Cut mud weight from 10.2 ppg to 9.7 ppg. Drill 3,586’ to 3,798, losses down to 4-8 bph. Hole giving back some mud on connections. Drill 3,798’ to 3,989’.

June 29, 2012 5,042’ MW 9.6 ppg Vis 77 sec Incl 0.62˚

Drill 8-1/2” hole 3,989’ to 5,042’. Hole taking 12 bbls mud while drilling each stand then giving it back on connections. No net losses. Begin planned wiper trip.

June 30, 2012 5,998’ MW 9.9 ppg Vis 77 sec Incl 0.51˚

Finish wiper trip to 3,510’ then back to bottom. No drag – hole in good condition. Drill 5,042’ to 5,998’ while slowly increasing mud weight to 9.9 ppg. Hole still breathing. Now taking/giving back 25 bbls per stand due to increased flow rate being used. Begin planned wiper trip.

July 1, 2012 6,365’ MW 10.0 ppg Vis 76 sec Incl 0.53˚

Short trip up to 4,946’ then back to bottom. Hole in good shape. Drill 5,998’ to 6,362’. Lost circulation. Pull up to 6,238’, mix and pump a 40 ppb LCM pill. No discernable effect. Mix and pump 38 bbls of 100 ppb LCM pill (coarser material) through circulating sub above BHA. No effect. Mix and displace from pits into DP 40 bbls of 100 ppb LCM pill (very coarse material).

July 2, 2012 6,365’ MW 10.0 ppg Vis 78 sec Incl 0.53˚

Mix add’l 40 bbls of LCM pill to make a total of 80 bbls to be pumped away. Displace LCM pill out circ sub in BHA, PU from 6,360’ to 5,800’ and circulate. Returns at 40-50%, no static losses. RIH to 6,189’ and mix 30 bbls gunk pill (Halliburton Geltone V + Barazan D). Displace to thief zone and squeeze away 27 of the 30 bbls pumped. POH to 5,806’ and monitor well while waiting for gunk squeeze to set.

July 3, 2012 6,365’ MW 10.0 ppg Vis 78 sec Incl 0.53˚

Wait for gunk squeeze to set. C&C hole – stable. POH, LD BHA, service top drive, prepare to test BOPs.

July 4, 2012 6,365’ MW 9.7 ppg Vis 75 sec Incl 0.53˚

Test BOPE – test witness waived by AOGCC’s John Crisp. MU BHA #3 and RIH to surface casing shoe. Cut & slip drilling line, repair top drive.

July 5, 2012 6,434’ MW 9.7 ppg Vis 78 sec Incl 0.44˚

Repair top drive. RIH to 5,908’. Reduce mud weight to 9.7 ppg. Wash & ream to btm at 6,365’. Drill 8-1/2” hole 6,365’ to 6,434’, experienced severe lost circ. Open circ sub and spot LCM pill. POH to 5,908’and circ. Hole stable.

July 6, 2012 7,100’ MW 9.4 ppg Vis 84 sec Incl 0.45˚

C&C hole while lowering mud weight to 9.4 ppg. Wash and ream 5,908’ to 6,434’. Drill 8-1/2” hole 6,434’ to 7,100’

July 7, 2012 8,014’ MW 9.4 ppg Vis 80 sec Incl 0.88˚

Drill 7,100’ to 7,440’. Make wiper trip to 6,482’. Hole in good condition. Drill 7,440’ to 8,014’.

July 8, 2012 8,250’ MW 9.4 ppg Vis 85 sec Incl 1.07˚

Drill 8,014’ to 8,250’. C&C hole and make wiper trip to 2,463’ in prep for logging and running casing. LD excess 5” drill pipe in derrick. RIH to 5,800’.

July 9, 2012 8,320’ MW 9.5 ppg Vis 85 sec Incl 2.03˚

RIH from 5,800’ to 8,250’. Drill & slide 8,250’ to 8,320’ and CBU to ensure bit in a good shale for 7” casing shoe. POH L/D 5” DP. Break down BHA.

July 10, 2012 8,320’ MW 9.5 ppg Vis 115 sec Incl 2.22˚

Cont L/D BHA. RU for WL logging. Make logging Run #1: Quad-Combo/Dipole Sonic/Compensated Spectral Gamma Ray. Make logging Run #2: Oil Mud Micro-Imager/6-Arm Caliper. RD WL. Change upper BOP rams to 7”.

July 11, 2012 8,320’ MW 9.5 ppg Vis 115 sec Incl 2.22˚

Test 7” rams to 250/5,000 psi (took 3 attempts). RU casing running tools. Run 7”, 29#, P-110, BTC csg to 5,700’.

July 12, 2012 8,320’ MW 9.5 ppg Vis 100 sec Incl 2.22˚

Finish running 7” csg and land out in WH. Shoe at 8,311’. Circulate w/ very few returns. RU to pump cement. Test lines to 3,000 psi. Pump 5 bbls water, 20 bbls chemical spacer, 10 bbls water. Drop btm plug and pump 119 bbls 12.5 ppg lead slurry and 32 bbls 15.8 ppg tail slurry. Drop top plug, switch to rig pumps and displace w/ mud. Very few returns during pumping. Bump plug on schedule, check floats – OK. RD cementers, change rams and DP handling tools to 4”.

July 13, 2012 8,320’ MW 9.6 ppg Vis 130 sec Incl 2.22˚

Change BOP rams and DP handling tools to 4”. Test BOPE, test witness waived by AOGCC’s Chuck Scheve. PU 99 jts of 4” DP and RIH to 3,170’. POH, standing back DP. MU BHA #4.

July 14, 2012 8,320’ MW 10.5 ppg Vis 87 sec Incl 2.22˚

MU BHA and RIH, picking up 4” DP, to 8,091’. Displace hole to 10.5 ppg mud. Repair top drive. Pressure test casing to 3,000 psi.

July 15, 2012 8,347’ MW 10.5 ppg Vis 85 sec Incl 2.22˚

Finish csg pressure test. Replace liners in mud pumps due to excessive pumping pressure. Wash down slowly making MAD pass from 8,155’ to 8,224’. Drill shoe track, rat hole and 20’ new fm to 8,340’. Fluid losses 24 bph. CBU, perform FIT to 11.5 ppg EMW. Drill to 8,347’, fluid loss incr to 60 bph. Gas units incr to 6,000. SI well and check pressures – SICP 90 psi, SIDPP 89 psi. CBU through choke. SI – csg 80 psi, DP 130 psi. Spot 40 lb/gal LCM pill on btm.

July 16, 2012 8,347’ MW 10.5 ppg Vis 92 sec Incl 2.22˚

Open well, bleed off ½ bbl mud – well died. Monitor well, CBU – well static. POH while removing OBM from pits and cleaning pits. LD BHA, test annular to 250/2,500 psi and choke to 1,000 psi – OK. RU to outer annulus and attempt to inject w/ 3,000 psi – no success. MU BHA #5 while cleaning pits.

July 17, 2012 8,347’ MW 10.5 ppg Vis 90 sec Incl 2.22˚

Finish MU BHA #5 while cleaning pits. RIH to 8,308’. Take 9.4 ppg WBM into pits. Attempt to pump into outer annulus with 4,150 psi – no success. Displace OBM in hole with WBM and clean surf equip.

July 18, 2012 8,620’ MW 9.4 ppg Vis 90 sec Incl 5.96˚

Finish purging OBM from system. Perform second FIT (w/ WBM) to 11.5 ppg EMW. RIH, MAD pass w/ GR from 8,255’ to 8,347’. Drill 6-1/8” hole 8,347’ to 8,620’ w/ no losses. CBU for samples.

July 19, 2012 8,640’ MW 9.4 ppg Vis 78 sec Incl 8.67˚

Drill 8,620’ to 8640’, CBU for samples. POH for coring. LD BHA, MU coring assy. RIH to 8,640’ and drop ball.

July 20, 2012 8,674’ MW 9.4 ppg Vis 71 sec Incl 8.67˚

Wait for ball to drop to core bbl. Core from 8,640’ to 8,674’. Pump various sweeps past bit to try to improve ROP.

July 21, 2012 8,676’ MW 9.4 ppg Vis 80 sec Incl 8.67˚

Core from 8,674’ to 8,676’. Break off with 5K lbs overpull and POH. LD BHA and core. 32.15’ of core recovered. Test BOP’s. Test witness waived by AOGCC’s Bob Noble.

July 22, 2012 8,676’ MW 9.4 ppg Vis 75 sec Incl 8.67˚

Finish testing BOPE. M/U 6-1/8” drilling BHA and RIH. At 8,610’ lost signal from MWD. Attempt to regain – no success. POH.

July 23, 2012 8,799’ MW 9.4 ppg Vis 67 sec Incl 10.12˚

Cont POH. Change out MWD tool. RIH. MAD pass 8,640’ to 8,667’. Slide drill 8,676’ to 8,799’.

July 24, 2012 9,208’ MW 9.7 ppg Vis 57 sec Incl 8.67˚

Drill 6-1/8” hole 8,799’ to 9,186’. Gas units rising and cutting mud weight. Weight up system to 9.6 ppg. Still circulating up gas-cut mud. Weight system up to 10.0 ppg. Drill 9,186’ to 9,197’. Monitor well, still has gas bubbling in mud. Weight up to 10.1 ppg and drill 9,197’ to 9,208’ while weighting up to 10.2 ppg.

July 25, 2012 10,015’ MW 10.6 ppg Vis 54 sec Incl 3.48˚

Drill 6-1/8” hole 9,208’ to 9,435’ while gradually weighting up mud from 10.2 ppg to 10.5 ppg to control gas. Drill 9,435’ to 10,015’ (core point) while gradually weighting up mud to 10.6 ppg. Mud losses to hole steady at 10 bph. C&C mud, prepare to displace hole with 11.2 ppg mud to POH for core bbl.

July 26, 2012 10,015’ MW 11.2 ppg Vis 53 sec Incl 3.48˚

C&C mud. Displace 10.6 ppg mud from hole with 11.2 ppg mud for tripping out. Monitor well – static. POH to 9,380’, monitor well – static. POH, handle BHA. MU 90’ coring assy and RIH. Static mud losses 8 bph.

July 27, 2012 10,085’ MW 10.6 ppg Vis 55 sec Incl 2.50˚

RIH from 649’ to 9,693’, tag fill. Wash to 10,006’. Displace 11.2 ppg trip mud with 10.6 ppg drilling mud. Wash to 10,015’. Cut core from 10,015’ to 10,085’.

July 28, 2012 10,103’ MW 11.2 ppg Vis 55 sec Incl 2.50˚

Core from 10,085’ to 10,103’. Displace well from 10.6 ppg drilling mud to 11.2 ppg tripping mud. POH and L/D core barrel.

July 29, 2012 10,103’ MW 11.2 ppg Vis 55 sec Incl 2.50˚

Finish L/D coring assy – no recovery. Perform weekly BOP test, witnessed by AOGCC’s Jeff Jones. M/U drilling BHA and RIH to 4,200’.

July 30, 2012 10,200’ MW 11.2 ppg Vis 64 sec Incl 2.23˚

RIH 4,200’ to 8,300’. MAD pass with LWD logs 8,300’ to 10,103’. Change out mud from 11.2 ppg tripping mud to 10.6 ppg drilling mud. Drill 10,103’ to 10,200’.

July 31, 2012 10,573’ MW 11.2 ppg Vis 55 sec Incl 1.60˚

Drill10,200’ to 10,485’. CBU for samples. Drill 10,485 to 10,573’. CBU for samples. Change out mud system from 10.6 ppg drilling mud to 11.2 ppg tripping mud. Leave viscous pill on bottom and POH from 10,573’ to 3,800’ for coring assy.

August 1, 2012 10,573’ MW 11.2 ppg Vis 54 sec Incl 1.20˚

POH from 3,800’, L/D BHA. P/U 30’ coring assy and RIH to 10,543’. Tag fill, displace 11.2 ppg tripping mud to 10.7 ppg coring mud.

August 2, 2012 10,603’ MW 11.2 ppg Vis 50 sec Incl 1.20˚

Finish displacing well to 10.7 ppg drilling mud. Wash through fill 10,543’ to 10,573’. Core from 10,573’ to 10,603’. Displace 10.7 ppg drilling mud in hole to 11.2 ppg tripping mud. POH from TD and L/D core barrel.

August 3, 2012 10,662’ MW 10.7 ppg Vis 45 sec Incl 1.20˚

L/D 30’ Core Assy #3 – 26’ recovered. M/U 60’ Core Assy #4 and RIH to 10,474’. Displace 11.2 ppg trip mud to 10.7 ppg drilling mud. Wash fill from 10,474’ to 10,602’. Cut Core #4 from 10,602’ to 10,662’. Break off core w/ 20K lbs overpull. Displace 10.7 ppg drilling mud w/ 11.2 ppg tripping mud.

August 4, 2012 10,662’ MW 11.2 ppg Vis 55 sec Incl 1.20˚

Finish displacing to 11.2 ppg tripping mud. POH w/ Core #4. L/D coring assy – recovered 57’. Commence weekly BOP test.

August 5, 2012 10,662’ MW 11.2 ppg Vis 51 sec Incl 1.20˚

Finish BOP test (test witness waived by AOGCC’s Chuck Scheve). M/U drilling BHA and RIH. Tag fill at 10,628’. Displace 11.2 ppg tripping mud with 10.7 ppg drilling mud.

August 6, 2012 10,812’ MW 11.2 ppg Vis 55 sec Incl 1.20˚

Finish displacing 11.2 ppg tripping mud with 10.7 ppg drilling mud. Work pumps in attempt to get LWD signal – NG. Drill from 10,662’ to 10,812’ TD. Displace 10.7 ppg drilling mud with 11.2 ppg tripping mud and POH.

August 7, 2012 10,812’ MW 11.2 ppg Vis 56 sec Incl 1.20˚

Download LWD tools – no data stored in memory. MU quad-combo LWD BHA and RIH. Tag fill at 10,792’, wash to TD at 10,812’ and commence MAD passing upward with LWD tools.

August 8, 2012 10,812’ MW 11.2 ppg Vis 53 sec Incl 1.20˚

Continue MAD pass upward to casing shoe at 8,311’. POH, LD BHA, download LWD. Rig up to run 4-1/2” liner.

August 9, 2012 10,812’ MW 11.2 ppg Vis 52 sec Incl 1.20˚

RU to run 4-1/2” liner. MU 2,741’ of 4-1/2”, 13.5 lb, P-110, Hydril 521 liner w/ HES Versaflex liner hanger and RIH on DP. Tag fill at 10,753’, would not wash down. CBU.

August 10, 2012 10,812’ MW 9.8 ppg Vis 28 sec Incl 1.20˚

Finish CBU, RU to cement. Prime and pressure test lines. Pump 125 bbls 10.6 ppg mud + 3 bbls water + 40 bbls weighted spacer + 57.3 bbls Class G cement. Drop plug and chase w/ 10 bbls water + 26 bbls 9.8 ppg brine + 30 bbls water + 50 bbls 9.8 ppg brine. Bump plug, check floats – OK. Drop setting ball. Pressure up to rupture disk, disk ruptured. Perform pull test to 60K lbs – OK. Release from liner hanger and break off cement head. PU 28’ and displace well to 9.8 ppg brine. Pressure test liner hanger to 3,000 psi – OK. POH laying down DP. LD HWDP and liner running tool. RIH w/ DP f/ derrick and POH laying down same.

August 11, 2012 10,812’ MW 9.8 ppg Vis 28 sec Incl 1.20˚

Finish LD DP. Flush stack. Pressure test csg/shoe/lnr to 3,000 psi – OK. Set frac sleeve w/ BPV profile in WH. Install BPV and ND BOPE. Install tbg head adapter and two ea 7-1/16”, 10K master valves. Clean pits.

August 12, 2012 10,812’ MW 9.8 ppg Vis 28 sec Incl 1.20˚

Complete installation of master valves. Clean pits, change liners in #1 mud pump. Test tree to 8,000 psi. Reinstall BPV. Complete rig cleaning and prep for rig move. Release rig from Alcor #1 at 1200 hrs, 08-12-12. **FINAL REPORT**.