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DISTRICT II-ARTESIA O.C.D.

Form 3160-3
(June 2015)

FORM APPROVED
OMB No. 1004-0137
Expires: January 31, 2018

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.
NMNM021640

6. If Indian, Allotee or Tribe Name

1a. Type of work: ☑ DRILL ☐ REENTER

1b. Type of Well: ☑ Oil Well ☐ Gas Well ☐ Other

1c. Type of Completion: ☐ Hydraulic Fracturing ☐ Single Zone ☑ Multiple Zone

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

8. Lease Name and Well No.
PRECIOUS 30-18 FEDERAL COM
176H 326187

2. Name of Operator
OXY USA INCORPORATED

9. API Well No.
30-015-46462

3a. Address	3b. Phone No. *(include area code)*	10. Field and Pool, or Exploratory
5 Greenway Plaza, Suite 110 Houston TX 77046	(713)366-5716	WILDCAT BONE WOLFCAMP / WOLFCA

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*

At surface NENE / 520 FNL / 1030 FEL / LAT 32.266748 / LONG -103.811687

At proposed prod. zone NESE / 2626 FSL / 440 FEL / LAT 32.304416 / LONG -103.809811

11. Sec., T. R. M. or Blk. and Survey or Area
SEC 31 / T23S / R31E / NMP

14. Distance in miles and direction from nearest town or post office*	12. County or Parish	13. State
8 miles	EDDY	NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)	16. No of acres in lease	17. Spacing Unit dedicated to this well
100 feet	323.59	800

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.	19. Proposed Depth	20. BLM/BIA Bond No. in file
35 feet	11326 feet / 24884 feet	FED: ESB000226

21. Elevations (Show whether DF, KDB, RT, GL, etc.)	22. Approximate date work will start*	23. Estimated duration
3348 feet	01/01/2020	20 days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, and the Hydraulic Fracturing rule per 43 CFR 3162.3-3 (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 System Lands, the SUPO must be filed with the appropriate Forest Service Office).
4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
5. Operator certification.
6. Such other site specific information and/or plans as may be requested by the BLM.

25. Signature	Name *(Printed/Typed)*	Date
(Electronic Submission)	Sarah Chapman / Ph: (713)350-4997	02/13/2019

Title
Regulatory Specialist

Approved by *(Signature)*	Name *(Printed/Typed)*	Date
(Electronic Submission)	Cody Layton / Ph: (575)234-5959	11/13/2019

Title	Office
Assistant Field Manager Lands & Minerals	CARLSBAD

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
Conditions of approval, if any, are attached.

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

APPROVED WITH CONDITIONS

Approval Date: 11/13/2019

(Continued on page 2)

*(Instructions on page 2)

RuP 12-5-19

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.

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Additional Operator Remarks

Location of Well

1. SHL: NENE / 520 FNL / 1030 FEL / TWSP: 23S / RANGE: 31E / SECTION: 31 / LAT: 32.266748 / LONG: -103.811687 (TVD: 0 feet, MD: 0 feet)

PPP: SESE / 100 FSL / 440 FEL / TWSP: 23S / RANGE: 31E / SECTION: 30 / LAT: 32.26845 / LONG: -103.812596 (TVD: 11419 feet, MD: 11772 feet)

PPP: SENE / 2639 FSL / 441 FEL / TWSP: 23S / RANGE: 31E / SECTION: 30 / LAT: 32.275431 / LONG: -103.809787 (TVD: 11399 feet, MD: 14300 feet)

PPP: NESE / 1320 FSL / 440 FEL / TWSP: 23S / RANGE: 31E / SECTION: 19 / LAT: 32.286326 / LONG: -103.809796 (TVD: 11371 feet, MD: 18300 feet)

PPP: NENE / 1312 FNL / 438 FEL / TWSP: 23S / RANGE: 31E / SECTION: 18 / LAT: 32.293592 / LONG: -103.809803 (TVD: 11353 feet, MD: 20900 feet)

PPP: SESE / 10 FSL / 437 FEL / TWSP: 23S / RANGE: 31E / SECTION: 18 / LAT: 32.297224 / LONG: -103.809806 (TVD: 11345 feet, MD: 22200 feet)

BHL: NESE / 2626 FSL / 440 FEL / TWSP: 23S / RANGE: 31E / SECTION: 18 / LAT: 32.304416 / LONG: -103.809811 (TVD: 11326 feet, MD: 24884 feet)

BLM Point of Contact

Name: Deborah Ham

Title: Legal Landlaw Examiner

Phone: 5752345965

Email: dham@blm.gov

Approval Date: 11/13/2019

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.

PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Oxy USA Incorporated
LEASE NO.:	NMNM0546732A
WELL NAME & NO.:	Precious 30-18 Federal Com 176H
SURFACE HOLE FOOTAGE:	520'/N & 1030'/E
BOTTOM HOLE FOOTAGE	2624'/S & 440'/E
LOCATION:	Section 31, T.23 S., R.31 E., NMPM
COUNTY:	Eddy County, New Mexico

COA

H2S	○ Yes	○ No	
Potash	○ None	○ Secretary	◉ R-111-P
Cave/Karst Potential	◉ Low	○ Medium	○ High
Variance	○ None	◉ Flex Hose	○ Other
Wellhead	○ Conventional	○ Multibowl	◉ Both
Other	☐ 4 String Area	☐ Capitan Reef	☐ WIPP
Other	☑ Fluid Filled	☑ Cement Squeeze	☐ Pilot Hole
Special Requirements	☐ Water Disposal	☑ COM	☐ Unit

Break Testing	○ Yes	◉ No

A. HYDROGEN SULFIDE

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

Primary Casing Design:

1. The **13-3/8** inch surface casing shall be set at approximately **433** feet (a minimum of **70 feet (Eddy County)** into the Rustler Anhydrite and above the salt) and cemented to the surface.

    a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of

six hours after pumping cement and ideally between 8-10 hours after completing the cement job.

b. Wait on cement (WOC) time for a primary cement job will be a minimum of **24 hours in the Potash Area** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)
c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
d. If cement falls back, remedial cementing will be done prior to drilling out that string.

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

Option 1 (Single Stage):

- Cement to surface. If cement does not circulate see B.1.a, c-d above. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.**

Option 2:

Operator has proposed a DV tool, the depth may be adjusted as long as the cement is changed proportionally. The DV tool may be cancelled if cement circulates to surface on the first stage.

a. First stage to DV tool: Cement to circulate. If cement does not circulate off the DV tool, contact the appropriate BLM office before proceeding with second stage cement job.

b. Second stage above DV tool:

- 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 cave/karst or potash.

2nd 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 2nd intermediate casing is:

Option 1 (Single Stage):

- Cement to surface. If cement does not circulate see B.1.a, c-d above. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.**

Option 2:

Operator has proposed a DV tool, the depth may be adjusted as long as the cement is changed proportionally. The DV tool may be cancelled if cement circulates to surface on the first stage.

c. First stage to DV tool: Cement to circulate. If cement does not circulate off the DV tool, contact the appropriate BLM office before proceeding with second stage cement job.

d. Second stage above DV tool:

- 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 cave/karst or potash.

Operator has proposed to pump down 9-5/8" X 7-5/8" annulus. Operator must run a CBL from TD of the 7-5/8" casing to surface. Submit results to BLM. Excess calculates to 9% - additional cement might be required.

4. The minimum required fill of cement behind the **5-1/2** inch production casing is:

- Cement should tie-back **500 feet** into the previous casing. Operator shall provide method of verification. **Excess calculates to 20% - 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:

a. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **3000 (3M)** psi.

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

Option 2:

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

    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.

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. When the Communitization Agreement number is known, it shall also be on the sign.

Offline Cementing

Contact the BLM prior to the commencement of any offline cementing procedure.

BOP Break Testing Variance

- BOP break testing is not permitted on this well pending submittion of break testing sundry.

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)

☒ 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 2nd 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.

2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log. The casing intergrity test can be done (prior to the cement setting up) immediately after bumping the plug.

3. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements. The casing intergrity test can be done (prior to the cement setting up) immediately after bumping the plug.

4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.

5. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.

6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.

7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.
8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

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. 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.

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 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, except the casing pressure test can be initiated immediately after bumping the plug (only applies to single stage cement jobs).

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.

PECOS DISTRICT
SURFACE USE
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Oxy USA Incorporated
WELL NAME & NO.:	Arkenstone 31 Federal Com 176H
SURFACE HOLE FOOTAGE:	100'/N & 1095'/E
BOTTOM HOLE FOOTAGE	20'/S & 340'/E
LOCATION:	Section 31, T.23 S., R.32 E., NMPM
COUNTY:	Eddy County, New Mexico

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.

Approval Date: 11/13/2019

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.

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.

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.

This authorization is subject to your Certificate of Participation and/or Certificate of Inclusion under the New Mexico Candidate Conservation Agreement. Because it involves surface disturbing activities covered under your Certificate, your Habitat Conservation Fund Account with the Center of Excellence for Hazardous Materials Management (CEHMM) will be debited according to Exhibit B Part 2 of the Certificate of Participation.

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.

Cattleguards
Where a permanent cattlegaurd is approved, an appropriately sized cattleguard(s) sufficient to carry out the project shall be installed and maintained at fence crossing(s). Any existing cattleguard(s) on the access road 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 cattleguard(s) that are in place and are utilized during lease operations. A gate shall be constructed on one side of the cattleguard and fastened securely to H-braces.

Fence Requirement
Where entry granted across a fence line, the fence must be braced and tied off on both sides of the passageway prior to cutting. Once the work is completed, the fence will be restored to its prior condition, or better. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fence(s).

Livestock Watering Requirement
Structures that provide water to livestock, such as windmills, pipelines, drinking troughs, and earthen reservoirs, will be avoided by moving the proposed action

Potash Minerals
Measures to minimize impacts to potash mineral reserves have been considered during the BLM's planning process by establishment of the Twin Wells Drill Island. No additional special mitigation or requirements have been identified by the BLM.

AFMSS

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

Drilling Plan Data Report

11/21/2019

APD ID: 10400039136

Submission Date: 02/13/2019

Highlighted data reflects the most recent changes

Show Final Text

Operator Name: OXY USA INCORPORATED

Well Name: PRECIOUS 30-18 FEDERAL COM

Well Number: 176H

Well Type: OIL WELL

Well Work Type: Drill

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
1	RUSTLER	3348	383	383	ANHYDRITE,SHALE,DOLOMITE	USEABLE WATER	N
2	SALADO	2638	710	710	HALITE,ANHYDRITE,SHALE,DOLOMITE	OTHER : SALT	N
3	CASTILE	743	2605	2605	ANHYDRITE	OTHER : salt	N
4	LAMAR	-735	4083	4083	LIMESTONE,SILTSTONE,SANDSTONE	OTHER,NATURAL GAS,OIL : BRINE	N
5	BELL CANYON	-773	4121	4121	SILTSTONE,SANDSTONE	USEABLE WATER,OTHER,NATURAL GAS,OIL : BRINE	N
6	CHERRY CANYON	-1655	5003	5003	SILTSTONE,SANDSTONE	OTHER,NATURAL GAS,OIL : BRINE	N
7	BRUSHY CANYON	-2935	6283	6283	LIMESTONE,SILTSTONE,SANDSTONE	OTHER,NATURAL GAS,OIL : BRINE	N
8	BONE SPRING	-4617	7965	8000	LIMESTONE,SILTSTONE,SANDSTONE	NATURAL GAS,OIL	Y
9	BONE SPRING 1ST	-5650	8998	9000	LIMESTONE,SILTSTONE,SANDSTONE	NATURAL GAS,OIL	Y
10	BONE SPRING 2ND	-5911	9259	9300	LIMESTONE,SILTSTONE,SANDSTONE	NATURAL GAS,OIL	N
11	BONE SPRING 3RD	-6782	10130	10200	LIMESTONE,SILTSTONE,SANDSTONE	NATURAL GAS,OIL	Y
12	WOLFCAMP	-7950	11298	11400	LIMESTONE,SILTSTONE,SANDSTONE	NATURAL GAS,OIL	Y

Section 2 - Blowout Prevention

Pressure Rating (PSI): 5M

Rating Depth: 9836

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 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. A multibowl wellhead 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 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 under the 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 casing point is shallower than 3rd Bone Spring or 10,000 TVD. 3. Full BOP test will be required prior to drilling any production section.

Choke Diagram Attachment:

Precious30_18FdCom176H_ChkManifold_20190213142052.pdf

BOP Diagram Attachment:

Precious30_18FdCom176H_BOP_20190213142104.pdf

Precious30_18FdCom176H_FlexHoseCert_20190213142112.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	433	0	433			433	J-55	54.5	BUTT	1.125	1.2	BUOY	1.4	BUOY	1.4
2	INTERMEDIATE	12.25	9.625	NEW	API	N	0	4133	0	4133			4133	L-80	43.5	BUTT	1.125	1.2	BUOY	1.4	BUOY	1.4
3	INTERMEDIATE	8.5	7.625	NEW	API	N	0	10894	0	10894			10894	HCL-80	26.4	OTHER - SF/FJ	1.125	1.2	BUOY	1.4	BUOY	1.4
4	PRODUCTION	6.75	5.5	NEW	API	N	0	24883	0	11320			24883	P-110	20	OTHER - DQX/SFTORQ	1.125	1.2	BUOY	1.4	BUOY	1.4

Casing Attachments

Operator Name: OXY USA INCORPORATED

Well Name: PRECIOUS 30-18 FEDERAL COM **Well Number:** 176H

Casing Attachments

Casing ID: 1 **String Type:** SURFACE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Precious30_18FdCom176H_CsgCriteria_20190213142444.pdf

Casing ID: 2 **String Type:** INTERMEDIATE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Precious30_18FdCom176H_CsgCriteria_20190213142453.pdf

Casing ID: 3 **String Type:** INTERMEDIATE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Precious30_18FdCom176H_CsgCriteria_20190213142536.pdf

Precious30_18FdCom176H_7.625_26.4_HCL80_TMKUPFJ_20190213142547.pdf

Precious30_18FdCom176H_7.625_26.4_HCL80_TMKUPSF_20190213142555.pdf

Operator Name: OXY USA INCORPORATED

Well Name: PRECIOUS 30-18 FEDERAL COM **Well Number:** 176H

Casing Attachments

Casing ID: 4 **String Type:** PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Precious30_18FdCom176H_5.5_20_P110_DQX_20190213142653.pdf

Precious30_18FdCom176H_5.5_20_P110HC_TMKUPSFTORQ_20190213142703.pdf

Precious30_18FdCom176H_CsgCriteria_20190213142710.pdf

Precious30_18FdCom176H_5.5_20_P110CY_TMKUPDQWTORQ_20190725092908.pdf

Section 4 - Cement

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead		0	433	464	1.33	14.8	617	100	Cl C	Accelerator
INTERMEDIATE	Lead		0	3633	884	1.88	12.9	1662	50	POZZOLAN	RETARDER
INTERMEDIATE	Tail		3633	4133	155	1.33	14.8	206	20	Cl C	ACCELERATOR
INTERMEDIATE	Lead		7965	10894	144	1.65	13.2	237	5	CL H	RETARDER, DISPERSANT, SALT
INTERMEDIATE	Tail		0	7965	416	1.92	12.9	799	25	Cl C	Accelerator
PRODUCTION	Lead		10394	24883	1060	1.38	13.2	1463	20	Cl H	Retarder, Dispersant, Salt

Operator Name: OXY USA INCORPORATED

Well Name: PRECIOUS 30-18 FEDERAL COM **Well Number:** 176H

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 (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
10894	24883	OTHER : Water-Based and/or Oil-Based Mud	9.5	12							
433	4133	OTHER : Saturated Brine Based Mud	9.8	10							
4133	10894	OTHER : Water-Based and/or Oil-Based Mud	8	9.6							
0	433	WATER-BASED MUD	8.6	8.8							

Operator Name: OXY USA INCORPORATED

Well Name: PRECIOUS 30-18 FEDERAL COM **Well Number:** 176H

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: 7124 **Anticipated Surface Pressure:** 4611.82

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:

Precious30_18FdCom176H_H2S1_20190213143838.pdf

Precious30_18FdCom176H_H2S2_20190213143848.pdf

Precious30_18FdCom176H_EmergencyContacts_20190213143904.pdf

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

Precious30_18FdCom176H_DrillPlot_20190213143917.pdf

Precious30_18FdCom176H_DirectPlan_20190213143924.pdf

Other proposed operations facets description:

OXY respectfully requests a variance to run the 9-5/8" and/or 7-5/8" intermediate casing strings offline.

*The 3rd Bone Spring Geologic Formation Top that was provided was the 3rd Bone Spring Lime Formation Top as required by the Potash operator's agreement. The only selection under Section 1 Geologic Formations was the Bone Spring 3rd.

OXY requests the option to set casing shallower yet still below the salts if losses or hole conditions require this. Cement volumes may be adjusted if casing is set shallower and a DV tool will be run in case a contingency second stage is required for cement to reach surface. If cement circulated to surface during first stage we will drop a cancelation cone and not pump the second stage.

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

OXY requests to pump a two stage cement 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 bradenhead squeeze with planned cement from 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 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.

Well will be drilled with a walking/skidding operation. Plan to drill the multiple 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.

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.

Other proposed operations facets attachment:

Precious30_18FdCom176H_SpudRigData_20190213143944.pdf
Precious30_18FdCom176H_GasCapPlan_20190213143952.pdf
Precious30_18FdCom176H_DrillPlan_20190725092935.pdf

Other Variance attachment:

Precious30_18FdCom176H_OfflineCmtgDetail_20190725092946.pdf

Emergency Equipment Requirements

1. Well control equipment

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. Protective equipment for personnel

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. Hydrogen sulfide sensors and alarms

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. Mud Program

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. Metallurgy

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. Well Testing

No drill stem test will be performed on this well.

8. Evacuation plan

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

9. Designated area

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:	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.
Tool pusher:	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

		rotating DP.
	2.	Check monitor for point of release.
	3.	Report to nearest upwind designated safe briefing / muster area.
	4.	Check status of personnel (in an attempt to rescue, use the buddy system).
	5.	Assigns least essential person to notify Drill Site Manager and tool pusher by quickest means in case of their absence.
	6.	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.	Report to nearest upwind designated safe briefing / muster area.
	2.	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.

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

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.

Checked by:_____ Date:_____

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.

Important: 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.

Table i
Toxicity of various gases

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	Cl2	2.45	1 ppm	4 ppm/hr	1000 ppm
Carbon Monoxide	Co	0.97	50 ppm	400 ppm/hr	1000 ppm
Carbon Dioxide	Co2	1.52	5000 ppm	5%	10%
Methane	Ch4	0.55	90,000 ppm	Combustible above 5% in air	

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

Percent (%)	Ppm	Concentration Grains 100 std. Ft3*	Physical effects
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 face-piece 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.

Rescue
First aid for H2S poisoning

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 Permian Delaware NM Basin Drilling & Completions Incident Reporting

OXY Permian Crisis Team Hotline Notification

Person	Location	Office Phone	Cell/Mobile Phone	Home Phone	Pager Number
Drilling & Completions Department					
Drilling & Completions Manager: John Willis	Houston	(713) 366-5556	(713) 259-1417		
Drilling Superintendent: Simon Benavides	Houston	(713) 215-7403	(832) 528-3547		
Completions Superintendent: Chris Winter	Houston	(713) 366-5212	(806) 239-8774		
Drilling Eng. Supervisor: Diego Tellez	Houston	(713) 350-4602	(713) 303-4932		
Drilling Eng. Supervisor: Randy Neel	Houston	(713) 215-7987	(713) 517-5544		
Completions Eng. Supervisor: Evan Hinkel	Houston	(713) 366-5436	(281) 236-6153		
Drilling & Completions HES Lead. Ryan Green	Houston	(713) 336-5753	(281) 520-5216		
Drilling & Completions HES Advisor:Kenny Williams	Carlsbad	(432) 686-1434	(337) 208-0911		
Drilling & Completions HES Advisor:Kyle Holden	Carlsbad	(432) 686-1435	(661) 369-5328		
Drilling & Completions HES Advisor Sr:Dave Schmidt	Carlsbad		(559) 310-8572		
Drilling & Completions HES Advisor. :Seth Doyle	Carlsbad		(337) 499-0756		
HES / Enviromental & Regulatory Department	Location	Office	Cell Phone		
Jon Hamil-HES Manager	Houston	(713) 497-2494	(832) 537-9885		
Mark Birk-HES Manager	Houston	(713) 350-4615	(949) 413-3127		
Austin Tramell	Midland	(432) 699-4208	(575) 499-4919		
Rico Munoz	Midland	(432) 699-8366	(432) 803-4116		
Amber DuckWorth	Midland		(832) 966-1879		
Kelley Montgomery- Regulatory Manager	Houston	(713) 366-5716	(832) 454-8137		
Sandra Musallam -Regulatory Lead	Houston	+1 (713) 366-5106	+1 (713) 504-8577		
Bishop, Steve-DOT Pipeline Coordinator	Midland	432-685-5614			
Wilson, Dusty-Safety Advisor	Midland	432-685-5771	(432) 254-2336		
John W Dittrich Enviromental Advisor	Midland		(575) 390-2828		
William (Jack) Calhoun-Environmental Lead	Houston	713 (350) 4906	(281) 917-8571		
Robert Barrow-Risk Engineer Manager	Houston	(713) 366-5611	(832) 867-5336		
Sarah Holmes-HSE Cordinator	Midland	(432) 685-5758			
Administrative	Location	Office			
Sarah Holmes	Midland	(432) 685-5830			
Robertson, Debbie	Midland	(432) 685-5812			
Laci Hollaway	Midland	(432) 685-5716	(432) 631-6341		
Administrative	Location	Office			
Rosalinda Escajeda	Midland	(432) 685-5831			
Moreno, Leslie (contract)	Hobbs	(575) 397-8247			
Sehon, Angela (contractor)	Levelland	(806) 894-8347			
Vasquez, Claudia (contractor)	North Cowden	(432) 385-3120			
XstremeMD	Location	Office			
Medical Case Management	Orla, TX	(337) 205-9314			
Axiom Medical Consulting	Location	Office			
Medical Case Management		(877) 502-9466			
Regulatory Agencies					
Bureau of Land Management	Carlsbad, NM	(505) 887-6544			
Bureau of Land Management	Hobbs, NM	(505) 393-3612			
Bureau of Land Management	Roswell, NM	(505) 393-3612			
Bureau of Land Management	Santa Fe, NM	(505) 988-6030			
DOT Juisdictional Pipelines-Incident Reporting New Mexico Public Regulaion Commission	Santa Fe, NM	(505) 827-3549 (505) 490-2375			
DOT Juisdictional Pipelines-Incident Reporting Texas Railroad Commission	Austin, TX	(512) 463-6788			
EPA Hot Line	Dallas, Texas	(214) 665-6444			
Federal OSHA, Area Office	Lubbock, Texas	(806) 472-7681			
National Response Center	Washington, D. C.	(800) 424-8802			
National Infrastructure Coordinator Center		(202) 282-9201			
New Mexico Air Quality Bureau	Santa Fe, NM	(505) 827-1494			
New Mexico Oil Conservation Division	Artesia, NM	(505) 748-1283	After Hours (505) 370-7545		
New Mexico Oil Conservation Division	Hobbs, NM	(505) 393-6161			
New Mexico Oil Conservation Division	Santa Fe, NM	(505) 471-1068			
New Mexico OCD Environmental Bureau	Santa Fe, NM	(505) 827-7152 (505) 476-3470			
New Mexico Environmental Department	Hobbs, NM	(505) 827-9329			
NM State Emergency Response Center	Santa Fe, NM	(505) 827-9222			
Railroad Commission of TX	District 1 San Antonio, TX	(210) 227-1313			
Railroad Commission of TX	District 7C San Angelo, TX	(325) 657-7450			
Railroad Commission of TX	District 8, 8A Midland, TX	(432) 684-5581			
Texas Emergency Response Center	Austin, TX	(512) 463-7727			
TCEQ Air	Region 2 Lubbock, TX	(806) 796-3494			
TCEQ Water/Waste/Air	Region 3 Abilene, TX	(325) 698-9674			
TCEQ Water/Waste/Air	Region 7 Midland, TX	(432) 570-1359			
TCEQ Water/Waste/Air	Region 9 San Antonio, TX	(512) 734-7981			
TCEQ Water/Waste/Air	Region 8 San Angelo	(325) 655-9479			

Medical Facilities					
Abernathy Medical Clinic	Abernathy, TX	(806) 298-2524			
Alliance Hospital	Odessa, TX	(432) 550-1000			
Artesia General Hospital	Artesia, NM	(505) 748-3333			
Brownfield Regional Medical Center	Brownfield, TX	(806) 637-3551			
Cogdell Memorial Hospital	Snyder, TX	(325) 573-6374			
Covenant Hospital Levelland	Levelland, TX	(806) 894-4963			
Covenant Medical Center	Lubbock, TX	(806) 725-1011			
Covenant Medical Center Lakeside	Lubbock, TX	(806) 725-6000			
Covenant Family Health	Synder, TX	(325) 573-1300			
Crockett County Hospital	Ozona, TX	(325) 392-2671			
Guadalupe Medical Center	Carlsbad, NM	(505) 887-6633			
Lea Regional Hospital	Hobbs, NM	(505) 492-5000			
McCamey Hospital	McCamey, TX	(432) 652-8626			
Medical Arts Hospital	Lamesa, TX	(806) 872-2183			
Medical Center Hospital	Odessa, TX	(432) 640-4000			
Medi Center Hospital	San Angelo, TX	(325) 653-6741			
Memorial Hospital	Ft. Stockton	(432) 336-2241			
Memorial Hospital	Seminole, TX	(432) 758-5811			
Midland Memorial Hospital	Midland, TX	(432) 685-1111			
Nor-Lea General Hospital	Lovington, NM	(505) 396-6611			
Odessa Regional Hospital	Odessa, TX	(432) 334-8200			
Permian General Hospital	Andrews, TX	(432) 523-2200			
Reagan County Hospital	Big Lake, TX	(325) 884-2561			
Reeves County Hospital	Pecos, TX	(432) 447-3551			
Shannon Medical Center	San Angelo, TX	(325) 653-6741			
Union County General Hospital	Clayton, NM	(505) 374-2585			
University Medical Center	Lubbock, TX	(806) 725-8200			
Val Verde Regional Medical Center	Del Rio, TX	(830) 775-8566			
Ward Memorial Hospital	Monahans, TX	(432) 943-2511			
Yoakum County Hospital	Denver City, TX	(806) 592-5484			
Law Enforcement - Sheriff					
Andrews Cty Sheriff's Department	Andrews County(Andrews)	(432) 523-5545			
Crane Cty Sheriff's Department	Crane, County (Crane)	(432) 558-3571			
Crockett Cty Sheriff's Department	Crockett County (Ozona)	(325) 392-2661			
Dawson Cty Sheriff's Department	Dawson County (Lamesa)	(806) 872-7560			
Ector Cty Sheriff's Department	Ector County (Odessa)	(432) 335-3050			
Eddy Cty Sheriff's Department	Eddy County (Artesia)	(505) 746-2704			
Eddy Cty Sheriff's Department	Eddy County (Carlsbad)	(505) 887-7551			
Gaines Cty Sheriff's Department	Gaines County (Seminole)	(432) 758-9871			
Hockley Cty Sheriff's Department	Hockley County(Levelland)	(806) 894-3126			
Kent Cty (Jayton City Sheriff's Dept.)	Kent County(Jayton)	(806) 237-3801			
Lea Cty Sheriff's Department	Lea County (Eunice)	(505) 384-2020			
Lea Cty Sheriff's Department	Lea County (Hobbs)	(505) 393-2515			
Lea Cty Sheriff's Department	Lea County (Lovington)	(505) 396-3611			
Lubbock Cty Sheriff's Department	Lubbock Cty (Abernathy)	(806) 296-2724			
Midland Cty Sheriff's Department	Midland County (Midland)	(432) 688-1277			
Pecos Cty Sheriff's Department	Pecos County (Iraan)	(432) 639-2251			
Reeves Cty Sheriff's Department	Reeves County (Pecos)	(432) 445-4901			
Scurry Cty Sheriff's Department	Scurry County (Snyder)	(325) 573-3551			
Terry Cty Sheriff's Department	Terry County (Brownfield)	(806) 637-2212			
Union Cty Sheriff's Department	Union County (Clayton)	(505) 374-2583			
Upton Cty Sheriff's Department	Upton County (Rankin)	(432) 693-2422			
Ward Cty Sheriff's Department	Ward County (Monahans)	(432) 943-3254			
Yoakum City Sheriff's Department	Yoakum Co. (Denever City)	(806) 456-2377			

Law Enforcement - Police					
Abernathy City Police	Abernathy, TX	(806) 298-2545			
Andrews City Police	Andrews, TX	(432) 523-5675			
Artesia City Police	Artesia, NM	(505) 746-2704			
Brownfield City Police	Brownfield, TX	(806) 637-2544			
Carlsbad City Police	Carlsbad, NM	(505) 885-2111			
Clayton City Police	Clayton, NM	(505) 374-2504			
Denver City Police	Denver City, TX	(806) 592-3516			
Eunice City Police	Eunice, NM	(505) 394-2112			
Hobbs City Police	Hobbs, NM	(505) 397-9265 (505) 393-2677			
Jal City Police	Jal, NM	(505) 395-2501			
Jayton City Police	Jayton, TX	(806) 237-3801			
Lamesa City Police	Lamesa, TX	(806) 872-2121			
Levelland City Police	Levelland, TX	(806) 894-6164			
Lovington City Police	Lovington, NM	(505) 396-2811			
Midland City Police	Midland, TX	(432) 685-7113			
Monahans City Police	Monahans, TX	(432) 943-3254			
Odessa City Police	Odessa, TX	(432) 335-3378			
Seminole City Police	Seminole, TX	(432) 758-9871			
Snyder City Police	Snyder, TX	(325) 573-2611			
Sundown City Police	Sundown, TX	(806) 229-8241			
Law Enforcement - FBI					
FBI	Alburqueque, NM	(505) 224-2000			
FBI	Midland, TX	(432) 570-0255			
Law Enforcement - DPS					
NM State Police	Artesia, NM	(505) 746-2704			
NM State Police	Carlsbad, NM	(505) 885-3137			
NM State Police	Eunice, NM	(505) 392-5588			
NM State Police	Hobbs, NM	(505) 392-5588			
NM State Police	Clayton, NM	(505) 374-2473; 911			
TX Dept of Public Safety	Andrews, TX	(432) 524-1443			
TX Dept of Public Safety	Big Lake, TX	(325) 884-2301			
TX Dept of Public Safety	Brownfield, TX	(806) 637-2312			
TX Dept of Public Safety	Iraan, TX	(432) 639-3232			
TX Dept of Public Safety	Lamesa, TX	(806) 872-8675			
TX Dept of Public Safety	Levelland, TX	(806) 894-4385			
TX Dept of Public Safety	Lubbock, TX	(806) 747-4491			
TX Dept of Public Safety	Midland, TX	(432) 697-2211			
TX Dept of Public Safety	Monahans, TX	(432) 943-5857			
TX Dept of Public Safety	Odessa, TX	(432) 332-6100			
TX Dept of Public Safety	Ozona, TX	(325) 392-2621			
TX Dept of Public Safety	Pecos, TX	(432) 447-3533			
TX Dept of Public Safety	Seminole, TX	(432) 758-4041			
TX Dept of Public Safety	Snyder, TX	(325) 573-0113			
TX Dept of Public Safety	Terry County TX	(806) 637-8913			
TX Dept of Public Safety	Yoakum County TX	(806) 456-2377			

Firefighting & Rescue					
Abernathy	Abernathy, TX	(806) 298-2022			
Amistad/Rosebud	Amistad/Rosebud, NM	(505) 633-9113			
Andrews	Andrews, TX	(432) 523-4820 (432) 523-3111			
Artesia	Artesia, NM	(505) 746-5051			
Big Lake	Big Lake, TX	(325) 884-3650			
Brownfield-Administrative & other calls	Brownfield, TX	(816) 637-4547			
Brownfield emergency only	Brownfield, TX	911			
Carlsbad	Carlsbad, NM	(505) 885-3125			
Clayton	Clayton, NM	(505) 374-2435			
Cotton Center	Cotton Center, TX	(806) 879-2157			
Crane	Crane, TX	(432) 558-2361			
Del Rio	Del Rio, TX	(830) 774-8650			
Denver City	Denver City, TX	(806) 592-3516			
Eldorado	Eldorado, TX	(325) 853-2691			
Eunice	Eunice, NM	(505) 394-2111			
Garden City	Garden City, TX	(432) 354-2404			
Goldsmith	Goldsmith, TX	(432) 827-3445			
Hale Center	Hale Center, TX	(806) 839-2411			
Halfway	Halfway, TX				
Hobbs	Hobbs, NM	(505) 397-9308			
Jal	Jal, NM	(505) 395-2221			
Jayton	Jayton, TX	(806) 237-3801			
Kermit	Kermit, TX	(432) 586-3468			
Lamesa	Lamesa, TX	(806) 872-4352			
Levelland	Levelland, TX	(806) 894-3154			
Lovington	Lovington, NM	(505) 396-2359			
Maljamar	Maljamar, NM	(505) 676-4100			
McCamey	McCamey, TX	(432) 652-8232			
Midland	Midland, TX	(432) 685-7346			
Monahans	Monahans, TX	(432) 943-4343			
Nara Visa	Nara Visa, NM	(505) 461-3300			
Notrees	Notress, TX	(432) 827-3445			
Odessa	Odessa, TX	(432) 335-4659			
Ozona	Ozona, TX	(325) 392-2626			
Pecos	Pecos, TX	(432) 445-2421			
Petersburg	Petersburg, TX	(806) 667-3461			
Plains	Plains, TX	(806) 456-8067			
Plainview	Plainview, TX	(806) 296-1170			
Rankin	Rankin, TX	(432) 693-2252			
San Angelo	San Angelo, TX	(325) 657-4355			
Sanderson	Sanderson, TX	(432) 345-2525			
Seminole	Seminole, TX	(432) 758-3676 (432) 758-9871			
Smyer	Smyer, TX	(806) 234-3861			
Snyder	Snyder, TX	(325) 573-6215			
Sundown	Sundown, TX	911			
Tucumcari	Tucumcari, NM	911			
West Odessa	Odessa, TX	(432) 381-3033			

Ambulance					
Abernathy Ambulance	Abernathy, TX	(806) 298-2241			
Amistad/Rosebud	Amistad/Rosebud, NM	(505) 633-9113			
Andrews Ambulance	Andrews, TX	(432) 523-5675			
Artesia Ambulance	Artesia, NM	(505) 746-2701			
Big Lake Ambulance	Big Lake, TX	(325) 884-2423			
Big Spring Ambulance	Big Spring, TX	(432) 264-2550			
Brownfield Ambulance	Brownfield, TX	(806) 637-2511			
Carlsbad Ambulance	Carlsbad, NM	(505) 885-2111; 911			
Clayton, NM	Clayton, NM	(505) 374-2501			
Denver City Ambulance	Denver City, TX	(806) 592-3516			
Eldorado Ambulance	Eldorado, TX	(325) 853-3456			
Eunice Ambulance	Eunice, NM	(505) 394-3258			
Goldsmith Ambulance	Goldsmith, TX	(432) 827-3445			
Hobbs, NM	Hobbs, NM	(505) 397-9308			
Jal, NM	Jal, NM	(505) 395-2501			
Jayton Ambulance	Jayton, TX	(806) 237-3801			
Lamesa Ambulance	Lamesa, TX	(806) 872-3464			
Levelland Ambulance	Levelland, TX	(806) 894-8855			
Lovington Ambulance	Lovington, NM	(505) 396-2811			
McCamey Hospital	McCamey, TX	(432) 652-8626			
Midland Ambulance	Midland, TX	(432) 685-7499			
Monahans Ambulance	Monahans, TX	(432) 943-3385 or 3731			
Nara Visa, NM	Nara Visa, NM	(505) 461-3300			
Odessa Ambulance	Odessa, TX	(432) 335-3378			
Ozona Ambulance	Ozona, TX	(325) 392-2671			
Pecos Ambulance	Pecos, TX	(432) 445-4444			
Rankin Ambulance	Rankin, TX	(432) 693-2443			
San Angelo Ambulance	San Angelo, TX	(325) 657-4357			
Seminole Ambulance	Seminole, TX	(432) 758-8816 (432) 758-9871			
Snyder Ambulance	Snyder, TX	(325) 573-1911			
Stanton Ambulance	Stanton, TX	(432) 756-2211			
Sundown Ambulance	Sundown, TX	911			
Tucumcari, NM	Tucumcari, NM	911			
Medical Air Ambulance Service					
AEROCARE - Methodist Hospital	Lubbock, TX	(800) 627-2376			
San Angelo Med-Vac Air Ambulance	San Angelo, TX	(800) 277-4354			
Southwest Air Ambulance Service	Stanford, TX	(800) 242-6199			
Southwest MediVac	Snyder, TX	(800) 242-6199			
Southwest MediVac	Hobbs, NM	(800) 242-6199			
Odessa Care Star	Odessa, TX	(888) 624-3571			
NWTH Medivac	Amarillo, TX	(800) 692-1331			

Project: PRD NM DIRECTIONAL PLANS (NAD 1983)
Site: PRECIOUS 30_18 FED COM
Well: PRECIOUS 30_18 FED COM 176H
Wellbore: Wellbore #1
Design: Permitting Plan

PROJECT DETAILS: NM DIRECTIONAL PLANS (NAD 1983)

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

System Datum: Mean Sea Level

Azimuths to Grid North
True North: -0.28°
Magnetic North: 6.59°

Magnetic Field
Strength: 48011.0snT
Dip Angle: 59.98°
Date: 11/16/2018
Model: HDGM

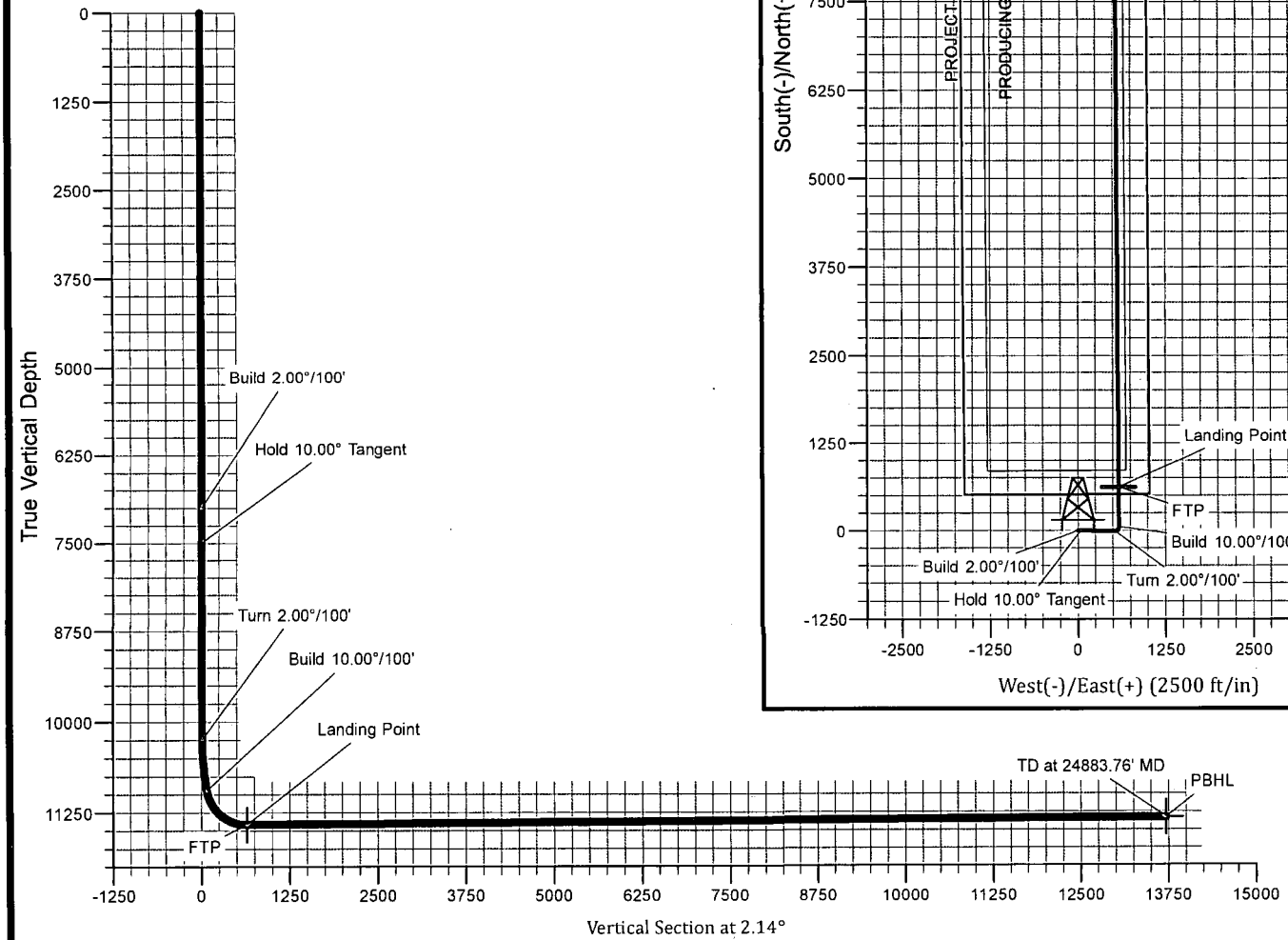
WELL DETAILS: PRECIOUS 30_18 FED COM 176H

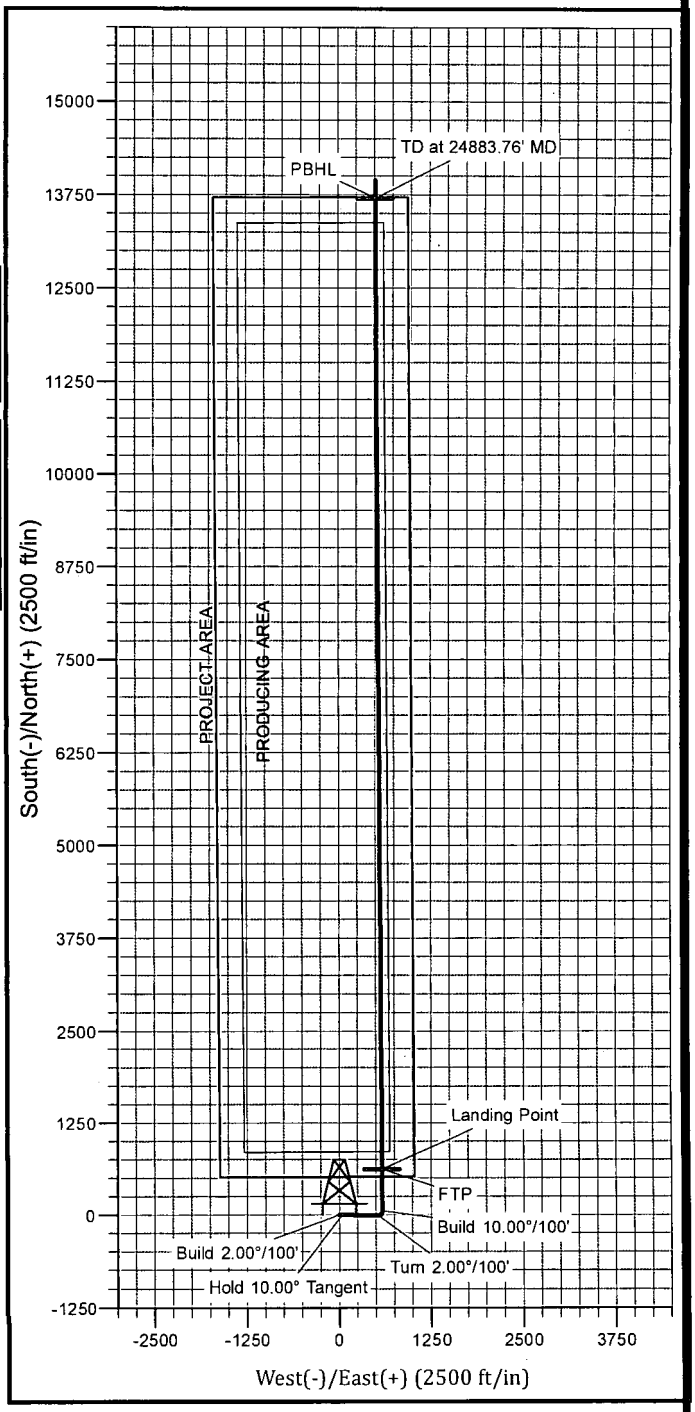
Ground Level: 3347.60

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	461167.79	702572.81	32° 16' 0.292386 N	103° 48' 42.071887 W

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
6995.00	0.00	0.00	6995.00	0.00	0.00	0.00	0.00	0.00	Build 2.00°/100'
7494.81	10.00	90.77	7492.28	-0.59	43.49	2.00	90.77	1.04	Hold 10.00° Tangent
10282.77	10.00	90.77	10237.92	-7.13	527.38	0.00	0.00	12.59	Turn 2.00°/100'
10994.69	10.00	359.68	10942.65	54.16	589.14	2.00	-135.10	76.15	Build 10.00°/100'
11798.63	90.39	359.68	11416.10	622.35	585.96	10.00	0.00	643.82	Landing Point
24883.76	90.39	359.68	11326.10	13706.97	512.68	0.00	0.00	13716.55	TD at 24883.76' MD





OXY

PRD NM DIRECTIONAL PLANS (NAD 1983)
PRECIOUS 30_18 FED COM
PRECIOUS 30_18 FED COM 176H

Wellbore #1

Plan: Permitting Plan

Standard Planning Report

16 November, 2018

Database:	HOPSPP	**Local Co-ordinate Reference:**	Well PRECIOUS 30_18 FED COM 176H
Company:	ENGINEERING DESIGNS	**TVD Reference:**	RKB=26.5' @ 3374.10ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	**MD Reference:**	RKB=26.5' @ 3374.10ft
Site:	PRECIOUS 30_18 FED COM	**North Reference:**	Grid
Well:	PRECIOUS 30_18 FED COM 176H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permitting Plan		

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

Site	PRECIOUS 30_18 FED COM				
Site Position:		**Northing:**	461,098.38 usft	**Latitude:**	32° 15' 59.784416 N
From:	Map	**Easting:**	698,809.83 usft	**Longitude:**	103° 49' 25.902124 W
Position Uncertainty:	0.00 ft	**Slot Radius:**	13.200 in	**Grid Convergence:**	0.27 °

Well	PRECIOUS 30_18 FED COM 176H				
Well Position	**+N/-S**	69.41 ft	**Northing:**	461,167.79 usft	**Latitude:**	32° 16' 0.292386 N
	+E/-W	3,763.22 ft	**Easting:**	702,572.81 usft	**Longitude:**	103° 48' 42.071887 W
Position Uncertainty		0.00 ft	**Wellhead Elevation:**	0.00 ft	**Ground Level:**	3,347.60 ft

Wellbore	Wellbore #1			
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	HDGM	11/16/2018	6.87	59.98	48,011

Design	Permitting Plan			
Audit Notes:				
Version:		**Phase:**	PROTOTYPE	**Tie On Depth:**	0.00
Vertical Section:	**Depth From (TVD) (ft)**	**+N/-S (ft)**	**+E/-W (ft)**	**Direction (°)**
	0.00	0.00	0.00	2.14

Plan Sections

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,995.00	0.00	0.00	6,995.00	0.00	0.00	0.00	0.00	0.00	0.00	
7,494.81	10.00	90.77	7,492.28	-0.59	43.49	2.00	2.00	0.00	90.77	
10,282.78	10.00	90.77	10,237.92	-7.13	527.38	0.00	0.00	0.00	0.00	
10,994.69	10.00	359.68	10,942.65	54.16	589.14	2.00	0.00	-12.80	-135.10	
11,798.63	90.39	359.68	11,416.10	622.35	585.96	10.00	10.00	0.00	0.00	FTP (Precious
24,883.76	90.39	359.68	11,326.10	13,706.97	512.68	0.00	0.00	0.00	0.00	PBHL (Precious

Database:	HOPSPP	**Local Co-ordinate Reference:**	Well PRECIOUS 30_18 FED COM 176H
Company:	ENGINEERING DESIGNS	**TVD Reference:**	RKB=26.5' @ 3374.10ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	**MD Reference:**	RKB=26.5' @ 3374.10ft
Site:	PRECIOUS 30_18 FED COM	**North Reference:**	Grid
Well:	PRECIOUS 30_18 FED COM 176H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permitting Plan		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	0.00	0.00
4,700.00	0.00	0.00	4,700.00	0.00	0.00	0.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,800.00	0.00	0.00	0.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,900.00	0.00	0.00	0.00	0.00	0.00	0.00
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,100.00	0.00	0.00	0.00	0.00	0.00	0.00
5,200.00	0.00	0.00	5,200.00	0.00	0.00	0.00	0.00	0.00	0.00
5,300.00	0.00	0.00	5,300.00	0.00	0.00	0.00	0.00	0.00	0.00

Database:	HOPSPP	**Local Co-ordinate Reference:**	Well PRECIOUS 30_18 FED COM 176H
Company:	ENGINEERING DESIGNS	**TVD Reference:**	RKB=26.5' @ 3374.10ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	**MD Reference:**	RKB=26.5' @ 3374.10ft
Site:	PRECIOUS 30_18 FED COM	**North Reference:**	Grid
Well:	PRECIOUS 30_18 FED COM 176H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permitting Plan		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
5,400.00	0.00	0.00	5,400.00	0.00	0.00	0.00	0.00	0.00	0.00
5,500.00	0.00	0.00	5,500.00	0.00	0.00	0.00	0.00	0.00	0.00
5,600.00	0.00	0.00	5,600.00	0.00	0.00	0.00	0.00	0.00	0.00
5,700.00	0.00	0.00	5,700.00	0.00	0.00	0.00	0.00	0.00	0.00
5,800.00	0.00	0.00	5,800.00	0.00	0.00	0.00	0.00	0.00	0.00
5,900.00	0.00	0.00	5,900.00	0.00	0.00	0.00	0.00	0.00	0.00
6,000.00	0.00	0.00	6,000.00	0.00	0.00	0.00	0.00	0.00	0.00
6,100.00	0.00	0.00	6,100.00	0.00	0.00	0.00	0.00	0.00	0.00
6,200.00	0.00	0.00	6,200.00	0.00	0.00	0.00	0.00	0.00	0.00
6,300.00	0.00	0.00	6,300.00	0.00	0.00	0.00	0.00	0.00	0.00
6,400.00	0.00	0.00	6,400.00	0.00	0.00	0.00	0.00	0.00	0.00
6,500.00	0.00	0.00	6,500.00	0.00	0.00	0.00	0.00	0.00	0.00
6,600.00	0.00	0.00	6,600.00	0.00	0.00	0.00	0.00	0.00	0.00
6,700.00	0.00	0.00	6,700.00	0.00	0.00	0.00	0.00	0.00	0.00
6,800.00	0.00	0.00	6,800.00	0.00	0.00	0.00	0.00	0.00	0.00
6,900.00	0.00	0.00	6,900.00	0.00	0.00	0.00	0.00	0.00	0.00
6,995.00	0.00	0.00	6,995.00	0.00	0.00	0.00	0.00	0.00	0.00
7,000.00	0.10	90.77	7,000.00	0.00	0.00	0.00	2.00	2.00	0.00
7,100.00	2.10	90.77	7,099.98	-0.03	1.92	0.05	2.00	2.00	0.00
7,200.00	4.10	90.77	7,199.83	-0.10	7.33	0.18	2.00	2.00	0.00
7,300.00	6.10	90.77	7,299.42	-0.22	16.22	0.39	2.00	2.00	0.00
7,400.00	8.10	90.77	7,398.65	-0.39	28.58	0.68	2.00	2.00	0.00
7,494.81	10.00	90.77	7,492.28	-0.59	43.49	1.04	2.00	2.00	0.00
7,500.00	10.00	90.77	7,497.39	-0.60	44.39	1.06	0.00	0.00	0.00
7,600.00	10.00	90.77	7,595.87	-0.83	61.74	1.47	0.00	0.00	0.00
7,700.00	10.00	90.77	7,694.35	-1.07	79.10	1.89	0.00	0.00	0.00
7,800.00	10.00	90.77	7,792.84	-1.30	96.46	2.30	0.00	0.00	0.00
7,900.00	10.00	90.77	7,891.32	-1.54	113.81	2.72	0.00	0.00	0.00
8,000.00	10.00	90.77	7,989.80	-1.77	131.17	3.13	0.00	0.00	0.00
8,100.00	10.00	90.77	8,088.28	-2.01	148.53	3.55	0.00	0.00	0.00
8,200.00	10.00	90.77	8,186.76	-2.24	165.88	3.96	0.00	0.00	0.00
8,300.00	10.00	90.77	8,285.25	-2.48	183.24	4.37	0.00	0.00	0.00
8,400.00	10.00	90.77	8,383.73	-2.71	200.60	4.79	0.00	0.00	0.00
8,500.00	10.00	90.77	8,482.21	-2.95	217.95	5.20	0.00	0.00	0.00
8,600.00	10.00	90.77	8,580.69	-3.18	235.31	5.62	0.00	0.00	0.00
8,700.00	10.00	90.77	8,679.17	-3.41	252.67	6.03	0.00	0.00	0.00
8,800.00	10.00	90.77	8,777.65	-3.65	270.02	6.45	0.00	0.00	0.00
8,900.00	10.00	90.77	8,876.14	-3.88	287.38	6.86	0.00	0.00	0.00
9,000.00	10.00	90.77	8,974.62	-4.12	304.74	7.27	0.00	0.00	0.00
9,100.00	10.00	90.77	9,073.10	-4.35	322.09	7.69	0.00	0.00	0.00
9,200.00	10.00	90.77	9,171.58	-4.59	339.45	8.10	0.00	0.00	0.00
9,300.00	10.00	90.77	9,270.06	-4.82	356.81	8.52	0.00	0.00	0.00
9,400.00	10.00	90.77	9,368.55	-5.06	374.16	8.93	0.00	0.00	0.00
9,500.00	10.00	90.77	9,467.03	-5.29	391.52	9.35	0.00	0.00	0.00
9,600.00	10.00	90.77	9,565.51	-5.53	408.88	9.76	0.00	0.00	0.00
9,700.00	10.00	90.77	9,663.99	-5.76	426.23	10.18	0.00	0.00	0.00
9,800.00	10.00	90.77	9,762.47	-5.99	443.59	10.59	0.00	0.00	0.00
9,900.00	10.00	90.77	9,860.96	-6.23	460.95	11.00	0.00	0.00	0.00
10,000.00	10.00	90.77	9,959.44	-6.46	478.30	11.42	0.00	0.00	0.00
10,100.00	10.00	90.77	10,057.92	-6.70	495.66	11.83	0.00	0.00	0.00
10,200.00	10.00	90.77	10,156.40	-6.93	513.02	12.25	0.00	0.00	0.00
10,282.78	10.00	90.77	10,237.92	-7.13	527.38	12.59	0.00	0.00	0.00
10,300.00	9.76	89.34	10,254.89	-7.13	530.34	12.70	2.00	-1.40	-8.33
10,400.00	8.50	79.50	10,353.63	-5.69	546.08	14.73	2.00	-1.26	-9.84

Database:	HOPSPP	**Local Co-ordinate Reference:**	Well PRECIOUS 30_18 FED COM 176H
Company:	ENGINEERING DESIGNS	**TVD Reference:**	RKB=26.5' @ 3374.10ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	**MD Reference:**	RKB=26.5' @ 3374.10ft
Site:	PRECIOUS 30_18 FED COM	**North Reference:**	Grid
Well:	PRECIOUS 30_18 FED COM 176H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permitting Plan		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
10,500.00	7.56	66.80	10,452.65	-1.75	559.39	19.16	2.00	-0.93	-12.71
10,600.00	7.08	51.51	10,551.85	4.68	570.26	25.99	2.00	-0.48	-15.29
10,700.00	7.14	35.31	10,651.09	13.59	578.68	35.21	2.00	0.06	-16.20
10,800.00	7.74	20.52	10,750.26	24.97	584.64	46.81	2.00	0.60	-14.79
10,900.00	8.76	8.49	10,849.23	38.81	588.12	60.77	2.00	1.02	-12.03
10,994.69	10.00	359.68	10,942.65	54.16	589.14	76.15	2.00	1.31	-9.30
11,000.00	10.53	359.68	10,947.88	55.11	589.13	77.09	10.00	10.00	0.00
11,100.00	20.53	359.68	11,044.11	81.85	588.98	103.81	10.00	10.00	0.00
11,200.00	30.53	359.68	11,134.23	124.90	588.74	146.82	10.00	10.00	0.00
11,300.00	40.53	359.68	11,215.50	182.94	588.42	204.80	10.00	10.00	0.00
11,400.00	50.53	359.68	11,285.46	254.21	588.02	276.01	10.00	10.00	0.00
11,500.00	60.53	359.68	11,341.99	336.55	587.56	358.28	10.00	10.00	0.00
11,600.00	70.53	359.68	11,383.35	427.45	587.05	449.09	10.00	10.00	0.00
11,700.00	80.53	359.68	11,408.31	524.16	586.51	545.71	10.00	10.00	0.00
11,798.63	90.39	359.68	11,416.10	622.35	585.96	643.82	10.00	10.00	0.00
11,800.00	90.39	359.68	11,416.09	623.72	585.95	645.19	0.00	0.00	0.00
11,900.00	90.39	359.68	11,415.40	723.72	585.39	745.09	0.00	0.00	0.00
12,000.00	90.39	359.68	11,414.72	823.72	584.83	845.00	0.00	0.00	0.00
12,100.00	90.39	359.68	11,414.03	923.71	584.27	944.90	0.00	0.00	0.00
12,200.00	90.39	359.68	11,413.34	1,023.71	583.71	1,044.81	0.00	0.00	0.00
12,300.00	90.39	359.68	11,412.65	1,123.70	583.15	1,144.71	0.00	0.00	0.00
12,400.00	90.39	359.68	11,411.96	1,223.70	582.59	1,244.62	0.00	0.00	0.00
12,500.00	90.39	359.68	11,411.28	1,323.70	582.03	1,344.53	0.00	0.00	0.00
12,600.00	90.39	359.68	11,410.59	1,423.69	581.47	1,444.43	0.00	0.00	0.00
12,700.00	90.39	359.68	11,409.90	1,523.69	580.91	1,544.34	0.00	0.00	0.00
12,800.00	90.39	359.68	11,409.21	1,623.68	580.35	1,644.24	0.00	0.00	0.00
12,900.00	90.39	359.68	11,408.52	1,723.68	579.79	1,744.15	0.00	0.00	0.00
13,000.00	90.39	359.68	11,407.84	1,823.68	579.23	1,844.05	0.00	0.00	0.00
13,100.00	90.39	359.68	11,407.15	1,923.67	578.67	1,943.96	0.00	0.00	0.00
13,200.00	90.39	359.68	11,406.46	2,023.67	578.11	2,043.86	0.00	0.00	0.00
13,300.00	90.39	359.68	11,405.77	2,123.66	577.55	2,143.77	0.00	0.00	0.00
13,400.00	90.39	359.68	11,405.09	2,223.66	576.99	2,243.67	0.00	0.00	0.00
13,500.00	90.39	359.68	11,404.40	2,323.66	576.43	2,343.58	0.00	0.00	0.00
13,600.00	90.39	359.68	11,403.71	2,423.65	575.87	2,443.48	0.00	0.00	0.00
13,700.00	90.39	359.68	11,403.02	2,523.65	575.31	2,543.39	0.00	0.00	0.00
13,800.00	90.39	359.68	11,402.33	2,623.64	574.75	2,643.29	0.00	0.00	0.00
13,900.00	90.39	359.68	11,401.65	2,723.64	574.19	2,743.20	0.00	0.00	0.00
14,000.00	90.39	359.68	11,400.96	2,823.64	573.63	2,843.10	0.00	0.00	0.00
14,100.00	90.39	359.68	11,400.27	2,923.63	573.07	2,943.01	0.00	0.00	0.00
14,200.00	90.39	359.68	11,399.58	3,023.63	572.51	3,042.91	0.00	0.00	0.00
14,300.00	90.39	359.68	11,398.90	3,123.63	571.95	3,142.82	0.00	0.00	0.00
14,400.00	90.39	359.68	11,398.21	3,223.62	571.39	3,242.73	0.00	0.00	0.00
14,500.00	90.39	359.68	11,397.52	3,323.62	570.83	3,342.63	0.00	0.00	0.00
14,600.00	90.39	359.68	11,396.83	3,423.61	570.27	3,442.54	0.00	0.00	0.00
14,700.00	90.39	359.68	11,396.14	3,523.61	569.71	3,542.44	0.00	0.00	0.00
14,800.00	90.39	359.68	11,395.46	3,623.61	569.15	3,642.35	0.00	0.00	0.00
14,900.00	90.39	359.68	11,394.77	3,723.60	568.59	3,742.25	0.00	0.00	0.00
15,000.00	90.39	359.68	11,394.08	3,823.60	568.03	3,842.16	0.00	0.00	0.00
15,100.00	90.39	359.68	11,393.39	3,923.59	567.47	3,942.06	0.00	0.00	0.00
15,200.00	90.39	359.68	11,392.71	4,023.59	566.91	4,041.97	0.00	0.00	0.00
15,300.00	90.39	359.68	11,392.02	4,123.59	566.35	4,141.87	0.00	0.00	0.00
15,400.00	90.39	359.68	11,391.33	4,223.58	565.79	4,241.78	0.00	0.00	0.00
15,500.00	90.39	359.68	11,390.64	4,323.58	565.23	4,341.68	0.00	0.00	0.00
15,600.00	90.39	359.68	11,389.95	4,423.57	564.67	4,441.59	0.00	0.00	0.00

Database:	HOPSPP	**Local Co-ordinate Reference:**	Well PRECIOUS 30_18 FED COM 176H
Company:	ENGINEERING DESIGNS	**TVD Reference:**	RKB=26.5' @ 3374.10ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	**MD Reference:**	RKB=26.5' @ 3374.10ft
Site:	PRECIOUS 30_18 FED COM	**North Reference:**	Grid
Well:	PRECIOUS 30_18 FED COM 176H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permitting Plan		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
15,700.00	90.39	359.68	11,389.27	4,523.57	564.11	4,541.49	0.00	0.00	0.00
15,800.00	90.39	359.68	11,388.58	4,623.57	563.55	4,641.40	0.00	0.00	0.00
15,900.00	90.39	359.68	11,387.89	4,723.56	562.99	4,741.30	0.00	0.00	0.00
16,000.00	90.39	359.68	11,387.20	4,823.56	562.43	4,841.21	0.00	0.00	0.00
16,100.00	90.39	359.68	11,386.52	4,923.55	561.87	4,941.11	0.00	0.00	0.00
16,200.00	90.39	359.68	11,385.83	5,023.55	561.31	5,041.02	0.00	0.00	0.00
16,300.00	90.39	359.68	11,385.14	5,123.55	560.75	5,140.93	0.00	0.00	0.00
16,400.00	90.39	359.68	11,384.45	5,223.54	560.19	5,240.83	0.00	0.00	0.00
16,500.00	90.39	359.68	11,383.76	5,323.54	559.63	5,340.74	0.00	0.00	0.00
16,600.00	90.39	359.68	11,383.08	5,423.53	559.07	5,440.64	0.00	0.00	0.00
16,700.00	90.39	359.68	11,382.39	5,523.53	558.51	5,540.55	0.00	0.00	0.00
16,800.00	90.39	359.68	11,381.70	5,623.53	557.95	5,640.45	0.00	0.00	0.00
16,900.00	90.39	359.68	11,381.01	5,723.52	557.39	5,740.36	0.00	0.00	0.00
17,000.00	90.39	359.68	11,380.33	5,823.52	556.83	5,840.26	0.00	0.00	0.00
17,100.00	90.39	359.68	11,379.64	5,923.52	556.27	5,940.17	0.00	0.00	0.00
17,200.00	90.39	359.68	11,378.95	6,023.51	555.71	6,040.07	0.00	0.00	0.00
17,300.00	90.39	359.68	11,378.26	6,123.51	555.15	6,139.98	0.00	0.00	0.00
17,400.00	90.39	359.68	11,377.57	6,223.50	554.59	6,239.88	0.00	0.00	0.00
17,500.00	90.39	359.68	11,376.89	6,323.50	554.03	6,339.79	0.00	0.00	0.00
17,600.00	90.39	359.68	11,376.20	6,423.50	553.47	6,439.69	0.00	0.00	0.00
17,700.00	90.39	359.68	11,375.51	6,523.49	552.91	6,539.60	0.00	0.00	0.00
17,800.00	90.39	359.68	11,374.82	6,623.49	552.35	6,639.50	0.00	0.00	0.00
17,900.00	90.39	359.68	11,374.13	6,723.48	551.79	6,739.41	0.00	0.00	0.00
18,000.00	90.39	359.68	11,373.45	6,823.48	551.23	6,839.31	0.00	0.00	0.00
18,100.00	90.39	359.68	11,372.76	6,923.48	550.67	6,939.22	0.00	0.00	0.00
18,200.00	90.39	359.68	11,372.07	7,023.47	550.11	7,039.13	0.00	0.00	0.00
18,300.00	90.39	359.68	11,371.38	7,123.47	549.55	7,139.03	0.00	0.00	0.00
18,400.00	90.39	359.68	11,370.70	7,223.46	548.99	7,238.94	0.00	0.00	0.00
18,500.00	90.39	359.68	11,370.01	7,323.46	548.43	7,338.84	0.00	0.00	0.00
18,600.00	90.39	359.68	11,369.32	7,423.46	547.87	7,438.75	0.00	0.00	0.00
18,700.00	90.39	359.68	11,368.63	7,523.45	547.31	7,538.65	0.00	0.00	0.00
18,800.00	90.39	359.68	11,367.94	7,623.45	546.75	7,638.56	0.00	0.00	0.00
18,900.00	90.39	359.68	11,367.26	7,723.44	546.19	7,738.46	0.00	0.00	0.00
19,000.00	90.39	359.68	11,366.57	7,823.44	545.63	7,838.37	0.00	0.00	0.00
19,100.00	90.39	359.68	11,365.88	7,923.44	545.07	7,938.27	0.00	0.00	0.00
19,200.00	90.39	359.68	11,365.19	8,023.43	544.51	8,038.18	0.00	0.00	0.00
19,300.00	90.39	359.68	11,364.51	8,123.43	543.95	8,138.08	0.00	0.00	0.00
19,400.00	90.39	359.68	11,363.82	8,223.42	543.39	8,237.99	0.00	0.00	0.00
19,500.00	90.39	359.68	11,363.13	8,323.42	542.83	8,337.89	0.00	0.00	0.00
19,600.00	90.39	359.68	11,362.44	8,423.42	542.27	8,437.80	0.00	0.00	0.00
19,700.00	90.39	359.68	11,361.75	8,523.41	541.71	8,537.70	0.00	0.00	0.00
19,800.00	90.39	359.68	11,361.07	8,623.41	541.15	8,637.61	0.00	0.00	0.00
19,900.00	90.39	359.68	11,360.38	8,723.40	540.59	8,737.51	0.00	0.00	0.00
20,000.00	90.39	359.68	11,359.69	8,823.40	540.03	8,837.42	0.00	0.00	0.00
20,100.00	90.39	359.68	11,359.00	8,923.40	539.47	8,937.33	0.00	0.00	0.00
20,200.00	90.39	359.68	11,358.32	9,023.39	538.91	9,037.23	0.00	0.00	0.00
20,300.00	90.39	359.68	11,357.63	9,123.39	538.35	9,137.14	0.00	0.00	0.00
20,400.00	90.39	359.68	11,356.94	9,223.39	537.79	9,237.04	0.00	0.00	0.00
20,500.00	90.39	359.68	11,356.25	9,323.38	537.23	9,336.95	0.00	0.00	0.00
20,600.00	90.39	359.68	11,355.56	9,423.38	536.67	9,436.85	0.00	0.00	0.00
20,700.00	90.39	359.68	11,354.88	9,523.37	536.11	9,536.76	0.00	0.00	0.00
20,800.00	90.39	359.68	11,354.19	9,623.37	535.55	9,636.66	0.00	0.00	0.00
20,900.00	90.39	359.68	11,353.50	9,723.37	534.99	9,736.57	0.00	0.00	0.00
21,000.00	90.39	359.68	11,352.81	9,823.36	534.43	9,836.47	0.00	0.00	0.00

Database:	HOPSPP	**Local Co-ordinate Reference:**	Well PRECIOUS 30_18 FED COM 176H
Company:	ENGINEERING DESIGNS	**TVD Reference:**	RKB=26.5' @ 3374.10ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	**MD Reference:**	RKB=26.5' @ 3374.10ft
Site:	PRECIOUS 30_18 FED COM	**North Reference:**	Grid
Well:	PRECIOUS 30_18 FED COM 176H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
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	90.39	359.68	11,352.13	9,923.36	533.87	9,936.38	0.00	0.00	0.00
21,200.00	90.39	359.68	11,351.44	10,023.35	533.31	10,036.28	0.00	0.00	0.00
21,300.00	90.39	359.68	11,350.75	10,123.35	532.75	10,136.19	0.00	0.00	0.00
21,400.00	90.39	359.68	11,350.06	10,223.35	532.19	10,236.09	0.00	0.00	0.00
21,500.00	90.39	359.68	11,349.37	10,323.34	531.63	10,336.00	0.00	0.00	0.00
21,600.00	90.39	359.68	11,348.69	10,423.34	531.07	10,435.90	0.00	0.00	0.00
21,700.00	90.39	359.68	11,348.00	10,523.33	530.51	10,535.81	0.00	0.00	0.00
21,800.00	90.39	359.68	11,347.31	10,623.33	529.95	10,635.72	0.00	0.00	0.00
21,900.00	90.39	359.68	11,346.62	10,723.33	529.39	10,735.62	0.00	0.00	0.00
22,000.00	90.39	359.68	11,345.93	10,823.32	528.83	10,835.53	0.00	0.00	0.00
22,100.00	90.39	359.68	11,345.25	10,923.32	528.27	10,935.43	0.00	0.00	0.00
22,200.00	90.39	359.68	11,344.56	11,023.31	527.71	11,035.34	0.00	0.00	0.00
22,300.00	90.39	359.68	11,343.87	11,123.31	527.15	11,135.24	0.00	0.00	0.00
22,400.00	90.39	359.68	11,343.18	11,223.31	526.59	11,235.15	0.00	0.00	0.00
22,500.00	90.39	359.68	11,342.50	11,323.30	526.03	11,335.05	0.00	0.00	0.00
22,600.00	90.39	359.68	11,341.81	11,423.30	525.47	11,434.96	0.00	0.00	0.00
22,700.00	90.39	359.68	11,341.12	11,523.29	524.91	11,534.86	0.00	0.00	0.00
22,800.00	90.39	359.68	11,340.43	11,623.29	524.35	11,634.77	0.00	0.00	0.00
22,900.00	90.39	359.68	11,339.74	11,723.29	523.79	11,734.67	0.00	0.00	0.00
23,000.00	90.39	359.68	11,339.06	11,823.28	523.23	11,834.58	0.00	0.00	0.00
23,100.00	90.39	359.68	11,338.37	11,923.28	522.67	11,934.48	0.00	0.00	0.00
23,200.00	90.39	359.68	11,337.68	12,023.28	522.11	12,034.39	0.00	0.00	0.00
23,300.00	90.39	359.68	11,336.99	12,123.27	521.55	12,134.29	0.00	0.00	0.00
23,400.00	90.39	359.68	11,336.31	12,223.27	520.99	12,234.20	0.00	0.00	0.00
23,500.00	90.39	359.68	11,335.62	12,323.26	520.43	12,334.10	0.00	0.00	0.00
23,600.00	90.39	359.68	11,334.93	12,423.26	519.87	12,434.01	0.00	0.00	0.00
23,700.00	90.39	359.68	11,334.24	12,523.26	519.31	12,533.92	0.00	0.00	0.00
23,800.00	90.39	359.68	11,333.55	12,623.25	518.75	12,633.82	0.00	0.00	0.00
23,900.00	90.39	359.68	11,332.87	12,723.25	518.19	12,733.73	0.00	0.00	0.00
24,000.00	90.39	359.68	11,332.18	12,823.24	517.63	12,833.63	0.00	0.00	0.00
24,100.00	90.39	359.68	11,331.49	12,923.24	517.07	12,933.54	0.00	0.00	0.00
24,200.00	90.39	359.68	11,330.80	13,023.24	516.51	13,033.44	0.00	0.00	0.00
24,300.00	90.39	359.68	11,330.12	13,123.23	515.95	13,133.35	0.00	0.00	0.00
24,400.00	90.39	359.68	11,329.43	13,223.23	515.39	13,233.25	0.00	0.00	0.00
24,500.00	90.39	359.68	11,328.74	13,323.22	514.83	13,333.16	0.00	0.00	0.00
24,600.00	90.39	359.68	11,328.05	13,423.22	514.27	13,433.06	0.00	0.00	0.00
24,700.00	90.39	359.68	11,327.36	13,523.22	513.71	13,532.97	0.00	0.00	0.00
24,800.00	90.39	359.68	11,326.68	13,623.21	513.15	13,632.87	0.00	0.00	0.00
24,883.76	90.39	359.68	11,326.10	13,706.97	512.68	13,716.55	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
PBHL (Precious 30_18 - plan hits target center - Point	0.00	0.00	11,326.10	13,706.97	512.68	474,873.89	703,085.46	32° 18' 15.897145 N	103° 48' 35.322096
FTP (Precious 30_18 - plan hits target center - Point	0.00	0.00	11,416.10	622.35	585.96	461,790.10	703,158.73	32° 16' 6.422273 N	103° 48' 35.212488

Database:	HOPSPP	**Local Co-ordinate Reference:**	Well PRECIOUS 30_18 FED COM 176H
Company:	ENGINEERING DESIGNS	**TVD Reference:**	RKB=26.5' @ 3374.10ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	**MD Reference:**	RKB=26.5' @ 3374.10ft
Site:	PRECIOUS 30_18 FED COM	**North Reference:**	Grid
Well:	PRECIOUS 30_18 FED COM 176H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permitting Plan		

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
6,995.00	6,995.00	0.00	0.00	Build 2.00°/100'
7,494.81	7,492.28	-0.59	43.49	Hold 10.00° Tangent
10,282.78	10,237.92	-7.13	527.38	Turn 2.00°/100'
10,994.69	10,942.65	54.16	589.14	Build 10.00°/100'
11,798.63	11,416.10	622.35	585.96	Landing Point
24,883.76	11,326.10	13,706.97	512.68	TD at 24883.76' MD

OXY USA Inc
APD ATTACHMENT: SPUDDER RIG DATA

OPERATOR NAME / NUMBER: OXY USA Inc

1. SUMMARY OF REQUEST:

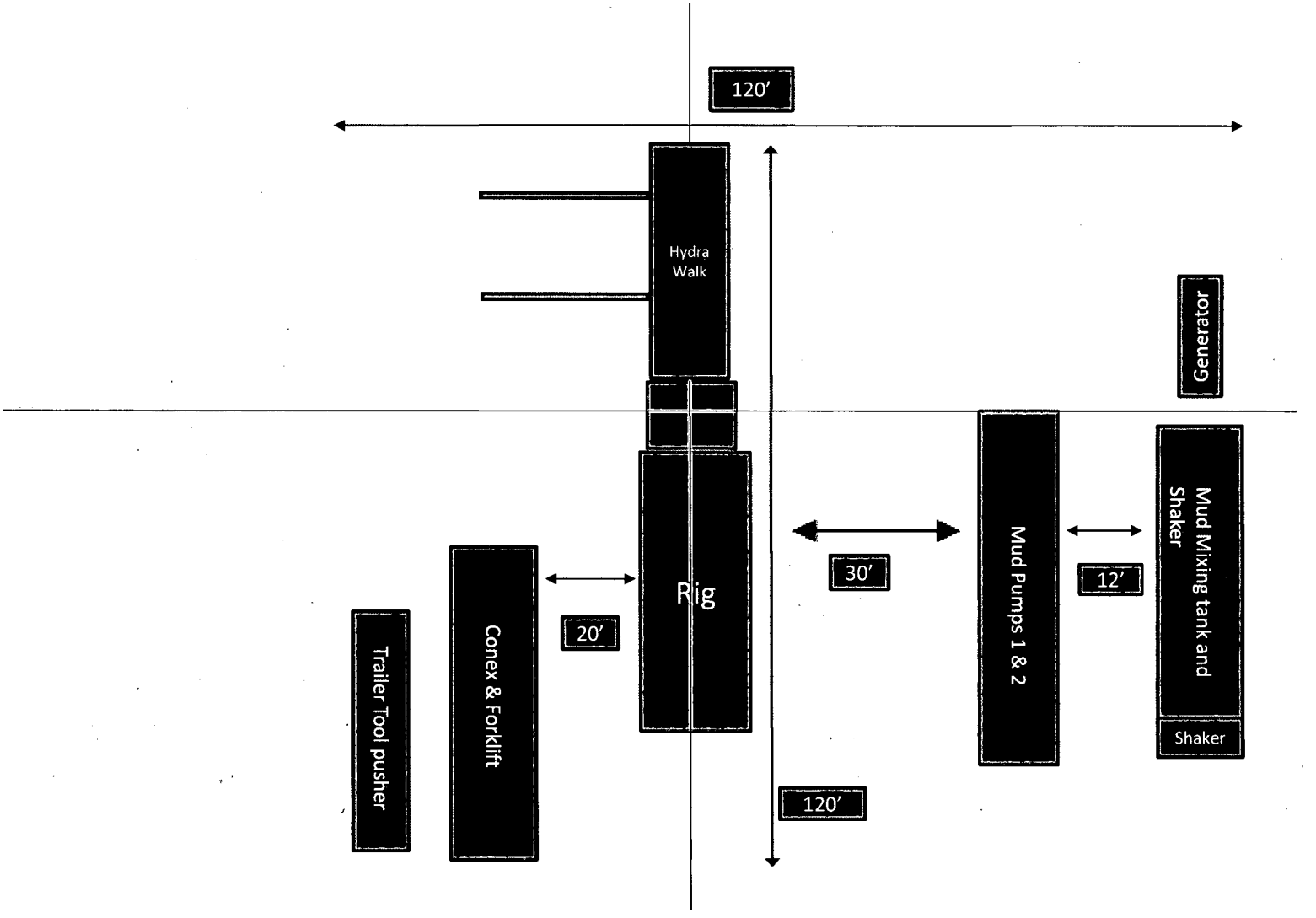
Oxy USA respectfully requests approval for the following operations for the surface hole in the drill plan:

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.

Spudder Rig Layout



District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Submit Original to Appropriate District Office

GAS CAPTURE PLAN

Date: 01-15-2019

☒ Original

Operator & OGRID No.: OXY USA INC. - 16696

☐ Amended - Reason for Amendment: _____

This Gas Capture Plan outlines actions to be taken by the Operator to reduce well/production facility flaring/venting for new completion (new drill, recomplete to new zone, re-frac) activity.

Note: Form C-129 must be submitted and approved prior to exceeding 60 days allowed by Rule (Subsection A of 19.15.18.12 NMAC).

Well(s)/Production Facility – Name of facility

The well(s) that will be located at the production facility are shown in the table below.

Well Name	API	Well Location (ULSTR)	Footages	Expected MCF/D	Flared orVented	Comments
Arkenstone 31 Federal 1H	Pending	D-1-31-23S-31E	130 FNL 895 FWL	2300	0	
Arkenstone 31 Federal 2H	Pending	D-1-31-23S-31E	130 FNL 930 FWL	2300	0	
Arkenstone 31 Federal 3H	Pending	B-31-23S-31E	130 FNL 2613 FEL	2300	0	
Arkenstone 31 Federal 4H	Pending	B-31-23S-31E	130 FNL 2578 FEL	2300	0	
Arkenstone 31 Federal 7H	Pending	C-31-23S-31E	130 FNL 1425 FWL	2300	0	
Arkenstone 31 Federal 8H	Pending	C-31-23S-31E	130 FNL 1460 FWL	2300	0	
Arkenstone 31 Federal 171H	Pending	D-1-31-23S-31E	130 FNL 1160 FWL	2700	0	
Arkenstone 31 Federal 172H	Pending	D-1-31-23S-31E	130 FNL 1195 FWL	2700	0	
Arkenstone 31 Federal 173H	Pending	C-31-23S-31E	130 FNL 2465 FWL	2700	0	
Arkenstone 31 Federal 174H	Pending	C-31-23S-31E	130 FNL 2500 FWL	2700	0	
Arkenstone 31 Federal Com 5H	Pending	A-31-23S-31E	130 FNL 865 FEL	2300	0	
Arkenstone 31 Federal Com 6H	Pending	A-31-23S-31E	100 FNL 830 FEL	2300	0	
Arkenstone 31 Federal Com 9H	Pending	B-31-23S-31E	280 FNL 2150 FEL	2300	0	
Arkenstone 31 Federal Com 10H	Pending	B-31-23S-31E	350 FNL 2150 FEL	2300	0	
Arkenstone 31 Federal Com 175H	Pending	A-31-23S-31E	100 FNL 1130 FEL	2700	0	
Arkenstone 31 Federal Com 176H	Pending	A-31-23S-31E	100 FNL 1095 FEL	2700	0	
Precious 30_18 Federal Com 1H	Pending	D-1-31-23S-31E	570 FNL 550 FWL	3900	0	
Precious 30_18 Federal Com 2H	Pending	D-1-31-23S-31E	570 FNL 585 FWL	3900	0	
Precious 30_18 Federal Com 3H	Pending	B-31-23S-31E	570 FNL 2635 FEL	3900	0	
Precious 30_18 Federal Com 4H	Pending	B-31-23S-31E	570 FNL 2600 FEL	3900	0	
Precious 30_18 Federal Com 5H	Pending	A-31-23S-31E	520 FNL 800 FEL	3900	0	
Precious 30_18 Federal Com 6H	Pending	A-31-23S-31E	520 FNL 765 FEL	3900	0	
Precious 30_18 Federal Com 7H	Pending	C-31-23S-31E	570 FNL 1345 FWL	3900	0	
Precious 30_18 Federal Com 8H	Pending	C-31-23S-31E	570 FNL 1380 FWL	3900	0	
Precious 30_18 Federal Com 9H	Pending	B-31-23S-31E	520 FNL 1330 FEL	3900	0	
Precious 30_18 Federal Com 10H	Pending	A-31-23S-31E	520 FNL 1295 FEL	3900	0	
Precious 30_18 Federal Com 11H	Pending	C-31-23S-31E	130 FNL 1935 FWL	1800	0	
Precious 30_18 Federal Com 12H	Pending	C-31-23S-31E	130 FNL 1970 FWL	1800	0	
Precious 30_18 Federal Com 13H	Pending	B-31-23S-31E	100 FNL 1395 FEL	1800	0	
Precious 30_18 Federal Com 14H	Pending	B-31-23S-31E	100 FNL 1360 FEL	1800	0	
Precious 30_18 Federal Com 21H	Pending	D-1-31-23S-31E	570 FNL 285 FWL	3000	0	
Precious 30_18 Federal Com 22H	Pending	D-1-31-23S-31E	570 FNL 1080 FWL	3000	0	
Precious 30_18 Federal Com 23H	Pending	C-31-23S-31E	130 FNL 2200 FWL	3000	0	
Precious 30_18 Federal Com 24H	Pending	C-31-23S-31E	130 FNL 2235 FWL	3000	0	

Well Name	API	Well Location (ULSTR)	Footages	Expected MCF/D	Flared or Vented	Comments
Precious 30_18 Federal Com 25H	Pending	A-31-23S-31E	100 FNL 600 FEL	3000	0	
Precious 30_18 Federal Com 26H	Pending	A-31-23S-31E	100 FNL 565 FEL	3000	0	
Precious 30_18 Federal Com 41H	Pending	D-1-31-23S-31E	570 FNL 320 FWL	4000	0	
Precious 30_18 Federal Com 42H	Pending	D-1-31-23S-31E	570 FNL 1115 FWL	4000	0	
Precious 30_18 Federal Com 43H	Pending	C-31-23S-31E	570 FNL 2178 FWL	4000	0	
Precious 30_18 Federal Com 44H	Pending	C-31-23S-31E	570 FNL 2213 FWL	4000	0	
Precious 30_18 Federal Com 45H	Pending	A-31-23S-31E	520 FNL 535 FEL	4000	0	
Precious 30_18 Federal Com 46H	Pending	A-31-23S-31E	500 FNL 500 FEL	4000	0	
Precious 30_18 Federal Com 171H	Pending	D-1-31-23S-31E	570 FNL 815 FWL	3100	0	
Precious 30_18 Federal Com 172H	Pending	D-1-31-23S-31E	570 FNL 850 FWL	3100	0	
Precious 30_18 Federal Com 173H	Pending	C-31-23S-31E	570 FNL 2443 FWL	3100	0	
Precious 30_18 Federal Com 174H	Pending	C-31-23S-31E	570 FNL 2478 FWL	3100	0	
Precious 30_18 Federal Com 175H	Pending	A-31-23S-31E	520 FNL 1065 FEL	3100	0	
Precious 30_18 Federal Com 176H	Pending	A-31-23S-31E	520 FNL 1030 FEL	3100	0	

Gathering System and Pipeline Notification

Well(s) will be connected to a production facility after flowback operations are complete, where a gas transporter system is in place. The gas produced from production facility is dedicated to Enterprise Field Services, LLC ("Enterprise") and is connected to Enterprise low/high pressure gathering system located in Eddy County, New Mexico. OXY USA INC. ("OXY") provides (periodically) to Enterprise a drilling, completion and estimated first production date for wells that are scheduled to be drilled in the foreseeable future. In addition, OXY and Enterprise have periodic conference calls to discuss changes to drilling and completion schedules. Gas from these wells will be processed at Enterprise's Processing Plant located in Sec. 36, Twn. 24S, Rng. 30E, Eddy County, New Mexico. The actual flow of the gas will be based on compression operating parameters and gathering system pressures.

Flowback Strategy

After the fracture treatment/completion operations, well(s) will be produced to temporary production tanks and gas will be flared or vented. During flowback, the fluids and sand content will be monitored. When the produced fluids contain minimal sand, the wells will be turned to production facilities. Gas sales should start as soon as the wells start flowing through the production facilities, unless there are operational issues on Enterprise system at that time. Based on current information, it is OXY's belief the system can take this gas upon completion of the well(s).

Safety requirements during cleanout operations from the use of underbalanced air cleanout systems may necessitate that sand and non-pipeline quality gas be vented and/or flared rather than sold on a temporary basis.

Alternatives to Reduce Flaring

Below are alternatives considered from a conceptual standpoint to reduce the amount of gas flared.

- Power Generation – On lease
  - Only a portion of gas is consumed operating the generator, remainder of gas will be flared
- Compressed Natural Gas – On lease
  - Gas flared would be minimal, but might be uneconomical to operate when gas volume declines
- NGL Removal – On lease
  - Plants are expensive, residue gas is still flared, and uneconomical to operate when gas volume declines

Oxy USA Inc. - Precious 30-18 Federal Com 176H

1. Geologic Formations

TVD of target	11416'	Pilot Hole Depth	N/A
MD at TD:	24883'	Deepest Expected fresh water:	383'

Delaware Basin

Formation	TVD - RKB	Expected Fluids
Rustler	383	
Salado	710	Salt
Castile	2,605	Salt
Lamar/Delaware	4,083	Oil/Gas/Brine
Bell Canyon	4,121	Oil/Gas/Brine
Cherry Canyon	5,003	Oil/Gas/Brine
Brushy Canyon	6,283	Losses
Bone Spring	7,965	Oil/Gas
1st Bone Spring	8,998	Oil/Gas
2nd Bone Spring	9,259	Oil/Gas
3rd Bone Spring	10,130	Oil/Gas
Wolfcamp	**11,298**	**Oil/Gas**

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

2. Casing Program

Hole Size (in)	Casing Interval		Csg. Size (in)	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	Buoyant Body SF Tension	Buoyant Joint SF Tension
	From (ft)	To (ft)								
17.5	0	433	13.375	54.5	J-55	BTC	1.125	1.2	1.4	1.4
12.25	0	4133	9.625	40	L-80	BTC	1.125	1.2	1.4	1.4
8.75	0	10894	7.625	26.4	L-80 HC	SF (0 ft to 6000 ft) FJ (6000 ft to 10894 ft)	1.125	1.2	1.4	1.4
6.75	0	24883	5.5	20	P-110	DQX	1.125	1.2	1.4	1.4
							SF Values will meet or Exceed			

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

*Oxy requests the option to set casing shallower yet still below the salts if losses or hole conditions require this. Cement volumes may be adjusted if casing is set shallower and a DV tool may be run in case hole conditions merit pumping a second stage cement job to comply with permitted top of cement. If cement circulated to surface during first stage, we will drop a cancelation cone and not pump the second stage.

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

Oxy USA Inc. - Precious 30-18 Federal Com 176H

Annular Clearance Variance Request

As per the agreement reached in the Oxy/BLM face-to-face 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 3rd 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 2nd 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)	464	14.8	1.33	6.365	5:26	Class C Cement, Accelerator
Intermediate (Lead)	884	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)	280	13.2	1.65	8.640	11:54	Class H Cement, Retarder, Dispersant, Salt
Intermediate II 2nd Stage (Tail Slurry) to be pumped as Bradenhead Squeeze from surface, down the Intermediate annulus						
Intermediate II 2nd Stage (Lead)	N/A	N/A	N/A	N/A	N/A	N/A
Intermediate II 2nd Stage (Tail)	397	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)	1060	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	433	100%
Intermediate (Lead)	0	3633	50%
Intermediate (Tail)	3633	4133	20%
Intermediate II 1st Stage (Lead)	N/A	N/A	N/A
Intermediate II 1st Stage (Tail)	6533	10894	5%
Intermediate II 2nd Stage (Lead)	N/A	N/A	N/A
Intermediate II 2nd Stage (Tail)	0	6533	25%
Production (Lead)	N/A	N/A	N/A
Production (Tail)	10394	24883	20%

4. Pressure Control Equipment

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✓	Tested to:
12.25" Hole	13-5/8"	3M	Annular	✓	70% of working pressure
		3M	Blind Ram	✓	250 psi / 3000 psi
			Pipe Ram		
			Double Ram	✓	
			Other*		
8.75" Hole	13-5/8"	5M	Annular	✓	70% of working pressure
		5M	Blind Ram	✓	250 psi / 5000 psi
			Pipe Ram		
			Double Ram	✓	
			Other*		
6.75" Hole	13-5/8"	5M	Annular	✓	70% of working pressure
		5M	Blind Ram	✓	250 psi / 5000 psi
			Pipe Ram		
			Double Ram	✓	
			Other*		

*Specify if additional ram is utilized.

Oxy will utilize a 5M annular with a 10M BOPE stack. The 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 face-to-face 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 casing point is either shallower than the 3rd Bone Spring or 10,000 TVD.
- Full BOP test will be required prior to drilling any production hole.

5. Mud Program

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From (ft)	To (ft)				
0	433	Water-Based Mud	8.6-8.8	40-60	N/C
433	4133	Saturated Brine-Based Mud	9.8-10.0	35-45	N/C
4133	10894	Water-Based or Oil-Based Mud	8.0-9.6	38-50	N/C
10894	24883	Water-Based or Oil-Based Mud	9.5-12.0	38-50	N/C

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

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

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	7124 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.	
N	H2S is present
Y	H2S Plan attached

8. Other facets of operation

	Yes/No
Will the well be drilled with a walking/skidding operation? If yes, describe. • We plan to drill the two well pad in batch by section: all surface sections, intermediate sections and production sections. The wellhead will be secured with a night cap whenever the rig is not over the well.	Yes
Will more than one drilling rig be used for drilling operations? If yes, describe. • Oxy requests the option to contract a Surface Rig to drill, set surface casing, and cement for this well. If the timing between rigs is such that Oxy would not be able to preset surface, the Primary Rig will MIRU and drill the well in its entirety per the APD. Please see the attached document for information on the spudder rig.	Yes

Total estimated cuttings volume: 1790.2 bbls.

Attachments
_x__ Directional Plan
_x__ H2S Contingency Plan
_x__ Flex III Attachments
_x__ Spudder Rig Attachment
_x__ Premium Connection Specs

9. Company Personnel

Name	Title	Office Phone	Mobile Phone
Linsay Earle	Drilling Engineer	713-350-4921	832-596-5507
Margaret Giltner	Drilling Engineer Supervisor	713-366-5026	210-683-8480
Simon Benavides	Drilling Superintendent	713-522-8652	281-684-6897
Diego Tellez	Drilling Manager	713-350-4602	713-303-4932

OXY USA Inc.
APD Attachment
Offline Cementing

OXY respectfully requests a variance to cement the 9-5/8" and/or 7-5/8" intermediate casing strings offline.

The summarized operational sequence will be as follows:

1. Run casing as per normal operations. While running casing, conduct negative pressure test and confirm integrity of the float equipment (float collar and shoe).
2. Land casing.
3. Fill pipe with kill weight fluid, and confirm well is static.
    a. If well is not static notify BLM and kill well.
    b. Once well is static notify BLM with intent to proceed with nipple down and offline cementing.
4. Set and pressure test annular packoff.
5. After confirmation of both annular barriers and internal barriers, nipple down BOP and install cap flange. If any barrier fails to test, the BOP stack will not be nippled down until after the cement job is completed.
6. Skid rig to next well on pad.
7. Confirm well is static before removing cap flange.
8. If well is not static notify BLM and kill well prior to cementing or nippling up for further remediation.
9. Install offline cement tool.
10. Rig up cement equipment.
    a. Notify BLM prior to cement job.
11. Perform cement job.
12. Confirm well is static and floats are holding after cement job.
13. Remove cement equipment, offline cement tools and install night cap with pressure gauge for monitoring.

APD ID: 10400039136
Submission Date: 02/13/2019
Operator Name: OXY USA INCORPORATED
Well Name: PRECIOUS 30-18 FEDERAL COM
Well Number: 176H
Well Type: OIL WELL
Well Work Type: Drill

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - Existing Roads

Will existing roads be used? YES

Existing Road Map:

Precious30_18FdCom176H_ExistRoads_20190213144007.pdf

Existing Road Purpose: FLUID TRANSPORT

Row(s) Exist? NO

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 Reconstructed Access Roads

Will new roads be needed? YES

New Road Map:

Precious30_18FdCom176H_NewRoad_20190213144020.pdf

New road type: LOCAL

Length: 36 Feet **Width (ft.):** 25

Max slope (%): 0 **Max grade (%):** 0

Army Corp of Engineers (ACOE) permit required? NO

ACOE Permit Number(s):

New road travel width: 14

New road access erosion control: Watershed Diversion every 200' if needed.

New road access plan or profile prepared? YES

New road access plan attachment:

Precious30_18FdCom176H_NewRoad_20190213144030.pdf

Access road engineering design? NO

Access road engineering design attachment:

Turnout? N

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 Caliche Road and run north for 36' into the 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

Section 3 - Location of Existing Wells

Existing Wells Map? YES

Attach Well map:

Precious30_18FdCom176H_ExistWells_20190213144041.pdf

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 Precious Central Tank Battery and the Little Precious Central Tank Battery will 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 three – 4" composite flowlines operating 75% MAWP, surface to follow surveyed route. Survey nine strips of land 30' wide and 13877.1' in length crossing USA land in Sections 30 & 31 T23S R31E, Eddy County, NM and being 15' left and 15' right of the centerline surveys. Two–20" steel gas lift lines operating 75% MAWP from Precious CTB to Little Precious CTB. Two-8" steel gas suction lines operating at 75% MAWP to Compressor Pad. All well pads have two-6" buried steel gas injection lines operating at 75% MAWP from the two-8" gas injection trunk lines to the wells. Survey eight strips of land 30' wide and 16863.3' in length crossing Sections 30 & 31 T23S R31E, Eddy County, NM and being 15' left and 15' right of the centerline survey and a survey of a strip of land 50' wide and 3830.1' in length crossing USA Land in Sections 29 & 30 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 11040.6 in length crossing USA land in Sections 30 & 31 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 Precious/Arkenstone

Production Facilities map:

Precious30_18FdCom176H_FacilityPLEL_20190213144051.pdf

Precious30_18FdCom176H_LeaseFacilityInfo_20190725093124.pdf

Section 5 - Location and Types of Water Supply

Water Source Table

Water source type: GW WELL

Water source use type: SURFACE CASING

INTERMEDIATE/PRODUCTION CASING

OTHER **Describe use type:** Drilling

Source latitude: **Source longitude:**

Source datum:

Water source permit type: WATER WELL

Water source transport method: PIPELINE

TRUCKING

Source land ownership: COMMERCIAL

Source transportation land ownership: COMMERCIAL

Water source volume (barrels): 2000 **Source volume (acre-feet):** 0.25778618

Source volume (gal): 84000

Water source and transportation map:

Precious30_18FdCom176H_GRRWtrSrc_20190213144119.pdf

Precious30_18FdCom176H_MesqWtrSrc_20190213144126.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 Info

Well latitude: **Well Longitude:** **Well datum:**

Well target aquifer:

Est. depth to top of aquifer(ft): **Est thickness of aquifer:**

Aquifer comments:

Aquifer documentation:

Well depth (ft): **Well casing type:**

Well casing outside diameter (in.): **Well casing inside diameter (in.):**

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: **Completion Method:**

Water well additional information:

State appropriation permit:

Additional information attachment:

Section 6 - Construction Materials

Using any construction materials: YES

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: 1761.9 barrels

Waste disposal frequency : Daily

Safe containment description: Haul-Off Bins

Safe containmant attachment:

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