Form 3160-5
(June 2015)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB NO. 1004-0137
Expires: January 31, 2018

SUNDRY NOTICES AND REPORTS ON WELLS

Carlsbad Field Office
OCD Hobbs

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

HOBBS OCD
SEP 11 2017
RECEIVED

5. Lease Serial No.
NMNM26079

6. If Indian, Allottee or Tribe Name

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

1. Type of Well
☒ Oil Well ☐ Gas Well ☐ Other

8. Well Name and No.
STREETCAR 15 FED 602H

2. Name of Operator
EOG RESOURCES INCORPORATED
Contact: STAN WAGNER
E-Mail: stan_wagner@eogresources.com

9. API Well No.
30-025-42865-00-X1

3a. Address
MIDLAND, TX 79702

3b. Phone No. (include area code)
Ph: 432-686-3689

10. Field and Pool or Exploratory Area
RED HILLS-BONE SPRING, NORTH

4. Location of Well *(Footage, Sec., T., R., M., or Survey Description)*
Sec 15 T25S R33E SESE 250FSL 640FEL

11. County or Parish, State
LEA COUNTY, NM

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

TYPE OF SUBMISSION	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Hydraulic Fracturing	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other Change to Original APD
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
	☐ Convert to Injection	☐ Plug Back	☐ 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 must 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 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.

EOG Resources requests an amendment to our approved APD for this well to reflect changes in casing design, BHL, TVD and well name/number.

Change BHL TO: 230' FNL & 1376' FEL 15-25S-33E
Change TVD TO: 12,244' 3rd Bone Spring Sand target

Change well name TO: Streetcar 15 Fed 602H

Drill plan and casing design information attached.

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

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

Electronic Submission #381681 verified by the BLM Well Information System
For EOG RESOURCES INCORPORATED, sent to the Hobbs
Committed to AFMSS for processing by PRISCILLA PEREZ on 08/08/2017 (17PP0550SE)

Name *(Printed/Typed)* STAN WAGNER — Title REGULATORY ANALYST

Signature (Electronic Submission) — Date 07/18/2017

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By MUSTAFA HAQUE — Title PETROLEUM ENGINEER — Date 08/29/2017

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 Hobbs

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.

(Instructions on page 2)

**** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ****

EOG RESOURCES, INC.
STREETCAR 15 FED NO. 602H

1. GEOLOGIC NAME OF SURFACE FORMATION:

Permian

2. ESTIMATED TOPS OF IMPORTANT GEOLOGICAL MARKERS:

Rustler	1,138'
Top of Salt	1,491'
Base of Salt / Top Anhydrite	4,840'
Base Anhydrite	5,050'
Lamar	5,050'
Bell Canyon	5,075'
Cherry Canyon	6,140'
Brushy Canyon	7,660'
Bone Spring Lime	9,226'
1st Bone Spring Sand	10,178'
2nd Bone Spring Shale	10,390'
2nd Bone Spring Sand	10,739'
3rd Bone Spring Carb	11,222'
3rd Bone Spring Sand	11,797'
TD	12,244'

3. ESTIMATED DEPTHS OF ANTICIPATED FRESH WATER, OIL OR GAS:

Upper Permian Sands	0- 400'	Fresh Water
Cherry Canyon	6,140'	Oil
Brushy Canyon	7,660'	Oil
1st Bone Spring Sand	10,178'	Oil
2nd Bone Spring Shale	10,390'	Oil
2nd Bone Spring Sand	10,739'	Oil
3rd Bone Spring Carb	11,222'	Oil
3rd Bone Spring Sand	11,797'	Oil

No other Formations are expected to give up oil, gas or fresh water in measurable quantities. Surface fresh water sands will be protected by setting 10.75" casing at 1,165' and circulating cement back to surface.

EOG RESOURCES, INC.
STREETCAR 15 FED NO. 602H

4. CASING PROGRAM - NEW

Hole Size	Interval	Csg OD	Weight	Grade	Conn	DF_{min} Collapse	DF_{min} Burst	DF_{min} Tension
14.75"	0 – 1,165'	10.75"	40.5#	J55	STC	1.125	1.25	1.60
9.875"	0 – 1,000'	7.625"	29.7#	HCP-110	LTC	1.125	1.25	1.60
9.875"	1,000' – 3,000'	7.625"	29.7#	P-110EC	SLIJ II	1.125	1.25	1.60
8.75"	3,000' – 11,400'	7.625"	29.7#	HCP-110	FlushMax III	1.125	1.25	1.60
6.75"	0' – 10,900'	5.5"	20#	P-110EC	DWC/C-IS MS	1.125	1.25	1.60
6.75"	10,900'-17,067'	5.5"	20#	P-110EC	VAM SFC	1.125	1.25	1.60

Variance is requested to wave the centralizer requirements for the 7-5/8" FJ casing in the 8-3/4" hole size. An expansion additive will be utilized, in the cement slurry, for the entire length of the 8-3/4" hole interval to maximize cement bond and zonal isolation.

Variance is also requested to wave any centralizer requirements for the 5-1/2" FJ casing in the 6-3/4" hole size. An expansion additive will be utilized, in the cement slurry, for the entire length of the 6-3/4" hole interval to maximize cement bond and zonal isolation.

Cementing Program:

Depth	No. Sacks	Wt. ppg	Yld Ft^3/ft	Mix Water Gal/sk	Slurry Description
10-3/4" 1,165'	325	13.5	1.73	9.13	Class C + 4.0% Bentonite + 0.6% CD-32 + 0.5% $CaCl_2$ + 0.25 lb/sk Cello-Flake (TOC @ Surface)
	200	14.8	1.34	6.34	Class C + 0.6% FL-62 + 0.25 lb/sk Cello-Flake + 0.2% Sodium Metasilicate
7-5/8" 11,400'	250	14.8	1.38	6.48	Class C + 5% Gypsum + 3% CaCl2 pumped via Bradenhead (TOC @ Surface)
	2200	14.8	1.38	6.48	Class C + 5% Gypsum + 3% CaCl2 pumped via Bradenhead
	550	14.4	1.20	4.81	50:50 Class H:Poz + 0.25% CPT20A + 0.40% CPT49 + 0.20% CPT35 + 0.80% CPT16A + 0.25% CPT503P pumped Conventionally
5-1/2" 17,067'	1000	14.1	1.26	5.80	Class H + 0.1% C-20 + 0.05% CSA-1000 + 0.20% C-49 + 0.40% C-17 (TOC @ 10,900')

Note: Cement volumes based on bit size plus at least 25% excess in the open hole plus 10% excess in the cased-hole overlap section.

5. MINIMUM SPECIFICATIONS FOR PRESSURE CONTROL:

Variance is requested to use a co-flex line between the BOP and choke manifold (instead of using a 4" OD steel line).

The minimum blowout preventer equipment (BOPE) shown in Exhibit #1 will consist of a single ram, mud cross and double ram-type (10,000 psi WP) preventer and an annular preventer (10,000-psi WP). Both units will be hydraulically operated and the ram-type will be equipped with blind rams on bottom and drill pipe rams on top. All BOPE will be tested in accordance with Onshore Oil & Gas order No. 2.

Before drilling out of the surface casing, the ram-type BOP and accessory equipment will be tested to 10,000/ 250 psig and the annular preventer to 5000/ 250 psig. The surface casing will be tested to 1500 psi for 30 minutes.

Before drilling out of the intermediate casing, the ram-type BOP and accessory equipment will be tested to 10,000/ 250 psig and the annular preventer to 5000/ 250 psig. The intermediate casing will be tested to 2000 psi for 30 minutes.

Pipe rams will be operationally checked each 24-hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets.

A hydraulically operated choke will be installed prior to drilling out of the intermediate casing shoe.

6. TYPES AND CHARACTERISTICS OF THE PROPOSED MUD SYSTEM:

During this procedure we plan to use a Closed-Loop System and haul contents to the required disposal.

The applicable depths and properties of the drilling fluid systems are as follows.

Depth	Type	Weight (ppg)	Viscosity	Water Loss
0 – 1,165'	Fresh - Gel	8.6-8.8	28-34	N/c
1,165' – 11,400'	Brine	8.8-10.0	28-34	N/c
11,400' – 17,067' Lateral	Oil Base	10.0-14.0	58-68	3 - 6

The highest mud weight needed to balance formation is expected to be 11.5 ppg. In order to maintain hole stability, mud weights up to 14.0 ppg may be utilized.

An electronic pit volume totalizer (PVT) will be utilized on the circulating system, to monitor pit volume, flow rate, pump pressure and stroke rate.

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept at the wellsite at all times.

7. AUXILIARY WELL CONTROL AND MONITORING EQUIPMENT:

(A) A kelly cock will be kept in the drill string at all times.

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

(C) H_2S monitoring and detection equipment will be utilized from surface casing point to TD.

8. LOGGING, TESTING AND CORING PROGRAM:

Open-hole logs are not planned for this well.

GR–CCL Will be run in cased hole during completions phase of operations.

9. ABNORMAL CONDITIONS, PRESSURES, TEMPERATURES AND POTENTIAL HAZARDS:

The estimated bottom-hole temperature (BHT) at TD is 181 degrees F with an estimated maximum bottom-hole pressure (BHP) at TD of 7321 psig (based on 11.5 ppg MW). No hydrogen sulfide or other hazardous gases or fluids have been encountered, reported or are known to exist at this depth in this area. Severe loss circulation is expected from 7,300' to Intermediate casing point.

10. ANTICIPATED STARTING DATE AND DURATION OF OPERATIONS:

The drilling operation should be finished in approximately one month. If the well is productive, an additional 60-90 days will be required for completion and testing before a decision is made to install permanent facilities.

(A) EOG Resources requests the option to contract a Surface Rig to drill, set surface casing, and cement on the subject well. If the timing between rigs is such that EOG Resources would not be able to preset the surface, the Primary Rig will MIRU and drill the well in its entirety per the APD.

11. WELLHEAD: -D SEE COA

A multi-bowl wellhead system will be utilized.

After running the 10-3/4" surface casing, a 13-5/8" BOP/BOPE system with a minimum working pressure of 10,000 psi will be installed on the wellhead system and will be pressure tested to 250 psi low followed by a 10,000 psi pressure test. This pressure test will be repeated at least every 30 days, as per Onshore Order No. 2

The minimum working pressure of the BOP and related BOPE required for drilling below the surface casing shoe shall be 10,000 psi.

The multi-bowl wellhead will be installed by vendor's representative(s). A copy of the installation instructions for the Stream Flo FBD100 Multi-Bowl WH system has been sent to the NM BLM office in Carlsbad, NM.

The wellhead will be installed by a third party welder while being monitored by WH vendor's representative.

All BOP equipment will be tested utilizing a conventional test plug. Not a cup or J-packer type.

A solid steel body pack-off will be utilized after running and cementing the intermediate casing. After installation the pack-off and lower flange will be pressure tested to 5000 psi.

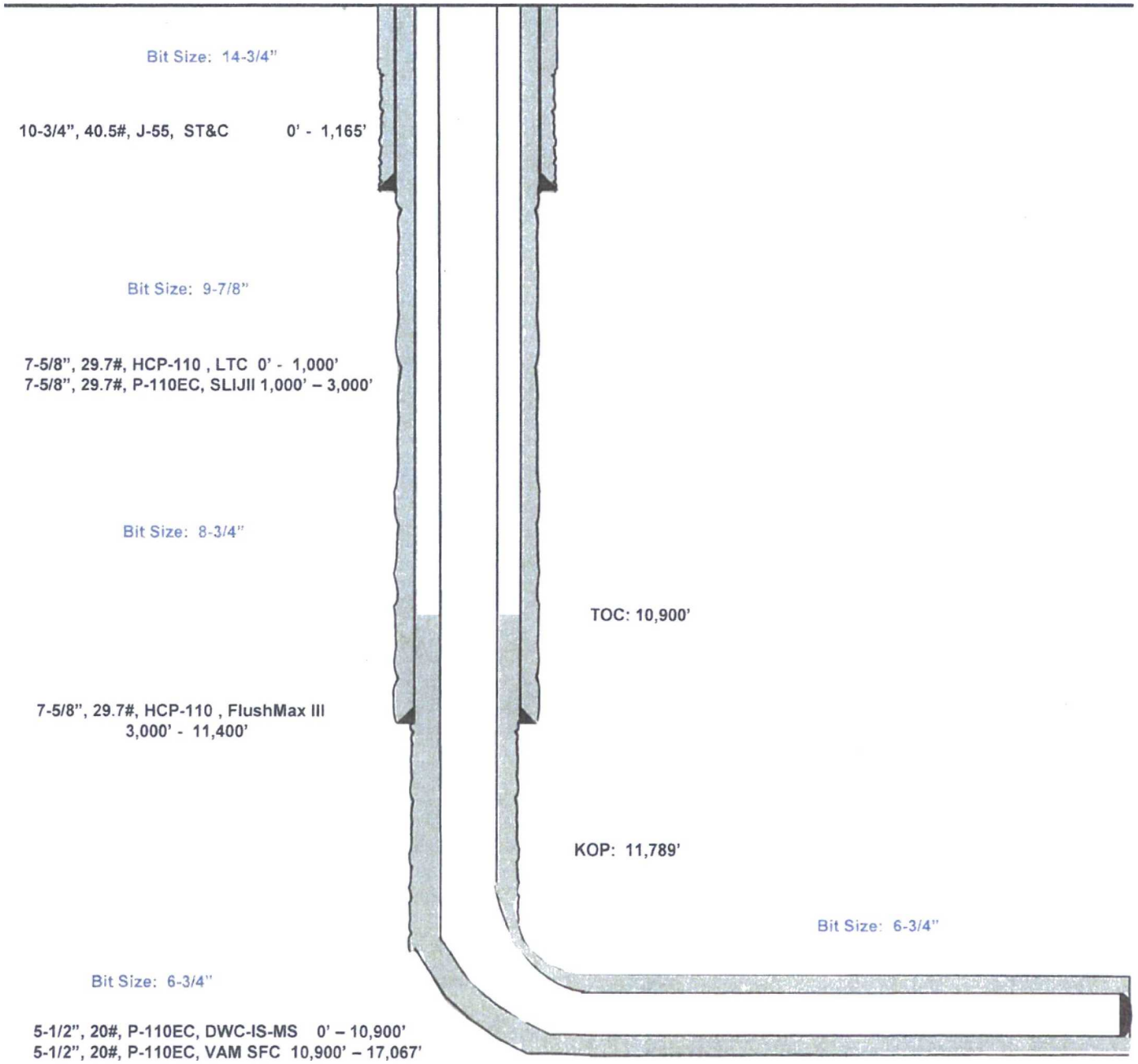
Both the surface and intermediate casing strings will be tested as per Onshore Order No. 2 to at least 0.22 psi/ft or 1500 psi, whichever is greater.

Streetcar 15 Fed #602H

Lea County, New Mexico
Proposed Wellbore
Revised 7/12/17
API: 30-025-42865

250' FSL
643' FEL
Section 15
T-25-S, R-33-E

KB: 3,376'
GL: 3,351'



Lateral: 17,067' MD, 12,244' TVD
Upper Most Perf:
330' FSL & 1375' FEL Sec. 15
Lower Most Perf:
330' FNL & 1376' FEL Sec. 15
BH Location: 230' FNL & 1376' FEL
Section 15
T-25-S, R-33-E

eog resources

PROJECT DETAILS: Lea County, NM (NAD 83 NME)

Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone
System Datum: Mean Sea Level

Lea County, NM (NAD 83 NME)

Streetcar 15 Fed #602H

Plan #0.1

Azimuths to Grid North
True North: -0.41°
Magnetic North: 6.51°

Magnetic Field
Strength: 47872.4snT
Dip Angle: 59.97°
Date: 7/18/2017
Model: IGRF2015

To convert a Magnetic Direction to a Grid Direction, Add 6.51°
To convert a Magnetic Direction to a True Direction, Add 6.92° East
To convert a True Direction to a Grid Direction, Subtract 0.41°

WELL DETAILS #602H

3351.00
KB = 25 @ 3376.00usft

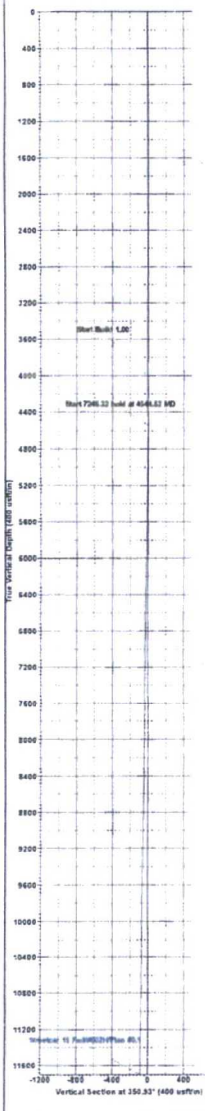
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	409714.00	782660.00	32.12396258	103.55373881	

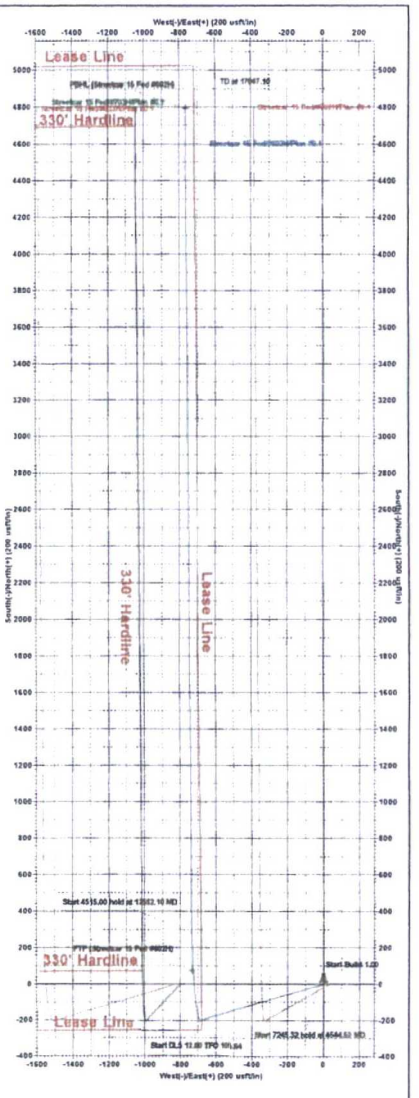
SECTION DETAILS

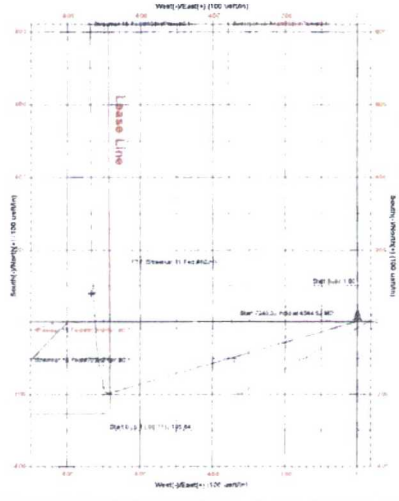
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	4000.00	0.00	0.00	4000.00	0.00	0.00	0.00	0.00	0.00	
3	4544.52	5.45	253.90	4543.70	-7.17	-24.84	1.00	253.90	-3.17	
4	11789.84	5.45	253.90	11756.32	-197.87	-685.40	0.00	0.00	-87.40	
5	12552.10	90.00	359.60	12244.00	279.11	-733.48	12.00	105.64	391.21	
6	17067.10	90.00	359.60	12244.00	4794.00	-765.00	0.00	0.00	4854.65	PBHL (Streetcar 15 Fed #602H)

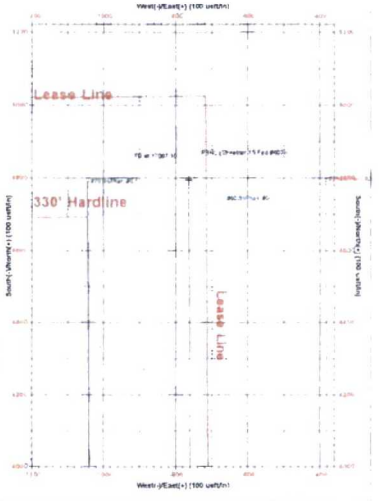
WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

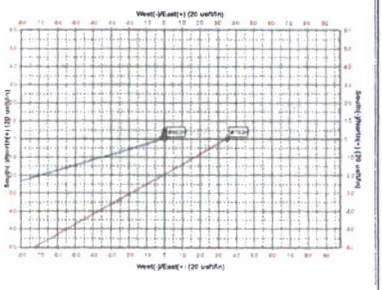
Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
FTP (Streetcar 15 Fed #602H)	12244.00	75.00	-733.00	409789.00	781947.00	Point
PBHL (Streetcar 15 Fed #602H)	12244.00	4794.00	-765.00	414508.00	781915.00	Point

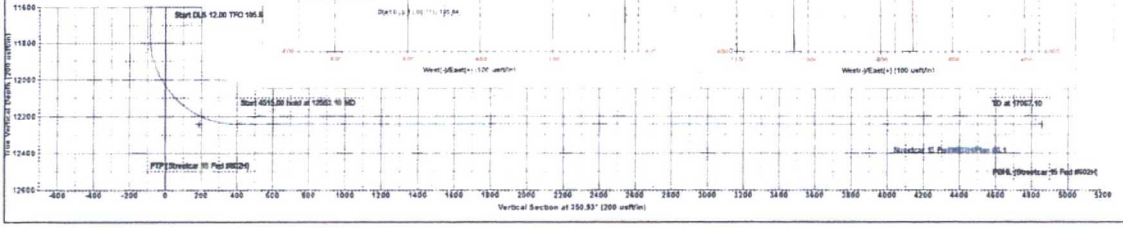












EOG Resources - Midland

Lea County, NM (NAD 83 NME)
Streetcar 15 Fed
#602H

OH

Plan: Plan #0.1

Standard Planning Report

18 July, 2017

Database:	EDM 5000.14 Single User Db	**Local Co-ordinate Reference:**	Well #602H
Company:	EOG Resources - Midland	**TVD Reference:**	KB = 25' @ 3376.00usft
Project:	Lea County, NM (NAD 83 NME)	**MD Reference:**	KB = 25' @ 3376.00usft
Site:	Streetcar 15 Fed	**North Reference:**	Grid
Well:	#602H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #0.1		

Project	Lea County, NM (NAD 83 NME)		
Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Streetcar 15 Fed				
Site Position:		**Northing:**	409,714.00 usft	**Latitude:**	32.12398257
From:	Map	**Easting:**	782,680.00 usft	**Longitude:**	-103.55373881
Position Uncertainty:	0.00 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.41

Well	#602H					
Well Position	**+N/-S**	0.00 usft	**Northing:**	409,714.00 usft	**Latitude:**	32.12398257
	+E/-W	0.00 usft	**Easting:**	782,680.00 usft	**Longitude:**	-103.55373881
Position Uncertainty		0.00 usft	**Wellhead Elevation:**		**Ground Level:**	3,351.00 usft

Wellbore	OH				
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF2015	7/18/2017	6.93	59.97	47,872.35017119

Design	Plan #0.1				
Audit Notes:					
Version:		**Phase:**	PLAN	**Tie On Depth:**	0.00
Vertical Section:	**Depth From (TVD) (usft)**	**+N/-S (usft)**	**+E/-W (usft)**	**Direction (°)**	
	0.00	0.00	0.00	350.93	

Plan Survey Tool Program **Date** 7/18/2017

	Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	17,067.10	Plan #0.1 (OH)	MWD	
				MWD - Standard	

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
4,544.52	5.45	253.90	4,543.70	-7.17	-24.84	1.00	1.00	0.00	253.90	
11,789.84	5.45	253.90	11,756.32	-197.87	-685.40	0.00	0.00	0.00	0.00	
12,552.10	90.00	359.60	12,244.00	279.11	-733.48	12.00	11.09	13.87	105.64	
17,067.10	90.00	359.60	12,244.00	4,794.00	-765.00	0.00	0.00	0.00	0.00	PBHL (Streetcar 15 F

Database:	EDM 5000.14 Single User Db	**Local Co-ordinate Reference:**	Well #602H
Company:	EOG Resources - Midland	**TVD Reference:**	KB = 25' @ 3376.00usft
Project:	Lea County, NM (NAD 83 NME)	**MD Reference:**	KB = 25' @ 3376.00usft
Site:	Streetcar 15 Fed	**North Reference:**	Grid
Well:	#602H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #0.1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	1.00	253.90	4,100.00	-0.24	-0.84	-0.11	1.00	1.00	0.00
4,200.00	2.00	253.90	4,199.96	-0.97	-3.35	-0.43	1.00	1.00	0.00
4,300.00	3.00	253.90	4,299.86	-2.18	-7.54	-0.96	1.00	1.00	0.00
4,400.00	4.00	253.90	4,399.68	-3.87	-13.41	-1.71	1.00	1.00	0.00
4,500.00	5.00	253.90	4,499.37	-6.05	-20.95	-2.67	1.00	1.00	0.00
4,544.52	5.45	253.90	4,543.70	-7.17	-24.84	-3.17	1.00	1.00	0.00
4,600.00	5.45	253.90	4,598.93	-8.63	-29.90	-3.81	0.00	0.00	0.00
4,700.00	5.45	253.90	4,698.48	-11.26	-39.02	-4.97	0.00	0.00	0.00
4,800.00	5.45	253.90	4,798.03	-13.90	-48.13	-6.14	0.00	0.00	0.00
4,900.00	5.45	253.90	4,897.58	-16.53	-57.25	-7.30	0.00	0.00	0.00
5,000.00	5.45	253.90	4,997.13	-19.16	-66.37	-8.46	0.00	0.00	0.00
5,100.00	5.45	253.90	5,096.67	-21.79	-75.48	-9.63	0.00	0.00	0.00
5,200.00	5.45	253.90	5,196.22	-24.42	-84.60	-10.79	0.00	0.00	0.00

Database:	EDM 5000.14 Single User Db	**Local Co-ordinate Reference:**	Well #602H
Company:	EOG Resources - Midland	**TVD Reference:**	KB = 25' @ 3376.00usft
Project:	Lea County, NM (NAD 83 NME)	**MD Reference:**	KB = 25' @ 3376.00usft
Site:	Streetcar 15 Fed	**North Reference:**	Grid
Well:	#602H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #0.1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,300.00	5.45	253.90	5,295.77	-27.06	-93.72	-11.95	0.00	0.00	0.00
5,400.00	5.45	253.90	5,395.32	-29.69	-102.83	-13.11	0.00	0.00	0.00
5,500.00	5.45	253.90	5,494.87	-32.32	-111.95	-14.28	0.00	0.00	0.00
5,600.00	5.45	253.90	5,594.42	-34.95	-121.07	-15.44	0.00	0.00	0.00
5,700.00	5.45	253.90	5,693.97	-37.58	-130.19	-16.60	0.00	0.00	0.00
5,800.00	5.45	253.90	5,793.52	-40.22	-139.30	-17.76	0.00	0.00	0.00
5,900.00	5.45	253.90	5,893.06	-42.85	-148.42	-18.93	0.00	0.00	0.00
6,000.00	5.45	253.90	5,992.61	-45.48	-157.54	-20.09	0.00	0.00	0.00
6,100.00	5.45	253.90	6,092.16	-48.11	-166.65	-21.25	0.00	0.00	0.00
6,200.00	5.45	253.90	6,191.71	-50.74	-175.77	-22.41	0.00	0.00	0.00
6,300.00	5.45	253.90	6,291.26	-53.38	-184.89	-23.58	0.00	0.00	0.00
6,400.00	5.45	253.90	6,390.81	-56.01	-194.00	-24.74	0.00	0.00	0.00
6,500.00	5.45	253.90	6,490.36	-58.64	-203.12	-25.90	0.00	0.00	0.00
6,600.00	5.45	253.90	6,589.91	-61.27	-212.24	-27.06	0.00	0.00	0.00
6,700.00	5.45	253.90	6,689.45	-63.91	-221.36	-28.23	0.00	0.00	0.00
6,800.00	5.45	253.90	6,789.00	-66.54	-230.47	-29.39	0.00	0.00	0.00
6,900.00	5.45	253.90	6,888.55	-69.17	-239.59	-30.55	0.00	0.00	0.00
7,000.00	5.45	253.90	6,988.10	-71.80	-248.71	-31.71	0.00	0.00	0.00
7,100.00	5.45	253.90	7,087.65	-74.43	-257.82	-32.88	0.00	0.00	0.00
7,200.00	5.45	253.90	7,187.20	-77.07	-266.94	-34.04	0.00	0.00	0.00
7,300.00	5.45	253.90	7,286.75	-79.70	-276.06	-35.20	0.00	0.00	0.00
7,400.00	5.45	253.90	7,386.30	-82.33	-285.17	-36.36	0.00	0.00	0.00
7,500.00	5.45	253.90	7,485.84	-84.96	-294.29	-37.53	0.00	0.00	0.00
7,600.00	5.45	253.90	7,585.39	-87.59	-303.41	-38.69	0.00	0.00	0.00
7,700.00	5.45	253.90	7,684.94	-90.23	-312.53	-39.85	0.00	0.00	0.00
7,800.00	5.45	253.90	7,784.49	-92.86	-321.64	-41.01	0.00	0.00	0.00
7,900.00	5.45	253.90	7,884.04	-95.49	-330.76	-42.18	0.00	0.00	0.00
8,000.00	5.45	253.90	7,983.59	-98.12	-339.88	-43.34	0.00	0.00	0.00
8,100.00	5.45	253.90	8,083.14	-100.75	-348.99	-44.50	0.00	0.00	0.00
8,200.00	5.45	253.90	8,182.69	-103.39	-358.11	-45.66	0.00	0.00	0.00
8,300.00	5.45	253.90	8,282.23	-106.02	-367.23	-46.83	0.00	0.00	0.00
8,400.00	5.45	253.90	8,381.78	-108.65	-376.34	-47.99	0.00	0.00	0.00
8,500.00	5.45	253.90	8,481.33	-111.28	-385.46	-49.15	0.00	0.00	0.00
8,600.00	5.45	253.90	8,580.88	-113.91	-394.58	-50.31	0.00	0.00	0.00
8,700.00	5.45	253.90	8,680.43	-116.55	-403.70	-51.48	0.00	0.00	0.00
8,800.00	5.45	253.90	8,779.98	-119.18	-412.81	-52.64	0.00	0.00	0.00
8,900.00	5.45	253.90	8,879.53	-121.81	-421.93	-53.80	0.00	0.00	0.00
9,000.00	5.45	253.90	8,979.08	-124.44	-431.05	-54.96	0.00	0.00	0.00
9,100.00	5.45	253.90	9,078.62	-127.07	-440.16	-56.13	0.00	0.00	0.00
9,200.00	5.45	253.90	9,178.17	-129.71	-449.28	-57.29	0.00	0.00	0.00
9,300.00	5.45	253.90	9,277.72	-132.34	-458.40	-58.45	0.00	0.00	0.00
9,400.00	5.45	253.90	9,377.27	-134.97	-467.51	-59.61	0.00	0.00	0.00
9,500.00	5.45	253.90	9,476.82	-137.60	-476.63	-60.78	0.00	0.00	0.00
9,600.00	5.45	253.90	9,576.37	-140.24	-485.75	-61.94	0.00	0.00	0.00
9,700.00	5.45	253.90	9,675.92	-142.87	-494.87	-63.10	0.00	0.00	0.00
9,800.00	5.45	253.90	9,775.47	-145.50	-503.98	-64.26	0.00	0.00	0.00
9,900.00	5.45	253.90	9,875.01	-148.13	-513.10	-65.43	0.00	0.00	0.00
10,000.00	5.45	253.90	9,974.56	-150.76	-522.22	-66.59	0.00	0.00	0.00
10,100.00	5.45	253.90	10,074.11	-153.40	-531.33	-67.75	0.00	0.00	0.00
10,200.00	5.45	253.90	10,173.66	-156.03	-540.45	-68.91	0.00	0.00	0.00
10,300.00	5.45	253.90	10,273.21	-158.66	-549.57	-70.08	0.00	0.00	0.00
10,400.00	5.45	253.90	10,372.76	-161.29	-558.69	-71.24	0.00	0.00	0.00
10,500.00	5.45	253.90	10,472.31	-163.92	-567.80	-72.40	0.00	0.00	0.00
10,600.00	5.45	253.90	10,571.86	-166.56	-576.92	-73.56	0.00	0.00	0.00

Database:	EDM 5000.14 Single User Db	**Local Co-ordinate Reference:**	Well #602H
Company:	EOG Resources - Midland	**TVD Reference:**	KB = 25' @ 3376.00usft
Project:	Lea County, NM (NAD 83 NME)	**MD Reference:**	KB = 25' @ 3376.00usft
Site:	Streetcar 15 Fed	**North Reference:**	Grid
Well:	#602H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #0.1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
10,700.00	5.45	253.90	10,671.40	-169.19	-586.04	-74.73	0.00	0.00	0.00
10,800.00	5.45	253.90	10,770.95	-171.82	-595.15	-75.89	0.00	0.00	0.00
10,900.00	5.45	253.90	10,870.50	-174.45	-604.27	-77.05	0.00	0.00	0.00
11,000.00	5.45	253.90	10,970.05	-177.08	-613.39	-78.21	0.00	0.00	0.00
11,100.00	5.45	253.90	11,069.60	-179.72	-622.50	-79.38	0.00	0.00	0.00
11,200.00	5.45	253.90	11,169.15	-182.35	-631.62	-80.54	0.00	0.00	0.00
11,300.00	5.45	253.90	11,268.70	-184.98	-640.74	-81.70	0.00	0.00	0.00
11,400.00	5.45	253.90	11,368.25	-187.61	-649.86	-82.86	0.00	0.00	0.00
11,500.00	5.45	253.90	11,467.79	-190.24	-658.97	-84.03	0.00	0.00	0.00
11,600.00	5.45	253.90	11,567.34	-192.88	-668.09	-85.19	0.00	0.00	0.00
11,700.00	5.45	253.90	11,666.89	-195.51	-677.21	-86.35	0.00	0.00	0.00
11,789.84	5.45	253.90	11,756.32	-197.87	-685.40	-87.40	0.00	0.00	0.00
11,800.00	5.25	266.84	11,766.44	-198.03	-686.32	-87.41	12.00	-1.93	127.38
11,825.00	5.92	297.31	11,791.33	-197.50	-688.61	-86.52	12.00	2.67	121.87
11,850.00	7.77	317.37	11,816.15	-195.67	-690.90	-84.35	12.00	7.43	80.22
11,875.00	10.19	328.90	11,840.85	-192.53	-693.19	-80.89	12.00	9.66	46.12
11,900.00	12.85	335.88	11,865.34	-188.10	-695.47	-76.16	12.00	10.65	27.93
11,925.00	15.63	340.46	11,889.57	-182.39	-697.73	-70.16	12.00	11.13	18.31
11,950.00	18.48	343.67	11,913.47	-175.41	-699.97	-62.91	12.00	11.40	12.84
11,975.00	21.37	346.04	11,936.97	-167.18	-702.19	-54.44	12.00	11.56	9.49
12,000.00	24.29	347.87	11,960.01	-157.73	-704.37	-44.77	12.00	11.66	7.31
12,025.00	27.22	349.32	11,982.53	-147.09	-706.51	-33.92	12.00	11.73	5.83
12,050.00	30.16	350.52	12,004.45	-135.27	-708.60	-21.92	12.00	11.78	4.77
12,075.00	33.12	351.51	12,025.73	-122.32	-710.65	-8.80	12.00	11.82	3.99
12,100.00	36.08	352.37	12,046.31	-108.26	-712.63	5.39	12.00	11.84	3.41
12,125.00	39.05	353.10	12,066.13	-93.14	-714.56	20.62	12.00	11.86	2.95
12,150.00	42.02	353.75	12,085.13	-77.01	-716.41	36.85	12.00	11.88	2.60
12,175.00	44.99	354.33	12,103.26	-59.89	-718.20	54.03	12.00	11.89	2.32
12,200.00	47.97	354.85	12,120.47	-41.85	-719.90	72.12	12.00	11.90	2.09
12,225.00	50.94	355.33	12,136.72	-22.92	-721.53	91.06	12.00	11.91	1.90
12,250.00	53.92	355.77	12,151.96	-3.17	-723.06	110.81	12.00	11.92	1.75
12,275.00	56.91	356.17	12,166.15	17.36	-724.51	131.31	12.00	11.93	1.62
12,300.00	59.89	356.55	12,179.25	38.61	-725.86	152.51	12.00	11.93	1.51
12,325.00	62.87	356.91	12,191.22	60.52	-727.11	174.34	12.00	11.93	1.42
12,350.00	65.86	357.24	12,202.04	83.02	-728.26	196.75	12.00	11.94	1.35
12,358.96	66.93	357.36	12,205.63	91.23	-728.65	204.91	12.00	11.94	1.31
FTP (Streetcar 15 Fed #602H)									
12,375.00	68.84	357.56	12,211.67	106.07	-729.30	219.67	12.00	11.94	1.28
12,400.00	71.83	357.87	12,220.08	129.59	-730.24	243.04	12.00	11.94	1.24
12,425.00	74.81	358.17	12,227.25	153.52	-731.07	266.80	12.00	11.95	1.20
12,450.00	77.80	358.46	12,233.17	177.80	-731.78	290.89	12.00	11.95	1.16
12,475.00	80.79	358.75	12,237.81	202.35	-732.38	315.23	12.00	11.95	1.14
12,500.00	83.77	359.03	12,241.17	227.12	-732.86	339.76	12.00	11.95	1.12
12,525.00	86.76	359.30	12,243.23	252.03	-733.22	364.42	12.00	11.95	1.10
12,552.10	90.00	359.60	12,244.00	279.11	-733.48	391.21	12.00	11.95	1.10
12,600.00	90.00	359.60	12,244.00	327.01	-733.81	438.56	0.00	0.00	0.00
12,700.00	90.00	359.60	12,244.00	427.01	-734.51	537.42	0.00	0.00	0.00
12,800.00	90.00	359.60	12,244.00	527.00	-735.21	636.27	0.00	0.00	0.00
12,900.00	90.00	359.60	12,244.00	627.00	-735.91	735.13	0.00	0.00	0.00
13,000.00	90.00	359.60	12,244.00	727.00	-736.61	833.99	0.00	0.00	0.00
13,100.00	90.00	359.60	12,244.00	827.00	-737.30	932.85	0.00	0.00	0.00
13,200.00	90.00	359.60	12,244.00	926.99	-738.00	1,031.71	0.00	0.00	0.00
13,300.00	90.00	359.60	12,244.00	1,026.99	-738.70	1,130.57	0.00	0.00	0.00

Database:	EDM 5000.14 Single User Db	**Local Co-ordinate Reference:**	Well #602H
Company:	EOG Resources - Midland	**TVD Reference:**	KB = 25' @ 3376.00usft
Project:	Lea County, NM (NAD 83 NME)	**MD Reference:**	KB = 25' @ 3376.00usft
Site:	Streetcar 15 Fed	**North Reference:**	Grid
Well:	#602H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #0.1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
13,400.00	90.00	359.60	12,244.00	1,126.99	-739.40	1,229.42	0.00	0.00	0.00
13,500.00	90.00	359.60	12,244.00	1,226.99	-740.10	1,328.28	0.00	0.00	0.00
13,600.00	90.00	359.60	12,244.00	1,326.98	-740.80	1,427.14	0.00	0.00	0.00
13,700.00	90.00	359.60	12,244.00	1,426.98	-741.49	1,526.00	0.00	0.00	0.00
13,800.00	90.00	359.60	12,244.00	1,526.98	-742.19	1,624.86	0.00	0.00	0.00
13,900.00	90.00	359.60	12,244.00	1,626.98	-742.89	1,723.72	0.00	0.00	0.00
14,000.00	90.00	359.60	12,244.00	1,726.97	-743.59	1,822.57	0.00	0.00	0.00
14,100.00	90.00	359.60	12,244.00	1,826.97	-744.29	1,921.43	0.00	0.00	0.00
14,200.00	90.00	359.60	12,244.00	1,926.97	-744.98	2,020.29	0.00	0.00	0.00
14,300.00	90.00	359.60	12,244.00	2,026.97	-745.68	2,119.15	0.00	0.00	0.00
14,400.00	90.00	359.60	12,244.00	2,126.97	-746.38	2,218.01	0.00	0.00	0.00
14,500.00	90.00	359.60	12,244.00	2,226.96	-747.08	2,316.86	0.00	0.00	0.00
14,600.00	90.00	359.60	12,244.00	2,326.96	-747.78	2,415.72	0.00	0.00	0.00
14,700.00	90.00	359.60	12,244.00	2,426.96	-748.47	2,514.58	0.00	0.00	0.00
14,800.00	90.00	359.60	12,244.00	2,526.96	-749.17	2,613.44	0.00	0.00	0.00
14,900.00	90.00	359.60	12,244.00	2,626.95	-749.87	2,712.30	0.00	0.00	0.00
15,000.00	90.00	359.60	12,244.00	2,726.95	-750.57	2,811.16	0.00	0.00	0.00
15,100.00	90.00	359.60	12,244.00	2,826.95	-751.27	2,910.01	0.00	0.00	0.00
15,200.00	90.00	359.60	12,244.00	2,926.95	-751.97	3,008.87	0.00	0.00	0.00
15,300.00	90.00	359.60	12,244.00	3,026.94	-752.66	3,107.73	0.00	0.00	0.00
15,400.00	90.00	359.60	12,244.00	3,126.94	-753.36	3,206.59	0.00	0.00	0.00
15,500.00	90.00	359.60	12,244.00	3,226.94	-754.06	3,305.45	0.00	0.00	0.00
15,600.00	90.00	359.60	12,244.00	3,326.94	-754.76	3,404.30	0.00	0.00	0.00
15,700.00	90.00	359.60	12,244.00	3,426.93	-755.46	3,503.16	0.00	0.00	0.00
15,800.00	90.00	359.60	12,244.00	3,526.93	-756.15	3,602.02	0.00	0.00	0.00
15,900.00	90.00	359.60	12,244.00	3,626.93	-756.85	3,700.88	0.00	0.00	0.00
16,000.00	90.00	359.60	12,244.00	3,726.93	-757.55	3,799.74	0.00	0.00	0.00
16,100.00	90.00	359.60	12,244.00	3,826.92	-758.25	3,898.60	0.00	0.00	0.00
16,200.00	90.00	359.60	12,244.00	3,926.92	-758.95	3,997.45	0.00	0.00	0.00
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16,600.00	90.00	359.60	12,244.00	4,326.91	-761.74	4,392.89	0.00	0.00	0.00
16,700.00	90.00	359.60	12,244.00	4,426.91	-762.44	4,491.75	0.00	0.00	0.00
16,800.00	90.00	359.60	12,244.00	4,526.91	-763.14	4,590.60	0.00	0.00	0.00
16,900.00	90.00	359.60	12,244.00	4,626.90	-763.83	4,689.46	0.00	0.00	0.00
17,000.00	90.00	359.60	12,244.00	4,726.90	-764.53	4,788.32	0.00	0.00	0.00
17,067.10	90.00	359.60	12,244.00	4,794.00	-765.00	4,854.65	0.00	0.00	0.00
PBHL (Streetcar 15 Fed #602H)									

Design Targets

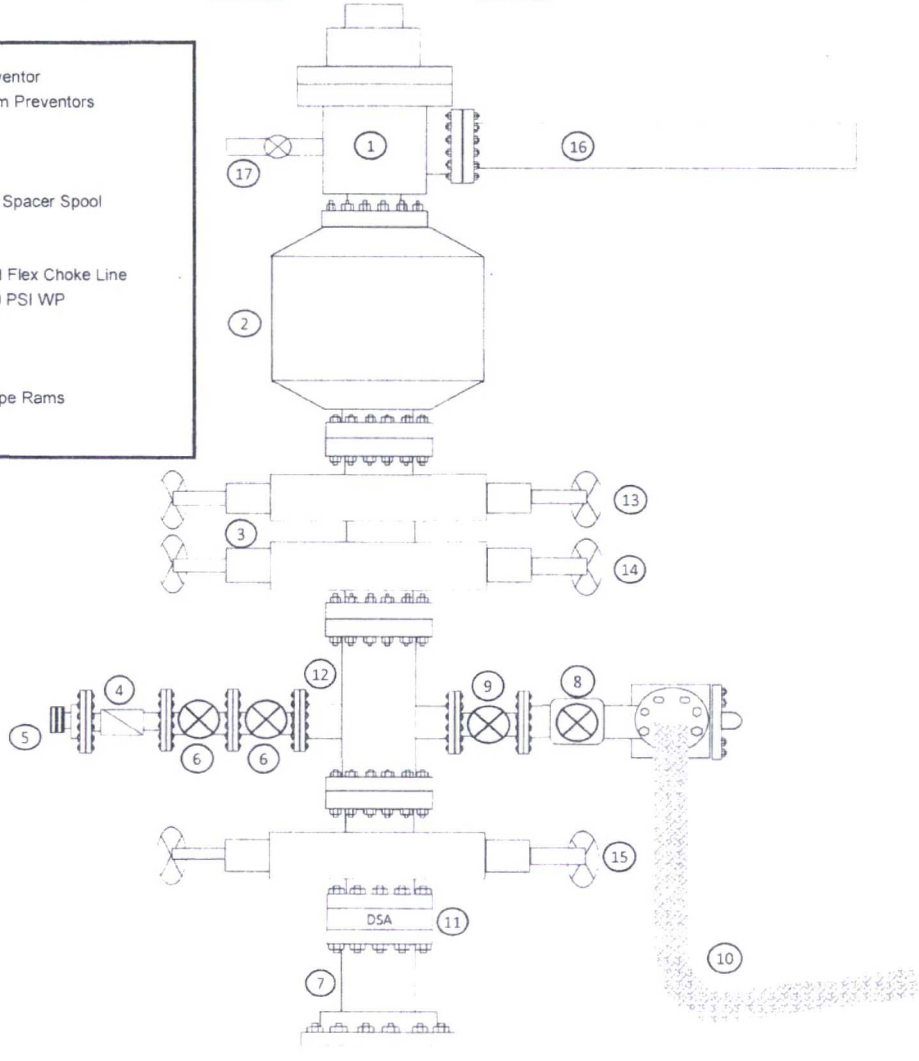
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
FTP (Streetcar 15 Fed #	0.00	0.00	12,244.00	75.00	-733.00	409,789.00	781,947.00	32.12420328	-103.55610464
- plan misses target center by 41.89usft at 12358.96usft MD (12205.63 TVD, 91.23 N, -728.65 E)									
- Point									
PBHL (Streetcar 15 Fed	0.00	0.00	12,244.00	4,794.00	-765.00	414,508.00	781,915.00	32.13717500	-103.55609803
- plan hits target center									
- Point									

Database:	EDM 5000.14 Single User Db	**Local Co-ordinate Reference:**	Well #602H
Company:	EOG Resources - Midland	**TVD Reference:**	KB = 25' @ 3376.00usft
Project:	Lea County, NM (NAD 83 NME)	**MD Reference:**	KB = 25' @ 3376.00usft
Site:	Streetcar 15 Fed	**North Reference:**	Grid
Well:	#602H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #0.1		

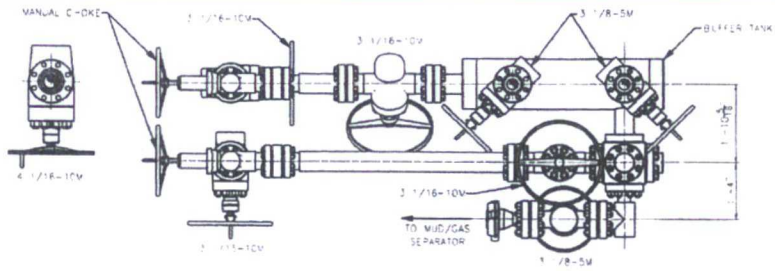
Exhibit 1
EOG Resources
10M BOPE

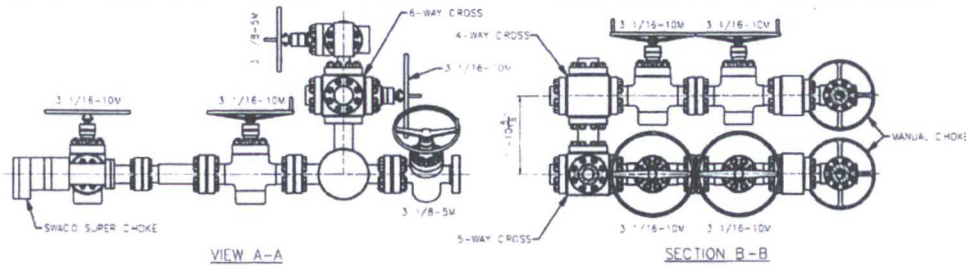
Rig Floor

1. 13 5/8" Rotating Head
2. Hydril 13 5/8" 10,000 PSI WP GK Annular Preventor
3. 13 5/8" Cameron Type "U" 10,000 PSI WP Ram Preventors
4. 2 1/16" - 10,000 PSI WP Check Valve
5. 10,000 PSI WP - 1502 Union to kill line
6. 2 1/16" - 10,000 PSI WP Manual Valves
7. 13 5/8" 3,000 PSI WP x 13 5/8" 5,000 PSI WP Spacer Spool
8. 4 1/16" 10,000 PSI WP HCR Valve
9. 4 1/16" 10,000 PSI WP Manual Valve
10. 6" OD x 3" ID 10,000 PSI WP Steel Armoured Flex Choke Line
11. DSA - 13 5/8" 10,000 PSI WP x 13 5/8" 5,000 PSI WP
12. Mud Cross - 13 5/8" 10,000 PSI WP
13. Blind Rams
14. Pipe Rams
15. 13 5/8" Cameron Type "U" 10,000 PSI WP Pipe Rams
16. Flow Line
17. 2" Fill Line



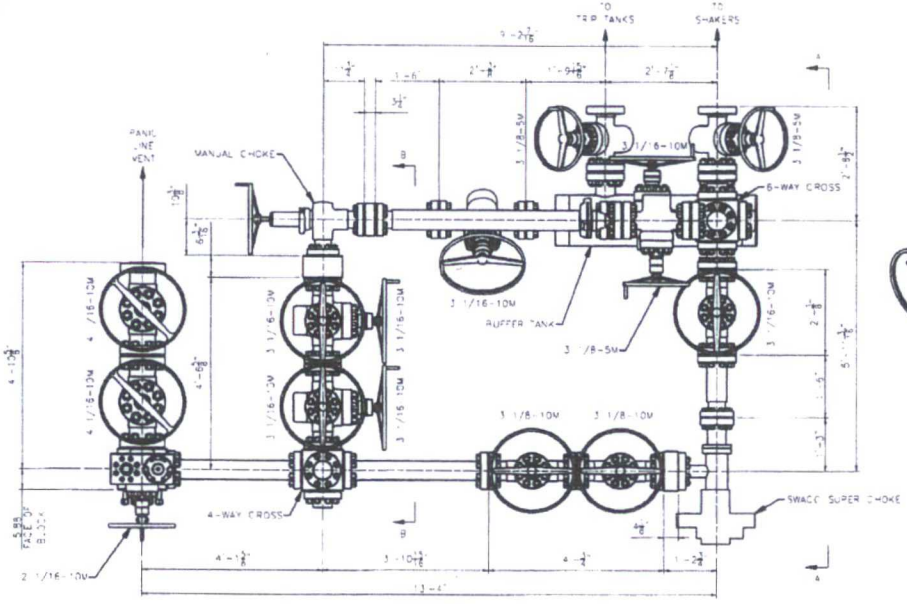
EOG 5M BOPE Diagram (6/10/14)



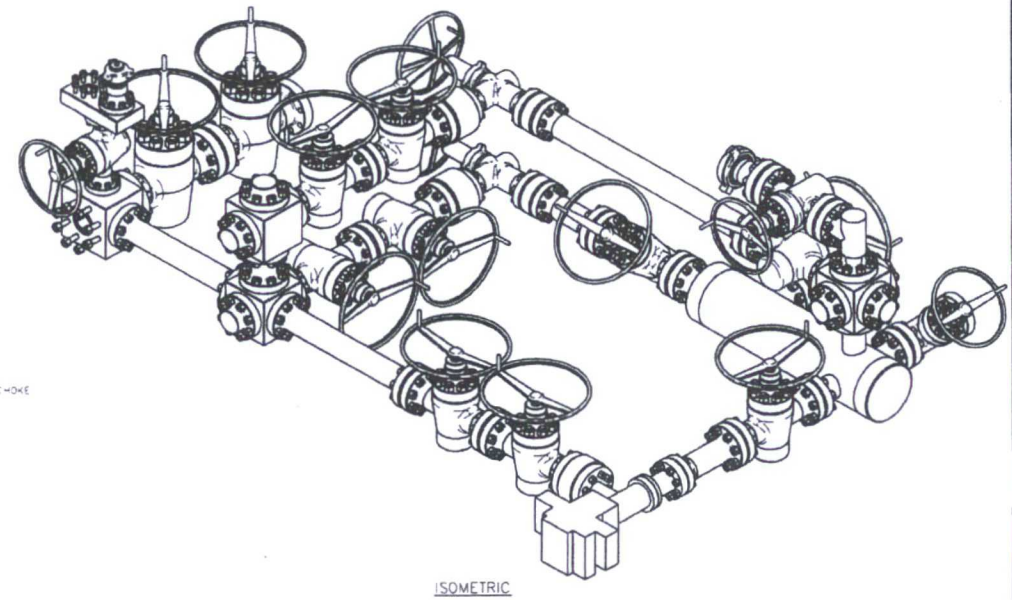


VIEW A-A

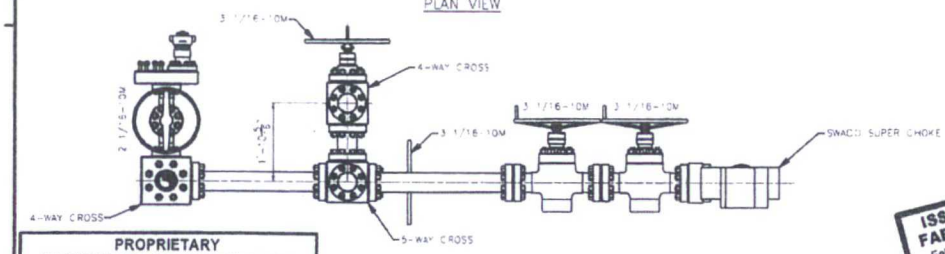
SECTION B-B



PLAN VIEW



ISOMETRIC



PROPRIETARY

THIS DRAWING AND THE IDEAS AND INFORMATION INCLUDED IN THIS DRAWING ARE PROPRIETARY AND ARE NOT TO BE REPRODUCED, DISTRIBUTED OR DISCLOSED IN ANY MANNER, WITHOUT THE PRIOR WRITTEN CONSENT OF A DULY AUTHORIZED OFFICER OF HELMERICH & PAYNE INT'L DRILLING CO.

ISSUED FOR FABRICATION
February-10-2014
DRAFTSMAN
ENGINEER

STANDARD TOLERANCES
UNLESS OTHERWISE SPECIFIED

1 FABRICATION DIMENSIONS	A-0° TO 24°	± 1/16"
	B-24° TO 120°	± 1/8"
	C-OVER 120°	± 1/4"
	R-ANGULAR	± 30'
2 MACHINED DIMENSIONS	X-LINEAR (EXPRESSED AS FRACTION)	± .015
	LINEAR (EXPRESSED TO ONE DECIMAL)	± .1
	LINEAR (EXPRESSED TO TWO DECIMALS)	± .015
	LINEAR (EXPRESSED TO THREE DECIMALS)	± .005

REV	DATE	DESCRIPTION	BY

HELMERICH & PAYNE
INTERNATIONAL DRILLING CO.

TITLE: 3 CHOKE, 3 LEVEL, 10M CHOKE MANIFOLD G.A.

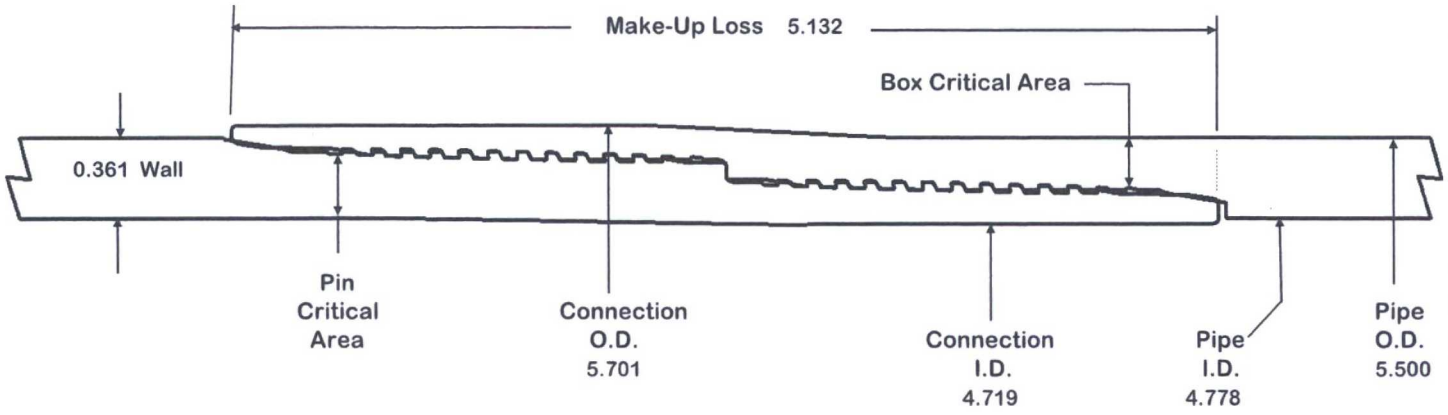
CUSTOMER: H&P

PROJECT:

DRAWN: MWL | DATE: 2/10/2014 | DWG. NO: HP-D1254 | REV: —

SCALE: 3/4"=1'-0" | SHEET 1 OF 1

VAM® SFC



O.D.	WEIGHT	WALL	GRADE	DRIFT
5.500	20.00	0.361	VST P110EC	4.653

PIPE BODY PROPERTIES

Material Grade	VST P110EC
Min. Yield Strength	125 ksi
Min. Tensile Strength	135 ksi
Outside Diameter	5.500 in
Inside Diameter	4.778 in
Nominal Area	5.828 sq.in.
Yield Strength	729 kips
Ultimate Strength	787 kips
Min Internal Yield	14,360 psi
*High Collapse	12,090 psi

CONNECTION PROPERTIES

Connection OD	5.701 in
Connection ID	4.719 in
Make up Loss	5.132 in
Box Critical Area	4.083 sq.in.
%PB Section Area	70.1%
Pin Critical Area	4.123 sq.in.
%PB Section Area	70.7%
Yield Strength	510 kips
Parting Load	551 kips
Min Internal Yield	14,360 psi
*High Collapse	12,090 psi
Wk Compression	357 kips
Max Pure Bending	20 °/100 ft

TORQUE DATA ft-lb

min	opt	max
8,700	9,700	10,700

Contact: tech.support@vam-usa.com
Ref. Drawing: SI-PD 100414 Rev.B
Date: 14-Jun-16
Time: 2:31 PM

TECHNICAL SPECIFICATIONS

These specifications are furnished for general information only and are not intended for design purposes. This information is preliminary and may change subject to a final design by VAM-USA Engineering. This is not a controlled document.

DWC/C-IS MS **Casing** **5.500" O.D.** **20.00 lb./ft.** **VST P-110EC**

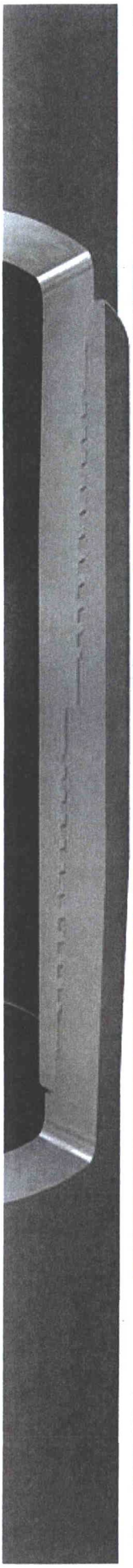
standard

		Material
VST P-110EC		Grade
125,000		Minimum Yield Strength (psi.)
135,000		Minimum Ultimate Strength (psi.)
		Pipe Dimensions
5.500		Nominal Pipe Body OD (in.)
4.778		Nominal Pipe Body ID (in.)
0.361		Nominal Wall Thickness (in.)
20.00		Nominal Weight (lbs./ft.)
19.83		Plain End Weight (lbs./ft.)
5.828		Nominal Pipe Body Area (sq. in.)
		Pipe Body Performance Properties
729,000		Minimum Pipe Body Yield Strength (lbs.)
12,090		Minimum Collapse Pressure (psi.)
14,360		Minimum Internal Yield Pressure (psi.)
13,100		Hydrostatic Test Pressure (psi.)
		Connection Dimensions
6.115		Connection OD (in.)
4.778		Connection ID (in.)
4.653		Connection Drift Diameter (in.)
4.13		Make-up Loss (in.)
5.828		Critical Area (sq. in.)
100.0		Joint Efficiency (%)
		Connection Performance Properties
729,000	(1)	Joint Strength (lbs.)
26,040	(2)	Reference String Length (ft.) 1.4 Design Factor
728,000	(3)	API Joint Strength (lbs.)
729,000		Compression Rating (lbs.)
12,090		API Collapse Pressure Rating (psi.)
14,360	(4)	API Internal Pressure Resistance (psi.)
104.2		Maximum Uniaxial Bend Rating (degrees/100 ft.)
		Approximated Field End Torque Values
16,600	(5)	Minimum Final Torque (ft.-lbs.)
19,100	(5)	Maximum Final Torque (ft.-lbs.)
21,600	(6)	Connection Yield Torque (ft.-lbs.)

VAM-USA
4424 W. Sam Houston Pkwy, Suite 150
Houston, TX 77041
Phone: (713) 479-3200
Fax: (713) 479-3234
E-mail: VAMUSAsales@na.vallourec.com

(1) Joint Strength is the minimum pipe body yield strength multiplied by the connection critical area.
(2) Reference String Length is the joint strength divided by both the weight in air and the design factor.
(3) API Joint Strength is for reference only. It is calculated from Formulas 42 and 43 in the API Bulletin 5C3.
(4) API Internal Pressure Resistance is calculated from Formulas 31, 32, and 35 in the API Bulletin 5C3.
(5) Torque values are approximated and may be affected by field conditions.
(6) Connection yield torque is not to be exceeded.

Connection specifications within the control of VAM-USA were correct as of the date printed. Specifications are subject to change without notice. Certain connection specifications are dependent on the mechanical properties of the pipe. Mechanical properties of mill proprietary pipe grades v obtained from mill publications and are subject to change. Properties of mill proprietary grades should be confirmed with the mill. Users are advi to obtain current connection specifications and verify pipe mechanical properties for each application.



Issued on: 24 Jan. 2017

VAM SLIJ-II

Connection Data Sheet

OD	Weight	Wall Th.	Grade	API Drift	Connection
7 5/8 in.	29.70 lb/ft	0.375 in.	VM 110 HC	6.750 in.	VAM® SLIJ-II

PIPE PROPERTIES

Nominal OD	7.625 in.
Nominal ID	6.875 in.
Nominal Cross Section Area	8.541 sqin.
Grade Type	High Collapse
Min. Yield Strength	110 ksi
Max. Yield Strength	140 ksi
Min. Ultimate Tensile Strength	125 ksi

CONNECTION PROPERTIES

Connection Type	Premium integral semi-flush
Connection OD (nom)	7.711 in.
Connection ID (nom)	6.820 in.
Make-up Loss	4.822 in.
Critical Cross Section	5.912 sqin.
Tension Efficiency	69.2 % of pipe
Compression Efficiency	48.5 % of pipe
Internal Pressure Efficiency	100 % of pipe
External Pressure Efficiency	100 % of pipe

CONNECTION PERFORMANCES

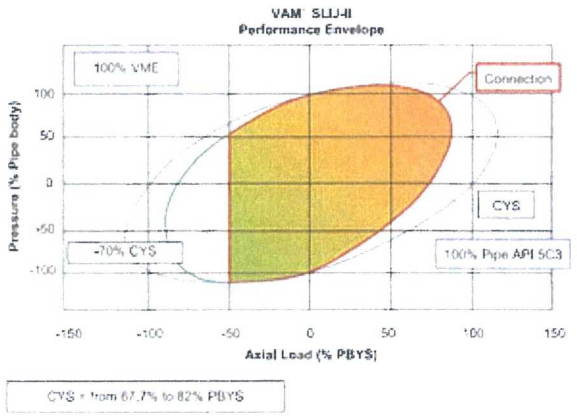
Tensile Yield Strength	651 klb
Compression Resistance	455 klb
Internal Yield Pressure	9470 psi
Uniaxial Collapse Pressure	7890 psi
Max. Bending Capacity	TDB
Max Bending with Sealability	20 °/100 ft

FIELD TORQUE VALUES

Min. Make-up torque	11300 ft.lb
Opti. Make-up torque	12600 ft.lb
Max. Make-up torque	13900 ft.lb

VAM® SLIJ-II is a semi-flush integral premium connection for all casing applications. It combines a near flush design with high performances in tension, compression and gas sealability.

VAM® SLIJ-II has been validated according to the most stringent tests protocols, and has an excellent performance history in the world's most prolific HPHT wells.



Do you need help on this product? - Remember no one knows VAM® like VAM

canada@vamfieldservice.com
usa@vamfieldservice.com
mexico@vamfieldservice.com
brazil@vamfieldservice.com
uk@vamfieldservice.com
dubai@vamfieldservice.com
nigeria@vamfieldservice.com
angola@vamfieldservice.com
china@vamfieldservice.com
baku@vamfieldservice.com
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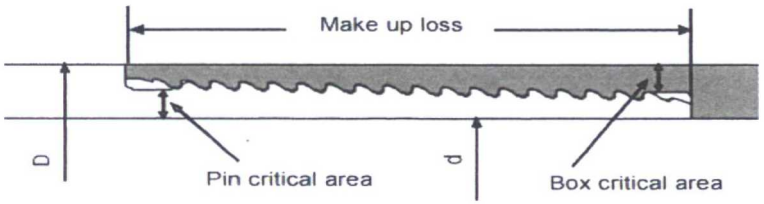
Over 140 VAM® Specialists available worldwide 24/7 for Rig Site Assistance

Other Connection Data Sheets are available at www.vamservices.com

Vallourec Group

vallourec

Metal One Corp	FLUSHMAX-III Connection Data Sheet	Page	44-0
		Date	1-Oct-15
		Rev.	N-0



Pipe Body	**Imperial**		**S.I.**	
Grade	P110		P110	
Pipe OD (D)	7 5/8	in	193.68	mm
Weight	29.7	lb/ft	44.25	kg/m
Actual weight	29.0	lb/ft	43.26	kg/m
Wall thickness (t)	0.375	in	9.53	mm
Pipe ID (d)	6.875	in	174.63	mm
Pipe body cross section	8.537	in^2	5,508	mm^2
Drift Dia.	6.750	in	171.45	mm

Connection				
Box OD (W)	7.625	in	193.68	mm
PIN ID	6.875	in	174.63	mm
Pin critical area	4.420	in^2	2,852	mm^2
Box critical area	4.424	in^2	2,854	mm^2
Joint load efficiency	60	%	60	%
Make up loss	3.040	in	77.22	mm
Thread taper	1/16 (3/4 in per ft)			
Number of threads	5 thread per in.			

Connection Performance Properties				
Tensile Yield load	563.4	kips	2,506	kN
M.I.Y.P.	7,574	psi	52.2	MPa
Collapse strength	5,350	psi	36.9	MPa

Note
M.I.Y.P. = Minimum Internal Yield Pressure of the connection

Torque Recommended				
Min.	8,700	ft-lb	11,700	N-m
Opti.	9,700	ft-lb	13,100	N-m
Max.	10,700	ft-lb	14,500	N-m
Operational Max.	23,600	ft-lb	32,000	N-m

Note : Operational Max. torque can be applied for high torque application

EOG Resources Surface Casing Option Request

1. **Request for variance for the option to preset surface casing with surface rig**:
   a) EOG Requests the option to contract a Surface Rig to drill, set surface casing, and cement on the following subject wells. After WOC 8 hours or 500 psi compressive strength (whichever is greater), the Surface Rig will move off so that the wellhead can be installed. A welder will cut the casing to the proper height and weld on the wellhead (both "A" and "B" sections). The weld will be tested to 1000 psi. All valves will be closed and a wellhead cap will be installed. See attached wellhead diagram below. If the timing between rigs is such that EOG Resources would not be able to preset surface, the Primary Rig will MIRU and drill the well in its entirety per the APD. BLM needs to be contacted and notified 24 hrs. prior to commencing the spudder rig operation & before the larger rig moves back on the pre-set location. The larger rig needs to move back in within 90 days.

Wellname
ANTIETAM 9 FED COM #701H
ANTIETAM 9 FED COM #702H
ANTIETAM 9 FED COM #703H
ANTIETAM 9 FED COM #704H
COLGROVE FED COM #707H
COLGROVE FED COM #708H
ENDURANCE 36 STATE COM #707H
ENDURANCE 36 STATE COM #708H
HOUND 30 FED #701H
HOUND 30 FED #702H
HOUND 30 FED #703H
HOUND 30 FED #704H
LUCKY 13 FED COM #8H
LUCKY 13 FED COM #9H
TRIGG 5 FED #1

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	EOG Resources, Inc
LEASE NO.:	NMNM26079
WELL NAME & NO.:	Streetcar 15 Fed 602H
SURFACE HOLE FOOTAGE:	250'/S & 643'/E
BOTTOM HOLE FOOTAGE	230'/N & 1376'/E
LOCATION:	Section 15, T.25 S., R.33 E., NMPM
COUNTY:	Lea County, New Mexico

All previous COAs still apply except the following:

A. CASING

All previous COAs still apply except the following:

Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.

Centralizers required on surface casing per Onshore Order 2.III.B.1.f.

Wait on cement (WOC) for Water Basin:
After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements.

Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.

No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.

Risks:
Possibility of Water flows in the Castile and Salado.
Possibility of lost circulation in the Red Beds, Rustler, and Delaware.

Abnormal pressure may be encountered within the 3rd Bone Spring Sandstone and all subsequent formations. Operator may need to increase mud weight.

1. The **10 3/4** inch surface casing shall be set at approximately **1165** feet **(in a competent bed below the Magenta Dolomite, which is a Member of the Rustler, and if salt is encountered, set casing at least 25 feet above the salt)** and cemented to the surface. **Excess calculates to 23% - additional cement might be required.**

    a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.

    b. Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.

    c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.

    d. If cement falls back, remedial cementing will be done prior to drilling out that string.

    Formation below the 10 3/4 inch shoe to be tested according to Onshore Order 2.III.B.1.i. Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe (not the mud weight required to prevent dissolving the salt formation) and the mud weight for the bottom of the hole. Report results to BLM office.

    Intermediate casing must be kept fluid filled to meet BLM minimum collapse requirement.

2. The minimum required fill of cement behind the **7 5/8** inch intermediate is:

    ☒ Cement to surface. If cement does not circulate see A.1.a, c-d above.

    Formation below the 7 5/8 inch shoe to be tested according to Onshore Order 2.III.B.1.i. Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe (not the mud weight required to prevent dissolving the salt formation) and the mud weight for the bottom of the hole. Report results to BLM office.

3. The minimum required fill of cement behind the **5 1/2** inch production casing is:

    ☒ Cement should tie-back at least **200** feet into previous casing string. Operator shall provide method of verification.

4. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

B. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API 53.

2. **Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be 10,000 (10M) psi.**

    a. **Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.**
    b. **If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.**
    c. **Manufacturer representative shall install the test plug for the initial BOP test.**
    d. **If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.**

10M system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.

3. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.

    a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

    b. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer**. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the

pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (8 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).

c. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.

d. The results of the test shall be reported to the appropriate BLM office.

e. All tests are required to be recorded on a calibrated test chart. **A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.**

f. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the **Wolfcamp** formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

C. DRILLING MUD

Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the **Wolfcamp** formation, and shall be used until production casing is run and cemented.

Proposed mud weight may not be adequate for drilling through Wolfcamp.

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