

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

OCD Artesia

FORM APPROVED  
OMB NO. 1004-0135  
Expires: July 31, 2010

**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.*

5. Lease Serial No.  
NMLC054988B

6. If Indian, Allottee or Tribe Name

**SUBMIT IN TRIPLICATE - Other instructions on reverse side.**

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

1. Type of Well

Oil Well  Gas Well  Other *W/W*

8. Well Name and No.  
JENKINS B FEDERAL COM 15H

2. Name of Operator  
COG OPERATING LLC

Contact: KANICIA CASTILLO  
E-Mail: kcastillo@concho.com

9. API Well No.  
30-015-33472

3a. Address  
600 WEST ILLINOIS AVE  
MIDLAND, TX 79701

3b. Phone No. (include area code)  
Ph: 432-685-4332

10. Field and Pool, or Exploratory  
GRAYBURG JACKSON

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

Sec 20 T17S R30E Mer NMP 1500FNL 2310FWL

11. County or Parish, and State

EDDY COUNTY, NM

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

TYPE OF SUBMISSION	TYPE OF ACTION			
<input checked="" type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production (Start/Resume)	<input type="checkbox"/> Water Shut-Off
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing	<input type="checkbox"/> Fracture Treat	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> New Construction	<input type="checkbox"/> Recomplete	<input checked="" type="checkbox"/> Other Drilling Operations
	<input 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 recomplete 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 recompletion 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 site is ready for final inspection.)

COG Operating LLC respectfully requests approval to drill and complete a lateral in the Jenkins B Federal #15(Jenkins B Federal Com #15H). This re-entry will originate in the Yeso and will finish in the Yeso described in the attached drilling procedure and directional plan.

*Always submit a current + proposed well bore diagram*

Accepted for record  
NMOCD

*Redade 7/18/2013*

**RECEIVED**  
JUL 17 2013

**SEE ATTACHED FOR  
CONDITIONS OF APPROVAL**

14. I hereby certify that the foregoing is true and correct.

**NMOCD ARTESIA**  
Electronic Submission #209184 verified by the BLM Well Information System  
For COG OPERATING LLC, sent to the Carlsbad  
Committed to AFMSS for processing by JOHNNY DICKERSON on 06/05/2013

Name (Printed/Typed) KANICIA CASTILLO

Title PREPARER

Signature (Electronic Submission)

Date 05/31/2013

**APPROVED**

**THIS SPACE FOR FEDERAL OR STATE OFFICE USE**

Approved By

Title

JUL 16 2013

Date

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

BUREAU OF LAND MANAGEMENT  
CARLSBAD FIELD OFFICE

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

**\*\* OPERATOR-SUBMITTED \*\* OPERATOR-SUBMITTED \*\* OPERATOR-SUBMITTED \*\***

DISTRICT I  
1625 N French Dr. Hobbs, NM 88240  
Phone: (575) 393-6161 Fax: (575) 393-0720

DISTRICT II  
811 S. First St., Artesia, NM 88210  
Phone: (575) 748-1283 Fax: (575) 748-9720

DISTRICT III  
1000 Rio Brazos Road, Aztec, NM 87410  
Phone: (505) 334-6178 Fax: (505) 334-6170

DISTRICT IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505  
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico  
Energy, Minerals & Natural Resources Department  
**OIL CONSERVATION DIVISION**  
1220 South St. Francis Dr.  
Santa Fe, New Mexico 87505

Form C-102  
Revised August 1, 2011  
Submit one copy to appropriate  
District Office

AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-015-33472	Pool Code 96718	Pool Name Loco Hills;Glorieta-Yeso
Property Code 302510	Property Name JENKINS B FEDERAL	Well Number 15H
OGRID No. 229137	Operator Name COG OPERATING, LLC	Elevation 3639'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
F	20	17-S	30-E		1500	NORTH	2310	WEST	EDDY

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
H	20	17-S	30-E		1650	NORTH	330	EAST	EDDY

Dedicated Acres 140 <sup>120</sup>	Joint or Infill	Consolidation Code	Order No.
---------------------------------------	-----------------	--------------------	-----------

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

**GRID AZ. = 93°04'06"**  
**S.L. HORZ. DIST. = 2645.4'**  
 Producing Area

**GEODETIC COORDINATES**  
**NAD 27 NME**  
**SURFACE LOCATION**  
 Y=663303.3 N  
 X=604020.1 E  
**LAT. = 32.823050° N**  
**LONG. = 103.994720° W**  
**BOTTOM LOCATION**  
 Y=663161.7 N  
 X=606661.1 E

**CORNER COORDINATES TABLE**

A-Y=664796.4 N,	X=601705.4 E
B-Y=664803.9 N,	X=604345.3 E
C-Y=664812.4 N,	X=606985.3 E
D-Y=662172.0 N,	X=606994.4 E
E-Y=662164.6 N,	X=604354.7 E
F-Y=662156.9 N,	X=601714.7 E
G-Y=659517.5 N,	X=601723.5 E
H-Y=659531.8 N,	X=607003.8 E

**OPERATOR CERTIFICATION**

*I hereby certify that the information herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.*

5/31/13  
 Date

Signature  
**Kanicia Castillo**  
 Printed Name  
**kcastillo@concho.com**  
 E-mail Address

---

**SURVEYOR CERTIFICATION**

*I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.*

**SEPTEMBER 16, 2002**

Date of Survey  
 Signature & Seal of Professional Surveyor:

Certificate Number: Gary C. Eidson 12641  
 Ronald J. Eidson 3239  
 DSR Rel. W.O. #12641 WSC W.O. 13 13,0548

**JENKINS B FEDERAL COM #15H LATERAL PROGRAM**

**1. Estimated Tops of Important Geologic Markers**

Glorieta - 4200'  
Paddock - 4250'  
Blinebry - 4800'

**2. Estimated Depths of Anticipated Fresh Water, 130'.**

This deepening originates in the Yeso and will finish in the Yeso. The entire Yeso group is an oil and gas bearing interval.

**3. Casing Program**

Hole Size	Interval	OD Casing	Weight	Grade**	Jt./Condition	Burst/collapse/tension
4-3/4"	4919'-7767'	4"	11.6#	L-80	ULTFJ/New	3.98/4.09/3.21 (L80)

4819'

**4. Cement Program**

4" Liner: 50 Sacks Solucem H, 15.0ppg, 2.6 yield, 15% excess.

**NOTE: COG OPERATING LLC REQUESTS A VARIANCE TO THE LINER TOP FLUID ENTRY OR PRESSURE TEST BECAUSE THE NEW LATERAL WILL BE COMPLETED IN THE SAME ZONE AS THE CURRENT PERFS AND THE ENTIRE INTERVAL IS RECOGNIZED BY THE OCD AS ONE INTERVAL (YESO). AS PER ONSHORE ORDER NO. 2 SECT III: REQUIREMENTS, PART B. CASING AND CEMENTING REQUIREMENTS, SUBPART b. "NO TEST SHALL BE REQUIRED FOR LINERS THAT DO NOT INCORPORATE OR NEED A SEAL MECHANISM." COG BELIEVES WE MEET THE CRITERIA TO NOT BE REQUIRED TESTING THE LINER TOP BECAUSE THERE IS NO NEED FOR A SEAL MECHANISM.**

**NOTE: COG OPERATING LLC REQUESTS A VARIANCE TO THE 200' MINIMUM TIE BACK TO THE PRODUCTION CASING BECAUSE THE BOTTOM LATERAL IS PRODUCTIVE FROM THE YESO BELOW THIS PROPOSED LATERAL, COG DESIRES TO NOT COVER THAT OR MAKE IT INACCESSIBLE WITH A LINER OVERLAP.**

**5. Minimum Specifications for Pressure Control**

The BOP equipment will be a 2000 psi double ram type hydraulically operated preventer. This equipment will be nipped up to a 7-1/16" 3K flange. The pipe rams are located above blind rams. The BOP is tested to 2000 psi prior to drilling new formation. Access to the annulus will be through the valves on the 7-1/16" casing head.

**6. Types and Characteristics of the Proposed Mud System**

This well will drilled below the 5-1/2" casing to TD with FW/CBW drilling mud.

**7. Auxillary Well Control and Monitoring Equipment**

- A. A full opening drill pipe-stabbing valve with proper drill pipe connections will be on the rig floor at all times.

**8. Logging, Testing, and Coring Program**

- A. The electric logging program will consist of MWD GR, which will be run from TD to 5-1/2" production casing TD.
- B. No drill stem tests.

- C. No conventional coring anticipated.
- D. Further testing procedures will be determined after the 4" casing has been run to TD, based on drill shows and log evaluation.

#### **9. Abnormal Conditions, Pressure, Temperatures, and Potential Hazards**

No abnormal pressures or temperatures are anticipated. The estimated bottomhole temperature at TD is 98 degrees and the estimated maximum bottomhole pressure is 1800 psig. The drilling starts in the Yeso and ends in the Yeso. The section of Yeso being drilled has very low permeability (less than 1 md).

#### **10. Anticipated Starting Date and Duration of Operations**

There will be no road or location work required as this is an existing well location. Once commenced, drilling operations should be finished in approximately 20 days. If the well is productive, an additional 30-90 days will be required for completion and testing before a decision is made to remove the whipstock and RBP separating the laterals, to commingle the production from the two laterals.

#### **11. Centralizer Program**

Centralizers will not be run or required due to the lack of cement and the centralizing nature of the external casing packers.

#### **12. Summary Drilling and Completion Program**

##### **Prep Work**

- 1) Test anchors, replace as required. One-call and set anchors for Horizontal rig. MIRU WSU.
- 2) Release pkr and TOOH w/ pkr and tbg (tally). LD
- 3) Move/tally 2 7/8" 6.55# L80 workstring.
- 4) PU 4 3/4" bit, casing scraper and WS
- 5) TIH to PBTD
- 6) TOOH standing back WS. LD bit and casing scraper
- 7) PU CICR and RIH to +/- 4,210'
- 8) Pump through retainer
- 9) Set retainer and sting out of
- 10) Ensure well will circulate
- 11) Sting back into retainer, load back side and pressure to 500 psi; monitor during squeeze.
- 12) Pump 300 sxs Class C w/ 3% CaCL2 + 5# gilsonite followed by 300 sx Class C neat
- 13) After squeeze is obtained, sting out of retainer and reverse out tubing
- 14) Sting out of retainer TOOH
- 15) WOC at least 12 hrs
- 16) PU 4 3/4" roller cone and (6) 3 1/2" DC
- 17) DO squeeze cement. Drill out floats and cement to 4914' (5' from end of casing at 4919'). C&C clean.
- 18) TOOH. LD bit and DC.
- 19) Run CCL/Gamma Ray/Gyro
- 20) RDMO

**At this time, pumping unit, POC, chemical tanks, flowline/inj line (flushed to battery) will need to be moved out of the way. Any caliche work needed will also be done at this time.**

### **Drilling**

- 1) MIRU Key #115 workover rig & horizontal package. NU hydraulic 6" 5M double BOP w/2-7/8" pipe rams on top & blind rams on bottom. Wellhead has 6" 600 series Larkin connection, needs R45/R46 combination ring gasket and adaptor flange. Move in and rig up pumps, power swivel, frac tanks, generators, pipe racks, and other equipment. Use outside tester to test BOP; use rig pump to test casing to 500 psi for 30 minutes, close blind rams in BOP and test BOP above rams to 1000/200 psi for 30 minutes and document on report.
- 2) PBSD is @ 4,914'. PU & TIH w/4-3/4" bit on rental 2-7/8" 10.4# E or S135 drill pipe (2-7/8" AOH) tag PBSD. TOH. (Note: Strap drill pipe carefully and check measurements with wireline setting depth, ADJUST DRILL PIPE MEASUREMENT TO MATCH PBSD DEPTH, REPORT TD AS PBSD DEPTH.) Verify that the fisherman, directional driller, driller, Pason, geologist, Gyro operator, production engineer and wellsite drilling supervisor are all using the same depth reference corrected to PBSD and wireline tag depth.
- 3) PU 4-3/4" tri-cone bit, downhole motor, muleshoe (UBHO sub), (2) monel drill collars (Install MWD probe inside NMDC and obtain offset), XO flow sub, & muleshoe sub f/gyro on workstring. Surface test motor and MWD. TIH to btm filling pipe as necessary.
- 4) PU swivel and establish circulation (130 gpm). RU Gyro. Time drill away from casing using continuous readout gyro for checking well path and tool face. Magnetic interference may occur, particularly while motor is in the casing. If necessary, use gyro single shots for drilling away from casing. Once MWD readouts can function without magnetic influence from casing, RD Gyro & drill remaining curve at 164 GPM to EOC ( $\pm 5,443'$  MD 5,260' TVD) using MWD.
- 5) Build curve at 17.85°/100' BUR to planned inclination of 90.0° and azimuth (after gyro correction) of 93.07°. Survey as needed to ensure curve is built according to plan. Sweep hole with high viscosity polymer pills (if needed) for good hole cleaning. Sweep hole at least once per day.
- 6) At EOC, TOH. PU & TIH w/4-3/4" **PDC** bit, downhole motor, muleshoe (UBHO sub), (2) monel drill collars (Install MWD probe inside NMDC and obtain offset) & XO flow sub on workstring. TIH very carefully with bit through the casing to prevent bit damage. Ream curve as necessary to remove any severe "kinks" or doglegs.
- 7) Drill the lateral section with the angle hold motor in the oriented and rotary mode as necessary. At TD, circ hole clean. TOH, LD DP and tools.
- 8) Rack/Tally 7,800' 4" 11.6# L-80 ULTFJ

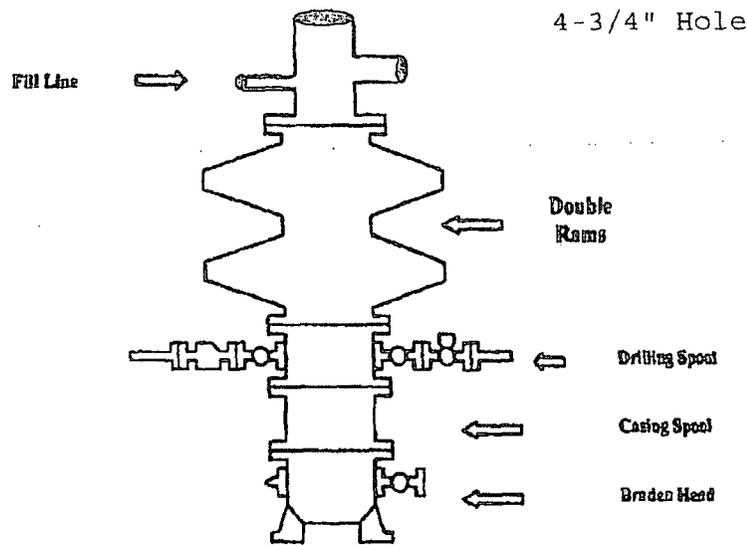
- 9) RIH w/ 4" casing and float equipment
- 10) Pump gel sweeps & circulate 2x casing capacity
- 11) DV tool setting depth +/- 4819'
- 12) Cement w/ 20 bbls FW spacer, Lead: (50 sxs) Solucem H 15.0 ppg / 2.6 yld
- 13) Displace w/ 89 bbls FW
- 14) After landing plug, check floats, drop DV bomb, wait 20 min, open DV tool, circulate cement off DV tool with fresh water, shut down/check for flow up annulus, drop closing plug, displace to DV tool and close DV tool, shut in annulus.
- 15) RD drilling rig
- 16) MIRU WSU
- 17) Unload and tally 7,850' of 2 3/8" PH6 WS
- 18) RIH to DO DV tool
- 19) DO DV tool w/ 3.25" tri-cone bit w/ gauge protection and (6) DC
- 20) Work through DV tool multiple times
- 21) TOOH and LD bit and DC
- 22) PU 3.25" stringmill and RIH to dress DV tool. Work through at least 12 times
- 23) TOOH. LD stringmill
- 24) PU 3.25" junk bit and RIH to PBTD to ensure casing is clear
- 25) Spot 500 gal 15% HCL at toe
- 26) TOOH, LD 3.25" junk bit
- 27) PU slimhole guns
- 28) TIH to perf first stage per design, pressure casing to 4000#
- 29) Perf 1<sup>st</sup> stage, Open toe w/ 3000 gal 15% HCL
- 30) TOOH LD WS and guns
- 31) ND BOPE, NU WH frac valve
- 32) RDMO WSU

## Completion

- 1) RU frac valve. Frac as per Completion Engineer's design. Treat via plug and perf.
- 2) Rig down frac company.
- 3) After frac, rig up PU for cleanout
- 4) RDMO
- 5) Flow well back until fluid recovery reduces to 10 barrel/hour
- 6) Rig up Pulling unit.
- 7) NU BOPE.
- 8) Free point 4" and back off at DV tool
- 9) Run production equipment & place on pump
- 10) Report test results.

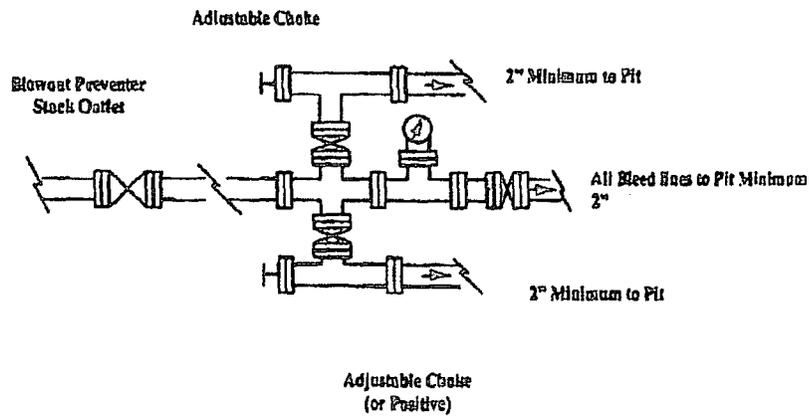
# COG Operating LLC

## BOPE and Choke Schematic



Minimum 3" Nominal choke and kill lines

**Choke Manifold Requirement (2000 psi WP)**  
**No Annular Required**



**NOTES REGARDING THE BLOWOUT PREVENTERS**  
Master Drilling Plan  
Eddy County, New Mexico

1. Drilling nipple to be so constructed that it can be removed without use of a welder through rotary table opening, with minimum I.D. equal to preventer bore.
2. Wear ring to be properly installed in head.
3. Blow out preventer and all fittings must be in good condition, 2000 psi WP minimum.
4. All fittings to be flanged.
5. Safety valve must be available on rig floor at all times with proper connections, valve to be full 2000 psi WP minimum.
6. All choke and fill lines to be securely anchored especially ends of choke lines.
7. Equipment through which bit must pass shall be at least as large as the diameter of the casing being drilled through.
8. Kelly cock on Kelly.
9. Extension wrenches and hands wheels to be properly installed.
10. Blow out preventer control to be located as close to driller's position as feasible.
11. Blow out preventer closing equipment to include minimum 40-gallon accumulator, two independent sources of pump power on each closing unit installation all API specifications.

# COG Operating LLC

Lease & Well #

Jenkins B Federal # 15 WIW

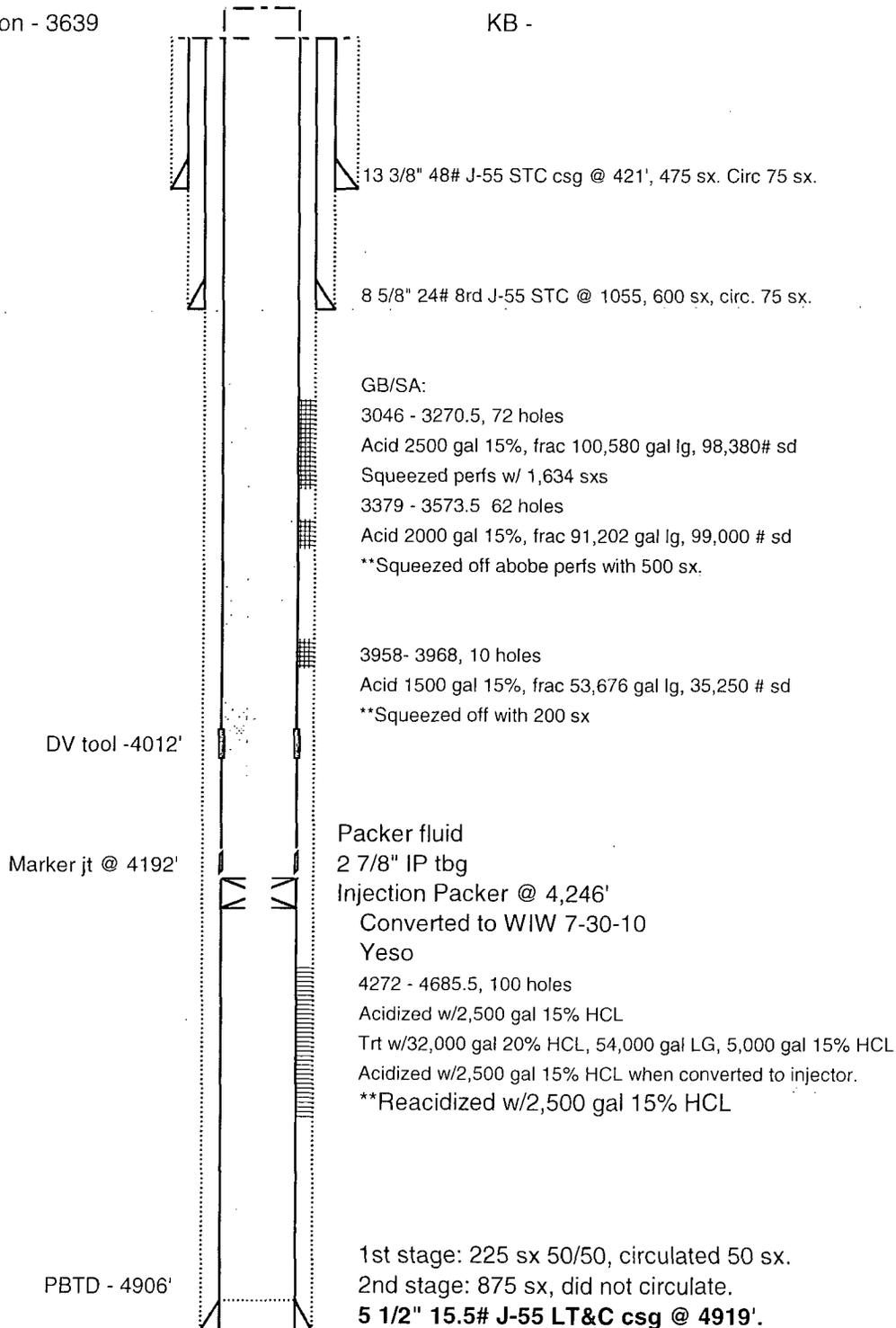
Sec 20F, 17S, 30E, Eddy Co., NM

SPUD: 5/5/05

30 015 37288

Elevation - 3639

KB -





# PROPOSED WELL SKETCH

API: 30-015-37288  
 SPUD: 5/05/2005  
 RR:  
 RIG:

**Jenkins B #15**  
**Eddy County, NM**

Sec 20, T-17S, R-30E  
 SHL: 1500' FNL & 2310' FWL  
 BHL: 1650' FNL & 330' FEL  
 GL: 3,639'  
 KB: 3655'

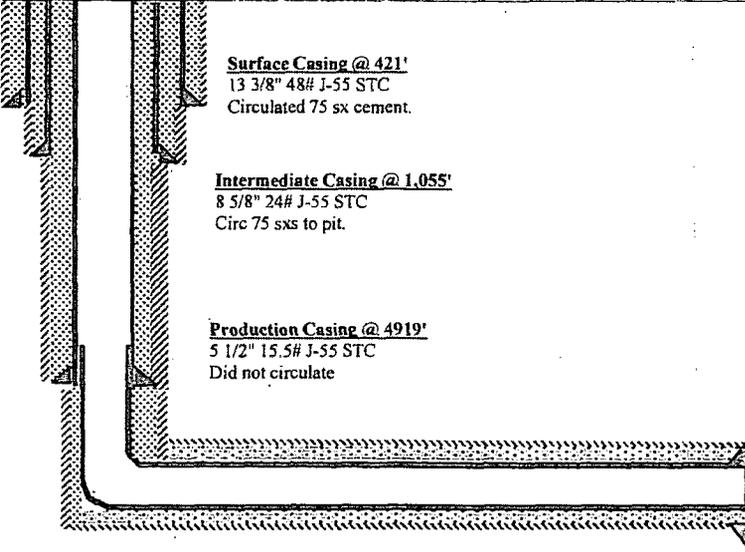
HOLE SIZE	MW (ppg)	BHST (ft)			EVALUATION

GB/SA: 3046 - 3270.5, 72 holes Acid 2500 gal 15%, frac 100,580 gal lg, 98,380# sd Squeezed perms w/ 1,634 sxs

3379 - 3573.5 62 holes Acid 2000 gal 15%, frac 91,202 gal lg, 99,000 # sd \*\*Squeezed off above perms with 500 sx.

3958- 3968, 10 holes Acid 1500 gal 15%, frac 53,676 gal lg, 35,250 # sd \*\*Squeezed off with 200 sx

Paddock  
 4272 - 4685.5, 100 holes Acidized w/2,500 gal 15% HCL Trt w/32,000 gal 20% HCL, 54,000 gal LG, 5,000 gal 15% HCL Acidized w/2,500 gal 15% HCL when converted to injector. \*\*Reacidized w/2,500 gal 15% HCL  
 -Will squeeze w/ 300 sxs lead and 300 sxs tail



Surface Casing @ 421'  
 13 3/8" 48# J-55 STC  
 Circulated 75 sx cement.

Intermediate Casing @ 1,055'  
 8 5/8" 24# J-55 STC  
 Circ 75 sxs to pit.

Production Casing @ 4919'  
 5 1/2" 15.5# J-55 STC  
 Did not circulate

DV tool set atleast at +/- 4799'

Production Liner @ 7,740'  
 4" 11.6# L80 ULTFJ Liner  
 Cement to DV tool

Updated by: S.Brumley  
 Date: 5/7/2013



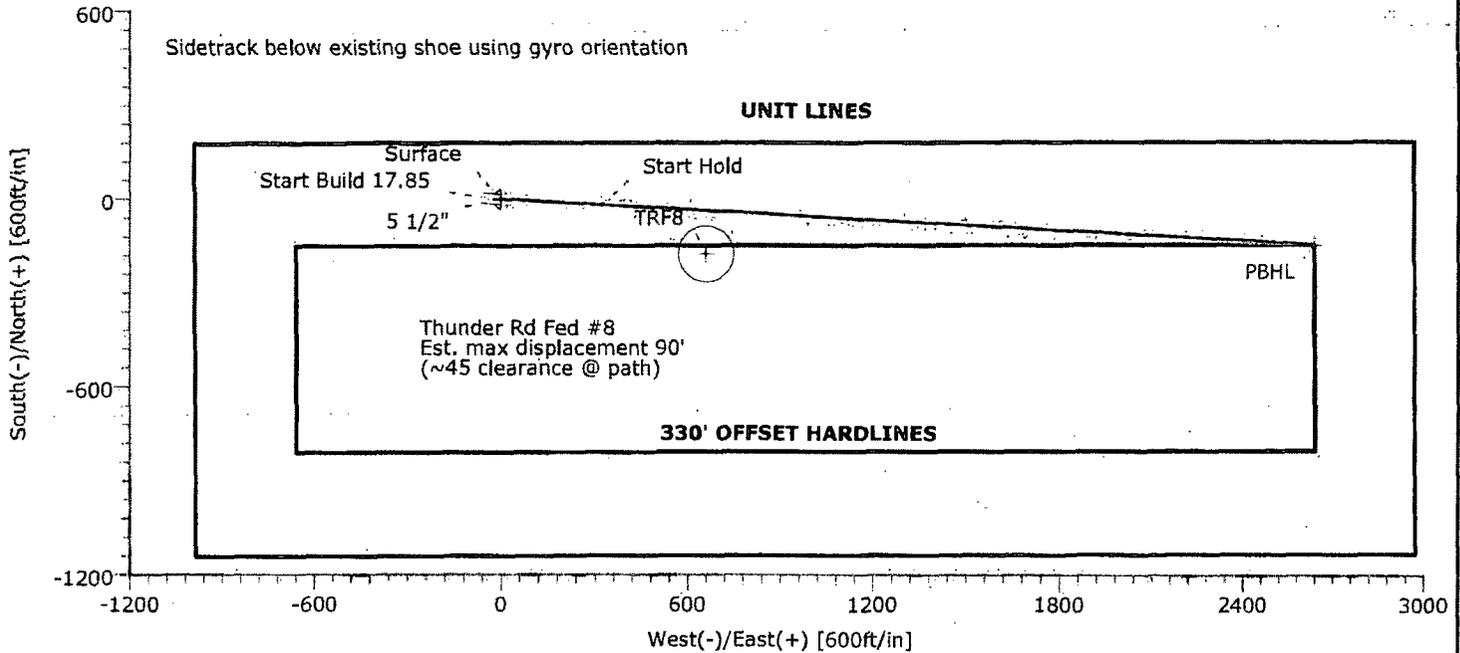
**COG OPERATING LLC**  
 Field: Permian NME'27  
 Site: Jenkins B Federal 15H  
 Well: #15H  
 Wellpath: Horizontal  
 Plan: Plan #5



**Precision**  
 Directional Services

**CASING DETAILS**

No.	TVD	MD	Name	Size
1	4919.00	4919.00	5 1/2"	5.500

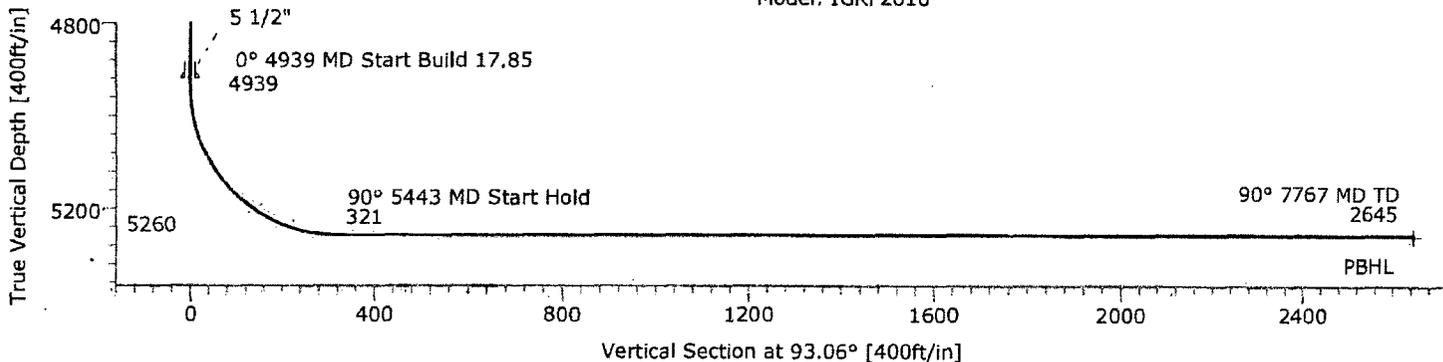


Azimuths to Grid North  
 True North: -0.18°  
 Magnetic North: 7.41°

Magnetic Field  
 Strength: 48767nT  
 Dip Angle: 60.62°  
 Date: 06/10/2013  
 Model: IGRF2010

Eddy County  
 Section 20 T17S-R30E  
 Surface  
 1500' FNL, 2310' FWL

PBHL  
 1650' FNL, 330' FEL



**TARGET DETAILS**

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
Surface	0.00	0.00	0.00	663303.30	604020.10	32°49'22.980N	103°59'40.993W	Point
TRF8	0.00	-173.00	661.50	663130.30	604681.60	32°49'21.247N	103°59'33.247W	Circle (Radius: 90)
PBHL	5260.00	-141.60	2641.00	663161.70	606661.10	32°49'21.494N	103°59'10.049W	Point

**SECTION DETAILS**

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.00	0.00	93.07	0.00	0.00	0.00	0.00	0.00	0.00	
2	4939.00	0.00	93.07	4939.00	0.00	0.00	0.00	0.00	0.00	
3	5443.23	90.00	93.07	5260.00	-17.19	320.54	17.85	93.07	321.00	
4	7767.02	90.00	93.07	5260.00	-141.60	2641.00	0.00	0.00	2644.79	PBHL

# Precision Directional Services, Inc

## Planning Report

<b>Company:</b> COG OPERATING LLC <b>Field:</b> Permian NME'27 <b>Site:</b> Jenkins B Federal 15H <b>Well:</b> #15H <b>Wellpath:</b> Horizontal	<b>Date:</b> 05/29/2013 <b>Co-ordinate(NE) Reference:</b> Well: #15H, Grid North <b>Vertical (TVD) Reference:</b> 3639'GL+est.12'KB 3651.0 <b>Section (VS) Reference:</b> Well (0.00N,0.00E,93.06Azi) <b>Plan:</b> Plan #5	<b>Time:</b> 15:54:55 <b>Page:</b> 1
---	--	---

<b>Field:</b> Permian NME'27  <b>Map System:</b> US State Plane Coordinate System 1927 <b>Geo Datum:</b> NAD27 (Clarke 1866) <b>Sys Datum:</b> Mean Sea Level	<b>Map Zone:</b> New Mexico, Eastern Zone <b>Coordinate System:</b> Well Centre <b>Geomagnetic Model:</b> IGRF2010
---	--

<b>Site:</b> Jenkins B Federal 15H Section 20; T17S-R30E; Unit F Eddy County  <b>Site Position:</b> <b>From:</b> Map <b>Position Uncertainty:</b> 0.00 ft <b>Ground Level:</b> 3639.00 ft	<b>Northing:</b> 663303.30 ft <b>Easting:</b> 604020.10 ft	<b>Latitude:</b> 32 49 22.980 N <b>Longitude:</b> 103 59 40.993 W <b>North Reference:</b> Grid <b>Grid Convergence:</b> 0.18 deg
--	---	---

<b>Well:</b> #15H  <b>Well Position:</b> +N/-S 0.00 ft +E/-W 0.00 ft <b>Position Uncertainty:</b> 0.00 ft	<b>Slot Name:</b>  <b>Well Position:</b> +N/-S 0.00 ft +E/-W 0.00 ft <b>Position Uncertainty:</b> 0.00 ft	<b>Latitude:</b> 32 49 22.980 N <b>Longitude:</b> 103 59 40.993 W
---	---	--

<b>Wellpath:</b> Horizontal  <b>Current Datum:</b> 3639'GL+est.12'KB <b>Magnetic Data:</b> 06/10/2013 <b>Field Strength:</b> 48767 nT <b>Vertical Section:</b> Depth From (TVD) ft	<b>Height:</b> 3651.00 ft  +N/-S ft 0.00	<b>Drilled From:</b> Surface <b>Tie-on Depth:</b> 0.00 ft <b>Above System Datum:</b> Mean Sea Level <b>Declination:</b> 7.60 deg <b>Mag Dip Angle:</b> 60.62 deg <b>+E/-W Direction:</b> deg 0.00
---	---	---

<b>Plan:</b> Plan #5  <b>Principal:</b> No	<b>Date Composed:</b> 05/29/2013 <b>Version:</b> 1 <b>Tied-to:</b> From Surface
--	---

Plan Section Information										
MD	Incl	Azim	TVD	+N/-S	+E/-W	DLS	Build	Turn	TFO	Target
ft	deg	deg	ft	ft	ft	deg/100ft	deg/100ft	deg/100ft	deg	
0.00	0.00	93.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
4939.00	0.00	93.07	4939.00	0.00	0.00	0.00	0.00	0.00	0.00	
5443.23	90.00	93.07	5260.00	-17.19	320.54	17.85	17.85	0.00	93.07	
7767.02	90.00	93.07	5260.00	-141.60	2641.00	0.00	0.00	0.00	0.00	PBHL

Survey										
MD	Incl	Azim	TVD	+N/-S	+E/-W	VS	DLS	Build	Turn	Tool/Comment
ft	deg	deg	ft	ft	ft	ft	deg/100ft	deg/100ft	deg/100ft	
4919.00	0.00	93.07	4919.00	0.00	0.00	0.00	0.00	0.00	0.00	5 1/2"
4939.00	0.00	93.07	4939.00	0.00	0.00	0.00	0.00	0.00	0.00	
4950.00	1.96	93.07	4950.00	-0.01	0.19	0.19	17.85	17.85	0.00	
4975.00	6.43	93.07	4974.92	-0.11	2.01	2.02	17.85	17.85	0.00	
5000.00	10.89	93.07	4999.63	-0.31	5.77	5.78	17.85	17.85	0.00	
5025.00	15.35	93.07	5023.97	-0.61	11.44	11.45	17.85	17.85	0.00	
5050.00	19.81	93.07	5047.80	-1.02	18.97	19.00	17.85	17.85	0.00	
5075.00	24.27	93.07	5070.97	-1.52	28.34	28.38	17.85	17.85	0.00	
5100.00	28.74	93.07	5093.33	-2.12	39.48	39.54	17.85	17.85	0.00	
5125.00	33.20	93.07	5114.77	-2.81	52.32	52.40	17.85	17.85	0.00	
5150.00	37.66	93.07	5135.13	-3.58	66.79	66.89	17.85	17.85	0.00	
5175.00	42.12	93.07	5154.31	-4.44	82.80	82.92	17.85	17.85	0.00	
5200.00	46.59	93.07	5172.18	-5.37	100.25	100.39	17.85	17.85	0.00	
5225.00	51.05	93.07	5188.64	-6.38	119.03	119.20	17.85	17.85	0.00	
5250.00	55.51	93.07	5203.58	-7.45	139.03	139.23	17.85	17.85	0.00	
5275.00	59.97	93.07	5216.92	-8.59	160.14	160.37	17.85	17.85	0.00	
5300.00	64.44	93.07	5228.57	-9.77	182.22	182.48	17.85	17.85	0.00	

# Precision Directional Services, Inc

## Planning Report

Company: COG OPERATING LLC	Date: 05/29/2013	Time: 15:54:55	Page: 2
Field: Permian NME'27	Co-ordinate(NE) Reference: Well: #15H, Grid North		
Site: Jenkins B Federal 15H	Vertical (TVD) Reference: 3639'GL+est.12'KB 3651.0		
Well: #15H	Section (VS) Reference: Well (0.00N,0.00E,93.06Azi)		
Wellpath: Horizontal	Plan: Plan #5		

### Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
5325.00	68.90	93.07	5238.47	-11.00	205.13	205.43	17.85	17.85	0.00	
5350.00	73.36	93.07	5246.56	-12.26	228.75	229.08	17.85	17.85	0.00	
5375.00	77.82	93.07	5252.78	-13.56	252.92	253.29	17.85	17.85	0.00	
5400.00	82.28	93.07	5257.09	-14.88	277.51	277.90	17.85	17.85	0.00	
5425.00	86.75	93.07	5259.48	-16.21	302.35	302.78	17.85	17.85	0.00	
5443.23	90.00	93.07	5260.00	-17.19	320.54	321.00	17.85	17.85	0.00	
5500.00	90.00	93.07	5260.00	-20.23	377.23	377.77	0.00	0.00	0.00	
5600.00	90.00	93.07	5260.00	-25.58	477.09	477.77	0.00	0.00	0.00	
5700.00	90.00	93.07	5260.00	-30.93	576.95	577.77	0.00	0.00	0.00	
5800.00	90.00	93.07	5260.00	-36.29	676.80	677.77	0.00	0.00	0.00	
5900.00	90.00	93.07	5260.00	-41.64	776.66	777.77	0.00	0.00	0.00	
6000.00	90.00	93.07	5260.00	-47.00	876.52	877.77	0.00	0.00	0.00	
6100.00	90.00	93.07	5260.00	-52.35	976.37	977.77	0.00	0.00	0.00	
6200.00	90.00	93.07	5260.00	-57.70	1076.23	1077.77	0.00	0.00	0.00	
6300.00	90.00	93.07	5260.00	-63.06	1176.09	1177.77	0.00	0.00	0.00	
6400.00	90.00	93.07	5260.00	-68.41	1275.94	1277.77	0.00	0.00	0.00	
6500.00	90.00	93.07	5260.00	-73.76	1375.80	1377.77	0.00	0.00	0.00	
6600.00	90.00	93.07	5260.00	-79.12	1475.65	1477.77	0.00	0.00	0.00	
6700.00	90.00	93.07	5260.00	-84.47	1575.51	1577.77	0.00	0.00	0.00	
6800.00	90.00	93.07	5260.00	-89.83	1675.37	1677.77	0.00	0.00	0.00	
6900.00	90.00	93.07	5260.00	-95.18	1775.22	1777.77	0.00	0.00	0.00	
7000.00	90.00	93.07	5260.00	-100.53	1875.08	1877.77	0.00	0.00	0.00	
7100.00	90.00	93.07	5260.00	-105.89	1974.94	1977.77	0.00	0.00	0.00	
7200.00	90.00	93.07	5260.00	-111.24	2074.79	2077.77	0.00	0.00	0.00	
7300.00	90.00	93.07	5260.00	-116.60	2174.65	2177.77	0.00	0.00	0.00	
7400.00	90.00	93.07	5260.00	-121.95	2274.51	2277.77	0.00	0.00	0.00	
7500.00	90.00	93.07	5260.00	-127.30	2374.36	2377.77	0.00	0.00	0.00	
7600.00	90.00	93.07	5260.00	-132.66	2474.22	2477.77	0.00	0.00	0.00	
7700.00	90.00	93.07	5260.00	-138.01	2574.08	2577.77	0.00	0.00	0.00	
7767.02	90.00	93.07	5260.00	-141.60	2641.00	2644.79	0.00	0.00	0.00	PBHL

### Targets

Name	Description Dip.	Dir.	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	<--- Latitude ---> Deg Min Sec	<--- Longitude ---> Deg Min Sec
Surface			0.00	0.00	0.00	663303.30	604020.10	32 49 22.980 N	103 59 40.993 W
TRF8			0.00	-173.00	661.50	663130.30	604681.60	32 49 21.247 N	103 59 33.247 W
	-Circle (Radius: 90)								
PBHL			5260.00	-141.60	2641.00	663161.70	606661.10	32 49 21.494 N	103 59 10.049 W

### Casing Points

MD ft	TVD ft	Diameter in	Hole Size in	Name
4919.00	4919.00	5.500	7.875	5 1/2"

# COG Operating LLC

Lease & Well #

Jenkins B Federal # 15 WIW

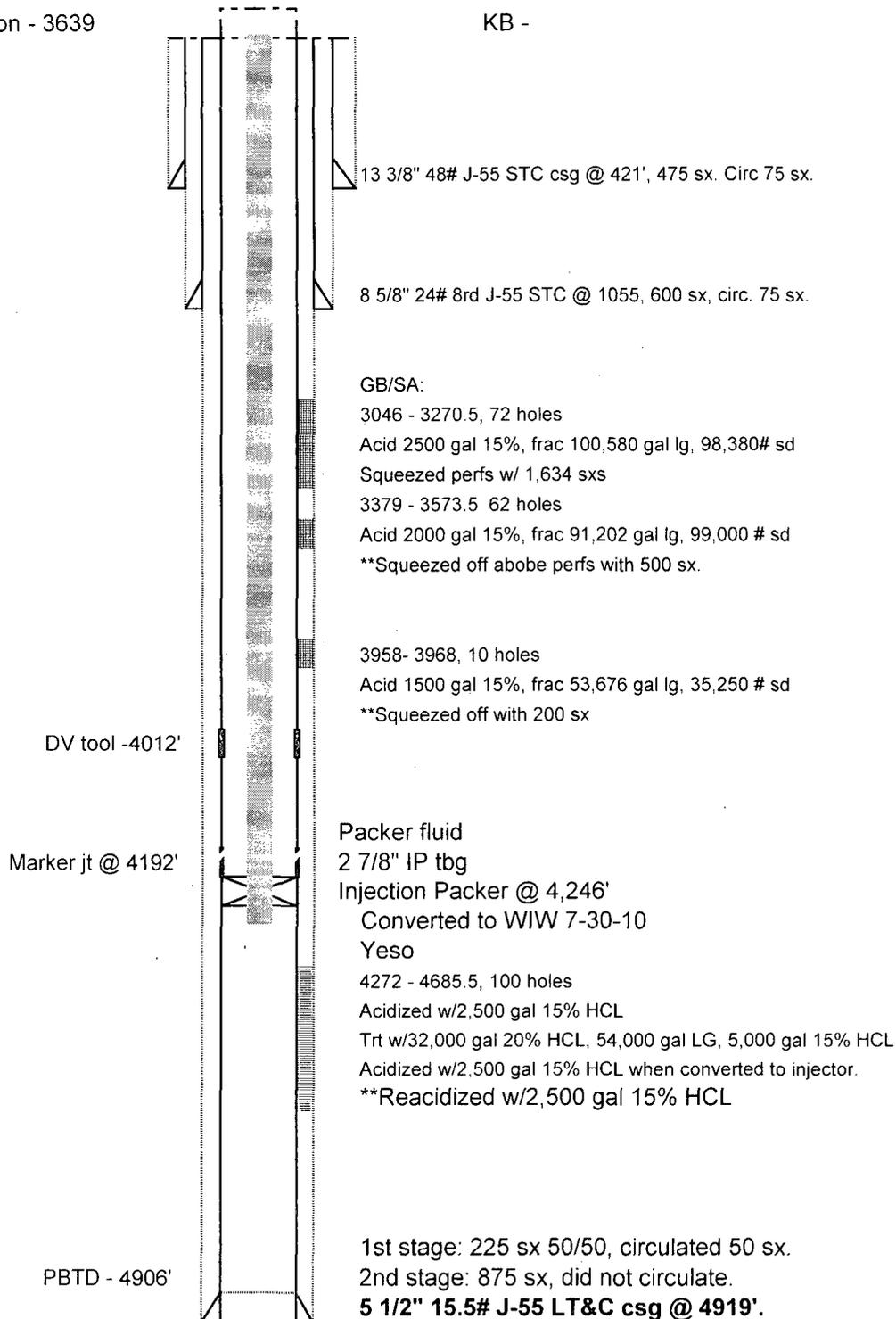
Sec 20F, 17S, 30E, Eddy Co., NM

SPUD: 5/5/05

30 015 37288

Elevation - 3639

KB -





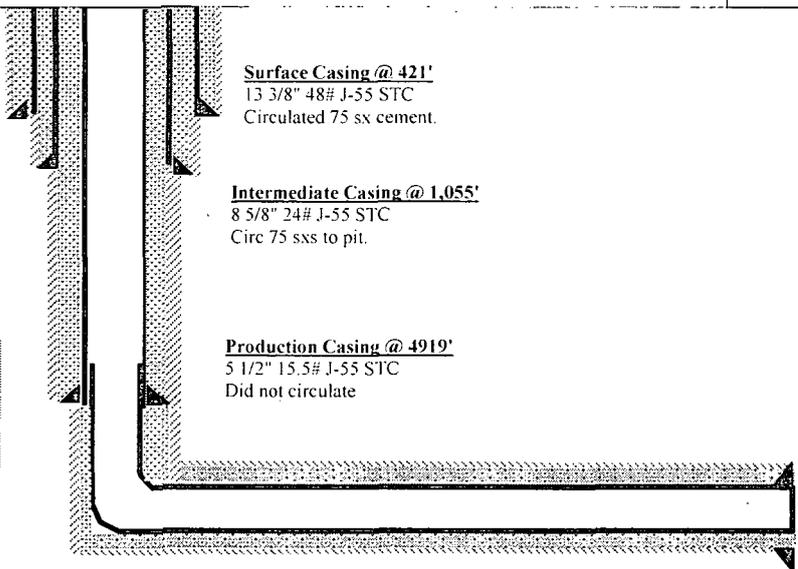
# PROPOSED WELL SKETCH

015-37288  
5/05/2005

**Jenkins B #15**  
**Eddy County, NM**

Sec 20, T-17S, R-30E  
SHL: 1500' FNL & 2310' FWL  
BHL: 1650' FNL & 330' FEL  
GL: 3.639'  
KB: 3655'

HOLE SIZE	MW (ppg)	BHST (°F)			EVALUATION



Surface Casing @ 421'  
13 3/8" 48# J-55 STC  
Circulated 75 sx cement.

Intermediate Casing @ 1,055'  
8 5/8" 24# J-55 STC  
Circ 75 sxs to pit.

Production Casing @ 4919'  
5 1/2" 15.5# J-55 STC  
Did not circulate

DV tool set atleast at +/- 4799'

Production Liner @ 7,740'  
4" 11.6# L80 ULTEFI Liner  
Cement to DV tool

Updated by	S.Brummy
Date:	5/7/2013

**Jenkins B Federal Com 15H**  
**30-015-33472**  
**COG Operating LLC**  
**July 16, 2013**  
**Conditions of Approval**

1. Squeeze Procedure is approved as written.
2. Must conduct a casing integrity test after squeeze job. Submit results to BLM. The CIT is to be performed on the production casing per Onshore Order 2.III.B.1.h.
3. Work to be complete within 365 days.
4. Surface disturbance beyond the existing pad requires prior approval.
5. Closed loop system to be used.
6. H2S monitoring equipment should be onsite for personnel protection from surrounding oil operations. Operator should not encounter H2S while deepening.
7. BOP to be tested to **2000 psi** based on BHP expected.
8. Variance for stand-off of less than 0.422" is approved due to NMOCD classifying the formations in this area as the Yeso group.
9. Variance approved for a minimum tie back of 100'. When plugged, cement plug will be required across this tie back and across squeezed perforations.
10. Variance for not testing seal also approved based on NMOCD classification of formations in this area as the Yeso group.
11. If cement does not circulate to DV tool, the appropriate BLM office is to be notified (**Excess calculates to 18% - additional cement may be required**).
12. Test casing as per Onshore Order 2.III.B.1.h.
13. Subsequent sundry detailing work and current well test data are to be submitted when work is complete.

**JAM 071613**