



**BOGLE STATE COM 1  
DIAMOND MOUND FIELD**

Sec. 2 - T16S - R27E  
2560' FNL & 660' FEL  
Eddy County, New Mexico

**RECOMPLETION FROM THE MORROW (ATOKA) SAND  
TO THE PENN CARBONATE**

AFE 210168  
PROPERTY NUMBER 030701-001  
API #30-015-22307

**JUNE 13, 2002**

PRODUCTION ENGINEER: ENOS J. FANGUE, JR.  
713-265-6859 (OFFICE)  
713-265-8207 (FAX)  
713-265-8207 (FAX)  
713-553-7736 (CELLULAR)  
888-311-5989 (PAGER)  
936-321-3435 (RESIDENCE)  
[enos.fangue@oceanenergy.com](mailto:enos.fangue@oceanenergy.com) (E-MAIL - WORK)  
[fangue@charter.net](mailto:fangue@charter.net) (E-MAIL - RESIDENCE)

WELLWORK SUPERVISOR ON LOCATION: REX GLENN  
505-910-6725 (CELLULAR)  
505-627-6508 (PAGER)  
505-622-5126 (RESIDENCE)  
[Rglenn1300@aol.com](mailto:Rglenn1300@aol.com) (E-MAIL)

COMPLETIONS AND WORKOVER SUPERVISOR: GARY W. SCHWINTZ  
713-265-6629 (OFFICE)  
713-265-8411 (FAX)  
713-828-1222 (CELLULAR)  
713-685-9466 (PAGER)  
281-955-6869 (RESIDENCE)  
[gary.schwintz@oceanenergy.com](mailto:gary.schwintz@oceanenergy.com) (E-MAIL - WORK)

**REMEMBER SAFETY FIRST**

ORIG: WELLWORK ENGINEERING FILE  
XC: PROJECT WELLWORK SUPERVISOR

## WELL INFORMATION

### ELEVATIONS

GROUND ELEVATION	3578.0'
R K B	3590.0'
R K B - T H F	12.0'

### RESERVOIRS

PROPOSED SAND NAME	PENN SAND
B H P / B H T	±3711 PSI / 0°F
SITP	±2800 PSI (ASSUMING DRY GAS TO SURFACE)
PERFORATIONS	7926' - 7932' RKB MD (6' @ 6 SPF) 7994' - 8003' RKB MD (9' @ 6 SPF)

CURRENT SAND NAME	MORROW (ATOKA) SAND
B H P / B H T	±0 PSI / 180°F
SITP	±0 PSI
PERFORATIONS	8438' - 8446' RKB MD (8' @ 1 SPF) 8578' - 8583' RKB MD (5' @ 1 SPF) 8600' - 8602' RKB MD (2' @ 1 SPF)

### COMPLETION / PACKER FLUID

PROPOSED COMPLETION FLUID	8.6 PPG 2% KCL
CURRENT COMPLETION FLUID	8.6 PPG 2% KCL TREATED WITH CORROSION INHIBITOR

### WORKSTRING

EXISTING 2-3/8", 4.7 LB/FT, EUE 8RD PRODUCTION TUBING

### GENERAL HARDWARE DATA

RESTRICTIONS	1.810" ID "F" NIPPLE @ 7869' RKB
--------------	----------------------------------

## **PROCEDURE**

### **TEST ANCHORS AND FUNCTION TEST TREE**

1. Test anchors and send test results to Midland office and document results in Rimbase.
2. Mobilize Wood Group Pressure Control to location. Perform visual inspection of tree.

### **RU COMPLETION RIG**

3. Mobilize Lucky Service workover rig.
4. Check and record pressures on 13-3/8" x 8-5/8" annulus, 8-5/8" x 4-1/2" annulus, 4-1/2" x 2-3/8" annulus and 2-3/8" SITP. Record and document last known well test (Date, MCFD, BOPD, BWPD, Flowing Tubing Pressure, Choke Size, etc.) on Rimbase report.
5. Attempt to establish injection with 2% KCl and kill well. Pump a minimum of 50 bbls (1-1/2 tubing volumes). Monitor and record pump rates and injection pressures. Do not exceed 3000 psi pump pressure.

### **ND TREE NU BOPE**

6. Remove tree cap.
7. Install 2" BPV in 2" BPV profile.
8. Screw 2-3/8" EUE 8rd landing / lift joint into the tree caps internal lift threads.
9. PU 2-3/8" landing / lift joint and remove tree.
10. NU BOPE arrangement.
11. RU Lucky Service workover rig.
12. Pull BPV. Install two-way check.
13. Pressure test BOPE to 250 psi low / 3500 psi high.
14. Pull two-way check.

**SEND THE TREE TO WOOD GROUP PRESSURE CONTROL IN ODESSA, TEXAS, ATTENTION QUEN HUSSEY TO BE SERVICED AND TESTED.**

**ENSURE A DETAILED TREE SCHEMATIC HAS BEEN COMPLETED AND FURNISHED WITH THE TREE WHEN MOBILIZED BACK TO LOCATION.**

**PULL 2-3/8" PRODUCTION TUBING**

15. Release 4-1/2" LokSet packer at 8398' and POOH with production tubing. Scanalog tbg using Tuboscope while POOH. Lay down all but "yellow band" tbg. RU choke manifold and flow line to open top test tank.
16. RU power tubing tongs to pull 2-3/8", 4.7 lbs/ft, J-55, EUE 8rd production tubing. Release 4-1/2" LokSet packer at 8398' RKB. Pull production tubing. Continuously monitor weight of tubing string.

Rack back production tubing and lay down accessories as follows:

**SCANALOG PRODUCTION TUBING UTILIZING TUBOSCOPE WHILE POOH.**

**DO NOT EXCEED 53,775 LBS PULL (75% OF MAXIMUM WHICH IS 71,700 LBS). CONTACT HOUSTON OFFICE BEFORE EXCEEDING THE SET LIMIT.**

**"PICK-UP" HOOK LOAD ESTIMATED AT 39,466 LBS BASED ON TUBULAR WEIGHTS IN DRY CONDITIONS.**

**RACK BACK "YELLOW BAND" PRODUCTION TUBING**

**LAY DOWN "BAD-YELLOW BAND" PRODUCTION TUBING.**

**12,000' OF 2-3/8", 4.7 LB/FT J-55 "YELLOW BAND" TUBING IS LOCATED IN MIDLAND, TEXAS  
(CONTACT JIM MEEKS AT 713-265-6656 FOR REPLACEMENT JOINTS)**

- 7-1/16" OD x 0.5' Tubing Hanger
- 2-3/8", 4.7 lb/ft, J-55, EUE 8rd Tubing (261 Joints)
- 2-3/8" x 2', 4.7 lb/ft, J-55, EUE 8rd Pup Joint
- 2-3/8", 4.7 lb/ft, J-55, EUE 8rd Tubing (4 Joints)
- 2-3/8" Seating Nipple
- 2-3/8" On-Off Tool
- 4-1/2" Baker LokSet Packer
- 2-3/8" x 4', 4.7 lb/ft, J-55, EUE 8rd Pup Joint
- 2-3/8" Seating Nipple

17. RU choke manifold and flow line to open top test tank.

**RUN GAUGE RING, SET 4-1/2" CIBP AND DUMP BAIL 35' CEMENT**

18. Mobilize E-Line service.
19. Hold safety meeting and review job scope and hazards.
20. MU 10M grease seal unit with lubricator. RU E-line. RU electric line. Pressure test lubricator to 3500 psi. RIH with GR/CCL and 3.875" OD gauge ring and junk basket (4-1/2", 11.6 lb/ft Drift = 3.875") to 8400' RKB. POOH.
21. RIH with GR/CCL and set 4-1/2" OD CIBP (rated for 10,000 psi and 0 °F) at ±8400 RKB. POOH.

Correlate with *SCHLUMBERGER'S SIMULTANEOUS COMPENSATED NEUTRON-FORMATION DENSITY LOG* dated November 29, 1977 (run #1).

**PRODUCTION CASING TALLEY  
(FROM SURFACE)**

JOINTS	181	TO	218	4-1/2", 11.6 LBS/FT, J-55, EUE 8RD	1576.18'	DRIFT=3.875"
JOINTS	69	TO	180	4-1/2", 10.5 LBS/FT, J-55, EUE 8RD	4592.69'	DRIFT=3.927"
JOINTS	1	TO	68	4-1/2", 11.6 LBS/FT, J-55, EUE 8RD	2616.07'	DRIFT=3.875"

22. RIH with CCL/Dump Bailer and dump bail 35' of cement on top of CIBP. Bailer will spot 0.54 bbls of cement (22.85 gallons). POOH. Wait on cement.
23. Fill wellbore with 2% KCl. Pressure test 35' isolation cement plug to 500 psi for 15 minutes. Chart and record. Bleed all pressure to 0 psi.

BE AWARE OF SQUEEZE PERFORATIONS THAT EXIST AT 6490' RKB.

Morrow / Atoka Sand 35' Isolation Cement Plug  
ETOC @ 8365' RKB  
EBOC @ 8400' RKB

Report results to Enos Fangue.

**PERFORATE PENN CARBONATE**

24. RU E-Line and 10M grease seal unit with lubricator.
25. Pressure test lubricator to 3500 psi.
26. Make up the following with GR/CCL:

Verify necessary pulling force on electric line cable head assembly.

Correlate with *SCHLUMBERGER'S SIMULTANEOUS COMPENSATED NEUTRON-FORMATION DENSITY LOG* dated November 29, 1977 (run #1).

**PERFORATING GUN ASSEMBLY #1**  
3-1/8" OD DEEP PENETRATOR  
SCALLOPED HOLLOW STEEL CARRIER PERFORATING GUN ASSEMBLY  
LOADED AT 4 SPF WITH 90° PHASING  
(GOEX 22.7 GRAM DP, APT, HMX EXPLOSIVE CHARGES - 022-3375-309)  
MAXIMUM SWELL = 3.34"  
CHARGE PERFORMANCE: EHD = 0.42" AND TTP = 34.20"

27. RIH and correlate **PERFORATING GUN ASSEMBLY #1** on depth. Flag e-line cable. This procedure should achieve an overbalance condition prior to perforating. Perforate as follows:

**7994' - 8003' RKB MD**  
**( 9' @ 4 SPF @ 60° PHASING )**  
**MID-PERFORATIONS @ 7998' RKB TVD @ 0.5° DEVIATION**

Record and monitor tubing and casing pressures before and after the perforating run. POOH.

28. Make up the following with CCL only:

**PERFORATING GUN ASSEMBLY #2**  
3-1/8" OD DEEP PENETRATOR  
SCALLOPED HOLLOW STEEL CARRIER PERFORATING GUN ASSEMBLY  
LOADED AT 4 SPF WITH 90° PHASING  
(GOEX 22.7 GRAM DP, APT, HMX EXPLOSIVE CHARGES - 022-3375-309)  
MAXIMUM SWELL = 3.34"  
CHARGE PERFORMANCE: EHD = 0.42" AND TTP = 34.20"

29. RIH and correlate **PERFORATING GUN ASSEMBLY #2** on depth. Flag e-line cable. Perforate as follows:

**7926' - 7932' RKB MD**  
**( 6' @ 4 SPF @ 60° PHASING )**  
**MID-PERFORATIONS @ 7929' RKB TVD @ 0.5° DEVIATION**

Record and monitor tubing and casing pressures before and after the perforating run. POOH.

IF A SIGNIFICANT PRESSURE RESPONSE IS OBSERVED AFTER PERFORATING, BE PREPARED TO LUBRICATE A PACKER IN THE HOLE.

Report results to Enos Fangue.

### **RUN 2-3/8" TUBING AND TUBING ACCESSORIES**

30. RU to run existing 2-3/8", 4.7 lbs/ft, EUE 8rd production tubing. Make-up specifications are attached. Production tubing is to be made up using power tongs with integral backup. The supervisor on location will see that Ocean Energy, Inc. tubing running and make up procedures are properly followed. Any question about running the tubing refer to the attached Technical Data Sheet.

- **LUBRICATE ALL CONNECTIONS WITH A LIGHT COAT OF TEFLON BASED GRADE COMPOUND API MODIFIED THREAD COMPOUND ON PIN ONLY.**
- **TALLY ALL PRODUCTION TUBING. FOR TALLYING, MEASURE THE OVERALL LENGTH OF PIPE FROM THE TIP OF THE PIN END TO THE FACE OF THE COUPLING AND THEN DEDUCT THE MAKE-UP LOSS. NOTE ON REPORTS TOTAL TUBING DELIVERED AND ANY TUBING LEFT OVER ON FINAL REPORT.**
- **DRIFT TUBING WITH A 12" x 1.901" OD RABBIT. HAVE TWO RABBITS ON LOCATION.**
- **MUST UTILIZE LAY DOWN THREAD PROTECTORS.**
- **SET THE MINIMUM AND MAXIMUM TORQUE VALUES.**
- **MAKE UP CONNECTIONS AT 12 RPM OR LESS IN LOW GEAR.**
- **DO NOT EXCEED MAXIMUM TORQUE.**
- **SEE THE ATTACHED TECH DATA SHEETS FOR PRODUCTION TUBING TORQUE SPECIFICATIONS.**
- **TORQUE SPECIFICATIONS FOR PRODUCTION TUBING ARE AS FOLLOWS (SEE ATTACHMENTS)**

2-3/8", 4.7 LBS/FT EUE 8RD, J-55 PRODUCTION TUBING	
MINIMUM TORQUE (FT-LBS)	970
OPTIMUM TORQUE (FT-LBS)	1290
MAXIMUM TORQUE (FT-LBS)	1610
MINIMUM YIELD LOAD (LBS)	71,700
MINIMUM BURST PRESSURE (PSI)	7,700
MINIMUM COLLAPSE PRESSURE (PSI)	8,100
JOINT EFFICIENCY (%)	100%
MANUFACTURER	NOT AVAILABLE
CONNECTION OD (INCHES)	3.063
PIN LENGTH OR MAKE-UP LOSS (INCHES)	1.0073
NOMINAL I.D. (INCHES)	1.995
DRIFT I.D. (INCHES)	1.901
WALL THICKNESS (INCHES)	0.190
COUPLING LENGTH (INCHES)	4.875

31. PU and TIH with following tubing accessories, and existing 2-3/8", 4.7 lbs/ft, EUE 8rd, J-55 production tubing.

DESCRIPTION .....MD (Tops)

- |   |       |
|---|-------|
| 1. 2-3/8" OD WIRELINE REENTRY GUIDE .....   | 7896' |
| 2. 2-3/8" OD x 10', 4.7 LBS/FT, EUE 8RD, J-55 PUP JOINT .....                             | 7886' |
| 3. 4-1/2" x 6.56' WEATHERFORD 10K ARROWSET 1X RETRIEVABLE PRODUCTION PACKER.....          | 7880' |
| 4. WEATHERFORD TYPE T-2 ON-OFF TOOL (1.5') WITH "F" NIPPLE PROFILE (1.875" ID) .....      | 7879' |
| 5. 249 JOINTS OF 2-3/8", 4.7 LBS/FT, EUE 8RD, J-55 PRODUCTION TUBING (±31.5' JOINTS)..... | 35'   |
| 6. 2-3/8" OD x 4', 4.7 LBS/FT, EUE 8RD, J-55 SPACE OUT PUP JOINT .....                    | 31'   |
| 7. 1 JOINT OF 2-3/8", 4.7 LBS/FT, EUE 8RD, J-55 PRODUCTION TUBING (±31.5' JOINT).....     | 0'    |
| 8. 1 TUBING HANGER, 7-1/16" x 2-3/8", 4.7 LB/FT, EUE 8RD, J-55                            |       |
| 9. 2-3/8", 4.7 LBS/FT EUE 8RD LANDING JOINT   |       |

SEE ATTACHED WELLBORE SCHEMATIC FOR ADDITIONAL DETAILS.

32. Record pickup and slackoff weights prior to setting packer.

**— WARNING —**

**MAKE NECESSARY PRECAUTIONS TO ENSURE NO DEBRIS FALLS INTO WELLBORE WHILE TIH**

**SET ARROWSET 1-X RETRIEVABLE PRODUCTION PACKER**

33. Pick up on tubing and rotate 1/4 turn to the right at the packer. Lower tubing to engage slips, release right-hand torque while moving tubing downward. Continue to set weight (approximately 10,000 - 12,000 lbs) on packer to pack-off elements. After setting weight on packer, pick up on tubing and pull tension in packer to engage upper slips and complete element pack-off. Repeat setting weight and pulling tension two to three times before landing tubing.

DO NOT PLACE MORE THAN 2000 LBS COMPRESSION ON TUBING WHEN SETTING PACKER AND SPACING OUT DUE TO COMPRESSION TRANSFER WHEN VENT ASSEMBLY IS OPENED (27,000 LBS).

34. Land tubing hanger. Pull lock screw out to observe proper position of hanger. Replace lock screw and packing. Lock down hanger with all pins.

PAINT A WHITE BAND ON THE TUBING THE PROPER DISTANCE BELOW THE HANGER SO THAT THE BAND WILL BE VISIBLE THROUGH THE CASING VALVE WHEN THE HANGER IS IN THE PROPER POSITION.

ENSURE THE WELLHEAD SERVICEMAN HAS RUN ALL LOCK DOWN PINS AND VERIFIED THE PROPER POSITION OF THE LOCKDOWN PINS PRIOR TO RUNNING TUBING HANGER.

35. Pressure up through casing valve to 500 psi for 15 minutes and monitor top of hanger to ensure hanger is properly seated. Bleed off pressure and leave casing valve open.
36. Connect flow line to flowback manifold equipment.



**SWAB TEST PENN CARBONATE**

37. RIH and swab test Penn perforations. Monitor and record pressures and rates.

**SET "FSG" TUBING BLANKING PLUG**

ENSURE THE WIRELINE COMPANY HAS ALL FISHING TOOLS ON LOCATION TO FISH EVERY WIRELINE TOOL RUN IN THE HOLE.

ENSURE ALL WIRELINE TOOLS ARE CALIPERED AND MEASURED BEFORE RUNNING IN THE HOLE.

38. RU wireline. Pressure test lubricator to 3500 psi.
39. RIH with 1-27/32" gauge ring 7890' RKB. POOH.
40. RIH with 1.875" "FSG" blanking plug and set in "F" profile of T-2 On-Off Tool at  $\pm 7879'$  RKB.
41. POOH. RD wireline.
42. Bleed tubing pressure to 0 psi. Monitor for pressure.

**PICKLE PRODUCTION TUBING AND CIRCULATE PACKER FLUID**

43. Rotate off T-2 On-Off Tool and prepare to pickle 2-3/8" production tubing.
44. Rig up BJ Services and pump "Mr. Clean" pickle job consisting of 250 gallons of xylene followed by 500 gallons 15% HCL. Pump at a maximum of 3/4 BPM rate down tubing while xylene and acid are in tubing.
45. Displace xylene/acid pickle with 18.5 bbls of 2% KCL fluid only. This will place 578' of xylene on backside while leaving 3104' of acid in tubing.
- This will protect the squeeze hole located in the 4-1/2" production casing at 6490'.
46. Rig up to reverse circulate and displace backside with 120 bbls of completion packer fluid consisting of 2% KCl treated with O<sub>2</sub> scavenger, corrosion inhibitors and biocide in the hole.
47. Engage T-2 On-Off Tool.
48. Land tubing hanger. Pull lock screw out to observe proper position of hanger. Replace lock screw and packing. Lock down hanger with all pins.
49. Pressure up through casing valve to 500 psi for 15 minutes and monitor top of hanger to ensure hanger is properly seated. Bleed off pressure and leave casing valve open.

**SWAB PRODUCTION TUBING**

50. RIH and swab fluid level down to 2500' or enough to be slightly underbalanced when pulling the "FSG" blanking plug. Monitor and record pressures and rates.

**PULL "FSG" TUBING BLANKING PLUG**

ENSURE THE WIRELINE COMPANY HAS ALL FISHING TOOLS ON LOCATION TO FISH EVERY WIRELINE TOOL RUN IN THE HOLE.

ENSURE ALL WIRELINE TOOLS ARE CALIPERED AND MEASURED BEFORE RUNNING IN THE HOLE.

51. RU wireline. Pressure test lubricator to 3500 psi.
52. RIH, latch and pull equalizing prong from 1.875" "FSG" blanking plug located in "F" profile of T-2 On-Off Tool at  $\pm 7879'$  RKB. POOH.
53. Allow tubing pressure to stabilize. Monitor and record pressures.
54. RIH, latch and pull 1.875" "FSG" blanking plug from "F" profile of T-2 On-Off Tool at  $\pm 7879'$  RKB. POOH.
55. RD wireline.

**ACIDIZE PENN PERFORATIONS**

56. Acidize the Penn Carbonate with 1500 gallons of 15% NEFE HCl. Drop 100 1.10 specific gravity ball sealers evenly throughout treatment. Acidize at a rate of 5-6 BPM down production tubing. After acidizing, surge balls and shut-in well. Report ISIP, 5, 10 and 15 minute pressures.
57. RU swab and swab/flow back load fluid. Place well through production equipment when load is recovered, or fluid production diminishes. Obtain gas sample for analysis and condensate sample for gravity determination.

**SET "FSG" TUBING BLANKING PLUG**

ENSURE THE WIRELINE COMPANY HAS ALL FISHING TOOLS ON LOCATION TO FISH EVERY WIRELINE TOOL RUN IN THE HOLE.

ENSURE ALL WIRELINE TOOLS ARE CALIPERED AND MEASURED BEFORE RUNNING IN THE HOLE.

58. RU wireline. Pressure test lubricator to 3500 psi.
59. RIH with 1.875" "FSG" blanking plug and set in "F" profile of T-2 On-Off Tool at  $\pm 7879'$  RKB.
60. POOH. RD wireline.
61. Bleed tubing pressure to 0 psi. Monitor for pressure.

**ND BOPE AND NU TREE**

62. ND BOPE.
63. NU tree. Test tree flange (void area) to 5000 psi. Install two-way check. Test tree to 5000 psi. Pull two-way check.

HAVE THE WOOD GROUP PRESSURE CONTROL REPRESENTATIVE ON LOCATION.  
HAVE THE PRODUCTION OPERATIONS REPRESENTATIVE CONFIRM THE TREE ORIENTATION.

64. Close all tree valves.

### **SWAB PRODUCTION TUBING**

65. RIH and swab fluid level down to 2500' or enough to be slightly underbalanced when pulling the "FSG" blanking plug. Monitor and record pressures and rates.

### **PERFORM WIRELINE WORK**

ENSURE THE WIRELINE COMPANY HAS ALL FISHING TOOLS ON LOCATION TO FISH EVERY WIRELINE TOOL RUN IN THE HOLE.

ENSURE ALL WIRELINE TOOLS ARE CALIPERED AND MEASURED BEFORE RUNNING IN THE HOLE.

66. RU wireline. Pressure test lubricator to 3500 psi.
67. RIH, latch and pull equalizing prong from 1.875" "FSG" blanking plug located in "F" profile of T-2 On-Off Tool at  $\pm 7879'$  RKB. POOH.
68. Allow tubing pressure to stabilize. Monitor and record pressures.
69. RIH, latch and pull 1.875" "FSG" blanking plug from "F" profile of T-2 On-Off Tool at  $\pm 7879'$  RKB. POOH.
70. RD wireline.

### **RIG UP FLARE PIT AND PRODUCTION WELLTESTING EQUIPMENT**

71. RU flowback test equipment and direct blowback and flare line to the flare pit.
72. Ensure adequate pressure gauges are installed on wellhead and flow test lines. Secure all connections and breaks. Pressure test surface test lines with fluid to 4500 psig for 15 minutes against closed manifold. Monitor for leaks.

### **PERFORM FLOW BACK**

73. Allow well to flow and clean up to flare pit. Monitor and record estimated production rates, pressures and choke sizes while cleaning up. Be prepared to alternate chokes on manifold as plugging with debris can occur on initial flowback. Swab well in if necessary.

### **RIG DOWN COMPLETION RIG**

74. Turn Bogle State Com 1 well over to production operator for production start-up and well test.
75. RD completion rig. Demobilize and clean up general work location.

### **PRODUCE AND PERFORM 4-POINT POTENTIAL TEST**

76. Allow well to produce for about 7 days. Shut-in well for a 72 hour BHP buildup test and obtain a 4-Point Potential well test for the New Mexico Oil Conservation Department.