

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

OCD-ARTESIA

FORM APPROVED  
OMB NO. 1004-0137  
Expires July 31, 2010

RM

JUN 23 2009

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE - Other instructions on page 2

1. Type of Well

☒ Oil Well ☐ Gas Well ☐ Other

2. Name of Operator

EOG Resources Inc.

3a. Address

P.O. Box 2267 Midland, Texas 79702

3b. Phone No. (include area code)

432-686-3689

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

2000' FSL & 200' FEL, U/L I,  
Sec 36, T22S, R30E

5. Lease Serial No

NM 02953-C

6. If Indian, Allottee or Tribe Name

7. If Unit or CA/Agreement, Name and/or No.

8. Well Name and No.

James Ranch Unit 113H

9. API Well No.

30-015-37046

10. Field and Pool, or Exploratory Area

Southeast Quahada Ridge -  
Delaware

11. County or Parish, State

Eddy NM

12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION

- ☒ Notice of Intent  
☐ Subsequent Report  
☐ Final Abandonment Notice

TYPE OF ACTION

- |  |   |  |   |
|--|---|--|---|
| <input type="checkbox"/> Acidize                 | <input type="checkbox"/> Deepen           | <input type="checkbox"/> Production (Start/Resume) | <input type="checkbox"/> Water Shut-Off |
| <input checked="" type="checkbox"/> Alter Casing | <input type="checkbox"/> Fracture Treat   | <input type="checkbox"/> Reclamation               | <input type="checkbox"/> Well Integrity |
| <input type="checkbox"/> Casing Repair           | <input type="checkbox"/> New Construction | <input type="checkbox"/> Recomplete                | <input type="checkbox"/> Other _____    |
| <input checked="" type="checkbox"/> Change Plans | <input type="checkbox"/> Plug and Abandon | <input type="checkbox"/> Temporarily Abandon       |   |
| <input type="checkbox"/> Convert to Injection    | <input type="checkbox"/> Plug Back        | <input type="checkbox"/> Water Disposal            |   |

13. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the final site is ready for final inspection.)

EOG Resources intends to run a 3-1/2" casing liner as detailed in the attached procedure.

Operator shall provide method of verification  
of cement to top of liner.

14. I hereby certify that the foregoing is true and correct  
Name (Printed/Typed)

Stan Wagner

Title Regulatory Analyst

Signature

Date 6/16/09

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by

Title

Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Office

APPROVED

JUN 22 2009  
Date

WESLEY W. INGRAM  
PETROLEUM ENGINEER

**EOG RESOURCES INC.**  
**James Ranch Unit # 113H**  
**3 1/2" Liner Procedure**

**6/10/2009**

**Well Information**

Location:	2000' FSL & 200' FEL	AFE No:	104165
(Surface)	Section 36, T22S, R30E	TD (drill):	12090'
Location:	2150' FSL & 330' FEL	KB(19' AGL):	3335.3
(Bottomhole)	Section 31, T22S, R30E	GL:	3316.3'
Southeast Quahada Ridge Delaware			
Eddy County, New Mexico			
API No: 30-015-37046			

Casing: 11 3/4" 42 ppf H-40 STC @ 704' (Cemented to Surface)  
8 5/8" 32 ppf J55 LTC @ 3872' (Cemented to Surface)  
5-1/2" 17 ppf N80 LT&C @ 11220' (Circulated 173 sacks)  
Stage Tool @ 4633' (Circulated 73 sacks)  
Float Collar @ 11175', Marker Joint = 5978' (21.83')

Openhole: 7 7/8" drilled OH from 11,220' – 12,090'  
Estimated 8" average hole size

<u>Casing</u>	<u>Wt</u>	<u>Grade</u>	<u>Burst</u>	<u>Collapse</u>	<u>ID</u>	<u>Drift</u>
11 3/4"	42.0	H40	1980	1071	11.084	10.928
8 5/8"	32.0	J55	3930	2530	7.921	7.875
5-1/2"	17.0	N80	7740	6280	4.892	4.767

Directional Info: KOP = 7025'  
Curve = 7025' – 8025' (1000')  
Drilled lateral = 8025' – 120900' (4065')  
Cased lateral = 8025' – 11220' (4040')  
Available lateral = 8025' – 11125' (3100')  
Average TVD in lateral = 7600' TVD  
BHST = 130 °F  
Anticipated Frac Gradient = 0.60 psi/ft

Directions to Well: From the intersection of Highway 128 and WIPP Road (CR 802), go north on WIPP Road for 0.7 miles. Turn left (west) through the cattle-guard on to a lease road, and go 0.4 miles to a "T". Turn right (north) and go 0.6 miles to a lease road on the right. Turn right (east) and go 0.2 miles. Turn left (north) and go 0.2 miles to dead end on location.

- 1) MIRU PU level location and set anchors. Spot and load two frac tanks with 1,000 bbls of 2 % KCl (salt) water treated with bactericide, and 1 gpt of non-

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ionic surfactant. Spot and load one frac tank with 8.4 ppg (2% KCl base) XCD polymer (3/4 ppb) mud drilling fluid plus 2 ppb starch. All tanks to be cleaned prior to delivery to EOG.

- 2) Remove Dry Hole Tree and nipple up a 7 1/16" 5M BOP with 2 7/8" pipe and blind rams.
- 3) RU reverse unit. PU 4 3/4" skirted mill tooth bit on 2 7/8" 7.9# P-110 PH-6 workstring. Trip in hole to DV tool @ 4633'. Drill out DV tool and test casing to 2,000 psi.
- 4) TOOH and pick up a full drift 5 ½" 17# string mill. TIH establish reverse circulation and wipe through the DV tool @ 4633' to ensure full diameter through the DV tool for liner tool clearance. TOOH LD string mill.
- 5) TIH cleaning with 4 ¾" bit and continue cleaning the well out to 11,175' (float collar) with 2% KCl water. Pressure test the casing to 2,000 psi surface pressure. Continue drilling the float and shoe out with 2% KCl water. (shoe @ 11,220').
- 6) Circulate out the 2% KCl fluid and displace the hole with the 8.4# XCD polymer mud system (3/4 ppb XCD plus 2 ppb starch) prior to cleaning out the 6 1/8" openhole section from 11,220' – 12,090'. Circulate the hole clean. Keep pipe moving while circulating. Note PU, slack off, torque, and drag with and without pumping.
- 5) Drop Baker's drift, with ±120' of wire attached, prior to TOOH. Verify that the drill pipe (including pup joints, etc) properly drifts prior to continuing.
- 6) On the TOOH, take and record PU, SO and rotating weights twice in the openhole, every 500' in the horizontal section, and twice in the vertical. Take and record rotating torque readings (with power swivel). Report results to Baker and EOG Midland office so torque and drag calculations can be made on running the 3 ½" liner.
- 7) Once out of the hole record the total joints of drill pipe and liner on location. Be sure to include all pup joints, etc.
- 8) Well in advance of the cement job discuss the following with the cementing company:
  - a) Verify that all the required testing has been completed using the actual mix water. All cement slurries and spacers should be tested.
  - b) The actual thickening times, free water, fluid loss, rheologies and compressive strengths should be documented prior to pumping cement. Also verify that the testing was conducted at the proper bottom hole static and circulating temperatures.

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- c) If spacers are required be certain that the cementing company test the compatibility of the spacer(s) with the cement and drilling fluids.
  - d) On field blend test(s) simulate releasing from liner by pumping slurry for job time, shut-down for 30 min, then allow the slurry to pump off. If plans are to batch-mix the cement, that time should also be included.
- 9) RU casing crew and run the liner as follows.
- a) Casing should be strapped, cleaned, visually inspected and drifted prior to running. Use an API drift with the proper OD listed in the casing specifications below.
  - b) Be certain that every joint has been inspected. Plan on having a thread hand on location to verify that each connection is made-up properly.

Liner Specifications							
Size	Wt./ft.	Grade	Conn	Top	Bottom	Length	\$/ft
3-1/2"	9.2	L80	511 Hydril	11,090'	12,085'	950' 995	25.0
Casing Details							
ID:	2.992	In (Pin ID = 2.981)	Collapse Rating: 10530 psi				
Drift:	2.867	In	Burst Rating: 10160 Psi				
Connection OD:	3.500	in	Body Yield: 207 kips				
Make-Up Torque:	1200 <sub>min</sub> / 1400 <sub>opt</sub> / N/A <sub>max</sub>			Joint Strength: 126 kips			

- c) Verify all tool dimensions, weights and grades prior to RIH. Double check all burst, collapse and tensile ratings.
- d) Make sure the Baker cementing head is equipped with a flag-sub to verify when the drill-pipe dart leaves and also verify that the TS rating is at least 1.6 times the max calculated running load.
- e) Hold pre-job safety meeting. Use single joint elevator to PU casing from the V-door to the casing stabber.
- f) Thread lock all connections from the top of the landing collar down. Lightly dope both the pin and box with the proper thread compound. Thread Compound as per the thread hands recommendation.

**Liner Hanger**

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Item	Model	Remarks	OD	ID	MTL	Burst	Coll	JS
Crossover Bushing 3.5" 10rd box x 3.5" Hydril 511 pin	Baker		4.22	≥ ID of Csg	P110	≥ Csg Burst	≥ Csg Collt	≥ Csg JSt
Hydraulic Set Liner Hgr 3.5" 9.3# x 5.5" 14-20#	Baker HCM	By-Pass Unset/Set 4.80/3.75 in <sup>2</sup>	4.38	2.99	P110	10160	10535	109k
5' PBR	Baker	By-Pass TBA in <sup>2</sup>	4.38	3.75	P110	12944	12183	345k
Setting Tool	Baker	Set TOL 200' above 5-1/2" csg shoe	-	1.50	P110	-	-	-
Packer Actuator	Baker		-	1.50	P110	-	-	-
2-7/8" 7.9# P110 PH6	Tubing	Capacity: 0.00498 bbls/ft	3.50 Conn	2.20 Conn	P110	20620	21040	273k
<u>Calc Running Loads (w/o blks)</u> <b>PU:</b> 76k lbs in 8.4 ppg fluid <b>SO:</b> 74k lbs <b>Rot:</b> 75k lbs								

- g) Use a collar clamp until sufficient weight is obtained to properly set slips.
- h) Plan on running the liner at 60 – 90 seconds per 45' joint. Verify the recommended running speed with drilling engineer prior to running pipe. This must be done to properly manage the surge pressures and to minimize the risk of losing circulation prior to cementing.
- i) PU and run Baker's liner hanger with CSPH liner top packer.
- j) TIH with drill pipe filling pipe as per the drilling procedure. It is recommended to:
  - i) Fill the drill pipe at least every 20 stands.
  - ii) Install a wiper rubber on drill pipe to prevent any foreign matter from falling into the wellbore.
- k) Land the casing string ±5' off bottom. The last movement should be up to make sure that the liner is in tension.
- l) Circulate at least 1-1/2 volumes (DP + liner) prior to setting hanger. Continue circulating as needed to remove all hydrocarbons from the drilling mud prior to cementing. Record the final string weight of the liner and DP in mud on the daily drilling report.
- m) Stop circulation. Set down drill string weight and rotate as per Baker to release the setting tool from the liner hanger. Pick-up ±4-5 feet from liner to confirm disengagement. Limit distance of PU in order to avoid exposing packer-setting dogs. Set back down and maintain enough weight on setting tool to remain stung in while circulating and during cement job (as per Baker).
- n) Pump 1.5 times the liner volume to make sure that the liner wiper plug doesn't leave prematurely.
- o) Calculate the maximum and minimum displacement rates needed for the drill pipe dart to properly latch-up with the liner wiper plug. Displacement

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rates below the minimum may cause the drill pipe dart to "flower" or "wad-up" as they pass through the smaller ID's of the running tool and stinger.

Minimum displacement rate through setting tool =  
(Stinger ID)<sup>2</sup> x 0.0583 x 13.5 ft/sec = 1.8 bbls/min

*Do not reduce the pump rate below the above rate at any time while pumping displacement.*

Minimum recommended displacement rate through drill pipe =  
(Drill pipe ID)<sup>2</sup> x 0.0583 x 5 ft/sec = 1.5 bbls/min

Maximum allowable displacement rate through drill pipe =  
(Drill pipe ID)<sup>2</sup> x 0.0583 x 20 ft/sec = 6.0 bbls/min

10) Mix and pump cement as per the following:

<b>Pump Schedule</b>	
Spacer:	10 bbls 2% KCl Spacer @ 8.4 ppg
Cement:	250 sx – 50/50 Poz (Fly Ash): Class H Cement + 0.005 lbs/sack Static Free + 5% bwow Sodium Chloride + 0.1% bwoc R-3 + 0.2% bwoc CD-32 + 0.005 gps FP-6L + 2% bwoc Bentonite + 0.3% bwoc FL-52A + 58.4% Fresh Water
Displacement:	Fresh water + 6 ppb sugar = 66.5 bbls

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<b>Cement Slurry Properties</b>					
Estimated Volume:	250	Sacks	300 Reading:	86	Rpm
Density	14.20	Ppg	200 Reading	60	Rpm
Yield:	1.30	ft <sup>3</sup> /sack	100 Reading:	34	Rpm
Mix Water:	5.88	gal/sack	6 Reading:	6	Rpm
Total Mixing Water:	35	Bbls	3 Reading:	5	Rpm
Thickening Time:	5:00	hrs:min	12hr Compressive Strength:	50	Psi
Free Water:	0.0	%	24 hr Compressive Strength:	500	Psi
Fluid Loss:	< 350	cc	48 hr Compressive Strength:	1000	Psi
BHST:	135	°F	BHCT:	135	°F
Volumes based on:	8.0	Inch hole size	Plus	10	% XS
<b>Top of Cement:</b>	<b>of</b>	<b>TOL - 200'</b>	<b>Feet</b>	<b>Compressive Strengths @</b>	<b>135 °F</b>

- i) Adjust displacement volume based on volume pumped when drill pipe dart latches-up.
- ii) Bleed off pressure and monitor well to insure that the float equipment is holding.
- iii) Pick up ± 5 feet to expose setting dogs.
- b) Bump the plug with 500 psi over the final displacement pressure.
- c) Shut pumps down and check floats.
  - i) Repressure the tubing to 500 psi.
  - ii) PU out of the liner top and immediately POH. Do not reverse out or pressure test liner top. Watch for pressure equalizing to confirm disengagement from the liner.
  - iii) POOH LD liner setting tools.
- 11) Close BOP's. Wait a minimum of 24 hrs prior to drilling/ cleaning out the 3 ½" liner with combination workstring consisting of 1000' of 1.66" 3.02# CS Hydril P-110 tubing plus 11,000' of 2 7/8" 7.9# P-110 PH-6 tubing.
- 12) Clean pits and tanks. Refill with 2% KCL water.
- 13) Pressure test the liner top to 2,000 psi by pumping water at surface prior to TIH to drill out the liner cement.
- 14) Re-test the liner and liner top after drill-out to 2000 psi.

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15) A frac completion procedure will be submitted once the final setting depths of the 3 ½" liner are known.

**Contacts:**

Engineer	Ron Willett	Office:	432-686-3775
		Cell:	432-230-2135
EOG Consultant	Gary Richburg	Office:	
		Cell:	575-910-8038
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		Cell:	325-277-9897
Completion Mgr	Glenn Carter	Office:	432-686-3641
		Cell:	432-894-1214
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Production Foreman	Hector Serna	Cell:	575-631-0528
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