

Well Name: RADIUS CC 6-7 FEDERAL COM	Well Location: T24S / R29E / SEC 6 / LOT 3 / 32.2538181 / -104.0279805	County or Parish/State: EDDY / NM
Well Number: 52H	Type of Well: OIL WELL	Allottee or Tribe Name:
Lease Number: NMNM013996, NMNM13996	Unit or CA Name:	Unit or CA Number:
US Well Number: 3001546826	Well Status: Approved Application for Permit to Drill	Operator: OXY USA INCORPORATED

Notice of Intent

Sundry ID: 2684570

Type of Submission: Notice of Intent

Type of Action: APD Change

Date Sundry Submitted: 07/28/2022

Time Sundry Submitted: 12:51

Date proposed operation will begin: 10/03/2022

Procedure Description: The subject well has one aspect changing in the APD: drill plan change. The drill plan has been redesigned with new casing and new cement.

NOI Attachments

Procedure Description

- RadiusCC6_7FederalCom52H_TNSWedge461_7.000in_32.00__P110CY_20220728125029.pdf
- RadiusCC6_7FederalCom52H_TNSWedge461_5.500in_20.00__P110CY_20220728125028.pdf
- RadiusCC6_7FederalCom52H_DirectPlot_20220728125024.pdf
- RadiusCC6_7FederalCom52H_DrillPlan_20220728125025.pdf
- RadiusCC6_7FederalCom52H_DirectPlan_20220728125024.pdf
- RadiusCC6_7FederalCom52H_TNSWedge425_5.500in_20.00__P110CY_20220728125026.pdf
- RadiusCC6_7FederalCom52H_TNSWedge441_5.500in_20.00__P110CY_20220728125026.pdf
- RadiusCC6_7FederalCom52H_13inADAPT_13.375in_7.000in_10x10_20220728125024.pdf
- RadiusCC6_7FederalCom52H_TMKUPTORQDQW_5.500in_20.00__P110CY_20220728125024.pdf
- RadiusCC6_7FederalCom52H_TMKUPDQX_5.500in_20.00__P110_20220728125024.pdf

Received by OCD: 9/6/2022 7:26:52 AM

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Conditions of Approval

Additional

RADIUS_CC_6_7_FEDERAL_COM_52H___SUNDRY_COA_20220804094222.pdf

Operator

I certify that the foregoing is true and correct. 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. Electronic submission of Sundry Notices through this system satisfies regulations requiring a

Operator Electronic Signature: STEPHEN JANACEK

Signed on: JUL 28, 2022 12:50 PM

Name: OXY USA INCORPORATED

Title: Regulatory Engineer

Street Address: 5 Greenway Plaza, Suite 110

City: HoustonState: TX

Phone: (713) 497-2417

Email address: stephen_janacek@oxy.com

Field

Representative Name:

Street Address:

City:State:Zip:

Phone:

Email address:

BLM Point of Contact

BLM POC Name: CHRISTOPHER WALLS

BLM POC Title: Petroleum Engineer

BLM POC Phone: 5752342234

BLM POC Email Address: cwalls@blm.gov

Disposition: Approved

Disposition Date: 08/26/2022

Signature: Chris Walls

PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

ALL PREVIOUS COAs STILL APPLY

OPERATOR'S NAME:	OXY USA INC
LEASE NO.:	NMNM13996
WELL NAME & NO.:	RADIUS CC 6-7 FEDERAL COM / 52H
SURFACE HOLE FOOTAGE:	170'N & 1350'W
BOTTOM HOLE FOOTAGE:	20'S & 2300'W
LOCATION:	Section 6, T.24 S., R.29 E., NMPM
COUNTY:	Eddy County, New Mexico

COA

H2S	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
Potash	<input checked="" type="radio"/> None	<input type="radio"/> Secretary	<input type="radio"/> R-111-P
Cave/Karst Potential	<input type="radio"/> Low	<input checked="" type="radio"/> Medium	<input type="radio"/> High
Cave/Karst Potential	<input type="radio"/> Critical		
Variance	<input type="radio"/> None	<input checked="" type="radio"/> Flex Hose	<input type="radio"/> Other
Wellhead	<input type="radio"/> Conventional	<input checked="" type="radio"/> Multibowl	<input type="radio"/> Both
Other	<input type="checkbox"/> 4 String Area	<input type="checkbox"/> Capitan Reef	<input type="checkbox"/> WIPP
Other	<input type="checkbox"/> Fluid Filled	<input checked="" type="checkbox"/> Cement Squeeze	<input type="checkbox"/> Pilot Hole
Special Requirements	<input type="checkbox"/> Water Disposal	<input checked="" type="checkbox"/> COM	<input type="checkbox"/> Unit

A. HYDROGEN SULFIDE

A Hydrogen Sulfide (H2S) Drilling Plan shall be activated AT SPUD. As a result, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.

B. CASING

Alternate Casing Design:

1. The 13-3/8 inch surface casing shall be set at approximately **475** 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 **8 hours** 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. **KEEP INTERMEDIATE CASING HALF FULL FOR COLLAPSE SF DURING CASING RUN.** The 9-5/8 inch intermediate casing shall be set at approximately **10,158** feet. 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.
- ❖ In Medium Cave/Karst Areas if cement does not circulate to surface on the first two casing strings, the cement on the 3rd casing string must come to surface.

Operator has proposed to pump down 9-5/8" X 13-3/8" annulus. Operator must run a CBL or ECHOMETER from TD of the 9-5/8" casing to surface. Submit results to BLM.

3. **ENSURE OPEN HOLE EXCESS IS 25% FOR CEMENTING.** The 7 X 5.5 inch tapered production casing shall be set at approximately **21,253** feet. The minimum required fill of cement behind the 7 X 5.5 inch tapered production casing is:

Option 1 (Single Stage):

- Cement should tie-back at least **200 feet** into previous casing string. Operator shall provide method of verification.

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 should tie-back at least **200 feet** into previous casing string. Operator shall provide method of verification.
4. The minimum required fill of cement behind the Choose an item. inch production liner is:
- Cement should tie-back **100 feet** into the previous casing. Operator shall provide method of verification.

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)
689-5981

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 integrity 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 integrity 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: The flex line must meet the requirements of API 16C. 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.

C. DRILLING MUD

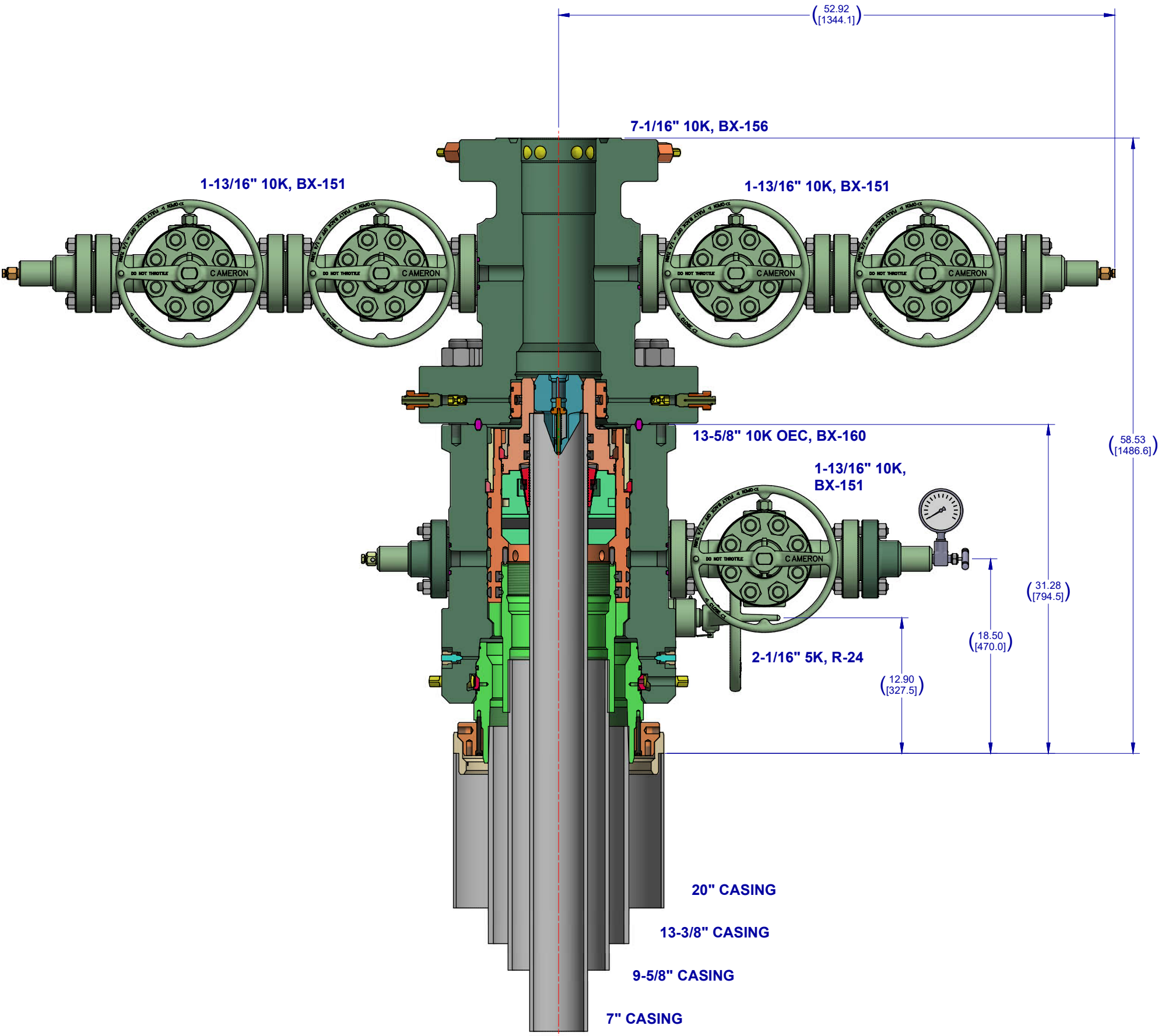
Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the Wolfcamp formation, and shall be used until production casing is run and cemented.

D. WASTE MATERIAL AND FLUIDS

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

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


KPI – 8/4/2022



Notes:

1. THIS IS A PROPOSAL DRAWING AND DIMENSIONS SHOWN ARE SUBJECT TO CHANGE DURING THE FINAL DESIGN PROCESS.

2. DIGITALLY ENABLED SOLUTIONS, CHOKES AND ESD'S AVAILABLE ON REQUEST

CONFIDENTIAL					
SURFACE TREATMENT	DO NOT SCALE		 CAMERON A Schlumberger Company	SURFACE SYSTEMS	
	DRAWN BY: D. GOTTUNG	DATE 18 Feb 22		OXY 13-5/8" 10K ADAPT 20" X 13-3/8" X 9-5/8" X 7"	
MATERIAL & HEAT TREAT	CHECKED BY: D. GOTTUNG	DATE 18 Feb 22			
	APPROVED BY: D. GOTTUNG	DATE 18 Feb 22			
ESTIMATED WEIGHT: 6115.068 LBS 2773.748 KG	INITIAL USE B/M:		SHEET 1 of 1	SD-053434-94-12	REV: 01 INVENTOR - D

OXY

PRD NM DIRECTIONAL PLANS (NAD 1983)

Radius CC 6_7

Radius CC 6_7 Federal Com 52H

Wellbore #1

Plan: Permitting Plan

Standard Planning Report

26 July, 2022

OXY

Planning Report

Database:	HOPSPP	Local Co-ordinate Reference:	Well Radius CC 6_7 Federal Com 52H
Company:	ENGINEERING DESIGNS	TVD Reference:	RKB=25' @ 2983.90ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	RKB=25' @ 2983.90ft
Site:	Radius CC 6_7	North Reference:	Grid
Well:	Radius CC 6_7 Federal Com 52H	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		Radius CC 6_7				
Site Position:		Northing:	456,207.02 usft	Latitude:	32.253820	
From:	Map	Easting:	635,666.76 usft	Longitude:	-104.028191	
Position Uncertainty:		2.00 ft	Slot Radius:	13.200 in	Grid Convergence:	0.16 °

Well							Radius CC 6_7 Federal Com 52H						
Well Position		+N/-S	-0.47 ft	Northing:		456,206.55 usft		Latitude:		32.253818			
		+E/-W	65.01 ft									Easting:	
Position Uncertainty			2.00 ft	Wellhead Elevation:		0.00 ft		Ground Level:		2,958.90 ft			

Wellbore	Wellbore #1					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)	
	HDGM	7/10/2019	7.03	59.98	47,895.50000000	
	HDGM_FILE	7/26/2022	6.73	59.90	47,595.70000000	

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 (°)	
	-1.50	0.00	0.00	174.51	

Plan Survey Tool Program	Date	7/26/2022			
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	21,252.62	Permitting Plan (Wellbore #1)	B001Mb_MWD+HRGM	
				OWSG MWD + HRGM	

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	
5,355.00	0.00	0.00	5,355.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,455.19	11.00	82.38	6,448.45	13.96	104.38	1.00	1.00	0.00	82.38	
10,335.79	11.00	82.38	10,257.72	112.16	838.42	0.00	0.00	0.00	0.00	
11,249.62	89.99	179.70	10,834.00	-459.93	952.51	10.00	8.64	10.65	97.19	
21,252.62	89.99	179.70	10,835.90	-10,462.80	1,004.76	0.00	0.00	0.00	0.00	PBHL (Radius CC)

OXY

Planning Report

Database:	HOPSPP	Local Co-ordinate Reference:	Well Radius CC 6_7 Federal Com 52H
Company:	ENGINEERING DESIGNS	TVD Reference:	RKB=25' @ 2983.90ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	RKB=25' @ 2983.90ft
Site:	Radius CC 6_7	North Reference:	Grid
Well:	Radius CC 6_7 Federal Com 52H	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
5,355.00	0.00	0.00	5,355.00	0.00	0.00	0.00	0.00	0.00	0.00

OXY

Planning Report

Database:	HOPSP	Local Co-ordinate Reference:	Well Radius CC 6_7 Federal Com 52H
Company:	ENGINEERING DESIGNS	TVD Reference:	RKB=25' @ 2983.90ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	RKB=25' @ 2983.90ft
Site:	Radius CC 6_7	North Reference:	Grid
Well:	Radius CC 6_7 Federal Com 52H	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	0.45	82.38	5,400.00	0.02	0.18	-0.01	1.00	1.00	0.00
5,500.00	1.45	82.38	5,499.98	0.24	1.82	-0.07	1.00	1.00	0.00
5,600.00	2.45	82.38	5,599.93	0.69	5.19	-0.20	1.00	1.00	0.00
5,700.00	3.45	82.38	5,699.79	1.38	10.29	-0.39	1.00	1.00	0.00
5,800.00	4.45	82.38	5,799.55	2.29	17.12	-0.64	1.00	1.00	0.00
5,900.00	5.45	82.38	5,899.18	3.43	25.67	-0.96	1.00	1.00	0.00
6,000.00	6.45	82.38	5,998.64	4.81	35.95	-1.35	1.00	1.00	0.00
6,100.00	7.45	82.38	6,097.90	6.41	47.94	-1.80	1.00	1.00	0.00
6,200.00	8.45	82.38	6,196.94	8.25	61.65	-2.32	1.00	1.00	0.00
6,300.00	9.45	82.38	6,295.72	10.31	77.07	-2.90	1.00	1.00	0.00
6,400.00	10.45	82.38	6,394.22	12.60	94.19	-3.54	1.00	1.00	0.00
6,455.19	11.00	82.38	6,448.45	13.96	104.38	-3.92	1.00	1.00	0.00
6,500.00	11.00	82.38	6,492.43	15.10	112.85	-4.24	0.00	0.00	0.00
6,600.00	11.00	82.38	6,590.59	17.63	131.77	-4.95	0.00	0.00	0.00
6,700.00	11.00	82.38	6,688.75	20.16	150.68	-5.66	0.00	0.00	0.00
6,800.00	11.00	82.38	6,786.91	22.69	169.60	-6.37	0.00	0.00	0.00
6,900.00	11.00	82.38	6,885.08	25.22	188.51	-7.08	0.00	0.00	0.00
7,000.00	11.00	82.38	6,983.24	27.75	207.43	-7.79	0.00	0.00	0.00
7,100.00	11.00	82.38	7,081.40	30.28	226.35	-8.50	0.00	0.00	0.00
7,200.00	11.00	82.38	7,179.56	32.81	245.26	-9.22	0.00	0.00	0.00
7,300.00	11.00	82.38	7,277.72	35.34	264.18	-9.93	0.00	0.00	0.00
7,400.00	11.00	82.38	7,375.89	37.87	283.09	-10.64	0.00	0.00	0.00
7,500.00	11.00	82.38	7,474.05	40.40	302.01	-11.35	0.00	0.00	0.00
7,600.00	11.00	82.38	7,572.21	42.93	320.92	-12.06	0.00	0.00	0.00
7,700.00	11.00	82.38	7,670.37	45.46	339.84	-12.77	0.00	0.00	0.00
7,800.00	11.00	82.38	7,768.54	47.99	358.76	-13.48	0.00	0.00	0.00
7,900.00	11.00	82.38	7,866.70	50.52	377.67	-14.19	0.00	0.00	0.00
8,000.00	11.00	82.38	7,964.86	53.05	396.59	-14.90	0.00	0.00	0.00
8,100.00	11.00	82.38	8,063.02	55.58	415.50	-15.61	0.00	0.00	0.00
8,200.00	11.00	82.38	8,161.18	58.12	434.42	-16.32	0.00	0.00	0.00
8,300.00	11.00	82.38	8,259.35	60.65	453.33	-17.03	0.00	0.00	0.00
8,400.00	11.00	82.38	8,357.51	63.18	472.25	-17.74	0.00	0.00	0.00
8,500.00	11.00	82.38	8,455.67	65.71	491.17	-18.45	0.00	0.00	0.00
8,600.00	11.00	82.38	8,553.83	68.24	510.08	-19.16	0.00	0.00	0.00
8,700.00	11.00	82.38	8,651.99	70.77	529.00	-19.88	0.00	0.00	0.00
8,800.00	11.00	82.38	8,750.16	73.30	547.91	-20.59	0.00	0.00	0.00
8,900.00	11.00	82.38	8,848.32	75.83	566.83	-21.30	0.00	0.00	0.00
9,000.00	11.00	82.38	8,946.48	78.36	585.74	-22.01	0.00	0.00	0.00
9,100.00	11.00	82.38	9,044.64	80.89	604.66	-22.72	0.00	0.00	0.00
9,200.00	11.00	82.38	9,142.80	83.42	623.58	-23.43	0.00	0.00	0.00
9,300.00	11.00	82.38	9,240.97	85.95	642.49	-24.14	0.00	0.00	0.00
9,400.00	11.00	82.38	9,339.13	88.48	661.41	-24.85	0.00	0.00	0.00
9,500.00	11.00	82.38	9,437.29	91.01	680.32	-25.56	0.00	0.00	0.00
9,600.00	11.00	82.38	9,535.45	93.54	699.24	-26.27	0.00	0.00	0.00
9,700.00	11.00	82.38	9,633.61	96.07	718.15	-26.98	0.00	0.00	0.00
9,800.00	11.00	82.38	9,731.78	98.60	737.07	-27.69	0.00	0.00	0.00
9,900.00	11.00	82.38	9,829.94	101.13	755.99	-28.40	0.00	0.00	0.00
10,000.00	11.00	82.38	9,928.10	103.66	774.90	-29.11	0.00	0.00	0.00
10,100.00	11.00	82.38	10,026.26	106.19	793.82	-29.83	0.00	0.00	0.00
10,200.00	11.00	82.38	10,124.42	108.73	812.73	-30.54	0.00	0.00	0.00
10,300.00	11.00	82.38	10,222.59	111.26	831.65	-31.25	0.00	0.00	0.00
10,335.79	11.00	82.38	10,257.72	112.16	838.42	-31.50	0.00	0.00	0.00
10,400.00	12.00	114.62	10,320.70	110.19	850.57	-28.38	10.00	1.56	50.21
10,500.00	18.50	144.51	10,417.27	92.90	869.28	-9.38	10.00	6.49	29.89
10,600.00	27.16	157.63	10,509.41	58.79	887.23	26.29	10.00	8.66	13.12

OXY

Planning Report

Database:	HOPSPP	Local Co-ordinate Reference:	Well Radius CC 6_7 Federal Com 52H
Company:	ENGINEERING DESIGNS	TVD Reference:	RKB=25' @ 2983.90ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	RKB=25' @ 2983.90ft
Site:	Radius CC 6_7	North Reference:	Grid
Well:	Radius CC 6_7 Federal Com 52H	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)
10,700.00	36.48	164.59	10,594.31	8.90	903.86	77.55	10.00	9.32	6.96
10,800.00	46.05	168.99	10,669.41	-55.26	918.67	142.83	10.00	9.57	4.41
10,900.00	55.75	172.16	10,732.41	-131.73	931.22	220.15	10.00	9.70	3.17
11,000.00	65.51	174.66	10,781.40	-218.20	941.11	307.16	10.00	9.76	2.51
11,100.00	75.30	176.80	10,814.90	-312.03	948.06	401.23	10.00	9.80	2.14
11,200.00	85.12	178.76	10,831.88	-410.38	951.85	499.49	10.00	9.81	1.96
11,249.62	89.99	179.70	10,834.00	-459.93	952.51	548.88	10.00	9.82	1.90
11,300.00	89.99	179.70	10,834.01	-510.31	952.77	599.05	0.00	0.00	0.00
11,400.00	89.99	179.70	10,834.03	-610.31	953.30	698.64	0.00	0.00	0.00
11,500.00	89.99	179.70	10,834.05	-710.31	953.82	798.23	0.00	0.00	0.00
11,600.00	89.99	179.70	10,834.07	-810.31	954.34	897.82	0.00	0.00	0.00
11,700.00	89.99	179.70	10,834.09	-910.31	954.86	997.42	0.00	0.00	0.00
11,800.00	89.99	179.70	10,834.10	-1,010.31	955.39	1,097.01	0.00	0.00	0.00
11,900.00	89.99	179.70	10,834.12	-1,110.30	955.91	1,196.60	0.00	0.00	0.00
12,000.00	89.99	179.70	10,834.14	-1,210.30	956.43	1,296.19	0.00	0.00	0.00
12,100.00	89.99	179.70	10,834.16	-1,310.30	956.95	1,395.78	0.00	0.00	0.00
12,200.00	89.99	179.70	10,834.18	-1,410.30	957.48	1,495.37	0.00	0.00	0.00
12,300.00	89.99	179.70	10,834.20	-1,510.30	958.00	1,594.96	0.00	0.00	0.00
12,400.00	89.99	179.70	10,834.22	-1,610.30	958.52	1,694.55	0.00	0.00	0.00
12,500.00	89.99	179.70	10,834.24	-1,710.30	959.04	1,794.14	0.00	0.00	0.00
12,600.00	89.99	179.70	10,834.26	-1,810.29	959.56	1,893.73	0.00	0.00	0.00
12,700.00	89.99	179.70	10,834.28	-1,910.29	960.09	1,993.32	0.00	0.00	0.00
12,800.00	89.99	179.70	10,834.29	-2,010.29	960.61	2,092.91	0.00	0.00	0.00
12,900.00	89.99	179.70	10,834.31	-2,110.29	961.13	2,192.50	0.00	0.00	0.00
13,000.00	89.99	179.70	10,834.33	-2,210.29	961.65	2,292.09	0.00	0.00	0.00
13,100.00	89.99	179.70	10,834.35	-2,310.29	962.18	2,391.68	0.00	0.00	0.00
13,200.00	89.99	179.70	10,834.37	-2,410.29	962.70	2,491.27	0.00	0.00	0.00
13,300.00	89.99	179.70	10,834.39	-2,510.28	963.22	2,590.87	0.00	0.00	0.00
13,400.00	89.99	179.70	10,834.41	-2,610.28	963.74	2,690.46	0.00	0.00	0.00
13,500.00	89.99	179.70	10,834.43	-2,710.28	964.27	2,790.05	0.00	0.00	0.00
13,600.00	89.99	179.70	10,834.45	-2,810.28	964.79	2,889.64	0.00	0.00	0.00
13,700.00	89.99	179.70	10,834.47	-2,910.28	965.31	2,989.23	0.00	0.00	0.00
13,800.00	89.99	179.70	10,834.48	-3,010.28	965.83	3,088.82	0.00	0.00	0.00
13,900.00	89.99	179.70	10,834.50	-3,110.28	966.36	3,188.41	0.00	0.00	0.00
14,000.00	89.99	179.70	10,834.52	-3,210.28	966.88	3,288.00	0.00	0.00	0.00
14,100.00	89.99	179.70	10,834.54	-3,310.27	967.40	3,387.59	0.00	0.00	0.00
14,200.00	89.99	179.70	10,834.56	-3,410.27	967.92	3,487.18	0.00	0.00	0.00
14,300.00	89.99	179.70	10,834.58	-3,510.27	968.45	3,586.77	0.00	0.00	0.00
14,400.00	89.99	179.70	10,834.60	-3,610.27	968.97	3,686.36	0.00	0.00	0.00
14,500.00	89.99	179.70	10,834.62	-3,710.27	969.49	3,785.95	0.00	0.00	0.00
14,600.00	89.99	179.70	10,834.64	-3,810.27	970.01	3,885.54	0.00	0.00	0.00
14,700.00	89.99	179.70	10,834.66	-3,910.27	970.53	3,985.13	0.00	0.00	0.00
14,800.00	89.99	179.70	10,834.67	-4,010.26	971.06	4,084.72	0.00	0.00	0.00
14,900.00	89.99	179.70	10,834.69	-4,110.26	971.58	4,184.32	0.00	0.00	0.00
15,000.00	89.99	179.70	10,834.71	-4,210.26	972.10	4,283.91	0.00	0.00	0.00
15,100.00	89.99	179.70	10,834.73	-4,310.26	972.62	4,383.50	0.00	0.00	0.00
15,200.00	89.99	179.70	10,834.75	-4,410.26	973.15	4,483.09	0.00	0.00	0.00
15,300.00	89.99	179.70	10,834.77	-4,510.26	973.67	4,582.68	0.00	0.00	0.00
15,400.00	89.99	179.70	10,834.79	-4,610.26	974.19	4,682.27	0.00	0.00	0.00
15,500.00	89.99	179.70	10,834.81	-4,710.25	974.71	4,781.86	0.00	0.00	0.00
15,600.00	89.99	179.70	10,834.83	-4,810.25	975.24	4,881.45	0.00	0.00	0.00
15,700.00	89.99	179.70	10,834.85	-4,910.25	975.76	4,981.04	0.00	0.00	0.00
15,800.00	89.99	179.70	10,834.86	-5,010.25	976.28	5,080.63	0.00	0.00	0.00
15,900.00	89.99	179.70	10,834.88	-5,110.25	976.80	5,180.22	0.00	0.00	0.00
16,000.00	89.99	179.70	10,834.90	-5,210.25	977.33	5,279.81	0.00	0.00	0.00

OXY

Planning Report

Database:	HOPSPP	Local Co-ordinate Reference:	Well Radius CC 6_7 Federal Com 52H
Company:	ENGINEERING DESIGNS	TVD Reference:	RKB=25' @ 2983.90ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	RKB=25' @ 2983.90ft
Site:	Radius CC 6_7	North Reference:	Grid
Well:	Radius CC 6_7 Federal Com 52H	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)
16,100.00	89.99	179.70	10,834.92	-5,310.25	977.85	5,379.40	0.00	0.00	0.00
16,200.00	89.99	179.70	10,834.94	-5,410.25	978.37	5,478.99	0.00	0.00	0.00
16,300.00	89.99	179.70	10,834.96	-5,510.24	978.89	5,578.58	0.00	0.00	0.00
16,400.00	89.99	179.70	10,834.98	-5,610.24	979.41	5,678.18	0.00	0.00	0.00
16,500.00	89.99	179.70	10,835.00	-5,710.24	979.94	5,777.77	0.00	0.00	0.00
16,600.00	89.99	179.70	10,835.02	-5,810.24	980.46	5,877.36	0.00	0.00	0.00
16,700.00	89.99	179.70	10,835.04	-5,910.24	980.98	5,976.95	0.00	0.00	0.00
16,800.00	89.99	179.70	10,835.05	-6,010.24	981.50	6,076.54	0.00	0.00	0.00
16,900.00	89.99	179.70	10,835.07	-6,110.24	982.03	6,176.13	0.00	0.00	0.00
17,000.00	89.99	179.70	10,835.09	-6,210.23	982.55	6,275.72	0.00	0.00	0.00
17,100.00	89.99	179.70	10,835.11	-6,310.23	983.07	6,375.31	0.00	0.00	0.00
17,200.00	89.99	179.70	10,835.13	-6,410.23	983.59	6,474.90	0.00	0.00	0.00
17,300.00	89.99	179.70	10,835.15	-6,510.23	984.12	6,574.49	0.00	0.00	0.00
17,400.00	89.99	179.70	10,835.17	-6,610.23	984.64	6,674.08	0.00	0.00	0.00
17,500.00	89.99	179.70	10,835.19	-6,710.23	985.16	6,773.67	0.00	0.00	0.00
17,600.00	89.99	179.70	10,835.21	-6,810.23	985.68	6,873.26	0.00	0.00	0.00
17,700.00	89.99	179.70	10,835.23	-6,910.22	986.21	6,972.85	0.00	0.00	0.00
17,800.00	89.99	179.70	10,835.24	-7,010.22	986.73	7,072.44	0.00	0.00	0.00
17,900.00	89.99	179.70	10,835.26	-7,110.22	987.25	7,172.03	0.00	0.00	0.00
18,000.00	89.99	179.70	10,835.28	-7,210.22	987.77	7,271.63	0.00	0.00	0.00
18,100.00	89.99	179.70	10,835.30	-7,310.22	988.29	7,371.22	0.00	0.00	0.00
18,200.00	89.99	179.70	10,835.32	-7,410.22	988.82	7,470.81	0.00	0.00	0.00
18,300.00	89.99	179.70	10,835.34	-7,510.22	989.34	7,570.40	0.00	0.00	0.00
18,400.00	89.99	179.70	10,835.36	-7,610.21	989.86	7,669.99	0.00	0.00	0.00
18,500.00	89.99	179.70	10,835.38	-7,710.21	990.38	7,769.58	0.00	0.00	0.00
18,600.00	89.99	179.70	10,835.40	-7,810.21	990.91	7,869.17	0.00	0.00	0.00
18,700.00	89.99	179.70	10,835.42	-7,910.21	991.43	7,968.76	0.00	0.00	0.00
18,800.00	89.99	179.70	10,835.43	-8,010.21	991.95	8,068.35	0.00	0.00	0.00
18,900.00	89.99	179.70	10,835.45	-8,110.21	992.47	8,167.94	0.00	0.00	0.00
19,000.00	89.99	179.70	10,835.47	-8,210.21	993.00	8,267.53	0.00	0.00	0.00
19,100.00	89.99	179.70	10,835.49	-8,310.21	993.52	8,367.12	0.00	0.00	0.00
19,200.00	89.99	179.70	10,835.51	-8,410.20	994.04	8,466.71	0.00	0.00	0.00
19,300.00	89.99	179.70	10,835.53	-8,510.20	994.56	8,566.30	0.00	0.00	0.00
19,400.00	89.99	179.70	10,835.55	-8,610.20	995.09	8,665.89	0.00	0.00	0.00
19,500.00	89.99	179.70	10,835.57	-8,710.20	995.61	8,765.48	0.00	0.00	0.00
19,600.00	89.99	179.70	10,835.59	-8,810.20	996.13	8,865.08	0.00	0.00	0.00
19,700.00	89.99	179.70	10,835.61	-8,910.20	996.65	8,964.67	0.00	0.00	0.00
19,800.00	89.99	179.70	10,835.62	-9,010.20	997.18	9,064.26	0.00	0.00	0.00
19,900.00	89.99	179.70	10,835.64	-9,110.19	997.70	9,163.85	0.00	0.00	0.00
20,000.00	89.99	179.70	10,835.66	-9,210.19	998.22	9,263.44	0.00	0.00	0.00
20,100.00	89.99	179.70	10,835.68	-9,310.19	998.74	9,363.03	0.00	0.00	0.00
20,200.00	89.99	179.70	10,835.70	-9,410.19	999.26	9,462.62	0.00	0.00	0.00
20,300.00	89.99	179.70	10,835.72	-9,510.19	999.79	9,562.21	0.00	0.00	0.00
20,400.00	89.99	179.70	10,835.74	-9,610.19	1,000.31	9,661.80	0.00	0.00	0.00
20,500.00	89.99	179.70	10,835.76	-9,710.19	1,000.83	9,761.39	0.00	0.00	0.00
20,600.00	89.99	179.70	10,835.78	-9,810.18	1,001.35	9,860.98	0.00	0.00	0.00
20,700.00	89.99	179.70	10,835.80	-9,910.18	1,001.88	9,960.57	0.00	0.00	0.00
20,800.00	89.99	179.70	10,835.81	-10,010.18	1,002.40	10,060.16	0.00	0.00	0.00
20,900.00	89.99	179.70	10,835.83	-10,110.18	1,002.92	10,159.75	0.00	0.00	0.00
21,000.00	89.99	179.70	10,835.85	-10,210.18	1,003.44	10,259.34	0.00	0.00	0.00
21,100.00	89.99	179.70	10,835.87	-10,310.18	1,003.97	10,358.93	0.00	0.00	0.00
21,200.00	89.99	179.70	10,835.89	-10,410.18	1,004.49	10,458.53	0.00	0.00	0.00
21,252.62	89.99	179.70	10,835.90	-10,462.80	1,004.76	10,510.93	0.00	0.00	0.00

OXY

Planning Report

Database:	HOPSPP	Local Co-ordinate Reference:	Well Radius CC 6_7 Federal Com 52H
Company:	ENGINEERING DESIGNS	TVD Reference:	RKB=25' @ 2983.90ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	RKB=25' @ 2983.90ft
Site:	Radius CC 6_7	North Reference:	Grid
Well:	Radius CC 6_7 Federal Com 52H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permitting Plan		

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
FTP (Radius CC 6_7 - plan misses target center by 203.11ft at 10817.04ft MD (10681.05 TVD, -67.48 N, 920.98 E) - Point	0.00	0.00	10,833.90	63.14	949.78	456,269.68	636,681.46	32.253984	-104.024908
PBHL (Radius CC 6_7 - plan hits target center - Point	0.00	0.00	10,835.90	-10,462.80	1,004.76	445,744.62	636,736.44	32.225052	-104.024828

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
95.90	95.90	RUSTLER				
534.90	534.90	SALADO				
1,298.90	1,298.90	CASTILE				
2,757.90	2,757.90	DELAWARE				
2,803.90	2,803.90	BELL CANYON				
3,664.90	3,664.90	CHERRY CANYON				
4,903.90	4,903.90	BRUSHY CANYON				
6,489.28	6,481.90	BONE SPRING				
7,495.77	7,469.90	BONE SPRING 1ST				
8,274.08	8,233.90	BONE SPRING 2ND				
9,399.77	9,338.90	BONE SPRING 3RD				
9,770.58	9,702.90	WOLFCAMP				
9,898.94	9,828.90	WOLFCAMP A				

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
5,355.00	5,355.00	0.00	0.00	Build 1°/100'
6,455.19	6,448.45	13.96	104.38	Hold 11° Tangent
10,335.79	10,257.72	112.16	838.42	KOP, Build & Turn 10°/100'
11,249.62	10,834.00	-459.93	952.51	Landing Point
21,252.62	10,835.90	-10,462.80	1,004.76	TD at 21252.62' MD



Project: PRD NM DIRECTIONAL PLANS (NAD 1983)
 Site: Radius CC 6_7
 Well: Radius CC 6_7 Federal Com 52H
 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

WELL DETAILS: Radius CC 6_7 Federal Com 52H

+N/-S	+E/-W	Northing	Ground Level: Easting	Latitude	Longitude
0.00	0.00	456206.55	2958.90 635731.76	32.253818	-104.027980

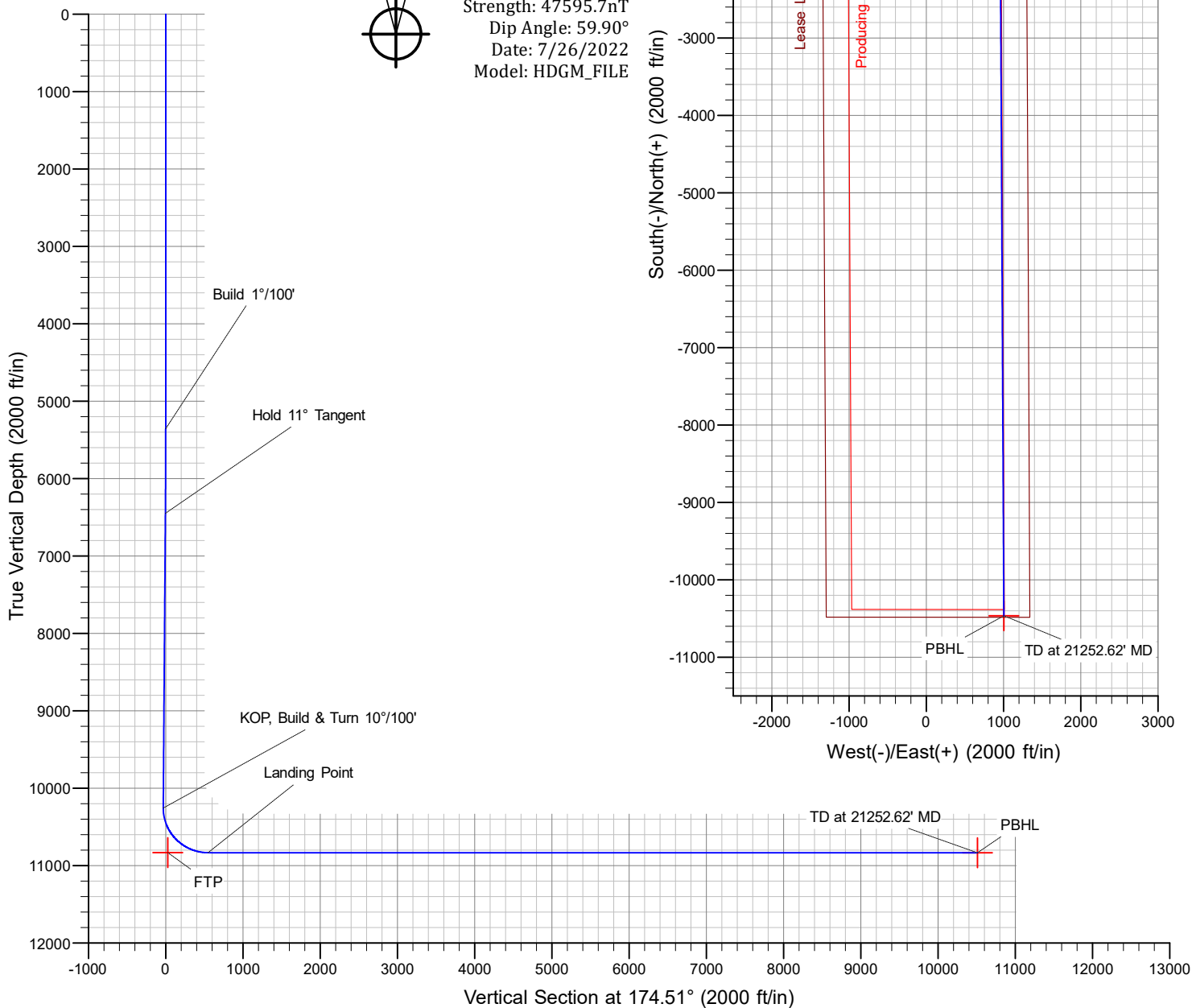
SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
5355.00	0.00	0.00	5355.00	0.00	0.00	0.00	0.00	0.00	Build 1°/100'
6455.19	11.00	82.38	6448.45	13.96	104.38	1.00	82.38	-3.92	Hold 11° Tangent
10335.79	11.00	82.38	10257.72	112.16	838.42	0.00	0.00	-31.50	KOP, Build & Turn 10°/100'
11249.62	89.99	179.70	10834.00	-459.93	952.51	10.00	97.19	548.88	Landing Point
21252.62	89.99	179.70	10835.90	-10462.80	1004.76	0.00	0.00	10510.93	TD at 21252.62' MD



Azimuths to Grid North
 True North: -0.16°
 Magnetic North: 6.57°

Magnetic Field
 Strength: 47595.7nT
 Dip Angle: 59.90°
 Date: 7/26/2022
 Model: HDGM_FILE



Oxy USA Inc. - Radius CC 6_7 Federal Com 52H

Drill Plan

1. Geologic Formations

TVD of Target (ft):	10836	Pilot Hole Depth (ft):	
Total Measured Depth (ft):	21253	Deepest Expected Fresh Water (ft):	97

Delaware Basin

Formation	MD-RKB (ft)	TVD-RKB (ft)	Expected Fluids
Rustler	97	97	
Salado	535	535	Salt
Castile	1300	1300	Salt
Delaware	2759	2759	Oil/Gas/Brine
Bell Canyon	2805	2805	Oil/Gas/Brine
Cherry Canyon	3665	3665	Oil/Gas/Brine
Brushy Canyon	4905	4905	Losses
Bone Spring	6489	6482	Oil/Gas
Bone Spring 1st	7497	7471	Oil/Gas
Bone Spring 2nd	8274	8234	Oil/Gas
Bone Spring 3rd	9400	9339	Oil/Gas
Wolfcamp	9772	9704	Oil/Gas
Penn			Oil/Gas
Strawn			Oil/Gas

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

2. Casing Program

	Hole	MD		TVD		Csg.	Csg Wt.		
		From	To	From	To				
Section	Size (in)	(ft)	(ft)	(ft)	(ft)	OD (in)	(ppf)	Grade	Conn.
Surface	17.5	0	475	0	475	13.375	54.5	J-55	BTC
Intermediate	12.25	0	10236	0	10158	9.625	40	L-80 HC	BTC
Production	8.5	0	10786	0	10547	7	32	P-110	DQX
Production	8.5	10786	21253	10547	10836	5.5	20	P-110	DQX

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

*Oxy requests the option to run production casing with DQX, TORQ DQW, Wedge 425, Wedge 461, and/or Wedge 441 connections to accommodate hole conditions or drilling operations.

All Casing SF Values will meet or exceed those below			
SF Collapse	SF Burst	Body SF Tension	Joint SF Tension
1.125	1.2	1.4	1.4

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 3 rd string cement tied back 500' into previous casing?	
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2 nd string set 100' to 600' below the base of salt?	
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

Section	Stage	Slurry:	Capacities	ft ³ /ft	Excess:	From	To	Sacks	Volume (ft ³)	Placement
Surface	1	Surface - Tail	OH x Csg	0.6946	100%	475	-	496	660	Circulate
Int.	1	Intermediate 1S - Tail	OH x Csg	0.3132	5%	10,236	5,155	1013	1671	Circulate
Int.	2	Intermediate 2S - Tail BH	OH x Csg	0.3132	25%	5,155	475	1071	1832	Bradenhead
Int.	2	Intermediate 2S - Tail BH	Csg x Csg	0.3627	0%	475	-	101	172	Bradenhead
Prod.	1	Production - Tail	OH x Csg2	0.2291	20%	21,253	10,786	2085	2877	Circulate
Prod.	1	Production - Tail	OH x Csg1	0.1268	20%	10,786	10,236	61	84	Circulate
Prod.	1	Production - Tail	Csg x Csg	0.1585	0%	10,236	9,736	57	79	Circulate

Description	Density (lb/gal)	Yield (ft ³ /sk)	Water (gal/sk)	500psi Time (hh:mm)	Cmt. Class	Accelerator	Retarder	Dispersant	Salt
Surface - Tail	14.8	1.33	6.365	5:26	C	x			
Intermediate 1S - Tail	13.2	1.65	8.64	11:54	H	x	x	x	x
Intermediate 2S - Tail BH	13.3	1.71	8.86	23:10	C	x			
Production - Tail	13.2	1.38	6.686	3:39	H		x	x	x

Offline Cementing

Oxy requests a variance to cement the 9.625" and/or 7.625" intermediate casing strings offline in accordance to the approved variance, EC Tran 461365.

The summarized operational sequence will be as follows:

Run casing as per normal operations. While running casing, conduct negative pressure test and confirm integrity of the float equipment (float collar and shoe).

Land casing.

Fill pipe with kill weight fluid, and confirm well is static.

If well Oxy requests a variance to cement the 9.625" and/or 7.625" intermediate casing strings offline in accordance to the approved variance, EC Tran 461365.

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 nipped 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 nipping 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.

Oxy requests permission to adjust the CBL requirement after bradenhead cement jobs, on 7-5/8" intermediate casings, as per the agreement reached in the OXY/BLM meeting on September 5, 2019.

Three string wells:

- CBL will be required on one well per pad
- If the pumped volume of cement is less than permitted in the APD, BLM will be notified and a CBL may be run
- Echometer will be used after bradenhead cement job to determine TOC before pumping top-out cement

4. Pressure Control Equipment

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✓	Tested to:	Deepest TVD Depth (ft) per Section:
12.25" Hole	13-5/8"	5M	Annular	✓	70% of working pressure	10158
		5M	Blind Ram	✓	250 psi / 5000 psi	
			Pipe Ram			
			Double Ram	✓		
			Other*			
8.5" Hole	13-5/8"	5M	Annular	✓	100% of working pressure	10836
		10M	Blind Ram	✓	250 psi / 10000 psi	
			Pipe Ram			
			Double Ram	✓		
			Other*			

*Specify if additional ram is utilized

Per BLM's Memorandum No. NM-2017-008: *Decision and Rationale for a Variance Allowing the Use of a 5M Annular Preventer with a 10M BOP Stack*, Oxy requests to employ a 5M annular with a 10M BOPE stack in the pilot and lateral sections of the well and will ensure that two barriers to flow are maintained at all times. Please see attached Well Control Plan.

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.

	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

Oxy requests permission to adjust the BOP break testing requirements as per the agreement reached in the OXY/BLM meeting on September 5, 2019.

BOP break test under the following conditions:

- After a full BOP test is conducted
- When skidding to drill an intermediate section where ICP is set into the third Bone Spring or shallower.

If the kill line is broken prior to skid, two tests will be performed.

- 1) Wellhead flange, co-flex hose, kill line connections and upper pipe rams
- 2) Wellhead flange, HCR valve, check valve, upper pipe rams

If the kill line is not broken prior to skid, only one test will be performed.

- 1) Wellhead flange, co-flex hose, check valve, upper pipe rams

5. Mud Program

Section	Depth - MD		Depth - TVD		Type	Weight (ppg)	Viscosity	Water Loss
	From (ft)	To (ft)	From (ft)	To (ft)				
Surface	0	475	0	475	Water-Based Mud	8.6 - 8.8	40-60	N/C
Intermediate	475	10236	475	10158	Saturated Brine-Based or Oil-Based Mud	8.0 - 10.0	35-45	N/C
Production	10236	21253	10158	10836	Water-Based or Oil-Based Mud	9.5 - 13	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	Bone Spring – TD
No	PEX	

7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	7326 psi
Abnormal Temperature	No
BH Temperature at deepest TVD	167°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

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 2 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: 1554 bbls

Attachments

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

9. Company Personnel

Name	Title	Office Phone	Mobile Phone
Garrett Granier	Drilling Engineer	713-513-6633	832-265-0581
Filip Krneta	Drilling Engineer Supervisor	713-350-4751	832-244-4980
Simon Benavides	Drilling Superintendent	713-522-8652	281-684-6897
Diego Tellez	Drilling Manager	713-350-4602	713-303-4932

PERFORMANCE DATA

TMK UP DQX Technical Data Sheet

5.500 in

20.00 lbs/ft

P-110

Tubular Parameters

Size	5.500	in	Minimum Yield	110,000	psi
Nominal Weight	20.00	lbs/ft	Minimum Tensile	125,000	psi
Grade	P-110		Yield Load	641,000	lbs
PE Weight	19.81	lbs/ft	Tensile Load	729,000	lbs
Wall Thickness	0.361	in	Min. Internal Yield Pressure	12,600	psi
Nominal ID	4.778	in	Collapse Pressure	11,100	psi
Drift Diameter	4.653	in			
Nom. Pipe Body Area	5.828	in ²			

Connection Parameters

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

Make-Up Torques

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

Printed on: July-29-2014

NOTE:

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PERFORMANCE DATA

TMK UP TORQ™ DQW Technical Data Sheet

5.500 in

20.00 lbs/ft

P110 CY

Tubular Parameters

Size	5.500	in	Minimum Yield	110,000	psi
Nominal Weight	20.00	lbs/ft	Minimum Tensile	125,000	psi
Grade	P110 CY		Yield Load	641,000	lbs
PE Weight	19.81	lbs/ft	Tensile Load	729,000	lbs
Wall Thickness	0.361	in	Min. Internal Yield Pressure	12,640	psi
Nominal ID	4.778	in	Collapse Pressure	11,110	psi
Drift Diameter	4.653	in			
Nom. Pipe Body Area	5.828	in ²			

Connection Parameters

Connection OD	6.050	in
Connection ID	4.778	in
Make-Up Loss	4.324	in
Critical Section Area	5.828	in ²
Tension Efficiency	100.0	%
Compression Efficiency	100.0	%
Yield Load In Tension	641,000	lbs
Min. Internal Yield Pressure	12,640	psi
Collapse Pressure	11,110	psi
Uniaxial Bending	92	° / 100 ft

Make-Up Torques

Min. Make-Up Torque	14,000	ft-lbs
Opt. Make-Up Torque	16,000	ft-lbs
Max. Make-Up Torque	18,000	ft-lbs
Operating Torque	36,800	ft-lbs
Yield Torque	46,000	ft-lbs



Printed on: March-05-2019

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TenarisHydril Wedge 425®



Coupling	Pipe Body
Grade: P110-CY	Grade: P110-CY
Body: White	1st Band: White
1st Band: Grey	2nd Band: Grey
2nd Band: -	3rd Band: -
3rd Band: -	4th Band: -
	5th Band: -
	6th Band: -

Outside Diameter	5.500 in.	Wall Thickness	0.361 in.	Grade	P110-CY
Min. Wall Thickness	87.50 %	Pipe Body Drift	API Standard	Type	Casing
Connection OD Option	REGULAR				

Pipe Body Data

Geometry				Performance	
Nominal OD	5.500 in.	Wall Thickness	0.361 in.	Body Yield Strength	641 x1000 lb
Nominal Weight	20 lb/ft	Plain End Weight	19.83 lb/ft	Min. Internal Yield Pressure	12,640 psi
Drift	4.653 in.	OD Tolerance	API	SMYS	110,000 psi
Nominal ID	4.778 in.			Collapse Pressure	11,100 psi

Connection Data

Geometry		Performance		Make-Up Torques	
Connection OD	5.777 in.	Tension Efficiency	90 %	Minimum	15,700 ft-lb
Connection ID	4.734 in.	Joint Yield Strength	577 x1000 lb	Optimum	19,600 ft-lb
Make-up Loss	5.823 in.	Internal Pressure Capacity	12,640 psi	Maximum	21,600 ft-lb
Threads per inch	3.77	Compression Efficiency	90 %	Operation Limit Torques	
Connection OD Option	Regular	Compression Strength	577 x1000 lb	Operating Torque	29,000 ft-lb
		Max. Allowable Bending	82 °/100 ft	Yield Torque	36,000 ft-lb
		External Pressure Capacity	11,100 psi		

Notes

This connection is fully interchangeable with:
TORQ® SFW™ - 5.5 in. - 0.361 in.
Connections with Dopeless® Technology are fully compatible with the same connection in its Standard version

For the latest performance data, always visit our website: www.tenaris.com

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TenarisHydril Wedge 441®



Coupling	Pipe Body
Grade: P110-CY	Grade: P110-CY
Body: White	1st Band: White
1st Band: Grey	2nd Band: Grey
2nd Band: -	3rd Band: -
3rd Band: -	4th Band: -
	5th Band: -
	6th Band: -

Outside Diameter	5.500 in.	Wall Thickness	0.361 in.	Grade	P110-CY
Min. Wall Thickness	87.50 %	Drift	API Standard	Type	Casing
Connection OD Option	REGULAR				

Pipe Body Data

Geometry				Performance	
Nominal OD	5.500 in.	Wall Thickness	0.361 in.	Body Yield Strength	641 x1000 lb
Nominal Weight	20 lb/ft	Plain End Weight	19.83 lb/ft	Min. Internal Yield Pressure	12,640 psi
Drift	4.653 in.	OD Tolerance	API	SMYS	110,000 psi
Nominal ID	4.778 in.			Collapse Pressure	11,100 psi

Connection Data

Geometry		Performance		Make-Up Torques	
Connection OD	5.852 in.	Tension Efficiency	81.50 %	Minimum	15,000 ft-lb
Coupling Length	8.714 in.	Joint Yield Strength	522 x1000 lb	Optimum	16,000 ft-lb
Connection ID	4.778 in.	Internal Pressure Capacity	12,640 psi	Maximum	19,200 ft-lb
Make-up Loss	3.780 in.	Compression Efficiency	81.50 %	Operation Limit Torques	
Threads per inch	3.40	Compression Strength	522 x1000 lb	Operating Torque	32,000 ft-lb
Connection OD Option	Regular	Max. Allowable Bending	71 °/100 ft	Yield Torque	38,000 ft-lb
		External Pressure Capacity	11,100 psi	Buck-On	
				Minimum	19,200 ft-lb
				Maximum	20,700 ft-lb

Notes

This connection is fully interchangeable with:
Wedge 441® - 5.5 in. - 0.304 in.
Connections with Dopeless® Technology are fully compatible with the same connection in its Standard version

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TenarisHydril Wedge 461®



Coupling	Pipe Body
Grade: P110-CY	Grade: P110-CY
Body: White	1st Band: White
1st Band: Grey	2nd Band: Grey
2nd Band: -	3rd Band: -
3rd Band: -	4th Band: -
	5th Band: -
	6th Band: -

Outside Diameter	5.500 in.	Wall Thickness	0.361 in.	Grade	P110-CY
Min. Wall Thickness	87.50 %	Drift	API Standard	Type	Casing
Connection OD Option	REGULAR				

Pipe Body Data

Geometry				Performance	
Nominal OD	5.500 in.	Wall Thickness	0.361 in.	Body Yield Strength	641 x1000 lb
Nominal Weight	20 lb/ft	Plain End Weight	19.83 lb/ft	Min. Internal Yield Pressure	12,640 psi
Drift	4.653 in.	OD Tolerance	API	SMYS	110,000 psi
Nominal ID	4.778 in.			Collapse Pressure	11,100 psi

Connection Data

Geometry		Performance		Make-Up Torques	
Connection OD	6.300 in.	Tension Efficiency	100 %	Minimum	17,000 ft-lb
Coupling Length	7.714 in.	Joint Yield Strength	641 x1000 lb	Optimum	18,000 ft-lb
Connection ID	4.778 in.	Internal Pressure Capacity	12,640 psi	Maximum	21,600 ft-lb
Make-up Loss	3.775 in.	Compression Efficiency	100 %	Operation Limit Torques	
Threads per inch	3.40	Compression Strength	641 x1000 lb	Operating Torque	39,000 ft-lb
Connection OD Option	Regular	Max. Allowable Bending	92 °/100 ft	Yield Torque	46,000 ft-lb
		External Pressure Capacity	11,100 psi	Buck-On	
		Coupling Face Load	290,000 lb	Minimum	21,600 ft-lb
				Maximum	23,100 ft-lb

Notes

This connection is fully interchangeable with:
 Wedge 461® - 5.5 in. - 0.304 / 0.415 / 0.476 in.
 Connections with Dopeless® Technology are fully compatible with the same connection in its Standard version
 In October 2019, TenarisHydril Wedge XP® 2.0 was renamed TenarisHydril Wedge 461™. Product dimensions and properties remain identical and both connections are fully interchangeable

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TenarisHydril Wedge 461®



Coupling	Pipe Body
Grade: P110-CY	Grade: P110-CY
Body: White	1st Band: White
1st Band: Grey	2nd Band: Grey
2nd Band: -	3rd Band: -
3rd Band: -	4th Band: -
	5th Band: -
	6th Band: -

Outside Diameter	7.000 in.	Wall Thickness	0.453 in.	Grade	P110-CY
Min. Wall Thickness	87.50 %	Pipe Body Drift	API Standard	Type	Casing
Connection OD Option	REGULAR				

Pipe Body Data

Geometry		Performance	
Nominal OD	7.000 in.	Wall Thickness	0.453 in.
Nominal Weight	32 lb/ft	Plain End Weight	31.70 lb/ft
Drift	5.969 in.	OD Tolerance	API
Nominal ID	6.094 in.		
		Body Yield Strength	1025 x1000 lb
		Min. Internal Yield Pressure	12,460 psi
		SMYS	110,000 psi
		Collapse Pressure	10,780 psi

Connection Data

Geometry		Performance		Make-Up Torques	
Connection OD	7.750 in.	Tension Efficiency	100 %	Minimum	20,000 ft-lb
Coupling Length	8.914 in.	Joint Yield Strength	1025 x1000 lb	Optimum	21,000 ft-lb
Connection ID	6.094 in.	Internal Pressure Capacity	12,460 psi	Maximum	25,200 ft-lb
Make-up Loss	4.375 in.	Compression Efficiency	100 %		
Threads per inch	3.40	Compression Strength	1025 x1000 lb	Operation Limit Torques	
Connection OD Option	Regular	Max. Allowable Bending	72 °/100 ft	Operating Torque	61,000 ft-lb
		External Pressure Capacity	10,780 psi	Yield Torque	72,000 ft-lb
		Coupling Face Load	269,000 lb		
				Buck-On	
				Minimum	25,200 ft-lb
				Maximum	26,700 ft-lb

Notes

This connection is fully interchangeable with:

Wedge 461® - 7 in. - 0.317 / 0.362 / 0.408 in.

Connections with Dopeless® Technology are fully compatible with the same connection in its Standard version

In October 2019, TenarisHydril Wedge XP® 2.0 was renamed TenarisHydril Wedge 461™. Product dimensions and properties remain identical and both connections are fully interchangeable

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State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

COMMENTS

Action 140672

COMMENTS

Operator: OXY USA INC P.O. Box 4294 Houston, TX 772104294	OGRID: 16696
	Action Number: 140672
	Action Type: [C-103] NOI Change of Plans (C-103A)

COMMENTS

Created By	Comment	Comment Date
jagarcia	Approved, John Garcia, Petroleum Engineer	9/22/2022

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Created By	Condition	Condition Date
jagarcia	None	9/22/2022