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Form 3160-3 (June 2015) UNITED STA	Carls	<b>sba</b> DC	d Field D Artes	<b>Qfi</b> Sia	CCC FORM OMB Expires:	APPRO No. 1004-( January 31	VED <b>SE</b> 0137 1, 2018 <b>DISTRICT</b>	P 1 2 2018
	IE INTEI		DISTRICT II-A	RTESIA	OCCUSE Serial No	).		
APPLICATION FOR PERMIT TO	O DRILL		REENTER		6. If Indian, Allote	e or Tribe	Name	—
1a. Type of work: 🗹 DRILL	REENT	ER			7. If Unit or CAA	greement,	Name and No	).
1b. Type of Well: 🕢 Oil Well 🗌 Gas Well	Other				8. Lease Name and	d Well No.		
1c. Type of Completion: Hydraulic Fracturing	Single Z	lone	Multiple Zone		IRIDIUM MDP1 2	28-21 FE	DERAL COM	1
			<u>.</u>			3	21632	
2. Name of Operator OXY USA INCORPORATED			16696		9. API Well No. <b>30. 0</b>	5-4	15248	, ,
3a. Address 5. Greenway Plaza, Suite 110 Heyster, TX 77046	3b. F	hone N	o. (include area coa	le)	10. Field and Pool	, or Explo		3
4. Location of Well (Report location clearly and in accorda	nce with an	v State	requirements.*)		11. Sec., T. R. M.	or Blk. and	J Survey or A	rea
At surface NWNW / 270 FNL / 869 FWL / LAT 32.	267438 / L	.ONG -	103.788478		SEC 33 / T23S / I	R31E / N	MP	
At proposed prod. zone NWNW / 180 FNL / 1260 FV	VL/LAT 3	2.2967	238 / LONG -103	.7872527	98236	WC	-013-61	0 <b>\$5,233/3</b> 57
14. Distance in miles and direction from nearest town or pos	t office*				12. County or Pari	sh	13. State	
15. Distance from proposed* location to nearest 50 feet property or lease line, ft.	16. N 640	No of ac	res in lease	17. Spaci	ing Unit dedicated to	this well		_
(Also to nearest drig. unit line, if any)			Death	20. DLM	/DIA Dand Natin G			
to nearest well, drilling, completed, applied for, on this lease, ft.	19.1	roposec 31 feet /	21598 feet	FED: ES	781A Bond No. in hi 68000226	e		
21. Elevations (Show whether DF, KDB, RT, GL, etc.)	22. A	Approxit	nate date work will	start*	23. Estimated dura	tion		
	24.	Attacl	hments		20 0893			
The following, completed in accordance with the requirement (as applicable) 1, Well plat certified by a registered surveyor. 2. A Drilling Plan. 3. A Surface Use Plan (if the location is on National Forest S SUPO must be filed with the appropriate Forest Service C	its of Onsh	ore Oil : ds, the	<ol> <li>and Gas Order No.</li> <li>Bond to cover th Item 20 above).</li> <li>Operator certific 6. Such other site site</li> </ol>	I, and the I ne operation cation.	Hydraulic Fracturing ns unless covered by rmation and/or plans a	rule per 4 an existing	3 CFR 3162.3 , bond on file (	;-3 (see
25 Signatur		Nama	BLM.			Data		
(Electronic Submission)		David	Stewart / Ph: (713	3)366-571	6	06/07/2	2018	
Title Sr. Regulatory Advisor								
Approved by (Signature) (Electronic Submission)		Name Cody I	(Printed/Typed) _ayton / Ph: (575)	234-5959		Date 08/28/2	2018	_
Title Assistant Field Manager Lands & Minerals		Office	SBAD					
Application approval does not warrant or certify that the app applicant to conduct operations thereon. Conditions of approval, if any, are attached.	licant hold	s legal o	r equitable title to the	hose rights	in the subject lease	which wou	ild entitle the	
Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 12 of the United States any false, fictitious or fraudulent statemer	12, make it ents or repr	a crime esentati	for any person kno ons as to any matter	wingly and within its	I willfully to make to jurisdiction.	any depai	rtment or ager	ıcy
(Continued on page 2)	ROVEI	WI'	TH CONDIT	TONS	*(1)	nstructic	ons on page	<u></u>
	proval	Date:	08/28/2018	Ri	89-14-1	8		

D	00/30/3	A 1
Date:	117/27/2	
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#### **INSTRUCTIONS**

GENERAL: This form is designed for submitting proposals to perform certain well operations, as indicated on Federal and Indian lands and leases for action by appropriate Federal agencies, pursuant to applicable Federal laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from local Federal offices.

ITEM I: If the proposal is to redrill to the same reservoir at a different subsurface location or to a new reservoir, use this form with appropriate notations. Consult applicable Federal regulations concerning subsequent work proposals or reports on the well.

ITEM 4: Locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local Federal offices for specific instructions.

• ITEM 14: Needed only when location of well cannot readily be found by road from the land or lease description. A plat, or plats, separate or on the reverse side, showing the roads to, and the surveyed location of, the wen, and any other required information, should be furnished when required by Federal agency offices.

ITEMS 15 AND 18: If well is to be, or has been directionany drilled, give distances for subsurface location of hole in any present or objective productive zone.

ITEM 22: Consult applicable Federal regulations, or appropriate officials, concerning approval of the proposal before operations are started.

ITEM 24: If the proposal will involve hydraulic fracturing operations, you must comply with 43 CFR 3162.3-3, including providing information about the protection of usable water. Operators should provide the best available information about all formations containing water and their depths. This information could include data and interpretation of resistivity logs run on nearby wells. Information may also be obtained from state or tribal regulatory agencies and from local BLM offices.

#### NOTICES

The Privacy Act of 1974 and regulation in 43 CFR 2.48( d) provide that you be furnished the following information in connection with information required by this application.

AUTHORITY: 30 U.S.C. 181 et seq., 25 U.S.C. 396; 43 CFR 3160

PRINCIPAL PURPOSES: The information will be used to: (1) process and evaluate your application for a permit to drill a new oil, gas, or service wen or to reenter a plugged and abandoned well; and (2) document, for administrative use, information for the management, disposal and use of National Resource Lands and resources including (a) analyzing your proposal to discover and extract the Federal or Indian resources encountered; (b) reviewing procedures and equipment and the projected impact on the land involved; and (c) evaluating the effects of the proposed operation on the surface and subsurface water and other environmental impacts.

ROUTINE USE: Information from the record and/or the record win be transferred to appropriate Federal, State, and local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecution, in connection with congressional inquiries and for regulatory responsibilities.

EFFECT OF NOT PROVIDING INFORMATION: Filing of this application and disclosure of the information is mandatory only if you elect to initiate a drilling or reentry operation on an oil and gas lease.

The Paperwork Reduction Act of 1995 requires us to inform you that:

The BLM conects this information to anow evaluation of the technical, safety, and environmental factors involved with drilling for oil and/or gas on Federal and Indian oil and gas leases. This information will be used to analyze and approve applications. Response to this request is mandatory only if the operator elects to initiate drilling or reentry operations on an oil and gas lease. The BLM would like you to know that you do not have to respond to this or any other Federal agency-sponsored information collection unless it displays a currently valid OMB control number.

**BURDEN HOURS STATEMENT:** Public reporting burden for this form is estimated to average 8 hours per response, including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding the burden estimate or any other aspect of this form to U.S. Department of the Interior, Bureau of Land Management (1004-0137), Bureau Information Conection Clearance Officer (WO-630), 1849 C Street, N.W., Mail Stop 401 LS, Washington, D.C. 20240.

#### **Additional Operator Remarks**

#### **Location of Well**

SHL: NWNW / 270 FNL / 869 FWL / TWSP: 23S / RANGE: 31E / SECTION: 33 / LAT: 32.267438 / LONG: -103.788478 (TVD: 0 feet, MD: 0 feet)
 PPP: SWSW / 10 FSL / 1259 FWL / TWSP: 23S / RANGE: 31E / SECTION: 21 / LAT: 32.28267 / LONG: -103.787234 (TVD: 11475 feet, MD: 16502 feet)
 PPP: SWSW / 100 FSL / 1260 FWL / TWSP: 23S / RANGE: 31E / SECTION: 28 / LAT: 32.2684556 / LONG: -103.7872144 (TVD: 11468 feet, MD: 11836 feet)
 BHL: NWNW / 180 FNL / 1260 FWL / TWSP: 23S / RANGE: 31E / SECTION: 21 / LAT: 32.2967238 / LONG: -103.7872527 (TVD: 11481 feet, MD: 21598 feet)

#### **BLM Point of Contact**

Name: Sipra Dahal Title: Legal Instruments Examiner Phone: 5752345983 Email: sdahal@blm.gov

#### **Review and Appeal Rights**

A person contesting a decision shall request a State Director review. This request must be filed within 20 working days of receipt of the Notice with the appropriate State Director (see 43 CFR 3165.3). The State Director review decision may be appealed to the Interior Board of Land Appeals, 801 North Quincy Street, Suite 300, Arlington, VA 22203 (see 43 CFR 3165.4). Contact the above listed Bureau of Land Management office for further information.

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# PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	OXY USA INC.
LEASE NO.:	NMNM 045236
WELL NAME & NO.:	Iridium MDP1 28-21 Fed Com 172H
SURFACE HOLE FOOTAGE:	270'/N & 869'/W
BOTTOM HOLE FOOTAGE	180'/N & 1260'/W
LOCATION:	SECTION 33, T23S, R31E, NMPM
COUNTY:	EDDY

Potash			₢ R-111-P
Cave/Karst Potential	© Low		
Variance	C None	Flex Hose	C Other
Wellhead	Conventional	Multibowl	
Other	□4 String Area	Capitan Reef	□WIPP

#### A. Hydrogen Sulfide

1. Hydrogen Sulfide (H2S) monitors shall be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the Hydrogen Sulfide area shall meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, provide measured values and formations to the BLM.

#### **B.** CASING

- 1. The **13 3/8** inch surface casing shall be set at approximately **495** 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 <u>24 hours in the Potash Area</u> 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.

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- 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 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.

- 3. 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. Excess calculates to 0% additional cement will be required.

# 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.

- 4. 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.

# C. PRESSURE CONTROL

1. Variance approved to use flex line from BOP to choke manifold. Manufacturer's specification to be readily available. No external damage to flex line. Flex line to be installed as straight as possible (no hard bends).

#### 2.

# Option\_1:

i. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **5000 (5M)** psi.

# Option 2:

i. Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working

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pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **5000 (5M)** psi.

- a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
- b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
- c. Manufacturer representative shall install the test plug for the initial BOP test.
- d. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.
- e. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.

# **D. SPECIAL REQUIREMENT(S)**

## **Communitization Agreement**

- The operator will submit a Communitization Agreement to the Carlsbad Field Office, 620 E Greene St. Carlsbad, New Mexico 88220, at least 90 days before the anticipated date of first production from a well subject to a spacing order issued by the New Mexico Oil Conservation Division. The Communitization Agreement will include the signatures of all working interest owners in all Federal and Indian leases subject to the Communitization Agreement (i.e., operating rights owners and lessees of record), or certification that the operator has obtained the written signatures of all such owners and will make those signatures available to the BLM immediately upon request.
- If the operator does not comply with this condition of approval, the BLM may take enforcement actions that include, but are not limited to, those specified in 43 CFR 3163.1.
- In addition, the well sign shall include the surface and bottom hole lease numbers. <u>When the Communitization Agreement number is known, it shall also be on the sign.</u>

#### Waste Minimization Plan (WMP)

In the interest of resource development, submission of additional well gas capture development plan information is deferred but may be required by the BLM Authorized Officer at a later date.

#### MHH 08252018

# **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
- 1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
  - a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
  - b. When the operator proposes to set surface casing with Spudder Rig
    - Notify the BLM when moving in and removing the Spudder Rig.
    - Notify the BLM when moving in the 2<sup>nd</sup> Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
    - BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.
- 2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.

3. The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

## 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.
- <u>Wait on cement (WOC) for Potash Areas:</u> 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 <u>24</u> hours. WOC time will be recorded in the driller's log.
- <u>Wait on cement (WOC) for Water Basin:</u> 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 <u>8 hours</u>. 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.

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- 8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.
- B. PRESSURE CONTROL
- 1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.
- 2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.
- 3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.
- 4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:
  - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
  - b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
  - c. Manufacturer representative shall install the test plug for the initial BOP test.
  - d. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
  - e. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.
- 5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
  - a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the

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plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

- b. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time.
- c. The tests shall be done by an independent service company utilizing a test plug not a cup or J-packer. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (8 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).
- d. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.
- e. The results of the test shall be reported to the appropriate BLM office.
- f. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.
- g. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.
- h. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

#### C. DRILLING MUD

Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the Wolfcamp formation, and shall be used until production casing is run and cemented.

#### D. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

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# PECOS DISTRICT SURFACE USE CONDITIONS OF APPROVAL

OPERATOR'S NAME:	OXY USA INCORPORATED
LEASE NO.:	NMNM 045236
WELL NAME & NO.:	172H:IRIDIUM MDP1 28-21 FED COM
SURFACE HOLE FOOTAGE:	270'/N & 869'/W
BOTTOM HOLE FOOTAGE	180'/N & 1260'/W
LOCATION:	T-23S, R-31E, S33. NMPM
COUNTY:	EDDY, NM

# **TABLE OF CONTENTS**

Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

requirement will be enceked
General Provisions
Permit Expiration
Archaeology, Paleontology, and Historical Sites
Noxious Weeds
Special Requirements
Lesser Prairie-Chicken Timing Stipulations
Ground-level Abandoned Well Marker
Watershed
Construction
Notification
Topsoil
Closed Loop System
Federal Mineral Material Pits
Well Pads
Roads
Road Section Diagram
Production (Post Drilling)
Well Structures & Facilities
Pipelines
Electric Lines
Interim Reclamation
Final Abandonment & Reclamation

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# I. GENERAL PROVISIONS

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

# **II. PERMIT EXPIRATION**

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD. (Filing of a Sundry Notice is required for this 60 day extension.)

# **III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES**

Any cultural and/or paleontological resource discovered by the operator or by any person working on the operator's behalf shall immediately report such findings to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery shall be made by the Authorized Officer to determine the appropriate actions that shall be required to prevent the loss of significant cultural or scientific values of the discovery. The operator shall be held responsible for the cost of the proper mitigation measures that the Authorized Officer assesses after consultation with the operator on the evaluation and decisions of the discovery. Any unauthorized collection or disturbance of cultural or paleontological resources may result in a shutdown order by the Authorized Officer.

#### **IV. NOXIOUS WEEDS**

The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

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# V. SPECIAL REQUIREMENT(S)

#### Timing Limitation Stipulation / Condition of Approval for lesser prairie-chicken:

Oil and gas activities including 3-D geophysical exploration, and drilling will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Additionally, no new drilling will be allowed within up to 200 meters of leks known at the time of permitting. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 feet from the source of the noise.

#### **Timing Limitation Exceptions:**

The Carlsbad Field Office will publish an annual map of where the LPC timing and noise stipulations and conditions of approval (Limitations) will apply for the identified year (between March 1 and June 15) based on the latest survey information. The LPC Timing Area map will identify areas which are Habitat Areas (HA), Isolated Population Area (IPA), and Primary Population Area (PPA). The LPC Timing Area map will also have an area in red crosshatch. The red crosshatch area is the only area where an operator is required to submit a request for exception to the LPC Limitations. If an operator is operating outside the red crosshatch area, the LPC Limitations do not apply for that year and an exception to LPC Limitations is not required.

**Ground-level Abandoned Well Marker to avoid raptor perching**: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well. For more installation details, contact the Carlsbad Field Office at 575-234-5972.

- The entirety of the well pads, facilities, and production flowlines would be bermed to
  prevent oil, salt, and other chemical contaminants from leaving the areas. Topsoil should
  not be used to construct the berms. No water flow from the uphill side(s) of the bermed
  areas should be allowed to enter the well pads, facilities or production flowlines. The berms
  should be maintained through the life of the wells and after interim reclamation has been
  completed.
- Any water erosion that may occur due to the construction of the well pads or facilities during the life of the project would be quickly corrected and proper measures would be taken to prevent future erosion.

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# **VI. CONSTRUCTION**

# A. NOTIFICATION

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 234-5909 at least 3 working days prior to commencing construction of the access road and/or well pad.

When construction operations are being conducted on this well, the operator shall have the approved APD and Conditions of Approval (COA) on the well site and they shall be made available upon request by the Authorized Officer.

# **B.** TOPSOIL

The operator shall strip the top portion of the soil (root zone) from the entire well pad area and stockpile the topsoil along the edge of the well pad as depicted in the APD. The root zone is typically six (6) inches in depth. All the stockpiled topsoil will be redistributed over the interim reclamation areas. Topsoil shall not be used for berming the pad or facilities. For final reclamation, the topsoil shall be spread over the entire pad area for seeding preparation.

Other subsoil (below six inches) stockpiles must be completely segregated from the topsoil stockpile. Large rocks or subsoil clods (not evident in the surrounding terrain) must be buried within the approved area for interim and final reclamation.

# C. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

The operator shall properly dispose of drilling contents at an authorized disposal site.

#### D. FEDERAL MINERAL MATERIALS PIT

Payment shall be made to the BLM prior to removal of any federal mineral materials. Call the Carlsbad Field Office at (575) 234-5972.

#### E. WELL PAD SURFACING

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation. The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

# F. EXCLOSURE FENCING (CELLARS & PITS)

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#### **Exclosure Fencing**

The operator will install and maintain exclosure fencing for all open well cellars to prevent access to public, livestock, and large forms of wildlife before and after drilling operations until the pit is free of fluids and the operator initiates backfilling. (For examples of exclosure fencing design, refer to BLM's Oil and Gas Gold Book, Exclosure Fence Illustrations, Figure 1, Page 18.)

#### G. ON LEASE ACCESS ROADS

#### **Road Width**

The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed twenty-five (25) feet.

#### Surfacing

Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

#### Crowning

Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

#### Ditching

Ditching shall be required on both sides of the road.

#### Turnouts

Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

#### Drainage

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Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outsloping and insloping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.

#### **Cross Section of a Typical Lead-off Ditch**



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

#### Formula for Spacing Interval of Lead-off Ditches

Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

400 foot road with 4% road slope: 400' + 100' = 200' lead-off ditch interval 4%

#### Cattle guards

An appropriately sized cattle guard sufficient to carry out the project shall be installed and maintained at fence/road crossings. Any existing cattle guards on the access road route shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattle guards that are in place and are utilized during lease operations.

#### **Fence Requirement**

Where entry is granted across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fences.

#### **Public Access**

Public access on this road shall not be restricted by the operator without specific written approval granted by the Authorized Officer.

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Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

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# VII. PRODUCTION (POST DRILLING)

# A. WELL STRUCTURES & FACILITIES

#### **Placement of Production Facilities**

Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location.

#### **Exclosure Netting (Open-top Tanks)**

Immediately following active drilling or completion operations, the operator will take actions necessary to prevent wildlife and livestock access, including avian wildlife, to all open-topped tanks that contain or have the potential to contain salinity sufficient to cause harm to wildlife or livestock, hydrocarbons, or Resource Conservation and Recovery Act of 1976-exempt hazardous substances. At a minimum, the operator will net, screen, or cover open-topped tanks to exclude wildlife and livestock and prevent mortality. If the operator uses netting, the operator will cover and secure the open portion of the tank to prevent wildlife entry. The operator will net, screen, or cover the tanks until the operator removes the tanks from the location or the tanks no longer contain substances that could be harmful to wildlife or livestock. Use a maximum netting mesh size of 1 ½ inches. The netting must not be in contact with fluids and must not have holes or gaps.

#### **Chemical and Fuel Secondary Containment and Exclosure Screening**

The operator will prevent all hazardous, poisonous, flammable, and toxic substances from coming into contact with soil and water. At a minimum, the operator will install and maintain an impervious secondary containment system for any tank or barrel containing hazardous, poisonous, flammable, or toxic substances sufficient to contain the contents of the tank or barrel and any drips, leaks, and anticipated precipitation. The operator will dispose of fluids within the containment system that do not meet applicable state or U. S. Environmental Protection Agency livestock water standards in accordance with state law; the operator must not drain the fluids to the soil or ground. The operator will design, construct, and maintain all secondary containment systems to prevent wildlife and livestock exposure to harmful substances. At a minimum, the operator will install effective wildlife and livestock exclosure systems such as fencing, netting, expanded metal mesh, lids, and grate covers. Use a maximum netting mesh size of 1 ½ inches.

#### **Open-Vent Exhaust Stack Exclosures**

The operator will construct, modify, equip, and maintain all open-vent exhaust stacks on production equipment to prevent birds and bats from entering, and to discourage perching, roosting, and nesting. (*Recommended exclosure structures on open-vent exhaust stacks are in the shape of a cone.*) Production equipment includes, but may not be limited to, tanks, heater-treaters, separators, dehydrators, flare stacks, in-line units, and compressor mufflers.

#### **Containment Structures**

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Proposed production facilities such as storage tanks and other vessels will have a secondary containment structure that is constructed to hold the capacity of 1.5 times the largest tank, plus freeboard to account for precipitation, unless more stringent protective requirements are deemed necessary.

#### **Painting Requirement**

All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color, <u>Shale Green</u> from the BLM Standard Environmental Color Chart (CC-001: June 2008).

#### **B. PIPELINES** STANDARD STIPULATIONS FOR SURFACE INSTALLED PIPELINES

A copy of the application (Grant, Sundry Notice, APD) and attachments, including stipulations, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. The holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.

2. The holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 <u>et seq</u>. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.

3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, <u>et seq</u>. or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, <u>et seq</u>.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to activity of the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third

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parties.

4. The holder shall be liable for damage or injury to the United States to the extent provided by 43 CFR Sec. 2883.1-4. The holder shall be held to a standard of strict liability for damage or injury to the United States resulting from pipe rupture, fire, or spills caused or substantially aggravated by any of the following within the right-of-way or permit area:

- a. Activities of the holder including, but not limited to construction, operation, maintenance, and termination of the facility.
- b. Activities of other parties including, but not limited to:
  - (1) Land clearing.
  - (2) Earth-disturbing and earth-moving work.
  - (3) Blasting.
  - (4) Vandalism and sabotage.
- c. Acts of God.

The maximum limitation for such strict liability damages shall not exceed one million dollars (\$1,000,000) for any one event, and any liability in excess of such amount shall be determined by the ordinary rules of negligence of the jurisdiction in which the damage or injury occurred.

This section shall not impose strict liability for damage or injury resulting primarily from an act of war or from the negligent acts or omissions of the United States.

5. If, during any phase of the construction, operation, maintenance, or termination of the pipeline, any oil, salt water, or other pollutant should be discharged from the pipeline system, impacting Federal lands, the control and total removal, disposal, and cleaning up of such oil, salt water, or other pollutant, wherever found, shall be the responsibility of the holder, regardless of fault. Upon failure of the holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all damages resulting therefrom, on the Federal lands, the Authorized Officer may take such measures as he deems necessary to control and clean up the discharge and restore the area, including, where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of the holder. Such action by the Authorized Officer shall not relieve the holder of any responsibility as provided herein.

6. All construction and maintenance activity will be confined to the authorized right-ofway width of <u>20</u> feet. If the pipeline route follows an existing road or buried pipeline right-of-way, the surface pipeline must be installed no farther than 10 feet from the edge of the road or buried pipeline right-of-way. If existing surface pipelines prevent this distance, the proposed surface pipeline must be installed immediately adjacent to the outer surface pipeline. All construction and maintenance activity will be confined to existing roads or right-of-ways.

7. No blading or clearing of any vegetation will be allowed unless approved in writing

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by the Authorized Officer.

8. The holder shall install the pipeline on the surface in such a manner that will minimize suspension of the pipeline across low areas in the terrain. In hummocky of duney areas, the pipeline will be "snaked" around hummocks and dunes rather then suspended across these features.

9. The pipeline shall be buried with a minimum of <u>24</u> inches under all roads, "two-tracks," and trails. Burial of the pipe will continue for 20 feet on each side of each crossing. The condition of the road, upon completion of construction, shall be returned to at least its former state with no bumps or dips remaining in the road surface.

10. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

11. In those areas where erosion control structures are required to stabilize soil conditions, the holder will install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound resource management practices.

12. Excluding the pipe, all above-ground structures not subject to safety requirement shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be a color which simulates "Standard Environmental Colors" – **Shale Green**, Munsell Soil Color No. 5Y 4/2; designated by the Rocky Mountain Five State Interagency Committee.

13. The pipeline will be identified by signs at the point of origin and completion of the right-of-way and at all road crossings. At a minimum, signs will state the holder's name, BLM serial number, and the product being transported. Signs will be maintained in a legible condition for the life of the pipeline.

14. The holder shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the holder. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway.

15. Any cultural and/or paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the authorized officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the authorized officer. An evaluation of the discovery will be made by the

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authorized officer to determine appropriate cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the authorized officer after consulting with the holder.

16. The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, powerline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

17. Surface pipelines must be less than or equal to 4 inches and a working pressure below 125 psi.

#### 18. Special Stipulations:

a. <u>Lesser Prairie-Chicken:</u> Oil and gas activities will not be allowed in lesser prairiechicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities and pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Normal vehicle use on existing roads will not be restricted.

#### BURIED PIPELINE STIPULATIONS

A copy of the application (Grant, APD, or Sundry Notice) and attachments, including conditions of approval, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. The Holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.

2. The Holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A

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copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.

3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, <u>et seq</u>. or the Resource Conservation and Recovery Act, 42 U.S.C.6901, <u>et seq</u>.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.

4. If, during any phase of the construction, operation, maintenance, or termination of the pipeline, any oil or other pollutant should be discharged from the pipeline system, impacting Federal lands, the control and total removal, disposal, and cleaning up of such oil or other pollutant, wherever found, shall be the responsibility of holder, regardless of fault. Upon failure of holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all damages resulting therefrom, on the Federal lands, the Authorized Officer may take such measures as he deems necessary to control and clean up the discharge and restore the area, including where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of the holder. Such action by the Authorized Officer shall not relieve holder of any responsibility as provided herein.

5. All construction and maintenance activity will be confined to the authorized right-of-way.

6. The pipeline will be buried with a minimum cover of  $\underline{36}$  inches between the top of the pipe and ground level.

- 7. The maximum allowable disturbance for construction in this right-of-way will be  $\underline{30}$  feet:
  - Blading of vegetation within the right-of-way will be allowed: maximum width of blading operations will not exceed **20** feet. The trench is included in this area. (*Blading is defined as the complete removal of brush and ground vegetation.*)
  - Clearing of brush species within the right-of-way will be allowed: maximum width of clearing operations will not exceed <u>30</u> feet. The trench and bladed area are included in this area. (*Clearing is defined as the removal of brush while leaving ground vegetation (grasses, weeds, etc.) intact. Clearing is best accomplished by holding the blade 4 to 6 inches above the ground surface.*)
  - The remaining area of the right-of-way (if any) shall only be disturbed by compressing the vegetation. (Compressing can be caused by vehicle tires, placement of equipment, etc.)

8. The holder shall stockpile an adequate amount of topsoil where blading is allowed. The topsoil to be stripped is approximately <u>6</u> inches in depth. The topsoil will be segregated from other spoil piles from trench construction. The topsoil will be evenly distributed over the bladed area for the preparation of seeding.

9. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

10. Vegetation, soil, and rocks left as a result of construction or maintenance activity will be randomly scattered on this right-of-way and will not be left in rows, piles, or berms, unless otherwise approved by the Authorized Officer. The entire right-of-way shall be recontoured to match the surrounding landscape. The backfilled soil shall be compacted and a 6 inch berm will be left over the ditch line to allow for settling back to grade.

11. In those areas where erosion control structures are required to stabilize soil conditions, the holder will install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound resource management practices.

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12. The holder will reseed all disturbed areas. Seeding will be done according to the attached seeding requirements, using the following seed mix.

() seed mixture 1	() seed mixture 3
() seed mixture 2	() seed mixture 4
(X) seed mixture 2/LPC	() Aplomado Falcon Mixture

13. All above-ground structures not subject to safety requirements shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be color which simulates "Standard Environmental Colors" – **Shale Green**, Munsell Soil Color No. 5Y 4/2.

14. The pipeline will be identified by signs at the point of origin and completion of the right-ofway and at all road crossings. At a minimum, signs will state the holder's name, BLM serial number, and the product being transported. All signs and information thereon will be posted in a permanent, conspicuous manner, and will be maintained in a legible condition for the life of the pipeline.

15. The holder shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the holder before maintenance begins. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway. As determined necessary during the life of the pipeline, the Authorized Officer may ask the holder to construct temporary deterrence structures.

16. Any cultural and/or paleontological resources (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the Authorized Officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

17. The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes associated roads, pipeline corridor and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

18. <u>Escape Ramps</u> - The operator will construct and maintain pipeline/utility trenches that are not otherwise fenced, screened, or netted to prevent livestock, wildlife, and humans from becoming entrapped. At a minimum, the operator will construct and maintain escape ramps, ladders, or

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other methods of avian and terrestrial wildlife escape in the trenches according to the following criteria:

- a. Any trench left open for eight (8) hours or less is not required to have escape ramps; however, before the trench is backfilled, the contractor/operator shall inspect the trench for wildlife, remove all trapped wildlife, and release them at least 100 yards from the trench.
- b. For trenches left open for eight (8) hours or more, earthen escape ramps (built at no more than a 30 degree slope and spaced no more than 500 feet apart) shall be placed in the trench.
- 19. Special Stipulations:

#### Lesser Prairie-Chicken

Oil and gas activities will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, geophysical exploration other than 3-D operations, and pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 ft. from the source of the noise.

#### C. ELECTRIC LINES

# STANDARD STIPULATIONS FOR OVERHEAD ELECTRIC DISTRIBUTION LINES

A copy of the grant and attachments, including stipulations, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. The holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.

2. The holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 <u>et seq</u>. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the

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Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.

3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, <u>et seq</u>. or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, <u>et seq</u>.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.

4. There will be no clearing or blading of the right-of-way unless otherwise agreed to in writing by the Authorized Officer.

5. Power lines shall be constructed and designed in accordance to standards outlined in "Suggested Practices for Avian Protection on Power lines: The State of the Art in 2006" Edison Electric Institute, APLIC, and the California Energy Commission 2006. The holder shall assume the burden and expense of proving that pole designs not shown in the above publication deter raptor perching, roosting, and nesting. Such proof shall be provided by a raptor expert approved by the Authorized Officer. The BLM reserves the right to require modification or additions to all powerline structures placed on this right-of-way, should they be necessary to ensure the safety of large perching birds. Such modifications and/or additions shall be made by the holder without liability or expense to the United States.

Raptor deterrence will consist of but not limited to the following: triangle perch discouragers shall be placed on each side of the cross arms and a nonconductive perching deterrence shall be placed on all vertical poles that extend past the cross arms.

6. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

7. The BLM serial number assigned to this authorization shall be posted in a permanent, conspicuous manner where the power line crosses roads and at all serviced facilities. Numbers will be at least two inches high and will be affixed to the pole nearest the road crossing and at the facilities served.

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8. Upon cancellation, relinquishment, or expiration of this grant, the holder shall comply with those abandonment procedures as prescribed by the Authorized Officer.

9. All surface structures (poles, lines, transformers, etc.) shall be removed within 180 days of abandonment, relinquishment, or termination of use of the serviced facility or facilities or within 180 days of abandonment, relinquishment, cancellation, or expiration of this grant, whichever comes first. This will not apply where the power line extends service to an active, adjoining facility or facilities.

10. Any cultural and/or paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the Authorized Officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

#### 11. Special Stipulations:

- For reclamation remove poles, lines, transformer, etc. and dispose of properly.
- Fill in any holes from the poles removed.

#### Timing Limitation Stipulation/Condition of Approval for Lesser Prairie-Chicken:

Oil and gas activities including 3-D geophysical exploration, and drilling will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, geophysical exploration other than 3-D operations, and pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Additionally, no new drilling will be allowed within up to 200 meters of leks known at the time of permitting. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 ft. from the source of the noise.

# VIII. INTERIM RECLAMATION

During the life of the development, all disturbed areas not needed for active support of production operations should undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses.

Page 19 of 21

Within six (6) months of well completion, operators should work with BLM surface management specialists (Jim Amos: 575-234-5909) to devise the best strategies to reduce the size of the location. Interim reclamation should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche that is free of contaminants may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

All disturbed areas after they have been satisfactorily prepared need to be reseeded with the seed mixture provided below.

Upon completion of interim reclamation, the operator shall submit a Sundry Notices and Reports on Wells, Subsequent Report of Reclamation (Form 3160-5).

# **IX. FINAL ABANDONMENT & RECLAMATION**

At final abandonment, well locations, production facilities, and access roads must undergo "final" reclamation so that the character and productivity of the land are restored.

Earthwork for final reclamation must be completed within six (6) months of well plugging. All pads, pits, facility locations and roads must be reclaimed to a satisfactory revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact.

After all disturbed areas have been satisfactorily prepared, these areas need to be revegetated with the seed mixture provided below. Seeding should be accomplished by drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (Jim Amos: 575-234-5909).

Ground-level Abandoned Well Marker to avoid raptor perching: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well.

Page 20 of 21

Seed Mixture for LPC Sand/Shinnery Sites

Holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)\* per acre. There shall be <u>no</u> primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed shall be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed shall be either certified or registered seed. The seed container shall be tagged in accordance with State law(s) and available for inspection by the Authorized Officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). Holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. Seeding shall be repeated until a satisfactory stand is established as determined by the Authorized Officer. Evaluation of growth may not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed\* per acre:

Species	<u>lb/acre</u>
Plains Bristlegrass	5lbs/A
Sand Bluestem	5lbs/A
Little Bluestem	3lbs/A
Big Bluestem	6lbs/A
Plains Coreopsis	2lbs/A
Sand Dropseed	1lbs/A

\*Pounds of pure live seed:

Pounds of seed x percent purity x percent germination = pounds pure live seed

Page 21 of 21



U.S. Department of the Interior BUREAU OF LAND MANAGEMENT



# **Operator Certification**

I hereby certify that I, or someone under my direct supervision, have inspected the drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I have full knowledge of state and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements.

NAME: David Stewart		Signed on: 06/07/2018
Title: Sr. Regulatory Advis	sor	
Street Address: 5 Green	way Plaza, Suite 110	
City: Houston	State: TX	<b>Zip</b> : 77046
Phone: (713)366-5716		
Email address: David_st	ewart@oxy.com	
Field Represe	ntative	
Representative Name:	Jim Wilson	
Street Address: 6001	Deauville	
City: Midland	State: TX	<b>Zip</b> : 79706

Phone: (575)631-2442

Email address: jim\_wilson@oxy.com

# **FAFMSS**

U.S. Department of the Interior BUREAU OF LAND MANAGEMENT Application Data Report

U.

Zip: 77046

APD ID: 10400030949

Operator Name: OXY USA INCORPORATED

Well Name: IRIDIUM MDP1 28-21 FEDERAL COM

Well Type: OIL WELL

Submission Date: 06/07/2018

Well Number: 172H Well Work Type: Drill Highlighted data reflects the most beeth dranges Show Final Text

08/28/2018

	Section 1 - General		
APD ID:	10400030949	Tie to previous NOS?	Submission Date: 06/07/2018
BLM Offic	e: CARLSBAD	User: David Stewart	Title: Sr. Regulatory Advisor
Federal/In	dian APD: FED	Is the first lease penetrate	d for production Federal or Indian? FED
Lease nur	nber: NMNM045236	Lease Acres: 640	
Surface a	ccess agreement in place?	Allotted?	Reservation:
Agreemer	nt in place? NO	Federal or Indian agreeme	nt:
Agreemer	nt number:		
Agreemer	nt name:		
Кеер арр	lication confidential? NO		
Permitting	g Agent? NO	APD Operator: OXY USA II	NCORPORATED
Operator	letter of designation:		

**Operator Info** 

**Operator Organization Name:** OXY USA INCORPORATED

Operator Address: 5 Greenway Plaza, Suite 110

**Operator PO Box:** 

Operator City: Houston State: TX

Operator Phone: (713)366-5716

**Operator Internet Address:** 

## Section 2 - Well Information

Well in Master Development Plan? EXISTING	Mater Development Plan name: Sand Dunes Area						
Well in Master SUPO? NO	Master SUPO name:	Master SUPO name:					
Well in Master Drilling Plan? NO	Master Drilling Plan name:						
Well Name: IRIDIUM MDP1 28-21 FEDERAL COM	Well Number: 172H	Well API Number:					
Field/Pool or Exploratory? Field and Pool	Field Name: WILDCAT Pool Name: WOLFCAM WOLFCAMP						
Is the proposed well in an area containing other mi	neral resources? POTASH						

## Operator Name: OXY USA INCORPORATED Well Name: IRIDIUM MDP1 28-21 FEDERAL COM

Well Number: 172H

Describe other minerals: Is the proposed well in a Helium production area? N Use Existing Well Pad? NO New surface disturbance? Number: 1H Multiple Well Pad Name: Type of Well Pad: MULTIPLE WELL STERLING SILVER MDP1 34-3 Well Class: HORIZONTAL FD COM Number of Legs: Well Work Type: Drill Well Type: OIL WELL **Describe Well Type:** Well sub-Type: INFILL Describe sub-type: Distance to nearest well: 35 FT Distance to lease line: 50 FT Distance to town: 8 Miles Reservoir well spacing assigned acres Measurement: 640 Acres Well plat: IridiumMDP1\_28\_21FdCom172H\_C102\_20180606160513.pdf IridiumMDP1\_28\_21FdCom172H\_SitePlan\_20180606160535.pdf Duration: 20 DAYS Well work start Date: 04/02/2019

# Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83

Vertical Datum: NAVD88

Survey number:

	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	DM	TVD
SHL	270	FNL	869	FWL	23S	31E	33	Aliquot	32.26743	-	EDD	NEW	NEW	F	NMNM	337	0	0
Leg								NWN	8	103.7884	Y	MEXI	MEXI		045236	6		
#1								w		78		co	co					
KOP	50	FSL	126	FWL	23S	31E	28	Aliquot	32.26831	-	EDD	NEW	NEW	F	NMNM	-	109	108
Leg			0					sws	82	103.7872	Y	MEXI	MEXI		040659	751	37	95
#1								w		142		co	со			9		




U.S. Department of the Interior BUREAU OF LAND MANAGEMENT



08/28/2018

APD ID: 10400030949

Operator Name: OXY USA INCORPORATED

Well Name: IRIDIUM MDP1 28-21 FEDERAL COM

Submission Date: 06/07/2018

Highlighted data reflects the most recent changes

Show Final Text

Well Type: OIL WELL

Well Work Type: Drill

Well Number: 172H

# Section 1 - Geologic Formations

Formation			True Vertical	Measured			Producing
ID	Formation Name	Elevation	Depth	Depth	Lithologies	Mineral Resources	Formation
1	RUSTLER	3376	430	430	SHALE,DOLOMITE,ANH YDRITE	USEABLE WATER	No
2	SALADO	2585	791	791	SHALE,DOLOMITE,HAL ITE,ANHYDRITE	OTHER : SALT	No
3	CASTILE	656	2720	2720	ANHYDRITE	OTHER : salt	No
4	LAMAR	-838	4211	4211	LIMESTONE, SANDSTO NE, SILTSTONE	NATURAL GAS,OIL,OTHER : BRINE	No
5	BELL CANYON	-861	4237	4237	SANDSTONE,SILTSTO NE	NATURAL GAS,OIL,OTHER : BRINE	No
6	CHERRY CANYON	-1734	5107	5107	SANDSTONE,SILTSTO NE	NATURAL GAS,OIL,OTHER : BRINE	No
7	BRUSHY CANYON	-3020	6396	6396	LIMESTONE,SANDSTO NE,SILTSTONE	NATURAL GAS,OIL,OTHER : BRINE	No
8	BONE SPRING	-4644	8020	8022	LIMESTONE,SANDSTO NE,SILTSTONE	NATURAL GAS,OIL	No
9	BONE SPRING 1ST	-5703	9079	9098	LIMESTONE, SANDSTO NE, SILTSTONE	NATURAL GAS,OIL	Yes
10	BONE SPRING 2ND	-5932	9308	9330	LIMESTONE, SANDSTO NE, SILTSTONE	NATURAL GAS,OIL	Yes
11	BONE SPRING 3RD	-6807	10183	10219	LIMESTONE, SANDSTO NE, SILTSTONE	NATURAL GAS,OIL	Yes
12	WOLFCAMP	-7974	11350	11478	SANDSTONE,SILTSTO NE	NATURAL GAS,OIL	Yes

# Section 2 - Blowout Prevention

Pressure Rating (PSI): 5M

Rating Depth: 11481

Equipment: 13-5/8" 5M Annular, Blind Ram, Double Ram

Requesting Variance? YES

Variance request: Request for the use of a flexible choke line from the BOP to Choke Manifold.

Testing Procedure: 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 testad to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and

### Operator Name: OXY USA INCORPORATED

Well Name: IRIDIUM MDP1 28-21 FEDERAL COM

Well Number: 172H

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 four sheets. Other accessories to the BOP equipment will include a Kelly occk and floor safety valve (inside BOP) and choke lines and choke manifold. A multipowi wellhead or a unionized multibowi 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 sufface casing which will cover testing requirements for a maximum of 30 days alrany seal subject to test pressure is proken the system will be tested. We will test the flange connection of the wellhead with a test port that is directly in the flange. 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 to drill an intermediate following conditions: 1. After a full BOP test is conducted on the first well on the pad. 2. When skidding to drill an intermediate section that does not penetrate into the Wolfcamp. 3. Full BOP test will be required prior to drilling any production section.

#### **Choke Diagram Attachment:**

IridiumMDP1\_28\_21FdCom172H\_ChkManifold\_20180607094640.pdf

#### **BOP Diagram Attachment:**

IridiumMDP1\_28\_21FdCom172H\_FlexHoseCert\_20180607094724.pdf

IridiumMDP1\_28\_21FdCom172H\_BOPAmd\_20180803115828.pdf

# Section 3 - Casing

Casing ID	String Type	Hole Size	Csg Size	Condition	Standard	Tapered String	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Calculated casing length MD	Grade	Weight	Joint Type	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
1	SURFACE	17.5	13.375	NEW	API	N	0	480	0	480			480	J-55	54.5	BUTT	1.12 5	1.2	BUOY	1.4	BUOY	1.4
2	INTERMED IATE	12.2 5	9.625	NEW	API	N	0	4261	0	4261			4261	L-80	43.5	витт	1.12 5	1.2	BUOY	1.4	BUOY	1.4
3		8.5	7.625	NEW	API	N	0	10836	o	10794			10836	HCL -80	26.4	OTHER - SF/FJ	1.12 5	1.2	BUOY	1.4	BUOY	1.4
4	PRODUCTI ON	6.75	5.5	NEW	API	N	0	21598	0	11481			21598	P- 110	20	OTHER - DQX	1.12 5	1.2	BUOY	1.4	BUOY	1.4

#### **Casing Attachments**

Well Number: 172H

#### **Casing Attachments**

Casing ID: 1 String Type: SURFACE

**Inspection Document:** 

**Spec Document:** 

**Tapered String Spec:** 

#### Casing Design Assumptions and Worksheet(s):

IridiumMDP1\_28\_21FdCom172H\_CsgCriteria\_20180607094830.pdf

Casing ID: 2 String Type: INTERMEDIATE

**Inspection Document:** 

**Spec Document:** 

**Tapered String Spec:** 

#### Casing Design Assumptions and Worksheet(s):

IridiumMDP1\_28\_21FdCom172H\_CsgCriteria\_20180607094904.pdf

Casing ID: 3 String Type: INTERMEDIATE

**Inspection Document:** 

**Spec Document:** 

#### **Tapered String Spec:**

#### Casing Design Assumptions and Worksheet(s):

IridiumMDP1\_28\_21FdCom172H\_CsgCriteria\_20180607094954.pdf

IridiumMDP1\_28\_21FdCom172H\_7.625\_26.4\_HCL80\_TMKUPFJ\_20180803120609.pdf

IridiumMDP1\_28\_21FdCom172H\_7.625\_26.4\_HCL80\_TMKUPSF\_20180803120619.pdf

Well Name: IRIDIUM MDP1 28-21 FEDERAL COM

Well Number: 172H

## **Casing Attachments**

Casing ID: 4

String Type: PRODUCTION

Inspection Document:

Spec Document:

INTERMEDIATE

Lead

0

**Tapered String Spec:** 

### Casing Design Assumptions and Worksheet(s):

IridiumMDP1\_28\_21FdCom172H\_CsgCriteria\_20180607095033.pdf

IridiumMDP1\_28\_21FdCom172H\_5.5\_20\_P110\_DQX\_20180607095044.pdf

Section	4 - Ce	emen	t								
String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead		Ö	480	58 <b>8</b>	1.33	14,8	782	100	CIC	Accelerator

3761	1186	1.88	12.9	2230	100	Pozzolan/C	Rétarder	
							· · · · · · · · · · · · · · · · · · ·	
4261	165	1.33	14.8	206	20	CIC	Accelerator	

INTERMEDIATE	Tail		3761	4261	155	1.33	14.8	206	20	CIC	τ <u>τ</u>	Accelerator
											د. سحيت	
INTERMEDIATE	Lead	۰ ، I	Ø	8020	419	1.92	12.9	804	25	ĊIC		Accelerator
			ľ	· · · ·				12				

INTERMEDIATE	Lead	8020	1083	139	1.65	13.2 229	5	CIH	Retard	er, Dispersant.
			1			1. 1. 1. 1.				

PRODUCTION	Lead	1033 2159 82	3 1.:	1.38 13.2 1140 20 CL H Retarder, Dispersant,
		6 8		Salt

## Operator Name: OXY USA INCORPORATED

Well Name: IRIDIUM MDP1 28-21 FEDERAL COM

Well Number: 172H

# Section 5 - Circulating Medium

Mud System Type: Closed

Will an air or gas system be Used? NO

Description of the equipment for the circulating system in accordance with Onshore Order #2:

Diagram of the equipment for the circulating system in accordance with Onshore Order #2:

**Describe what will be on location to control well or mitigate other conditions:** Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements. 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.

Describe the mud monitoring system utilized: PVT/MD Totco/Visual Monitoring

# Circulating Medium Table

Top Depth	Bottom Depth	Mud Type	Min Weight (Ibs/gal)	Max Weight (tbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	Н	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
480	4261	OTHER : Saturated Brine Based Mud	9.8	10							
4261	1083 6	OTHER : Water- Based and/or Oil-Based Mud	8.2	9.2							
0	480	WATER-BASED MUD	8.6	8.8							
1083 6	2159 8	OIL-BASED MUD	9.5	12							

Operator Name: OXY USA INCORPORATED

Well Name: IRIDIUM MDP1 28-21 FEDERAL COM

Well Number: 172H

# Section 6 - Test, Logging, Coring

List of production tests including testing procedures, equipment and safety measures:

GR from TD to surface (horizontal well - vertical portion of hole). Mud Log from intermediate shoe to TD.

List of open and cased hole logs run in the well:

GR,MUDLOG

### Coring operation description for the well:

No coring is planned at this time.

## **Section 7 - Pressure**

Anticipated Bottom Hole Pressure: 7165

Anticipated Surface Pressure: 4639.18

Anticipated Bottom Hole Temperature(F): 172

Anticipated abnormal pressures, temperatures, or potential geologic hazards? NO

Describe:

**Contingency Plans geoharzards description:** 

Contingency Plans geohazards attachment:

## Hydrogen Sulfide drilling operations plan required? YES

#### Hydrogen sulfide drilling operations plan:

IridiumMDP1\_28\_21FdCom172H\_H2S1\_20180606162853.pdf IridiumMDP1\_28\_21FdCom172H\_H2S2\_20180606162905.pdf

# **Section 8 - Other Information**

#### Proposed horizontal/directional/multi-lateral plan submission:

IridiumMDP1\_28\_21FdCom172H\_DirectPlan\_20180606162642.pdf

 $IridiumMDP1\_28\_21FdCom172H\_DirectPlot\_20180606162654.pdf$ 

# Other proposed operations facets description:

OXY requests the option to set chaing 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 in case a contingency second stage is required for comput to reach surface. If compute sinculated to surface during first stage we will drop a cancelation cone and not pump the second stage.

OXY requests to pump a two stage coment job on the intermediate II casing string with the first stage being pumped conventionally with the calculated TOC @ the Bone Spring and the second stage performed as a predenneed squeeze with planned coment from the top of the Bone Spring to surface.

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 Onshere 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.

Well Name: IRIDIUM MDP1 28-21 FEDERAL COM

Well Number: 172H

1

 $\mathcal{F}_{\mathcal{C}}$ 1.1 ŝ. Well will be drilled with a walking/skidding operation. 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, , ц - -, . e 14. . ័រ័

٤. DXY requests the option to contract a Surface Rig to drill, set surface pasing, and coment for this well. If the timing between das is such that OXY would not be able to preset surface, the Primary Rig will MIRU and drillthe well in its entirety per the APD. Please see the attached document for information on the spudder rig. . . . ÷. 13 4 <u>`a</u> ъ.

Other proposed operations facets attachment:

IridiumMDP1\_28\_21FdCom172H\_SpudRigData\_20180606162817.pdf IridiumMDP1 28 21FdCom172H DrillPlanAmd 20180803115955.pdf

Other Variance attachment:

6 ly

# 10M Choke Panel



- 1. Choke Manifold Valve
- 2. Choke Manifold Valve
- 3. Choke Manifold Valve
- 4. Choke Manifold Valve
- 5. Choke Manifold Valve
- 6. Choke Manifold Valve
- 7. Choke Manifold Valve
- 8. PC Power Choke
- 9. Choke Manifold Valve
- 10. Choke Manifold Valve
- 11. Choke Manifold Valve
- 12. LMC Lower Manual Choke
- 13. UMC Upper manual choke
- 15. Choke Manifold Valve
- 16. Choke Manifold Valve
- 17. Choke Manifold Valve
- 18. Choke Manifold Valve
- 21. Vertical Choke Manifold Valve
- \*All Valves 3" minimum











Fluid Technology

Quality Document

	ITY CONT	ROL CERTIFIC	CATE	CERT. I	N°:	746							
PURCHASER:	Phoenix Bea	ttie Co.		P.O. Nº	: 0	02491							
Contitech order Nº:	412638	HOSE TYPE:	3° 1D	Ch	oke and Ki	I Hose							
HO8E SERIAL Nº:	52777	NOMINAL / AC	TUAL LENGTH:		10,67 m								
W.P. 68,96 MPa 1	iaq 0000	т.р. 103,4	MPa 1500	0 psi	Ouretion:	60 ~	mtn.						
ambient temperature ↑ 10 mm = 10 Min → 10 mm = 25 MP	See attachment. (1 page) 10  mm = 10  Min. $\rightarrow 10 \text{ mm} = 25 \text{ MPa}$												
		COUPI	Lings										
Туре		Sertal Nº		Quality		Heat N°							
3" coupling with	917	913	AIS	1 4130		T7998A							
4 1/16" Flange end			AIS	i 4130		26984							
INFOCHIP INSTALLED API Spec 16 C Temperature rate:"B"													
PRESSURE TESTED AS ABOVE	WITH SATISFAC	TORY RESULT.					r and						
Date:	Inspector		Quality Control										
04. April. 2008			-Baan (	indi Indi Uuality	Dech Rubber estrial Kit. Control Depi	Janci							

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Form No 100/12

# 🛶 PHOENIX Beattie

Phoenix Beattle Corp 11535 Britimore Fett Drive Houston, TX 77041 Tel: (532) 327-0140 Fet: (532) 327-0140 Fet: (532) a37-0140 Fet: (532) astronomic cons mer.phoenisbeattle.com

# **Delivery Note**

Customer Order Number 370-369-001	<b>Delivery Note Number</b>	003078	Page	1	
Customer / Invoice Address HELMERICH & PAYNE INT'L ORILLING CO 1437 SOUTH BOULDER TULSA, OK 74119	Delivery / Address Helmerich & Payne IDC Attn: Joe Stephenson - Rig 13609 Industrial Road Houston, TX 77015	G 370		•	

Customer Aco No	Phoenix Beattle Contract Manager	Phoenix Beattle Reference	Date
H01	JJL	006330	05/23/2008

item No	Beattle Part Number / Description	Oty Ordered	Oty Sent	Oty To Follow
1	HP10CK3A-35-4F1 3" 10K 16C C&K HOSE x 35ft OAL CW 4.1/16" API SPEC FLANGE E/ End 1: 4.1/16" 10Kpsi API Spec 6A Type 68X Flange End 2: 4.1/16" 10Kpsi API Spec 6A Type 68X Flange C/W BX155 Standard ring groove at each end Suitable for H2S Service Working pressure: 10.000psi Test pressure: 10.000psi Test pressure: 15.000psi Standard: API 16C Full specification Armor Guarding: Included Fire Rating: Not Included Temperature rating: -20 Deg C to +100 Deg C	1	1	0
2	SECK3-HPF3 LIFTING & SAFETY EQUIPMENT TO SUIT HP10CK3-35-F1 2 x 160mm ID Safety Clamps 2 x 244mm ID Lifting Collars & element C's 2 x 7ft Stainless Steel wire rope 3/4" OD 4 x 7.75t Shackles	1	1	0
3	SC725-200CS SAFETY CLAMP 200MM 7.26T C/S GALVANISED	1	1	0

Continued...

All goods remain the property of Phoenix Besttle until paid for in full. Any damage or shortage on this delivery must be advised within 5 days. Returns may be subject to a handling charge.

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Form No 100/12

# - PHOENIX Beattie

Phoenix Beattle Corp 11535 &ritacore Part Brive Houston, TX 77041 Tel: (532) 327-0141 Fac: (532) 327-0143 Fac: (532) 327-0443 Fac

# **Delivery Note**

Customer Order Number	370-369-001	Delivery Note Number	003078	Page		2
Customer / Invoice Addre HELMERICH & PAYNE INT'L 1437 SOUTH BOULDER TULSA, OK 74119	HSS DRILLING CO	Delivery / Address Helmerich & Payne IDC Attn: Joe Stephenson - Rig 13609 Industrial RDAD Houston, TX 77015	G 370	<u> </u>	•	

Customer Acc'No	Phoenix Beattle Contract Manager	Phoenix Beattle Reference	Date
HOI	JJL	006330	05/23/2008

ltem No	Beattle Part Number / Description	Oty Ordered	Oty Sent	Qty To Follow
4	SC725-132CS SAFETY CLANP 132MM 7.25T C/S GALVANIZED C/W BOLTS	1	1	0
<b>5</b>	00CERT-HYDRO HYDROSTATIC PRESSURE TEST CERTIFICATE	1	1	0
6	OOCERT-LOAD LOAD TEST CERTIFICATES	1	1	0
7	OOFREIGHT INBOUND / OUTBOUND FREIGHT PRE-PAY & ADD TO FINAL INVOICE NOTE: MATERIAL MUST BE ACCOMPANIED BY PAPERWORK INCLUDING THE PURCHASE ORDER, RIG NUMBER TO ENSURE PROPER PAYMENT	1	1	O
		Park		
	Phoenix Beattle Inspection Signature :	KINALI	Where	
	Received in Good Condition : Signature		$\mathcal{H}$	
	Print Name	····	<u> </u>	····
	Date			

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Ħ	PA No 006:	Part No		2003-1953	STAK MIL		X/GF MEL													-				

We hereby certify thet these goods have been inspected by our Quelity Menagement System, and to the best of our knowledge are found to conform to relevant industry standards within the requirements of the purchase order as issued to Phoenix Beattie Corporation.



# **Coflex Hose Certification**

Т

**Coflex Hose Certification** 



Fluid Technology

Quality Document

# CERTIFICATE OF CONFORMITY

Supplier: CONTITECH RUBBER INDUSTRIAL KFT.Equipment: 6 pcs. Choke and Kill Hose with installed couplingsType :3" x 10,67 m WP: 10000 psiSupplier File Number: 412638Date of Shipment: April. 2008Customer: Phoenix Beattle Co.Customer P.o.: 002491Referenced Standards/ Codes / Specifications :API Spec 16 CSerial No.: 52754,52755,52776,52777,52778,52782

# STATEMENT OF CONFORMITY

We hereby certify that the above items/equipment supplied by us are in conformity with the terms, conditions and specifications of the above Purchaser Order and that these items/equipment were fabricated inspected and tested in accordance with the referenced standards, codes and specifications and meet the relevant acceptance criteria and design requirements.

COUNTRY OF ORIGIN HUNGARY/EU

Signed

Position: Q.C. Manager

\_ont/Jach Bubbur Industrial Kit. Quality Control Dept. (1)

Date: 04. April. 2008

# 5M BOP Stack

Mud Cross Valves:

- 5. 5M Check Valve
- 6. Outside 5M Kill Line Valve
- 7. Inside 5M Kill Line
- 8. Outside 5M Kill Line Valve
- 9. 5M HCR Valve
- \*Minimum ID = 2-1/16" on Kill Line side and 3" minimum ID on choke line side

To Kill*<*\_ Line



 $\left[ O \right]$ 



13-5/8" 10K MN-DS Wellhead

Four String



# OXY's Minimum Design Criteria

Burst, Collapse, and Tensile SF are calculated using Landmark's Stress Check (Casing Design) software. A sundry will be requested if any lesser grade or different size casing is substituted.

- **1)** Casing Design Assumptions
  - a) Burst Loads

CSG Test (Surface)

- Internal: Displacement fluid + pressure required to comply with regulatory casing test pressures. This will comply with both Onshore Oil and Gas Order No. 2 and 19.15.16 of the OCD Rules.
- External: Pore pressure in open hole.

CSG Test (Intermediate)

- Internal: Displacement fluid + pressure required to comply with regulatory casing test pressures. This will comply with both Onshore Oil and Gas Order No. 2 and 19.15.16 of the OCD Rules.
- External: Mud Weight to TOC, cement mix water gradient (8.4 ppg) below TOC, and pore pressure in open hole.

CSG Test (Production)

- o Internal:
  - For Drilling: Displacement fluid + pressure required to comply with regulatory casing test pressures. This will comply with both Onshore Oil and Gas Order No. 2 and 19.15.16 of the OCD Rules.
  - For Production: The design pressure test should be the greater of (1) the planned test pressure prior to stimulation down the casing. (2) the regulatory test pressure, and (3) the expected gas lift system pressure. The design test fluid should be the fluid associated with pressure test having the greatest pressure.
- o External:
  - For Drilling: Mud Weight to TOC, cement mix water gradient (8.4 ppg) below TOC, and pore pressure in open hole.
  - For Production: Mud base-fluid density to TOC, cement mix water gradient (8.4 ppg) below TOC, and pore pressure in open hole.

Gas Column (Surface)

- Internal: Assumes a full column of gas in the casing with a Gas/Oil Gradient of 0.1 psi/ft in the absence of better information. It is limited to the controlling pressure based on the fracture pressure at the shoe or the maximum expected pore pressure within the next drilling interval, whichever results in a lower surface pressure.
- External: Fluid gradient below TOC, pore pressure from the TOC to the Intermediate CSG shoe (if applicable), and MW of the drilling mud that was in the hole when the CSG was run from Intermediate CSG shoe to surface.

Bullheading (Surface / Intermediate)

- Internal: The string must be designed to withstand a pressure profile based on the fracture pressure at the casing shoe with a column of water above the shoe plus an additional surface pressure (in psi) of 0.02 X MD of the shoe to account for pumping friction pressure.
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Gas Kick (Intermediate)

- The string must be designed to at least a gas kick load case unless the rig is unable to detect a kick. For the gas kick load case, the internal pressure profile must be based on a minimum volume of 50 bbl or the minimum kick detection capability of the rig, whichever is greater, and a kick intensity of 2.0 ppg for Class 1, 1.0 ppg of Class 2, and 0.5 ppg for Class 3 and 4 wells.
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Tubing Leak Near Surface While Producing (Production)

- o Internal: SITP plus a packer fluid gradient to the shoe or top of packer.
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- Internal: Surface pressure or pressure-relief system pressure, whichever is lower plus packer fluid gradient.
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Injection / Stimulation Down Casing (Production)

- o Internal: Surface pressure plus injection fluid gradient.
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- b) Collapse Loads

Lost Circulation (Surface / Intermediate)

- Internal: Lost circulation at the TD of the next hole section, and the fluid level falls to a depth where the hydrostatic of the mud equals pore pressure at the depth of the lost circulation zone.
- o External: MW of the drilling mud that was in the hole when the casing was run.

Cementing (Surface / Intermediate / Production)

- o Internal: Displacement fluid density.
- External: Mud weight from TOC to surface and cement slurry weight from TOC to casing shoe.

Full Evacuation (Production)

- Internal: Full void pipe.
- o External: MW of drilling mud in the hole when the casing was run.
- c) Tension Loads

Running Casing (Surface / Intermediate / Production)

 Axial: Buoyant weight of the string plus the lesser of 100,000 lb or the string weight in air.

Green Cement (Surface / Intermediate / Production)

• Axial: Buoyant weight of the string plus cement plug bump pressure load.

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Cementing (Surface / Intermediate / Production)

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Full Evacuation (Production)

- o Internal: Full void pipe.
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- External: MW of drilling mud in the hole when the casing was run.

c) Tension Loads

Running Casing (Surface / Intermediate / Production)

 Axial: Buoyant weight of the string plus the lesser of 100,000 lb or the string weight in air.

Green Cement (Surface / Intermediate / Production)

• Axial: Buoyant weight of the string plus cement plug bump pressure load.

## TECHNICAL DATA SHEET TMK UP FJ 7.625 X 26.4 L80 HC

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
CONNECTION PARAMETERS		Nominal Pipe Body Area, (sq inch) Yield Strength in Tension, (klbs)	7.519 601
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	Internal Pressure	
Yield Strength in Tension, (klbs)	347		
Yeld Strength in Compression, (klbs)	347		
Tension Efficiency	58%	00 010 00 00 00	· · · - <b>`</b> · · · · · · · · · · · · · · · · · · ·
Compression Efficiency	58%		
Min. Internal Yield Pressure, (psi)	6 020	and the second	an fine d
Collapse Pressure, (psi)	3 910		
Uniaxial Bending (deg/100ft)	28.0		/
MAKE-UP TORQUES			
Yield Torque, (ft-lb)	22 200		VME

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



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External Pressure

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Print date. 07/10/2018 20:11

## TECHNICAL DATA SHEELTMK UP SF 7.625 X 26.4 L80 HC

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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)	7.79	Min. Internal Yield Pressure, (psi)	6 020
Connection ID, (inch)	6.938	Collapse Pressure, (psi)	3 910
Make-Up Loss, (inch)	6.029		
Connection Critical Area, (sq inch)	5.948	Internal Pressure	
Yield Strength in Tension, (klbs)	533		
Yeld Strength in Compression, (klbs)	533		
Tension Efficiency	89%	107 V AVIS 13750	a state and the second s
Compression Efficiency	89%		
Min. Internal Yield Pressure, (psi)	6 020		
Collapse Pressure, (psi)	3 910	Lohger W	

42.7

#### MAKE-UP TORQUES

Collapse Pressure, (psi)

Uniaxial Bending (deg/100ft)

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





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Print date: 07/10/2018 20:00

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 Axial: Buoyant weight of the string plus the lesser of 100,000 lb or the string weight in air.

Green Cement (Surface / Intermediate / Production)

o Axial: Buoyant weight of the string plus cement plug bump pressure load.

# **PERFORMANCE DATA**

# TMK UP DQX Technical Data Sheet

## **Tubular Parameters**

Size	5.500	in
Nominal Weight	20.00	lbs/ft
Grade	P-110	
PE Weight	19.81	lbs/ft
Wall Thickness	0.361	in
Nominal ID	4.778	in
Drift Diameter	4.653	in
Nom. Pipe Body Area	5 828	in²

# Connection Parameters

Connection OD	0.000	
Connection ID	4.778	in
Make-Up Loss	4.122	in
Critical Section Area	5 828	in²
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	<b>14</b> ,100	ft-lbs
Yield Torque	20,600	ft-lbs

# Printed on: July-29-2014

#### NOTE:

The content of this Technical Data Sheet is for general information only and does not guarantee performance or imply fitness for a particular purpose, which only a competent drilling professional can determine considering the specific installation and operation parameters. Information that is printed or downloaded is no longer controlled by TMK IPSCO and might not be the latest information. Anyone using the information herein does so at their own risk. To verify that you have the latest TMK IPSCO technical information, please contact TMK IPSCO Technical Sales toll-free at 1-888-258-2000.

FRACE
IPSCO

Minimum Yield	110,000	psi
Minimum Tensile	125,000	psi
Yield Load	641,000	lbs
Tensile Load	729,000	lbs
Min. Internal Yield Pressure	12,600	psi
Collapse Pressure	11,100	psi

20.00 lbs/ft





P-110

TUBULAR PARAMETERS		PIPE BODY PROPERTIES	
Nominal OD, (inch)	5 500	PE Welght, (lbs/ft)	19.81
Wall Thickness, (inch)	0,361	Nominal Weight, (lbs/ft)	20.00
Pipe Grade	P110	Nominal ID, (inch)	4.778
Coupling	Regular	Drift Diameter, (inch)	4 6 5 3
Coupling Grade	P110	Nominal Pipe Body Area, (sq inch)	5.828
Drift	Standard	Yield Strength in Tension, (kibs)	641
		Min. Internal Yield Pressure, (psl)	12 640
CONNECTION PARAMETERS		_Collapse Pressure (osi)	11 110
Connection OD (inch)	6.05		
Connection ID (inch)	A 779		

	4.000
Make-Up Loss, (inch)	4.122
Connection Critical Area, (sq Inch)	5.828
Yield Strength In Tension, (kibs)	641
Yeld Strength in Compression, (kibs)	641
Tension Efficiency	100%
Compression Efficiency	100%
Min Internal Yield Pressure, (psi)	1 <b>2 640</b>
Collapse Pressure, (psi)	11 110
Uniaxial Bending (deg/100ft)	91 7



#### MAKE-UP TORQUES

Yield Torque, (ft-lb)	20 600
Minimum Make-Up Torque, (ft-lb)	11 600
Optimum Make-Up Torque, (ft-lb)	12 900
Maximum Make-Up Torque, (ft-lb)	14 100



NOTE: The content of this Technical Data Sheet is for general information only and does not guarantee performance or knoby fitneps for a patricular purpose, which only a competent drilling professional can determine considering the specific ir stablishin and operation parameters. This information supersisted all profix versions for this connection. Information that is printed or downloaded is no lowger control ed by TMK and might not be the latest information. Aroue us ng the information becomes to which that you may the latest information, please contact PAO \*TMK\* Technical Sales in Russia (Tel. +7 (495) 775 76 00, Emeil: techsales@unk.gooup.com) and TMK\_PSCO in North America (Tel. +1 (281)949-1044. Email, techsales(@tmk.goco.com)

Print date 12/07/2017 18:09



# Permian Drilling Hydrogen Sulfide Drilling Operations Plan Iridium MDP1 28-21 Federal Com 172H

Open drill site. No homes or buildings are near the proposed location.

1. Escape

Personnel shall escape upwind of wellbore in the event of an emergency gas release. Escape can take place through the lease road on the Southeast side of the location. Personnel need to move to a safe distance and block the entrance to location. If the primary route is not an option due to the wind direction, then a secondary egress route should be taken.





# Permian Drilling Hydrogen Sulfide Drilling Operations Plan New Mexico

# <u>Scope</u>

Y

This contingency plan establishes guidelines for the public, all company employees, and contract employees who's work activities may involve exposure to hydrogen sulfide (H2S) gas.

While drilling this well, it is possible to encounter H2S bearing formations. At all times, the first barrier to control H2S emissions will be the drilling fluid, which will have a density high enough to control influx.

# **Objective**

- 1. Provide an immediate and predetermined response plan to any condition when H2S is detected. All H2S detections in excess of 10 parts per million (ppm) concentration are considered an Emergency.
- 2. Prevent any and all accidents, and prevent the uncontrolled release of hydrogen sulfide into the atmosphere.
- 3. Provide proper evacuation procedures to cope with emergencies.
- 4. Provide immediate and adequate medical attention should an injury occur.

# **Discussion**

Implementation:	This plan with all details is to be fully implemented before drilling to <u>commence</u> .
Emergency response Procedure:	This section outlines the conditions and denotes steps to be taken in the event of an emergency.
Emergency equipment Procedure:	This section outlines the safety and emergency equipment that will be required for the drilling of this well.
Training provisions:	This section outlines the training provisions that must be adhered to prior to drilling.
Drilling emergency call lists:	Included are the telephone numbers of all persons to be contacted should an emergency exist.
Briefing:	This section deals with the briefing of all people involved in the drilling operation.
Public safety:	Public safety personnel will be made aware of any potential evacuation and any additional support needed.
Check lists:	Status check lists and procedural check lists have been included to insure adherence to the plan.
General information:	A general information section has been included to supply support information.
# Hydrogen Sulfide Training

All personnel, whether regularly assigned, contracted, or employed on an unscheduled basis, will receive training from a qualified instructor in the following areas prior to commencing drilling operations on the well:

- 1. The hazards and characteristics of H2S.
- 2. Proper use and maintenance of personal protective equipment and life support systems.
- 3. H2S detection.
- 4. Proper use of H2S detectors, alarms, warning systems, briefing areas, evacuation procedures and prevailing winds.
- 5. Proper techniques for first aid and rescue procedures.
- 6. Physical effects of hydrogen sulfide on the human body.
- 7. Toxicity of hydrogen sulfide and sulfur dioxide.
- 8. Use of SCBA and supplied air equipment.
- 9. First aid and artificial respiration.
- 10. Emergency rescue.

In addition, supervisory personnel will be trained in the following areas:

- 1. The effects of H2S on metal components. If high tensile strength tubular is to be used, personnel will be trained in their special maintenance requirements.
- 2. Corrective action and shut-in procedures when drilling a well, blowout prevention and well control procedures.
- 3. The contents and requirements of the H2S Drilling Operations Plan.

H2S training refresher must have been taken within one year prior to drilling the well. Specifics on the well to be drilled will be discussed during the pre-spud meeting. H2S and well control (choke) drills will be performed while drilling the well, at least on a weekly basis. This plan shall be available in the well site. All personnel will be required to carry the documentation proving that the H2S training has been taken.

Service company and visiting personnel

- A. Each service company that will be on this well will be notified if the zone contains H2S.
- B. Each service company must provide for the training and equipment of their employees before they arrive at the well site.
- C. Each service company will be expected to attend a well site briefing

# **Emergency Equipment Requirements**

#### 1. <u>Well control equipment</u>

The well shall have hydraulic BOP equipment for the anticipated pressures. Equipment is to be tested on installation and follow Oxy Well Control standard, as well as BLM Onshore Order #2.

Special control equipment:

- A. Hydraulic BOP equipment with remote control on ground. Remotely operated choke.
- B. Rotating head
- C. Gas buster equipment shall be installed before drilling out of surface pipe.

#### 2. <u>Protective equipment for personnel</u>

- A. Four (4) 30-minute positive pressure air packs (2 at each briefing area) on location.
- B. Adequate fire extinguishers shall be located at strategic locations.
- C. Radio / cell telephone communication will be available at the rig.
  - Rig floor and trailers.
  - Vehicle.
- 3. <u>Hydrogen sulfide sensors and alarms</u>
  - A. H2S sensor with alarms will be located on the rig floor, at the bell nipple, and at the flow line. These monitors will be set to alarm at 10 ppm with strobe light, and audible alarm.
  - B. Hand operated detectors with tubes.
  - C. H2S monitor tester (to be provided by contract Safety Company.)
  - D. There shall be one combustible gas detector on location at all times.

#### 4. Visual Warning Systems

A. One sign located at each location entrance with the following language:

Caution – potential poison gas Hydrogen sulfide No admittance without authorization

#### Wind sock – wind streamers:

- A. One 36" (in length) wind sock located at protection center, at height visible from rig floor.
- B. One 36" (in length) wind sock located at height visible from pit areas.

#### Condition flags

A. One each condition flag to be displayed to denote conditions.

green – normal conditions yellow – potential danger red – danger, H2S present

B. Condition flag shall be posted at each location sign entrance.

#### 5. <u>Mud Program</u>

The mud program is designed to minimize the risk of having H2S and other formation fluids at surface. Proper mud weight and safe drilling practices will be applied. H2S scavengers will be used to minimize the hazards while drilling. Below is a summary of the drilling program.

#### Mud inspection devices:

Garrett gas train or hatch tester for inspection of sulfide concentration in mud system.

#### 6. <u>Metallurgy</u>

- A. Drill string, casing, tubing, wellhead, blowout preventers, drilling spools or adapters, kill lines, choke manifold, lines and valves shall be suitable for the H2S service.
- B. All the elastomers, packing, seals and ring gaskets shall be suitable for H2S service.

#### 7. <u>Well Testing</u>

No drill stem test will be performed on this well.

8. <u>Evacuation plan</u>

Evacuation routes should be established prior to well spud for each well and discussed with all rig personnel.

- 9. <u>Designated area</u>
  - A. Parking and visitor area: all vehicles are to be parked at a predetermined safe distance from the wellhead.
  - B. There will be a designated smoking area.
  - C. Two briefing areas on either side of the location at the maximum allowable distance from the well bore so they offset prevailing winds perpendicularly, or at a 45-degree angle if wind direction tends to shift in the area.

# **Emergency procedures**

- A. In the event of any evidence of H2S level above 10 ppm, take the following steps:
  - 1. The Driller will pick up off bottom, shut down the pumps, slow down the pipe rotation.
  - 2. Secure and don escape breathing equipment, report to the upwind designated safe briefing / muster area.
  - 3. All personnel on location will be accounted for and emergency search should begin for any missing, the Buddy System will be implemented.
  - 4. Order non-essential personnel to leave the well site, order all essential personnel out of the danger zone and upwind to the nearest designated safe briefing / muster area.
  - 5. Entrance to the location will be secured to a higher level than our usual "Meet and Greet" requirement, and the proper condition flag will be displayed at the entrance to the location.
  - 6. Take steps to determine if the H2S level can be corrected or suppressed and, if so, proceed as required.
- B. If uncontrollable conditions occur:
  - 1. Take steps to protect and/or remove any public in the down-wind area from the rig – partial evacuation and isolation. Notify necessary public safety personnel and appropriate regulatory entities (i.e. BLM) of the situation.

- 2. Remove all personnel to the nearest upwind designated safe briefing / muster area or off location.
- 3. Notify public safety personnel of safe briefing / muster area.
- 4. An assigned crew member will blockade the entrance to the location. No unauthorized personnel will be allowed entry to the location.
- 5. Proceed with best plan (at the time) to regain control of the well. Maintain tight security and safety procedures.

#### C. Responsibility:

- 1. Designated personnel.
  - a. Shall be responsible for the total implementation of this plan.
  - b. Shall be in complete command during any emergency.
  - c. Shall designate a back-up.

All personnel:

1. On alarm, don escape unit and report to the nearest upwind designated safe briefing / muster area upw

- 2. Check status of personnel (buddy system).
- 3. Secure breathing equipment.
- 4. Await orders from supervisor.

Drill site manager:

Tool pusher:

- 1. Don escape unit if necessary and report to nearest upwind designated safe briefing / muster area.
- 2. Coordinate preparations of individuals to return to point of release with tool pusher and driller (using the buddy system).
- 3. Determine H2S concentrations.
- 4. Assess situation and take control measures.
- 1. Don escape unit Report to up nearest upwind designated safe briefing / muster area.
- 2. Coordinate preparation of individuals to return to point of release with tool pusher drill site manager (using the buddy system).
- 3. Determine H2S concentration.
- 4. Assess situation and take control measures.

Driller: 1. Don escape unit, shut down pumps, continue

	<ol> <li>2.</li> <li>3.</li> <li>4.</li> <li>5.</li> <li>6.</li> </ol>	rotating DP. Check monitor for point of release. Report to nearest upwind designated safe briefing / muster area. Check status of personnel (in an attempt to rescue, use the buddy system). Assigns least essential person to notify Drill Site Manager and tool pusher by quickest means in case of their absence. Assumes the responsibilities of the Drill Site Manager and tool pusher until they arrive should they be absent.
Derrick man Floor man #1 Floor man #2	1.	Will remain in briefing / muster area until instructed by supervisor.
Mud engineer:	1. 2.	Report to nearest upwind designated safe briefing / muster area. When instructed, begin check of mud for ph and H2S level. (Garett gas train.)
Safety personnel:	1.	Mask up and check status of all personnel and secure operations as instructed by drill site manager.

#### Taking a kick

When taking a kick during an H2S emergency, all personnel will follow standard Well control procedures after reporting to briefing area and masking up.

#### **Open-hole logging**

All unnecessary personnel off floor. Drill Site Manager and safety personnel should monitor condition, advise status and determine need for use of air equipment.

# **Running casing or plugging**

Following the same "tripping" procedure as above. Drill Site Manager and safety personnel should determine if all personnel have access to protective equipment.

#### **Ignition procedures**

The decision to ignite the well is the responsibility of the operator (Oxy Drilling Management). The decision should be made only as a last resort and in a situation where it is clear that:

- 1. Human life and property are endangered.
- 2. There is no hope controlling the blowout under the prevailing conditions at the well.

Instructions for igniting the well

- 1. Two people are required for the actual igniting operation. They must wear self-contained breathing units and have a safety rope attached. One man (tool pusher or safety engineer) will check the atmosphere for explosive gases with the gas monitor. The other man is responsible for igniting the well.
- 2. Primary method to ignite: 25 mm flare gun with range of approximately 500 feet.
- 3. Ignite upwind and do not approach any closer than is warranted.
- 4. Select the ignition site best for protection, and which offers an easy escape route.
- 5. Before firing, check for presence of combustible gas.
- 6. After lighting, continue emergency action and procedure as before.
- 7. All unassigned personnel will remain in briefing area until instructed by supervisor or directed by the Drill Site Manager.

**<u>Remember</u>**: After well is ignited, burning hydrogen sulfide will convert to sulfur dioxide, which is also highly toxic. **<u>Do not assume the area is safe after the well is ignited.</u>** 

#### Status check list

Note: All items on this list must be completed before drilling to production casing point.

- 1. H2S sign at location entrance.
- 2. Two (2) wind socks located as required.
- 3. Four (4) 30-minute positive pressure air packs (2 at each Briefing area) on location for all rig personnel and mud loggers.
- 4. Air packs inspected and ready for use.
- 5. Cascade system and hose line hook-up as needed.
- 6. Cascade system for refilling air bottles as needed.
- 7. Condition flag on location and ready for use.
- 8. H2S detection system hooked up and tested.
- 9. H2S alarm system hooked up and tested.
- 10. Hand operated H2S detector with tubes on location.
- 11. 1 100' length of nylon rope on location.
- 12. All rig crew and supervisors trained as required.
- 13. All outside service contractors advised of potential H2S hazard on well.
- 14. No smoking sign posted and a designated smoking area identified.
- 15. Calibration of all H2S equipment shall be noted on the IADC report.

# Procedural check list during H2S events

#### Perform each tour:

- 1. Check fire extinguishers to see that they have the proper charge.
- 2. Check breathing equipment to ensure that it in proper working order.
- 3. Make sure all the H2S detection system is operative.

#### Perform each week:

- 1. Check each piece of breathing equipment to make sure that demand or forced air regulator is working. This requires that the bottle be opened and the mask assembly be put on tight enough so that when you inhale, you receive air or feel air flow.
- 2. BOP skills (well control drills).
- 3. Check supply pressure on BOP accumulator stand by source.
- 4. Check breathing equipment mask assembly to see that straps are loosened and turned back, ready to put on.
- 5. Check pressure on breathing equipment air bottles to make sure they are charged to full volume. (Air quality checked for proper air grade "D" before bringing to location)
- 6. Confirm pressure on all supply air bottles.
- 7. Perform breathing equipment drills with on-site personnel.
- 8. Check the following supplies for availability.
  - A. Emergency telephone list.
  - B. Hand operated H2S detectors and tubes.

# General evacuation plan

- 1. When the company approved supervisor (Drill Site Manager, consultant, rig pusher, or driller) determines the H2S gas cannot be limited to the well location and the public will be involved, he will activate the evacuation plan.
- 2. Drill Site Manager or designee will notify local government agency that a hazardous condition exists and evacuation needs to be implemented.
- 3. Company or contractor safety personnel that have been trained in the use of H2S detection equipment and self-contained breathing equipment will monitor H2S concentrations, wind directions, and area of exposure. They will delineate the outer perimeter of the hazardous gas area. Extension to the evacuation area will be determined from information gathered.
- 4. Law enforcement personnel (state police, police dept., fire dept., and sheriff's dept.) Will be called to aid in setting up and maintaining road blocks. Also, they will aid in evacuation of the public if necessary.
- 5. After the discharge of gas has been controlled, company safety personnel will determine when the area is safe for re-entry.

<u>Important:</u> Law enforcement personnel will not be asked to come into a contaminated area. Their assistance will be limited to uncontaminated areas. Constant radio contact will be maintained with them.

## **Emergency actions**

#### Well blowout – if emergency

- 1. Evacuate all personnel to "Safe Briefing / Muster Areas" or off location if needed.
- 2. If sour gas evacuate rig personnel.
- 3. If sour gas evacuate public within 3000 ft radius of exposure.
- 4. Don SCBA and shut well in if possible using the buddy system.
- 5. Notify Drilling Superintendent and call 911 for emergency help (fire dept and ambulance) if needed.
- 6. Implement the Blowout Contingency Plan, and Drilling Emergency Action Plan.
- 6. Give first aid as needed.

#### Person down location/facility

- 1. If immediately possible, contact 911. Give location and wait for confirmation.
- 2. Don SCBA and perform rescue operation using buddy system.

# Toxic effects of hydrogen sulfide

Hydrogen sulfide is extremely toxic. The acceptable ceiling concentration for eight-hour exposure is 10 ppm, which is .001% by volume. Hydrogen sulfide is heavier than air (specific gravity -1.192) and colorless. It forms an explosive mixture with air between 4.3 and 46.0 percent by volume. Hydrogen sulfide is almost as toxic as hydrogen cyanide and is between five and six times more toxic than carbon monoxide. Toxicity data for hydrogen sulfide and various other gases are compared in table i. Physical effects at various hydrogen sulfide exposure levels are shown in table ii.

Common name	Chemical formula	Specific gravity (sc=1)	Threshold limit (1)	Hazardous limit (2)	Lethal concentration (3)
Hydrogen Cyanide	Hcn	0.94	10 ppm	150 ppm/hr	300 ppm
Hydrogen Sulfide	H2S	1.18	10 ppm	250 ppm/hr	600 ppm
Sulfur Dioxide	So2	2.21	5 ppm	-	1000 ppm
Chlorine	C12	2.45	l ppm	4 ppm/hr	1000 ppm
Carbon Monoxide	Co	0.97	50 ppm	400 ppm/hr	1000 ppm
Carbon	Co2	1.52	5000 ppm	5%	10%
Methane	Ch4	0.55	90,000 ppm	Combustible	e above 5% in air

Table i Toxicity of various gases

1) threshold limit – concentration at which it is believed that all workers may be repeatedly exposed day after day without adverse effects.

- 2) hazardous limit concentration that will cause death with short-term exposure.
- 3) lethal concentration concentration that will cause death with short-term exposure.

#### Toxic effects of hydrogen sulfide

Table ii Physical effects of hydrogen sulfide

		<b>Concentration</b>	Physical effects
Percent (%)	<u>Ppm</u>	Grains	
		100 std. Ft3*	
0.001	<10	00.65	Obvious and unpleasant odor.

0.002	10	01.30	Safe for 8 hours of exposure.
0.010	100	06.48	Kill smell in $3 - 15$ minutes. May sting eyes and throat.
0.020	200	12.96	Kills smell shortly; stings eyes and throat.
0.050	500	32.96	Dizziness; breathing ceases in a few minutes; needs prompt artificial respiration.
0.070	700	45.36	Unconscious quickly; death will result if not rescued promptly.
0.100	1000	64.30	Unconscious at once; followed by death within minutes.

\*at 15.00 psia and 60'f.

# Use of self-contained breathing equipment (SCBA)

- 1. Written procedures shall be prepared covering safe use of SCBA's in dangerous atmosphere, which might be encountered in normal operations or in emergencies. Personnel shall be familiar with these procedures and the available SCBA.
- 2 SCBA's shall be inspected frequently at random to insure that they are properly used, cleaned, and maintained.
- 3. Anyone who may use the SCBA's shall be trained in how to insure proper facepiece to face seal. They shall wear SCBA's in normal air and then wear them in a test atmosphere. (note: such items as facial hair {beard or sideburns} and eyeglasses will not allow proper seal.) Anyone that may be reasonably expected to wear SCBA's should have these items removed before entering a toxic atmosphere. A special mask must be obtained for anyone who must wear eyeglasses or contact lenses.
- 4. Maintenance and care of SCBA's:
  - a. A program for maintenance and care of SCBA's shall include the following:
    - 1. Inspection for defects, including leak checks.
    - 2. Cleaning and disinfecting.
    - 3. Repair.
    - 4. Storage.
  - b. Inspection, self-contained breathing apparatus for emergency use shall be inspected monthly.
    - 1. Fully charged cylinders.
    - 2. Regulator and warning device operation.
    - 3. Condition of face piece and connections.
    - 4. Rubber parts shall be maintained to keep them pliable and prevent deterioration.
  - c. Routinely used SCBA's shall be collected, cleaned and disinfected as frequently as necessary to insure proper protection is provided.
- 5. Persons assigned tasks that requires use of self-contained breathing equipment shall be certified physically fit (medically cleared) for breathing equipment usage at least annually.
- 6. SCBA's should be worn when:
  - A. Any employee works near the top or on top of any tank unless test reveals less than 10 ppm of H2S.

- B. When breaking out any line where H2S can reasonably be expected.
- C. When sampling air in areas to determine if toxic concentrations of H2S exists.
- D. When working in areas where over 10 ppm H2S has been detected.
- E. At any time there is a doubt as to the H2S level in the area to be entered.

#### <u>Rescue</u> <u>First aid for H2S poisoning</u>

Do not panic!

Remain calm – think!

- 1. Don SCBA breathing equipment.
- 2. Remove victim(s) utilizing buddy system to fresh air as quickly as possible. (go up-wind from source or at right angle to the wind. Not down wind.)
- 3. Briefly apply chest pressure arm lift method of artificial respiration to clean the victim's lungs and to avoid inhaling any toxic gas directly from the victim's lungs.
- 4. Provide for prompt transportation to the hospital, and continue giving artificial respiration if needed.
- 5. Hospital(s) or medical facilities need to be informed, before-hand, of the possibility of H2S gas poisoning no matter how remote the possibility is.
- 6. Notify emergency room personnel that the victim(s) has been exposed to H2S gas.

Besides basic first aid, everyone on location should have a good working knowledge of artificial respiration.

Revised CM 6/27/2012

# OXY

PRD NM DIRECTIONAL PLANS (NAD 1983) Iridium MDP1 28-21 Fed Com IRIDIUM MDP1 28-21 FED COM 172H

**WB00** 

**Plan: Permitting Plan** 

# **Standard Planning Report**

03 April, 2018

### Oxy Planning Report

Database:HOPSPPLocal Co-ordinate Reference:Well IRIDIUM MDP1Company:ENGINEERING DESIGNSTVD Reference:Datum @ 3402.60ftProject:PRD NM DIRECTIONAL PLANS (NAD 1983)MD Reference:Datum @ 3402.60ftSite:Iridium MDP1 28-21 Fed ComNorth Reference:GridWell:IRIDIUM MDP1 28-21 FED COM 172HSurvey Calculation Method:Minimum CurvatureWellbore:WB00Permitting PlanFermitting PlanFermitting Plan	28-21 FED COM 172H
Project PRD NM DIRECTIONAL PLANS (NAD 1983)	- · · · · · · · · · · · · · · · · · · ·
Map System:     US State Plane 1983     System Datum:     Mean Sea Level       Geo Datum:     North American Datum 1983     System Datum:     Mean Sea Level	
Map Zone: New Mexico Eastern Zone Using geodetic scale fa	actor
Site Iridium MDP1 28-21 Fed Com	
Site Position:Northing:462,153.25 usftLatitude:From:MapEasting:709,519.68 usftLongitude:Position Uncertainty:50.00 ftSlot Radius:13.200 inGrid Convergence:	32° 16' 9.702719 N 103° 47' 21.105685 W 0.29 °
Weil IRIDIUM MDP1 28-21 FED COM 172H	
Well Position +N/-S -698.79 ft Northing: 461,454.50 usft Latitude:	32° 16' 2.776885 N
+E/-W 225.48 ft Easting: 709,745.15 usft Longitude:	103° 47' 18.520955 W
Position Uncertainty 0.00 ft Wellhead Elevation: 0.00 ft Ground Level:	3,376.10 ft
Wellbore WB00	
Magnetics Model Name Sample Date Declination Dip Angle (°) (°)	Field Strength (nT)
HDGM 4/3/2018 -99,639.00 -99,999.00	-99,999
Design Permitting Plan	
Audit Notes:	
Version:Phase:PROTOTYPETie On Depth:0.00	
Vertical Section:Depth From (TVD)+N/-S+E/-WDirection(ft)(ft)(ft)(°)	n
0.00 0.00 0.00 1.74	
Plan Sections	<u> </u>
MeasuredVerticalDoglegBuildTurnDepthInclinationAzimuthDepth+N/-S+E/-WRateRateRateT(ft)(°)(°)(ft)(ft)(ft)(°/100ft)(°/100ft)(°/100ft)	FO (*) Target
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00	0.00
7,530.00 0.00 7,530.00 0.00 0.00 0.00 0.00 0.00	0.00
8,030.20         10.00         50.37         8,027.67         27.78         33.55         2.00         2.00         0.00	50.37
<u>1 10 436 50 10 00 50 37 10 397 37 294 42 355 49 0 00 0 00 0 00</u>	0.00
10,936.70 0.00 359.64 10,895.04 322.20 389.03 2.00 -2.00 0.00 11,835.70 89.90 359.64 11,468.00 894.15 385.46 10.00 10.00 0.00	180.00 IRIDIUM_172H_KO



# Oxy



**Planning Report** 

akte a sitter a setter pro . . . . · \_ · · · \*\* \*\*\*\* HOPSPP Local Co-ordinate Reference: Well IRIDIUM MDP1 28-21 FED COM 172H Database: ENGINEERING DESIGNS **TVD Reference:** Datum @ 3402.60ft Company: Project: PRD NM DIRECTIONAL PLANS (NAD 1983) Datum @ 3402.60ft MD Reference: Site: Iridium MDP1 28-21 Fed Com North Reference: Grid Well: IRIDIUM MDP1 28-21 FED COM 172H Survey Calculation Method: Minimum Curvature **WB00** Wellbore: Permitting Plan Design:

	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)
<b>.</b>	0.00	0.00	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	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
	000.00	0.00	0.00	000.00	0.00	0.00	0.00	0.00	0.00	0.00
	900.00	0.00	0.00	500.00	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
	2,100.00	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
1	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
	4,500.00	0.00	0.00	4,000.00	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
	4,700.00	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
	5,300.00	0.00	0.00	5,300.00	0.00	0.00	0.00	0.00	0.00	0.00

Planned Survey

COMPASS 5000.1 Build 74

#### Oxy Planning Report

Database: Company: Project: Site: Well: Wellbore:	HOPSPP ENGINEERING DESIGNS PRD NM DIRECTIONAL PLANS (NAD 1983) Iridium MDP1 28-21 Fed Com IRIDIUM MDP1 28-21 FED COM 172H WB00	Local Co-ordinate Reference: TVD Reference: MD Reference: North Reference: Survey Calculation Method:	Well IRIDIUM MDP1 28-21 FED COM 172H Datum @ 3402.60ft Datum @ 3402.60ft Grid Minimum Curvature
Design:	Permitting Plan		

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)
5,400.00	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
5,500.00		0.00	5,500.00	040	0.00	0.00	0.00	0.00	0.00
5,000.00		0.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00
5,700.00		0.00	5,700.00	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 0 0	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
7,530.00	0.00	0.00	7,530.00	0.00	0.00	0.00	0.00	0.00	0.00
7,600.00	) 1.40	50.37	7,599.99	0.55	0.66	0.57	2.00	2.00	0.00
7,700.00	) 3.40	50.37	7,699.90	3.22	3.88	3.33	2.00	2.00	0.00
7,800.00	) 5.40	50.37	7,799.60	8.11	9.79	8.40	2.00	2.00	0.00
7,900.00	) 7.40	50.37	7,898.97	15.22	18.38	15.77	2.00	2.00	0.00
8,000.00	) 9.40	50.37	7,997.89	24.54	29.63	25.43	2.00	2.00	0.00
8,030.20	) 10.00	50.37	8,027.67	27.78	33.55	28.79	2.00	2.00	0.00
8,100.00	) 10.00	50.37	8,096.40	35.52	42.88	36.81	0.00	0.00	0.00
8,200.00	) 10.00	50.37	8,194.88	46.60	56.26	48.29	0.00	0.00	0.00
8,300.00	) 10.00	50.37	8,293.36	57.68	69.64	59.77	0.00	0.00	0.00
8,400.00	) 10.00	50.37	8,391.84	68.76	83.02	71.25	0.00	0.00	0.00
8,500.00	) 10.00	50.37	8,490.32	79.84	96.40	82.74	0.00	0.00	0.00
8,600.00	) 10.00	50.37	8,588.80	90.92	109.78	94.22	0.00	0.00	0.00
8,700.00	0 10.00	50.37	8,687.28	102.00	123.16	105.70	0.00	0.00	0.00
8,800.00	) 10.00	50.37	8,785.76	113.08	136.54	117.19	0.00	0.00	0.00
8,900.00	10.00	50.37	8,884.24	124.16	149.92	128.67	0.00	0.00	0.00
9,000.00	10.00	50.37	8,982.72	135.24	163.30	140.15	0.00	0.00	0.00
9,100.00	) 10.00 ) 10.00	50.37	9,081.20 9 179 68	146.32 157 40	1/6.68	151.63	0.00	0.00	0.00
0 200 00	, 10.00 , 40.00	50.07	0,170.00	400.40	000.00	474.00	0.00	0.00	0.00
9,300.00 9,400.00	, 10.00 } 10.00	50.37	5,270.10 0,376.61	170.40	203.43 216 91	126 00	0.00	0.00	0.00
9,400.0L	, 10.00 ) 10.00	50.37 E0.37	5,370.04 0 175 11	100 65	210.01	100.00	0.00	0.00	0.00
0,000.00	, 10.00 ) 10.00	50.37	0,470.11	204 72	230.19	200 05	0.00	0.00	0.00
9,700.00	) 10.00	50.37	9,672.07	212.81	243.57	209.03	0.00	0.00	0.00
9 800 00	) 10.00	50.37	9 770 55	223 89	270 33	232.01	0.00	0.00	0.00
9 900 00	) 10.00	50.37	9 869 03	234 97	283 71	243 50	0.00	0.00	0.00
10,000,00	) 10.00	50.37	9 967 51	246.05	203.71	254 08	0.00	0.00	0.00
10 100 00	) 10.00	50.37	10 065 99	257 13	310 47	266 /6	0.00	0.00	0.00
10,200.00	) 10.00	50.37	10,164.47	268.21	323.85	277.94	0.00	0.00	0.00
10,300,00	10.00	50 37	10 262 95	279 29	337 22	280 42	0.00	0.00	0 00
10,400.00	) 10.00	50.37	10.361.43	290.37	350.60	300.91	0.00	0.00	0.00
40,400,50	10.00	50.07	10 207 27	204 42	255.40	205 10	0.00	0.00	0.00



Oxy



Planning Report

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Database:	HOPSPP	Local Co-ordinate Reference:	Well IRIDIUM MDP1 28-21 FED COM 172H	
Company:	ENGINEERING DESIGNS	TVD Reference:	Datum @ 3402.60ft	1
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	Datum @ 3402.60ft	1
Site:	Iridium MDP1 28-21 Fed Com	North Reference:	Grid	,
Well:	IRIDIUM MDP1 28-21 FED COM 172H	Survey Calculation Method:	Minimum Curvature	
Wellbore:	WB00			
Design:	Permitting Plan			

Measured (b)         Inclination (1)         Azimuth (1)         Vertical (1)         Vertical (1)         Vertical (1)         Vertical (1)         Description (1)         Build (1)         Trans (1)           10         50.07         10.660.03         301.01         353.45         311.93         2.00         2.00         0.00           10         00000         6.73         50.37         10.666.03         301.01         353.45         311.93         2.00         2.00         0.00           10         00000         6.73         50.37         10.658.34         315.97         331.74         2.00         2.00         0.00           10.300.00         0.33         3369.44         11.958.21         332.659         338.88         333.74         2.00         1.00         0.00           11.300.00         65.33         3369.64         11.123.48         433.57         338.34         445.19         1.000         1.000         0.00           11.300.00         66.33         3369.64         1.137.48         577.50         338.34         445.19         1.000         1.000         0.00           11.300.00         66.33         3369.64         1.1468.20         389.44         1.668.25         306.45         1	Plann	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)
$\begin{array}{cccccccccccccccccccccccccccccccccccc$		10,500.00	8.73	50.37	10,460.03	301.01	363.45	311.93	2.00	-2.00	0.00
$\begin{array}{cccccccccccccccccccccccccccccccccccc$		10,600.00	0.73	50.37	10,559.11	309.59	+ 373.01	520.05	2.00	-2.00	0.00
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$		10,700.00	4.73	50.37	10,658.61	315.97	381.51	327.43	2.00	-2.00	0.00
$\begin{array}{cccccccccccccccccccccccccccccccccccc$		10,800.00	2.73	50.37	10,758.39	320.12	386.52	331.74	2.00	-2.00	0.00
$\begin{array}{cccccccccccccccccccccccccccccccccccc$		10,900.00	0.73	50.37	10,858.34	322.05	388.85	333.74	2.00	-2.00	0.00
$\begin{split} 11,000,000 & 6.3.3 & 359,64 & 10,059,21 & 326,59 & 389,01 & 357,36 & 10,00 & 10,00 & 0.00 \\ 11,200,00 & 28.3.3 & 359,64 & 11,199,17 & 381,64 & 388,69 & 358,99 & 10,00 & 10,00 & 0.00 \\ 11,000,00 & 36.3.3 & 359,64 & 11,39,48 & 495,52 & 387,33 & 511,10 & 10,00 & 10,00 & 0.00 \\ 11,000,00 & 56.3.3 & 359,64 & 11,39,48 & 495,52 & 387,43 & 589,02 & 10,00 & 10,00 & 0.00 \\ 11,000,00 & 76,33 & 359,64 & 11,49,80 & 665,12 & 386,89 & 676,59 & 10,00 & 10,00 & 0.00 \\ 11,000,00 & 76,33 & 359,64 & 11,49,80 & 665,12 & 386,89 & 676,59 & 10,00 & 10,00 & 0.00 \\ 11,000,00 & 76,33 & 359,64 & 11,46,82 & 658,47 & 385,66 & 668,81 & 10,00 & 10,00 & 0.00 \\ 11,800,00 & 88,33 & 359,64 & 11,468,62 & 658,47 & 385,66 & 569,81 & 10,00 & 10,00 & 0.00 \\ 11,800,00 & 89,30 & 359,64 & 11,468,61 & 195,44 & 385,46 & 956,47 & 10,00 & 10,00 & 0.00 \\ 12,000,00 & 89,90 & 359,64 & 11,468,61 & 195,44 & 383,19 & 1,269,52 & 0.00 & 0.00 & 0.00 \\ 12,000,00 & 89,90 & 359,64 & 11,468,46 & 1,128,44 & 383,19 & 1,269,52 & 0.00 & 0.00 & 0.00 \\ 12,000,00 & 89,90 & 359,64 & 11,468,80 & 1,336,43 & 382,57 & 1,369,45 & 0.00 & 0.00 & 0.00 \\ 12,000,00 & 89,90 & 359,64 & 11,468,81 & 1,358,43 & 381,94 & 1,469,38 & 0.00 & 0.00 & 0.00 \\ 12,000,00 & 89,90 & 359,64 & 11,468,41 & 1,584,43 & 381,94 & 1,469,38 & 0.00 & 0.00 & 0.00 \\ 12,000,00 & 89,90 & 359,64 & 11,468,41 & 1,584,43 & 381,94 & 1,469,38 & 0.00 & 0.00 & 0.00 \\ 12,000,00 & 89,90 & 359,64 & 11,469,14 & 1,584,43 & 381,94 & 1,469,38 & 0.00 & 0.00 & 0.00 \\ 12,000,00 & 89,91 & 359,64 & 11,469,41 & 1,584,42 & 378,82 & 1,569,32 & 0.00 & 0.00 & 0.00 \\ 12,000,00 & 89,91 & 359,64 & 11,469,41 & 1,584,42 & 378,82 & 1,569,32 & 0.00 & 0.00 & 0.00 \\ 12,000,00 & 89,91 & 359,64 & 11,470,14 & 2,258,42 & 378,82 & 1,969,05 & 0.00 & 0.00 & 0.00 \\ 13,000,00 & 89,91 & 359,64 & 11,470,30 & 2,254,22 & 378,82 & 1,969,05 & 0.00 & 0.00 & 0.00 \\ 13,000,00 & 89,91 & 359,64 & 11,470,30 & 2,258,42 & 378,82 & 1,969,05 & 0.00 & 0.00 & 0.00 \\ 13,000,00 & 89,91 & 359,64 & 11,470,30 & 2,258,42 & 378,82 & 1,969,05 & 0.00 & 0.00 & 0.00 \\ 13,000,00 & 89,91$		10,936.70	0.00	359.64	10,895.04	322.20	389.03	333.89	2.00	-2.00	0.00
$\begin{array}{cccccccccccccccccccccccccccccccccccc$		11,000.00	6.33	359.64	10,958.21	325.69	389.01	337.30	10.00	10.00	0.00
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$		11,100.00	16.33	359.64	11,056.14	345.31	388.89	356.99	10.00	10.00	0.00
$\begin{array}{cccccccccccccccccccccccccccccccccccc$		11,200.00	26.33	359.64	11,149.17	381.64	388.66	393.29	10.00	10.00	0.00
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$		11,300.00	36.33	359.64	11,234.48	433.57	388.34	445.19	10.00	10.00	0.00
$\begin{array}{cccccccccccccccccccccccccccccccccccc$		11,400.00	46.33	359.64	11,309.48	499.52	387.93	511.10	10.00	10.00	0.00
$\begin{array}{cccccccccccccccccccccccccccccccccccc$		11,500.00	56.33	359.64	11,371.88	577.50	307.44	369.02	10.00	10.00	0.00
$\begin{array}{cccccccccccccccccccccccccccccccccccc$		11,600.00	66.33	359.64	11,419.80	665.12	386.89	676.59	10.00	10.00	0.00
$\begin{array}{cccccccccccccccccccccccccccccccccccc$		11,700.00	76.33	359.64	11,451.77	759.74	386.30	771.15	10.00	10.00	0.00
$\begin{array}{cccccccccccccccccccccccccccccccccccc$		11,800.00	86.33	359.64	11,466.82	858.47	385.69	869.81	10.00	10.00	0.00
$\begin{array}{cccccccccccccccccccccccccccccccccccc$		11,835.70	89.90	359.64	11,468.00	894.15	385.46	905.47	10.00	10.00	0.00
$\begin{array}{cccccccccccccccccccccccccccccccccccc$		11,900.00	89.90	359.64	11,468.11	958.44	385.06	969.72	0.00	0.00	0.00
$\begin{array}{cccccccccccccccccccccccccccccccccccc$		12,000.00	89.90	359.64	11,468.28	1,058.44	384.44	1,069.65	0.00	0.00	0.00
$\begin{array}{cccccccccccccccccccccccccccccccccccc$		12,100.00	89.90	359.64	11,468.46	1,158.44	383.81	1,169.59	0.00	0.00	0.00
$\begin{array}{cccccccccccccccccccccccccccccccccccc$		12,200.00	89.90	359.64	11,468.63	1,258.44	383.19	1,269.52	0.00	0.00	0.00
$\begin{array}{cccccccccccccccccccccccccccccccccccc$		12,300.00	89.90	359.64	11,468.80	1,358.43	382.57	1,369.45	0.00	0.00	0.00
$\begin{array}{cccccccccccccccccccccccccccccccccccc$		12,400.00	89.90	359.64	11,468.97	1,458.43	381.94	1,469.38	0.00	0.00	0.00
$\begin{array}{cccccccccccccccccccccccccccccccccccc$		12,500.00	89.90	359.64	11,469.14	1,558.43	381.32	1,569.32	0.00	0.00	0.00
$\begin{array}{cccccccccccccccccccccccccccccccccccc$		12,600.00	89.90	359.64	11,469.31	1,658.43	380.69	1,669.25	0.00	0.00	0.00
$\begin{array}{cccccccccccccccccccccccccccccccccccc$		12,700.00	89.90	359.64	11,469.47	1,758.43	380.07	1,769.18	0.00	0.00	0.00
12,900.00 $89.91$ $359.64$ $11,469.81$ $1,958.42$ $378.82$ $1,969.05$ $0.00$ $0.00$ $0.00$ $13,000.00$ $89.91$ $359.64$ $11,470.14$ $2,158.42$ $377.57$ $2,168.91$ $0.00$ $0.00$ $0.00$ $13,200.00$ $89.91$ $359.64$ $11,470.14$ $2,158.42$ $377.57$ $2,268.84$ $0.00$ $0.00$ $0.00$ $13,200.00$ $89.91$ $359.64$ $11,470.30$ $2,258.42$ $376.35$ $2,268.84$ $0.00$ $0.00$ $0.00$ $13,400.00$ $89.91$ $359.64$ $11,470.76$ $2,558.41$ $375.08$ $2,568.64$ $0.00$ $0.00$ $0.00$ $13,600.00$ $89.91$ $359.64$ $11,470.78$ $2,558.41$ $375.08$ $2,568.64$ $0.00$ $0.00$ $0.00$ $13,600.00$ $89.91$ $359.64$ $11,471.26$ $2,558.41$ $373.83$ $2,768.57$ $0.00$ $0.00$ $0.00$ $13,600.00$ $89.91$ $359.64$ $11,471.26$ $2,858.40$ $372.12$ $2,868.44$ $0.00$ $0.00$ $0.00$ $13,900.00$ $89.91$ $359.64$ $11,471.42$ $2,958.40$ $372.58$ $2,968.37$ $0.00$ $0.00$ $0.00$ $14,000.00$ $89.91$ $359.64$ $11,471.73$ $3,158.40$ $371.96$ $3,68.17$ $0.00$ $0.00$ $14,000.00$ $89.91$ $359.64$ $11,471.73$ $3,558.39$ $370.71$ $3,268.17$ $0.00$ $0.00$ $14,000.00$ $89.91$ $359.64$ $11,4$		12,800.00	89.90	359.64	11,469.64	1,858.42	379.45	1,869.11	0.00	0.00	0.00
$\begin{array}{cccccccccccccccccccccccccccccccccccc$		12,900.00	89.91	359.64	11,469.81	1,958.42	378.82	1,969.05	0.00	0.00	0.00
$\begin{array}{cccccccccccccccccccccccccccccccccccc$		13,000.00	89.91	359.64	11,469.97	2,058.42	378.20	2,068.98	0.00	0.00	0.00
13,200.00       89.91       359.64       11,470.30       2,258.42       376.95       2,268.84       0.00       0.00       0.00         13,300.00       89.91       359.64       11,470.62       2,458.41       375.70       2,468.71       0.00       0.00       0.00         13,400.00       89.91       359.64       11,470.62       2,458.41       375.70       2,468.71       0.00       0.00       0.00         13,600.00       89.91       359.64       11,470.94       2,658.41       374.45       2,668.57       0.00       0.00       0.00         13,700.00       89.91       359.64       11,471.10       2,758.41       373.21       2,668.44       0.00       0.00       0.00         13,800.00       89.91       359.64       11,471.42       2,958.40       373.21       2,668.44       0.00       0.00       0.00         14,000.00       89.91       359.64       11,471.73       3,158.40       371.96       3,068.30       0.00       0.00       0.00         14,000.00       89.91       359.64       11,471.73       3,158.40       371.33       3,168.24       0.00       0.00       0.00         14,000.00       89.91       359.64       11,472.19 </td <td></td> <td>13,100.00</td> <td>89.91</td> <td>359.64</td> <td>11,470.14</td> <td>2,158.42</td> <td>377.57</td> <td>2,168.91</td> <td>0.00</td> <td>0.00</td> <td>0.00</td>		13,100.00	89.91	359.64	11,470.14	2,158.42	377.57	2,168.91	0.00	0.00	0.00
$\begin{array}{cccccccccccccccccccccccccccccccccccc$		13,200.00	89.91	359.64	11,470.30	2,258.42	376.95	2,268.84	0.00	0.00	0.00
$\begin{array}{cccccccccccccccccccccccccccccccccccc$		13,300.00	89.91	359.64	11,470.46	2,358.41	376.33	2,368.78	0.00	0.00	0.00
13,500,00       89,91       359,64       11,470.78       2,558,41       375.08       2,568,64       0.00       0.00       0.00         13,600,00       89,91       359,64       11,471.70       2,658,41       374,45       2,668,57       0.00       0.00       0.00         13,700,00       89,91       359,64       11,471.70       2,758,41       373,21       2,868,44       0.00       0.00       0.00         13,800,00       89,91       359,64       11,471.72       2,958,40       372,25       2,968,37       0.00       0.00       0.00         14,000,00       89,91       359,64       11,471.73       3,158,40       371.36       3,068,30       0.00       0.00       0.00         14,000,00       89,91       359,64       11,471.73       3,158,40       371.33       3,168,24       0.00       0.00       0.00         14,200,00       89,91       359,64       11,472.14       3,358,39       370.71       3,268,17       0.00       0.00       0.00         14,300,00       89,91       359,64       11,472.14       3,358,39       370.99       3,368,10       0.00       0.00       0.00         14,500,00       89,91       359,64       11,472.55 </td <td></td> <td>13,400.00</td> <td>89.91</td> <td>359.64</td> <td>11,470.62</td> <td>2,458.41</td> <td>375.70</td> <td>2,468.71</td> <td>0.00</td> <td>0.00</td> <td>0.00</td>		13,400.00	89.91	359.64	11,470.62	2,458.41	375.70	2,468.71	0.00	0.00	0.00
$\begin{array}{cccccccccccccccccccccccccccccccccccc$		13,500.00	89.91	359.64	11,470.78	2,558.41	375.08	2,568.64	0.00	0.00	0.00
$\begin{array}{cccccccccccccccccccccccccccccccccccc$		13,600.00	89.91	359.64	11,470.94	2,658.41	374.45	2,668.57	0.00	0.00	0.00
13,800.00       89.91       359.64       11,471.26       2,858.40       373.21       2,868.44       0.00       0.00       0.00         13,900.00       89.91       359.64       11,471.42       2,958.40       372.58       2,968.37       0.00       0.00       0.00         14,000.00       89.91       359.64       11,471.78       3,058.40       371.96       3,068.30       0.00       0.00       0.00         14,200.00       89.91       359.64       11,471.89       3,258.39       370.71       3,268.17       0.00       0.00       0.00         14,300.00       89.91       359.64       11,472.19       3,458.39       369.46       3,468.03       0.00       0.00       0.00         14,400.00       89.91       359.64       11,472.35       3,558.39       369.46       3,468.03       0.00       0.00       0.00         14,500.00       89.91       359.64       11,472.50       3,658.39       368.21       3,667.90       0.00       0.00       0.00         14,500.00       89.91       359.64       11,472.80       3,588.38       366.75       3,767.83       0.00       0.00       0.00         14,600.00       89.91       359.64       11,472.44 </td <td></td> <td>13,700.00</td> <td>89.91</td> <td>359.64</td> <td>11,471.10</td> <td>2,758.41</td> <td>373.83</td> <td>2,768.51</td> <td>0.00</td> <td>0.00</td> <td>0.00</td>		13,700.00	89.91	359.64	11,471.10	2,758.41	373.83	2,768.51	0.00	0.00	0.00
13,900.00       89.91       39.64       11,471.42       2,936.40       372.58       2,966.37       0.00       0.00       0.00         14,000.00       89.91       359.64       11,471.58       3,058.40       371.96       3,068.30       0.00       0.00       0.00         14,100.00       89.91       359.64       11,471.73       3,158.40       371.33       3,168.24       0.00       0.00       0.00         14,200.00       89.91       359.64       11,472.04       3,358.39       370.71       3,268.17       0.00       0.00       0.00         14,400.00       89.91       359.64       11,472.04       3,358.39       370.09       3,368.10       0.00       0.00       0.00         14,600.00       89.91       359.64       11,472.50       3,658.39       368.84       3,567.97       0.00       0.00       0.00         14,600.00       89.91       359.64       11,472.65       3,758.38       367.59       3,767.83       0.00       0.00       0.00         14,600.00       89.91       359.64       11,472.65       3,758.38       366.76       0.00       0.00       0.00         14,800.00       89.91       359.64       11,472.80       3,858.38 <td></td> <td>13,800.00</td> <td>89.91</td> <td>359.64</td> <td>11,4/1.26</td> <td>2,858.40</td> <td>3/3.21</td> <td>2,868.44</td> <td>0.00</td> <td>0.00</td> <td>0.00</td>		13,800.00	89.91	359.64	11,4/1.26	2,858.40	3/3.21	2,868.44	0.00	0.00	0.00
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		13,900.00	89.91	359.64	11,4/1.42	2,958.40	372.38	2,908.37	0.00	0.00	0.00
$\begin{array}{cccccccccccccccccccccccccccccccccccc$		14,000.00	89.91	359.64	11,471.58	3,058.40	371.96	3,068.30	0.00	0.00	0.00
14,200.00       89.91       359.64       11,471.89       3,288.39       370.71       3,268.17       0.00       0.00       0.00         14,300.00       89.91       359.64       11,472.04       3,358.39       370.09       3,368.10       0.00       0.00       0.00         14,400.00       89.91       359.64       11,472.19       3,458.39       369.46       3,468.03       0.00       0.00       0.00         14,600.00       89.91       359.64       11,472.55       3,558.39       368.84       3,567.97       0.00       0.00       0.00         14,600.00       89.91       359.64       11,472.65       3,758.38       367.59       3,767.83       0.00       0.00       0.00         14,700.00       89.91       359.64       11,472.80       3,858.38       366.96       3,867.76       0.00       0.00       0.00         14,900.00       89.91       359.64       11,472.80       3,858.38       366.96       3,867.76       0.00       0.00       0.00         14,900.00       89.91       359.64       11,472.80       3,858.38       365.72       4,067.63       0.00       0.00       0.00         15,000.00       89.92       359.64       11,473.39 </td <td></td> <td>14,100.00</td> <td>89.91</td> <td>359.64</td> <td>11,471.73</td> <td>3,158.40</td> <td>371.33</td> <td>3,168.24</td> <td>0.00</td> <td>0.00</td> <td>0.00</td>		14,100.00	89.91	359.64	11,471.73	3,158.40	371.33	3,168.24	0.00	0.00	0.00
14,300.00       89.91       359.64       11,472.04       3,388.39       370.09       3,368.10       0.00       0.00       0.00         14,400.00       89.91       359.64       11,472.19       3,458.39       369.46       3,468.03       0.00       0.00       0.00         14,500.00       89.91       359.64       11,472.35       3,558.39       368.84       3,567.97       0.00       0.00       0.00         14,600.00       89.91       359.64       11,472.50       3,658.39       368.21       3,667.90       0.00       0.00       0.00         14,800.00       89.91       359.64       11,472.80       3,858.38       366.96       3,867.76       0.00       0.00       0.00         14,900.00       89.91       359.64       11,472.95       3,958.38       366.34       3,967.70       0.00       0.00       0.00         14,900.00       89.92       359.64       11,473.10       4,058.38       365.72       4,067.63       0.00       0.00       0.00         15,000.00       89.92       359.64       11,473.39       4,258.37       364.47       4,267.50       0.00       0.00       0.00         15,200.00       89.92       359.64       11,473.68 </td <td></td> <td>14,200.00</td> <td>89.91</td> <td>359.64</td> <td>11,471.89</td> <td>3,258.39</td> <td>370.71</td> <td>3,268.17</td> <td>0.00</td> <td>0.00</td> <td>0.00</td>		14,200.00	89.91	359.64	11,471.89	3,258.39	370.71	3,268.17	0.00	0.00	0.00
14,400.00       89.91       359.64       11,472.19       3,458.39       369.46       3,468.03       0.00       0.00       0.00         14,500.00       89.91       359.64       11,472.35       3,558.39       368.84       3,567.97       0.00       0.00       0.00         14,600.00       89.91       359.64       11,472.50       3,658.39       368.21       3,667.90       0.00       0.00       0.00         14,700.00       89.91       359.64       11,472.65       3,758.38       367.59       3,767.83       0.00       0.00       0.00         14,800.00       89.91       359.64       11,472.95       3,958.38       366.96       3,867.76       0.00       0.00       0.00         14,900.00       89.91       359.64       11,472.95       3,958.38       366.34       3,967.70       0.00       0.00       0.00         15,000.00       89.92       359.64       11,473.10       4,058.38       365.72       4,067.63       0.00       0.00       0.00         15,000.00       89.92       359.64       11,473.39       4,258.37       364.47       4,267.50       0.00       0.00       0.00         15,300.00       89.92       359.64       11,473.68 </td <td></td> <td>14,300.00</td> <td>89.91</td> <td>359.64</td> <td>11,4/2.04</td> <td>3,358.39</td> <td>370.09</td> <td>3,368.10</td> <td>0.00</td> <td>0.00</td> <td>0.00</td>		14,300.00	89.91	359.64	11,4/2.04	3,358.39	370.09	3,368.10	0.00	0.00	0.00
14,500.0089.91359.6411,472.353,558.39368.843,567.970.000.000.0014,600.0089.91359.6411,472.503,658.39368.213,667.900.000.000.0014,700.0089.91359.6411,472.653,758.38367.593,767.830.000.000.0014,800.0089.91359.6411,472.803,858.38366.963,867.760.000.000.0014,900.0089.91359.6411,472.953,958.38366.343,967.700.000.000.0015,000.0089.92359.6411,473.104,058.38365.724,067.630.000.000.0015,000.0089.92359.6411,473.244,158.38365.094,167.560.000.000.0015,200.0089.92359.6411,473.394,258.37364.474,267.500.000.000.0015,200.0089.92359.6411,473.684,458.37363.224,467.360.000.000.0015,400.0089.92359.6411,473.824,558.37362.604,567.290.000.000.0015,500.0089.92359.6411,473.824,558.37362.604,567.290.000.000.0015,600.0089.92359.6411,473.824,558.37362.604,567.290.000.000.0015,600.0089.92359.6411,473.974,658.37361.		14,400.00	89.91	359.64	11,472.19	3,458.39	369.46	3,468.03	0.00	0.00	0.00
14,600.00       89.91       359.64       11,472.50       3,658.39       368.21       3,667.90       0.00       0.00       0.00         14,700.00       89.91       359.64       11,472.65       3,758.38       367.59       3,767.83       0.00       0.00       0.00         14,800.00       89.91       359.64       11,472.80       3,858.38       366.96       3,867.76       0.00       0.00       0.00         14,900.00       89.91       359.64       11,472.95       3,958.38       366.34       3,967.70       0.00       0.00       0.00         15,000.00       89.92       359.64       11,473.10       4,058.38       365.72       4,067.63       0.00       0.00       0.00         15,000.00       89.92       359.64       11,473.24       4,158.38       365.09       4,167.56       0.00       0.00       0.00         15,200.00       89.92       359.64       11,473.39       4,258.37       363.84       4,367.43       0.00       0.00       0.00         15,300.00       89.92       359.64       11,473.68       4,458.37       363.22       4,467.36       0.00       0.00       0.00         15,400.00       89.92       359.64       11,473.82 </td <td></td> <td>14,500.00</td> <td>89.91</td> <td>359.64</td> <td>11,472.35</td> <td>3,558.39</td> <td>368.84</td> <td>3,567.97</td> <td>0.00</td> <td>0.00</td> <td>0.00</td>		14,500.00	89.91	359.64	11,472.35	3,558.39	368.84	3,567.97	0.00	0.00	0.00
14,700.00       89.91       359.64       11,472.65       3,758.38       367.59       3,767.83       0.00       0.00       0.00         14,800.00       89.91       359.64       11,472.80       3,858.38       366.96       3,867.76       0.00       0.00       0.00         14,900.00       89.91       359.64       11,472.95       3,958.38       366.34       3,967.70       0.00       0.00       0.00         15,000.00       89.92       359.64       11,473.10       4,058.38       365.72       4,067.63       0.00       0.00       0.00         15,000.00       89.92       359.64       11,473.24       4,158.38       365.09       4,167.56       0.00       0.00       0.00         15,200.00       89.92       359.64       11,473.39       4,258.37       364.47       4,267.50       0.00       0.00       0.00         15,300.00       89.92       359.64       11,473.68       4,358.37       363.22       4,467.36       0.00       0.00       0.00         15,400.00       89.92       359.64       11,473.82       4,558.37       362.60       4,567.29       0.00       0.00       0.00         15,500.00       89.92       359.64       11,473.82 </td <td></td> <td>14,600.00</td> <td>89.91</td> <td>359.64</td> <td>11,472.50</td> <td>3,658.39</td> <td>368.21</td> <td>3,667.90</td> <td>0.00</td> <td>0.00</td> <td>0.00</td>		14,600.00	89.91	359.64	11,472.50	3,658.39	368.21	3,667.90	0.00	0.00	0.00
14,800.00       89.91       359.64       11,472.80       3,858.38       366.96       3,867.76       0.00       0.00       0.00         14,900.00       89.91       359.64       11,472.95       3,958.38       366.34       3,967.70       0.00       0.00       0.00         15,000.00       89.92       359.64       11,473.10       4,058.38       365.72       4,067.63       0.00       0.00       0.00         15,100.00       89.92       359.64       11,473.24       4,158.38       365.09       4,167.56       0.00       0.00       0.00         15,200.00       89.92       359.64       11,473.39       4,258.37       364.47       4,267.50       0.00       0.00       0.00         15,300.00       89.92       359.64       11,473.68       4,458.37       363.22       4,467.36       0.00       0.00       0.00         15,400.00       89.92       359.64       11,473.82       4,558.37       362.60       4,567.29       0.00       0.00       0.00         15,500.00       89.92       359.64       11,473.82       4,558.37       362.60       4,567.29       0.00       0.00       0.00         15,600.00       89.92       359.64       11,473.97 </td <td></td> <td>14,700.00</td> <td>89.91</td> <td>359.64</td> <td>11,472.65</td> <td>3,758.38</td> <td>367.59</td> <td>3,767.83</td> <td>0.00</td> <td>0.00</td> <td>0.00</td>		14,700.00	89.91	359.64	11,472.65	3,758.38	367.59	3,767.83	0.00	0.00	0.00
14,900.00       89.91       359.64       11,472.95       3,958.38       366.34       3,967.70       0.00       0.00       0.00         15,000.00       89.92       359.64       11,473.10       4,058.38       365.72       4,067.63       0.00       0.00       0.00         15,100.00       89.92       359.64       11,473.24       4,158.38       365.09       4,167.56       0.00       0.00       0.00         15,200.00       89.92       359.64       11,473.39       4,258.37       364.47       4,267.50       0.00       0.00       0.00         15,300.00       89.92       359.64       11,473.54       4,358.37       363.84       4,367.43       0.00       0.00       0.00         15,400.00       89.92       359.64       11,473.68       4,458.37       363.22       4,467.36       0.00       0.00       0.00         15,500.00       89.92       359.64       11,473.82       4,558.37       362.60       4,567.29       0.00       0.00       0.00         15,600.00       89.92       359.64       11,473.97       4,658.37       361.97       4,667.23       0.00       0.00       0.00         15,600.00       89.92       359.64       11,473.97 </td <td></td> <td>14,800.00</td> <td>89.91</td> <td>359.64</td> <td>11,472.80</td> <td>3,858.38</td> <td>366.96</td> <td>3,867.76</td> <td>0.00</td> <td>0.00</td> <td>0.00</td>		14,800.00	89.91	359.64	11,472.80	3,858.38	366.96	3,867.76	0.00	0.00	0.00
15,000.00         89.92         359.64         11,473.10         4,058.38         365.72         4,067.63         0.00         0.00         0.00           15,100.00         89.92         359.64         11,473.24         4,158.38         365.09         4,167.56         0.00         0.00         0.00           15,200.00         89.92         359.64         11,473.39         4,258.37         364.47         4,267.50         0.00         0.00         0.00           15,300.00         89.92         359.64         11,473.54         4,358.37         363.84         4,367.43         0.00         0.00         0.00           15,400.00         89.92         359.64         11,473.68         4,458.37         363.22         4,467.36         0.00         0.00         0.00           15,500.00         89.92         359.64         11,473.82         4,558.37         362.60         4,567.29         0.00         0.00         0.00           15,500.00         89.92         359.64         11,473.97         4,658.37         361.97         4,667.23         0.00         0.00         0.00           15,600.00         89.92         359.64         11,473.97         4,658.37         361.97         4,667.23         0.00		14,900.00	89.91	359.64	11,472.95	3,958.38	366.34	3,967.70	0.00	0.00	0.00
15,100.00         89.92         359.64         11,473.24         4,158.38         365.09         4,167.56         0.00         0.00         0.00           15,200.00         89.92         359.64         11,473.39         4,258.37         364.47         4,267.50         0.00         0.00         0.00         0.00           15,300.00         89.92         359.64         11,473.54         4,358.37         363.84         4,367.43         0.00         0.00         0.00           15,400.00         89.92         359.64         11,473.68         4,458.37         363.22         4,467.36         0.00         0.00         0.00           15,500.00         89.92         359.64         11,473.82         4,558.37         362.60         4,567.29         0.00         0.00         0.00           15,500.00         89.92         359.64         11,473.97         4,658.37         361.97         4,667.23         0.00         0.00         0.00           15,600.00         89.92         359.64         11,473.97         4,658.37         361.97         4,667.23         0.00         0.00         0.00		15,000.00	89.92	359.64	11,473.10	4,058.38	365.72	4,067.63	0.00	0.00	0.00
15,200.00         89.92         359.64         11,473.39         4,258.37         364.47         4,267.50         0.00         0.00         0.00         0.00           15,300.00         89.92         359.64         11,473.54         4,358.37         363.84         4,367.43         0.00         0.00         0.00         0.00           15,400.00         89.92         359.64         11,473.68         4,458.37         363.22         4,467.36         0.00         0.00         0.00           15,500.00         89.92         359.64         11,473.82         4,558.37         362.60         4,567.29         0.00         0.00         0.00           15,500.00         89.92         359.64         11,473.82         4,558.37         362.60         4,567.29         0.00         0.00         0.00           15,600.00         89.92         359.64         11,473.97         4,658.37         361.97         4,667.23         0.00         0.00         0.00		15,100.00	89.92	359.64	11,473.24	4,158.38	365.09	4,167.56	0.00	0.00	0.00
15,300.00         89.92         359.64         11,473.54         4,358.37         363.84         4,367.43         0.00         0.00         0.00           15,400.00         89.92         359.64         11,473.68         4,458.37         363.22         4,467.36         0.00         0.00         0.00         0.00           15,500.00         89.92         359.64         11,473.82         4,558.37         362.60         4,567.29         0.00         0.00         0.00           15,600.00         89.92         359.64         11,473.97         4,658.37         361.97         4,667.23         0.00         0.00         0.00		15,200.00	89.92	359.64	11,473.39	4,258.37	364.47	4,267.50	0.00	0.00	0.00
15,400.00         89.92         359.64         11,473.66         4,456.37         363.22         4,467.36         0.00         0.00         0.00           15,500.00         89.92         359.64         11,473.82         4,558.37         362.60         4,567.29         0.00         0.00         0.00           15,600.00         89.92         359.64         11,473.97         4,658.37         361.97         4,667.23         0.00         0.00         0.00		15,300.00	89.92	359.64	11,4/3.54	4,358.37	363.84	4,307.43	0.00	0.00	0.00
15,500.00 89.92 359.64 11,473.82 4,558.37 362.60 4,567.29 0.00 0.00 0.00 15,600.00 89.92 359.64 11,473.97 4,658.37 361.97 4,667.23 0.00 0.00 0.00		15,400.00	89.92	359.64	11,473.68	4,408.37	303.22	4,407.30	0.00	0.00	0.00
15,600.00 89.92 359.64 11,473.97 4,658.37 361.97 4,667.23 0.00 0.00 0.00		15,500.00	89.92	359.64	11,473.82	4,558.37	362.60	4,567.29	0.00	0.00	0.00
		15,600.00	89.92	359.64	11,473.97	4,658.37	361.97	4,667.23	0.00	0.00	0.00

### Oxy Planning Report

Database:HOPSPPCompany:ENGINEERING DESIGNSProject:PRD NM DIRECTIONAL PLANS (NAD 1983)Site:Iridium MDP1 28-21 Fed ComWell:IRIDIUM MDP1 28-21 FED COM 172HWellbore:WB00Design:Permitting Plan	Local Co-ordinate Reference: TVD Reference: MD Reference: North Reference: Survey Calculation Method:	Well IRIDIUM MDP1 28-21 FED COM 172H Datum @ 3402.60ft Datum @ 3402.60ft Grid Minimum Curvature
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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)
15,700.00	89.92	359.64	11,474.11	4,758.36	361.35	4,767,16	0.00	0.00	0.00
15 800 00	89.92	359.64	11 474 25	4 858 36	360 72	4 867 09	0.00	0.00	0.00
15,900.00	89.92	359.64	11,474,39	4.958.36	360.10	4.967.02	0.00	0.00	0.00
16,000,00	80.02	250.04	11 474 50	5,050,00	250.40	5,000,00	0.00	0.00	0.00
16,000.00	89.9Z	309.04	11,474.53	5,058.30	359.48	5,066.96	0.00	0.00	0.00
16,100.00	89.92	359.64	11,474.07	5,158.30	358.85	5,100.89	0.00	0.00	0.00
16,200.00	89.92	359.64	11,474.81	5,258.35	358.23	5,266.82	0.00	0.00	0.00
16,300.00	89.92	359.64	11,474.94	5,358.35	357.60	5,366.75	0.00	0.00	0.00
16,400.00	89.92	359.64	11,475.08	5,458.35	356.98	5,466.69	0.00	0.00	0.00
16,500.00	89.92	359.64	11,475.22	5,558.35	356.36	5,566.62	0.00	0.00	0.00
16,600.00	89.92	359.64	11,475.35	5,658.35	355.73	5,666.55	0.00	0.00	0.00
16,700.00	89.92	359.64	11,475.49	5,758.34	355.11	5,766.48	0.00	0.00	0.00
16,800.00	89.92	359.64	11,475.62	5,858.34	354.48	5,866.42	0.00	0.00	0.00
16,900.00	89.92	359.64	11,475.75	5,958.34	353.86	5,900.35	0.00	0.00	0.00
17,000.00	89.93	359.64	11,475.88	6,058.34	353.24	6,066.28	0.00	0.00	0.00
17,100.00	89.93	359.64	11,476.01	6,158.34	352.61	6,166.22	0.00	0.00	0.00
17,200.00	89.93	359.64	11,476.14	6,258.33	351.99	6,266.15	0.00	0.00	0.00
17,300.00	89.93	359.64	11,476.27	6,358.33	351.36	6,366.08	0.00	0.00	0.00
17,400.00	89.93	359.64	11,476.40	6,458.33	350.74	6,466.01	0.00	0.00	0.00
17,500.00	89.93	359.64	11,476.52	6,558.33	350.12	6,565.95	0.00	0.00	0.00
17,600.00	89.93	359.64	11,476.65	6,658.33	349.49	6,665.88	0.00	0.00	0.00
17,700.00	89.93	359.64	11,476.78	6,758.32	348.87	6,765.81	0.00	0.00	0.00
17,800.00	89.93	359.64	11,476.90	6,858.32	348.24	6,865.74	0.00	0.00	0.00
17,900.00	89.93	359.64	11,477.02	6,958.32	347.62	6,965.68	0.00	0.00	0.00
18,000.00	89.93	359.64	11,477.15	7,058.32	346.99	7,065.61	0.00	0.00	0.00
18,100.00	89.93	359.64	11,477.27	7,158.32	346.37	7,165.54	0.00	0.00	0.00
18,200.00	89.93	359.64	11,477.39	7,258.31	345.75	7,265.47	0.00	0.00	0.00
18,300.00	89.93	359.64	11,477.51	7,358.31	345.12	7,365.41	0.00	0.00	0.00
18,400.00	89.93	359.64	11,477.63	7,458.31	344.50	7,465.34	0.00	0.00	0.00
18,500.00	89.93	359.64	11,477.75	7,558.31	343.87	7,565.27	0.00	0.00	0.00
18,600.00	89.93	359.64	11,477.87	7,658.31	343.25	7,665.20	0.00	0.00	0.00
18,700.00	89.93	359.64	11,477.98	7,758.30	342.63	7,765.14	0.00	0.00	0.00
18,800.00	89.93	359.64	11,478.10	7,858.30	342.00	7,865.07	0.00	0.00	0.00
18,900.00	89.93	359.64	11,478.21	7,958.30	341.38	7,965.00	0.00	0.00	0.00
19,000.00	89.93	359.64	11,478.33	8,058.30	340.75	8,064.94	0.00	0.00	0.00
19,100.00	89.94	359.64	11,478.44	8,158.30	340.13	8,164.87	0.00	0.00	0.00
19,200.00	89.94	359.64	11,478.55	8,258.29	339.51	8,264.80	0.00	0.00	0.00
19,300.00	89.94	359.64	11,4/8.6/	8,358.29	338.88	0,304./3	0.00	0.00	0.00
19,400.00	89.94	339.64	11,4/8./8	0,408.29	538.20	0,404.0/	0.00	0.00	0.00
19,500.00	89.94	359.64	11,478.89	8,558.29	337.63	8,564.60	0.00	0.00	0.00
19,600.00	89.94	359.64	11,479.00	8,658.28	337.01	8,664.53	0.00	0.00	0.00
19,700.00	89.94	359.64	11,4/9.10	8,758.28	336.39	8,764.46	0.00	0.00	0.00
19,800.00	89.94	359.64	11,479.21	0,000.20	335./6	0,004.40	0.00	0.00	0.00
19,900.00	89.94	309.64	11,479.32	ö,908.∠ö	335.14	0,904.33	0.00	0.00	0.00
20,000.00	89.94	359.64	11,479.42	9,058.28	334.51	9,064.26	0.00	0.00	0.00
20,100.00	89.94	359.64	11,479.53	9,158.27	333.89	9,164.19	0.00	0.00	0.00
20,200.00	89.94	359.64	11,479.63	9,258.27	333.27	9,264.13	0.00	0.00	0.00
20,300.00	89.94	359.64	11,479.74	9,358.27	332.64	9,364.06	0.00	0.00	0.00
20,400.00	89.94	359.64	11,479.84	9,458.27	332.02	9,463.99	0.00	0.00	0.00
20,500.00	89.94	359.64	11,479.94	9,558.27	331.39	9,563.93	0.00	0.00	0.00
20,600.00	89.94	359.64	11,480.04	9,658.26	330.77	9,663.86	0.00	0.00	0.00
20,700.00	89.94	359.64	11,480.14	9,758.26	330.15	9,763.79	0.00	0.00	0.00
20,800.00	89.94	359.64	11,480.24	9,858.26	329.52	9,863.72	0.00	0.00	0.00
20,900.00	89.94	359.64	11,480.34	9,958.26	328.90	9,963.66	0.00	0.00	0.00
21 000 00	00.04	250.64	11 400 44	10.059.26	200.07	10 062 50	0.00	0.00	0.00

Planned Survey



Oxy



Planning Report

Database: Company:	HOPSPP ENGINEERING DESIGNS	Local Co-ordinate Reference: TVD Reference:	Well IRIDIUM MDP1 28-21 FED COM 172H Datum @ 3402.60ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	Datum @ 3402.60ft
Site:	Iridium MDP1 28-21 Fed Com	North Reference:	Grid
Well:	IRIDIUM MDP1 28-21 FED COM 172H	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)
21,100.00	89.94	359.64	11,480.53	10,158.26	327.65	10,163.52	0.00	0.00	0.00
21,200.00	89.95	359.64	11,480.63	10,258.25	327.02	10,263.45	0.00	0.00	0.00
21,300.00	89.95	359.64	11,480.72	10,358.25	326.40	10,363.39	0.00	0.00	0.00
21,400.00	89.95	359.64	11,480.82	10,458.25	325.78	10,463.32	0.00	0.00	0.00
21,500.00	89.95	359.64	11,480.91	10,558.25	325.15	10,563.25	0.00	0.00	0.00
21,598.22	89.95	359.64	11,481.00	10,656.46	324.54	10,661.40	0.00	0.00	0.00

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
IRIDIUM_172H_KOP - plan hits target ce - Point	0.00 nter	0.00	10,895.04	322.20	389.03	461,776.68	710,134.16	32° 16' 5.945465 N	103° 47' 13.971156
IRIDIUM_172H_BHL - plan hits target ce - Point	0.00 nter	0.00	11,481.00	10,656.46	324.54	472,110.32	710,069.67	32° 17' 48.205479 N	103° 47' 14.109590

#### **Plan Annotations** Vertical Local Coordinates Measured Depth Depth +N/-S +E/-W (ft) (ft) (ft) (ft) Comment STEP OUT DLS 2.00 HOLD 10 DEG TANGENT 7,530.00 7,530.00 0.00 0.00 8,030.20 8,027.67 27.78 33.55 10,397.37 10,895.04 11,468.00 294.42 322.20 894.15 DROP BACK TO VERTICAL DLS 2.00 BUILD CURVE 10 DEG / 100 10,436.50 10,936.70 355.49 389.03 385.46 LANDING POINT 11,835.70 21,598.22 11,481.00 10,656.46 324.54 TD at 21598.22





# **OPERATOR NAME / NUMBER:** OXY USA Inc

#### 1. SUMMARY OF REQUEST:

Oxy USA respectfully requests approval for the following operations for the surface hole in the drill plan:

1. Utilize a spudder rig to pre-set surface casing for time and cost savings.

#### 2. Description of Operations

- 1. Spudder rig will move in to drill the surface hole and pre-set surface casing on the well.
  - **a.** After drilling the surface hole section, the spudder rig will run casing and cement following all of the applicable rules and regulations (OnShore Order 2, all COAs and NMOCD regulations).
  - **b.** The spudder rig will utilize fresh water-based mud to drill the surface hole to TD. Solids control will be handled entirely on a closed loop basis. No earth pits will be used.
- 2. The wellhead will be installed and tested as soon as the surface casing is cut off and the WOC time has been reached.
- 3. A blind flange at the same pressure rating as the wellhead will be installed to seal the wellbore. Pressure will be monitored with needle valves installed on two wingvalves.
  - **a.** A means for intervention will be maintained while the drilling rig is not over the well.
- 4. Spudder rig operations are expected to take 2-3 days per well on the pad.
- 5. The BLM will be contacted and notified 24 hours prior to commencing spudder rig operations.
- 6. Drilling operations will begin with a larger rig and a BOP stack equal to or greater than the pressure rating that was permitted will be nippled up and tested on the wellhead before drilling operations resume on each well.
  - **a.** The larger rig will move back onto the location within 90 days from the point at which the wells are secured and the spudder rig is moved off location.
  - **b.** The BLM will be contacted / notified 24 hours before the larger rig moves back on the pre-set locations.
- 7. Oxy will have supervision on the rig to ensure compliance with all BLM and NMOCD regulations and to oversee operations.
- 8. Once the rig is removed, Oxy will secure the wellhead area by placing a guard rail around the cellar area.



## 1. Geologic Formations

TVD of target	11481'	Pilot Hole Depth	N/A
MD at TD:	21598'	Deepest Expected fresh water:	430'

#### **Delaware Basin**

Formation	TVD - RKB	<b>Expected Fluids</b>
Rustler	430	
Salado	791	Brine
Castile	2,720	Brine
Lamar/Delaware	4,211	Brine
Bell Canyon	4,237	Oil/Gas
Cherry Canyon	5,107	Oil/Gas
Brushy Canyon	6,396	Losses
Bone Spring	8,020	Oil/Gas
1st Bone Spring	9,079	Oil/Gas
2nd Bone Spring	9,308	Oil/Gas
3rd Bone Spring	10,183	Oil/Gas
Wolfcamp	11,350	Oil/Gas

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

# 2. Casing Program

									Buoyant	Buoyant
Hole Size	Casing Interval		Csg. Size	Size Weight				CE D.	Body SF	Joint SF
(in)	From (ft)	To (ft)	(in)	(lbs)	Grade	Conn.	Collapse	Sr Burst	Tension	Tension
17.5	0	480	13.375	54.5	J-55	BTC	1.125	1.2	1.4	1.4
12.25	0	4261	9.625	43.5	L-80	BTC	1.125	1.2	1.4	1.4
8.5	0	10836	7.625	26.4	HCL-80	SF (0 ft to 4000 ft) FJ (4000 ft to 10836 ft)	1.125	1.2	1.4	1.4
6.75	0	21598	5.5	20	P-110	DQX	1.125	1.2	1.4	1.4
							SF	Values will	meet or Exc	ceed

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 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 <sup>rd</sup> 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 <sup>nd</sup> 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?	

# 3. Cementing Program

Casing String	# Sks	Wt. (lb/gal)	Yld (ft3/sack)	H20 (gal/sk)	500# Comp. Strength (hours)	Slurry Description
Surface (Lead)	N/A	N/A	N/A	N/A	N/A	N/A
Surface (Tail)	588	14.8	1.33	6.365	5:26	Class C Cement, Accelerator
Intermediate (Lead)	1186	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)	139	13.2	1.65	8.640	11:54	Class H Cement, Retarder, Dispersant, Salt
Intermediate II 2nd Stage	(Tail Slurry) t	o be pumped	as Bradenhea	d Squeeze fr	om surface, d	own 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)	419	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)	826	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	480	100%
Intermediate (Lead)	0	3761	100%
Intermediate (Tail)	3761	4261	20%
Intermediate II 1st Stage (Lead)	N/A	N/A	N/A
Intermediate II 1st Stage (Tail)	8020	10836	5%
Intermediate II 2nd Stage (Lead)	N/A	N/A	N/A
Intermediate II 2nd Stage (Tail)	0	8020	25%
Production (Lead)	N/A	N/A	N/A
Production (Tail)	10336	21598	20%

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Туре		4	Tested to:
			Annula	ır	*	70% of working pressure
12.25" Hala	13-5/8"	5M	Blind Ram		✓	
12.25" Hole			Pipe Ra	m		250/5000
			Double F	Ram	1	230/3000psi
			Other*			

# 4. Pressure Control Equipment

\*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.

Depth		Teme	Weight	Viceosity	Watar Loss
From (ft)	To (ft)	гуре	(ppg)	VISCOSILY	water Loss
0	480	Water-Based Mud	8.6-8.8	40-60	N/C
480	4261	Saturated Brine- Based Mud	9.8-10.0	35-45	N/C
4261	10836	Water-Based or Oil- Based Mud	8.2-9.2	38-50	N/C
10836	21598	Oil-Based Mud	9.5-12.0	38-50	N/C

# 5. Mud Program

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	PVT/MD Totco/Visual Monitoring
of fluid?	

# 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	7165 psi
Abnormal Temperature	No
BH Temperature at deepest TVD	172°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.

NH2S is presentYH2S Plan attached

#### 8. Other facets of operation

	Yes/No	
Will the well be drilled with a walking/skidding operation? If yes, describe.		
• We 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.		
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.		

#### Total estimated cuttings volume: 1631.8 bbls.

#### 9. Company Personnel

Brendan Flores-Drilling Engineer-713-985-6360-512-964-0965

Name	<u>Title</u>	Office Phone	Mobile Phone
Philippe Haffner	Drilling Engineer	713-985-6379	832-767-9047
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

# AFMSS

U.S. Department of the Interior BUREAU OF LAND MANAGEMENT

#### APD ID: 10400030949

**Operator Name: OXY USA INCORPORATED** 

Well Name: IRIDIUM MDP1 28-21 FEDERAL COM

Well Type: OIL WELL

#### Submission Date: 06/07/2018

Well Number: 172H Well Work Type: Drill

# **Section 1 - Existing Roads**

Will existing roads be used? YES

**Existing Road Map:** 

IridiumMDP1\_28\_21FdCom172H\_ExistRoads\_20180606160752.pdf

Existing Road Purpose: FLUID TRANSPORT

Row(s) Exist? NO

SUPO Data Report

1.5

08/28/2018

Show Final Text

ROW ID(s)

ID:

Do the existing roads need to be improved? NO

**Existing Road Improvement Description:** 

**Existing Road Improvement Attachment:** 

Section 2	New or Recon	structed Access Roads
Will new roads be need	ed? YES	
New Road Map:		
IridiumMDP1_28_21FdC	om172H_NewRoad_	20180606160812.pdf
New road type: LOCAL		
Length: 36.7	Feet	Width (ft.): 25
<b>Max slope (%)</b> : 0		<b>Max grade (%)</b> : 0
Army Corp of Engineer	s (ACOE) permit req	juired? NO
ACOE Permit Number(s	5):	
New road travel width:	14	
New road access erosi	on control: Watershe	ed Diversion every 200' if needed.
New road access plan of	or profile prepared?	YES
New road access plan a	attachment:	
IridiumMDP1_28_21FdC	om172H_NewRoad_	20180606160829.pdf
Access road engineering	n <b>g design?</b> NO	

Well Name: IRIDIUM MDP1 28-21 FEDERAL COM

Well Number: 172H

#### Access road engineering design attachment:

Access surfacing type: OTHER

Access topsoil source: ONSITE

Access surfacing type description: Caliche

Access onsite topsoil source depth: 0

Offsite topsoil source description:

Onsite topsoil removal process: If available

Access other construction information: None

Access miscellaneous information: The access road will run from an existing pad going 36.7' north through pasture to southwest corner of the pad. Number of access turnouts:

Access turnout map:

#### Drainage Control

New road drainage crossing: CULVERT

Drainage Control comments: Watershed Diversion every 200' if needed.

Road Drainage Control Structures (DCS) description: Watershed Diversion every 200' if needed.

**Road Drainage Control Structures (DCS) attachment:** 

#### Access Additional Attachments

Additional Attachment(s):

#### Section 3 - Location of Existing Wells

Existing Wells Map? YES

Attach Well map:

IridiumMDP1\_28\_21FdCom172H\_ExistWells\_20180606160857.pdf

**Existing Wells description:** 

#### Section 4 - Location of Existing and/or Proposed Production Facilities

#### Submit or defer a Proposed Production Facilities plan? SUBMIT

Production Facilities description: a. In the event the well is found productive, the Sand Dunes Iridium/Gold Central Tank Battery would be utilized and the necessary production equipment will be installed at the well site. See proposed facilities layout diagram. b. All flow lines will adhere to API standards. They will consist of either (A) 3 - 4" composite flowlines operating 75% MAWP, surface to follow surveyed route. Survey of a strip of land 30' wide and 2427.2' in length crossing USA Land in Sections 28 & 33 T23S R31E, NMPM, Eddy County, NM and being 15' left and 15' right of the centerline survey. Or (B) 3 - 4" composite flowlines operating 75% MAWP, surface to follow surveyed route. Survey of a strip of land 30' wide and 1105.2' in length crossing USA Land in Sections 28 & 33 T23S R31E, NMPM, Eddy County, NM and being 15' left and 15'

Well Name: IRIDIUM MDP1 28-21 FEDERAL COM

Well Number: 172H

right of the centerline survey. Two-6" gas lift line operating 1500 psig, buried, lines to follow surveyed route. Survey of a strip of land 30' wide and 409.6' in length crossing USA Land in Sections 28 T23S R31E, NMPM, Eddy County, NM and being 15' left and 15' right of the centerline survey, see attached. c. Electric line will follow a route approved by the BLM. Survey of a strip of land 30' wide and 417.3' in length crossing USA land in Sections 33 T23S R31E NMPM, Eddy County, NM and being 15' left and 15' right of the centerline survey, see attached. d. See attached for additional information on the Sand Dunes Iridium/Pure Gold Surface Production Facilities.

#### Production Facilities map:

IridiumMDP1\_28\_21FdCom172H\_FacilityPLEL\_20180606160916.pdf IridiumMDP1\_28\_21FdCom172H\_LeaseFacilityInfo\_20180606160936.pdf

#### Section 5 - Location and Types of Water Supply

#### Water Source Table

Water source use type: INTERMEDIATE/PRODUCTION CASING, Water source type: GW WELL OTHER, SURFACE CASING Describe type:

Source latitude:

Source datum:

Water source permit type: WATER WELL

Source land ownership: COMMERCIAL

Water source transport method: PIPELINE, TRUCKING

Source transportation land ownership: COMMERCIAL

Water source volume (barrels): 2000

Source volume (acre-feet): 0.25778618

Source longitude:

Source volume (gal): 84000

#### Water source and transportation map:

IridiumMDP1\_28\_21FdCom172H\_GRRWtrSrc\_20180606161110.pdf

IridiumMDP1\_28\_21FdCom172H\_MesqWtrSrc\_20180606161122.pdf

Water source comments: This well will be drilled using a combination of water mud systems. It will be obtained from commercial water stations (Gregory Rockhouse, Mesquite) in the area and will be hauled to location by transport truck using existing and proposed roads.

New water well? NO

New Water Well I	nfo	
Well latitude:	Well Longitude:	Well datum:
Well target aquifer:		
Est. depth to top of aquifer(ft):	Est thickness o	of aquifer:
Aquifer comments:		
Aquifer documentation:		
Well depth (ft):	Well casing type:	
Well casing outside diameter (in.):	Well casing inside	e diameter (in.):

Operator Name: OXY USA INCORPORATED

Well Name: IRIDIUM MDP1 28-21 FEDERAL COM

Well Number: 172H

New water well casing?	Used casing source:
Drilling method:	Drill material:
Grout material:	Grout depth:
Casing length (ft.):	Casing top depth (ft.):
Well Production type:	<b>Completion Method:</b>
Water well additional information:	
State appropriation permit:	

Additional information attachment:

#### Section 6 - Construction Materials

**Construction Materials description:** Primary - All caliche utilized for the drilling pad and proposed access road will be obtained from an existing BLM/State/Fee approved pit or from prevailing deposits found on the location. Will use BLM recommended extra caliche from other locations close by for roads, if available. Secondary - The secondary way of obtaining caliche to build locations and roads will be by "turning over" the location. This means, caliche will be obtained from the actual well site. A caliche permit will be obtained from BLM prior to pushing up any caliche. 2400 cubic yards is max amount of caliche needed for pad and roads. Amount will vary for each pad. The procedure below has been approved by BLM personnel: a. The top 6" of topsoil is pushed off and stockpiled along the side of the location. b. An approximate 120' X 120' area is used within the proposed well site to remove caliche. c. Subsoil is removed and piled alongside the 120' X 120' within the pad site. d. When caliche is found, material will be stockpiled within the pad site to build the location and road. e. Then subsoil is pushed back in the hole and caliche is spread accordingly across entire location and road. f. Once the well is drilled the stockpiled top soil will be used for interim reclamation and spread along areas where caliche is picked up and the location size is reduced. Neither caliche nor subsoil will be stockpiled outside of the well pad. Topsoil will be stockpiled along the edge of the pad. Caliche will be provided from a pit located in Section 7 T24S R31E. Water will be provided from a frac pond located in Sections 7 T24S R31E.

**Construction Materials source location attachment:** 

# **Section 7 - Methods for Handling Waste**

Waste type: DRILLING

Waste content description: Water-Based Cuttings, Water-Based Mud, Oil-Based Cuttings, Oil-Based Mud, Produced Water

Amount of waste: 1955 barrels

Waste disposal frequency : Daily

Safe containment description: Haul-Off Bins

Safe containmant attachment:

Waste disposal type: HAUL TO COMMERCIAL Disposal location ownership: COMMERCIAL FACILITY

Disposal type description:

**Disposal location description:** An approved facility that can process drill cuttings, drill fluids, flowback water, produced water, contaminated soils, and other non-hazardous wastes.

**Reserve Pit** 

Operator Name: OXY USA INCORPORATED

Well Name: IRIDIUM MDP1 28-21 FEDERAL COM

Well Number: 172H

Temporary disposal of produced water into reserve pit?

Reserve pit length (ft.) Reserve pit width (ft.)

Reserve pit depth (ft.)

Reserve pit volume (cu. yd.)

Is at least 50% of the reserve pit in cut?

**Reserve pit liner** 

Reserve pit liner specifications and installation description

**Cuttings Area** 

Cuttings Area being used? NO

Are you storing cuttings on location? YES

Description of cuttings location A closed loop system will be utilized consisting of above ground steel tanks and haul-off bins. Disposal of liquids, drilling fluids and cuttings will be disposed of at an approved facility. Cuttings area length (ft.) Cuttings area width (ft.)

Cuttings area depth (ft.)

Cuttings area volume (cu. yd.)

Is at least 50% of the cuttings area in cut?

WCuttings area liner

Cuttings area liner specifications and installation description

**Section 8 - Ancillary Facilities** 

Are you requesting any Ancillary Facilities?: NO

**Ancillary Facilities attachment:** 

Comments:

Section 9 - Well Site Layout

Well Site Layout Diagram:

IridiumMDP1\_28\_21FdCom172H\_WellSiteCL\_20180606161417.pdf

Comments: V-Door-East - CL Tanks-North - 535' X 620' - 7 Well Pad
Operator Name: OXY USA INCORPORATED

Well Name: IRIDIUM MDP1 28-21 FEDERAL COM

Well Number: 172H

## Section 10 - Plans for Surface Reclamation

Type of disturbance: New Surface Disturbance

Multiple Well Pad Name: STERLING SILVER MDP1 34-3 FD COM Multiple Well Pad Number: 1H

**Recontouring attachment:** 

Drainage/Erosion control construction: Reclamation to be wind rowed as needed to control erosion

Drainage/Erosion control reclamation: Reclamation to be wind rowed as needed to control erosion

Well pad proposed disturbance (acres): 7.61	Well pad interim reclamation (acres): 1.23	Well pad long term disturbance (acres): 6.39
Road proposed disturbance (acres):	Road interim reclamation (acres): 0.01	Road long term disturbance (acres):
Powerline proposed disturbance (acres): 0.29 Pipeline proposed disturbance (acres): 1.95 Other proposed disturbance (acres): 0	Powerline interim reclamation (acres): 0.29 Pipeline interim reclamation (acres): 1.6 Other interim reclamation (acres): 0.33	Powerline long term disturbance (acres): 0 Pipeline long term disturbance (acres): 0.65 Other long term disturbance (acres): 0
Total proposed disturbance: 9.88	Total interim reclamation: 3.46	Total long term disturbance: 7.06

Disturbance Comments: See Below

**Reconstruction method:** If the well is deemed commercially productive, caliche from the areas of the pad site not required for operations will be reclaimed. The original topsoil will be returned to the area of the drill pad not necessary to operate the well. These unused areas of the drill pad will be contoured, as close as possible, to match the original topography, and the area will be seeded with an approved BLM mixture to re-establish vegetation. After concluding the drilling and/or completion operations, if the well is found non-commercial, the caliche will be reclaimed as directed by the BLM. The original topsoil will again be returned to the pad and contoured, as close as possible, to the original topography, and the area will be seeded with an approved BLM mixture to re-establish vegetation.

Topsoil redistribution: The original topsoil will be returned to the area of the drill pad not necessary to operate the well.

Soil treatment: To be determined by the BLM.

Existing Vegetation at the well pad: To be determined by the BLM at Onsite.

Existing Vegetation at the well pad attachment:

Existing Vegetation Community at the road: To be determined by the BLM at Onsite.

Existing Vegetation Community at the road attachment:

Existing Vegetation Community at the pipeline: To be determined by the BLM at Onsite.

Existing Vegetation Community at the pipeline attachment:

Existing Vegetation Community at other disturbances: To be determined by the BLM at Onsite.

Existing Vegetation Community at other disturbances attachment:

Operator Name: OXY USA INCORPORATED

Well Name: IRIDIUM MDP1 28-21 FEDERAL COM

Well Number: 172H

Non native seed used? NO

Non native seed description:

Seedling transplant description:

Will seedlings be transplanted for this project? NO

Seedling transplant description attachment:

Will seed be harvested for use in site reclamation? NO

Seed harvest description:

Seed harvest description attachment:

Seed Management	
Seed Table	
Seed type:	Seed source:
Seed name:	
Source name:	Source address:
Source phone:	
Seed cultivar:	
Seed use location:	
PLS pounds per acre:	Proposed seeding season:

Seed Summary		Total pounds/Acre:
Seed Type	Pounds/Acre	

#### Seed reclamation attachment:

## **Operator Contact/Responsible Official Contact Info**

First Name: JIM

Phone: (575)631-2442

Last Name: WILSON Email: jim\_wilson@oxy.com

Seedbed prep:

Seed BMP:

Seed method:

Existing invasive species? NO

Existing invasive species treatment description:

Operator Name: OXY USA INCORPORATED

Well Name: IRIDIUM MDP1 28-21 FEDERAL COM

Well Number: 172H

Existing invasive species treatment attachment: Weed treatment plan description: To be determined by the BLM. Weed treatment plan attachment: Monitoring plan description: To be determined by the BLM. Monitoring plan attachment: Success standards: To be determined by the BLM. Pit closure description: NA Pit closure attachment:

## Section 11 - Surface Ownership

Disturbance type: WELL PAD Describe: Surface Owner: BUREAU OF LAND MANAGEMENT Other surface owner description: BIA Local Office: BOR Local Office: COE Local Office: DOD Local Office: NPS Local Office: State Local Office: Wilitary Local Office: USFWS Local Office: Other Local Office:

**USFS Ranger District:** 

Disturbance type: PIPELINE Describe: Surface Owner: BUREAU OF LAND MANAGEMENT Other surface owner description: BIA Local Office:

1

**USFS** Forest/Grassland:

Well Number: 172H

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

**USFWS Local Office:** 

Other Local Office:

**USFS Region:** 

USFS Forest/Grassland:

**USFS Ranger District:** 

Disturbance type: OTHER

Describe: Electric Line

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

**BIA Local Office:** 

**BOR Local Office:** 

**COE Local Office:** 

**DOD Local Office:** 

NPS Local Office:

State Local Office:

Military Local Office:

**USFWS Local Office:** 

Other Local Office:

**USFS Region:** 

USFS Forest/Grassland:

**USFS Ranger District:** 

Operator Name: OXY USA INCORPORATED	
Well Name: IRIDIUM MDP1 28-21 FEDERAL COM	Well Number: 172H
Disturbance type: NEW ACCESS ROAD	
Describe:	
Surface Owner: BUREAU OF LAND MANAGEMENT	
Other surface owner description:	
BIA Local Office:	
BOR Local Office:	
COE Local Office:	
DOD Local Office:	
NPS Local Office:	
State Local Office:	
Military Local Office:	
USFWS Local Office:	
Other Local Office:	
USFS Region:	
USFS Forest/Grassland:	USFS Ranger District:

## **Section 12 - Other Information**

Right of Way needed? YES

Use APD as ROW? YES

ROW Type(s): 281001 ROW - ROADS,285003 ROW – POWER TRANS,288100 ROW – O&G Pipeline,289001 ROW- O&G Well Pad

# **ROW Applications**

**SUPO Additional Information:** Permian Basin MOA - To be submitted after APD acceptance. GIS Shapefiles available for BLM download from shared FTP site after APD submittal. **Use a previously conducted onsite?** NO

**Previous Onsite information:** 

# **Other SUPO Attachment**

IridiumMDP1\_28\_21FdCom172H\_MiscSvyPlats\_20180606162100.pdf IridiumMDP1\_28\_21FdCom172H\_StakeForm\_20180606162112.pdf IridiumMDP1\_28\_21FdCom172H\_SUPO\_20180606162122.pdf IridiumMDP1\_28\_21FdCom172H\_GasCapPlan\_20180607121315.pdf VICINITY MAP



LEFT ON PROPOSED ROAD AND GO NORTH FOR 36.7 FEET TO LOCATION.













CORAFTING/Lorenzo/2018/DXY WSA INC/PPELHES/18110231 dowine to indum mobil 28-21 led com file, 120, 1172h.

Inidium CTB



GOH (TB





O DRAFTING/LOROZO/2018/0XY U.S.A. INCLEECTRC LINES/18110187 ELECTRC LINE TO STERING SUVER ATH & ROUM ATH

## CTB Site

All wells will have the ability to be routed to either the Gold CTB or Iridium CTB, each of which will be composed of (3) tracts with the following dimensions: 600'x600', 200'x30', and 150'x150' and an access road. The Gold CTB also has a triangular extension 300' off the west end.

**Reference Plats:** 

- (2) John West Surveying Company W.O. No: 17111039 Survey: 11/1/17 CAD: 11/14/17
- (1) John West Surveying Company W.O. No: 18110186 Survey: 2/14/18 CAD: 3/6/18
- (1) Terry Asel Surveying Company W.O. No: 180213PS-B Survey Date: 3/8/18 CAD: 3/27/18

### **Production Flowlines**

Each well will have (3) surface laid flowlines operating at less than 75% of the MAWP of the flowline per the survey plats from the well site to the CTB following access roads. The flowlines for Iridium wells will be routed to both the Gold CTB and Iridium CTB while Pure Gold wells will only have a route to the Gold CTB. The wells will produce to only one of these CTBs at any given time.

Flowline Route to the Gold CTB Reference Plats:

- (1) John West Surveying Company W.O. No: 18110208 Survey: 2/16/18 CAD: 3/9/18
- (1) John West Surveying Company W.O. No: 18110228 Survey: 2/21/18 CAD: 3/9/18
- (1) John West Surveying Company W.O. No: 18110229 Survey: 2/21/18 CAD: 3/9/18
- (1) John West Surveying Company W.O. No: 18110639 Survey: 11/7/18 CAD: 5/24/18 Rev: 5/25/18 Flowline Route to the Iridium CTB Reference Plats:
- (1) John West Surveying Company W.O. No: 18110671 Survey: 2/21/18 CAD: 5/31/18
- ((1) John West Surveying Company W.O. No: 18110231 Survey: 2/21/18 CAD: 3/12/18
- (1) John West Surveying Company W.O. No: 18110232 Survey: 2/21/18 CAD: 3/7/18
- (1) John West Surveying Company W.O. No: 18110233 Survey: 2/22/18 CAD: 3/12/18

#### **Gas Lift Compressor Site, Suction, and Injection Lines**

Each well pad will have two (2) 6" buried gas lift supply lines operating at < 1500 PSIG branching off of a common 8" main line (existing).

**Reference Plats:** 

(1) John West Surveying Company W.O. No: 18110256 Survey: 3/2/18 CAD: 3/19/18

### Salt Water Disposal

Produced water will be pumped into (2) 16" HDPE buried lines operating at less than 300 PSIG. This produced water line will also connect to the OXY water treatment facility in Section 4 24SR31E and will connect to the rest of the Sand Dunes disposal system.

**Reference Plats:** 

(1) John West Surveying Company W.O. No: 18110263 Survey: 3/6/18 CAD: 3/21/18

### Frac Water System

A Frac Water system will be installed to support the drilling and completion of these wells. The system includes a 250'x250' frac equipment staging area, as well as a 250'x250' above ground storage tank (AST) and three (3) 16" buried HDPE pipelines operating at less than 300 PSIG to supply frac water to the AST at a central location in the corridor. Layflat will still be required from the AST pad to the individual well pads. This central location will shorten the amount of temporary ROW and layflat pipe required for all subsequent completions. An additional water treatment Facility in the Mesa Verde area, Section 18 of T23SR32E, will also support the Iridium and Pure Gold wells, and includes a 500'x500' Gunbarrel Tank and AST pad, as well as a 200'x300' water treatment facility.

### **Reference Plats:**

(2) John West Surveying Company W.O. No: 17111015 Survey: 10/23/17 CAD: 1/6/17

(1) John West Surveying Company W.O. No: 17111016 Survey: 10/23/17 CAD: 11/6/17

(1) John West Surveying Company W.O. No: 17111082 Survey: 11/10/17 CAD: 11/28/17

(2) John West Surveying Company W.O. No: 17111127 Survey: 12/5/17 CAD: 12/18/17

(1) John West Surveying Company W.O. No: 17111128 Survey: 12/5/17 CAD: 12/15/17

(1) John West Surveying Company W.O. No: 18110099 Survey: 2/1/18 CAD: 3/2/18

(1) John West Surveying Company W.O. No: 18110275 Survey: 3/5/18 CAD: 3/20/18

(1) John West Surveying Company W.O. No: 18110280 Survey: 3/7/18 CAD: 3/19/18

### Gas Sales

Gas will flow into (2) 20" HDPE buried lines operating at less than 300 PSIG. This gas line will interconnect to an existing pipeline routed to the Enterprise (3<sup>rd</sup> Party) tie-in point per the attached plats. An additional sales compression site is to be located in Section 5 T24SR31E. The pad is approximately 610'x1400' to accommodate a number of large compressors.

Reference Plat:

(1) John West Surveying Company W.O. No: 18110283 Survey: 3/9/18 CAD: 4/2/18

(1) John West Surveying Company W.O. No: 18110286 Survey: 3/7/18 CAD: 4/3/18

(1) John West Surveying Company W.O. No: 18110329 Survey: 3/21/18 CAD: 4/6/18

### Oil Sales

Oil will flow into (2) 6" Steel buried lines operating at less than 750 PSIG. This oil line will interconnect to an existing pipeline routed to the North Corridor oil sales tie-in point per the attached plat.

**Reference Plat:** 

(1) John West Surveying Company W.O. No: 18110263 Survey: 3/6/18 CAD: 3/21/18

### **Electrical Systems**

Electrical overhead connections are required from the existing electrical infrastructure to connect to the central tank battery, compression sites, frac staging area, AST pad. Additional electrical lines are required along the disposal system in order to provide power for remote measurement and control; these locations are adjacent to 3<sup>rd</sup> party disposal wells such as the Mesquite Sand Dunes #2 SWD in Section 8 T24SR31E and the Mesquite Mesa Verde #3 SWD in Section 13 T24SR31E.

**Reference Plat:** 

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(1) John West Surveying Company W.O. No: 17111154 Survey: 12/11/17 CAD: 1/16/18
(1) John West Surveying Company W.O. No: 17111176 Survey: 12/12/17 CAD: 1/16/18
(1) John West Surveying Company W.O. No: 17111212 Survey: 12/20/17 CAD: 1/17/18
(1) John West Surveying Company W.O. No: 17111220 Survey: 12/22/17 CAD: 2/15/18
(1) John West Surveying Company W.O. No: 18110166 Survey: 2/8/18 CAD: 2/19/18
(1) John West Surveying Company W.O. No: 18110167 Survey: 2/9/18 CAD: 2/19/18
(1) John West Surveying Company W.O. No: 18110167 Survey: 1/14/18 CAD: 3/6/18
(1) John West Surveying Company W.O. No: 18110264 Survey: 3/6/18 CAD: 3/21/18
(1) John West Surveying Company W.O. No: 18110276 Survey: 3/6/18 CAD: 3/20/18
(2) John West Surveying Company W.O. No: 18110285 Survey: 3/7/18 CAD: 3/19/18
(1) John West Surveying Company W.O. No: 18110287 Survey: 3/12/18 CAD: 4/3/18
(1) John West Surveying Company W.O. No: 18110331 Survey: 3/21/18 CAD: 4/6/18
(1) John West Surveying Company W.O. No: 18110416 Survey: 3/21/18 CAD: 5/3/18
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C Dannes VEsserients \/ G17\02+ USA bec\1711033 Sand Duses Gots 60016.10 CTB Ser29 735 FUE



C DRAFTINC/Lorenzo/2018/0XY U.S.A. INC/TRACT/18110186 PAD EXT. TO SAND DUNES NORTH CORRIDOR GOLD CTB





CORNETING/Latenzo/2018/DITY U.S.A. INC/PPELINES/18110208 FLOMLINE TO ROWN KOPI 28-21 FED CON JTH. JPH, & J777H











CORATING/Lorenzo/2018/0XY U.S.A. NC/PPELAES/18110231 Aovine to indum mdp1 28-21 fed com (IA, (D., 1178.





ODRAF THECHATTON 2018/DIT USA INC/PPELMES/18110233 FLOWLINE ROW TO ROUND HOPI 28-21 FED CON VOLS PSH, PSH, PTSH, & 175H







Commet/Eauments/2017/01+ U.S.A. Inc/17111015 Access Rood Easement in Secto 1715 RUT 1nd County



@Jamas/Examents/2017/Cit USA Inc/1711015 Arcess Rust Feament in Sects 1245 RJX Leo Caurily





ODameS/Ecoments/2017/011 U.S.4. toc/17111032 laved Water Prome from Water Freetwert Facility to Truck Looding Stellan Ser 18 1215 R377 Lea Co



CAMERICA/2017/0XY USA INC/TRACTS/17111127 500x500 for Sand Dunes North Corridor ATS Facility in Sec. 4, 1245 R31E


C Anjeico/2017/017 USA DIC/TRACTS/17111127 500:500 to: Sond Dunes North Conder ATS Fachty in Sec 4, 1215. RJIE



C Anglica/2017/0XY USA INC/IRACIS/17111128 Ji0x200 Sand Dunes North Corndor Water Treament Facility in Sec. 4, 1245, R31E



COMM MC 20 MIN 10 TH SA NCYPELINES/18/10099 BURD BATTR UNC TO FRESH BATTR PORD





C Dannas/Easements/2018/0XY U.S.A. Inc/18110280 Water Foodity and Access Road of Merapite SHD 2 Sec 8 124 R31



(C) An grica 2018/Day USA Inc/Easoments/18110283 Gas Ln frm Day Mutti Use ROW to the Sand Dunes NC Indium CTB in Sec 28, 1235, R31E





C LAAF ING/LO ENTO 2018/ONT USA INC/ TRACT/18110329 PROP DAY ENTERPRISE COMP STATION SIC 9, 1245, 631







C Angelica/2017/03Y USA BIC/EASEMENT/17111176 Dec Ln to the Sand Dunes North Caristan COLD CIB Sec 29, 1235, R3:E





C ORAFTING/LOROND /2018/DXY U.S.A. INC/ELECTRIC LINES/17111220 ELECTRIC LINE TO THE WESA VERDE WATER TREATMENT FACILITY



C Anelca/2018/Gry USA Inc/Easements/18110166 Elec La Io the Sand Dunes IIC AST FSA in Sec 33, 1235, R31E





O DRAFTING/Larenzo/2018/0XY U.S.A. INCLEECTRIC LINES/18110187 ELECTRIC LINE TO STERUNG SEVER JTH & ROBON JTH



O DRAFTING/Larento/2018/DXY U.S.A. INC/ELECTRIC LINES/18110264 ELECTRIC LINE TO IRDIUM CTB SEC 28, 1735, R31E, EDDY CO



@DonneS/Easements/2018/OXY U.S.A. Ine/18110276 Electric Line to Mesaule SAD Water Facility Sec 13 124 R31



C Dornas/Estements/2018/0XY USA Inc/1811028 Electric Line to the Mesquite SND 2 Sec 8 124 R31



C Donna5/Eatements/2018/GXT U.S.A. Inc/1811025 Electric Line to the Mesquile SMD 2 Sec 8 124 R31



O ORNETHC / aren 20/2018/0XY & SA NC/LECTRC LALS/18110287 CLECTRC LALE TO AST PAD TO WIT SEC 18 1245, RIX



CORNELNCY COMPARING YOLS NOVELECTER LINES/18/10151 ELECTER LINE TO DIV ENTROPIES COUP STALL SEC 5 1245 831



Chaptica/2019/01y USA tre/festements/18110416 files in to the Sand Dures MC mater licentment Facility in Sec 4 1745 R23

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Pond Name	Water Source1	Water Source2	Water Source3	Water Source4
Cedar Canyon	Mine_Industrial	<u>C-3478</u>	<u>C-2772</u>	<u>C-1360</u>
Corral Fly	<u>C-1360</u>	<u>C-1361</u>	<u>C-3358</u>	<u>C-3836</u>
Cypress	<u>Mine_Industrial</u>	<u>C-3478</u>	<u>C-2772</u>	<u>C-1361</u>
Mesa Verde	<u>C-2571</u>	<u>C-2574</u>	<u>J-27</u>	<u>J-5</u>
Peaches	<u>C-906</u>	<u>C-3200</u>	<u>SP-55 &amp; SP-1279</u> <u>A</u>	<u>C-100</u>

DSE WELL NUMBER   WELL COMMON NAME   LAND OWNERSHIP   GPS LOCATION     C100   Tres Rios - Next to well shack OWNERSHIP   PRIVATE   32.201921* -104.254417*     C-100-A   Tres Rios - Center of turnaround PRIVATE   32.201921* -104.254417*     C-272-B   Tres Rios - Northwest PRIVATE   32.201951* -104.254417*     C-306   Whites City Commercial   PRIVATE   32.206978* -104.374371*     C-1246-AC & C-1246-AC-S   Lackey   PRIVATE   32.20649* -104.374371*     C-1086   1966 Tank   BLM   32.20649* -104.312830*     C-1142   Winston West   BLM   32.206492* -103.308818*     C-1360   ENG#1   PRIVATE   32.064408* -104.10802*     C-1573   Cocksey   PRIVATE   32.01440* -103.30828*     C-1575   ROCKHOUSE Ranch Well - Wildcat   BLM   32.4439190* -104.1480*     C-2270   CWH (Diver Kishne)   PRIVATE   32.32402* -103.312472*     C-2369   Paduca well #2   BLM   32.16568 -103.74114     C-2570   Paduca well #2   BLM   32.16568 -103.7412*     C-2570   Paduca well #0		GRR In	с.	
C-100   Tres Rios - Next to well shack   PRIVATE   32 201921* - 104.254317*     C-100-A   Tres Rios - Center of turnaround   PRIVATE   32 201958* - 104.256412*     C-272-B   Tres Rios - Northwest   PRIVATE   32 201958* - 104.256412*     C-306   Whites City Commercial   PRIVATE   32 201958* - 104.256412*     C-1264-AC-S   Lackey   PRIVATE   32 201958* - 104.256412*     C-1865   1886 Tank   BLM   32 20194* - 104.312930*     C-1142   Winston West   BLM   32 507645 - 104.103.9081*     C-1361   ENG#1   PRIVATE   32 0.04492* - 103.9080**     C-1373   Cooksey   PRIVATE   32 0.04492** - 103.9082**     C-1573   Cooksey   PRIVATE   32 0.01440**- 103.55920*     C-2270   CW#1 (Oliver Kiehne)   PRIVATE   32 0.021440**- 103.355920*     C-2269   Paduca well #2   BLM   32 16058*-103.742051     C-2869   Paduca well #2   BLM   32 16058*-103.742051     C-2869   Paduca well #2   BLM   32 16058*-103.742051     C-2870   Paduca well #2 <th>DSE WELL NUMBER</th> <th>WELL COMMON NAME</th> <th>LAND OWNERSHIP</th> <th>GPS LOCATION</th>	DSE WELL NUMBER	WELL COMMON NAME	LAND OWNERSHIP	GPS LOCATION
C-100-A   Tres Rios - Center of turnaround   PRIVATE   32.201856*.104.254443*     C-272-B   Tres Rios - Northwest   PRIVATE   32.202315*'.104.254412*     C-906   Whites City Commercial   PRIVATE   32.266978*.104.257437*     C-1246-AC-S   Lackey   PRIVATE   32.266978*.104.271212*     C-1886   1886 Tank   BLM   32.20304*.104.15979*     C-1142   Winston West   BLM   32.064922*.103.900818*     C-1360   ENG#1   PRIVATE   32.064922*.103.9008246*     C-1373   Cooksey   PRIVATE   32.064922*.103.9008246*     C-1575   ROCKHOUSE Ranch Well + Wildcat   BLM   32.04140*.103.9008246*     C-1575   ROCKHOUSE Ranch Well + Wildcat   BLM   32.04402*.103.900824*     C-2270   CW#1 (Oliver Kiehne)   PRIVATE   32.04140*.103.900824*     C-2280   Paduca well #2   BLM   32.16588.103.7411     C-2270   CW#1 (Oliver Kiehne)   PRIVATE   32.39199*.103.742051     C-2869   Paduca well #2   BLM   32.16588.103.74114     C-2870   Paduca (ankij well #4 </td <td>C-100</td> <td>Tres Rios - Next to well shack</td> <td>PRIVATE</td> <td>32.201921° -104.254317°</td>	C-100	Tres Rios - Next to well shack	PRIVATE	32.201921° -104.254317°
C-272-8   Tres Rios - Northwest   PRIVATE   32.202315° -104.254812°     C-906   Whites City Commercial   PRIVATE   32.176849*-104.271212°     C-124G-AC & C-124G-AC S   Lakey   PRIVATE   32.206978*-104.271212°     C-1886   1866 Tank   BLM   32.202315° -104.312930°     C-1083   Petska   PRIVATE   32.207495.104.177410     C-1361   ENG#1   PRIVATE   32.00449.0*104.16979°     C-1361   ENG#2   PRIVATE   32.00439.0*104.108092*     C-1361   ENG#2   PRIVATE   32.01440°-103.508208°     C-1373   Cooksey   PRIVATE   32.34930°-104.17694*     C-2270   CW#1 (Oliver Kiehne)   PRIVATE   32.34930°-104.17694*     C-2240   Valterscheid   PRIVATE   32.34203°-103.359208°     C-2242   Walterscheid   PRIVATE   32.34203°-104.17694*     C-2240   Valterscheid   PRIVATE   32.34203°-104.17694*     C-2240   Valterscheid   PRIVATE   32.34203°-104.17694*     C-2240   Valterscheid   PRIVATE   32.34203°-104.17694*	C-100-A	Tres Rios - Center of turnaround	PRIVATE	32.201856° -104.254443°
C-906   Whites City Commercial   PRIVATE   32.176949*.104.374371*     C-1246-AC & C-1246-AC S   Lackey   PRIVATE   32.266978*.104.271212*     C-1080   1886 Tank   BLM   32.229316*.104.127121*     C-1081   Petska   PRIVATE   32.00904*.104.16979*     C-1142   Winston West   BLM   32.507445.104.177410     C-1380   ENG#1   PRIVATE   32.064928*.103.908618*     C-1373   Cooksey   PRIVATE   32.064928*.103.908618*     C-1575   ROCKHOUSE Flanch Well - Wildcat   BLM   32.433190*.104.444153*     C-2270   CW#1 (Oliver Kiehne)   PRIVATE   32.021440*.103.559208*     C-2242   Walterscheid   PRIVATE   32.24203*.103.559208*     C-2242   Valterscheid   PRIVATE   32.24203*.103.5742051     C-2242   Valterscheid   PRIVATE   32.24203*.103.5742051     C-2242   Valuea (well #2   BLM   32.16698.103.742051     C-2269DD2   Paduca well #2   BLM   32.16698.103.742051     C-2570   Paduca (well #4   BLM   32.169895.10	С-272-В	Tres Rios - Northwest	PRIVATE	32.202315° -104.254812°
C-1246-AC & C-1246-AC-S   Lackey   PRIVATE   32.266978°-104.271212°     C-1886   1886 Tank   BLM   32.209316°-104.312930°     C-1083   Petska   PRIVATE   32.307445-104.173410     C-1142   Winston West   BLM   32.507845-104.173410     C-1360   EN   PRIVATE   32.064922°-103.906918°     C-1361   EN   PRIVATE   32.04908°-103.906266°     C-1573   Cocksey   PRIVATE   32.04408°-103.906266°     C-1573   ROCKHOUSE Ranch Well - Wildcat   BLM   32.493190°-104.440639°     C-2270   CW#1 (Oliver Kiehne)   PRIVATE   32.39199°-104.17694°     C-2242   Walterscheid   PRIVATE   32.39199°-104.17694°     C-22609   Paduca well #2   BLM   32.160586-103.742051     C-25639   Paduca (enl #2   BLM   32.160586-103.742051     C-2570   Paduca (in the bush) well   BLM   32.160586-103.7412     C-2571   Paduca (in the bush) well   BLM   32.1629707     C-2571   Paduca (in the bush) well   BLM   32.16297-103.74750°<	C-906	Whites City Commercial	PRIVATE	32.176949°-104.374371°
C-1886   1886 Tank   BLM   32.229316°-104.312930°     C-1083   Petska   PRIVATE   32.30944-104.16979°     C-1142   Winston West   BLM   32.507845-104.177410     C-1360   ENG#1   PRIVATE   32.064922*-103.006818°     C-1373   Cooksey   PRIVATE   32.06496*-103.096266°     C-1573   Cooksey   PRIVATE   32.431403*-104.108092*     C-1575   ROCKHOUSE Ranch Well - Wildcat   BLM   32.439190*-104.44163*     C-2270   CW#1 (Oliver Kiehne)   PRIVATE   32.324203*-103.51202*     C-2422   Walterscheid   PRIVATE   32.324203*-103.542051     C-2569   Paduca well #2   BLM   32.160588-103.742051     C-2569POD2   Paduca (melk well #4   BLM   32.160588-103.742051     C-2571   Paduca (melk well #4   BLM   32.160588-103.742051     C-2572   Paduca (melk well #4   BLM   32.16588-103.742051     C-2574   Paduca (melk well #4   BLM   32.16588-103.742051     C-2574   Paduca (melk well #A   BLM   32.16577*-103.7455809*<	C-1246-AC & C-1246-AC-S	Lackey	PRIVATE	32.266978°-104.271212°
C-1083   Petska   PRIVATE   32.3094 <sup>4</sup> -104.16379 <sup>6</sup> C-1142   Winston West   BLM   32.507845-104.177410     C-1360   ENG#1   PRIVATE   32.064928 <sup>-1</sup> 103.90818 <sup>6</sup> C-1361   ENG#2   PRIVATE   32.064928 <sup>-1</sup> 104.108908 <sup>-1</sup> C-1373   Cooksey   PRIVATE   32.14363 <sup>-1</sup> 104.108908 <sup>-1</sup> C-1575   ROCKHOUSE Ranch Well - Wildcat   BLM   32.14363 <sup>-1</sup> 104.108908 <sup>-1</sup> C-2270   CW#11 (Oliver Kiehne)   PRIVATE   32.32403 <sup>1</sup> -104.17694 <sup>4</sup> C-2242   Walterscheid   PRIVATE   32.32403 <sup>1</sup> -104.17694 <sup>4</sup> C-2492POD2   Stacy Mills   PRIVATE   32.32403 <sup>1</sup> -103.742051     C-2569   Paduca well #2   BLM   32.166588-103.74217     C-2570   Paduca (roal) well   BLM   32.169951-103.7412     C-2571   Paduca (roal) well   BLM   32.16997 <sup>1</sup> -103.747590 <sup>4</sup> C-2574   Paduca (well (on grid power)   BLM   32.16977 <sup>-1103.747590<sup>4</sup>     C-2772   Madus Patterait   BLM   32.06520<sup>-1103.852600<sup>1</sup>     C-3011   ROCKY ARROYO - MIDDLE   <td< sup=""></td<></sup></sup>	C-1886	1886 Tank	BLM	32.229316° -104.312930°
C.1142   Winston West   BLM   32.507845-104.177410     C.1360   ENG#1   PRIVATE   32.064922* -103.908818°     C.1371   ENG#2   PRIVATE   32.014908* 1003.906866°     C.1573   Cooksey   PRIVATE   32.113463* -104.108092*     C.1575   ROCKHOUSE Ranch Well - Wildcat   BLM   32.439190* -104.444163*     C-2270   CW#1 (Oliver Kiehne)   PRIVATE   32.32403* -103.812472*     C-2492POD2   Stacy Mills   PRIVATE   32.32403* -103.812472*     C-2492POD2   Stacy Mills   PRIVATE   32.32403* -103.812472*     C-2569POD2   Paduca (well #2   BLM   32.160588 -103.742051     C-2570   Paduca (and) well   BLM   32.169589 -103.7412     C-2571   Paduca (and) well   BLM   32.169589 -103.7412     C-2572   Paduca (and heb by well   BLM   32.16978* -103.74536     C-2574   Paduca (and HAG   BLM   32.1697* -103.74590*     C-2701   401 Walter Station   BLM   32.1697* -104.528097*     C-2772   Mobley Alternate   BLM   32.1	C-1083	Petska	PRIVATE	32.30904° -104.16979°
C-1360   ENG#1   PRIVATE   32.064922**103.906216*     C-1361   ENG#2   PRIVATE   32.064908**103.906266*     C-1573   Cooksey   PRIVATE   32.113463**1041.018092**     C-1575   ROCKHOUSE Ranch Well - Wildcat   BLM   32.493190**104.14693*     C-2270   CW#1 (Oliver Kiehne)   PRIVATE   32.39199**104.17694*     C-2422   Walterscheid   PRIVATE   32.39199**104.17694*     C-2490D2   Stacy Mills   PRIVATE   32.39199**104.17694*     C-2569   Paduca well #2   BLM   32.160588*103.742051     C-2570   Paduca (tenk) well #4   BLM   32.169989*103.7412     C-2571   Paduca (tonk) well #4   BLM   32.16299*103.74516*     C-2573   Paduca well (for gird power)   BLM   32.1629*103.74563     C-2574   Paduca well (for gird power)   BLM   32.1629*103.74563     C-2701   401 Water Station   BLM   32.46978*104.52609*     C-2772   Mobley Alternate   BLM   32.49979*104.52609*     C-2772   Mobley Alternate   BLM   32.49	C-1142	Winston West	BLM	32.507845-104.177410
C-1361   ENG#2   PRIVATE   32.064908° -103.906266°     C-1573   Cooksey   PRIVATE   32.19310° -104.108092°     C-1575   ROCKHOUSE Ranch Well - Wildcat   BLM   32.493190° -104.444163°     C-2270   CW#1 (Diver Kiehne)   PRIVATE   32.39199° -104.17694°     C-2242   Walterscheid   PRIVATE   32.39199° -104.17694°     C-2492POD2   Stacy Mills   PRIVATE   32.324203° -103.812472°     C-2569   Paduca well #2   BLM   32.160588 -103.742051     C-2569POD2   Paduca well #4   BLM   32.160588 -103.742051     C-2570   Paduca (rank) well #4   BLM   32.160588 -103.742051     C-2571   Paduca (rank) well #4   BLM   32.163985 -103.7414     C-2572   Paduca well if 6   BLM   32.163985 -103.7412     C-2571   Paduca well if on grid power)   BLM   32.163985 -103.7412     C-2571   Paduca well if on grid power)   BLM   32.458767° -104.528097°     C-2701   401 Water Station   BLM   32.459767° -104.528097°     C-3011   ROCKY ARROYO - MIDDLE	C-1360	ENG#1	PRIVATE	32.064922° -103.908818°
C-1573   Cooksey   PRIVATE   32.113463° -104.108092°     C-1575   ROCKHOUSE Ranch Well - Wildoat   BLM   32.493190° -104.444163°     C-2270   CW#1 (Oliver Kiehne)   PRIVATE   32.021440° -103.559208°     C-22402   Walterscheid   PRIVATE   32.021440° -103.559208°     C-2492POD2   Stacy Mills   PRIVATE   32.02140° -103.559208°     C-2569   Paduca well #2   BLM   32.160586 -103.742051     C-2569POD2   Paduca (tark) well #4   BLM   32.160586 -103.742051     C-2570   Paduca (tark) well #4   BLM   32.163936* -103.74567°     C-2571   Paduca (tark) well #4   BLM   32.163936* -103.74567°     C-2573   Paduca (tark) well #6   BLM   32.16299 -103.74563     C-2574   Paduca well (on grid power)   BLM   32.16277* -103.747590°     C-2771   Mobley Alternate   BLM   32.305220* -103.74363     C-2772   Mobley Alternate   BLM   32.305220* -103.52360°     C-3050   Max Vasquez   PRIVATE   32.31291* -104.17033*     C-3060   Max Vasquez	C-1361	ENG#2	PRIVATE	32.064908° -103.906266°
C-1575   ROCKHOUSE Ranch Well - Wildcat   BLM   32.493190° -104.444163°     C-2270   CW#1 (Oliver Kiehne)   PRIVATE   32.021440° - 103.559208°     C-2242   Walterscheid   PRIVATE   32.39199° -104.17694°     C-2482   Stacy Mills   PRIVATE   32.39199° -104.17694°     C-25690   Paduca well #2   BLM   32.160588 - 103.742051     C-25690   Paduca well replacement   BLM   32.160588 - 103.742051     C-2570   Paduca (tank) well #4   BLM   32.16568 - 103.74126     C-2571   Paduca (tank) well #4   BLM   32.163985 - 103.745457     C-2572   Paduca (tank) well #4   BLM   32.163985 - 103.745457     C-2574   Paduca (tank) well   BLM   32.163985 - 103.745657     C-2574   Paduca well (on grid power)   BLM   32.165276 - 103.55260°     C-2772   Mobley Allernate   BLM   32.05220° - 103.65260°     C-3010   Max Vasquez   PRIVATE   32.31291° - 104.17033°     C-3020   Beard East   PRIVATE   32.48074° - 104.426227°     C-3200   Beard East <td>C-1573</td> <td>Cooksey</td> <td>PRIVATE</td> <td>32.113463° -104.108092°</td>	C-1573	Cooksey	PRIVATE	32.113463° -104.108092°
C-2270   CW#1 (Oliver Kiehne)   PRIVATE   32.021440°-103.559208°     C-2242   Walterscheld   PRIVATE   32.39199°-104.17694°     C-2422   Stacy Mills   PRIVATE   32.324203°-103.12472°     C-2569   Paduca well #2   BLM   32.160588-103.742051     C-2569OD2   Paduca (ank) well #4   BLM   32.160588-103.742051     C-2570   Paduca (road) well   BLM   32.160588-103.742051     C-2571   Paduca (road) well   BLM   32.163993°-103.742051     C-2572   Paduca well #6   BLM   32.163993°-103.745457°     C-2573   Paduca well #6   BLM   32.16299-103.74363     C-2574   Paduca well (on grid power)   BLM   32.16297°-103.74550°     C-2701   401 Water Station   BLM   32.458767°-104.528097°     C-3011   ROCKY ARROYO - MIDDLE   BLM   32.458767°-104.528097°     C-3005   Max Vasquez   PRIVATE   32.16974°-104.452045°     C-3006   Max Vasquez   PRIVATE   32.16970°-104.5025°     C-3200   Beard East   PRIVATE   32.1697	C-1575	ROCKHOUSE Ranch Well - Wildcat	BLM	32.493190° -104.444163°
C-2242   Walterscheid   PRIVATE   32.39199°-104.17694°     C-2402POD2   Stacy Mills   PRIVATE   32.324203°-103.812472°     C-2569   Paduca well #2   BLM   32.160588-103.742051     C-2569POD2   Paduca well replacement   BLM   32.160588-103.742051     C-2570   Paduca (tank) well #4   BLM   32.163993°-103.745457°     C-2571   Paduca (road) well   BLM   32.163993°-103.745457°     C-2572   Paduca well #6   BLM   32.163993°-103.745457°     C-2573   Paduca well (on grid power)   BLM   32.16577°-103.747590°     C-2574   Paduca well (on grid power)   BLM   32.16577°-103.747590°     C-2701   401 Water Station   BLM   32.30520°-103.852809°     C-3011   ROCKY ARROYO - MIDDLE   BLM   32.30520°-103.852809°     C-3005   Max Vasquez   PRIVATE   32.168794°-104.452045°     C-3020   Beard East   PRIVATE   32.486794°-104.452045°     C-3350   Watts#2   PRIVATE   32.168710°-104.150925°     C-3363   BACKHOUSE Ranch Well - North of Rockrush	C-2270	CW#1 (Oliver Kiehne)	PRIVATE	32.021440° -103.559208°
C-2492POD2   Stacy Mills   PRIVATE   32.324203°-103.812472°     C-2559   Paduca well #2   BLM   32.160588-103.742051     C-2550   Paduca well replacement   BLM   32.160588-103.742051     C-2570   Paduca (tank) well #4   BLM   32.163993°-103.745457°     C-2571   Paduca (tank) well #6   BLM   32.163985-103.7412     C-2573   Paduca (tin the bush) well   BLM   32.163985-103.74363     C-2574   Paduca well (on grid power)   BLM   32.165270°-103.74363     C-2574   Paduca well (on grid power)   BLM   32.305220°-103.528097°     C-2772   Mobley Alternate   BLM   32.305220°-103.852360°     C-3011   ROCKY ARROYO - MIDDLE   BLM   32.486794°-104.452045°     C-30200   Beard East   PRIVATE   32.168720-104.476600     C-32500   Max Vasquez   PRIVATE   32.168720-104.426227°     C-3350   Winston Barn   PRIVATE   32.168720-104.4266201°     C-3350   Branson   PRIVATE   32.168720-104.4266201°     C-3353   Watts#2   PRIVATE </td <td>C-2242</td> <td>Walterscheid</td> <td>PRIVATE</td> <td>32.39199° -104.17694°</td>	C-2242	Walterscheid	PRIVATE	32.39199° -104.17694°
C-2569   Paduca well #2   BLM   32.160588 -103.742051     C-2569POD2   Paduca well replacement   BLM   32.160588 -103.742051     C-2570   Paduca (rank) well #4   BLM   32.16088 -103.74114     C-2571   Paduca (road) well   BLM   32.163985 -103.745457°     C-2572   Paduca (road) well   BLM   32.16299 -103.74363     C-2573   Paduca well (on grid power)   BLM   32.16299 -103.74363     C-2574   Paduca well (on grid power)   BLM   32.16289 -103.74363     C-2701   401 Water Station   BLM   32.16289 -103.74363     C-2772   Mobley Alternate   BLM   32.05220° -103.852360°     C-3011   ROCKY ARROYO - MIDDLE   BLM   32.05220° -103.852360°     C-3050   Max Vasquez   PRIVATE   32.168720 -104.252645°     C-3000   Beard East   PRIVATE   32.168720 -104.276600     C-3280   Hayhurst   PRIVATE   32.168720 -104.276600     C-3353   Branson   PRIVATE   32.11871° -104.139924°     C-3354   Branson   PRIVATE   32	C-2492POD2	Stacy Mills	PRIVATE	32.324203° -103.812472°
C-2569POD2   Paduca well replacement   BLM   32.160588 -103.74105     C-2570   Paduca (tank) well #4   BLM   32.15686 -103.74114     C-2571   Paduca (road) well   BLM   32.163993° -103.74557°     C-2572   Paduca (in the bush) well   BLM   32.163985 -103.7412     C-2573   Paduca (in the bush) well   BLM   32.16229 -103.74363     C-2574   Paduca well (on grid power)   BLM   32.165777° -103.747590°     C-2771   401 Water Station   BLM   32.458767° -104.528097°     C-2772   Mobley Alternate   BLM   32.409046° -104.452045°     C-3011   ROCKY ARROYO - MIDDLE   BLM   32.16970 -104.276600     C-3005   Max Vasquez   PRIVATE   32.16970 -104.276600     C-3200   Beard East   PRIVATE   32.16970 -104.276600     C-3260   Hayhurst   PRIVATE   32.16970 -104.276600     C-3358   Branson   PRIVATE   32.2611871* -104.130925°     C-3358   Branson   PRIVATE   32.191* -104.150925°     C-3463pod1   ENG#3   BLM <td< td=""><td>C-2569</td><td>Paduca well #2</td><td>BLM</td><td>32.160588 -103.742051</td></td<>	C-2569	Paduca well #2	BLM	32.160588 -103.742051
C-2570   Paduca (tank) well #4   BLM   32.15668 -103.74114     C-2571   Paduca (road) well   BLM   32.163993° -103.745457°     C-2572   Paduca well (on gid power)   BLM   32.16229 -103.74363     C-2573   Paduca (in the bush) well   BLM   32.16229 -103.74363     C-2574   Paduca well (on gid power)   BLM   32.45677° -104.528097°     C-2701   401 Water Station   BLM   32.305220° -103.852360°     C-2701   Mobley Alternate   BLM   32.409046° -104.452045°     C-3011   ROCKY ARROYO - MIDDLE   BLM   32.409746° -104.452045°     C-3050   Max Vasquez   PRIVATE   32.31291° -104.17033°     C-3000   Beard East   PRIVATE   32.486794° -104.426227°     C-3200   Beard East   PRIVATE   32.168720 -104.276600     C-3260   Hayhurst   PRIVATE   32.168720 -104.426227°     C-3350   Winston Barn   PRIVATE   32.1687° -104.43094°     C-3363   Branson   PRIVATE   32.1687° -104.406201°     C-348390d1   ENG#3   BLM	C-2569POD2	Paduca well replacement	BLM	32.160588 -103.742051
C-2571   Paduca (road) well   BLM   32.163993° -103.745457°     C-2572   Paduca well #6   BLM   32.163985 -103.7412     C-2573   Paduca (in the bush) well   BLM   32.16229 -103.74363     C-2574   Paduca well (on grid power)   BLM   32.16577° -103.747590°     C-2701   401 Water Station   BLM   32.45676° -104.528097°     C-2772   Mobley Alternate   BLM   32.305220° -103.852360°     C-3011   ROCKY ARROYO - MIDDLE   BLM   32.49046° -104.452045°     C-3060   Max Vasquez   PRIVATE   32.486794° -104.452045°     C-3095   ROCKHOUSE Ranch Well - North of Rockcrusher   PRIVATE   32.486794° -104.426227°     C-3200   Beard East   PRIVATE   32.168720-104.276600     C-3350   Winston Barn   PRIVATE   32.511871° -104.130994°     C-3358   Branson   PRIVATE   32.16875° -104.460804°     C-3463   Watts#2   PRIVATE   32.48679° -103.88866°     C-3483pod1   ENG#3   BLM   32.06556° -103.99472°     C-3483pod3   ENG#5   BLM	C-2570	Paduca (tank) well #4	BLM	32.15668 -103.74114
C-2572   Paduca well #6   BLM   32.163985 -103.7412     C-2573   Paduca (in the bush) well   BLM   32.16229 -103.74363     C-2574   Paduca well (on grid power)   BLM   32.16577° - 103.747590°     C-2574   Paduca well (on grid power)   BLM   32.46577° - 104.528097°     C-2771   401 Water Station   BLM   32.305220° - 103.852360°     C-3011   ROCKY ARROYO - MIDDLE   BLM   32.409046° - 104.452045°     C-3005   Max Vasquez   PRIVATE   32.168720 - 104.276600     C-3005   ROCKHOUSE Ranch Well - North of RIVATE   32.168720 - 104.276600     C-3200   Beard East   PRIVATE   32.168720 - 104.276600     C-3350   Winston Bam   PRIVATE   32.18171° - 104.39094°     C-3353   Branson   PRIVATE   32.1914' - 104.06201°     C-3353   Watts#2   PRIVATE   32.46657° - 104.460804°     C-3478   Mobley Private   PRIVATE   32.46657° - 104.460804°     C-3483pod3   ENG#3   BLM   32.065556° - 103.93131°     C-3483pod3   ENG#3   BLM	C-2571	Paduca (road) well	BLM	32.163993° -103.745457°
C-2573   Paduca (in the bush) well   BLM   32.16229 -103.74363     C-2574   Paduca well (on grid power)   BLM   32.165777° - 103.747590°     C-2701   401 Water Station   BLM   32.458767° - 104.528097°     C-2701   Mobley Alternate   BLM   32.05220° - 103.652360°     C-3011   ROCKY ARROYO - MIDDLE   BLM   32.409046° - 104.452045°     C-3060   Max Vasquez   PRIVATE   32.31291° - 104.17033°     C-3020   Beard East   PRIVATE   32.468794° - 104.426227°     C-3200   Beard East   PRIVATE   32.2168720 - 104.276600     C-3260   Hayhurst   PRIVATE   32.211871° - 104.130994°     C-3350   Winston Barn   PRIVATE   32.511871° - 104.39094°     C-3358   Branson   PRIVATE   32.44637° - 103.391313°     C-3453   ROCKY ARROYO - FIELD   PRIVATE   32.44637° - 103.898656°     C-3483pod3   ENG#3   BLM   32.06556° - 103.894722°     C-3483pod3   ENG#5   BLM   32.06614° - 103.89231°     C-3483POD4   CW#4 (Oliver Kiehne)   PRIVAT	C-2572	Paduca well #6	BLM	32.163985 -103.7412
C-2574   Paduca well (on grid power)   BLM   32.165777° - 103.747590°     C-2701   401 Water Station   BLM   32.458767° - 104.528097°     C-2772   Mobley Alternate   BLM   32.305220° - 103.852360°     C-3011   ROCKY ARROYO - MIDDLE   BLM   32.409046° - 104.452045°     C-3060   Max Vasquez   PRIVATE   32.191° - 104.17033°     C-3060   Max Vasquez   PRIVATE   32.486794° - 104.426227°     C-3005   ROCKHOUSE Ranch Well - North of Rockcrusher   PRIVATE   32.168720 - 104.276600     C-3200   Beard East   PRIVATE   32.2168720 - 104.276600     C-3260   Hayhurst   PRIVATE   32.227110° - 104.150925°     C-3350   Winston Barn   PRIVATE   32.19214° - 104.06201°     C-3353   Branson   PRIVATE   32.446637° - 103.931313°     C-3453   ROCKY ARROYO - FIELD   PRIVATE   32.446637° - 103.931313°     C-3463   Mobley Private   PRIVATE   32.06614° - 103.89231°     C-3463   ROCKY ARROYO - FIELD   PRIVATE   32.01633° - 103.894722°     C-3463pod3	C-2573	Paduca (in the bush) well	BLM	32.16229 -103.74363
C-2701   401 Water Station   BLM   32.458767° - 104.528097°     C-2772   Mobley Alternate   BLM   32.305220° - 103.852360°     C-3011   ROCKY ARROYO - MIDDLE   BLM   32.409046° - 104.452045°     C-3060   Max Vasquez   PRIVATE   32.31291° - 104.17033°     C-3060   Max Vasquez   PRIVATE   32.468794° - 104.426227°     C-3005   ROCKHOUSE Ranch Well - North of Rockcrusher   PRIVATE   32.168720 - 104.276600     C-3200   Beard East   PRIVATE   32.2168720 - 104.276600     C-3260   Hayhurst   PRIVATE   32.2168720 - 104.276600     C-3350   Winston Barn   PRIVATE   32.11871° - 104.150925°     C-3353   Branson   PRIVATE   32.19214° - 104.06201°     C-3363   Watts#2   PRIVATE   32.44637° - 103.931313°     C-3453   ROCKY ARROYO - FIELD   PRIVATE   32.458657° - 104.460804°     C-3478   Mobley Private   PRIVATE   32.06614° - 103.89231°     C-3483pod1   ENG#3   BLM   32.06614° - 103.89231°     C-34833pOD5   CW#4 (Oliver Kiehne)	C-2574	Paduca well (on grid power)	BLM	32.165777° -103.747590°
C-2772   Mobley Alternate   BLM   32.305220° -103.852360°     C-3011   ROCKY ARROYO - MIDDLE   BLM   32.409046° -104.452045°     C-3060   Max Vasquez   PRIVATE   32.31291° -104.17033°     C-3095   ROCKHOUSE Ranch Well - North of Rockcrusher   PRIVATE   32.486794° -104.426227°     C-3200   Beard East   PRIVATE   32.168720 -104.276600     C-3260   Hayhurst   PRIVATE   32.218170° -104.150925°     C-3350   Winston Barn   PRIVATE   32.511871° -104.150925°     C-3358   Branson   PRIVATE   32.511871° -104.139094°     C-3363   Watts#2   PRIVATE   32.511871° -104.139094°     C-3363   Watts#2   PRIVATE   32.19214° -104.06201°     C-3363   Watts#2   PRIVATE   32.48657° -103.480604°     C-3478   Mobley Private   PRIVATE   32.294937° -103.888656°     C-3483pod1   ENG#3   BLM   32.06556° -103.894722°     C-3483POD4   ENG#4   BLM   32.021692° -103.560158°     C-3483POD5   CW#4 (Oliver Kiehne)   PRIVATE   <	C-2701	401 Water Station	BLM	32.458767° -104.528097°
C-3011   ROCKY ARROYO - MIDDLE   BLM   32.409046° - 104.452045°     C-3060   Max Vasquez   PRIVATE   32.31291° - 104.17033°     C-3095   ROCKHOUSE Ranch Well - North of Rockcrusher   PRIVATE   32.486794° - 104.426227°     C-3200   Beard East   PRIVATE   32.168720 - 104.276600     C-3260   Hayhurst   PRIVATE   32.227110° - 104.150925°     C-3350   Winston Barn   PRIVATE   32.218171° - 104.139094°     C-3363   Branson   PRIVATE   32.19214° - 104.06201°     C-3363   Watts#2   PRIVATE   32.48657° - 103.931313°     C-3463   ROCKY ARROYO - FIELD   PRIVATE   32.494637° - 103.931313°     C-3478   Mobley Private   PRIVATE   32.046556° - 103.894722°     C-3483pod1   ENG#3   BLM   32.06614° - 103.89231°     C-3483POD4   CW#4 (Oliver Kiehne)   PRIVATE   32.021692° - 103.560158°     C-3483POD5   CW#5 (Oliver Kiehne)   PRIVATE   32.021692° - 103.560158°     C-3554   Jesse Baker #1 well   PRIVATE   32.02173° - 103.752030°     C-35577	C-2772	Mobley Alternate	BLM	32.305220° -103.852360°
C-3060   Max Vasquez   PRIVATE   32.31291° -104.17033°     C-3095   ROCKHOUSE Ranch Well - North of Rockcrusher   PRIVATE   32.486794° -104.426227°     C-3200   Beard East   PRIVATE   32.168720 -104.276600     C-3260   Hayhurst   PRIVATE   32.227110° -104.150925°     C-3350   Winston Barn   PRIVATE   32.227110° -104.139094°     C-3358   Branson   PRIVATE   32.1914° -104.06201°     C-3363   Watts#2   PRIVATE   32.48657° -103.931313°     C-3453   ROCKY ARROYO - FIELD   PRIVATE   32.494637° -103.931313°     C-3478   Mobley Private   PRIVATE   32.046556° -103.894722°     C-3483pod1   ENG#3   BLM   32.06614° -103.89231°     C-3483pod3   ENG#5   BLM   32.021692° -103.560158°     C-3483POD4   CW#4 (Oliver Kiehne)   PRIVATE   32.021692° -103.560158°     C-3554   Jesse Baker #1 well   PRIVATE   32.021692° -103.560158°     C-3557   CW#3 (Oliver Kiehne)   PRIVATE   32.02173° -103.753030°     C-3554   Jesse Baker #1 well	C-3011	ROCKY ARROYO - MIDDLE	BLM	32.409046° -104.452045°
C-3095   ROCKHOUSE Ranch Well - North of Rockcrusher   PRIVATE   32.486794° - 104.426227°     C-3200   Beard East   PRIVATE   32.168720 - 104.276600     C-3260   Hayhurst   PRIVATE   32.227110° - 104.150925°     C-3350   Winston Barn   PRIVATE   32.511871° - 104.139094°     C-3358   Branson   PRIVATE   32.19214° - 104.06201°     C-3363   Watts#2   PRIVATE   32.48657° - 103.931313°     C-3453   ROCKY ARROYO - FIELD   PRIVATE   32.44637° - 103.931313°     C-3453   ROCKY ARROYO - FIELD   PRIVATE   32.294937° - 103.888656°     C-3478   Mobley Private   PRIVATE   32.06614° - 103.89231°     C-3483pod3   ENG#5   BLM   32.06614° - 103.89231°     C-3483POD4   CW#4 (Oliver Kiehne)   PRIVATE   32.021803° - 103.559030°     C-3483POD5   CW#5 (Oliver Kiehne)   PRIVATE   32.021803° - 103.723030°     C-3554   Jesse Baker #1 well   PRIVATE   32.02173° - 103.723030°     C-35577   CW#3 (Oliver Kiehne)   PRIVATE   32.021773° - 103.559738°     C-35581<	C-3060	Max Vasquez	PRIVATE	32.31291° -104.17033°
C-3200   Beard East   PRIVATE   32.168720 -104.276600     C-3260   Hayhurst   PRIVATE   32.227110° -104.150925°     C-3350   Winston Barn   PRIVATE   32.511871° -104.139094°     C-3358   Branson   PRIVATE   32.19214° -104.06201°     C-3363   Watts#2   PRIVATE   32.444637° -103.931313°     C-3453   ROCKY ARROYO - FIELD   PRIVATE   32.458657° -104.460804°     C-3478   Mobley Private   PRIVATE   32.294937° -103.888656°     C-3483pod1   ENG#3   BLM   32.065556° -103.894722°     C-3483pod3   ENG#5   BLM   32.021803° -103.559030°     C-3483POD4   CW#4 (Oliver Kiehne)   PRIVATE   32.021803° -103.559030°     C-3483POD5   CW#5 (Oliver Kiehne)   PRIVATE   32.021692° -103.560158°     C-3554   Jesse Baker #1 well   PRIVATE   32.021793° -103.723030°     C-3577   CW#3 (Oliver Kiehne)   PRIVATE   32.021773° -103.7559738°     C-3581   ENG#4   BLM   32.066083° -103.895024°     C-3595   Oliver Kiehne house well #2   PRI	C-3095	ROCKHOUSE Ranch Well - North of Rockcrusher	PRIVATE	32.486794° -104.426227°
C-3260   Hayhurst   PRIVATE   32.227110° -104.150925°     C-3350   Winston Barn   PRIVATE   32.511871° -104.139094°     C-3358   Branson   PRIVATE   32.19214° -104.06201°     C-3363   Watts#2   PRIVATE   32.444637° -103.931313°     C-3453   ROCKY ARROYO - FIELD   PRIVATE   32.244637° -103.838136°     C-3478   Mobley Private   PRIVATE   32.294937° -103.888656°     C-3483pod1   ENG#3   BLM   32.065556° -103.894722°     C-3483pod3   ENG#5   BLM   32.06614° -103.89231°     C-3483POD4   CW#4 (Oliver Kiehne)   PRIVATE   32.021803° -103.559030°     C-3483POD5   CW#5 (Oliver Kiehne)   PRIVATE   32.021692° -103.560158°     C-3554   Jesse Baker #1 well   PRIVATE   32.02173° -103.723030°     C-35577   CW#3 (Oliver Kiehne)   PRIVATE   32.02173° -103.723030°     C-3581   ENG#4   BLM   32.066083° -103.895024°     C-3595   Oliver Kiehne house well #2   PRIVATE   32.02173° -103.682529°     C-3596   CW#2 (Oliver Kiehne)	C-3200	Beard East	PRIVATE	32.168720 -104.276600
C-3350 Winston Barn PRIVATE 32.511871° -104.139094°   C-3358 Branson PRIVATE 32.19214° -104.06201°   C-3363 Watts#2 PRIVATE 32.444637° -103.931313°   C-3453 ROCKY ARROYO - FIELD PRIVATE 32.458657° -104.460804°   C-3478 Mobley Private PRIVATE 32.294937° -103.888656°   C-3483pod1 ENG#3 BLM 32.065556° -103.894722°   C-3483pod3 ENG#5 BLM 32.06614° -103.89231°   C-3483POD4 CW#4 (Oliver Kiehne) PRIVATE 32.021803° -103.559030°   C-3483POD5 CW#5 (Oliver Kiehne) PRIVATE 32.021692° -103.560158°   C-3554 Jesse Baker #1 well PRIVATE 32.021793° -103.723030°   C-3577 CW#3 (Oliver Kiehne) PRIVATE 32.021773° -103.559738°   C-3581 ENG#4 BLM 32.066083° -103.895024°   C-3595 Oliver Kiehne house well #2 PRIVATE 32.021773° -103.559738°   C-3596 CW#2 (Oliver Kiehne) PRIVATE 32.021773° -103.559018°	C-3260	Hayhurst	PRIVATE	32.227110° -104.150925°
C-3358 Branson PRIVATE 32.19214° -104.06201°   C-3363 Watts#2 PRIVATE 32.444637° -103.931313°   C-3453 ROCKY ARROYO - FIELD PRIVATE 32.458657° -104.460804°   C-3478 Mobley Private PRIVATE 32.294937° -103.888656°   C-3483pod1 ENG#3 BLM 32.065556° -103.894722°   C-3483pod3 ENG#5 BLM 32.06614° -103.89231°   C-3483POD4 CW#4 (Oliver Kiehne) PRIVATE 32.021803° -103.559030°   C-3483POD5 CW#5 (Oliver Kiehne) PRIVATE 32.021692° -103.560158°   C-3554 Jesse Baker #1 well PRIVATE 32.021793° -103.723030°   C-3577 CW#3 (Oliver Kiehne) PRIVATE 32.021773° -103.559738°   C-3581 ENG#4 BLM 32.066083° -103.895024°   C-3595 Oliver Kiehne house well #2 PRIVATE 32.021773° -103.682529°   C-3596 CW#2 (Oliver Kiehne) PRIVATE 32.021793° -103.559018°	C-3350	Winston Barn	PRIVATE	32.511871° -104.139094°
C-3363 Watts#2 PRIVATE 32.444637° -103.931313°   C-3453 ROCKY ARROYO - FIELD PRIVATE 32.458657° -104.460804°   C-3478 Mobley Private PRIVATE 32.294937° -103.888656°   C-3483pod1 ENG#3 BLM 32.065556° -103.894722°   C-3483pod3 ENG#5 BLM 32.06614° -103.89231°   C-3483POD4 CW#4 (Oliver Kiehne) PRIVATE 32.021803° -103.559030°   C-3483POD5 CW#5 (Oliver Kiehne) PRIVATE 32.021692° -103.560158°   C-3554 Jesse Baker #1 well PRIVATE 32.021793° -103.723030°   C-3557 CW#3 (Oliver Kiehne) PRIVATE 32.021773° -103.759738°   C-3581 ENG#4 BLM 32.0266083° -103.895024°   C-3595 Oliver Kiehne house well #2 PRIVATE 32.025484° -103.682529°   C-3596 CW#2 (Oliver Kiehne) PRIVATE 32.021793° -103.559018°	C-3358	Branson	PRIVATE	32.19214° -104.06201°
C-3453 ROCKY ARROYO - FIELD PRIVATE 32.458657° - 104.460804°   C-3478 Mobley Private PRIVATE 32.294937° - 103.888656°   C-3483pod1 ENG#3 BLM 32.065556° - 103.894722°   C-3483pod3 ENG#5 BLM 32.06614° - 103.89231°   C-3483POD4 CW#4 (Oliver Kiehne) PRIVATE 32.021803° - 103.559030°   C-3483POD5 CW#5 (Oliver Kiehne) PRIVATE 32.021692° - 103.560158°   C-3554 Jesse Baker #1 well PRIVATE 32.021793° - 103.723030°   C-3577 CW#3 (Oliver Kiehne) PRIVATE 32.021773° - 103.559738°   C-3581 ENG#4 BLM 32.066083° - 103.895024°   C-3595 Oliver Kiehne house well #2 PRIVATE 32.025484° - 103.682529°   C-3596 CW#2 (Oliver Kiehne) PRIVATE 32.021793° - 103.559018°	C-3363	Watts#2	PRIVATE	32.444637° -103.931313°
C-3478 Mobley Private PRIVATE 32.294937° -103.888656°   C-3483pod1 ENG#3 BLM 32.065556° -103.894722°   C-3483pod3 ENG#5 BLM 32.06614° -103.89231°   C-3483POD4 CW#4 (Oliver Kiehne) PRIVATE 32.021803° -103.559030°   C-3483POD5 CW#5 (Oliver Kiehne) PRIVATE 32.021692° -103.560158°   C-3554 Jesse Baker #1 well PRIVATE 32.021793° -103.723030°   C-3577 CW#3 (Oliver Kiehne) PRIVATE 32.021773° -103.559738°   C-3581 ENG#4 BLM 32.066083° -103.895024°   C-3595 Oliver Kiehne house well #2 PRIVATE 32.025484° -103.682529°   C-3596 CW#2 (Oliver Kiehne) PRIVATE 32.021793° -103.559018°	C-3453	ROCKY ARROYO - FIELD	PRIVATE	32.458657° -104.460804°
C-3483pod1ENG#3BLM32.065556° -103.894722°C-3483pod3ENG#5BLM32.06614° -103.89231°C-3483POD4CW#4 (Oliver Kiehne)PRIVATE32.021803° -103.559030°C-3483POD5CW#5 (Oliver Kiehne)PRIVATE32.021692° -103.560158°C-3554Jesse Baker #1 wellPRIVATE32.071937° -103.723030°C-3577CW#3 (Oliver Kiehne)PRIVATE32.021773° -103.559738°C-3581ENG#4BLM32.066083° -103.895024°C-3595Oliver Kiehne house well #2PRIVATE32.025484° -103.682529°C-3596CW#2 (Oliver Kiehne)PRIVATE32.021793° -103.559018°	C-3478	Mobley Private	PRIVATE	32.294937° -103.888656°
C-3483pod3 ENG#5 BLM 32.06614° -103.89231°   C-3483POD4 CW#4 (Oliver Kiehne) PRIVATE 32.021803° -103.559030°   C-3483POD5 CW#5 (Oliver Kiehne) PRIVATE 32.021692° -103.560158°   C-3554 Jesse Baker #1 well PRIVATE 32.021793° -103.723030°   C-3577 CW#3 (Oliver Kiehne) PRIVATE 32.021773° -103.559738°   C-3581 ENG#4 BLM 32.066083° -103.895024°   C-3595 Oliver Kiehne house well #2 PRIVATE 32.025484° -103.682529°   C-3596 CW#2 (Oliver Kiehne) PRIVATE 32.021793° -103.559018°	C-3483pod1	ENG#3	BLM	32.065556° -103.894722°
C-3483POD4 CW#4 (Oliver Kiehne) PRIVATE 32.021803° -103.559030°   C-3483POD5 CW#5 (Oliver Kiehne) PRIVATE 32.021692° -103.560158°   C-3554 Jesse Baker #1 well PRIVATE 32.071937° -103.723030°   C-3577 CW#3 (Oliver Kiehne) PRIVATE 32.021773° -103.559738°   C-3581 ENG#4 BLM 32.066083° -103.895024°   C-3595 Oliver Kiehne house well #2 PRIVATE 32.025484° -103.682529°   C-3596 CW#2 (Oliver Kiehne) PRIVATE 32.021793° -103.559018°	C-3483pod3	ENG#5	BLM	32.06614° -103.89231°
C-3483POD5 CW#5 (Oliver Kiehne) PRIVATE 32.021692° -103.560158°   C-3554 Jesse Baker #1 well PRIVATE 32.071937° -103.723030°   C-3577 CW#3 (Oliver Kiehne) PRIVATE 32.021773° -103.559738°   C-3581 ENG#4 BLM 32.066083° -103.895024°   C-3595 Oliver Kiehne house well #2 PRIVATE 32.025484° -103.682529°   C-3596 CW#2 (Oliver Kiehne) PRIVATE 32.021793° -103.559018°	C-3483POD4	CW#4 (Oliver Kiehne)	PRIVATE	32.021803° -103.559030°
C-3554 Jesse Baker #1 well PRIVATE 32.071937° -103.723030°   C-3577 CW#3 (Oliver Kiehne) PRIVATE 32.021773° -103.559738°   C-3581 ENG#4 BLM 32.066083° -103.895024°   C-3595 Oliver Kiehne house well #2 PRIVATE 32.025484° -103.682529°   C-3596 CW#2 (Oliver Kiehne) PRIVATE 32.021793° -103.559018°	C-3483POD5	CW#5 (Oliver Kiehne)	PRIVATE	32.021692° - 103.560158°
C-3577CW#3 (Oliver Kiehne)PRIVATE32.021773° -103.559738°C-3581ENG#4BLM32.066083° -103.895024°C-3595Oliver Kiehne house well #2PRIVATE32.025484° -103.682529°C-3596CW#2 (Oliver Kiehne)PRIVATE32.021793° -103.559018°	C-3554	Jesse Baker #1 well	PRIVATE	32.071937° -103.723030°
C-3581 ENG#4 BLM 32.066083° -103.895024°   C-3595 Oliver Kiehne house well #2 PRIVATE 32.025484° -103.682529°   C-3596 CW#2 (Oliver Kiehne) PRIVATE 32.021793° -103.559018°	C-3577	CW#3 (Oliver Kiehne)	PRIVATE	32.021773° -103.559738°
C-3595   Oliver Kiehne house well #2   PRIVATE   32.025484° -103.682529°     C-3596   CW#2 (Oliver Kiehne)   PRIVATE   32.021793° -103.559018°	C-3581	ENG#4	BLM	32.066083° -103.895024°
C-3596 CW#2 (Oliver Kiehne) PRIVATE 32.021793° -103.559018°	C-3595	Oliver Kiehne house well #2	PRIVATE	32.025484° -103.682529°
	C-3596	CW#2 (Oliver Kiehne)	PRIVATE	32.021793° -103.559018°

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**GRR Inc.** 

LAND

NMOSE WELL NUMBER WELL COMMON NAME

CDC	10	CAT	ION
GPS	LU	CAI	ION

		OWNERSHIP		
C-3614	Dale Hood #2 well	PRIVATE	32.449290° -104.214500°	
C-3639	Jesse Baker #2 well	PRIVATE	32.073692° -103.727121°	
C-3679	McCloy-Batty	PRIVATE	32.215790° -103.537690°	
C-3689	Winston Barn_South	PRIVATE	32.511504° -104.139073°	
C-3731	Ballard Construction	PRIVATE	32.458551° -104.144219°	
C-3764	Watts#4	PRIVATE	32.443360° -103.942890°	
C-3795	Beckham#6	BLM	32.023434°-103.321968°	
C-3821	Three River Trucking	PRIVATE	32.34636° -104.21355	
C-3824	Collins	PRIVATE	32.224053° -104.090129°	
C-3829	Jesse Baker #3 well	PRIVATE	32.072545°-103.722258°	
C-3830	Paduca	BLM	32.156400° -103.742060°	
C-3836	Granger	PRIVATE	32.10073° -104.10284°	
C-384	ROCKHOUSE Ranch Well - Rockcrusher	PRIVATE	32.481275° -104.420706°	
C-459	Walker	PRIVATE	32.3379° -104.1498°	
C-496pod2	Munoz #3 Trash Pit Well	PRIVATE	32.34224° -104.15365°	
C-496pod3&4	Munoz #2 Corner of Porter & Derrick	PRIVATE	32.34182° -104.15272°	
C-552	Dale Hood #1 well	PRIVATE	32.448720° -104.214330°	
C-764	Mike Vasquez	PRIVATE	32.230553° -104.083518°	
C-766(old)	Grandi	PRIVATE	32.32352° -104.16941°	
C-93-S	Don Kidd well	PRIVATE	32.344876 -104.151793	
C-987	ROCKY ARROYO - HOUSE	PRIVATE	32.457049° -104.461506°	
C-98-A	Bindel well	PRIVATE	32.335125° -104.187255°	
CP-1170POD1	Beckham#1	PRIVATE	32.065889° -103.312583°	
CP-1201	Winston Ballard	BLM	32.580380° -104.115980°	
CP-1202	Winston Ballard	BLM	32.538178° -104.046024°	
CP-1231	Winston Ballard	PRIVATE	32.618968° -104.122690°	
CP-1263POD5	Beckham#5	PRIVATE	32.065670° -103.307530°	
CP-1414	Crawford #1	PRIVATE	32.238380° -103.260890°	
CP-1414 POD 1	RRR	PRIVATE	32.23911° -103.25988°	
CP-1414 POD 2	RRR	PRIVATE	32.23914° -103.25981°	
CP-519	Bond_Private	PRIVATE	32.485546 -104.117583	
CP-556	Jimmy Mills (Stacy)	STATE	32.317170° -103.495080°	
CP-626	OI Loco (W)	STATE	32.692660° -104.068064°	
CP-626-S	Beach Exploration/ OI Loco (E)	STATE	32.694229° -104.064759°	
CP-73	Laguna #1	BLM	32.615015°-103.747615°	
CP-74	Laguna #2	BLM	32.615255°-103.747688°	
CP-741	Jimmy Richardson	BLM	32.61913° -104.06101°	
CP-742	Jimmy Richardson	BLM	32.614061° -104.017211°	
CP-742	Hidden Well	BLM	32.614061 -104.017211	
CP-745	Leaning Tower of Pisa	BLM	32.584619° -104.037179°	
CP-75	Laguna #3	BLM	32.615499°-103.747715°	
CP-924	Winston Ballard	BLM	32.545888° -104.110114°	
CP-926	Winchester well (Winston)	BLM	32.601125° -104.128358°	

	GRR	Inc.	
NMOSE WELL NUMBER	WELL COMMON NAME	LAND OWNERSHIP	GPS LOCATION
J-27	Beckham	PRIVATE	32.020403° -103.299333°
J-5	EPNG Jal Well	PRIVATE	32.050232° -103.313117°
J-33	Beckham	PRIVATE	32.016443° -103.297714°
J-34	Beckham	PRIVATE	32.016443° -103.297714°
J-35	Beckham	PRIVATE	32.016443° -103.297714°
L-10167	Angell Ranch well	PRIVATE	32.785847° -103.644705°
L-10613	Northcutt3 (2nd House well)	PRIVATE	32.687922°-103.472452°
L-11281	Northcutt4	PRIVATE	32.687675°-103.471512°
L-12459	Northcutt1 (House well)	PRIVATE	32.689498°-103.472697°
L-12462	Northcutt8 Private Well	PRIVATE	32.686238°-103.435409°
L-13049	EPNG Maljamar well	PRIVATE	32.81274° -103.67730°
L-13129	Pearce State	STATE	32.726305°-103.553172°
L-13179	Pearce Trust	STATE	32.731304°-103.548461°
L-13384	Northcutt7 (State) CAZA	STATE	32.694651°-103.434997°
L-1880S-2	HB Intrepid well #7	PRIVATE	32.842212° -103.621299°
L-1880S-3	HB Intrepid well #8	PRIVATE	32.852415° -103.620405°
L-1881	HB Intrepid well #1	PRIVATE	32.829124° -103.624139°
L-1883	HB Intrepid well #4	PRIVATE	32.828041° -103.607654°
L-3887	Northcutt2 (Tower or Pond well)	PRIVATE	32.689036°-103.472437°
L-5434	Northcutt5 (State)	STATE	32.694074°-103.405111°
L-5434-S	Northcutt6 (State)	STATE	32.693355°-103.407004°
RA-14	Horner Can	PRIVATE	32.89348° -104.37208°
RA-1474	Irvin Smith	PRIVATE	32.705773° -104.393043°
RA-1474-B	NLake WS / Jack Clayton	PRIVATE	32.561221°-104.293095°
RA-9193	Angell Ranch North Hummingbird	PRIVATE	32.885162° -103.676376°
SP-55 & SP-1279-A	Blue Springs Surface POD	PRIVATE	32.181358° -104.294009°
SP-55 & SP-1279 (Bounds)	Bounds Surface POD	PRIVATE	32.203875° -104.247076°
SP-55 & SP-1279 (Wilson)	Wilson Surface POD	PRIVATE	32.243010° -104.052197°

City Treated Effluent City of Carlsbad Waste Treatment PRIVATE 32.411122° -104.177030° Plant Mine Industrial Mosaic Industrial Water PRIVATE 32.370286° -103.947839° Mobley State Well (NO Mobley Ranch STATE 32.308859° -103.891806° OSE) EPNG Industrial Monument Water Well Pipeline (Oil PRIVATE 32.512943° -103.290300° Center, Eunice) MCOX Commercial Matt Cox Commercial PRIVATE 32.529431° -104.188017° AMAX Mine Industrial Mosaic Industrial Water N/A VARIOUS TAPS WAG Mine Industrial Mosaic Industrial Water N/A VARIOUS TAPS **HB Mine Industrial** Intrepid Industrial Water N/A VARIOUS TAPS

# Mesquite

#### **Cedar Canyon**

Major Source: C464 (McDonald) Sec. 13 T24S R28E Secondary Source: C-00738 (McDonald/Faulk) Sec. 12 T24S R28E

#### Corral Fly – South of Cedar Canyon

Major Source: C464 (McDonald) Sec. 13 T24S R28E Secondary Source: C-00738 (McDonald/Faulk) Sec. 12 T24S R28E

#### Cypress - North of Cedar Canyon

Major Source: Caviness B: C-501-AS2 Sec 23 T28S R15E Secondary Source: George Arnis; C-1303

# Sand Dunes - new frac pond

Major Source: 128 Fresh Water Pond (Mesquite/Mosaic) – located at MM 4 on 128; 240,000 bbl pond

Secondary Source: George Arnis; C-1303

# Mesa Verde – east of Sand Dunes

Major Source: 128 Fresh Water Pond (Mesquite/Mosaic) – located at MM 4 on 128; 240,000 bbl pond

Secondary Source: Unknown at this time; needs coordinates to determine secondary source

#### Smokey Bits/Ivore/Misty – had posiden tanks before

Major Source: Unknown at this time; need coordinates to determine major source Secondary Source: Unknown at this time; needs coordinates to determine secondary source

### Red Tank/Lost Tank

Major Source: Unknown at this time; need coordinates to determine major source Secondary Source: Unknown at this time; needs coordinates to determine secondary source

### Peaches

Major Source: Unknown at this time; need coordinates to determine major source Secondary Source: Unknown at this time; needs coordinates to determine secondary source











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# AERIAL MAP



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SCALE: NOT TO SCALE

SEC. <u>33</u> 1WP. <u>23-S</u> RGE. <u>31-E</u>		
SURVEYN.M.P.M.		
COUNTYEDDY	4 – " I	Community of the second
DESCRIPTION 270' FNL & 869' FWL	Asel	Surveying
ELEVATION 3376.1'	HOBBS, NEW	MEXICO - 575-393-9148
OPERATOROXY_USA_INC.		
LEASE IRIDIUM MOPI "28-21" FEDERAL	СОМ #172Н	

Date Staked:	1-15-18	
Lease / Well Name:	IRIdium MOPI 28-21 Fed Com #17	2 H
Legal Description:	270' FNL 869' EWL SEC 33 T235 R	316
Latitude:	32" 16' 02.78"	NAD 83
Longitude:	-1030 47' 18,52"	NAD 83
· X:	709745.15	NAD 83
Y:	461434.50	NAD 83
Elevation:	3374.1	NAD 83
Move information:		
County:	Eddy	
Surface Owner	BLM	<u></u>
Nearest Residence:	?	·
Nearest Water Well:		
V-Door:	EAST	
Top soil:	West	
Road Description:	5W LOF From SoJIH	
New Road:		
Interim Poclamatica	ED' E TH	
	<u>30 300/N</u>	
	ESSIE BASSETT-BLM Jim WILSON-Ory	
OATE _	1-25-18	

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### Surface Use Plan of Operations

Operator Name/Number:	<u>OXY USA Inc. – 16696</u>
Lease Name/Number:	Iridium MDP1 28-21 Federal Com #172H
Pool Name/Number:	Wildcat Wolfcamp
Surface Location:	270 FNL 869 FWL NWNW (D) Sec 33 T23S R31E - NMNM045236
Bottom Hole Location:	180 FNL 1260 FWL NWNW (D) Sec 21 T23S R31E - NMNM038464

#### 1. Existing Roads

- a. A copy of the USGS "Los Medanos, NM" quadrangle map is attached showing the proposed location. The well location is spotted on the map, which shows the existing road system.
- b. The well was staked by Terry J. Asel, Certificate No. 15079 on 1/31/18, certified 3/23/18.
- c. Directions to Location: From the intersection of NM State Hwy 128 and CR 787 (Twin Wells Rd), go southeast on SH 128 for 1.1 miles. Turn right on caliche road and go south for 1.5 miles. Turn left and go east for 0.1 miles. Turn left on proposed road and go north for 36.7 feet to location.

#### 2. New or Reconstructed Access Roads:

- a. A new access road will be built. The access road will run from an existing pad going 36.7' north through pasture to southwest corner of the pad.
- b. The maximum width of the road will be 14'. It will be crowned and made up of 6" of rolled and compacted caliche. Water will be deflected, as necessary, to avoid accumulation and prevent surface erosion.
- c. Surface material will be native caliche. This material will be obtained from a BLM approved pit nearest in proximity to the location. The average grade will be approximately 1%.
- d. No cattle guards, grates or fence cuts will be required. Turnouts every 1000' as needed.
- e. Blade, water and repair existing caliche roads as needed.
- f. Water Bars will be incorporated every 200' during the construction of the road.

#### 3. Location of Existing Wells:

Existing wells within a one mile radius of the proposed well are shown on attached plat.

#### 4. Location of Existing and/or Proposed Facilities:

- a. In the event the well is found productive, the Sand Dunes Iridium/Gold Central Tank Battery would be utilized and the necessary production equipment will be installed at the well site. See proposed facilities layout diagram.
- All flow lines will adhere to API standards. They will consist of either (A) 3 4" composite flowlines operating < 75% MAWP, surface to follow surveyed route. Survey of a strip of land 30' wide and 2427.2' in length crossing USA Land in Sections 28 & 33 T23S R31E, NMPM, Eddy County, NM and being 15' left and 15' right of the centerline survey. Or (B) 3 4" composite flowlines operating < 75% MAWP, surface to follow surveyed route. Survey of a strip of land 30' wide and 1105.2' in length crossing USA Land in Sections 28 & 33 T23S R31E, NMPM, Eddy County, NM and being 15' left and 1105.2' in length crossing USA Land in Sections 28 & 33 T23S R31E, NMPM, Eddy County, NM and being 15' left and 15' right of the centerline survey. Two–6" gas lift line operating <1500 psig, buried, lines to follow surveyed route. Survey of a strip of land 30' wide and 409.6' in length crossing USA Land in Sections 28 T23S R31E, NMPM, Eddy County, NM and being 15' left and 15' right of the centerline survey. Two–6" gas lift line operating <1500 psig, buried, lines to follow surveyed route. Survey of a strip of land 30' wide and 409.6' in length crossing USA Land in Sections 28 T23S R31E, NMPM, Eddy County, NM and being 15' left and 15' right of the centerline survey.</li>
- c. Electric line will follow a route approved by the BLM. Survey of a strip of land 30' wide and 417.3' in length crossing USA land in Sections 33 T23S R31E NMPM, Eddy County, NM and being 15' left and 15' right of the centerline survey, see attached.
- d. See attached for additional information on the Sand Dunes Iridium/Pure Gold Surface Production Facilities.

#### 5. Location and types of Water Supply

This well will be drilled using a combination of water mud systems. It will be obtained from commercial water stations in the area and will be hauled to location by transport truck using existing and proposed roads.

#### 6. Construction Materials:

#### Primary

All caliche utilized for the drilling pad and proposed access road will be obtained from an existing BLM/State/Fee approved pit or from prevailing deposits found on the location. Will use BLM recommended extra caliche from other locations close by for roads, if available.

#### Secondary

The secondary way of obtaining caliche to build locations and roads will be by "turning over" the location. This means, caliche will be obtained from the actual well site. A caliche permit will be obtained from BLM prior to pushing up any caliche. 2400 cubic yards is max amount of caliche needed for pad and roads. Amount will vary for each pad. The procedure below has been approved by BLM personnel:

- a. The top 6" of topsoil is pushed off and stockpiled along the side of the location.
- b. An approximate 120' X 120' area is used within the proposed well site to remove caliche.
- c. Subsoil is removed and piled alongside the 120' X 120' within the pad site.
- d. When caliche is found, material will be stockpiled within the pad site to build the location and road.
- e. Then subsoil is pushed back in the hole and caliche is spread accordingly across entire location and road.
- f. Once the well is drilled the stockpiled top soil will be used for interim reclamation and spread along areas where caliche is picked up and the location size is reduced. Neither caliche nor subsoil will be stockpiled outside of the well pad. Topsoil will be stockpiled along the edge of the pad as depicted in the attached plat.

#### 7. Methods of Handling Waste Material:

- a. A closed loop system will be utilized consisting of above ground steel tanks and haul-off bins. Disposal of liquids, drilling fluids and cuttings will be disposed of at an approved facility. Solids-CRI, Liquids-Laguna
- b. All trash, junk and other waste material will be contained in trash cages or bins to prevent scattering. When the job is completed, all contents will be removed and disposed of in an approved sanitary landfill.
- c. The supplier, including broken sacks, will pickup slats remaining after completion of well.
- d. A Porto-john will be provided for the rig crews. This equipment will be properly maintained during the drilling and completion operations and will be removed when all operations are complete.
- e. Disposal of fluids to be transported will be by the following companies. TFH Ltd, Laguna SWD Facility

#### 8. Ancillary Facilities: None needed.

#### 9. Well Site Layout:

The proposed well site layout with dimensions of the pad layout and equipment location.

V-Door – East CL Tanks – North Pad – 535' X 620' – 7 Well Pad

#### 10. Plans for Surface Reclamation:

a. After concluding the drilling and/or completion operations, if the well is found non-commercial, the caliche will be removed from the pad and transported to the original caliche pit or used for other drilling locations. The road will be reclaimed as directed by the BLM. The original topsoil will again be returned to the pad and contoured, as close as possible, to the original topography, and the area will be seeded with an approved BLM mixture to re-establish vegetation.

 b. If the well is deemed commercially productive, caliche from the areas of the pad site not required for operations will be reclaimed. The original topsoil will be returned to the area of the drill pad not necessary to operate the well. These unused areas of the drill pad will be contoured, as close as possible, to match the original topography, and the area will be seeded with an approved BLM mixture to re-establish vegetation.

#### **11.** Surface Ownership:

The surface is owned by the U.S. Government and is administered by the BLM. The surface is multiple use with the primary uses of the region for the grazing of livestock and the production of oil and gas. The surface is leased to: Richardson Cattle Co., P.O. Box 487, Carlsbad, NM 88221. They will be notified of our intention to drill prior to any activity.

#### 12. Other Information:

- a. The vegetation cover is generally sparse consisting of mesquite, yucca, shinnery oak, sandsage and perennial native range grass. The topsoil is sandy in nature. Wildlife in the area is also sparse consisting of deer, coyotes, rabbits, rodents, reptiles, dove and quail.
- b. There is no permanent or live water in the general proximity of the location.
- c. There are no dwellings within one mile of the proposed well site.
- d. Cultural Resources Examination–This well is located in the Permian Basin PA. Payment to be determined by BLM. This well shares the same pad as the Iridium MDP1 28-21 Federal Com #1H, 2H and Sterling Silver MDP1 33-4 Federal Com #1H, 2H, 171H, 172H.
- e. Copy of this application will be furnished to SWCA Environmental Consultants, 5647 Jefferson St. NE, Albuquerque, NM 87109. Potash lessee within one mile of surface location, Mosiaic Potash Carlsbad, Inc., 370 WIPP Rd., Carlsbad, NM 88220.

#### 13. Bond Coverage:

Bond coverage is Individual-NMB000862, Nationwide-ESB00226.

#### 14. Operators Representatives:

The OXY Permian representatives responsible for ensuring compliance of the surface use plan are listed below:

Van Barton	Corrie Hartman
Supt. Operations	Manager Asset
1502 West Commerce Dr.	P.O. Box 4294
Carlsbad, NM 88220	Houston, TX Carlsbad, NM 88220
Office - 575-628-4111	Office – 713-215-7084
Cellular - 575-706-7671	Cellular – 832-541-3190
Jim Wilson	Cuong Q. Phan
Operation Specialist	RMT Leader
P.O. Box 50250	P.O. Box 4294
Midland, TX 79710	Houston, TX 77210
Cellular – 575-631-2442	Office – 713-513-6645
	Cellular – 281-832-0978

# Section 3 - Unlined Pits

#### Would you like to utilize Unlined Pit PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

Unlined pit PWD on or off channel:

Unlined pit PWD discharge volume (bbl/day):

Unlined pit specifications:

Precipitated solids disposal:

Decribe precipitated solids disposal:

Precipitated solids disposal permit:

Unlined pit precipitated solids disposal schedule:

Unlined pit precipitated solids disposal schedule attachment:

Unlined pit reclamation description:

Unlined pit reclamation attachment:

Unlined pit Monitor description:

**Unlined pit Monitor attachment:** 

Do you propose to put the produced water to beneficial use?

Beneficial use user confirmation:

Estimated depth of the shallowest aquifer (feet):

Does the produced water have an annual average Total Dissolved Solids (TDS) concentration equal to or less than that of the existing water to be protected?

TDS lab results:

Geologic and hydrologic evidence:

State authorization:

**Unlined Produced Water Pit Estimated percolation:** 

Unlined pit: do you have a reclamation bond for the pit?

Is the reclamation bond a rider under the BLM bond?

Unlined pit bond number:

Unlined pit bond amount:

Additional bond information attachment:

# Section 4 - Injection

Would you like to utilize Injection PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

Injection PWD discharge volume (bbl/day):

Injection well mineral owner:

PWD disturbance (acres):

PWD disturbance (acres):

Injection well type: Injection well number: Assigned injection well API number? Injection well new surface disturbance (acres): Minerals protection information: **Mineral protection attachment: Underground Injection Control (UIC) Permit? UIC Permit attachment:** 

# Section 5 - Surface Discharge

Would you like to utilize Surface Discharge PWD options? NO

Produced Water Disposal (PWD) Location: **PWD** surface owner: Surface discharge PWD discharge volume (bbl/day): Surface Discharge NPDES Permit? Surface Discharge NPDES Permit attachment: Surface Discharge site facilities information: Surface discharge site facilities map:

# **Section 6 - Other**

Would you like to utilize Other PWD options? NO

Produced Water Disposal (PWD) Location: PWD surface owner: Other PWD discharge volume (bbl/day): Other PWD type description: Other PWD type attachment:

Have other regulatory requirements been met?

Other regulatory requirements attachment:

Injection well name:

#### Injection well API number:

**PWD** disturbance (acres):

**PWD disturbance (acres):** 



U.S. Department of the Interior BUREAU OF LAND MANAGEMENT

# **Bond Information**

Federal/Indian APD: FED

BLM Bond number: ESB000226

**BIA Bond number:** 

Do you have a reclamation bond? NO

Is the reclamation bond a rider under the BLM bond?

Is the reclamation bond BLM or Forest Service?

BLM reclamation bond number:

Forest Service reclamation bond number:

Forest Service reclamation bond attachment:

**Reclamation bond number:** 

**Reclamation bond amount:** 

**Reclamation bond rider amount:** 

Additional reclamation bond information attachment:

# Bond Info Data Report

and the second

08/28/2018