

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTCarlsbad
OCDFORM 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.*15. Headline No.
NMNM45236
16. If Indian, Allottee or Tribe Name**SUBMIT IN TRIPLICATE - Other instructions on page 2**

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

1. Type of Well

☒ Oil Well ☐ Gas Well ☐ Other8. Well Name and No.
STERLING SILVER MDP1 33-4 FD C 7H2. Name of Operator
OXY USA INCORPORATEDContact: SARAH CHAPMAN
E-Mail: SARAH_CHAPMAN@OXY.COM9. API Well No.
30-015-45389-00-X13a. Address
5 GREENWAY PLAZA SUITE 110
HOUSTON, TX 77046-05213b. Phone No. (include area code)
Ph: 713-350-499710. Field and Pool or Exploratory Area
INGLE WELLS

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

Sec 33 T23S R31E NENE 96FNL 564FEL
32.267918 N Lat, 103.776031 W Lon11. County or Parish, State
EDDY 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 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 recompleat 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 recompleat 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.

OXY USA Inc. respectfully requests to amend the approved APD and change the well number for API No 30-015-45389 from the Sterling Silver MDP1 33-4 Federal Com #176H to the Sterling Silver MDP1 33-4 Federal Com #7H. Due to spacing changes this well will be drilled and completed in the 2nd Bone Spring instead of the Wolfcamp formation and the bottom hole is moving east 110' from the current location.

RECEIVED

See attached for the Amended C-102 plat, drill plan, directional plan and plot and supplemental form.

JAN 17 2019

API number is now correct.

DISTRICT II-ARTESIA O.C.D.

- All previous COA will apply

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

Electronic Submission #447041 verified by the BLM Well Information System
For OXY USA INCORPORATED, sent to the Carlsbad
Committed to AFMSS for processing by PRISCILLA PEREZ on 12/13/2018 (19PP0602SE)

Name (Printed/Typed) DAVID STEWART

Title REGULATORY ADVISOR

Signature (Electronic Submission)

Date 12/10/2018

THIS SPACE FOR FEDERAL OR STATE OFFICE USEApproved By Mustafa HaguelTitle EngineerDate 01-11-2019

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 OFO

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 ****RWP 1-29-19.
1-31-19

RECEIVED

Form C-102

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (505) 391-6161 Fax: (505) 391-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (505) 748-1281 Fax: (505) 748-9720
District III
1000 Rio Grande Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6177
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-1463

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis DISTRICT II-ARTESIA O.C.D.
Santa Fe, NM 87505

Revised August 1, 2011
Submit one copy to appropriate
District Office

☒ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-015-45309	Pool Code 33740	Pool Name Ingle Wells Bone Spring
Property Code 322740	Property Name STERLING SILVER MDP1 "33-4" FEDERAL COM	Well Number 7H
OGRID No. 16696	Operator Name OXY USA INC.	Elevation 3401.2'

Surface Location

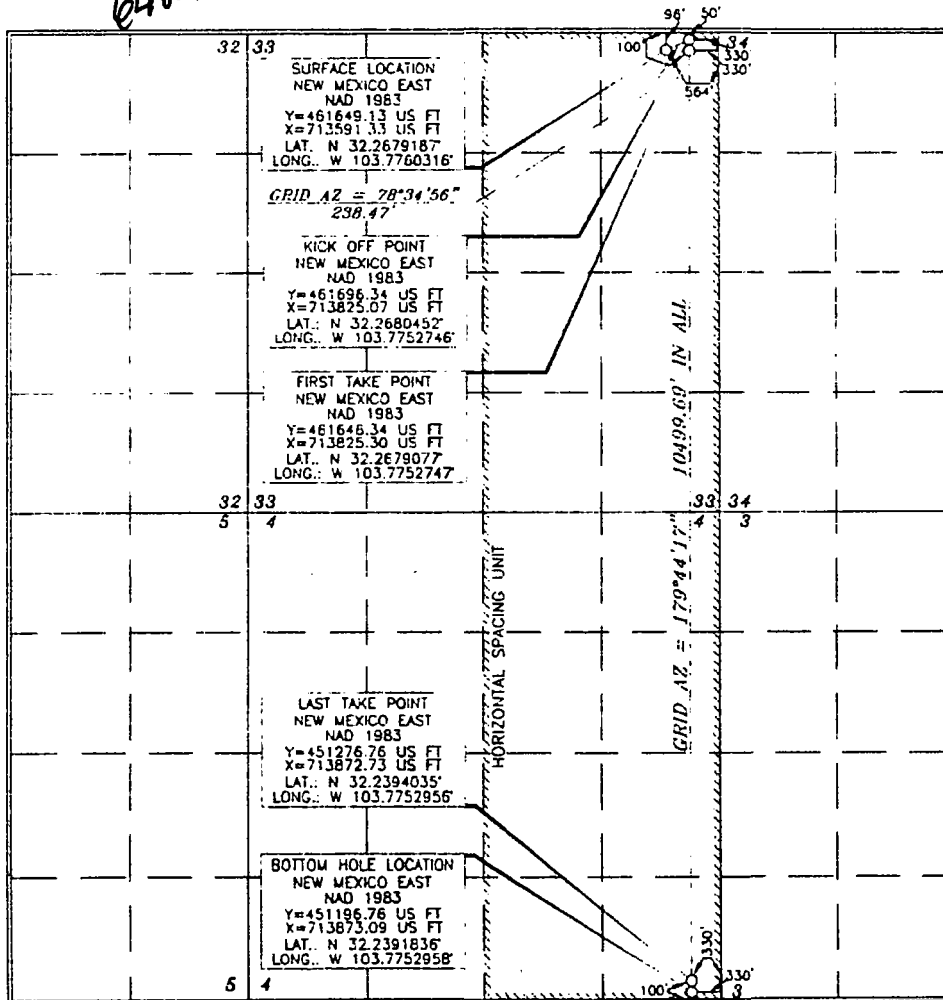
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North South line	Feet from the	East West line	County
A	33	23 SOUTH	31 EAST, N.M.P.M.		96'	NORTH	564'	EAST	EDDY

Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North South line	Feet from the	East West line	County
P	4	24 SOUTH	31 EAST, N.M.P.M.		20'	SOUTH	330'	EAST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
640	I		

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.



OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that the information contained herein was obtained from reliable sources.

Signature: **Sarah Chapman** Date: **11/29/18**
Printed Name: **Sarah Chapman**
E-mail Address: **Sarah_chapman@oxy.com**

SURVEYOR CERTIFICATION

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

Signature: **Tommy J. As...** Date of Survey: **FEBRUARY 1, 2018**
Professional Stamp: **15079**

WO# 180201WL-d (Rev. A) (KA)

RWP1-2919
1-3199

Oxy USA Inc. - Sterling Silver MDP1 33-4 Fed Com 7H – Amend Drill Plan

1. Geologic Formations

TVD of target	10248'	Pilot Hole Depth	N/A
MD at TD:	20491'	Deepest Expected fresh water:	499'

Delaware Basin

Formation	TVD - RKB	Expected Fluids
Rustler	499	
Salado	846	Brine
Castile	2,772	Brine
Lamar/Delaware	4,281	Brine
Bell Canyon	4,305	Oil/Gas
Cherry Canyon	5,203	Oil/Gas
Brushy Canyon	6,472	Losses
Bone Spring	8,103	Oil/Gas
1st Bone Spring	9,167	Oil/Gas
2nd Bone Spring	9,400	Oil/Gas

*H2S, water flows, loss of circulation, abnormal pressures, etc.

2. Casing Program

Hole Size (in)	Casing Interval		Csg. Size (in)	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	Buoyant	Buoyant
	From (ft)	To (ft)							Body SF Tension	Joint SF Tension
17.5	0	549	13.375	54.5	J-55	BTC	1.125	1.2	1.4	1.4
12.25	0	4331	9.625	43.5	L-80	BTC	1.125	1.2	1.4	1.4
8.5	0	9564	7.625	26.4	L-80 HC	SF (0 ft to 4000 ft) FJ (4000 ft to 9564 ft)	1.125	1.2	1.4	1.4
6.75	0	20491	5.5	20	P-110	DQX	1.125	1.2	1.4	1.4
SF Values will meet or Exceed										

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

*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 may be run in case hole conditions merit pumping a second stage cement job to comply with permitted top of cement. If cement circulated to surface during first stage, we will drop a cancellation cone and not pump the second stage.

*Oxy requests the option to run production casing with DQX and/or SF TORQ connections to accommodate hole conditions or drilling operations.

Oxy USA Inc. - Sterling Silver MDP1 33-4 Fed Com 7H – Amend Drill Plan

3. Cementing Program

Casing String	# Sk	Wt. (lb/gal)	Yld (ft3/sack)	H2O (gal/sk)	500# Comp. Strength (hours)	Slurry Description
Surface (Lead)	N/A	N/A	N/A	N/A	N/A	N/A
Surface (Tail)	660	14.8	1.33	6.365	5:26	Class C Cement, Accelerator
Intermediate (Lead)	1200	12.9	1.88	10.130	14:22	Pozzolan Cement, Retarder
Intermediate (Tail)	155	14.8	1.33	6.370	12:45	Class C Cement, Accelerator
Intermediate II 1st Stage (Lead)	N/A	N/A	N/A	N/A	N/A	N/A
Intermediate II 1st Stage (Tail)	72	13.2	1.65	8.640	11:54	Class H Cement, Retarder, Dispersant, Salt
Intermediate II 2nd Stage (Tail Slurry) to be pumped as Bradenhead Squeeze from surface, down the Intermediate annulus						
Intermediate II 2nd Stage (Lead)	N/A	N/A	N/A	N/A	N/A	N/A
Intermediate II 2nd Stage (Tail)	423	12.9	1.92	10.410	23:10	Class C Cement, Accelerator
Production (Lead)	N/A	N/A	N/A	N/A	N/A	N/A
Production (Tail)	838	13.2	1.38	6.686	3:49	Class H Cement, Retarder, Dispersant, Salt

Casing String	Top (ft)	Bottom (ft)	% Excess
Surface (Lead)	N/A	N/A	N/A
Surface (Tail)	0	549	100%
Intermediate (Lead)	0	3831	100%
Intermediate (Tail)	3831	4331	20%
Intermediate II 1st Stage (Lead)	N/A	N/A	N/A
Intermediate II 1st Stage (Tail)	8103	9564	5%
Intermediate II 2nd Stage (Lead)	N/A	N/A	N/A
Intermediate II 2nd Stage (Tail)	0	8103	25%
Production (Lead)	N/A	N/A	N/A
Production (Tail)	9064	20491	20%

4. Mud Program

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From (ft)	To (ft)				
0	549	Water-Based Mud	8.6-8.8	40-60	N/C
549	4331	Saturated Brine-Based Mud	9.8-10.0	35-45	N/C
4331	9564	Water-Based or Oil-Based Mud	8.0-9.6	38-50	N/C
9564	20491	Water-Based or Oil-Based Mud	8.0-9.6	38-50	N/C

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times. The following is a general list of products: Barite, Bentonite, Gypsum, Lime, Soda Ash, Caustic Soda, Nut Plug, Cedar Fiber, Cotton Seed Hulls, Drilling Paper, Salt Water Clay, CACL2. Oxy will use a closed mud system.

Oxy USA Inc. - Sterling Silver MDP1 33-4 Fed Com 7H – Amend Drill Plan

What will be used to monitor the loss or gain of fluid?	PVT/MD Totco/Visual Monitoring
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5. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	5116 psi
Abnormal Temperature	No
BH Temperature at deepest TVD	162°F

Pump high viscosity sweeps as needed for hole cleaning. The mud system will be monitored visually/manually as well as with an electronic PVT. The necessary mud products for additional weight and fluid loss control will be on location at all times. Appropriately weighted mud will be used to isolate potential gas, oil, and water zones until such time as casing can be cemented into place for zonal isolation.

Hydrogen Sulfide (H2S) monitors will be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM.	
N	H2S is present
Y	H2S Plan attached

6. Other facets of operation

	Yes/No
Will the well be drilled with a walking/skidding operation? If yes, describe. We plan to drill the four 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.	Yes
Will more than one drilling rig be used for drilling operations? If yes, describe. Oxy requests the option to contract a Surface Rig to drill, set surface casing, and cement for this well. If the timing between rigs is such that Oxy would not be able to preset surface, the Primary Rig will MIRU and drill the well in its entirety per the APD. Please see the attached document for information on the spudder rig.	Yes

Total estimated cuttings volume: 1565.6 bbls.

Oxy USA Inc. - Sterling Silver MDP1 33-4 Fed Com 7H – Amend Drill Plan

9. Company Personnel

<u>Name</u>	<u>Title</u>	<u>Office Phone</u>	<u>Mobile Phone</u>
Garrett Granier	Drilling Engineer	713-513-6633	832-265-0581
Diego Tellez	Drilling Engineer Supervisor	713-350-4602	713-303-4932
Simon Benavides	Drilling Superintendent	713-522-8652	281-684-6897
John Willis	Drilling Manager	713-366-5556	713-259-1417

Intent ☒ As Drilled ☐

API #

30-015-45389

Operator Name:

Oxy USA Inc.

Property Name:

Sterling Silver HOP1 33-4 Fed Com

Well Number

7H

Kick Off Point (KOP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
A	33	23S	31E		50	NORTH	330	EAST	EDDY
Latitude					Longitude				NAD
32.2680452					-103.7752746				NAD83

First Take Point (FTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
A	33	23S	31E		100	NORTH	330	EAST	EDDY
Latitude					Longitude				NAD
32.2679077					-103.7752747				NAD83

Last Take Point (LTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
P	4	23S	31E		100	SOUTH	330	EAST	EDDY
Latitude					Longitude				NAD
32.2394035					-103.7752956				NAD83

Is this well the defining well for the Horizontal Spacing Unit? ☐

Is this well an infill well? ☒

If infill is yes please provide API if available, Operator Name and well number for Defining well for Horizontal Spacing Unit.

API #

30-015-45393

Operator Name:

Oxy USA Inc.

Property Name:

Sterling Silver HOP1 33-4 Fed Com

Well Number

SH

KZ 06/29/2018



Project: PRD NM DIRECTIONAL PLANS (NAD 1983)
Site: STERLING SILVER MDP1 33-4 FED COM
Well: STERLING SILVER MDP1 33-4 FED COM 7H
Wellbore: WB00
Design: Permitting Plan

WELL DETAILS: STERLING SILVER MDP1 33-4 FED COM 7H

+N/-S
0.00

+E/-W
0.00

Northing
461649.13

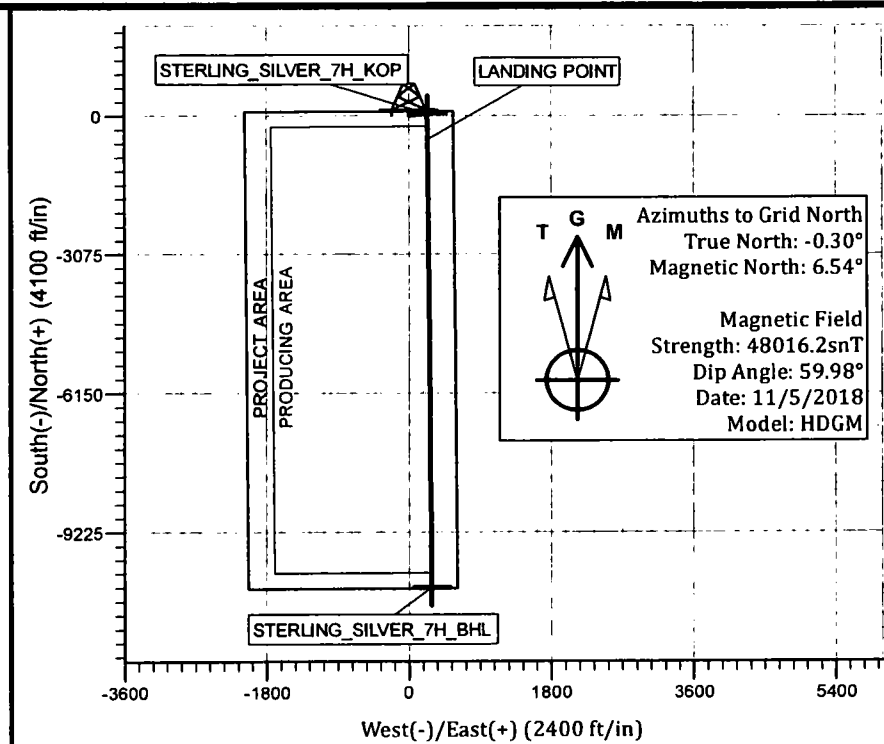
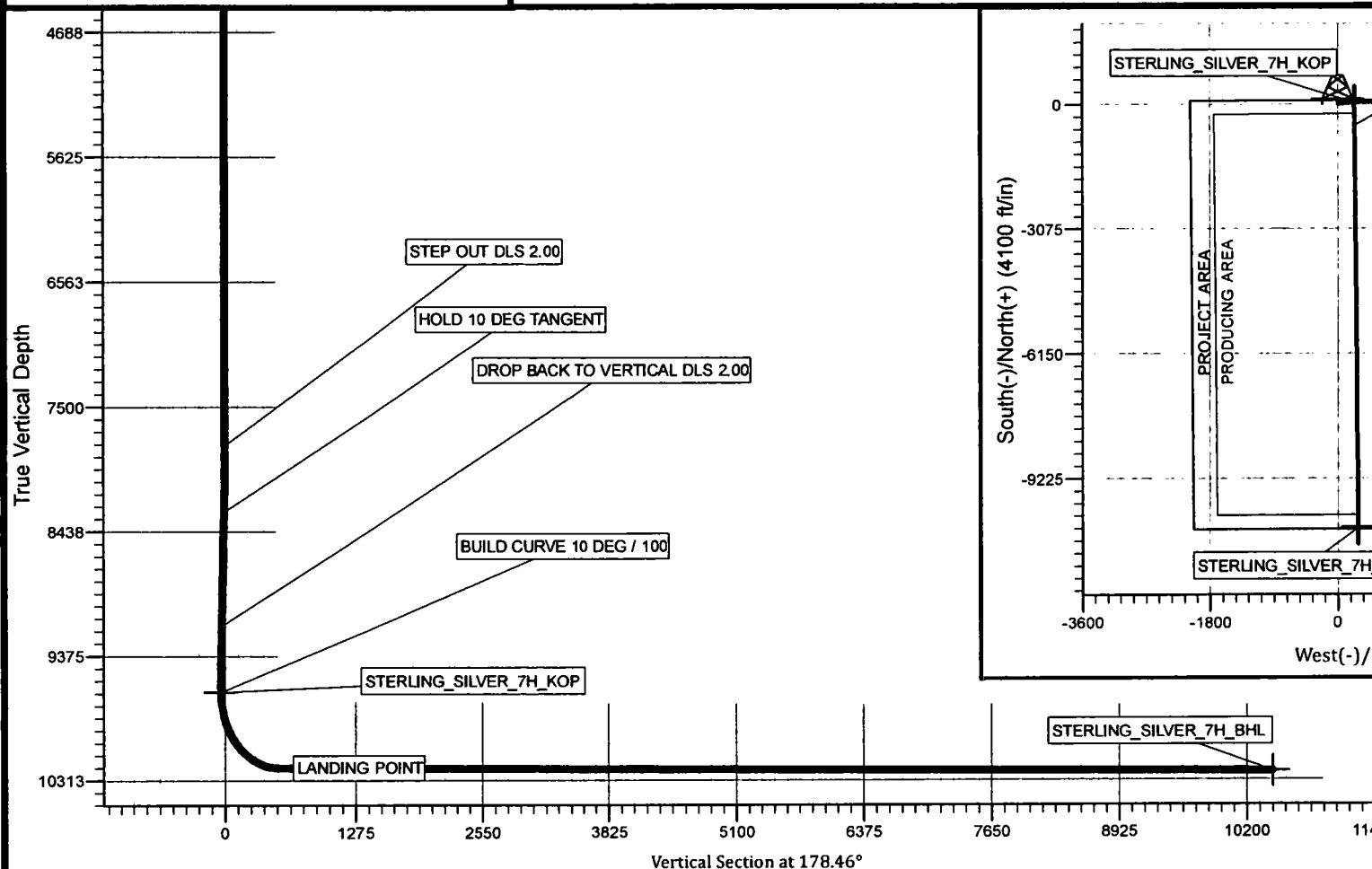
Ground Level: 3401.20

Easting
713591.33

Latitude
32° 16' 4.507413 N

Longitude
103° 46' 33.713722 W

DATUM @ 3427.70ft



PROJECT DETAILS: NM DIRECTIONAL PLANS (NAD 1983)

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

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
2	7792.00	0.00	0.00	7792.00	0.00	0.00	0.00	0.00	0.00		STEP OUT DLS 2.00
3	8291.82	10.00	78.58	8289.29	8.61	42.63	2.00	78.58	-7.46		HOLD 10 DEG TANGENT
4	9164.53	10.00	78.58	9148.75	38.60	191.12	0.00	0.00	-33.44		DROP BACK TO VERTICAL DLS 2.00
5	9664.35	0.00	179.74	9646.04	47.21	233.75	2.00	180.00	-40.90		BUILD CURVE 10 DEG / 100
6	10562.35	89.80	179.74	10219.00	-523.74	236.37	10.00	179.74	529.92		LANDING POINT
7	20491.75	89.87	179.74	10248.00	-10452.99	281.78	0.00	0.00	10456.78		TD at 20491.75

OXY

**PRD NM DIRECTIONAL PLANS (NAD 1983)
STERLING SILVER MDP1 33-4 FED COM
STERLING SILVER MDP1 33-4 FED COM 7H**

WB00

Plan: Permitting Plan

Standard Planning Report

05 November, 2018

Oxy

Planning Report

Database:	HOPSPP	Local Co-ordinate Reference:	Well STERLING SILVER MDP1 33-4 FED COM 7H
Company:	ENGINEERING DESIGNS	TVD Reference:	DATUM @ 3427.70ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	DATUM @ 3427.70ft
Site:	STERLING SILVER MDP1 33-4 FED COM	North Reference:	Grid
Well:	STERLING SILVER MDP1 33-4 FED COM 7H	Survey Calculation Method:	Minimum Curvature
Wellbore:	WB00		
Design:	Permitting Plan		

Project	PRD NM DIRECTIONAL PLANS (NAD 1983)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		Using geodetic scale factor

Site		STERLING SILVER MDP1 33-4 FED COM			
Site Position:		Northing:	461,634.30 usft	Latitude:	32° 16' 4.557918 N
From:	Map	Easting:	709,709.04 usft	Longitude:	103° 47' 18.930890 W
Position Uncertainty:	50.00 ft	Slot Radius:	13.200 in	Grid Convergence:	0.29 °

Well	STERLING SILVER MDP1 33-4 FED COM 7H					
Well Position	+N/-S	14.83 ft	Northing:	461,649.13 usft	Latitude:	32° 16' 4.507413 N
	+E/-W	3,882.52 ft	Easting:	713,591.33 usft	Longitude:	103° 46' 33.713722 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	0.00 ft	Ground Level:	3,401.20 ft

Wellbore	WB00				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	11/5/2018	6.83	59.98	48,016

Design	Permitting Plan			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	178.46

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
7,792.00	0.00	0.00	7,792.00	0.00	0.00	0.00	0.00	0.00	0.00	
8,291.82	10.00	78.58	8,289.29	8.61	42.63	2.00	2.00	0.00	78.58	
9,164.53	10.00	78.58	9,148.75	38.60	191.12	0.00	0.00	0.00	0.00	
9,664.36	0.00	179.74	9,646.04	47.21	233.75	2.00	-2.00	0.00	180.00	STERLING_SILVER
10,562.36	89.80	179.74	10,219.00	-523.74	236.37	10.00	10.00	0.00	179.74	
20,491.75	89.87	179.74	10,248.00	-10,452.99	281.78	0.00	0.00	0.00	0.00	STERLING_SILVER

Oxy

Planning Report

Database:	HOPSPP	Local Co-ordinate Reference:	Well STERLING SILVER MDP1 33-4 FED COM 7H
Company:	ENGINEERING DESIGNS	TVD Reference:	DATUM @ 3427.70ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	DATUM @ 3427.70ft
Site:	STERLING SILVER MDP1 33-4 FED COM	North Reference:	Grid
Well:	STERLING SILVER MDP1 33-4 FED COM 7H	Survey Calculation Method:	Minimum Curvature
Wellbore:	WB00		
Design:	Permitting Plan		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
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	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	0.00	0.00
4,700.00	0.00	0.00	4,700.00	0.00	0.00	0.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,800.00	0.00	0.00	0.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,900.00	0.00	0.00	0.00	0.00	0.00	0.00
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,100.00	0.00	0.00	0.00	0.00	0.00	0.00
5,200.00	0.00	0.00	5,200.00	0.00	0.00	0.00	0.00	0.00	0.00

Oxy Planning Report

Database:	HOPSPP	Local Co-ordinate Reference:	Well STERLING SILVER MDP1 33-4 FED COM 7H
Company:	ENGINEERING DESIGNS	TVD Reference:	DATUM @ 3427.70ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	DATUM @ 3427.70ft
Site:	STERLING SILVER MDP1 33-4 FED COM	North Reference:	Grid
Well:	STERLING SILVER MDP1 33-4 FED COM 7H	Survey Calculation Method:	Minimum Curvature
Wellbore:	WB00		
Design:	Permitting Plan		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
5,300.00	0.00	0.00	5,300.00	0.00	0.00	0.00	0.00	0.00	0.00
5,400.00	0.00	0.00	5,400.00	0.00	0.00	0.00	0.00	0.00	0.00
5,500.00	0.00	0.00	5,500.00	0.00	0.00	0.00	0.00	0.00	0.00
5,600.00	0.00	0.00	5,600.00	0.00	0.00	0.00	0.00	0.00	0.00
5,700.00	0.00	0.00	5,700.00	0.00	0.00	0.00	0.00	0.00	0.00
5,800.00	0.00	0.00	5,800.00	0.00	0.00	0.00	0.00	0.00	0.00
5,900.00	0.00	0.00	5,900.00	0.00	0.00	0.00	0.00	0.00	0.00
6,000.00	0.00	0.00	6,000.00	0.00	0.00	0.00	0.00	0.00	0.00
6,100.00	0.00	0.00	6,100.00	0.00	0.00	0.00	0.00	0.00	0.00
6,200.00	0.00	0.00	6,200.00	0.00	0.00	0.00	0.00	0.00	0.00
6,300.00	0.00	0.00	6,300.00	0.00	0.00	0.00	0.00	0.00	0.00
6,400.00	0.00	0.00	6,400.00	0.00	0.00	0.00	0.00	0.00	0.00
6,500.00	0.00	0.00	6,500.00	0.00	0.00	0.00	0.00	0.00	0.00
6,600.00	0.00	0.00	6,600.00	0.00	0.00	0.00	0.00	0.00	0.00
6,700.00	0.00	0.00	6,700.00	0.00	0.00	0.00	0.00	0.00	0.00
6,800.00	0.00	0.00	6,800.00	0.00	0.00	0.00	0.00	0.00	0.00
6,900.00	0.00	0.00	6,900.00	0.00	0.00	0.00	0.00	0.00	0.00
7,000.00	0.00	0.00	7,000.00	0.00	0.00	0.00	0.00	0.00	0.00
7,100.00	0.00	0.00	7,100.00	0.00	0.00	0.00	0.00	0.00	0.00
7,200.00	0.00	0.00	7,200.00	0.00	0.00	0.00	0.00	0.00	0.00
7,300.00	0.00	0.00	7,300.00	0.00	0.00	0.00	0.00	0.00	0.00
7,400.00	0.00	0.00	7,400.00	0.00	0.00	0.00	0.00	0.00	0.00
7,500.00	0.00	0.00	7,500.00	0.00	0.00	0.00	0.00	0.00	0.00
7,600.00	0.00	0.00	7,600.00	0.00	0.00	0.00	0.00	0.00	0.00
7,700.00	0.00	0.00	7,700.00	0.00	0.00	0.00	0.00	0.00	0.00
7,792.00	0.00	0.00	7,792.00	0.00	0.00	0.00	0.00	0.00	0.00
7,800.00	0.16	78.58	7,800.00	0.00	0.01	0.00	2.00	2.00	0.00
7,900.00	2.16	78.58	7,899.97	0.40	2.00	-0.35	2.00	2.00	0.00
8,000.00	4.16	78.58	7,999.82	1.49	7.40	-1.29	2.00	2.00	0.00
8,100.00	6.16	78.58	8,099.41	3.27	16.21	-2.84	2.00	2.00	0.00
8,200.00	8.16	78.58	8,198.62	5.74	28.43	-4.97	2.00	2.00	0.00
8,291.82	10.00	78.58	8,289.29	8.61	42.63	-7.46	2.00	2.00	0.00
8,300.00	10.00	78.58	8,297.34	8.89	44.02	-7.70	0.00	0.00	0.00
8,400.00	10.00	78.58	8,395.83	12.33	61.04	-10.68	0.00	0.00	0.00
8,500.00	10.00	78.58	8,494.31	15.76	78.05	-13.66	0.00	0.00	0.00
8,600.00	10.00	78.58	8,592.79	19.20	95.07	-16.63	0.00	0.00	0.00
8,700.00	10.00	78.58	8,691.27	22.64	112.08	-19.61	0.00	0.00	0.00
8,800.00	10.00	78.58	8,789.75	26.07	129.10	-22.59	0.00	0.00	0.00
8,900.00	10.00	78.58	8,888.24	29.51	146.11	-25.56	0.00	0.00	0.00
9,000.00	10.00	78.58	8,986.72	32.95	163.13	-28.54	0.00	0.00	0.00
9,100.00	10.00	78.58	9,085.20	36.38	180.14	-31.52	0.00	0.00	0.00
9,164.53	10.00	78.58	9,148.75	38.60	191.12	-33.44	0.00	0.00	0.00
9,200.00	9.29	78.58	9,183.72	39.78	196.95	-34.46	2.00	-2.00	0.00
9,300.00	7.29	78.58	9,282.67	42.63	211.07	-36.93	2.00	-2.00	0.00
9,400.00	5.29	78.58	9,382.06	44.80	221.81	-38.81	2.00	-2.00	0.00
9,500.00	3.29	78.58	9,481.78	46.28	229.13	-40.09	2.00	-2.00	0.00
9,600.00	1.29	78.58	9,581.69	47.07	233.05	-40.77	2.00	-2.00	0.00
9,664.36	0.00	179.74	9,646.04	47.21	233.75	-40.90	2.00	-2.00	0.00
9,700.00	3.56	179.74	9,681.66	46.10	233.76	-39.79	10.00	10.00	0.00
9,800.00	13.56	179.74	9,780.42	31.23	233.83	-24.92	10.00	10.00	0.00
9,900.00	23.56	179.74	9,875.10	-0.57	233.97	6.87	10.00	10.00	0.00
10,000.00	33.56	179.74	9,962.82	-48.32	234.19	54.61	10.00	10.00	0.00
10,100.00	43.56	179.74	10,040.91	-110.58	234.48	116.86	10.00	10.00	0.00

Oxy Planning Report

Database:	HOPSPP	Local Co-ordinate Reference:	Well STERLING SILVER MDP1 33-4 FED COM 7H
Company:	ENGINEERING DESIGNS	TVD Reference:	DATUM @ 3427.70ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	DATUM @ 3427.70ft
Site:	STERLING SILVER MDP1 33-4 FED COM	North Reference:	Grid
Well:	STERLING SILVER MDP1 33-4 FED COM 7H	Survey Calculation Method:	Minimum Curvature
Wellbore:	WB00		
Design:	Permitting Plan		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
10,200.00	53.56	179.74	10,107.00	-185.45	234.82	191.71	10.00	10.00	0.00
10,300.00	63.56	179.74	10,159.09	-270.67	235.21	276.91	10.00	10.00	0.00
10,400.00	73.56	179.74	10,195.59	-363.63	235.63	369.85	10.00	10.00	0.00
10,500.00	83.56	179.74	10,215.39	-461.52	236.08	467.71	10.00	10.00	0.00
10,562.36	89.80	179.74	10,219.00	-523.74	236.37	529.92	10.00	10.00	0.00
10,600.00	89.80	179.74	10,219.13	-561.38	236.54	567.55	0.00	0.00	0.00
10,700.00	89.80	179.74	10,219.48	-661.38	236.99	667.53	0.00	0.00	0.00
10,800.00	89.80	179.74	10,219.82	-761.38	237.45	767.50	0.00	0.00	0.00
10,900.00	89.80	179.74	10,220.17	-861.38	237.91	867.48	0.00	0.00	0.00
11,000.00	89.80	179.74	10,220.51	-961.38	238.37	967.45	0.00	0.00	0.00
11,100.00	89.80	179.74	10,220.86	-1,061.38	238.82	1,067.43	0.00	0.00	0.00
11,200.00	89.80	179.74	10,221.20	-1,161.37	239.28	1,167.40	0.00	0.00	0.00
11,300.00	89.80	179.74	10,221.54	-1,261.37	239.74	1,267.37	0.00	0.00	0.00
11,400.00	89.81	179.74	10,221.88	-1,361.37	240.20	1,367.35	0.00	0.00	0.00
11,500.00	89.81	179.74	10,222.22	-1,461.37	240.65	1,467.32	0.00	0.00	0.00
11,600.00	89.81	179.74	10,222.56	-1,561.37	241.11	1,567.30	0.00	0.00	0.00
11,700.00	89.81	179.74	10,222.89	-1,661.37	241.57	1,667.27	0.00	0.00	0.00
11,800.00	89.81	179.74	10,223.23	-1,761.36	242.03	1,767.25	0.00	0.00	0.00
11,900.00	89.81	179.74	10,223.56	-1,861.36	242.48	1,867.22	0.00	0.00	0.00
12,000.00	89.81	179.74	10,223.90	-1,961.36	242.94	1,967.20	0.00	0.00	0.00
12,100.00	89.81	179.74	10,224.23	-2,061.36	243.40	2,067.17	0.00	0.00	0.00
12,200.00	89.81	179.74	10,224.56	-2,161.36	243.85	2,167.14	0.00	0.00	0.00
12,300.00	89.81	179.74	10,224.89	-2,261.36	244.31	2,267.12	0.00	0.00	0.00
12,400.00	89.81	179.74	10,225.22	-2,361.35	244.77	2,367.09	0.00	0.00	0.00
12,500.00	89.81	179.74	10,225.54	-2,461.35	245.23	2,467.07	0.00	0.00	0.00
12,600.00	89.81	179.74	10,225.87	-2,561.35	245.68	2,567.04	0.00	0.00	0.00
12,700.00	89.81	179.74	10,226.20	-2,661.35	246.14	2,667.02	0.00	0.00	0.00
12,800.00	89.81	179.74	10,226.52	-2,761.35	246.60	2,766.99	0.00	0.00	0.00
12,900.00	89.82	179.74	10,226.84	-2,861.35	247.06	2,866.97	0.00	0.00	0.00
13,000.00	89.82	179.74	10,227.16	-2,961.35	247.51	2,966.94	0.00	0.00	0.00
13,100.00	89.82	179.74	10,227.49	-3,061.34	247.97	3,066.91	0.00	0.00	0.00
13,200.00	89.82	179.74	10,227.80	-3,161.34	248.43	3,166.89	0.00	0.00	0.00
13,300.00	89.82	179.74	10,228.12	-3,261.34	248.89	3,266.86	0.00	0.00	0.00
13,400.00	89.82	179.74	10,228.44	-3,361.34	249.34	3,366.84	0.00	0.00	0.00
13,500.00	89.82	179.74	10,228.76	-3,461.34	249.80	3,466.81	0.00	0.00	0.00
13,600.00	89.82	179.74	10,229.07	-3,561.34	250.26	3,566.79	0.00	0.00	0.00
13,700.00	89.82	179.74	10,229.38	-3,661.33	250.71	3,666.76	0.00	0.00	0.00
13,800.00	89.82	179.74	10,229.70	-3,761.33	251.17	3,766.74	0.00	0.00	0.00
13,900.00	89.82	179.74	10,230.01	-3,861.33	251.63	3,866.71	0.00	0.00	0.00
14,000.00	89.82	179.74	10,230.32	-3,961.33	252.09	3,966.68	0.00	0.00	0.00
14,100.00	89.82	179.74	10,230.63	-4,061.33	252.54	4,066.66	0.00	0.00	0.00
14,200.00	89.82	179.74	10,230.94	-4,161.33	253.00	4,166.63	0.00	0.00	0.00
14,300.00	89.82	179.74	10,231.24	-4,261.33	253.46	4,266.61	0.00	0.00	0.00
14,400.00	89.83	179.74	10,231.55	-4,361.32	253.92	4,366.58	0.00	0.00	0.00
14,500.00	89.83	179.74	10,231.85	-4,461.32	254.37	4,466.56	0.00	0.00	0.00
14,600.00	89.83	179.74	10,232.16	-4,561.32	254.83	4,566.53	0.00	0.00	0.00
14,700.00	89.83	179.74	10,232.46	-4,661.32	255.29	4,666.51	0.00	0.00	0.00
14,800.00	89.83	179.74	10,232.76	-4,761.32	255.75	4,766.48	0.00	0.00	0.00
14,900.00	89.83	179.74	10,233.06	-4,861.32	256.20	4,866.45	0.00	0.00	0.00
15,000.00	89.83	179.74	10,233.36	-4,961.31	256.66	4,966.43	0.00	0.00	0.00
15,100.00	89.83	179.74	10,233.65	-5,061.31	257.12	5,066.40	0.00	0.00	0.00
15,200.00	89.83	179.74	10,233.95	-5,161.31	257.58	5,166.38	0.00	0.00	0.00
15,300.00	89.83	179.74	10,234.25	-5,261.31	258.03	5,266.35	0.00	0.00	0.00

Oxy Planning Report

Database:	HOPSP	Local Co-ordinate Reference:	Well STERLING SILVER MDP1 33-4 FED COM 7H
Company:	ENGINEERING DESIGNS	TVD Reference:	DATUM @ 3427.70ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	DATUM @ 3427.70ft
Site:	STERLING SILVER MDP1 33-4 FED COM	North Reference:	Grid
Well:	STERLING SILVER MDP1 33-4 FED COM 7H	Survey Calculation Method:	Minimum Curvature
Wellbore:	WB00		
Design:	Permitting Plan		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
15,400.00	89.83	179.74	10,234.54	-5,361.31	258.49	5,366.33	0.00	0.00	0.00
15,500.00	89.83	179.74	10,234.83	-5,461.31	258.95	5,466.30	0.00	0.00	0.00
15,600.00	89.83	179.74	10,235.13	-5,561.31	259.40	5,566.28	0.00	0.00	0.00
15,700.00	89.83	179.74	10,235.42	-5,661.30	259.86	5,666.25	0.00	0.00	0.00
15,800.00	89.83	179.74	10,235.71	-5,761.30	260.32	5,766.23	0.00	0.00	0.00
15,900.00	89.84	179.74	10,235.99	-5,861.30	260.78	5,866.20	0.00	0.00	0.00
16,000.00	89.84	179.74	10,236.28	-5,961.30	261.23	5,966.17	0.00	0.00	0.00
16,100.00	89.84	179.74	10,236.57	-6,061.30	261.69	6,066.15	0.00	0.00	0.00
16,200.00	89.84	179.74	10,236.85	-6,161.30	262.15	6,166.12	0.00	0.00	0.00
16,300.00	89.84	179.74	10,237.14	-6,261.30	262.61	6,266.10	0.00	0.00	0.00
16,400.00	89.84	179.74	10,237.42	-6,361.29	263.06	6,366.07	0.00	0.00	0.00
16,500.00	89.84	179.74	10,237.70	-6,461.29	263.52	6,466.05	0.00	0.00	0.00
16,600.00	89.84	179.74	10,237.98	-6,561.29	263.98	6,566.02	0.00	0.00	0.00
16,700.00	89.84	179.74	10,238.26	-6,661.29	264.44	6,666.00	0.00	0.00	0.00
16,800.00	89.84	179.74	10,238.54	-6,761.29	264.89	6,765.97	0.00	0.00	0.00
16,900.00	89.84	179.74	10,238.81	-6,861.29	265.35	6,865.95	0.00	0.00	0.00
17,000.00	89.84	179.74	10,239.09	-6,961.29	265.81	6,965.92	0.00	0.00	0.00
17,100.00	89.84	179.74	10,239.37	-7,061.28	266.26	7,065.89	0.00	0.00	0.00
17,200.00	89.84	179.74	10,239.64	-7,161.28	266.72	7,165.87	0.00	0.00	0.00
17,300.00	89.84	179.74	10,239.91	-7,261.28	267.18	7,265.84	0.00	0.00	0.00
17,400.00	89.84	179.74	10,240.18	-7,361.28	267.64	7,365.82	0.00	0.00	0.00
17,500.00	89.85	179.74	10,240.45	-7,461.28	268.09	7,465.79	0.00	0.00	0.00
17,600.00	89.85	179.74	10,240.72	-7,561.28	268.55	7,565.77	0.00	0.00	0.00
17,700.00	89.85	179.74	10,240.99	-7,661.28	269.01	7,665.74	0.00	0.00	0.00
17,800.00	89.85	179.74	10,241.26	-7,761.27	269.47	7,765.72	0.00	0.00	0.00
17,900.00	89.85	179.74	10,241.52	-7,861.27	269.92	7,865.69	0.00	0.00	0.00
18,000.00	89.85	179.74	10,241.79	-7,961.27	270.38	7,965.67	0.00	0.00	0.00
18,100.00	89.85	179.74	10,242.05	-8,061.27	270.84	8,065.64	0.00	0.00	0.00
18,200.00	89.85	179.74	10,242.31	-8,161.27	271.30	8,165.62	0.00	0.00	0.00
18,300.00	89.85	179.74	10,242.57	-8,261.27	271.75	8,265.59	0.00	0.00	0.00
18,400.00	89.85	179.74	10,242.83	-8,361.27	272.21	8,365.56	0.00	0.00	0.00
18,500.00	89.85	179.74	10,243.09	-8,461.26	272.67	8,465.54	0.00	0.00	0.00
18,600.00	89.85	179.74	10,243.35	-8,561.26	273.12	8,565.51	0.00	0.00	0.00
18,700.00	89.85	179.74	10,243.60	-8,661.26	273.58	8,665.49	0.00	0.00	0.00
18,800.00	89.85	179.74	10,243.86	-8,761.26	274.04	8,765.46	0.00	0.00	0.00
18,900.00	89.85	179.74	10,244.11	-8,861.26	274.50	8,865.44	0.00	0.00	0.00
19,000.00	89.86	179.74	10,244.36	-8,961.26	274.95	8,965.41	0.00	0.00	0.00
19,100.00	89.86	179.74	10,244.62	-9,061.26	275.41	9,065.39	0.00	0.00	0.00
19,200.00	89.86	179.74	10,244.87	-9,161.26	275.87	9,165.36	0.00	0.00	0.00
19,300.00	89.86	179.74	10,245.12	-9,261.25	276.33	9,265.34	0.00	0.00	0.00
19,400.00	89.86	179.74	10,245.36	-9,361.25	276.78	9,365.31	0.00	0.00	0.00
19,500.00	89.86	179.74	10,245.61	-9,461.25	277.24	9,465.29	0.00	0.00	0.00
19,600.00	89.86	179.74	10,245.86	-9,561.25	277.70	9,565.26	0.00	0.00	0.00
19,700.00	89.86	179.74	10,246.10	-9,661.25	278.16	9,665.24	0.00	0.00	0.00
19,800.00	89.86	179.74	10,246.35	-9,761.25	278.61	9,765.21	0.00	0.00	0.00
19,900.00	89.86	179.74	10,246.59	-9,861.25	279.07	9,865.18	0.00	0.00	0.00
20,000.00	89.86	179.74	10,246.83	-9,961.24	279.53	9,965.16	0.00	0.00	0.00
20,100.00	89.86	179.74	10,247.07	-10,061.24	279.98	10,065.13	0.00	0.00	0.00
20,200.00	89.86	179.74	10,247.31	-10,161.24	280.44	10,165.11	0.00	0.00	0.00
20,300.00	89.86	179.74	10,247.55	-10,261.24	280.90	10,265.08	0.00	0.00	0.00
20,400.00	89.86	179.74	10,247.78	-10,361.24	281.36	10,365.06	0.00	0.00	0.00
20,491.75	89.87	179.74	10,248.00	-10,452.99	281.78	10,456.78	0.00	0.00	0.00

Oxy Planning Report

Database:	HOPSPP	Local Co-ordinate Reference:	Well STERLING SILVER MDP1 33-4 FED COM 7H
Company:	ENGINEERING DESIGNS	TVD Reference:	DATUM @ 3427.70ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	DATUM @ 3427.70ft
Site:	STERLING SILVER MDP1 33-4 FED COM	North Reference:	Grid
Well:	STERLING SILVER MDP1 33-4 FED COM 7H	Survey Calculation Method:	Minimum Curvature
Wellbore:	WB00		
Design:	Permitting Plan		

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
STERLING_SILVER_7 - plan hits target center - Point	0.00	0.00	9,646.04	47.21	233.75	461,696.34	713,825.07	32° 16' 4.962561 N	103° 46' 30.988542
STERLING_SILVER_7 - plan hits target center - Point	0.00	0.00	10,248.00	-10,452.99	281.78	451,196.76	713,873.09	32° 14' 21.060996 N	103° 46' 31.064892

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
7,792.00	7,792.00	0.00	0.00	STEP OUT DLS 2.00
8,291.82	8,289.29	8.61	42.63	HOLD 10 DEG TANGENT
9,164.53	9,148.75	38.60	191.12	DROP BACK TO VERTICAL DLS 2.00
9,664.36	9,646.04	47.21	233.75	BUILD CURVE 10 DEG / 100
10,562.36	10,219.00	-523.74	236.37	LANDING POINT
20,491.75	10,248.00	-10,452.99	281.78	TD at 20491.75

PERFORMANCE DATA

TMK UP SF TORQ™

5.500 in

20.00 lbs/ft

P-110 CYHP

Technical Data Sheet

Tubular Parameters

Size	5.500	in	Minimum Yield	125,000	psi
Nominal Weight	20.00	lbs/ft	Minimum Tensile	135,000	psi
Grade	P-110 CYHP		Yield Load	728,000	lbs
PE Weight	19.81	lbs/ft	Tensile Load	786,000	lbs
Wall Thickness	0.361	in	Min. Internal Yield Pressure	14,360	psi
Nominal ID	4.778	in	Collapse Pressure	12,780	psi
Drift Diameter	4.653	in			
Nom. Pipe Body Area	5.828	in ²			

Connection Parameters

Connection OD	5.777	in
Connection ID	4.734	in
Make-Up Loss	5.823	in
Critical Section Area	5.875	in ²
Tension Efficiency	90.0	%
Compression Efficiency	90.0	%
Yield Load In Tension	655,000	lbs
Min. Internal Yield Pressure	14,360	psi
Collapse Pressure	12,780	psi
Uniaxial Bending	90.8	°/100 ft

Make-Up Torques

Min. Make-Up Torque	15,700	ft-lbs
Opt. Make-Up Torque	19,600	ft-lbs
Max. Make-Up Torque	21,600	ft-lbs
Operating Torque	29,000	ft-lbs
Yield Torque	37,000	ft-lbs

Printed on: January-10-2018



NOTES

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IPSCO

PERFORMANCE DATA

TMK UP DQX
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	729,000	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	6.050	in
Connection ID	4.778	in
Make-Up Loss	4.122	in
Critical Section Area	5.828	in ²
Tension Efficiency	100.0	%
Compression Efficiency	100.0	%
Yield Load In Tension	641,000	lbs
Min. Internal Yield Pressure	12,600	psi
Collapse Pressure	11,100	psi

Make-Up Torques

Min. Make-Up Torque	11,600	ft-lbs
Opt. Make-Up Torque	12,900	ft-lbs
Max. Make-Up Torque	14,100	ft-lbs
Yield Torque	20,600	ft-lbs



Printed on: July-29-2014

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IPSCO

TECHNICAL DATA SHEET TMK UP FJ 7.625 X 26.4 L80 HC

TUBULAR PARAMETERS

Nominal OD, (inch)	7.625
Wall Thickness, (inch)	0.328
Pipe Grade	L80 HC
Drift	Standard

PIPE BODY PROPERTIES

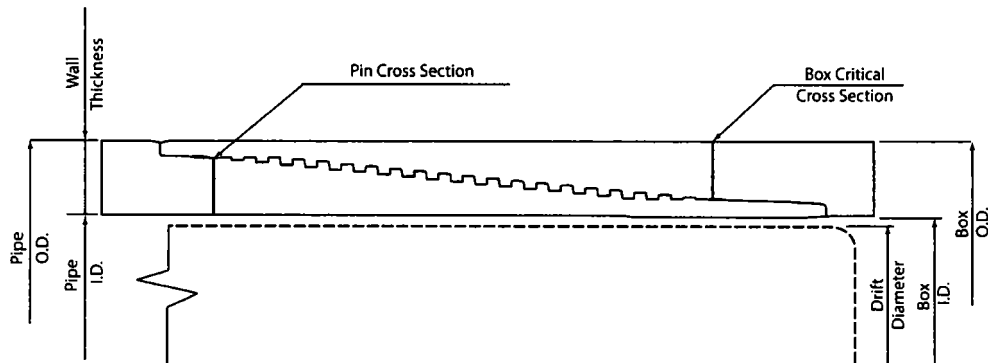
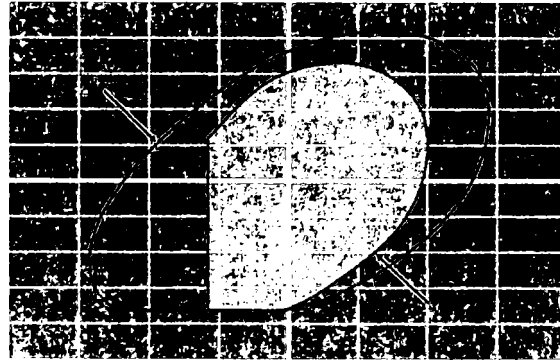
PE Weight, (lbs/ft)	25.56
Nominal Weight, (lbs/ft)	26.40
Nominal ID, (inch)	6.969
Drift Diameter, (inch)	6.844
Nominal Pipe Body Area, (sq inch)	7.519
Yield Strength in Tension, (klbs)	601
Min. Internal Yield Pressure, (psi)	6 020
Collapse Pressure, (psi)	3 910

CONNECTION PARAMETERS

Connection OD (inch)	7.63
Connection ID, (inch)	6.975
Make-Up Loss, (inch)	4.165
Connection Critical Area, (sq inch)	2.520
Yield Strength in Tension, (klbs)	347
Yield Strength in Compression, (klbs)	347
Tension Efficiency	58%
Compression Efficiency	58%
Min. Internal Yield Pressure, (psi)	6 020
Collapse Pressure, (psi)	3 910
Uniaxial Bending (deg/100ft)	28.0

MAKE-UP TORQUES

Yield Torque, (ft-lb)	22 200
Minimum Make-Up Torque, (ft-lb)	12 500
Optimum Make-Up Torque, (ft-lb)	13 900
Maximum Make-Up Torque, (ft-lb)	15 300



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TECHNICAL DATA SHEET TMK UP SF 7.625 X 26.4 L80 HC

TUBULAR PARAMETERS

Nominal OD, (inch)	7.625
Wall Thickness, (inch)	0.328
Pipe Grade	L80 HC
Drift	Standard

PIPE BODY PROPERTIES

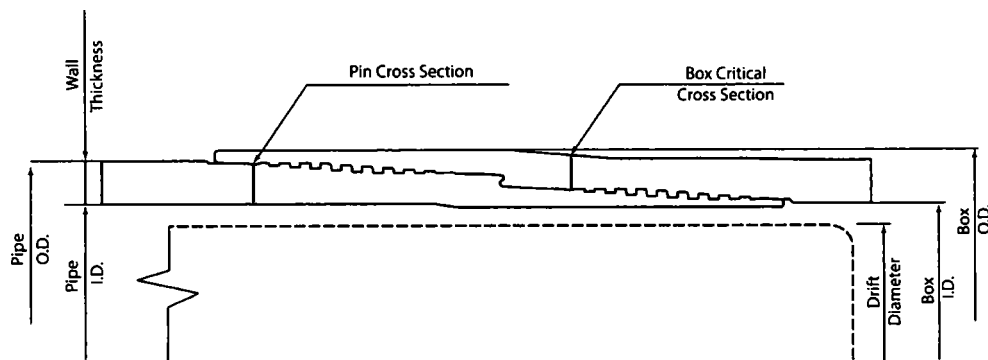
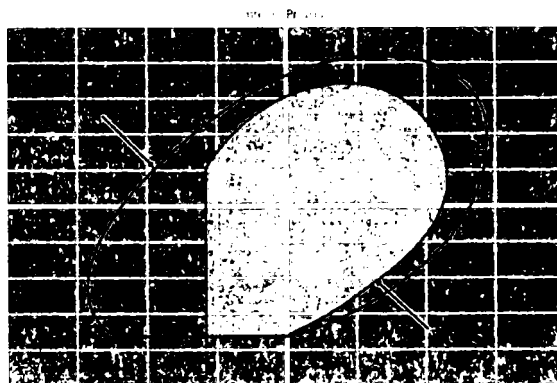
PE Weight, (lbs/ft)	25.56
Nominal Weight, (lbs/ft)	26.40
Nominal ID, (inch)	6.969
Drift Diameter, (inch)	6.844
Nominal Pipe Body Area, (sq inch)	7.519
Yield Strength in Tension, (klbs)	601
Min. Internal Yield Pressure, (psi)	6 020
Collapse Pressure, (psi)	3 910

CONNECTION PARAMETERS

Connection OD (inch)	7.79
Connection ID, (inch)	6.938
Make-Up Loss, (inch)	6.029
Connection Critical Area, (sq inch)	5.948
Yield Strength in Tension, (klbs)	533
Yield Strength in Compression, (klbs)	533
Tension Efficiency	89%
Compression Efficiency	89%
Min. Internal Yield Pressure, (psi)	6 020
Collapse Pressure, (psi)	3 910
Uniaxial Bending (deg/100ft)	42.7

MAKE-UP TORQUES

Yield Torque, (ft-lb)	22 600
Minimum Make-Up Torque, (ft-lb)	15 000
Optimum Make-Up Torque, (ft-lb)	16 500
Maximum Make-Up Torque, (ft-lb)	18 200



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