

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

AUG 17 2018

FORM 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 abandon a well. Use form 3160-3 (APD) for such proposals.

5. Lease Serial No.
NMNM40659

6. If Indian, Allottee or Tribe Name

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

SUBMIT IN TRIPLICATE - Other instructions on page 2

DISMANTLE-ARTESIA O.C.D.
Carlsbad Field Office
OCD Artesia

1. Type of Well <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other		8. Well Name and No. IRIDIUM MDP1 28-21 FEDERAL COM 11H
2. Name of Operator OXY USA INC Contact: DAVID STEWART E-Mail: david_stewart@oxy.com		9. API Well No. 30-015-45073
3a. Address P.O. BOX 50250 MIDLAND, TX 79710	3b. Phone No. (include area code) Ph: 432-685-5717	10. Field and Pool or Exploratory Area INGLE WELLS BONE SPRING
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Sec 28 T23S R31E SWSW 430FSL 648FWL 32.269362 N Lat, 103.789196 W Lon		11. 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
<input checked="" type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize <input type="checkbox"/> Deepen <input type="checkbox"/> Production (Start/Resume) <input type="checkbox"/> Water Shut-Off
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing <input type="checkbox"/> Hydraulic Fracturing <input type="checkbox"/> Reclamation <input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair <input type="checkbox"/> New Construction <input type="checkbox"/> Recomplete <input checked="" type="checkbox"/> Other
	<input type="checkbox"/> Change Plans <input type="checkbox"/> Plug and Abandon <input type="checkbox"/> Temporarily Abandon <input type="checkbox"/> Change to Original APD
	<input type="checkbox"/> Convert to Injection <input type="checkbox"/> Plug Back <input type="checkbox"/> Water Disposal

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.

OXY USA Inc. respectfully requests to amend the APD with the following changes.

1. Amend the TMD, TVD, see attached.

2. Amend the surface, intermediate and production casings size, type, and depth and add the contingency intermediate casing string and annular clearance request, see attached.

OXY requests the option to run the 7.625" Intermediate II as a contingency casing string to be run only if severe hole conditions dictate an additional casing string. The Intermediate II cement job will only occur if OXY elects to run a second intermediate casing string. See attached drill plan for the three string primary casing/cementing plan.

GC 8-31-18
Accepted for record - NMOCD

**SEE ATTACHED FOR
CONDITIONS OF APPROVAL**

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

Electronic Submission #430030 verified by the BLM Well Information System
For OXY USA INC, sent to the Carlsbad
Committed to AFMSS for processing by MUSTAFA HAQUE on 08/15/2018 ()

Name (Printed/Typed) DAVID STEWART	Title SR. REGULATORY ADVISOR
Signature (Electronic Submission)	Date 08/06/2018

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By <i>Mustafa Haque</i>	Title Petroleum Engineer Carlsbad Field Office	Date <i>08-15-2018</i>
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		

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)

**** OPERATOR-SUBMITTED ** OPERATOR-SUBMITTED ** OPERATOR-SUBMITTED ****

Additional data for EC transaction #430030 that would not fit on the form

32. Additional remarks, continued

Annular Clearance Variance Request as per the agreement reached in the Oxy/BLM meeting on Feb 22, 2018, Oxy requests permission to allow deviation from the 0.422" annular clearance requirement from Onshore Order #2 under the following conditions:

- a. Annular clearance to meet or exceed 0.422" between intermediate casing ID and production casing coupling only on the first 500' overlap between both casings.
- b. Annular clearance less than 0.422" is acceptable for the curve and lateral portions of the production open hole section.

2. Amend the cementing program and add bradenhead squeeze stage, see attached.

OXY requests to pump a two stage cement job on either the intermediate II or production casing string with the first stage being pumped conventionally with the calculated TOC @ the Brushy Canyon and the second stage performed as a bradenhead squeeze with planned cement from the Brushy Canyon to surface.

3. Amend BOP program and add BOP Break Testing request, see attached.

BOP Break Testing Request As per the agreement reached in the Oxy/BLM meeting on Feb 22, 2018, Oxy requests permission to allow BOP Break Testing under the following conditions:

- a. After a full BOP test is conducted on the first well on the pad.
- b. When skidding to drill an intermediate section that does not penetrate into the Wolfcamp.
- c. Full BOP test will be required prior to drilling any production hole.

4. Amend the mud program, depth and type, see attached.

5. Amend the drilling conditions, see attached.

OXY USA Inc. - Iridium MDP1 28-21 Federal Com 11H – Amended Drill Plan

1. Geologic Formations

TVD of target	9970'	Pilot Hole Depth	N/A
MD at TD:	20441'	Deepest Expected fresh water:	432'

Delaware Basin

Formation	TVD - RKB	Expected Fluids
Rustler	432	
Salado	789	
Castile	2,724	
Lamar/Delaware	4,176	
Bell Canyon	4,211	Water (inj zone)
Cherry Canyon	5,097	
Brushy Canyon	6,396	
Bone Spring	8,000	Oil/Gas/Water
1st Bone Spring	8,762	Oil/Gas/Water
2nd Bone Spring	9,316	Oil/Gas/Water

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

2. Casing Program

Primary Plans

Hole Size (in)	Casing Interval		Csg. Size (in)	Weight (lbs)	Grade	Conn.	SF	SF	Body SF	Joint SF
	From (ft)	To (ft)					Collapse	Burst	Tension	Tension
17.5	0	483 540	13.375	54.5	J-55	BTC	1.125	1.2	1.4	1.4
12.25	0	4,227	9.625	43.5	L-80	BTC	1.125	1.2	1.4	1.4
8.5	0	20,441	5.5	20	P-110	DQX	1.125	1.2	1.4	1.4

SF Values will meet or Exceed

Contingency Plans

Hole Size (in)	Casing Interval		Csg. Size (in)	Weight (lbs)	Grade	Conn.	SF	SF	Body SF	Joint SF
	From (ft)	To (ft)					Collapse	Burst	Tension	Tension
17.5	0	483 540	13.375	54.5	J-55	BTC	1.125	1.2	1.4	1.4
12.25	0	4,227	9.625	43.5	L-80	BTC	1.125	1.2	1.4	1.4
8.5	0	4,000	7.625	26.4	HCL-80	SF	1.125	1.2	1.4	1.4
	4,000	8,500	7.625	26.4	HCL-80	FJ	1.125	1.2	1.4	1.4
6.75	0	20,441	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 run the 7.625" Intermediate II as a contingency string to be run only if severe hole conditions dictate an additional casing string necessary.

OXY USA Inc. - Iridium MDP1 28-21 Federal Com 11H – Amended Drill Plan

*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 cancelation cone and not pump the second stage.

Annular Clearance Variance Request

As per the agreement reached in the Oxy/BLM meeting on Feb 22, 2018, Oxy requests permission to allow deviation from the 0.422" annular clearance requirement from Onshore Order #2 under the following conditions:

1. Annular clearance to meet or exceed 0.422" between intermediate casing ID and production casing coupling only on the first 500' overlap between both casings.
2. Annular clearance less than 0.422" is acceptable for the curve and lateral portions of the production open hole section.

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Does casing meet API specifications? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	Y
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	
Is well within the designated 4 string boundary.	
Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3 rd string cement tied back 500' into previous casing?	
Is well located in R-111-P and SOPA?	Y
If yes, are the first three strings cemented to surface?	Y
Is 2 nd string set 100' to 600' below the base of salt?	Y
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

OXY USA Inc. - Iridium MDP1 28-21 Federal Com 11H – Amended Drill Plan

3. Cementing Program

Primary Plan:

Casing	Slurry	#Sks	Wt. (Lb/gal)	Yld ft ³ /sack	H ₂ O gal/sk	500# Comp. Strength	Slurry Description
Surface	Tail	491	14.8	1.33	6.365	5:26	Accelerator
Intermediate	Lead	1,028	12.9	1.88	10.13	7:32	Retarder, Extender, Dispersant
	Tail	141	14.8	1.33	6.42	6:31	Retarder, Dispersant, Salt
1st Stage Production	Lead	234	13.2	1.65	6.686	3:49	Extender, Accelerator, Dispersant
	Tail	1,814	13.2	1.65	6.686	3:49	Extender, Accelerator, Dispersant
2nd Stage Production	Tail	359	12.9	1.88	9.356	9:49	Retarder, Dispersant, Fluid Loss Control, Extender

2nd Stage Production cement will be pumped from surface as a bradenhead squeeze

Casing String	Top of Lead (ft)	Bottom of Lead (ft)	Top of Tail (ft)	Bottom of Tail (ft)	% Excess Lead	% Excess Tail
Surface	N/A	N/A	0	483	N/A	100%
Intermediate	0	3727	3727	4227	75%	20%
1st Stage Production	6396	8000	8000	20441	5%	5%
2nd Stage Production	N/A	N/A	3727 0	6396	N/A	25%

OXY USA Inc. - Iridium MDP1 28-21 Federal Com 11H – Amended Drill Plan

Contingency Plan:

Casing	Slurry	#Sks	Wt. (Lb/gal)	Yld ft3/sack	H2O gal/sk	500# Comp. Strength	Slurry Description
Surface	Lead	N/A	N/A	N/A	N/A	N/A	N/A
	Tail	491	14.8	1.33	6.365	5:26	Class C Cement, Accelerator
Intermediate I	Lead	1028	12.9	1.88	10.13	7:32	Retarder, Extender, Dispersant
	Tail	141	14.8	1.33	6.42	6:31	Retarder, Dispersant, Salt
Intermediate II 1st Stage	Lead	54	13.2	1.65	6.686	3:49	Retarder, Dispersant, Salt
	Tail	29	13.2	1.65	6.69	3:49	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
	Tail	377	12.8	1.76	9.38	9:49	Extender, Accelerator, Dispersant
Production	Lead	N/A	N/A	N/A	N/A	N/A	N/A
	Tail	911	13.2	1.38	6.686	3:49	Retarder, Dispersant, Fluid Loss Control, Extender

Casing String	Top of Lead (ft)	Bottom of Lead (ft)	Top of Tail (ft)	Bottom of Tail (ft)	% Excess Lead	% Excess Tail
Surface	N/A	N/A	0	483	N/A	100%
Int I	0	3727	3727	4227	75%	20%
Int II (1st Stage)	6896	8000	8000	8500	25%	5%
Int II (2nd Stage)	N/A	N/A	0	6896	N/A	5%
Production	N/A	N/A	8000	20441	N/A	20%

***Contingency design will only be employed if Oxy elects to run 7.625" Intermediate II string.**

4. Pressure Control Equipment

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✓	Tested to:
12.25" Hole	13-5/8"	5M	Annular	✓	70% of working pressure
			Blind Ram	✓	250/5000psi
			Pipe Ram		
			Double Ram	✓	
			Other*		

*Specify if additional ram is utilized.

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold. See attached schematics.

Formation integrity test will be performed per Onshore Order #2. On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i.	
A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.	
Y	Are anchors required by manufacturer?
A multibowl or a unionized multibowl wellhead system will be employed. The wellhead and connection to the BOPE will meet all API 6A requirements. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested. We will test the flange connection of the wellhead with a test port that is directly in the flange. We are proposing that we will run the wellhead through the rotary prior to cementing surface casing as discussed with the BLM on October 8, 2015. See attached schematics.	

BOP Break Testing Request

As per the agreement reached in the Oxy/BLM meeting on Feb 22, 2018, Oxy requests permission to allow BOP Break Testing under the following conditions:

- After a full BOP test is conducted on the first well on the pad.
- When skidding to drill an intermediate section that does not penetrate into the Wolfcamp.
- Full BOP test will be required prior to drilling any production hole.

OXY USA Inc. - Iridium MDP1 28-21 Federal Com 11H – Amended Drill Plan

5. Mud Program

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From (ft)	To (ft)				
0	483	Water-Based Mud	8.6-8.8	40-60	N/C
483	4227	Saturated Brine-Based Mud	9.8-10.0	35-45	N/C
4227	20441	Water-Based or Oil-Based Mud	8.0-9.5	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.

What will be used to monitor the loss or gain of fluid?	PVT/MD Totco/Visual Monitoring
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6. Logging and Testing Procedures

Logging, Coring and Testing.	
Yes	Will run GR from TD to surface (horizontal well – vertical portion of hole). Stated logs run will be in the Completion Report and submitted to the BLM.
No	Logs are planned based on well control or offset log information.
No	Drill stem test? If yes, explain
No	Coring? If yes, explain

Additional logs planned	Interval
No	Resistivity
No	Density
No	CBL
Yes	Mud log ICP - TD
No	PEX

7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	6222 psi
Abnormal Temperature	No
BH Temperature at deepest TVD	160°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

8. Other facets of operation

	Yes/No
Will the well be drilled with a walking/skidding operation? If yes, describe. <ul style="list-style-type: none"> We plan to drill the two 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. <ul style="list-style-type: none"> 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: 1517.9 bbls.

9. Company Personnel

Name	Title	Office Phone	Mobile Phone
Garrett Granier	Drilling Engineer	713-513-6633	832-265-0581
Randy Neel	Drilling Engineer Supervisor	713-215-7987	713-517-5544
Simon Benavides	Drilling Superintendent	713-522-8652	281-684-6897
John Willis	Drilling Manager	713-366-5556	713-259-1417

Oxy Iridium MDP1 28-21 Federal Com 11H Rev3 APS 24Jul18 Proposal
Geodetic Report
 (Def Plan)



Report Date: July 24, 2018 - 01:33 PM
Client: OXY
Field: NM Eddy County (NAD 83)
Structure / Slot: Oxy Iridium MDP1 28-21 Federal Com 11H / Iridium MDP1 28-21 Federal Com 11H
Well: Iridium MDP1 28-21 Federal Com 11H
Borehole: Original Borehole
UWI / API#: Unknown / Unknown
Survey Name: Oxy Iridium MDP1 28-21 Federal Com 11H Rev3 APS 24Jul18
Survey Date: July 17, 2018
Tort / AHD / DDI / ERD Ratio: 114.539 * / 11312.810 ft / 8.424 / 1.135
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 18' 9.70272", W 103° 47' 21.10589"
Location Grid N/E Y/X: N 462153.250 ftUS, E 709519.880 ftUS
CRS Grid Convergence Angle: 0.2905 *
Grid Scale Factor: 0.99994149
Version / Patch: 2.10.740.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 358.125 * (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB=30'
TVD Reference Elevation: 3400.300 ft above MSL
Seabed / Ground Elevation: 3370.300 ft above MSL
Magnetic Declination: 8.909 *
Total Gravity Field Strength: 998.4510mgm (9.80685 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 48031.552 nT
Magnetic Dip Angle: 60.018 *
Declination Date: July 17, 2018
Magnetic Declination Model: HDGM 2018
North Reference: Grid North
Grid Convergence Angle: 0.2905 *
Total Corr Mag North->Grid North: 6.6184 *
Local Coord Referenced To: Well Head

Comments	MD (ft)	Incl (°)	Azlm Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (*100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
SHL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	462153.25	709519.88	N 32 18 9.70	W 103 47 21.11
Rustler	432.00	0.00	190.90	432.00	0.00	0.00	0.00	0.00	462153.25	709519.88	N 32 18 9.70	W 103 47 21.11
Salado	789.00	0.00	190.90	789.00	0.00	0.00	0.00	0.00	462153.25	709519.88	N 32 18 9.70	W 103 47 21.11
Castile	2724.00	0.00	190.90	2724.00	0.00	0.00	0.00	0.00	462153.25	709519.88	N 32 18 9.70	W 103 47 21.11
Lamar	4176.00	0.00	190.90	4176.00	0.00	0.00	0.00	0.00	462153.25	709519.88	N 32 18 9.70	W 103 47 21.11
Bell Canyon	4211.00	0.00	190.90	4211.00	0.00	0.00	0.00	0.00	462153.25	709519.88	N 32 18 9.70	W 103 47 21.11
Cherry Canyon	5097.00	0.00	190.90	5097.00	0.00	0.00	0.00	0.00	462153.25	709519.88	N 32 18 9.70	W 103 47 21.11
Build 2'100'	5640.00	0.00	190.90	5640.00	0.00	0.00	0.00	0.00	462153.25	709519.88	N 32 18 9.70	W 103 47 21.11
Hold Tangent	6239.88	12.00	190.90	6235.51	-81.03	-81.45	-11.84	2.00	462091.80	709507.84	N 32 18 9.10	W 103 47 21.25
Brushy Canyon	6403.96	12.00	190.90	6396.00	-94.29	-94.94	-18.29	0.00	462058.32	709501.39	N 32 18 8.78	W 103 47 21.32
Bone Spring	8043.78	12.00	190.90	8000.00	-426.72	-428.66	-82.76	0.00	461723.62	709436.92	N 32 18 5.46	W 103 47 22.09
Turn 2'100'	8443.79	12.00	190.90	8391.27	-507.81	-511.31	-98.49	0.00	461641.97	709421.20	N 32 18 4.65	W 103 47 22.28
First Bone Spring	8819.00	5.65	219.12	8762.00	-559.86	-564.00	-117.54	2.00	461589.28	709402.15	N 32 18 4.13	W 103 47 22.51
Second Bone Spring	9375.68	8.53	320.78	9316.00	-547.67	-553.23	-161.07	2.00	461600.05	709358.62	N 32 18 4.24	W 103 47 23.01
Build/Turn 10'100'	9567.02	12.00	330.00	9504.26	-518.83	-525.00	-180.00	2.00	461628.28	709339.69	N 32 18 4.52	W 103 47 23.23
Build/Turn 10'100'	9903.53	45.00	346.75	9796.25	-368.95	-374.55	-226.09	10.00	461778.72	709293.60	N 32 18 6.01	W 103 47 23.76
Landing Point	10367.79	90.00	359.64	9970.00	49.02	40.30	-267.47	10.00	462193.54	709252.23	N 32 18 10.11	W 103 47 24.22
Iridium MDP1 28-21 Federal Com 11H PBHL	20440.66	90.00	359.64	9970.00	10118.39	10112.97	-331.04	0.00	472265.61	709188.66	N 32 17 49.79	W 103 47 24.38

Survey Type: Def Plan

Survey Error Model: ISCWSA Rev 0 *** 3-D 95.000% Confidence 2.7955 sigma
Survey Program:

Description	Part	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Expected Max Inclination (deg)	Survey Tool Type	Borehole / Survey
	1	0.000	30.000	1/100.000	30.000	30.000		NAL_NSG+MSHOT-Depth Only	Original Borehole / Oxy Iridium MDP1 28-21 Federal Com 11H
	1	30.000	500.000	1/100.000	30.000	30.000		NAL_NSG+MSHOT	Original Borehole / Oxy Iridium MDP1 28-21 Federal Com 11H
	1	500.000	20440.661	1/100.000	30.000	30.000		NAL_MWD_PLUS_0.5_DEG	Original Borehole / Oxy Iridium MDP1 28-21 Federal Com 11H



OXY



Borehole: Original Borehole Well: Iridium MDP1 28-21 Federal Com 11H Field: NM Eddy County (NAD 83) Structure: Oxy Iridium MDP1 28-21 Federal Com 11H

Gravity & Magnetic Parameters

Model: HDOM 2018 Dip: 60.918° Date: 17-Jul-2018
 MagDec: 6.909° FS: 48031.852nT Gravity FS: 998.451mgal (8.80665 Based)

Surface Location NAD83 New Mexico State Plane, Eastern Zone, US Feet

Lat: N 32 16 9.70 Northing: 462163.268US Grid Conv: 0.2905°
 Lon: W 103 47 21.11 Easting: 709919.688US Scale Fact: 0.99994149

Miscellaneous

Iridium MDP1 28-21 Federal Com 11H Rev3 APS 24Jul18
 20441 MD 9970 TVD
 90.00° incl 359.84° az
 N=10113 E=-331

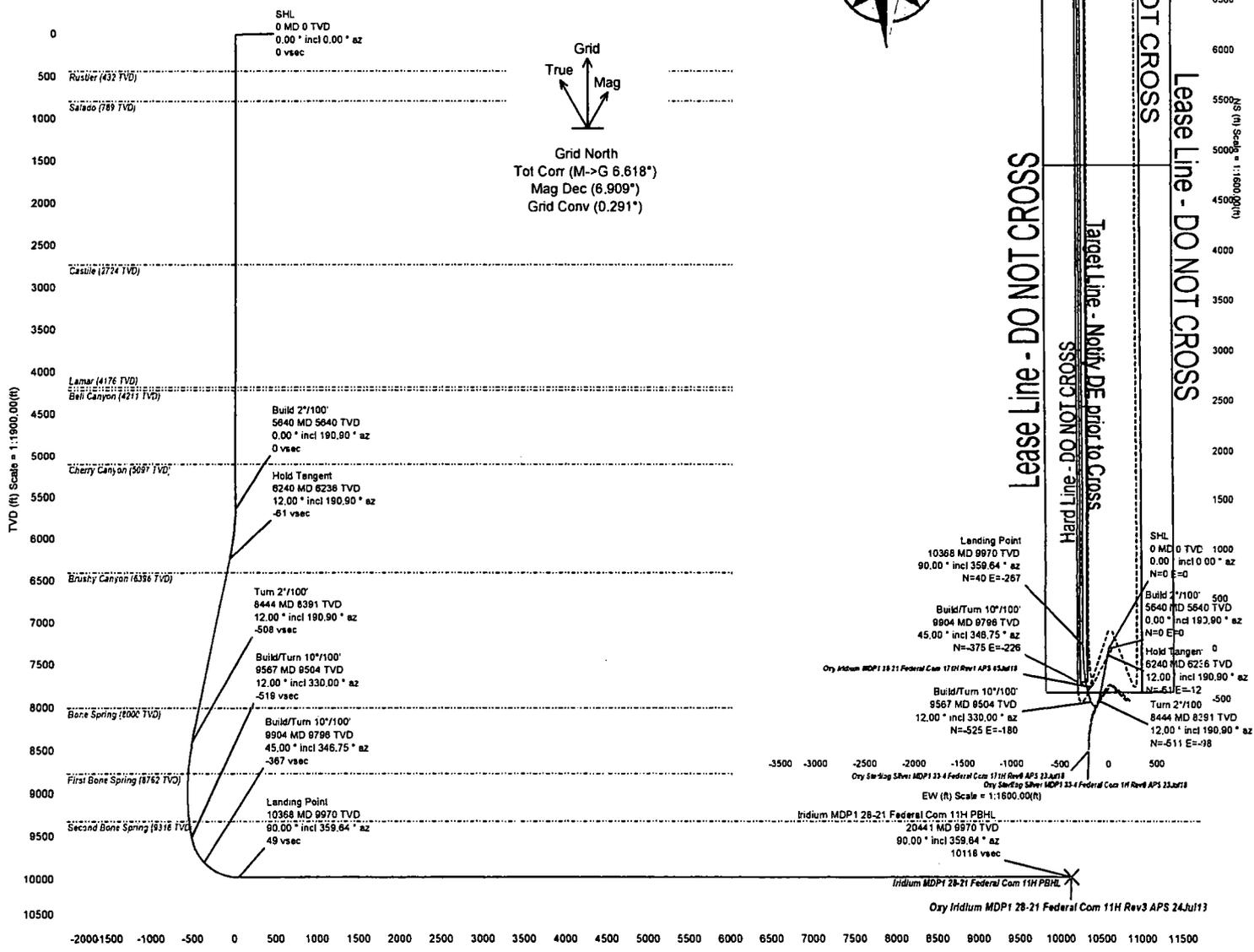
Critical Points

Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)/S(-)	E(+)/W(-)	DLS
SHL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rustler	432.00	0.00	190.90	432.00	0.00	0.00	0.00	0.00
Salado	789.00	0.00	190.90	789.00	0.00	0.00	0.00	0.00
Castile	2724.00	0.00	190.90	2724.00	0.00	0.00	0.00	0.00
Lamar	4176.00	0.00	190.90	4176.00	0.00	0.00	0.00	0.00
Bell Canyon	4211.00	0.00	190.90	4211.00	0.00	0.00	0.00	0.00
Cherry Canyon	5097.00	0.00	190.90	5097.00	0.00	0.00	0.00	0.00
Build 2°/100'	5640.00	0.00	190.90	5640.00	0.00	0.00	0.00	0.00
Hold Tangent	6238.88	12.00	190.90	6235.51	-61.03	-61.45	-11.84	2.00
Brushy Canyon	6403.96	12.00	190.90	6396.00	-94.29	-94.94	-18.29	0.00
Bone Spring	8043.78	12.00	190.90	8000.00	-426.72	-429.66	-62.76	0.00
Turn 2°/100'	8443.79	12.00	190.90	8391.27	-507.81	-511.31	-88.49	0.00
First Bone Spring	8819.00	5.65	218.12	8762.00	-559.86	-564.00	-117.54	2.00
Second Bone Spring	9375.88	8.53	320.78	9316.00	-547.67	-553.23	-161.07	2.00
Build/Turn 10°/100'	9567.02	12.00	330.00	9504.26	-518.83	-525.00	-180.00	2.00
Build/Turn 10°/100'	9903.53	45.00	346.75	9796.25	-366.95	-374.55	-226.09	10.00
Landing Point	10367.79	90.00	359.64	9970.00	49.02	40.30	-267.47	10.00
Iridium MDP1 28-21 Federal Com 11H PBHL	20440.66	90.00	359.64	9970.00	10118.39	10112.97	-331.04	0.00



Grid
 True ↑
 Mag ↘

Grid North
 Tot Corr (M→G 6.618°)
 Mag Dec (6.909°)
 Grid Conv (0.291°)



TUBULAR PARAMETERS

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

PIPE BODY PROPERTIES

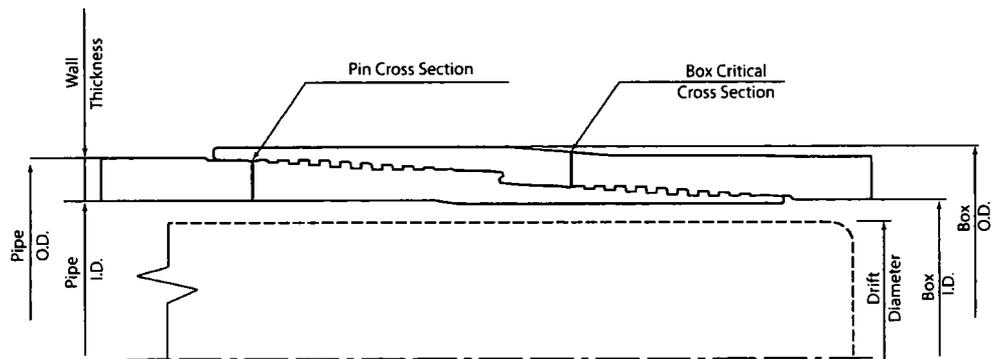
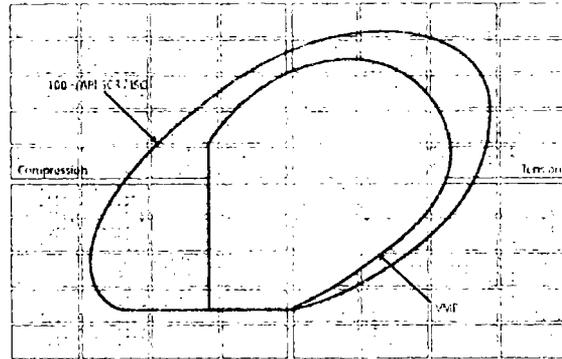
PE Weight, (lbs/ft)	25.56
Nominal Weight, (lbs/ft)	26.40
Nominal ID, (inch)	6.969
Drift Diameter, (inch)	6.844
Nominal Pipe Body Area, (sq inch)	7.519
Yield Strength in Tension, (klbs)	601
Min. Internal Yield Pressure, (psi)	6 020
Collapse Pressure, (psi)	3 910

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

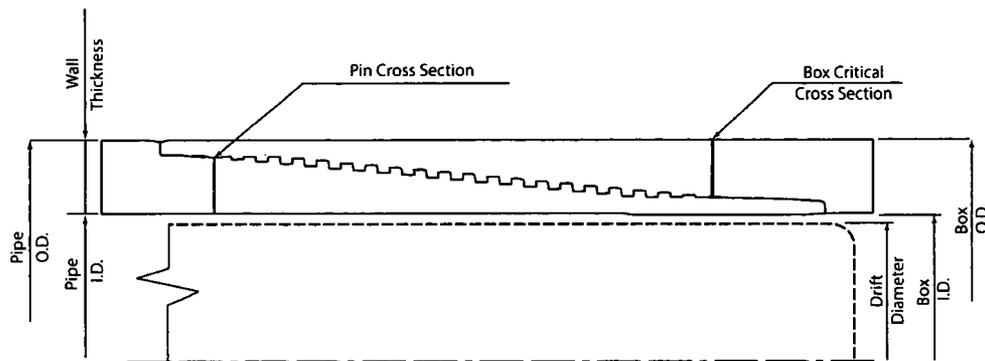
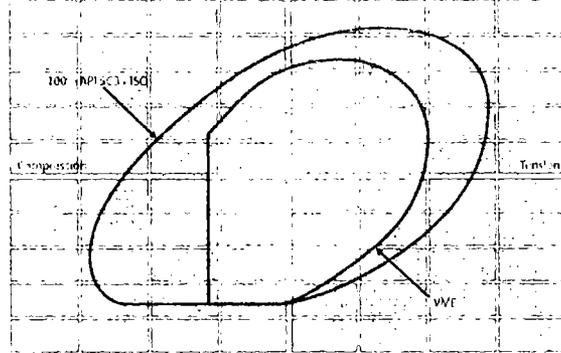
MAKE-UP TORQUES

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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TUBULAR PARAMETERS		PIPE BODY PROPERTIES	
Nominal OD, (inch)	7.625	PE Weight, (lbs/ft)	25.56
Wall Thickness, (inch)	0.328	Nominal Weight, (lbs/ft)	26.40
Pipe Grade	L80 HC	Nominal ID, (inch)	6.969
Drift	Standard	Drift Diameter, (inch)	6.844
		Nominal Pipe Body Area, (sq inch)	7.519
CONNECTION PARAMETERS		Yield Strength in Tension, (klbs)	601
Connection OD (inch)	7.63	Min. Internal Yield Pressure, (psi)	6 020
Connection ID, (inch)	6.975	Collapse Pressure, (psi)	3 910
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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PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	OXY USA Inc
LEASE NO.:	NMNM40659
WELL NAME & NO.:	Iridium MDP1 28-21 Fed Com 11H
SURFACE HOLE FOOTAGE:	430'/S & 648'/W
BOTTOM HOLE FOOTAGE:	180'/N & 380'/W, sec. 7
LOCATION:	Sec. 28, T. 23 S, R. 31 E
COUNTY:	Lea County

Potash	<input type="radio"/> None	<input type="radio"/> Secretary	<input checked="" type="radio"/> R-111-P
Cave/Karst Potential	<input checked="" type="radio"/> Low	<input type="radio"/> Medium	<input type="radio"/> High
Variance	<input type="radio"/> None	<input checked="" type="radio"/> Flex Hose	<input type="radio"/> Other
Wellhead	<input type="radio"/> Conventional	<input checked="" type="radio"/> Multibowl	
Other	<input type="checkbox"/> 4 String Area	<input type="checkbox"/> Capitan Reef	<input type="checkbox"/> WIPP

All previous COAs still apply except for the following:

A. CASING

Primary Design:

1. The **13 3/8** inch surface casing shall be set at approximately **590** feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface.
 - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
 - b. Wait on cement (WOC) time for a primary cement job will be a minimum of **24 hours in the Potash Area** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)
 - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
 - d. If cement falls back, remedial cementing will be done prior to drilling out that string.

2. The minimum required fill of cement behind the **9 5/8** inch intermediate casing is:

- Cement to surface. If cement does not circulate, contact the appropriate BLM office. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to potash.**
3. The minimum required fill of cement behind the 5 1/2 inch production casing is:
- Cement to surface. Operator shall provide method of verification.

Operator has proposed to pump down 9 5/8" X 5 1/2" annulus. Operator must run a CBL from the TD of the 5 1/2" casing to 9 5/8" casing shoe.

Casing Design (Contingency)

4. The 13 3/8 inch surface casing shall be set at approximately 590 feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface.
- e. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
 - f. Wait on cement (WOC) time for a primary cement job will be a minimum of **24 hours in the Potash Area** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)
 - g. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
 - h. If cement falls back, remedial cementing will be done prior to drilling out that string.
5. The minimum required fill of cement behind the 9 5/8 inch first intermediate casing is:
- Cement to surface. If cement does not circulate, contact the appropriate BLM office. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to potash.**

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

6. The minimum required fill of cement behind the 7 5/8 inch second intermediate casing is:
- Cement to surface. If cement does not circulate, contact the appropriate BLM office.

Operator has proposed to pump down 9 5/8" X 7 5/8" annulus. Operator must run a CBL from the TD of the 7 5/8 casing to 9 5/8" casing shoe.

7. The minimum required fill of cement behind the 5 1/2 inch production casing is:
- Cement as proposed. Operator shall provide method of verification. Excess calculates to 19% - additional cement might be required.

MHH 08152018

GENERAL REQUIREMENTS

The BLM is to be notified in advance for a representative to witness:

- a. Spudding well (minimum of 24 hours)
- b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
- c. BOPE tests (minimum of 4 hours)

Chaves and Roosevelt Counties
Call the Roswell Field Office, 2909 West Second St., Roswell NM 88201.
During office hours call (575) 627-0272.
After office hours call (575)

Eddy County
Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220,
(575) 361-2822

Lea County
Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240, (575)
393-3612

A. CASING

1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.
2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log.
3. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements.

4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.
5. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.
6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.
7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.
8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.