

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

SUNDRY NOTICES AND REPORTS ON WELLS

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

Carlsbad Field Office
Old Artesia5. Lease Serial No.
NMNM81586

6. If Indian, Allottee or Tribe Name

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

SUBMIT IN TRIPLICATE - Other instructions on reverse side.8. Well Name and No.
CEDAR CANYON 22 FEDERAL 21H9. API Well No.
30-015-43642-00-X110. Field and Pool, or Exploratory
PIERCE CROSSING11. County or Parish, and State
EDDY COUNTY, NM

1. Type of Well

☒ Oil Well ☐ Gas Well ☐ Other2. Name of Operator
OXY USA INCORPORATEDContact: DAVID STEWART
E-Mail: david_stewart@oxy.com3a. Address
5 GREENWAY PLAZA SUITE 110
HOUSTON, TX 77046-05213b. Phone No. (include area code)
Ph: 432.685.5717

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

Sec 22 T24S R29E NESE 2540FSL 260FEL
32.202504 N Lat, 103.964108 W Lon

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 | Change to Original A |
| ☐ Convert to Injection | ☐ Plug Back | ☐ Water Disposal | PD |

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 recompleate 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 recompleation 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.)

NM OIL CONSERVATION
ARTESIA DISTRICT

OXY USA Inc. respectfully requests approval for the following changes to the approved APD:

1. Amend casing/cementing program - Amend for current casing inventories and updated directional plan.

Surface Casing
10-3/4" 40.5# J55 BTC new csg @ 0-480'. 14-3/4" hole
SF Coll-7.6 SF Burst-1.54 SF Ten-2.89Intermediate Casing - 7-5/8" new casing @ 0-8200'M, 9-7/8" hole
a. 7-5/8" 26.4# L-80 BTC new csg @ 0-6810'M
SF Coll-1.19 SF Burst-1.29 SF Ten-1.88

OCT 11 2016

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SEE ATTACHED FOR
CONDITIONS OF APPROVAL

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

Electronic Submission #351445 verified by the BLM Well Information System

For OXY USA INCORPORATED, sent to the Carlsbad

Committed to AFMSS for processing by DEBORAH MCKINNEY on 09/19/2016 (16DLM0924SE)

Name (Printed/Typed) DAVID STEWART

Title REGULATORY ADVISOR

Signature (Electronic Submission)

Date 09/15/2016

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By MUSTAFA HAQUE

Title PETROLEUM ENGINEER

Date 10/05/2016

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 Carlsbad

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 ****

Additional data for EC transaction #351445 that would not fit on the form

32. Additional remarks, continued

b. 7-5/8" 29.7# L-80 BTC new csg @ 6810-8310'M

SF Coll-1.13 SF Burst-1.43 SF Ten-3.43

OXY requests the option to set casing shallower yet still below the salts if losses or hole conditions require this. Cement volumes may be adjusted if casing is set shallower and a DV tool will be run at +/- 3102' in case a contingency second stage is required for cement to reach surface. If cement circulates on 1st stage, cancellation cone will be dropped.

Production Casing

a. 5-1/2" 20# P-110 USF new csg @ 0-9050'M. 6-3/4" hole

SF Coll-1.7 SF Burst-1.2 SF Ten-2.23

b. 4-1/2" 13.5# P-110 DQX new csg @ 9050-13726'M. 6-3/4" hole

SF Coll-1.7 SF Burst-1.2 SF Ten-1.96

Surface - Cement w/ 314sx PP cement w/ 2% CaCl₂, 14.8ppg 1.35 yield, 500# CS in 6.5hr, 50% Excess

Intermediate - Circulate cement w/ 879sx Tuned Light (TM) system cmt w/ 3#/sx Kol-Seal + .125#/sx Poly-E-Flake + .8% HR-601, 10.2ppg 3.05 yield, 500# CS in 15.07hr, 75% Excess followed by 163sx Super H cmt w/ 3#/sx salt + .1% HR-800 + .3% CFR-3 + .5% HR-344 + 2#/sx Kol-Seal, 13.2ppg 1.65 yield, 500# CS in 12.57hr, 20% Excess.

Contingency 2nd Stage - Circulate cement to surface w/ 492sx HES light PP cmt w/ 5% Salt + .35% HR-800 + 3#/sx Kol-Seal + .125#/sx Poly-E-Flake, 12.9ppg 1.85 yield, 500# CS in 12.44hr, 75% Excess followed by 182sx PP cmt, 14.8ppg 1.33 yield, 500# CS in 6.31hr, 125% Excess.

Production - Cement w/ 351sx Super H cmt w/ 3#/sx salt + .1% HR-800 + .4% CFR-3 + .5% HR-344, 13.2ppg 1.63 yield, 500# CS in 15.15hr, 15% Excess. TOC @ 7810'

Description of Cement Additives: Salt (Accelerator); CFR-3 (Dispersant); Kol-Seal, Poly-E-Flake (Lost Circulation Additive); HR-344 (Low Fluid Loss Control); HR-601, HR-800 (Retarder)

The above cement volumes could be revised pending the caliper measurement.

2. Mud program -

Depth	Mud WT	Vis Sec	Fluid Loss	Type
0 - 480'	8.4-8.6	40-60	N/C	EnerSeal (MMH)
480-3102'	9.8-10.0	35-45	N/C	Brine
3102-8310'	8.8-9.6	38-50	N/C	EnerSeal (MMH)
8310'-13726'	8.8-9.6	35-50	N/C	OBM

3. Start mudlogging from the intermediate casing shoe to TD.

4. Plan to drill the three well pad in batch by section: all surface sections, intermediate sections and production sections. The wellhead will be secured with a night cap whenever the rig is not over the well.

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**PECOS DISTRICT
CONDITIONS OF APPROVAL**

OPERATOR'S NAME:	OXY USA Inc
LEASE NO.:	NM81586
WELL NAME & NO.:	21H-Cedar Canyon 22 Federal
SURFACE HOLE FOOTAGE:	2540'/S & 260'/E
BOTTOM HOLE FOOTAGE:	1830'/N & 180'/W
LOCATION:	Section 22, T. 24 S., R. 29 E., NMPM
COUNTY:	Eddy County, New Mexico

All previous COAs still apply, except for the following:

Intermediate casing shall be kept fluid filled to meet the minimum collapse requirement.

If cement does not circulate to surface on the intermediate casing, the cement on the production casing must come to surface.

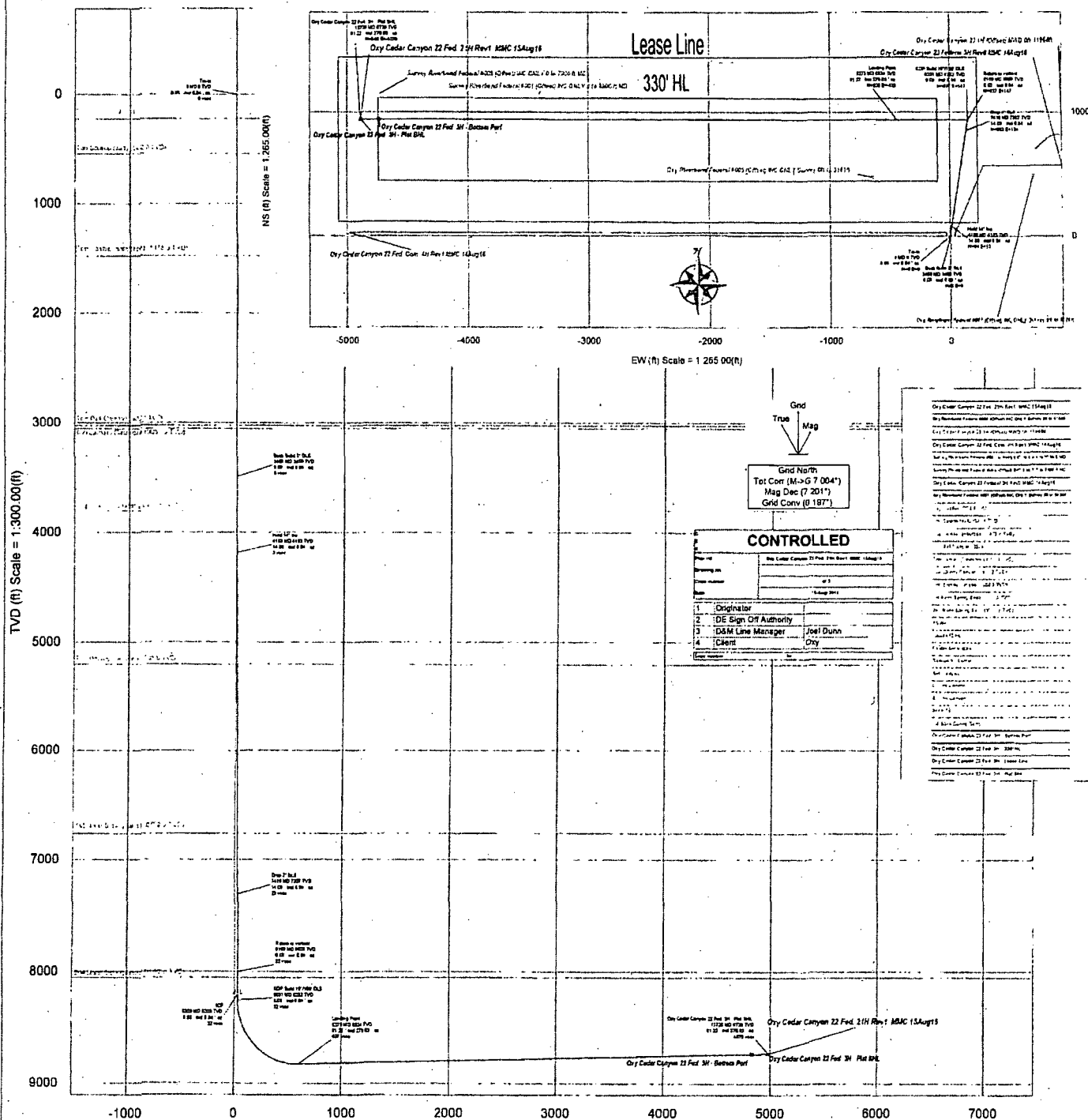
MHH 10052016

Structure:
Oxy Cedar Canyon 22 Fed. 21H

Slot: Ory Cedar Canyon TVD Ref: RUK(2854.0N) above MSL
 22 Feb. 21M
 On Cedar Canyon 22 Feb. 21M Band M8C 18AUM18

11

Tie-In	0 00	0 00	8 94	0 00	-2984 90	0 00	0 00	0 00	N	32 12	9 013	W 103 57 50 441	614235 88	437586 71	8 94
Back Build 2" DLS	3490 00	0 00	8 94	3490 00	505 10	0 00	0 00	0 00	N	32 12	9 013	W 103 57 50 441	614235 88	437586 71	0 00
Hold 14" Inc	4189 89	14 00	8 94	4182 95	1198 05	2 88	84 04	13 22	N	32 12	9 844	W 103 57 50 283	614249 10	437670 74	2 00
Drop 2" DLS	7409 60	14 00	8 94	7307 05	4322 15	29 24	853 38	134 25	N	32 12	17 453	W 103 57 48 844	614370 12	438440 02	180 00
Return to vertical	8109 49	0 00	8 94	8000 00	5015 10	32 12	937 41	147 47	N	32 12	18 284	W 103 57 48 687	614383 34	438524 05	2 00
ICP	8309 49	0 00	8 94	8200 00	5215 10	32 12	937 41	147 47	N	32 12	18 284	W 103 57 48 687	614383 34	438524 05	0 00
KOP Build 10"/100" DLS	8360 99	0 00	8 94	8251 50	5266 60	32 12	937 41	147 47	N	32 12	18 284	W 103 57 48 687	614383 34	438524 05	270 00
Landing Point	9273 15	91 22	270 03	8824 33	5839 43	606 76	937 68	-437 64	N	32 12	18 307	W 103 57 55 496	613798 28	438524 32	10 00
Oxy Cedar Canyon 22 Fed 3H - Plat BHL	13725 51	91 22	270 03	8779 29	5745 00	4978 49	939 72	-4889 00	N	32 12	18 475	W 103 58 47 301	609347 26	438526 36	0 00



Vertical Section (ft) Azim = 280.88° Scale = 1:300.00(ft) Origin = 0N/-S, 0E/-W

Oxy Cedar Canyon 22 Fed. 21H Rev1 MMC 15Aug16 Proposal Geodetic Report

(Non-Def Plan)



Report Date: August 15, 2016 - 05:48 PM
 Client: OXY
 Field: NM Eddy County (NAD 27)
 Structure / Site: Oxy Cedar Canyon 22 Fed 21H / Oxy Cedar Canyon 22 Fed 21H
 Well: Oxy Cedar Canyon 22 Fed 21H
 Borehole: Oxy Cedar Canyon 22 Fed 21H - Orig Borehole
 UWI / API#: Unknown / Unknown
 Survey Name: Oxy Cedar Canyon 22 Fed 21H Rev1 MMC 15Aug16
 Survey Date: October 28, 2015
 Tert / AMD / DOI / ERD Ratio: 119 211' : 5985 415 ft / 6 045 / 0 678
 Coordinate Reference System: NAD27 New Mexico State Plane Easton Zone, US Feet
 Location Lat / Long: N 32° 12' 9.01284" W 103° 57' 50.44068"
 Location Grid N/E UTM: N 437586 710 NUS E 614235 880 NUS
 CRS Grid Convergence Angle: 0.1968°
 Grid Scale Factor: 0.99992404
 Version / Patch: 2 9 370 0

Survey / DLS Computation: Minimum Curvature / Lubinski
 Vertical Section Azimuth: 280 880° (Grid North)
 Vertical Section Origin: 0 000 ft 0 000 ft
 TVD Reference Datum: RKB
 TVD Reference Elevation: 2964 900 ft above MSL
 Seabed / Ground Elevation: 2958 400 ft above MSL
 Magnetic Declination: 7.201°
 Total Gravity Field Strength: 998 4873mgn (9 80665 Based)
 Gravity Model: GARM
 Total Magnetic Field Strength: 48212 370 nT
 Magnetic Dip Angle: 60.052°
 Declination Date: August 15, 2016
 Magnetic Declination Model: HDGM 2016
 North Reference: Grid North
 Grid Convergence Used: 0.1968°
 Total Cor Mag North-Grid North: 7.0044°
 Local Coord Referenced To: Structure Reference Point

Comments	MD (ft)	Incl (°)	Azimuth (°)	TVD (ft)	VBEC (ft)	NS (ft)	EW (ft)	DLS (ft/100ft)	Northings (ft)	Easting (ft)	Latitude (N/S, °)	Longitude (E/W, °)
Tie-In	0.00	0.00	894	0.00	0.00	0.00	0.00	N/A	437586.71	614235.88	N 32 12 9.01	W 103 57 50.44
	100.00	0.00	894	100.00	0.00	0.00	0.00	0.00	437586.71	614235.88	N 32 12 9.01	W 103 57 50.44
	200.00	0.00	894	200.00	0.00	0.00	0.00	0.00	437586.71	614235.88	N 32 12 9.01	W 103 57 50.44
	300.00	0.00	894	300.00	0.00	0.00	0.00	0.00	437586.71	614235.88	N 32 12 9.01	W 103 57 50.44
	400.00	0.00	894	400.00	0.00	0.00	0.00	0.00	437586.71	614235.88	N 32 12 9.01	W 103 57 50.44
	500.00	0.00	894	500.00	0.00	0.00	0.00	0.00	437586.71	614235.88	N 32 12 9.01	W 103 57 50.44
	600.00	0.00	894	600.00	0.00	0.00	0.00	0.00	437586.71	614235.88	N 32 12 9.01	W 103 57 50.44
	700.00	0.00	894	700.00	0.00	0.00	0.00	0.00	437586.71	614235.88	N 32 12 9.01	W 103 57 50.44
	800.00	0.00	894	800.00	0.00	0.00	0.00	0.00	437586.71	614235.88	N 32 12 9.01	W 103 57 50.44
	900.00	0.00	894	900.00	0.00	0.00	0.00	0.00	437586.71	614235.88	N 32 12 9.01	W 103 57 50.44
	1000.00	0.00	894	1000.00	0.00	0.00	0.00	0.00	437586.71	614235.88	N 32 12 9.01	W 103 57 50.44
	1100.00	0.00	894	1100.00	0.00	0.00	0.00	0.00	437586.71	614235.88	N 32 12 9.01	W 103 57 50.44
	1200.00	0.00	894	1200.00	0.00	0.00	0.00	0.00	437586.71	614235.88	N 32 12 9.01	W 103 57 50.44
	1300.00	0.00	894	1300.00	0.00	0.00	0.00	0.00	437586.71	614235.88	N 32 12 9.01	W 103 57 50.44
	1400.00	0.00	894	1400.00	0.00	0.00	0.00	0.00	437586.71	614235.88	N 32 12 9.01	W 103 57 50.44
	1500.00	0.00	894	1500.00	0.00	0.00	0.00	0.00	437586.71	614235.88	N 32 12 9.01	W 103 57 50.44
	1600.00	0.00	894	1600.00	0.00	0.00	0.00	0.00	437586.71	614235.88	N 32 12 9.01	W 103 57 50.44
	1700.00	0.00	894	1700.00	0.00	0.00	0.00	0.00	437586.71	614235.88	N 32 12 9.01	W 103 57 50.44
	1800.00	0.00	894	1800.00	0.00	0.00	0.00	0.00	437586.71	614235.88	N 32 12 9.01	W 103 57 50.44
	1900.00	0.00	894	1900.00	0.00	0.00	0.00	0.00	437586.71	614235.88	N 32 12 9.01	W 103 57 50.44
	2000.00	0.00	894	2000.00	0.00	0.00	0.00	0.00	437586.71	614235.88	N 32 12 9.01	W 103 57 50.44
	2100.00	0.00	894	2100.00	0.00	0.00	0.00	0.00	437586.71	614235.88	N 32 12 9.01	W 103 57 50.44
	2200.00	0.00	894	2200.00	0.00	0.00	0.00	0.00	437586.71	614235.88	N 32 12 9.01	W 103 57 50.44
	2300.00	0.00	894	2300.00	0.00	0.00	0.00	0.00	437586.71	614235.88	N 32 12 9.01	W 103 57 50.44
	2400.00	0.00	894	2400.00	0.00	0.00	0.00	0.00	437586.71	614235.88	N 32 12 9.01	W 103 57 50.44
	2500.00	0.00	894	2500.00	0.00	0.00	0.00	0.00	437586.71	614235.88	N 32 12 9.01	W 103 57 50.44
	2600.00	0.00	894	2600.00	0.00	0.00	0.00	0.00	437586.71	614235.88	N 32 12 9.01	W 103 57 50.44
	2700.00	0.00	894	2700.00	0.00	0.00	0.00	0.00	437586.71	614235.88	N 32 12 9.01	W 103 57 50.44
	2800.00	0.00	894	2800.00	0.00	0.00	0.00	0.00	437586.71	614235.88	N 32 12 9.01	W 103 57 50.44
	2900.00	0.00	894	2900.00	0.00	0.00	0.00	0.00	437586.71	614235.88	N 32 12 9.01	W 103 57 50.44
	3000.00	0.00	894	3000.00	0.00	0.00	0.00	0.00	437586.71	614235.88	N 32 12 9.01	W 103 57 50.44
	3100.00	0.00	894	3100.00	0.00	0.00	0.00	0.00	437586.71	614235.88	N 32 12 9.01	W 103 57 50.44
	3200.00	0.00	894	3200.00	0.00	0.00	0.00	0.00	437586.71	614235.88	N 32 12 9.01	W 103 57 50.44
	3300.00	0.00	894	3300.00	0.00	0.00	0.00	0.00	437586.71	614235.88	N 32 12 9.01	W 103 57 50.44
3400.00	0.00	894	3400.00	0.00	0.00	0.00	0.00	437586.71	614235.88	N 32 12 9.01	W 103 57 50.44	
Back Build 2" DLS	3496.00	0.00	894	3496.00	0.00	0.00	0.00	0.00	437586.71	614235.88	N 32 12 9.01	W 103 57 50.44
Hold 14" Inc.	3500.00	0.20	894	3500.00	0.00	0.02	0.00	2.00	437586.73	614235.89	N 32 12 9.01	W 103 57 50.44
	3600.00	2.20	894	3599.97	0.07	2.09	0.33	2.00	437586.80	614236.21	N 32 12 9.03	W 103 57 50.44
	3700.00	4.20	894	3699.81	0.28	7.60	1.20	2.00	437594.31	614237.08	N 32 12 9.09	W 103 57 50.44
	3800.00	8.20	894	3799.40	0.57	16.55	2.60	2.00	437603.26	614238.48	N 32 12 9.18	W 103 57 50.44
	3900.00	12.20	894	3898.60	0.89	28.93	4.55	2.00	437615.64	614240.43	N 32 12 9.26	W 103 57 50.44
	4000.00	16.20	894	3997.31	1.13	44.73	7.04	2.00	437627.43	614242.92	N 32 12 9.34	W 103 57 50.44
	4100.00	20.20	894	4095.40	1.19	60.91	10.05	2.00	437639.62	614245.93	N 32 12 9.42	W 103 57 50.44
	4198.59	14.00	894	4182.95	2.86	84.04	13.22	2.00	437670.74	614249.10	N 32 12 9.54	W 103 57 50.44
	4200.00	14.00	894	4182.78	2.96	86.45	13.60	0.00	437673.16	614249.48	N 32 12 9.57	W 103 57 50.44
	4300.00	14.00	894	4286.79	3.78	110.35	17.36	0.00	437697.05	614253.24	N 32 12 10.10	W 103 57 50.44
	4400.00	14.00	894	4386.82	4.60	134.24	21.12	0.00	437720.84	614257.00	N 32 12 10.34	W 103 57 50.44
	4500.00	14.00	894	4483.85	5.42	158.14	24.88	0.00	437744.63	614260.78	N 32 12 10.58	W 103 57 50.44
	4600.00	14.00	894	4580.88	6.24	182.03	28.64	0.00	437768.73	614264.55	N 32 12 10.81	W 103 57 50.44
	4700.00	14.00	894	4677.81	7.06	205.92	32.40	0.00	437792.62	614268.27	N 32 12 11.05	W 103 57 50.44
	4800.00	14.00	894	4774.84	7.88	229.82	36.15	0.00	437816.51	614272.03	N 32 12 11.29	W 103 57 50.44
	4900.00	14.00	894	4871.97	8.69	253.71	39.91	0.00	437840.41	614275.79	N 32 12 11.52	W 103 57 49.98
	5000.00	14.00	894	4969.00	9.51	277.61	43.67	0.00	437864.30	614279.56	N 32 12 11.76	W 103 57 49.98
	5100.00	14.00	894	5066.03	10.33	301.50	47.43	0.00	437888.19	614283.31	N 32 12 11.99	W 103 57 49.98
	5200.00	14.00	894	5163.08	11.15	325.40	51.19	0.00	437912.08	614287.07	N 32 12 12.23	W 103 57 49.98
	5300.00	14.00	894	5260.09	11.97	349.29	54.95	0.00	437935.96	614290.83	N 32 12 12.47	W 103 57 49.98
	5400.00	14.00	894	5357.12	12.79	373.19	58.71	0.00	437959.87	614294.58	N 32 12 12.70	W 103 57 49.98
	5500.00	14.00	894	5454.15	13.61	397.08	62.47	0.00	437983.78	614298.34	N 32 12 12.94	W 103 57 49.98
	5600.00	14.00	894	5551.18	14.43	420.98	66.23	0.00	438007.65	614302.10	N 32 12 13.18	W 103 57 49.98
	5700.00	14.00	894	5648.22	15.24	444.87	69.99	0.00	438031.55	614305.86	N 32 12 13.41	W 103 57 49.98
	5800.00	14.00	894	5745.25	16.06	468.77	73.75	0.00	438055.44	614309.62	N 32 12 13.65	W 103 57 49.98
	5900.00	14.00	894	5842.28	16.88	492.66	77.50	0.00	438079.33	614313.38	N 32 12 13.89	W 103 57 49.98
	6000.00	14.00	894	5939.31	17.70	516.56	81.26	0.00	438103.23	614317.14	N 32 12 14.12	W 103 57 49.98
	6100.00	14.00	894	6036.34	18.52	540.45	85.02	0.00	438127.12	614320.89	N 32 12 14.36	W 103 57 49.98
	6200.00	14.00	894	6133.37	19.34	564.35	88.78	0.00	438151.01	614324.65	N 32 12 14.59	W 103 57 49.98
	6300.00	14.00	894	6230.40	20.16	588.24	92.54	0.00	438174.90	614328.41	N 32 12 14.83	W 103 57 49.98
	6400.00	14.00	894	6327.43	20.98	612.14	96.30	0.00	438198.80	614332.17	N 32 12 15.07	W 103 57 49.98
	6500.00	14.00	894	6424.46	21.79	636.03	100.06	0.00	438222.69	614335.93	N 32 12 15.30	W 103 57 49.98
	6600.00	14.00	894	6521.49	22.61	659.92	103.82	0.00	438246.58	614339.69	N 32 12 15.54	W 103 57 49.98
	6700.00	14.00	894	6618.52	23.43	683.82	107.58	0.00	438270.48	614343.45	N 32 12 15.78	W 103 57 49.98
6800.00	14.00	894	6715.55	24.25	707.71	111.34	0.00	438294.37	614347.21	N 32 12 16.01	W 103 57 49.98	
6900.00	14.00	894	6812.58	25.07	731.61	115.09	0.00	438318.26	614350.97	N 32 12 16.25	W 103 57 49.98	
7000.00	14.00	894	6909.61	25.89	755.50	118.85	0.00	438342.15	614354.73	N 32 12 16.48	W 103 57 49.98	
7100.00	14.00	894	7006.64	26.71	779.40	122.61	0.00	438366.05	614358.48	N 32 12 16.72	W 103 57 49.98	
7200.00	14.00	894	7103.67	27.53	803.29	126.37	0.00	438389.94	614362.24	N 32 12 16.96	W 103 57 49.98	
7300.00	14.00	894	7200.70	28.35	827.19	130.13	0.00	438413.83	614366.00	N 32 12 17.19	W 103 57 49.98	
7400.00	14.00	894	7297.73	29.16	851.08	133.89	0.00	438437.73	614369.78	N 32 12 17.43	W 103 57 49.98	
7500.00	14.00	894	7394.05	29.94	874.91	137.65	0.00	438461.62	614373.54	N 32 12 17.67		

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (ft/100ft)	Northing (ft)	Easting (ft)	Latitude (N/S ° ° ' '')	Longitude (E/W ° ° ' '')
	10500.00	91.22	270.03	8790.51	1811.40	938.24	-1684.22	0.00	43524.85	612571.78	N 32 12 18.35 W 103 58 9.77	
	10600.00	91.22	270.03	8786.18	1909.59	938.29	-1784.19	0.00	43524.83	612471.82	N 32 12 18.36 W 103 58 10.93	
	10700.00	91.22	270.03	8794.07	2007.78	938.34	-1854.17	0.00	43524.97	612371.85	N 32 12 18.36 W 103 58 12.10	
	10800.00	91.22	270.03	8791.95	2105.97	938.38	-1964.15	0.00	43525.02	612271.88	N 32 12 18.35 W 103 58 13.26	
	10900.00	91.22	270.03	8789.83	2204.16	938.43	-2054.13	0.00	43525.06	612171.91	N 32 12 18.37 W 103 58 14.43	
	11000.00	91.22	270.03	8787.70	2302.34	938.47	-2154.10	0.00	43525.11	612071.95	N 32 12 18.37 W 103 58 15.59	
	11100.00	91.22	270.03	8785.58	2400.53	938.52	-2284.08	0.00	43525.16	611971.98	N 32 12 18.38 W 103 58 16.75	
	11200.00	91.22	270.03	8783.46	2498.72	938.57	-2364.08	0.00	43525.20	611872.01	N 32 12 18.38 W 103 58 17.92	
	11300.00	91.22	270.03	8781.34	2596.91	938.61	-2464.04	0.00	43525.25	611772.04	N 32 12 18.38 W 103 58 19.08	
	11400.00	91.22	270.03	8779.22	2695.10	938.66	-2564.01	0.00	43525.29	611672.07	N 32 12 18.39 W 103 58 20.24	
	11500.00	91.22	270.03	8777.10	2793.29	938.70	-2663.99	0.00	43525.34	611572.10	N 32 12 18.39 W 103 58 21.41	
	11600.00	91.22	270.03	8774.98	2891.48	938.75	-2763.97	0.00	43525.39	611472.13	N 32 12 18.40 W 103 58 22.57	
	11700.00	91.22	270.03	8772.86	2989.67	938.79	-2863.95	0.00	43525.43	611372.16	N 32 12 18.40 W 103 58 23.73	
	11800.00	91.22	270.03	8770.74	3087.86	938.84	-2963.92	0.00	43525.48	611272.19	N 32 12 18.40 W 103 58 24.90	
	11900.00	91.22	270.03	8768.62	3186.04	938.89	-3063.90	0.00	43525.52	611172.22	N 32 12 18.41 W 103 58 26.06	
	12000.00	91.22	270.03	8766.50	3284.23	938.93	-3163.88	0.00	43525.57	611072.25	N 32 12 18.41 W 103 58 27.22	
	12100.00	91.22	270.03	8764.37	3382.42	938.98	-3263.86	0.00	43525.61	610972.28	N 32 12 18.41 W 103 58 28.39	
	12200.00	91.22	270.03	8762.25	3480.61	939.02	-3363.83	0.00	43525.66	610872.31	N 32 12 18.42 W 103 58 29.55	
	12300.00	91.22	270.03	8760.13	3578.80	939.07	-3463.81	0.00	43525.71	610772.34	N 32 12 18.42 W 103 58 30.71	
	12400.00	91.22	270.03	8758.01	3676.99	939.12	-3563.79	0.00	43525.75	610672.37	N 32 12 18.43 W 103 58 31.88	
	12500.00	91.22	270.03	8755.89	3775.18	939.16	-3663.77	0.00	43525.80	610572.40	N 32 12 18.43 W 103 58 33.04	
	12600.00	91.22	270.03	8753.77	3873.37	939.21	-3763.74	0.00	43525.84	610472.43	N 32 12 18.43 W 103 58 34.21	
	12700.00	91.22	270.03	8751.65	3971.56	939.25	-3863.72	0.00	43525.89	610372.46	N 32 12 18.44 W 103 58 35.37	
	12800.00	91.22	270.03	8749.53	4069.75	939.30	-3963.70	0.00	43525.94	610272.49	N 32 12 18.44 W 103 58 36.53	
	12900.00	91.22	270.03	8747.41	4167.93	939.34	-4063.68	0.00	43525.98	610172.52	N 32 12 18.44 W 103 58 37.70	
	13000.00	91.22	270.03	8745.29	4266.12	939.39	-4163.65	0.00	43526.03	610072.55	N 32 12 18.45 W 103 58 38.86	
	13100.00	91.22	270.03	8743.17	4364.31	939.44	-4263.63	0.00	43526.07	609972.58	N 32 12 18.45 W 103 58 40.02	
	13200.00	91.22	270.03	8741.05	4462.50	939.48	-4363.61	0.00	43526.12	609872.61	N 32 12 18.45 W 103 58 41.19	
	13300.00	91.22	270.03	8738.92	4560.69	939.53	-4463.59	0.00	43526.16	609772.64	N 32 12 18.46 W 103 58 42.35	
	13400.00	91.22	270.03	8736.80	4658.88	939.57	-4563.56	0.00	43526.21	609672.67	N 32 12 18.46 W 103 58 43.51	
	13500.00	91.22	270.03	8734.68	4757.07	939.62	-4663.54	0.00	43526.25	609572.70	N 32 12 18.47 W 103 58 44.68	
	13600.00	91.22	270.03	8732.56	4855.26	939.67	-4763.52	0.00	43526.30	609472.73	N 32 12 18.47 W 103 58 45.84	
	13700.00	91.22	270.03	8730.44	4953.45	939.71	-4863.50	0.00	43526.35	609372.76	N 32 12 18.47 W 103 58 47.00	
Oxy Cedar Canyon 22 Fed 3H - Plat BHL	13725.51	91.22	270.03	8729.90	4978.49	939.72	-4889.00	0.00	43526.38	609347.28	N 32 12 18.47 W 103 58 47.30	

Survey Type:

Non-Def Plan

Survey Error Model: ISCWSA Rev 0 "" 3-D 95 000% Confidence 2.7855 sigma

Survey Program:

Description	Part	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size Casing Diameter (in)	Expected Max Inclination (deg)	Survey Tool Type	Borehole / Survey
	1	0.000	28.500	1/100.000	30.000	30.000	SLB_MWD-STD_HDGM-Depth Only	Oxy Cedar Canyon 22 Fed 21H - Orig Borehole / Oxy Cedar Canyon 22 Fed 21H Rev1 MMC
	1	28.500	13725.511	1/100.000	30.000	30.000	SLB_MWD-STD_HDGM	Oxy Cedar Canyon 22 Fed 21H - Orig Borehole / Oxy Cedar



Oxy Cedar Canyon 22 Fed. 21H Rev1 MMC 15Aug16 Anti-Collision Summary Report

Analysis Date-24hr Time: August 15, 2016 - 17:48

Client: OXY

Field: NM Eddy County (NAD 27)

Structure: Oxy Cedar Canyon 22 Fed 21H

Slot: Oxy Cedar Canyon 22 Fed 21H

Well: Oxy Cedar Canyon 22 Fed 21H

Borehole: Oxy Cedar Canyon 22 Fed 21H - Orig. Borehole

Scan MD Range: 0.00ft - 13725.51ft

Analysis Method:

Reference Trajectory:

Depth Interval:

Rule Set:

Min Pts:

Version / Patch:

Database / Project:

3D Least Distance

Oxy Cedar Canyon 22 Fed 21H Rev1 MMC 15Aug16 (Non-Def Plan)

Every 10.00 Measured Depth (ft)

D&M AntiCollision Standard S002 v5 1/5 2

All local minima indicated.

2 9 370 0

us1153app452 dir.slb.com/drilling-NM Eddy County 2 9

Trajectory Error Model: ISCWSA 3-D 95.000% Confidence 2.7955 sigma

Offset Trajectories Summary

Offset Selection Criteria

Wellhead distance scan

Selection filters

Not performed!

Definitive Surveys - Definitive Plans - Definitive surveys exclude definitive plans

- All Non-Def Surveys when no Def-Survey is set in a borehole - All Non-Def Plans when no Def-Plan is set in a borehole

Offset Trajectory	Separation			Allow	Sep. Fact.	Controlling Rule	Reference Trajectory		Risk Level			Alert	Status
	CI-CI (ft)	MAS (ft)	EOU (ft)				MD (ft)	TVD (ft)	Alert	Minor	Major		
Oxy Riverbank Federal #007 (Offset) INC ONLY Survey on to 5020ft (Def Survey)													
													Warning Alert
847.22	32.81	844.72	814.41	N/A	MAS = 10.00 (m)	0.00	0.00						Surface
846.03	32.81	844.39	814.12	20978.31	MAS = 10.00 (m)	10.00	10.00						MinPt-O-SF
846.70	32.81	844.18	813.89	45309.03	MAS = 10.00 (m)	26.50	26.50						MINPT-O-EQU
766.75	232.37	610.97	534.38	4.99	OSF1 50	4340.00	4328.60	OSF<5.00					Enter Alert
609.28	332.58	382.72	272.70	2.74	OSF1 50	6290.00	6220.70						MinPt-CICI
612.37	353.39	375.94	258.98	2.61	OSF1 50	6670.00	6689.41						MINPT-O-EQU
621.55	364.37	377.80	257.18	2.57	OSF1 50	6870.00	6783.47						MinPt-O-SF
651.30	385.66	393.36	265.04	2.54	OSF1 50	7280.00	7181.30						MinPt-O-ADP
703.68	468.91	391.50	236.78	2.26	OSF1 50	8400.00	8290.48						MINPT-O-EQU
704.28	457.81	391.70	236.64	2.26	OSF1 50	8410.00	8300.45						MinPt-O-ADP
706.87	458.72	392.89	237.15	2.26	OSF1 50	8440.00	8330.26						MinPt-O-SF
1694.37	511.47	1352.56	1182.90	4.99	OSF1 50	9780.00	8813.58	OSF<5.00					Exit Alert
5596.97	502.70	5261.00	5094.27	16.78	OSF1 50	13725.51	8729.90						TD
Oxy Riverbank Federal #005 (Offset) INC ONLY Survey on to 5155ft (Non-Def Survey)													
													Warning Alert
799.67	32.81	797.17	766.86	N/A	MAS = 10.00 (m)	0.00	0.00						Surface
798.49	32.81	795.86	765.68	6250.26	MAS = 10.00 (m)	26.50	26.50						MinPt-O-SF
798.18	241.94	636.05	556.23	4.99	OSF1 50	3120.00	3120.00	OSF<5.00					Enter Alert
708.14	337.44	482.34	370.68	3.16	OSF1 50	5260.00	5221.28						MinPts
877.27	271.66	715.33	625.61	4.99	OSF1 50	5810.00	5754.95	OSF<5.00					Exit Alert
3434.81	69.48	3587.77	3568.45	61.37	OSF1 50	9550.00	8618.46						MinPt-CICI
3635.35	70.59	3587.44	3564.76	60.03	OSF1 50	9610.00	8617.18						MINPT-O-EQU
3636.19	71.58	3587.64	3564.61	78.90	OSF1 50	9650.00	8618.34						MinPt-O-ADP
4968.00	250.87	4789.92	4717.13	29.92	OSF1 50	12940.00	8746.56						MinPt-O-SF
5533.38	273.80	5350.02	5259.56	30.56	OSF1 50	13725.51	8729.90						TD
Oxy Cedar Canyon 23 1H (Offset) MWD on 11986ft (Def Survey)													
													Pass
999.90	32.81	997.40	967.09	N/A	MAS = 10.00 (m)	0.00	0.00						Surface
999.55	32.81	997.38	967.07	N/A	MAS = 10.00 (m)	10.00	10.00						MinPts
999.88	32.81	997.35	967.07	N/A	MAS = 10.00 (m)	26.50	26.50						WRP
999.08	32.81	993.05	968.27	282.31	MAS = 10.00 (m)	780.00	780.00						MinPts
999.18	32.81	992.99	966.37	270.36	MAS = 10.00 (m)	830.00	830.00						MINPT-O-EQU
1009.03	32.81	995.76	978.22	93.45	MAS = 10.00 (m)	2410.00	2410.00						MinPts
1008.94	32.81	991.45	974.14	77.55	MAS = 10.00 (m)	2940.00	2940.00						MinPts
1007.00	32.81	991.41	974.19	76.71	MAS = 10.00 (m)	2970.00	2970.00						MINPT-O-EQU
1008.52	32.81	991.26	975.71	68.17	MAS = 10.00 (m)	3320.00	3320.00						MINPT-O-EQU
680.83	49.72	646.60	630.91	21.61	OSF1 50	6580.00	6502.08						MinPt-CICI
681.46	51.95	645.95	629.51	20.64	OSF1 50	6630.00	6744.56						MINPT-O-EQU
681.91	52.49	646.05	629.42	20.42	OSF1 50	6680.00	6802.88						MinPt-O-ADP
698.41	57.24	659.41	641.17	18.07	OSF1 50	7409.60	7307.05						MinPt-O-SF
5890.26	59.51	5849.75	5830.75	154.91	OSF1 50	13725.51	8729.90						TD
Survey Riverbank Federal #009 (Offset) INC ONLY 0 to 7000 ft MD (Def Survey)													
													Pass
4877.81	32.81	4875.31	4845.00	N/A	MAS = 10.00 (m)	0.00	0.00						Surface
4877.58	32.81	4875.05	4844.77	172267.83	MAS = 10.00 (m)	26.50	26.50						MinPt-O-SF
4882.18	290.58	4867.64	4871.61	25.30	OSF1 50	5430.00	5386.23						MinPt-CICI
4894.66	442.33	4898.97	4452.32	16.84	OSF1 50	8070.00	7960.51						MinPts
1041.50	307.21	835.06	734.29	5.11	OSF1 50	12930.00	8746.77						MinPt-O-SF
800.98	189.58	673.37	611.02	6.40	OSF1 50	13600.00	8732.56						MinPt-CICI
803.95	196.44	672.19	607.54	5.20	OSF1 50	13670.00	8731.08						MINPT-O-EQU
810.96	205.71	672.99	605.26	5.97	OSF1 50	13725.51	8729.90						MinPts
Survey Riverbank Federal #001 (Offset) INC ONLY 0 to 5500 ft MD (Def Survey)													
													Pass
3605.62	32.81	3603.12	3572.81	N/A	MAS = 10.00 (m)	0.00	0.00						Surface
3605.27	32.81	3602.73	3572.46	83173.29	MAS = 10.00 (m)	26.50	26.50						MinPt-O-SF
3559.83	336.91	3334.49	3223.02	15.96	OSF1 50	5650.00	5699.70						MinPts
3205.45	104.41	3135.01	3101.04	47.15	OSF1 50	12330.00	8759.50						MinPt-CICI
3206.09	106.13	3134.50	3099.96	46.37	OSF1 50	12390.00	8758.22						MINPT-O-EQU
3207.48	107.82	3134.77	3099.66	45.65	OSF1 50	12440.00	8757.16						MinPt-O-ADP
3497.76	196.15	3372.83	3311.61	28.53	OSF1 50	13725.51	8729.90						MinPt-O-SF

PERFORMANCE DATA

TMK Ultra Premium SF™
Technical Data Sheet

5.500 in

20.00 lbs/ft

P-110

Tubular Parameters

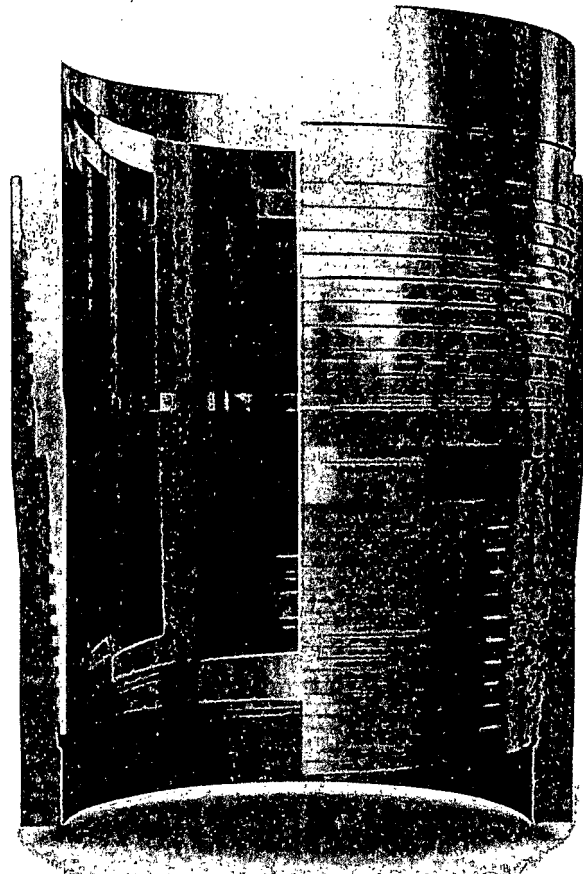
Size	5.500	in	Minimum Yield	110,000	psi
Nominal Weight	20.00	lbs/ft	Minimum Tensile	125,000	psi
Grade	P-110		Yield Load	641,000	lbs
PE Weight	19.81	lbs/ft	Tensile Load	728,000	lbs
Wall Thickness	0.361	in	Min. Internal Yield Pressure	12,600	psi
Nominal ID	4.778	in	Collapse Pressure	11,100	psi
Drift Diameter	4.653	in			
Nom. Pipe Body Area	5.828	in ²			

Connection Parameters

Connection OD	5.646	in
Connection ID	4.734	in
Make-Up Loss	5.526	in
Critical Section Area	5.289	in ²
Tension Efficiency	90.5	%
Compression Efficiency	90.5	%
Yield Load In Tension	580,000	lbs
Min. Internal Yield Pressure	12,600	psi
Collapse Pressure	11,100	psi

Make-Up Torques

Min. Make-Up Torque	10,100	ft-lbs
Opt. Make-Up Torque	10,600	ft-lbs
Max. Make-Up Torque	11,700	ft-lbs
Yield Torque	15,600	ft-lbs



Printed on: February-25-2014

NOTE:

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PERFORMANCE DATA

TMK UP ULTRA™ DQX
Technical Data Sheet

4.500 in

13.50 lbs/ft

P-110

Tubular Parameters

Size	4.500	in	Minimum Yield	110,000	psi
Nominal Weight	13.50	lbs/ft	Minimum Tensile	125,000	psi
Grade	P-110		Yield Load	422,000	lbs
PE Weight	13.04	lbs/ft	Tensile Load	479,000	lbs
Wall Thickness	0.290	in	Min. Internal Yield Pressure	12,400	psi
Nominal ID	3.920	in	Collapse Pressure	10,700	psi
Drift Diameter	3.795	in			
Nom. Pipe Body Area	3.836	in ²			

Connection Parameters

Connection OD	5.000	in
Connection ID	3.920	in
Make-Up Loss	3.772	in
Critical Section Area	3.836	in ²
Tension Efficiency	100.0	%
Compression Efficiency	100.0	%
Yield Load In Tension	422,000	lbs
Min. Internal Yield Pressure	12,400	psi
Collapse Pressure	10,700	psi
Uniaxial Bending	112	°/ 100 ft

Make-Up Torques

Min. Make-Up Torque	6,000	ft-lbs
Opt. Make-Up Torque	6,700	ft-lbs
Max. Make-Up Torque	7,300	ft-lbs
Yield Torque	10,800	ft-lbs

Printed on: October-22-2014

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