

HOBBS OCDUNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTFORM APPROVED
OMB NO. 1004-0135
Expires: July 31, 2010

SEP 06 2016

RECEIVED**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.**Carlsbad Field Office****OCD Hobbs**Serial No.
NMNM122622

6. If Indian, Allottee or Tribe Name

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

8. Well Name and No.
ENDURANCE 36 STATE COM 704H ✓9. API Well No.
30-025-43015-00-X1 ✓10. Field and Pool, or Exploratory
WC025G09S263327G-UP WOLFCAMP11. County or Parish, and State
LEA COUNTY, NM**SUBMIT IN TRIPLICATE - Other instructions on reverse side.**

1. Type of Well

☒ Oil Well ☐ Gas Well ☐ Other

2. Name of Operator

EOG RESOURCES INCORPORATED

Contact: STAN WAGNER

E-Mail: stan_wagner@eogresources.com

3a. Address

MIDLAND, TX 79702

3b. Phone No. (include area code)

Ph: 432-686-3689

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

Sec 36 T26S R33E Lot 4 360FSL 1020FWL

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

- | | | | |
|---|---|--|---|
| ☐ Acidize | ☐ Deepen | ☐ Production (Start/Resume) | ☐ Water Shut-Off |
| ☐ Alter Casing | ☐ Fracture Treat | ☐ Reclamation | ☐ Well Integrity |
| ☐ Casing Repair | ☐ New Construction | ☐ Recomplete | ☒ Other |
| ☐ Change Plans | ☐ Plug and Abandon | ☐ Temporarily Abandon | Drilling Operations |
| ☐ 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 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.)

EOG Resources requests a very minor change to our production casing design for this well. The new design is as follows:

5-1/2", 23#, P110EC Vam Top HT (0-10700')
5-1/2", 23#, P110EC Vam SG (10700'-12100')
5", 23.2# P110 NSCC (12100'-TD)

**SEE ATTACHED FOR
CONDITIONS OF APPROVAL**

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

Electronic Submission #349715 verified by the BLM Well Information System

For EOG RESOURCES INCORPORATED, sent to the Hobbs

Committed to AFMSS for processing by DEBORAH MCKINNEY on 09/01/2016 (16DLM0903SE)

Name (Printed/Typed) STAN WAGNER

Title REGULATORY ANALYST

Signature (Electronic Submission)

Date 08/31/2016

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By (BLM Approver Not Specified)

Mustafa Hague

Title

PETROLEUM ENGINEER

Date 09/01/2016

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.

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

**Endurance 36 State Com 704H
30-025-43015
EOG Resources, Inc
Surface Location: Sec. 36, T. 26S, R. 33E
Conditions of Approval**

See below for the changes in the Conditions of Approval for the Drilling Section.

A. DRILLING

All previous COAs still apply.

MHH 09012016

Additional data for EC transaction #349715 that would not fit on the form

32. Additional remarks, continued



Lea County, NM (NAD 27 NME)

Endurance 36 State Com #704H

H&P659

Plan #4

PROJECT DETAILS: Lea County, NM (NAD 27 NME)

Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico East 3001
System Datum: Mean Sea Level



Azimuths to Grid North
True North: -6.43°
Magnetic North: 6.58°
Magnetic Field
Strength: 47953.8nT
Dip Angle: 59.87°
Date: 8/24/2016
Model: IGRF2015

To convert a Magnetic Direction to a Grid Direction, Add 6.58°
To convert a Magnetic Direction to a True Direction, Add 7.01° East
To convert a True Direction to a Grid Direction, Subtract 0.43°

WELL DETAILS: #704H

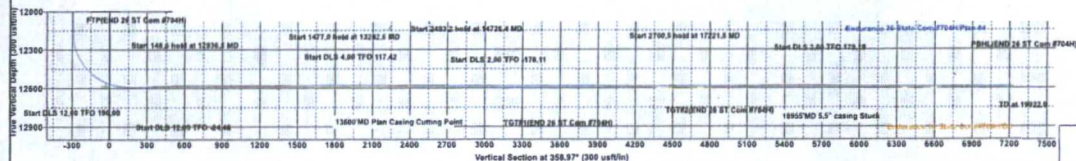
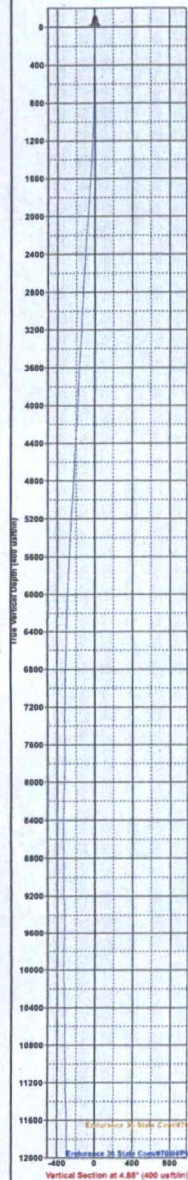
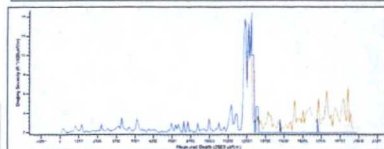
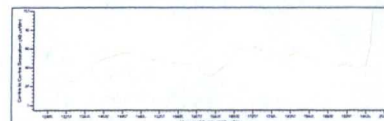
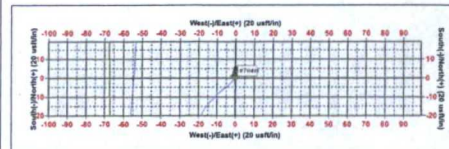
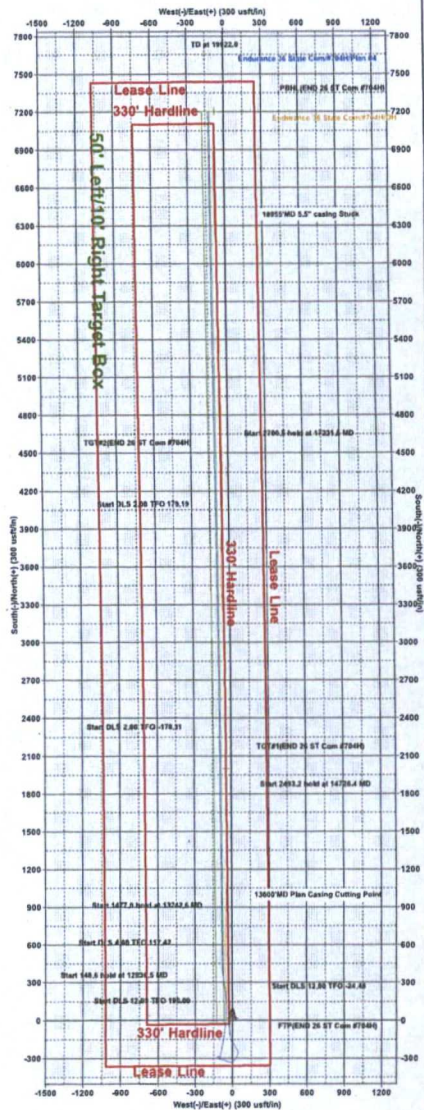
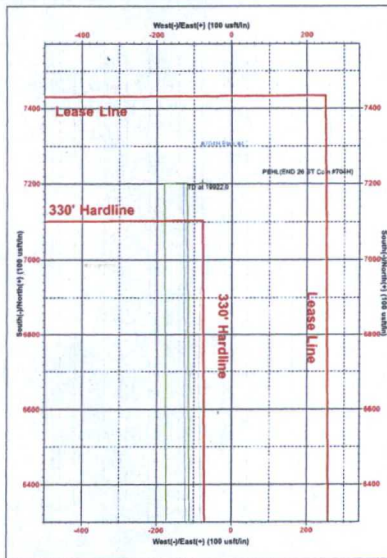
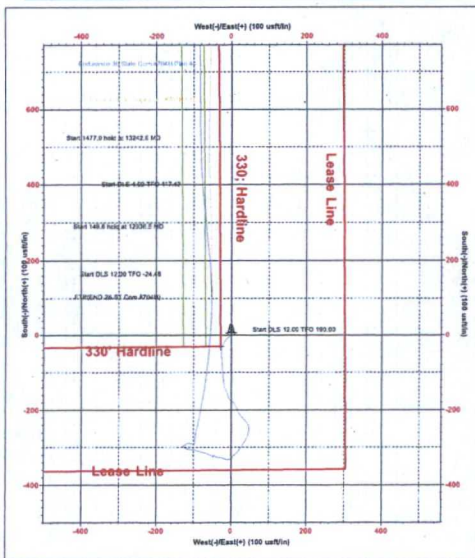
Ground Level: 3335.0
KB = 25 @ 3360 Depth (H&P659)
Northing: 365060.00
Easting: 748766.00
Longitude: 103° 31' 51.061 W
Slot

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSeal	Target
1	12796.0	84.46	0.10	12584.7	78.4	-51.3	0.00	0.00	79.3	
2	12826.0	80.92	359.47	12588.5	108.2	-51.4	12.00	190.00	109.1	
3	12936.5	93.00	354.01	12594.4	218.0	-57.7	12.00	-24.48	219.0	
4	13085.0	93.00	354.01	12586.6	365.6	-73.2	0.00	0.00	366.8	
5	13242.6	90.09	359.60	12582.3	522.7	-82.0	4.00	117.42	524.1	
6	14719.6	90.09	359.60	12580.0	1999.7	-92.3	0.00	0.00	2001.0	
7	14726.4	89.95	359.60	12580.0	2006.5	-92.3	2.00	-176.11	2007.8	TGT#2(END 26 ST Com #704H)
8	17219.5	89.95	359.60	12582.0	4499.6	-109.9	0.00	0.00	4500.8	
9	17221.5	89.92	359.60	12582.0	4501.5	-110.0	2.00	179.19	4502.8	
10	19922.0	89.92	359.60	12586.0	7202.0	-129.0	0.00	0.00	7203.2	PBHL(END 26 ST Com #704H)

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
TGT#1(END 26 ST Com #704H)	12586.0	1999.7	-42.3	367658.70	748723.68	Point
TGT#2(END 26 ST Com #704H)	12582.0	4499.6	-59.9	369559.60	748706.85	Point
FTPL(END 26 ST Com #704H)	12583.0	-30.0	-28.0	365030.00	748738.00	Point
PBHL(END 26 ST Com #704H)	12586.0	7202.0	-79.9	372282.00	748687.00	Rectangle (Sides: L&B W60.0)





EOG Resources - Midland

Lea County, NM (NAD 27 NME)

Endurance 36 State Com

#704H

ST#1

Plan: Plan #4

Standard Planning Report

24 August, 2016

Database: EDM 5000.1 Single User Db
Company: EOG Resources - Midland
Project: Lea County, NM (NAD 27 NME)
Site: Endurance 36 State Com
Well: #704H
Wellbore: ST#1
Design: Plan #4

Local Co-ordinate Reference: Well #704H
TVD Reference: KB = 25 @ 3360.0usft (H&P659)
MD Reference: KB = 25 @ 3360.0usft (H&P659)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Project	Lea County, NM (NAD 27 NME)		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site	Endurance 36 State Com			
Site Position:		Northing:	365,036.00 usft	Latitude: 32° 0' 3.760 N
From: Map		Easting:	749,506.00 usft	Longitude: 103° 31' 42.470 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence: 0.43 °

Well	#704H			
Well Position	+N/-S	24.0 usft	Northing:	365,060.00 usft
	+E/-W	-740.0 usft	Easting:	748,766.00 usft
Position Uncertainty	0.0 usft		Wellhead Elevation:	0.0 usft
			Ground Level:	3,335.0 usft

Wellbore	ST#1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	8/24/2016	7.01	59.87	47,894

Design	Plan #4				
Audit Notes:					
Version:	Phase:	PLAN		Tie On Depth:	12,796.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	358.97	

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
12,796.0	84.46	0.10	12,584.7	78.4	-51.3	0.00	0.00	0.00	0.00	
12,826.0	80.92	359.47	12,588.5	108.2	-51.4	12.00	-11.82	-2.11	190.00	
12,936.4	93.00	354.01	12,594.4	218.0	-57.7	12.00	10.94	-4.94	-24.48	
13,085.0	93.00	354.01	12,586.6	365.6	-73.2	0.00	0.00	0.00	0.00	
13,242.6	90.09	359.60	12,582.3	522.7	-82.0	4.00	-1.85	3.55	117.42	
14,719.6	90.09	359.60	12,580.0	1,999.7	-92.3	0.00	0.00	0.00	0.00	
14,726.4	89.95	359.60	12,580.0	2,006.5	-92.3	2.00	-2.00	-0.07	-178.11	
17,219.5	89.95	359.60	12,582.0	4,499.6	-109.9	0.00	0.00	0.00	0.00	TGT#2(END 26 ST C)
17,221.5	89.92	359.60	12,582.0	4,501.5	-110.0	2.00	-2.00	0.03	179.19	
19,922.0	89.92	359.60	12,586.0	7,202.0	-129.0	0.00	0.00	0.00	0.00	PBHL(END 26 ST Co

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MD Reference: KB = 25 @ 3360.0usft (H&P659)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

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)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
192.0	1.41	223.69	192.0	-1.7	-1.6	-1.7	0.73	0.73	0.00
384.0	1.41	229.31	383.9	-5.0	-5.1	-4.9	0.07	0.00	2.93
571.0	1.23	236.17	570.9	-7.6	-8.5	-7.4	0.13	-0.10	3.67
754.0	1.58	218.59	753.8	-10.6	-11.7	-10.4	0.30	0.19	-9.61
875.0	1.76	226.50	874.8	-13.2	-14.1	-13.0	0.24	0.15	6.54
985.0	2.82	214.20	984.7	-16.6	-16.8	-16.3	1.06	0.96	-11.18
1,151.0	2.46	203.12	1,150.5	-23.3	-20.5	-22.9	0.38	-0.22	-6.67
1,245.0	2.46	209.80	1,244.4	-26.9	-22.3	-26.5	0.30	0.00	7.11
1,338.0	2.64	199.96	1,337.3	-30.6	-24.0	-30.2	0.51	0.19	-10.58
1,431.0	3.34	180.27	1,430.2	-35.4	-24.8	-34.9	1.33	0.75	-21.17
1,524.0	3.52	181.68	1,523.0	-40.9	-24.9	-40.5	0.21	0.19	1.52
1,617.0	3.52	181.68	1,615.9	-46.6	-25.0	-46.2	0.00	0.00	0.00
1,711.0	3.70	176.76	1,709.7	-52.5	-24.9	-52.1	0.38	0.19	-5.23
1,805.0	3.70	174.82	1,803.5	-58.6	-24.5	-58.1	0.13	0.00	-2.06
1,898.0	3.87	175.53	1,896.3	-64.7	-24.0	-64.3	0.19	0.18	0.76
1,992.0	3.87	176.40	1,990.1	-71.0	-23.5	-70.6	0.06	0.00	0.93
2,086.0	4.05	178.51	2,083.8	-77.5	-23.2	-77.1	0.25	0.19	2.24
2,180.0	3.70	180.10	2,177.6	-83.9	-23.2	-83.4	0.39	-0.37	1.69
2,273.0	3.87	175.88	2,270.4	-90.0	-22.9	-89.6	0.35	0.18	-4.54
2,366.0	3.70	176.40	2,363.2	-96.1	-22.5	-95.7	0.19	-0.18	0.56
2,460.0	4.05	176.23	2,457.0	-102.5	-22.1	-102.0	0.37	0.37	-0.18
2,553.0	4.05	171.31	2,549.8	-109.0	-21.4	-108.6	0.37	0.00	-5.29
2,647.0	4.22	168.32	2,643.5	-115.7	-20.2	-115.3	0.29	0.18	-3.18
2,741.0	2.99	174.65	2,737.3	-121.5	-19.3	-121.1	1.37	-1.31	6.73
2,836.0	2.46	177.99	2,832.2	-126.0	-19.0	-125.6	0.58	-0.56	3.52
2,930.0	2.64	174.30	2,926.1	-130.2	-18.7	-129.8	0.26	0.19	-3.93
3,025.0	2.64	169.37	3,021.0	-134.5	-18.1	-134.1	0.24	0.00	-5.19
3,121.0	3.17	161.29	3,116.9	-139.2	-16.8	-138.8	0.70	0.55	-8.42
3,215.0	3.34	153.38	3,210.8	-144.1	-14.8	-143.8	0.51	0.18	-8.41
3,309.0	3.17	155.66	3,304.6	-148.9	-12.5	-148.6	0.23	-0.18	2.43
3,404.0	2.99	161.11	3,399.5	-153.6	-10.6	-153.4	0.36	-0.19	5.74
3,499.0	3.34	161.99	3,494.3	-158.6	-8.9	-158.4	0.37	0.37	0.93
3,594.0	2.99	167.79	3,589.2	-163.7	-7.5	-163.5	0.50	-0.37	6.11
3,688.0	2.64	158.65	3,683.1	-168.1	-6.2	-167.9	0.60	-0.37	-9.72
3,781.0	2.99	142.65	3,776.0	-172.0	-4.0	-171.9	0.92	0.38	-17.20
3,875.0	3.34	125.43	3,869.8	-175.5	-0.3	-175.5	1.07	0.37	-18.32
3,969.0	3.34	116.46	3,963.7	-178.3	4.4	-178.4	0.56	0.00	-9.54
4,062.0	4.22	148.10	4,056.5	-182.5	8.7	-182.6	2.39	0.95	34.02
4,155.0	4.93	153.73	4,149.2	-188.9	12.2	-189.1	0.90	0.76	6.05
4,248.0	4.40	152.67	4,241.9	-195.7	15.6	-195.9	0.58	-0.57	-1.14
4,342.0	3.87	154.08	4,335.6	-201.8	18.7	-202.1	0.57	-0.56	1.50
4,436.0	3.70	157.95	4,429.4	-207.4	21.2	-207.8	0.33	-0.18	4.12
4,530.0	3.87	146.17	4,523.2	-212.9	24.1	-213.3	0.85	0.18	-12.53
4,624.0	4.40	139.84	4,617.0	-218.3	28.2	-218.7	0.74	0.56	-6.73
4,718.0	4.05	142.13	4,710.7	-223.6	32.6	-224.2	0.41	-0.37	2.44
4,811.0	4.22	141.42	4,803.5	-228.9	36.7	-229.5	0.19	0.18	-0.76
4,904.0	4.57	142.83	4,896.2	-234.5	41.1	-235.2	0.39	0.38	1.52
4,999.0	4.75	149.16	4,990.9	-240.9	45.4	-241.7	0.57	0.19	6.66
5,092.0	3.87	173.77	5,083.6	-247.3	47.7	-248.2	2.18	-0.95	26.46
5,186.0	3.87	195.04	5,177.4	-253.6	47.2	-254.4	1.52	0.00	22.63
5,280.0	3.34	193.63	5,271.2	-259.3	45.8	-260.1	0.57	-0.56	-1.50
5,374.0	3.52	189.76	5,365.1	-264.8	44.6	-265.5	0.31	0.19	-4.12
5,467.0	3.17	197.32	5,457.9	-270.1	43.4	-270.8	0.60	-0.38	8.13

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Company: EOG Resources - Midland
Project: Lea County, NM (NAD 27 NME)
Site: Endurance 36 State Com
Well: #704H
Wellbore: ST#1
Design: Plan #4

Local Co-ordinate Reference: Well #704H
TVD Reference: KB = 25 @ 3360.0usft (H&P659)
MD Reference: KB = 25 @ 3360.0usft (H&P659)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

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)
5,560.0	2.99	201.37	5,550.8	-274.8	41.7	-275.5	0.30	-0.19	4.35
5,654.0	2.99	209.63	5,644.6	-279.2	39.6	-279.9	0.46	0.00	8.79
5,747.0	2.99	210.68	5,737.5	-283.4	37.2	-284.0	0.06	0.00	1.13
5,840.0	2.64	212.97	5,830.4	-287.3	34.8	-287.8	0.40	-0.38	2.46
5,935.0	2.11	209.10	5,925.3	-290.6	32.7	-291.2	0.58	-0.56	-4.07
6,029.0	2.46	210.51	6,019.2	-293.9	30.9	-294.4	0.38	0.37	1.50
6,215.0	1.76	204.18	6,205.1	-299.9	27.7	-300.4	0.40	-0.38	-3.40
6,308.0	1.76	220.17	6,298.1	-302.3	26.2	-302.7	0.53	0.00	17.19
6,401.0	1.41	220.53	6,391.0	-304.3	24.5	-304.7	0.38	-0.38	0.39
6,495.0	1.41	212.09	6,485.0	-306.1	23.1	-306.5	0.22	0.00	-8.98
6,588.0	1.41	215.25	6,578.0	-308.0	21.9	-308.4	0.08	0.00	3.40
6,682.0	1.41	214.55	6,671.9	-309.9	20.6	-310.3	0.02	0.00	-0.74
6,776.0	1.41	227.21	6,765.9	-311.7	19.1	-312.0	0.33	0.00	13.47
6,869.0	1.41	220.88	6,858.9	-313.3	17.5	-313.6	0.17	0.00	-6.81
6,962.0	1.58	224.74	6,951.9	-315.1	15.8	-315.3	0.21	0.18	4.15
7,055.0	1.41	224.22	7,044.8	-316.8	14.1	-317.0	0.18	-0.18	-0.56
7,149.0	1.41	229.14	7,138.8	-318.4	12.4	-318.6	0.13	0.00	5.23
7,243.0	1.58	214.02	7,232.8	-320.2	10.8	-320.4	0.46	0.18	-16.09
7,337.0	1.23	215.25	7,326.7	-322.1	9.5	-322.3	0.37	-0.37	1.31
7,431.0	0.53	317.73	7,420.7	-322.6	8.6	-322.7	1.53	-0.74	109.02
7,524.0	0.70	11.35	7,513.7	-321.8	8.5	-321.9	0.62	0.18	57.66
7,618.0	0.88	9.76	7,607.7	-320.5	8.7	-320.6	0.19	0.19	-1.69
7,712.0	0.35	234.41	7,701.7	-319.9	8.6	-320.0	1.23	-0.56	-143.99
7,806.0	0.88	230.02	7,795.7	-320.6	7.8	-320.7	0.57	0.56	-4.67
7,900.0	1.94	202.60	7,889.7	-322.5	6.6	-322.6	1.31	1.13	-29.17
7,994.0	1.76	220.88	7,983.6	-325.1	5.1	-325.1	0.65	-0.19	19.45
8,078.0	1.76	213.67	8,067.6	-327.1	3.5	-327.1	0.26	0.00	-8.58
8,172.0	1.76	212.97	8,161.5	-329.5	1.9	-329.5	0.02	0.00	-0.74
8,266.0	2.29	262.19	8,255.5	-331.0	-0.7	-330.9	1.87	0.56	52.36
8,360.0	2.29	261.31	8,349.4	-331.5	-4.4	-331.4	0.04	0.00	-0.94
8,454.0	2.46	257.26	8,443.3	-332.3	-8.2	-332.1	0.25	0.18	-4.31
8,548.0	2.99	290.49	8,537.2	-331.9	-12.5	-331.6	1.74	0.56	35.35
8,643.0	2.99	292.60	8,632.1	-330.0	-17.1	-329.7	0.12	0.00	2.22
8,737.0	2.82	286.09	8,726.0	-328.4	-21.6	-328.0	0.39	-0.18	-6.93
8,831.0	2.64	280.12	8,819.9	-327.4	-26.0	-326.9	0.36	-0.19	-6.35
8,925.0	2.64	278.89	8,913.8	-326.7	-30.2	-326.1	0.06	0.00	-1.31
9,018.0	2.46	276.78	9,006.7	-326.1	-34.3	-325.5	0.22	-0.19	-2.27
9,112.0	2.29	275.19	9,100.6	-325.7	-38.2	-325.0	0.19	-0.18	-1.69
9,206.0	1.23	305.96	9,194.6	-325.0	-40.9	-324.2	1.47	-1.13	32.73
9,301.0	1.23	315.98	9,289.5	-323.6	-42.4	-322.8	0.23	0.00	10.55
9,394.0	0.88	306.83	9,382.5	-322.5	-43.7	-321.7	0.42	-0.38	-9.84
9,489.0	0.70	282.75	9,477.5	-321.9	-44.8	-321.1	0.39	-0.19	-25.35
9,583.0	0.53	229.84	9,571.5	-322.1	-45.7	-321.2	0.60	-0.18	-56.29
9,676.0	0.70	189.41	9,664.5	-322.9	-46.1	-322.0	0.49	0.18	-43.47
9,769.0	0.88	180.45	9,757.5	-324.2	-46.2	-323.3	0.23	0.19	-9.63
9,863.0	1.23	184.14	9,851.5	-325.9	-46.3	-325.0	0.38	0.37	3.93
9,957.0	1.06	310.17	9,945.5	-326.4	-47.1	-325.5	2.17	-0.18	134.07
10,051.0	1.58	312.81	10,039.5	-324.9	-48.7	-324.0	0.56	0.55	2.81
10,145.0	1.94	305.08	10,133.4	-323.1	-50.9	-322.2	0.46	0.38	-8.22
10,238.0	2.11	298.40	10,226.3	-321.4	-53.7	-320.4	0.31	0.18	-7.18
10,332.0	1.94	291.19	10,320.3	-320.0	-56.7	-319.0	0.33	-0.18	-7.67
10,425.0	2.46	295.58	10,413.2	-318.6	-60.0	-317.5	0.59	0.56	4.72
10,518.0	2.99	294.71	10,506.1	-316.7	-64.0	-315.5	0.57	0.57	-0.94
10,611.0	4.40	289.78	10,598.9	-314.5	-69.6	-313.2	1.55	1.52	-5.30

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MD Reference: KB = 25 @ 3360.0usft (H&P659)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

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)
10,704.0	4.40	284.86	10,691.6	-312.4	-76.4	-311.0	0.41	0.00	-5.29
10,798.0	4.75	285.04	10,785.3	-310.4	-83.6	-308.9	0.37	0.37	0.19
10,891.0	5.10	282.58	10,878.0	-308.5	-91.4	-306.8	0.44	0.38	-2.65
10,984.0	5.98	282.23	10,970.6	-306.6	-100.1	-304.8	0.95	0.95	-0.38
11,077.0	5.98	280.99	11,063.1	-304.7	-109.6	-302.6	0.14	0.00	-1.33
11,139.0	5.81	278.01	11,124.7	-303.6	-115.9	-301.5	0.56	-0.27	-4.81
11,268.0	3.70	295.94	11,253.3	-300.9	-126.1	-298.6	1.98	-1.64	13.90
11,362.0	1.41	357.11	11,347.2	-298.4	-128.9	-296.0	3.47	-2.44	65.07
11,456.0	4.57	61.44	11,441.1	-295.4	-125.7	-293.1	4.42	3.36	68.44
11,549.0	3.52	51.95	11,533.8	-291.9	-120.2	-289.7	1.34	-1.13	-10.20
11,643.0	2.99	71.81	11,627.7	-289.4	-115.6	-287.3	1.32	-0.56	21.13
11,736.0	0.53	33.49	11,720.7	-288.3	-113.0	-286.2	2.79	-2.65	-41.20
11,830.0	2.82	106.97	11,814.6	-288.6	-110.6	-286.5	2.89	2.44	78.17
11,923.0	2.46	107.85	11,907.5	-289.8	-106.5	-287.9	0.39	-0.39	0.95
12,016.0	2.11	104.69	12,000.4	-290.9	-102.9	-289.0	0.40	-0.38	-3.40
12,109.0	2.46	111.89	12,093.4	-292.1	-99.4	-290.2	0.49	0.38	7.74
12,205.0	1.23	28.57	12,189.3	-291.9	-97.0	-290.1	2.73	-1.28	-86.79
12,252.0	8.27	3.44	12,236.1	-288.1	-96.6	-286.3	15.27	14.98	-53.47
12,299.0	15.84	5.37	12,282.1	-278.3	-95.8	-276.6	16.13	16.11	4.11
12,346.0	23.93	10.64	12,326.2	-262.6	-93.4	-260.8	17.61	17.21	11.21
12,392.0	31.67	13.10	12,366.9	-241.6	-88.9	-240.0	17.01	16.83	5.35
12,439.0	37.48	9.76	12,405.6	-215.5	-83.7	-213.9	13.00	12.36	-7.11
12,486.0	40.29	12.40	12,442.2	-186.5	-78.0	-185.1	6.94	5.98	5.62
12,533.0	45.75	9.24	12,476.5	-155.0	-72.0	-153.7	12.49	11.62	-6.72
12,580.0	53.49	6.95	12,506.9	-119.6	-67.1	-118.4	16.88	16.47	-4.87
12,627.0	60.70	6.78	12,532.5	-80.5	-62.3	-79.3	15.34	15.34	-0.36
12,674.0	65.98	5.72	12,553.5	-38.7	-57.8	-37.7	11.41	11.23	-2.26
12,694.9	68.80	4.84	12,561.6	-19.5	-56.0	-18.5	14.02	13.48	-4.20
FTP(END 26 ST Com #704H)									
12,721.0	72.32	3.79	12,570.3	5.0	-54.2	6.0	14.02	13.50	-4.03
12,768.0	80.94	2.03	12,581.1	50.6	-51.8	51.6	18.70	18.34	-3.74
12,796.0	84.46	0.10	12,584.7	78.4	-51.3	79.3	14.31	12.57	-6.89
12,800.0	83.99	0.02	12,585.1	82.4	-51.3	83.3	12.00	-11.82	-2.10
12,826.0	80.92	359.47	12,588.5	108.2	-51.4	109.1	12.00	-11.82	-2.11
12,850.0	83.54	358.27	12,591.7	131.9	-51.9	132.8	12.00	10.93	-5.00
12,875.0	86.27	357.03	12,594.0	156.8	-52.9	157.7	12.00	10.94	-4.95
12,900.0	89.01	355.80	12,595.0	181.7	-54.5	182.7	12.00	10.95	-4.92
12,925.0	91.75	354.57	12,594.8	206.6	-56.6	207.6	12.00	10.95	-4.91
12,936.4	93.00	354.01	12,594.4	218.0	-57.7	219.0	12.00	10.95	-4.92
13,000.0	93.00	354.01	12,591.0	281.1	-64.4	282.3	0.00	0.00	0.00
13,085.0	93.00	354.01	12,586.6	365.6	-73.2	366.8	0.00	0.00	0.00
13,100.0	92.73	354.54	12,585.8	380.5	-74.7	381.8	4.00	-1.84	3.55
13,200.0	90.88	358.09	12,582.7	480.2	-81.1	481.6	4.00	-1.85	3.55
13,242.6	90.09	359.60	12,582.3	522.7	-82.0	524.1	4.00	-1.85	3.55
13,300.0	90.09	359.60	12,582.2	580.2	-82.4	581.6	0.00	0.00	0.00
13,400.0	90.09	359.60	12,582.1	680.2	-83.1	681.6	0.00	0.00	0.00
13,500.0	90.09	359.60	12,581.9	780.2	-83.8	781.6	0.00	0.00	0.00
13,600.0	90.09	359.60	12,581.8	880.2	-84.5	881.5	0.00	0.00	0.00
13,700.0	90.09	359.60	12,581.6	980.2	-85.2	981.5	0.00	0.00	0.00
13,800.0	90.09	359.60	12,581.4	1,080.2	-85.9	1,081.5	0.00	0.00	0.00
13,900.0	90.09	359.60	12,581.3	1,180.2	-86.6	1,181.5	0.00	0.00	0.00
14,000.0	90.09	359.60	12,581.1	1,280.2	-87.3	1,281.5	0.00	0.00	0.00
14,100.0	90.09	359.60	12,581.0	1,380.2	-88.0	1,381.5	0.00	0.00	0.00

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 Survey Calculation Method: Minimum Curvature

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)
14,200.0	90.09	359.60	12,580.8	1,480.2	-88.7	1,481.5	0.00	0.00	0.00
14,300.0	90.09	359.60	12,580.7	1,580.2	-89.4	1,581.5	0.00	0.00	0.00
14,400.0	90.09	359.60	12,580.5	1,680.2	-90.1	1,681.5	0.00	0.00	0.00
14,500.0	90.09	359.60	12,580.3	1,780.2	-90.8	1,781.5	0.00	0.00	0.00
14,600.0	90.09	359.60	12,580.2	1,880.2	-91.5	1,881.5	0.00	0.00	0.00
14,700.0	90.09	359.60	12,580.0	1,980.1	-92.2	1,981.5	0.00	0.00	0.00
14,719.2	90.09	359.60	12,580.0	1,999.4	-92.3	2,000.7	0.00	0.00	0.00
TGT#1(END 26 ST Com #704H)									
14,719.6	90.09	359.60	12,580.0	1,999.7	-92.3	2,001.0	0.00	0.00	0.00
14,726.4	89.95	359.60	12,580.0	2,006.5	-92.3	2,007.8	2.00	-2.00	-0.07
14,800.0	89.95	359.60	12,580.1	2,080.1	-92.9	2,081.5	0.00	0.00	0.00
14,900.0	89.95	359.60	12,580.1	2,180.1	-93.6	2,181.5	0.00	0.00	0.00
15,000.0	89.95	359.60	12,580.2	2,280.1	-94.3	2,281.5	0.00	0.00	0.00
15,100.0	89.95	359.60	12,580.3	2,380.1	-95.0	2,381.5	0.00	0.00	0.00
15,200.0	89.95	359.60	12,580.4	2,480.1	-95.7	2,481.5	0.00	0.00	0.00
15,300.0	89.95	359.60	12,580.5	2,580.1	-96.4	2,581.4	0.00	0.00	0.00
15,400.0	89.95	359.60	12,580.5	2,680.1	-97.1	2,681.4	0.00	0.00	0.00
15,500.0	89.95	359.60	12,580.6	2,780.1	-97.8	2,781.4	0.00	0.00	0.00
15,600.0	89.95	359.60	12,580.7	2,880.1	-98.5	2,881.4	0.00	0.00	0.00
15,700.0	89.95	359.60	12,580.8	2,980.1	-99.2	2,981.4	0.00	0.00	0.00
15,800.0	89.95	359.60	12,580.9	3,080.1	-99.9	3,081.4	0.00	0.00	0.00
15,900.0	89.95	359.60	12,580.9	3,180.1	-100.6	3,181.4	0.00	0.00	0.00
16,000.0	89.95	359.60	12,581.0	3,280.1	-101.3	3,281.4	0.00	0.00	0.00
16,100.0	89.95	359.60	12,581.1	3,380.1	-102.0	3,381.4	0.00	0.00	0.00
16,200.0	89.95	359.60	12,581.2	3,480.1	-102.8	3,481.4	0.00	0.00	0.00
16,300.0	89.95	359.60	12,581.3	3,580.1	-103.5	3,581.4	0.00	0.00	0.00
16,400.0	89.95	359.60	12,581.3	3,680.1	-104.2	3,681.4	0.00	0.00	0.00
16,500.0	89.95	359.60	12,581.4	3,780.1	-104.9	3,781.4	0.00	0.00	0.00
16,600.0	89.95	359.60	12,581.5	3,880.1	-105.6	3,881.4	0.00	0.00	0.00
16,700.0	89.95	359.60	12,581.6	3,980.1	-106.3	3,981.4	0.00	0.00	0.00
16,800.0	89.95	359.60	12,581.7	4,080.1	-107.0	4,081.4	0.00	0.00	0.00
16,900.0	89.95	359.60	12,581.7	4,180.1	-107.7	4,181.4	0.00	0.00	0.00
17,000.0	89.95	359.60	12,581.8	4,280.1	-108.4	4,281.3	0.00	0.00	0.00
17,100.0	89.95	359.60	12,581.9	4,380.1	-109.1	4,381.3	0.00	0.00	0.00
17,200.0	89.95	359.60	12,582.0	4,480.1	-109.8	4,481.3	0.00	0.00	0.00
17,219.2	89.95	359.60	12,582.0	4,499.2	-109.9	4,500.5	0.00	0.00	0.00
TGT#2(END 26 ST Com #704H)									
17,219.5	89.95	359.60	12,582.0	4,499.6	-109.9	4,500.8	0.00	0.00	0.00
17,221.5	89.92	359.60	12,582.0	4,501.5	-110.0	4,502.8	2.00	-2.00	0.03
17,300.0	89.92	359.60	12,582.1	4,580.1	-110.5	4,581.3	0.00	0.00	0.00
17,400.0	89.92	359.60	12,582.3	4,680.1	-111.2	4,681.3	0.00	0.00	0.00
17,500.0	89.92	359.60	12,582.4	4,780.1	-111.9	4,781.3	0.00	0.00	0.00
17,600.0	89.92	359.60	12,582.6	4,880.1	-112.6	4,881.3	0.00	0.00	0.00
17,700.0	89.92	359.60	12,582.7	4,980.1	-113.3	4,981.3	0.00	0.00	0.00
17,800.0	89.92	359.60	12,582.9	5,080.1	-114.0	5,081.3	0.00	0.00	0.00
17,900.0	89.92	359.60	12,583.0	5,180.1	-114.7	5,181.3	0.00	0.00	0.00
18,000.0	89.92	359.60	12,583.2	5,280.1	-115.5	5,281.3	0.00	0.00	0.00
18,100.0	89.92	359.60	12,583.3	5,380.1	-116.2	5,381.3	0.00	0.00	0.00
18,200.0	89.92	359.60	12,583.5	5,480.1	-116.9	5,481.3	0.00	0.00	0.00
18,300.0	89.92	359.60	12,583.6	5,580.1	-117.6	5,581.3	0.00	0.00	0.00
18,400.0	89.92	359.60	12,583.7	5,680.1	-118.3	5,681.3	0.00	0.00	0.00
18,500.0	89.92	359.60	12,583.9	5,780.1	-119.0	5,781.3	0.00	0.00	0.00
18,600.0	89.92	359.60	12,584.0	5,880.0	-119.7	5,881.2	0.00	0.00	0.00
18,700.0	89.92	359.60	12,584.2	5,980.0	-120.4	5,981.2	0.00	0.00	0.00

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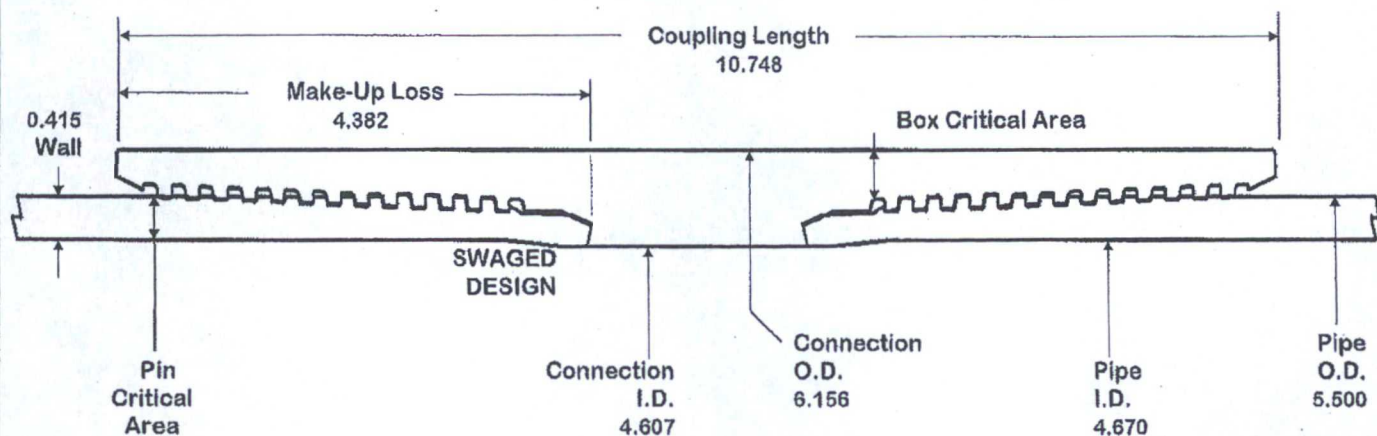
Planned Survey

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)
18,800.0	89.92	359.60	12,584.3	6,080.0	-121.1	6,081.2	0.00	0.00	0.00
18,900.0	89.92	359.60	12,584.5	6,180.0	-121.8	6,181.2	0.00	0.00	0.00
19,000.0	89.92	359.60	12,584.6	6,280.0	-122.5	6,281.2	0.00	0.00	0.00
19,100.0	89.92	359.60	12,584.8	6,380.0	-123.2	6,381.2	0.00	0.00	0.00
19,200.0	89.92	359.60	12,584.9	6,480.0	-123.9	6,481.2	0.00	0.00	0.00
19,300.0	89.92	359.60	12,585.1	6,580.0	-124.6	6,581.2	0.00	0.00	0.00
19,400.0	89.92	359.60	12,585.2	6,680.0	-125.3	6,681.2	0.00	0.00	0.00
19,500.0	89.92	359.60	12,585.4	6,780.0	-126.0	6,781.2	0.00	0.00	0.00
19,600.0	89.92	359.60	12,585.5	6,880.0	-126.7	6,881.2	0.00	0.00	0.00
19,700.0	89.92	359.60	12,585.7	6,980.0	-127.4	6,981.2	0.00	0.00	0.00
19,800.0	89.92	359.60	12,585.8	7,080.0	-128.1	7,081.2	0.00	0.00	0.00
19,900.0	89.92	359.60	12,586.0	7,180.0	-128.8	7,181.2	0.00	0.00	0.00
19,921.6	89.92	359.60	12,586.0	7,201.6	-129.0	7,202.8	0.00	0.00	0.00
PBHL(END 26 ST Com #704H)									
19,922.0	89.92	359.60	12,586.0	7,202.0	-129.0	7,203.2	0.00	0.00	0.00

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
TGT#1(END 26 ST Com	0.00	0.00	12,580.0	1,999.7	-42.3	367,059.70	748,723.67	32° 0' 23.843 N	103° 31' 51.380 W
- hit/miss target									
- plan misses target center by 50.0usft at 14719.2usft MD (12580.0 TVD, 1999.4 N, -92.3 E)									
- Point									
TGT#2(END 26 ST Com	0.00	0.01	12,582.0	4,499.6	-59.9	369,559.60	748,706.05	32° 0' 48.583 N	103° 31' 51.370 W
- hit/miss target									
- plan misses target center by 50.0usft at 17219.2usft MD (12582.0 TVD, 4499.2 N, -109.9 E)									
- Point									
FTP(END 26 ST Com #i	0.00	0.00	12,583.0	-30.0	-28.0	365,030.00	748,738.00	32° 0' 3.757 N	103° 31' 51.389 W
- hit/miss target									
- plan misses target center by 36.8usft at 12694.9usft MD (12561.6 TVD, -19.5 N, -56.0 E)									
- Point									
PBHL(END 26 ST Com	90.00	359.59	12,586.0	7,202.0	-79.0	372,262.00	748,687.00	32° 1' 15.327 N	103° 31' 51.358 W
- hit/miss target									
- plan misses target center by 50.0usft at 19921.6usft MD (12586.0 TVD, 7201.6 N, -129.0 E)									
- Rectangle (sides W60.0 H0.0 D7,232.8)									

VAM® TOP HT



O.D. 5.500	WEIGHT 23.00	WALL 0.415	GRADE NSSMC P110HC	DRIFT 4.545
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PIPE BODY PROPERTIES

Material Grade	NSSMC P110HC
Min. Yield Strength	125 ksi
Min. Tensile Strength	125 ksi
Outside Diameter	5.500 in
Inside Diameter	4.670 in
Nominal Area	6.630 sq.in.
Yield Strength	829 kips
Ultimate Strength	829 kips
Min Internal Yield	16,510 psi
*High Collapse	16,220 psi

CONNECTION PROPERTIES

Connection OD	6.156 in
Connection ID	4.607 in
Make up Loss	4.382 in
Coupling Length	10.748 in
Box Critical Area	6.757 sq.in.
%PB Section Area	101.9%
Pin Critical Area	6.630 sq.in.
%PB Section Area	100.0%
Yield Strength	829 kips
Parting Load	829 kips
Min Internal Yield	16,510 psi
*High Collapse	16,220 psi
Wk Compression	663 kips
Max Pure Bending	30 °/100 ft

Contact: tech.support@vam-usa.com

Ref. Drawing: SI-PD 100526 Rev.B

Date: 30-Apr-15

Time: 10:24 AM

TORQUE DATA ft-lb

min	opt	max
13,700	15,200	16,700

Max. Liner Torque : 20,000 ft-lb



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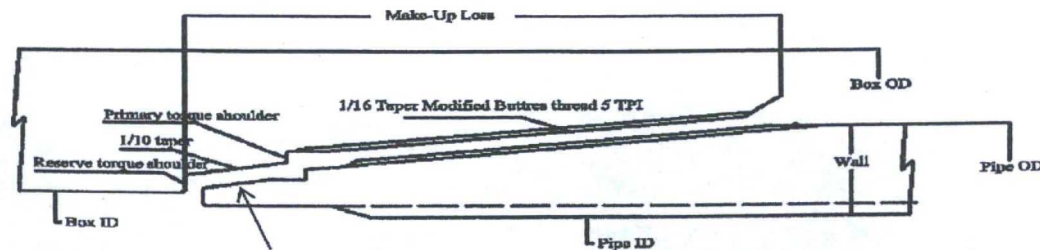
Pipe Description				
Size	Weight	Wall	Grade	Connection
5.000"	23.20#	0.478"	T-95	NS-CC

Performance Properties	
Yield (x 1000 lbs.)	645
Internal Pressure (psi)	15890
Collapse (psi)	16430
Tension (x 1000 lbs.)	659
Compression (x 1000 lbs.)	659

Connection Dimensions	
Pipe ID	4.044"
Pin ID	4.160"
Coupling ID	4.145"
Coupling OD	5.720"
Special Clearance	5.407"
Coupling Length	9.976"
Pin Lc Length	2.008"
Drift Diameter	3.919"

Make-Up				
Torque Min. (ft. lbs.)	Torque Opt. (ft. lbs.)	Torque Max (ft. lbs.)	MakeUp Loss	MakeUp Speed
4800	5400	6100	4.690"	10 rpm Max

Recommended Thread Compound: API Modified Running Compound, such as Best-of-Life 72733



VAM SG

Connection Data Sheet

O.D (in)	WEIGHT (lb/ft)	WALL (in)	GRADE	DRIFT	CONNECTION
5.500	23.00	0.415	VST P110EC	4.545	VAM® SG

PIPE PROPERTIES	
Material Grade	VST P110EC
Min. Yield Strength	125 ksi
Min. Tensile Strength	135 ksi
Nominal OD	5.500 in
Nominal ID	4.670 in
Nominal Area	6.630 sq. in
Yield Strength	829 kips
Ultimate Strength	895 kips
Min Internal Yield	16,510 psi
*High Collapse	16,220 psi

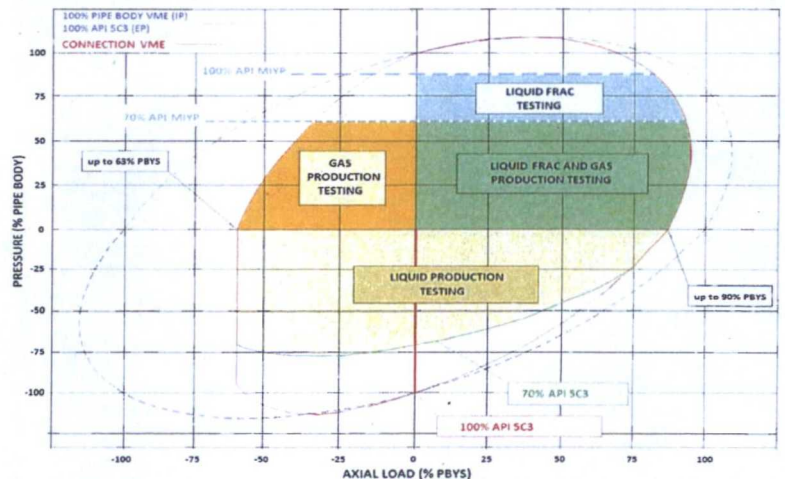
CONNECTION PROPERTIES	
Connection OD	5.720 in
Connection ID	4.603 in
Make up Loss	6.503 in
Connection Critical Area	5.967 sq. in
%PB Section Area	90.0%
Yield Strength	746 kips
Parting Load	805 kips
Min Internal Yield	16,510 psi
*High Collapse	11,350 psi
Working Compression	522 kips
Max. Bending w/ Sealability	40 °/100 ft

DOCUMENTATION	
Ref. Drawing	SI-PD 100835 Rev.A
Date	11-Aug-14
Time	1:21 PM
Email	tech.support@vam-usa.com

TORQUE VALUES	
Min Make Up Torque	9,100 ft-lb
Opt Make Up Torque	11,200 ft-lb
Max Make Up Torque	13,300 ft-lb
Max Torque w/ Sealability	14,500 ft-lb

The single solution for Shale Play needs

VAM® SG brings VAM® premium sealing performance to a semi-flush connection with extremely high Tension performance and increased Torque capacity, validated to the specific Shale drilling requirements, while remaining highly competitive in North American Shale play economics.



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