

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTCarlsbad Field Office
HOBBS
OCD Hobbs
RECEIVED
SEP 24 2019FORM APPROVED
OMB NO. 1004-0137
Expires: January 31, 2018**SUNDRY NOTICES AND REPORTS ON WELLS**
*Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.***SUBMIT IN TRIPLICATE - Other Instructions on page 2**

1. Type of Well ☒ Oil Well ☐ Gas Well ☐ Other		5. Lease Serial No. NMNM12280
2. Name of Operator FRANKLIN MOUNTAIN ENERGY LLC - Mail: swagner@concho.com		6. If Indian, Allottee or Tribe Name
3a. Address 2401 E 2ND AVE SUITE 300 DENVER, CO 80206		7. If Unit or CA/Agreement, Name and/or No.
3b. Phone No. (include area code) Ph: 432-253-9685		8. Well Name and No. TATANKA FEDERAL 004H
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Sec 11 T26S R35E SWSW 230FSL 436FEL 32.051151 N Lat, 103.331177 W Lon		9. API Well No. 30-025-44570-00-X1
		10. Field and Pool or Exploratory Area WOLFCAMP
		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 Plans	☐ Plug and Abandon	☐ Temporarily Abandon	Change to Original APD
	☐ 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 recomple 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 recomple 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.

COG Operating requests an amendment to our approved APD for this well to reflect a changes in the drilling procedure and BHL as attached.

The operator request to use multi-bowl wellhead assembly.

The Operator respectfully requests to preset the surface casing on the subject well.

Change BHL to 50' FNL & 990' FEL NENE 2-26S-35E

* CORRECTED SUNDRY *

All previous Conditions of Approval still apply. DR

14. I hereby certify that the foregoing is true and correct.	
Electronic Submission #482910 verified by the BLM Well Information System For FRANKLIN MOUNTAIN ENERGY LLC, sent to the Hobbs Committed to AFMSS for processing by PRISCILLA PEREZ on 09/12/2019 (19PP3121SE)	
Name (Printed/Typed) STAN WAGNER	Title REGULATORY ADVISOR
Signature (Electronic Submission)	Date 09/11/2019

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By <u>DYLAN ROSSMANGO</u>	Title <u>PETROLEUM ENGINEER</u>	Date <u>09/12/2019</u>
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 ****

NORTHERN DELAWARE BASIN

LEA COUNTY, NM

BULLDOG

TATANKA FED COM #4H

OWB

Plan: PWP1

Standard Survey Report

11 September, 2019

Survey Report

Company: NORTHERN DELAWARE BASIN
Project: LEA COUNTY, NM
Site: BULLDOG
Well: TATANKA FED COM #4H
Wellbore: OWB
Design: PWP1

Local Co-ordinate Reference: Well TATANKA FED COM#4H
TVD Reference: KB=25' @ 3052.1usft (Lattshaw 44)
MD Reference: KB=25' @ 3052.1usft (Lattshaw 44)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM_Users

Project	LEA COUNTY, NM		
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 BULLDOG

Site Position: Northing: 398,637.10 usft Latitude: 32° 5' 36.820 N
From: Map Easting: 741,887.40 usft Longitude: 103° 33' 8.116 W
Position Uncertainty: 0.0 usft Slot Radius: 13-3/16 " Grid Convergence: 0.42 °

Well TATANKA FED COM #4H
Well Position +N/-S 0.0 usft Northing: 383,730.80 usft Latitude: 32° 3' 3.692 N
+E/-W 0.0 usft Easting: 810,641.00 usft Longitude: 103° 19' 50.575 W
Position Uncertainty 3.0 usft Wellhead Elevation: usft Ground Level: 3,027.1 usft

Wellbore OWB

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	9/11/2019	6.58	59.91	47,633.58422510

Design PWP1

Audit Notes:

Version: Phase: PLAN Tie On Depth: 0.0

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	356.36

Survey Tool Program Date 9/6/2019

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	11,779.0	PWP1 (OWB)	Standard Keeper 104	Standard Wireline Keeper ver 1.0.4
11,799.0	22,588.7	PWP1 (OWB)	MWD+IFR1+FDIR	OWSG MWD + IFR1 + FDIR Correction

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
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	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)
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	0.00
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	0.00
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	0.00
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	0.00
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	0.00
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	0.00
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	0.00
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	0.00
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	0.00
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	0.00
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	0.00
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	0.00
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	0.00
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	0.00
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	0.00
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	0.00
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.0	0.00	0.00	0.00
4,600.0	0.00	0.00	4,600.0	0.0	0.0	0.0	0.00	0.00	0.00
4,700.0	0.00	0.00	4,700.0	0.0	0.0	0.0	0.00	0.00	0.00
4,800.0	0.00	0.00	4,800.0	0.0	0.0	0.0	0.00	0.00	0.00
4,900.0	0.00	0.00	4,900.0	0.0	0.0	0.0	0.00	0.00	0.00
5,000.0	0.00	0.00	5,000.0	0.0	0.0	0.0	0.00	0.00	0.00
5,100.0	0.00	0.00	5,100.0	0.0	0.0	0.0	0.00	0.00	0.00
5,200.0	0.00	0.00	5,200.0	0.0	0.0	0.0	0.00	0.00	0.00

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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)
5,300.0	0.00	0.00	5,300.0	0.0	0.0	0.0	0.00	0.00	0.00
5,400.0	0.00	0.00	5,400.0	0.0	0.0	0.0	0.00	0.00	0.00
5,500.0	0.00	0.00	5,500.0	0.0	0.0	0.0	0.00	0.00	0.00
Start Build 2.00									
5,600.0	2.00	250.24	5,600.0	-0.6	-1.6	-0.5	2.00	2.00	0.00
5,700.0	4.00	250.24	5,699.8	-2.4	-6.6	-1.9	2.00	2.00	0.00
5,754.8	5.10	250.24	5,754.5	-3.8	-10.7	-3.1	2.00	2.00	0.00
Start 6020.7 hold at 5754.8 MD									
5,800.0	5.10	250.24	5,799.5	-5.2	-14.4	-4.3	0.00	0.00	0.00
5,900.0	5.10	250.24	5,899.1	-8.2	-22.8	-6.7	0.00	0.00	0.00
6,000.0	5.10	250.24	5,998.7	-11.2	-31.2	-9.2	0.00	0.00	0.00
6,100.0	5.10	250.24	6,098.3	-14.2	-39.5	-11.7	0.00	0.00	0.00
6,200.0	5.10	250.24	6,197.9	-17.2	-47.9	-14.1	0.00	0.00	0.00
6,300.0	5.10	250.24	6,297.5	-20.2	-56.2	-16.6	0.00	0.00	0.00
6,400.0	5.10	250.24	6,397.1	-23.2	-64.6	-19.0	0.00	0.00	0.00
6,500.0	5.10	250.24	6,496.7	-26.2	-73.0	-21.5	0.00	0.00	0.00
6,600.0	5.10	250.24	6,596.3	-29.2	-81.3	-24.0	0.00	0.00	0.00
6,700.0	5.10	250.24	6,695.9	-32.2	-89.7	-26.4	0.00	0.00	0.00
6,800.0	5.10	250.24	6,795.5	-35.2	-98.0	-28.9	0.00	0.00	0.00
6,900.0	5.10	250.24	6,895.1	-38.2	-106.4	-31.4	0.00	0.00	0.00
7,000.0	5.10	250.24	6,994.7	-41.2	-114.8	-33.8	0.00	0.00	0.00
7,100.0	5.10	250.24	7,094.3	-44.2	-123.1	-36.3	0.00	0.00	0.00
7,200.0	5.10	250.24	7,194.0	-47.2	-131.5	-38.8	0.00	0.00	0.00
7,300.0	5.10	250.24	7,293.6	-50.2	-139.8	-41.2	0.00	0.00	0.00
7,400.0	5.10	250.24	7,393.2	-53.2	-148.2	-43.7	0.00	0.00	0.00
7,500.0	5.10	250.24	7,492.8	-56.2	-156.6	-46.2	0.00	0.00	0.00
7,600.0	5.10	250.24	7,592.4	-59.2	-164.9	-48.6	0.00	0.00	0.00
7,700.0	5.10	250.24	7,692.0	-62.2	-173.3	-51.1	0.00	0.00	0.00
7,800.0	5.10	250.24	7,791.6	-65.2	-181.6	-53.6	0.00	0.00	0.00
7,900.0	5.10	250.24	7,891.2	-68.2	-190.0	-56.0	0.00	0.00	0.00
8,000.0	5.10	250.24	7,990.8	-71.2	-198.4	-58.5	0.00	0.00	0.00
8,100.0	5.10	250.24	8,090.4	-74.2	-206.7	-61.0	0.00	0.00	0.00
8,200.0	5.10	250.24	8,190.0	-77.2	-215.1	-63.4	0.00	0.00	0.00
8,300.0	5.10	250.24	8,289.6	-80.2	-223.4	-65.9	0.00	0.00	0.00
8,400.0	5.10	250.24	8,389.2	-83.2	-231.8	-68.3	0.00	0.00	0.00
8,500.0	5.10	250.24	8,488.8	-86.3	-240.2	-70.8	0.00	0.00	0.00
8,600.0	5.10	250.24	8,588.4	-89.3	-248.5	-73.3	0.00	0.00	0.00
8,700.0	5.10	250.24	8,688.0	-92.3	-256.9	-75.7	0.00	0.00	0.00
8,800.0	5.10	250.24	8,787.6	-95.3	-265.2	-78.2	0.00	0.00	0.00
8,900.0	5.10	250.24	8,887.2	-98.3	-273.6	-80.7	0.00	0.00	0.00
9,000.0	5.10	250.24	8,986.8	-101.3	-282.0	-83.1	0.00	0.00	0.00
9,100.0	5.10	250.24	9,086.4	-104.3	-290.3	-85.6	0.00	0.00	0.00
9,200.0	5.10	250.24	9,186.0	-107.3	-298.7	-88.1	0.00	0.00	0.00
9,300.0	5.10	250.24	9,285.6	-110.3	-307.0	-90.5	0.00	0.00	0.00

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9,400.0	5.10	250.24	9,385.3	-113.3	-315.4	-93.0	0.00	0.00	0.00
9,500.0	5.10	250.24	9,484.9	-116.3	-323.8	-95.5	0.00	0.00	0.00
9,600.0	5.10	250.24	9,584.5	-119.3	-332.1	-97.9	0.00	0.00	0.00
9,700.0	5.10	250.24	9,684.1	-122.3	-340.5	-100.4	0.00	0.00	0.00
9,800.0	5.10	250.24	9,783.7	-125.3	-348.8	-102.9	0.00	0.00	0.00
9,900.0	5.10	250.24	9,883.3	-128.3	-357.2	-105.3	0.00	0.00	0.00
10,000.0	5.10	250.24	9,982.9	-131.3	-365.6	-107.8	0.00	0.00	0.00
10,100.0	5.10	250.24	10,082.5	-134.3	-373.9	-110.3	0.00	0.00	0.00
10,200.0	5.10	250.24	10,182.1	-137.3	-382.3	-112.7	0.00	0.00	0.00
10,300.0	5.10	250.24	10,281.7	-140.3	-390.6	-115.2	0.00	0.00	0.00
10,400.0	5.10	250.24	10,381.3	-143.3	-399.0	-117.7	0.00	0.00	0.00
10,500.0	5.10	250.24	10,480.9	-146.3	-407.4	-120.1	0.00	0.00	0.00
10,600.0	5.10	250.24	10,580.5	-149.3	-415.7	-122.6	0.00	0.00	0.00
10,700.0	5.10	250.24	10,680.1	-152.3	-424.1	-125.0	0.00	0.00	0.00
10,800.0	5.10	250.24	10,779.7	-155.3	-432.4	-127.5	0.00	0.00	0.00
10,900.0	5.10	250.24	10,879.3	-158.3	-440.8	-130.0	0.00	0.00	0.00
11,000.0	5.10	250.24	10,978.9	-161.3	-449.2	-132.4	0.00	0.00	0.00
11,100.0	5.10	250.24	11,078.5	-164.3	-457.5	-134.9	0.00	0.00	0.00
11,200.0	5.10	250.24	11,178.1	-167.3	-465.9	-137.4	0.00	0.00	0.00
11,300.0	5.10	250.24	11,277.7	-170.3	-474.2	-139.8	0.00	0.00	0.00
11,400.0	5.10	250.24	11,377.3	-173.3	-482.6	-142.3	0.00	0.00	0.00
11,500.0	5.10	250.24	11,477.0	-176.3	-491.0	-144.8	0.00	0.00	0.00
11,600.0	5.10	250.24	11,576.6	-179.3	-499.3	-147.2	0.00	0.00	0.00
11,700.0	5.10	250.24	11,676.2	-182.3	-507.7	-149.7	0.00	0.00	0.00
11,775.5	5.10	250.24	11,751.4	-184.6	-514.0	-151.6	0.00	0.00	0.00
Start DLS 10.00 TFO 109.14									
11,800.0	4.88	278.57	11,775.8	-184.8	-516.1	-151.6	10.00	-0.90	115.79
11,900.0	11.79	335.65	11,874.8	-174.8	-524.5	-141.2	10.00	6.91	57.08
12,000.0	21.30	346.98	11,970.6	-147.8	-532.8	-113.6	10.00	9.51	11.33
12,100.0	31.11	351.43	12,060.2	-104.4	-540.8	-69.9	10.00	9.81	4.45
12,200.0	41.01	353.90	12,140.9	-46.1	-548.1	-11.2	10.00	9.90	2.46
12,300.0	50.94	355.53	12,210.4	25.4	-554.7	60.6	10.00	9.93	1.64
12,400.0	60.88	356.77	12,266.3	107.9	-560.2	143.3	10.00	9.95	1.23
12,500.0	70.84	357.78	12,307.2	199.0	-564.5	234.4	10.00	9.96	1.01
12,600.0	80.80	358.67	12,331.6	295.7	-567.4	331.2	10.00	9.96	0.90
12,698.1	90.58	359.50	12,339.0	393.4	-569.0	428.8	10.00	9.96	0.85
Start 9890.7 hold at 12698.1 MD									
12,700.0	90.58	359.50	12,339.0	395.3	-569.0	430.7	0.00	0.00	0.00
12,800.0	90.58	359.50	12,338.0	495.3	-569.9	530.5	0.00	0.00	0.00
12,900.0	90.58	359.50	12,337.0	595.3	-570.8	630.4	0.00	0.00	0.00
13,000.0	90.58	359.50	12,335.9	695.3	-571.6	730.2	0.00	0.00	0.00
13,100.0	90.58	359.50	12,334.9	795.3	-572.5	830.1	0.00	0.00	0.00
13,200.0	90.58	359.50	12,333.9	895.3	-573.4	929.9	0.00	0.00	0.00

Survey Report

Company: NORTHERN DELAWARE BASIN
Project: LEA COUNTY, NM
Site: BULLDOG
Well: TATANKA FED COM #4H
Wellbore: OWB
Design: PWP1

Local Co-ordinate Reference: Well TATANKA FED COM#4H
TVD Reference: KB=25' @ 3052.1usft (Lattshaw 44)
MD Reference: KB=25' @ 3052.1usft (Lattshaw 44)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM_Users

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)
13,300.0	90.58	359.50	12,332.9	995.3	-574.2	1,029.8	0.00	0.00	0.00
13,400.0	90.58	359.50	12,331.9	1,095.3	-575.1	1,129.6	0.00	0.00	0.00
13,500.0	90.58	359.50	12,330.9	1,195.3	-576.0	1,229.4	0.00	0.00	0.00
13,600.0	90.58	359.50	12,329.9	1,295.2	-576.8	1,329.3	0.00	0.00	0.00
13,700.0	90.58	359.50	12,328.9	1,395.2	-577.7	1,429.1	0.00	0.00	0.00
13,800.0	90.58	359.50	12,327.9	1,495.2	-578.6	1,529.0	0.00	0.00	0.00
13,900.0	90.58	359.50	12,326.8	1,595.2	-579.4	1,628.8	0.00	0.00	0.00
14,000.0	90.58	359.50	12,325.8	1,695.2	-580.3	1,728.7	0.00	0.00	0.00
14,100.0	90.58	359.50	12,324.8	1,795.2	-581.2	1,828.5	0.00	0.00	0.00
14,200.0	90.58	359.50	12,323.8	1,895.2	-582.0	1,928.4	0.00	0.00	0.00
14,300.0	90.58	359.50	12,322.8	1,995.2	-582.9	2,028.2	0.00	0.00	0.00
14,400.0	90.58	359.50	12,321.8	2,095.2	-583.8	2,128.0	0.00	0.00	0.00
14,500.0	90.58	359.50	12,320.8	2,195.2	-584.6	2,227.9	0.00	0.00	0.00
14,600.0	90.58	359.50	12,319.8	2,295.2	-585.5	2,327.7	0.00	0.00	0.00
14,700.0	90.58	359.50	12,318.8	2,395.2	-586.4	2,427.6	0.00	0.00	0.00
14,800.0	90.58	359.50	12,317.7	2,495.1	-587.3	2,527.4	0.00	0.00	0.00
14,900.0	90.58	359.50	12,316.7	2,595.1	-588.1	2,627.3	0.00	0.00	0.00
15,000.0	90.58	359.50	12,315.7	2,695.1	-589.0	2,727.1	0.00	0.00	0.00
15,100.0	90.58	359.50	12,314.7	2,795.1	-589.9	2,827.0	0.00	0.00	0.00
15,200.0	90.58	359.50	12,313.7	2,895.1	-590.7	2,926.8	0.00	0.00	0.00
15,300.0	90.58	359.50	12,312.7	2,995.1	-591.6	3,026.6	0.00	0.00	0.00
15,400.0	90.58	359.50	12,311.7	3,095.1	-592.5	3,126.5	0.00	0.00	0.00
15,500.0	90.58	359.50	12,310.7	3,195.1	-593.3	3,226.3	0.00	0.00	0.00
15,600.0	90.58	359.50	12,309.7	3,295.1	-594.2	3,326.2	0.00	0.00	0.00
15,700.0	90.58	359.50	12,308.6	3,395.1	-595.1	3,426.0	0.00	0.00	0.00
15,800.0	90.58	359.50	12,307.6	3,495.1	-595.9	3,525.9	0.00	0.00	0.00
15,900.0	90.58	359.50	12,306.6	3,595.0	-596.8	3,625.7	0.00	0.00	0.00
16,000.0	90.58	359.50	12,305.6	3,695.0	-597.7	3,725.6	0.00	0.00	0.00
16,100.0	90.58	359.50	12,304.6	3,795.0	-598.5	3,825.4	0.00	0.00	0.00
16,200.0	90.58	359.50	12,303.6	3,895.0	-599.4	3,925.2	0.00	0.00	0.00
16,300.0	90.58	359.50	12,302.6	3,995.0	-600.3	4,025.1	0.00	0.00	0.00
16,400.0	90.58	359.50	12,301.6	4,095.0	-601.2	4,124.9	0.00	0.00	0.00
16,500.0	90.58	359.50	12,300.6	4,195.0	-602.0	4,224.8	0.00	0.00	0.00
16,600.0	90.58	359.50	12,299.5	4,295.0	-602.9	4,324.6	0.00	0.00	0.00
16,700.0	90.58	359.50	12,298.5	4,395.0	-603.8	4,424.5	0.00	0.00	0.00
16,800.0	90.58	359.50	12,297.5	4,495.0	-604.6	4,524.3	0.00	0.00	0.00
16,900.0	90.58	359.50	12,296.5	4,595.0	-605.5	4,624.2	0.00	0.00	0.00
17,000.0	90.58	359.50	12,295.5	4,694.9	-606.4	4,724.0	0.00	0.00	0.00
17,100.0	90.58	359.50	12,294.5	4,794.9	-607.2	4,823.8	0.00	0.00	0.00
17,200.0	90.58	359.50	12,293.5	4,894.9	-608.1	4,923.7	0.00	0.00	0.00
17,300.0	90.58	359.50	12,292.5	4,994.9	-609.0	5,023.5	0.00	0.00	0.00
17,400.0	90.58	359.50	12,291.5	5,094.9	-609.8	5,123.4	0.00	0.00	0.00
17,500.0	90.58	359.50	12,290.4	5,194.9	-610.7	5,223.2	0.00	0.00	0.00
17,600.0	90.58	359.50	12,289.4	5,294.9	-611.6	5,323.1	0.00	0.00	0.00

Survey Report

Company: NORTHERN DELAWARE BASIN
Project: LEA COUNTY, NM
Site: BULLDOG
Well: TATANKA FED COM #4H
Wellbore: OWB
Design: PWP1

Local Co-ordinate Reference: Well TATANKA FED COM#4H
TVD Reference: KB=25' @ 3052.1usft (Lattshaw 44)
MD Reference: KB=25' @ 3052.1usft (Lattshaw 44)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM_Users

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)
17,700.0	90.58	359.50	12,288.4	5,394.9	-612.4	5,422.9	0.00	0.00	0.00
17,800.0	90.58	359.50	12,287.4	5,494.9	-613.3	5,522.7	0.00	0.00	0.00
17,900.0	90.58	359.50	12,286.4	5,594.9	-614.2	5,622.6	0.00	0.00	0.00
18,000.0	90.58	359.50	12,285.4	5,694.9	-615.0	5,722.4	0.00	0.00	0.00
18,100.0	90.58	359.50	12,284.4	5,794.9	-615.9	5,822.3	0.00	0.00	0.00
18,200.0	90.58	359.50	12,283.4	5,894.8	-616.8	5,922.1	0.00	0.00	0.00
18,300.0	90.58	359.50	12,282.4	5,994.8	-617.7	6,022.0	0.00	0.00	0.00
18,400.0	90.58	359.50	12,281.3	6,094.8	-618.5	6,121.8	0.00	0.00	0.00
18,500.0	90.58	359.50	12,280.3	6,194.8	-619.4	6,221.7	0.00	0.00	0.00
18,600.0	90.58	359.50	12,279.3	6,294.8	-620.3	6,321.5	0.00	0.00	0.00
18,700.0	90.58	359.50	12,278.3	6,394.8	-621.1	6,421.3	0.00	0.00	0.00
18,800.0	90.58	359.50	12,277.3	6,494.8	-622.0	6,521.2	0.00	0.00	0.00
18,900.0	90.58	359.50	12,276.3	6,594.8	-622.9	6,621.0	0.00	0.00	0.00
19,000.0	90.58	359.50	12,275.3	6,694.8	-623.7	6,720.9	0.00	0.00	0.00
19,100.0	90.58	359.50	12,274.3	6,794.8	-624.6	6,820.7	0.00	0.00	0.00
19,200.0	90.58	359.50	12,273.3	6,894.8	-625.5	6,920.6	0.00	0.00	0.00
19,300.0	90.58	359.50	12,272.2	6,994.7	-626.3	7,020.4	0.00	0.00	0.00
19,400.0	90.58	359.50	12,271.2	7,094.7	-627.2	7,120.3	0.00	0.00	0.00
19,500.0	90.58	359.50	12,270.2	7,194.7	-628.1	7,220.1	0.00	0.00	0.00
19,600.0	90.58	359.50	12,269.2	7,294.7	-628.9	7,319.9	0.00	0.00	0.00
19,700.0	90.58	359.50	12,268.2	7,394.7	-629.8	7,419.8	0.00	0.00	0.00
19,800.0	90.58	359.50	12,267.2	7,494.7	-630.7	7,519.6	0.00	0.00	0.00
19,900.0	90.58	359.50	12,266.2	7,594.7	-631.5	7,619.5	0.00	0.00	0.00
20,000.0	90.58	359.50	12,265.2	7,694.7	-632.4	7,719.3	0.00	0.00	0.00
20,100.0	90.58	359.50	12,264.2	7,794.7	-633.3	7,819.2	0.00	0.00	0.00
20,200.0	90.58	359.50	12,263.1	7,894.7	-634.2	7,919.0	0.00	0.00	0.00
20,300.0	90.58	359.50	12,262.1	7,994.7	-635.0	8,018.9	0.00	0.00	0.00
20,400.0	90.58	359.50	12,261.1	8,094.6	-635.9	8,118.7	0.00	0.00	0.00
20,500.0	90.58	359.50	12,260.1	8,194.6	-636.8	8,218.5	0.00	0.00	0.00
20,600.0	90.58	359.50	12,259.1	8,294.6	-637.6	8,318.4	0.00	0.00	0.00
20,700.0	90.58	359.50	12,258.1	8,394.6	-638.5	8,418.2	0.00	0.00	0.00
20,800.0	90.58	359.50	12,257.1	8,494.6	-639.4	8,518.1	0.00	0.00	0.00
20,900.0	90.58	359.50	12,256.1	8,594.6	-640.2	8,617.9	0.00	0.00	0.00
21,000.0	90.58	359.50	12,255.1	8,694.6	-641.1	8,717.8	0.00	0.00	0.00
21,100.0	90.58	359.50	12,254.1	8,794.6	-642.0	8,817.6	0.00	0.00	0.00
21,200.0	90.58	359.50	12,253.0	8,894.6	-642.8	8,917.4	0.00	0.00	0.00
21,300.0	90.58	359.50	12,252.0	8,994.6	-643.7	9,017.3	0.00	0.00	0.00
21,400.0	90.58	359.50	12,251.0	9,094.6	-644.6	9,117.1	0.00	0.00	0.00
21,500.0	90.58	359.50	12,250.0	9,194.5	-645.4	9,217.0	0.00	0.00	0.00
21,600.0	90.58	359.50	12,249.0	9,294.5	-646.3	9,316.8	0.00	0.00	0.00
21,700.0	90.58	359.50	12,248.0	9,394.5	-647.2	9,416.7	0.00	0.00	0.00
21,800.0	90.58	359.50	12,247.0	9,494.5	-648.0	9,516.5	0.00	0.00	0.00
21,900.0	90.58	359.50	12,246.0	9,594.5	-648.9	9,616.4	0.00	0.00	0.00

Survey Report

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Site: BULLDOG
Well: TATANKA FED COM #4H
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MD Reference: KB=25' @ 3052.1usft (Lattshaw 44)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM_Users

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)
22,000.0	90.58	359.50	12,245.0	9,694.5	-649.8	9,716.2	0.00	0.00	0.00
22,100.0	90.58	359.50	12,243.9	9,794.5	-650.7	9,816.0	0.00	0.00	0.00
22,200.0	90.58	359.50	12,242.9	9,894.5	-651.5	9,915.9	0.00	0.00	0.00
22,300.0	90.58	359.50	12,241.9	9,994.5	-652.4	10,015.7	0.00	0.00	0.00
22,400.0	90.58	359.50	12,240.9	10,094.5	-653.3	10,115.6	0.00	0.00	0.00
22,500.0	90.58	359.50	12,239.9	10,194.5	-654.1	10,215.4	0.00	0.00	0.00
22,588.7	90.58	359.50	12,239.0	10,283.2	-654.9	10,304.0	0.00	0.00	0.00

TD at 22588.7

Design Targets

Target Name

- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- Shape									
BHL (TATANKA FED C - plan hits target center - Rectangle (sides W100.0 H10,436.0 D20.0)	0.58	179.50	12,239.0	10,283.2	-654.9	394,014.00	809,986.10	32° 4' 45.506 N	103° 19' 57.076 W
LTP (TATANKA FED C - plan misses target center by 38.7usft at 22500.0usft MD (12239.9 TVD, 10194.5 N, -654.1 E) - Point	0.00	0.00	12,239.5	10,233.2	-654.4	393,964.00	809,986.60	32° 4' 45.011 N	103° 19' 57.075 W
FTP (TATANKA FED C - plan misses target center by 452.3usft at 12400.0usft MD (12266.3 TVD, 107.9 N, -560.2 E) - Point	0.00	0.00	12,648.1	-134.6	-552.7	383,596.20	810,088.30	32° 3' 2.411 N	103° 19' 57.011 W

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
5500	5500	0	0	Start Build 2.00
5755	5754	-4	-11	Start 6020.7 hold at 5754.8 MD
11,776	11,751	-185	-514	Start DLS 10.00 TFO 109.14
12,698	12,339	393	-569	Start 9890.7 hold at 12698.1 MD
22,589	12,239	10,283	-655	TD at 22588.7

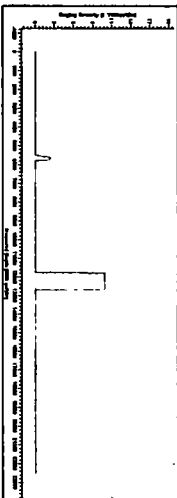
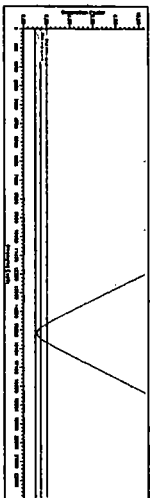
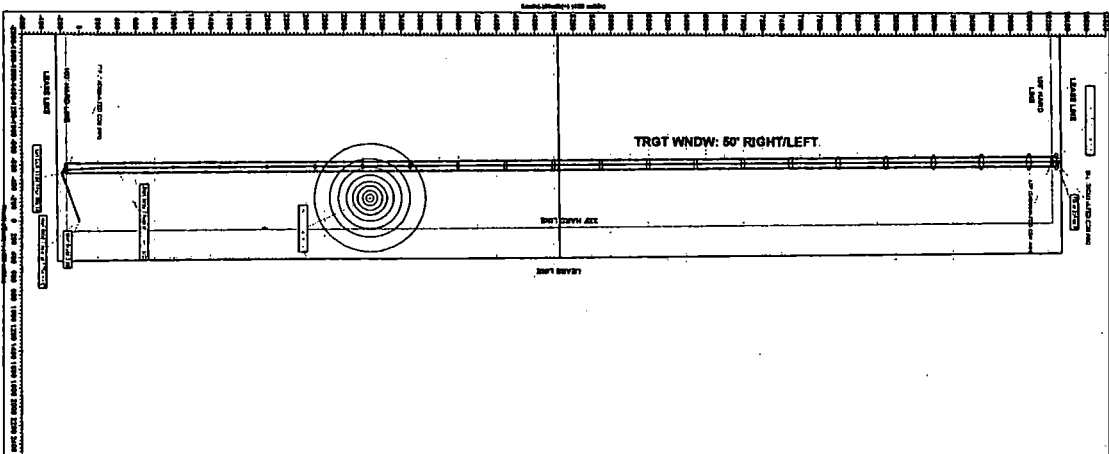
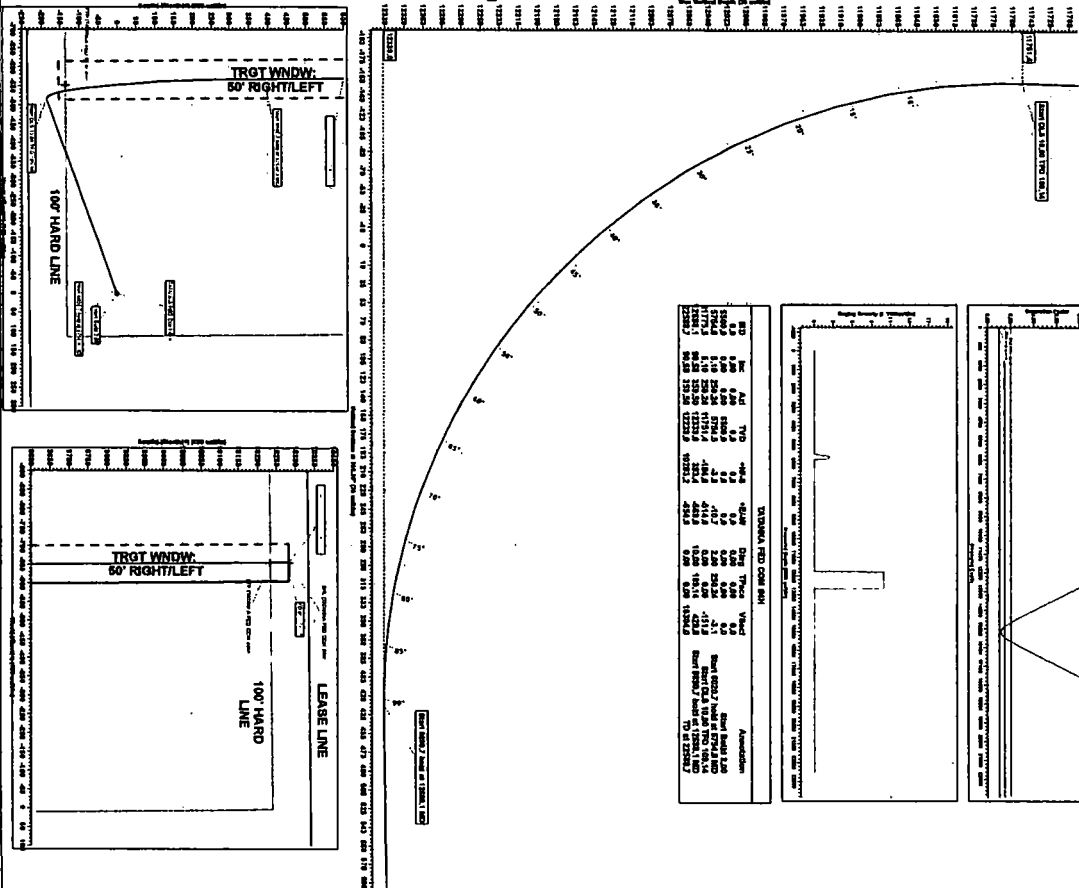
Checked By: _____ Approved By: _____ Date: _____

KB-205 © 2002, 1 inch (Lettichow 44)

KB-25 © 2002, (use Plutonium 44)

WELL DETAILS: TADUSCA FPD COM 80H			
DATE	TIME	READING	LENGTH
0.0	0.0	32778.25	107' 11" 60.15 W

DESIGN YOUR OWN

[illegible][illegible]

TRGT WINDW: 10
ABOVE/BELW

U.S. DEPARTMENT OF AGRICULTURE

The COG Operating LLC respectfully requests the following changes to our approved APD.

Wellhead

The operator requests to use multi-bowl wellhead assembly.

Surface

Drill 14.75" hole to 950'

Set 10.75" 45.5# L80 BTC casing @ 950'

Cement in one stage to surface:

Lead: 550 sx of Class C + 6% gel (13.5 ppg / 1.75 cuft/ sx)

Tail: 200 sx of Class C + 1% CaCl₂ (14.8 ppg/ 1.35 cuft/sx)

The Operator respectfully requests to preset the surface casing on the subject well.

Description of operations

1. Spudder rig will move in to drill the surface hole and pre-set surface casing on the well.
 - a. After drilling the surface hole section, the spudder rig will run casing and cement following all of the applicable rules and regulations (OnShore Order 2, all COAs and NMOCD regulations)
 - b. The spudder rig will utilize fresh water-based mud to drill the surface hole to TD. Solids control will be handled entirely on a closed loop basis. No earth pits will be used.
2. The wellhead will be installed and tested as soon as the surface casing is cut off and the WOC time has been reached.
3. A blind flange at the same pressure rating as the wellhead will be installed to seal the wellbore. Pressure will be monitored with needle valves installed on the wing valve.
4. Spudder rig operations are expected to take 2-3 days.
5. The BLM will be contacted and notified 24 hours prior to commencing spudder rig operations.
6. Drilling operations will begin with a larger rig and a BOP stack equal to or greater than the pressure rating that was permitted will be nipped up and tested on the wellhead before drilling operations resume on each well.
 - a. The larger rig will move back onto the location with 90 days from the point at which the wells are secured and spudder rig is moved off location.
 - b. The BLM will be contacted / notified 24 hours before the larger rig moves back on the pre-set locations
7. Operator will have supervision on the rig to ensure compliance with all BLM and NMOCD regulations and to oversee operations.
8. Once the rig is removed, Operator will secure the wellhead area by placing a 1 inch steel plate over the cellar and wellhead.

Intermediate

5M BOP System

Drill 9.875" hole to 11,650'

Set 7.625" 29.7# HCL-80 BTC @ 11,650'

Cement in two stages to surface with DV tool and ECP @ 5,000'

First Stage:

Lead: 700 sx of Halliburton NeoCem (11.0 ppg / 2.81 cuft/ sx)

Tail: 300 sx of Class H (16.4 ppg/ 1.10 cuft/sx)

Second Stage:

Lead: 900 sx of Halliburton NeoCem (11.0 ppg / 2.81 cuft/ sx)

Tail: 150 sx of Class C + 2% CaCl₂ (14.8 ppg/ 1.35 cuft/sx)

Production

10M BOP System (5M Annular variance approved with original APD)

Drill 6.75" hole to 22,589'

Set 5.5" 23# P110 BTC from 0' to 11,150' (500' inside intermediate casing)

Set 5.5" 23# P110 HC TMK UP SF Torq (spec sheet attached) from 11,150' to 22,589'

Cement in one stage to surface

Lead: 550 sx of 35:36:6 Class C (12.7 ppg / 1.98 cuft/ sx)

Tail: 2700 sx of 50:50:2 Class H Blend (14.4 ppg / 1.25 cuft/sx)

TECHNICAL DATA SHEET TMK UP SF_TORQ 5.5 X 23 P110 CY

TUBULAR PARAMETERS

Nominal OD, (inch)	5.500
Wall Thickness, (inch)	0.415
Pipe Grade	P110 CY
Coupling	Regular
Coupling Grade	P110 CY
Drift	Standard

CONNECTION PARAMETERS

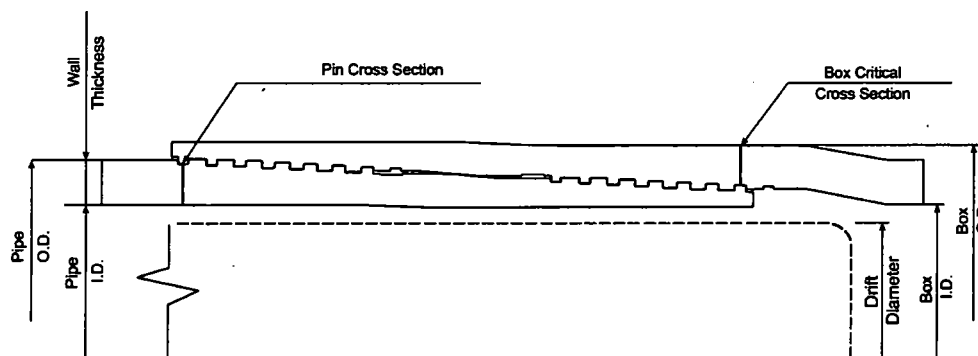
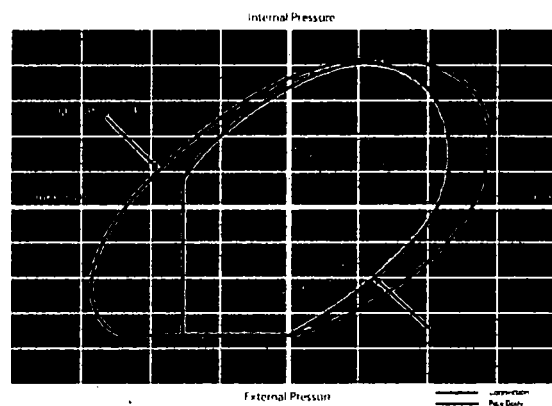
Connection OD (inch)	5.830
Connection ID, (inch)	4.626
Make-Up Loss, (inch)	5.592
Connection Critical Area, (sq inch)	7.007
Yield Strength in Tension, (klbs)	656
Yield Strength in Compression, (klbs)	656
Tension Efficiency	90%
Compression Efficiency	90%
Min. Internal Yield Pressure, (psi)	14 530
Collapse Pressure, (psi)	14 540
Uniaxial Bending (deg/100ft)	83.0

MAKE-UP TORQUES

Minimum Make-Up Torque, (ft-lb)	16 100
Optimum Make-Up Torque, (ft-lb)	23 000
Maximum Make-Up Torque, (ft-lb)	25 300
Operating Torque, (ft-lb)	34 500
Yield Torque, (ft-lb)	43 000

PIPE BODY PROPERTIES

PE Weight, (lbs/ft)	22.54
Nominal Weight, (lbs/ft)	23.00
Nominal ID, (inch)	4.670
Drift Diameter, (inch)	4.545
Nominal Pipe Body Area, (sq inch)	6.630
Yield Strength in Tension, (klbs)	729
Min. Internal Yield Pressure, (psi)	14 530
Collapse Pressure, (psi)	14 540
Minimum Yield Strength, (psi)	110 000
Minimum Tensile Strength, (psi)	125 000



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