

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

RECEIVED

MAR 09 2020

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

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.

5. Lease Serial No.
NMNM112941

6. If Indian, Allottee or Tribe Name

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

8. Well Name and No.
COBBER 21-33 FED COM 10H9. API Well No.
30-025-46893-00-X110. Field and Pool or Exploratory Area
WC-025 G09 S263619C-WOLFCAMP11. County or Parish, State
LEA COUNTY, NM

SUBMIT IN TRIPLICATE - Other instructions on page 2

1. Type of Well

☒ Oil Well ☐ Gas Well ☐ Other

2. Name of Operator

DEVON ENERGY PRODUCTION COMPANY

Contact: REBECCA DEAL

E-mail: Rebecca.Deal@devn.com

3a. Address

333 WEST SHERIDAN AVENUE
OKLAHOMA CITY, OK 73102

3b. Phone No. (include area code)

Ph: 405-228-8429

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

Sec 21 T26S R34E NWNW 234FNL 646FWL
32.035534 N Lat, 103.481277 W LonOCD - HOBBS
03/30/2020
RECEIVED

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Hydraulic Fracturing	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	Change to Original A
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	PD

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

Devon Energy Production Co., L.P. respectfully requests the following changes to the approved APD:

BHL change from 2619 FNL & 1010 FWL, 28-26S-34E to 20 FSL & 460 FWL 33-26S-34E.

TVD/MD change from 12,863'/20,470' to 13,100'/25,852'

Name change from Cobber 21-28 Fed 10H to Cobber 21-33 Fed Com 10H.

NEW PROP-ID 327351

Please see attached revised C-102, drilling & directional plan.

Carlsbad Field Office
Operator Copy

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

Electronic Submission #504834 verified by the BLM Well Information System

For DEVON ENERGY PRODUCTION COMPANY, sent to the Hobbs

Committed to AFMSS for processing by PRISCILLA PEREZ on 03/02/2020 (20PP1491SE)

Name (Printed/Typed) REBECCA DEAL

Title REGULATORY COMPLIANCE PROFESSI

Signature (Electronic Submission)

Date 02/27/2020

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By LONG VO

Title PETROLEUM ENGINEER

Date 03/02/2020

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

Office Hobbs

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

(Instructions on page 2)

** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED **

KZ

PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Devon Energy Production Company LP
LEASE NO.:	NMNM112941
LOCATION:	Section 21, T.26 S., R.34 E., NMPM
COUNTY:	Lea County, New Mexico

WELL NAME & NO.:	Cobber 21-33 Fed Com 5H
SURFACE HOLE FOOTAGE:	234'/N & 1502'/W
BOTTOM HOLE FOOTAGE	20'/S & 1010'/W

WELL NAME & NO.:	Cobber 21-33 Fed Com 7H
SURFACE HOLE FOOTAGE:	216'/N & 1323'/E
BOTTOM HOLE FOOTAGE	20'/S & 1980'/E

WELL NAME & NO.:	Cobber 21-33 Fed Com 8H
SURFACE HOLE FOOTAGE:	383'/N & 520'/E
BOTTOM HOLE FOOTAGE	20'/S & 1010'/E

WELL NAME & NO.:	Cobber 21-33 Fed Com 10H
SURFACE HOLE FOOTAGE:	234'/N & 646'/W
BOTTOM HOLE FOOTAGE	20'/S & 460'/W

WELL NAME & NO.:	Cobber 21-33 Fed Com 13H
SURFACE HOLE FOOTAGE:	216'/N & 1353'/E
BOTTOM HOLE FOOTAGE	20'/S & 2300'/E

COA

H2S	☐ Yes	☒ No	
Potash	☒ None	☐ Secretary	☐ R-111-P
Cave/Karst Potential	☒ Low	☐ Medium	☐ High
Cave/Karst Potential	☐ Critical		
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

All Previous COAs Still Apply

A. CASING

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

1. The minimum required fill of cement behind the 8-5/8 inch intermediate casing is:
 - Cement to surface. If cement does not circulate see B.1.a, c-d above.

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

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

2. The minimum required fill of cement behind the 5-1/2 inch production casing is:
 - Cement should tie-back at least 200 feet into previous casing string.
Operator shall provide method of verification.
Cement excess is less than 25%, more cement might be required.

B. PRESSURE CONTROL

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 10,000 (10M) psi. Variance is approved to use a 5000 (5M) Annular which shall be tested to 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.

C. SPECIAL REQUIREMENT (S)

Communitization Agreement

- The operator will submit a Communitization Agreement to the Santa Fe Office, 301 Dinosaur Trail Santa Fe, New Mexico 87508, 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.

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 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.

TVD of target	13100	Pilot hole depth	N/A
MD at TD:	25852	Deepest expected fresh water	

[illegible]

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

2. Casing Program (Primary Design)

Hole Size	Csg. Size	Wt (PPF)	Grade	Conn	Casing Interval		Casing Interval	
					From (MD)	To (MD)	From (TVD)	To (TVD)
17 1/2	13 3/8	48.0	H40	STC	0	725 800	0	725 800
9 7/8	8 5/8	32.0	P110	TLW	0	12650	0	12650
7 7/8	5 1/2	17.0	P110	BTC	0	25852	0	13100

Fluid Filled

• All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 IILB.1.h Must have table for contingency casing.

3. Cementing Program (Primary Design)

Casing	# Sk	TOC	Wt. ppg	Yld (ft ³ /sack)	Slurry Description
Surface	563	Surf	13.2	1.44	Lead: Class C Cement + additives
Int 1	503	Surf	9	3.27	Lead: Class C Cement + additives
	465	4000' above	13.2	1.44	Tail: Class H / C + additives
Int 1 Intermediate Squeeze	As Needed	Surf	13.2	1.44	Squeeze Lead: Class C Cement + additives
	503	Surf	9	3.27	Lead: Class C Cement + additives
	465	4000' above	13.2	1.44	Tail: Class H / C + additives
Production	117	10531	9.0	3.3	Lead: Class H / C + additives
	1763	12531	13.2	1.4	Tail: Class H / C + additives

< 25%
excess

Casing String	% Excess
Surface	50%
Intermediate 1	30%
Intermediate 1 (Two Stage)	25%
Prod	10%

4. Pressure Control Equipment (Three String Design)

Well Pressure Control Equipment (Three String Design)					
BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✓	Tested to:
Int 1	13-58"	5M	Annular	X	50% of rated working pressure
			Blind Ram	X	5M
			Pipe Ram		
			Double Ram	X	
			Other*		
Production	13-5/8"	10M	Annular (5M)	X	100% of rated working pressure
			Blind Ram	X	10M
			Pipe Ram		
			Double Ram	X	
			Other*		
			Annular (5M)		
			Blind Ram		
			Pipe Ram		
			Double Ram		
			Other*		
N	A variance is requested for the use of a diverter on the surface casing. See attached for schematic.				
Y	A variance is requested to run a 5 M annular on a 10M system				

5. Mud Program (Three String Design) ^{OK}

Section	Type	Weight (ppg)
Surface	FW Gel	8.5-9
Intermediate	DBE / Cut Brine	10-10.5
Production	OBM	10-10.5

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times.

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

6. Logging and Testing Procedures

Logging, Coring and Testing	
X	Will run GR/CNL 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.
	Drill stem test? If yes, explain.
	Coring? If yes, explain.

Additional logs planned	Interval
Resistivity	Int. shoe to KOP
Density	Int. shoe to KOP
X CBL	Production casing
X Mud log	Intermediate shoe to TD
PEX	

7. Drilling Conditions

Condition	Specify what type and where?
BH pressure at deepest TVD	7153
Abnormal temperature	No

Mitigation measure for abnormal conditions. Describe. Lost circulation material/sweeps/mud scavengers.

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	H ₂ S is present
Y	H ₂ S plan attached.

8. Other facets of operation

Is this a walking operation? Potentially

- 1 If operator elects, drilling rig will batch drill the surface holes and run/cement surface casing; walking the rig to next wells on the pad.
- 2 The drilling rig will then batch drill the intermediate sections and run/cement intermediate casing; the wellbore will be isolated with a blind flange and pressure gauge installed for monitoring the well before walking to the next well.
- 3 The drilling rig will then batch drill the production hole sections on the wells with OBM, run/cement production casing, and install TA caps or tubing heads for completions.

NOTE: During batch operations the drilling rig will be moved from well to well however, it will not be removed

from the pad until all wells have production casing run/cemented.

Will be pre-setting casing? Potentially

- 1 Spudder rig will move in and batch drill surface hole.
 - a. Rig will utilize fresh water based mud to drill surface hole to TD. Solids control will be handled entirely on a closed loop basis.,
- 2 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).
- 3 The wellhead will be installed and tested once the surface casing is cut off and the WOC time has been reached.
- 4 A blind flange with the same pressure rating as the wellhead will be installed to seal the wellbore. Pressure will be monitored with a pressure gauge installed on the wellhead.
- 5 Spudder rig operations is expected to take 4-5 days per well on a multi-well pa.
- 6 The NMOCD will be contacted and notified 24 hours prior to commencing spudder rig operations.
- 7 Drilling operations will be performed with drilling rig. A that time an approved BOP stack will be nipped up and tested on the wellhead before drilling operations commences on each well.
 - a. The NMOCD will be contacted / notified 24 hours before the drilling rig moves back on to the pad with the pre-set surface casing.

Attachments

X Directional Plan
 Other, describe

WCDSC Permian NM

Lea County (NAD83 New Mexico East)

Sec 21-T26S-R34E

Cobber 21-33 Fed Com 10H

Wellbore #1

Plan: Permit Plan 3

Standard Planning Report - Geographic

05 February, 2020

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference:	Well Cobber 21-33 Fed Com 10H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3351.10ft
Project:	Lea County (NAD83 New Mexico East)	MD Reference:	RKB @ 3351.10ft
Site:	Sec 21-T26S-R34E	North Reference:	Grid
Well:	Cobber 21-33 Fed Com 10H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 3		

Project	Lea County (NAD83 New Mexico East)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Sec 21-T26S-R34E				
Site Position:		Northing:	372,767.99 usft	Latitude:	32.021870
From:	Map	Easting:	809,394.37 usft	Longitude:	-103.468410
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.46 °

Well	Cobber 21-33 Fed Com 10H					
Well Position	+N/-S	0.00 ft	Northing:	377,707.40 usft	Latitude:	32.035535
	+E/-W	0.00 ft	Easting:	805,367.54 usft	Longitude:	-103.481276
Position Uncertainty	0.50 ft	Wellhead Elevation:		Ground Level:	3,326.10 ft	

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	9/18/2019	6.65	59.87	47,604.84932467

Design	Permit Plan 3				
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	180.34	

Plan Survey Tool Program	Date	2/5/2020			
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	25,851.88 Permit Plan 3 (Wellbore #1)	MWD+HDGM		
			OWSG MWD + HDGM		

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	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	
3,675.67	1.76	314.69	3,675.64	1.89	-1.91	1.00	1.00	0.00	314.69	
12,063.87	1.76	314.69	12,059.90	182.74	-184.72	0.00	0.00	0.00	0.00	
12,180.99	0.00	0.00	12,177.00	184.00	-186.00	1.50	-1.50	0.00	180.00	
12,531.03	0.00	0.00	12,527.04	184.00	-186.00	0.00	0.00	0.00	0.00	
13,431.03	90.00	179.52	13,100.00	-388.94	-181.17	10.00	10.00	0.00	179.52	PBHL - Cobber 21-33
25,852.30	90.00	179.52	13,100.00	-12,809.77	-76.42	0.00	0.00	0.00	0.00	PBHL - Cobber 21-33

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference:	Well Cobber 21-33 Fed Com 10H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3351.10ft
Project:	Lea County (NAD83 New Mexico East)	MD Reference:	RKB @ 3351.10ft
Site:	Sec 21-T26S-R34E	North Reference:	Grid
Well:	Cobber 21-33 Fed Com 10H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 3		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.00	0.00	0.00	0.00	0.00	0.00	377,707.40	805,367.54	32.035535	-103.481276
100.00	0.00	0.00	100.00	0.00	0.00	377,707.40	805,367.54	32.035535	-103.481276
200.00	0.00	0.00	200.00	0.00	0.00	377,707.40	805,367.54	32.035535	-103.481276
300.00	0.00	0.00	300.00	0.00	0.00	377,707.40	805,367.54	32.035535	-103.481276
400.00	0.00	0.00	400.00	0.00	0.00	377,707.40	805,367.54	32.035535	-103.481276
500.00	0.00	0.00	500.00	0.00	0.00	377,707.40	805,367.54	32.035535	-103.481276
600.00	0.00	0.00	600.00	0.00	0.00	377,707.40	805,367.54	32.035535	-103.481276
700.00	0.00	0.00	700.00	0.00	0.00	377,707.40	805,367.54	32.035535	-103.481276
800.00	0.00	0.00	800.00	0.00	0.00	377,707.40	805,367.54	32.035535	-103.481276
900.00	0.00	0.00	900.00	0.00	0.00	377,707.40	805,367.54	32.035535	-103.481276
1,000.00	0.00	0.00	1,000.00	0.00	0.00	377,707.40	805,367.54	32.035535	-103.481276
1,100.00	0.00	0.00	1,100.00	0.00	0.00	377,707.40	805,367.54	32.035535	-103.481276
1,200.00	0.00	0.00	1,200.00	0.00	0.00	377,707.40	805,367.54	32.035535	-103.481276
1,300.00	0.00	0.00	1,300.00	0.00	0.00	377,707.40	805,367.54	32.035535	-103.481276
1,400.00	0.00	0.00	1,400.00	0.00	0.00	377,707.40	805,367.54	32.035535	-103.481276
1,500.00	0.00	0.00	1,500.00	0.00	0.00	377,707.40	805,367.54	32.035535	-103.481276
1,600.00	0.00	0.00	1,600.00	0.00	0.00	377,707.40	805,367.54	32.035535	-103.481276
1,700.00	0.00	0.00	1,700.00	0.00	0.00	377,707.40	805,367.54	32.035535	-103.481276
1,800.00	0.00	0.00	1,800.00	0.00	0.00	377,707.40	805,367.54	32.035535	-103.481276
1,900.00	0.00	0.00	1,900.00	0.00	0.00	377,707.40	805,367.54	32.035535	-103.481276
2,000.00	0.00	0.00	2,000.00	0.00	0.00	377,707.40	805,367.54	32.035535	-103.481276
2,100.00	0.00	0.00	2,100.00	0.00	0.00	377,707.40	805,367.54	32.035535	-103.481276
2,200.00	0.00	0.00	2,200.00	0.00	0.00	377,707.40	805,367.54	32.035535	-103.481276
2,300.00	0.00	0.00	2,300.00	0.00	0.00	377,707.40	805,367.54	32.035535	-103.481276
2,400.00	0.00	0.00	2,400.00	0.00	0.00	377,707.40	805,367.54	32.035535	-103.481276
2,500.00	0.00	0.00	2,500.00	0.00	0.00	377,707.40	805,367.54	32.035535	-103.481276
2,600.00	0.00	0.00	2,600.00	0.00	0.00	377,707.40	805,367.54	32.035535	-103.481276
2,700.00	0.00	0.00	2,700.00	0.00	0.00	377,707.40	805,367.54	32.035535	-103.481276
2,800.00	0.00	0.00	2,800.00	0.00	0.00	377,707.40	805,367.54	32.035535	-103.481276
2,900.00	0.00	0.00	2,900.00	0.00	0.00	377,707.40	805,367.54	32.035535	-103.481276
3,000.00	0.00	0.00	3,000.00	0.00	0.00	377,707.40	805,367.54	32.035535	-103.481276
3,100.00	0.00	0.00	3,100.00	0.00	0.00	377,707.40	805,367.54	32.035535	-103.481276
3,200.00	0.00	0.00	3,200.00	0.00	0.00	377,707.40	805,367.54	32.035535	-103.481276
3,300.00	0.00	0.00	3,300.00	0.00	0.00	377,707.40	805,367.54	32.035535	-103.481276
3,400.00	0.00	0.00	3,400.00	0.00	0.00	377,707.40	805,367.54	32.035535	-103.481276
3,500.00	0.00	0.00	3,500.00	0.00	0.00	377,707.40	805,367.54	32.035535	-103.481276
3,600.00	1.00	314.69	3,600.00	0.61	-0.62	377,708.01	805,366.92	32.035537	-103.481278
3,675.67	1.76	314.69	3,675.64	1.89	-1.91	377,709.29	805,365.62	32.035540	-103.481282
3,700.00	1.76	314.69	3,699.96	2.42	-2.44	377,709.82	805,365.09	32.035542	-103.481284
3,800.00	1.76	314.69	3,799.91	4.57	-4.62	377,711.97	805,362.91	32.035547	-103.481291
3,900.00	1.76	314.69	3,899.87	6.73	-6.80	377,714.13	805,360.73	32.035553	-103.481298
4,000.00	1.76	314.69	3,999.82	8.89	-8.98	377,716.28	805,358.56	32.035559	-103.481305
4,100.00	1.76	314.69	4,099.77	11.04	-11.16	377,718.44	805,356.38	32.035565	-103.481312
4,200.00	1.76	314.69	4,199.73	13.20	-13.34	377,720.60	805,354.20	32.035571	-103.481319
4,300.00	1.76	314.69	4,299.68	15.35	-15.52	377,722.75	805,352.02	32.035577	-103.481326
4,400.00	1.76	314.69	4,399.63	17.51	-17.70	377,724.91	805,349.84	32.035583	-103.481333
4,500.00	1.76	314.69	4,499.59	19.67	-19.88	377,727.06	805,347.66	32.035589	-103.481340
4,600.00	1.76	314.69	4,599.54	21.82	-22.06	377,729.22	805,345.48	32.035595	-103.481347
4,700.00	1.76	314.69	4,699.49	23.98	-24.24	377,731.38	805,343.30	32.035601	-103.481354
4,800.00	1.76	314.69	4,799.44	26.13	-26.42	377,733.53	805,341.12	32.035607	-103.481361
4,900.00	1.76	314.69	4,899.40	28.29	-28.60	377,735.69	805,338.94	32.035613	-103.481368
5,000.00	1.76	314.69	4,999.35	30.45	-30.78	377,737.84	805,336.76	32.035619	-103.481375
5,100.00	1.76	314.69	5,099.30	32.60	-32.96	377,740.00	805,334.58	32.035625	-103.481382
5,200.00	1.76	314.69	5,199.26	34.76	-35.14	377,742.16	805,332.40	32.035631	-103.481389
5,300.00	1.76	314.69	5,299.21	36.91	-37.31	377,744.31	805,330.22	32.035637	-103.481396

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference:	Well Cobber 21-33 Fed Com 10H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3351.10ft
Project:	Lea County (NAD83 New Mexico East)	MD Reference:	RKB @ 3351.10ft
Site:	Sec 21-T26S-R34E	North Reference:	Grid
Well:	Cobber 21-33 Fed Com 10H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 3		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
5,400.00	1.76	314.69	5,399.16	39.07	-39.49	377,746.47	805,328.04	32.035643	-103.481402
5,500.00	1.76	314.69	5,499.12	41.23	-41.67	377,748.62	805,325.86	32.035649	-103.481409
5,600.00	1.76	314.69	5,599.07	43.38	-43.85	377,750.78	805,323.69	32.035655	-103.481416
5,700.00	1.76	314.69	5,699.02	45.54	-46.03	377,752.94	805,321.51	32.035661	-103.481423
5,800.00	1.76	314.69	5,798.97	47.69	-48.21	377,755.09	805,319.33	32.035667	-103.481430
5,900.00	1.76	314.69	5,898.93	49.85	-50.39	377,757.25	805,317.15	32.035673	-103.481437
6,000.00	1.76	314.69	5,998.88	52.00	-52.57	377,759.40	805,314.97	32.035679	-103.481444
6,100.00	1.76	314.69	6,098.83	54.16	-54.75	377,761.56	805,312.79	32.035685	-103.481451
6,200.00	1.76	314.69	6,198.79	56.32	-56.93	377,763.71	805,310.61	32.035691	-103.481458
6,300.00	1.76	314.69	6,298.74	58.47	-59.11	377,765.87	805,308.43	32.035697	-103.481465
6,400.00	1.76	314.69	6,398.69	60.63	-61.29	377,768.03	805,306.25	32.035703	-103.481472
6,500.00	1.76	314.69	6,498.65	62.78	-63.47	377,770.18	805,304.07	32.035709	-103.481479
6,600.00	1.76	314.69	6,598.60	64.94	-65.65	377,772.34	805,301.89	32.035715	-103.481486
6,700.00	1.76	314.69	6,698.55	67.10	-67.83	377,774.49	805,299.71	32.035721	-103.481493
6,800.00	1.76	314.69	6,798.50	69.25	-70.00	377,776.65	805,297.53	32.035727	-103.481500
6,900.00	1.76	314.69	6,898.46	71.41	-72.18	377,778.81	805,295.35	32.035733	-103.481507
7,000.00	1.76	314.69	6,998.41	73.56	-74.36	377,780.96	805,293.17	32.035739	-103.481514
7,100.00	1.76	314.69	7,098.36	75.72	-76.54	377,783.12	805,291.00	32.035745	-103.481521
7,200.00	1.76	314.69	7,198.32	77.88	-78.72	377,785.27	805,288.82	32.035751	-103.481528
7,300.00	1.76	314.69	7,298.27	80.03	-80.90	377,787.43	805,286.64	32.035757	-103.481535
7,400.00	1.76	314.69	7,398.22	82.19	-83.08	377,789.59	805,284.46	32.035763	-103.481542
7,500.00	1.76	314.69	7,498.18	84.34	-85.26	377,791.74	805,282.28	32.035769	-103.481549
7,600.00	1.76	314.69	7,598.13	86.50	-87.44	377,793.90	805,280.10	32.035774	-103.481556
7,700.00	1.76	314.69	7,698.08	88.66	-89.62	377,796.05	805,277.92	32.035780	-103.481563
7,800.00	1.76	314.69	7,798.03	90.81	-91.80	377,798.21	805,275.74	32.035786	-103.481570
7,900.00	1.76	314.69	7,897.99	92.97	-93.98	377,800.37	805,273.56	32.035792	-103.481577
8,000.00	1.76	314.69	7,997.94	95.12	-96.16	377,802.52	805,271.38	32.035798	-103.481584
8,100.00	1.76	314.69	8,097.89	97.28	-98.34	377,804.68	805,269.20	32.035804	-103.481591
8,200.00	1.76	314.69	8,197.85	99.44	-100.52	377,806.83	805,267.02	32.035810	-103.481598
8,300.00	1.76	314.69	8,297.80	101.59	-102.70	377,808.99	805,264.84	32.035816	-103.481605
8,400.00	1.76	314.69	8,397.75	103.75	-104.87	377,811.15	805,262.66	32.035822	-103.481612
8,500.00	1.76	314.69	8,497.71	105.90	-107.05	377,813.30	805,260.48	32.035828	-103.481619
8,600.00	1.76	314.69	8,597.66	108.06	-109.23	377,815.46	805,258.30	32.035834	-103.481626
8,700.00	1.76	314.69	8,697.61	110.21	-111.41	377,817.61	805,256.13	32.035840	-103.481633
8,800.00	1.76	314.69	8,797.56	112.37	-113.59	377,819.77	805,253.95	32.035846	-103.481640
8,900.00	1.76	314.69	8,897.52	114.53	-115.77	377,821.92	805,251.77	32.035852	-103.481647
9,000.00	1.76	314.69	8,997.47	116.68	-117.95	377,824.08	805,249.59	32.035858	-103.481654
9,100.00	1.76	314.69	9,097.42	118.84	-120.13	377,826.24	805,247.41	32.035864	-103.481661
9,200.00	1.76	314.69	9,197.38	120.99	-122.31	377,828.39	805,245.23	32.035870	-103.481668
9,300.00	1.76	314.69	9,297.33	123.15	-124.49	377,830.55	805,243.05	32.035876	-103.481675
9,400.00	1.76	314.69	9,397.28	125.31	-126.67	377,832.70	805,240.87	32.035882	-103.481682
9,500.00	1.76	314.69	9,497.24	127.46	-128.85	377,834.86	805,238.69	32.035888	-103.481689
9,600.00	1.76	314.69	9,597.19	129.62	-131.03	377,837.02	805,236.51	32.035894	-103.481696
9,700.00	1.76	314.69	9,697.14	131.77	-133.21	377,839.17	805,234.33	32.035900	-103.481703
9,800.00	1.76	314.69	9,797.09	133.93	-135.39	377,841.33	805,232.15	32.035906	-103.481710
9,900.00	1.76	314.69	9,897.05	136.09	-137.57	377,843.48	805,229.97	32.035912	-103.481716
10,000.00	1.76	314.69	9,997.00	138.24	-139.74	377,845.64	805,227.79	32.035918	-103.481723
10,100.00	1.76	314.69	10,096.95	140.40	-141.92	377,847.80	805,225.61	32.035924	-103.481730
10,200.00	1.76	314.69	10,196.91	142.55	-144.10	377,849.95	805,223.44	32.035930	-103.481737
10,300.00	1.76	314.69	10,296.86	144.71	-146.28	377,852.11	805,221.26	32.035936	-103.481744
10,400.00	1.76	314.69	10,396.81	146.87	-148.46	377,854.26	805,219.08	32.035942	-103.481751
10,500.00	1.76	314.69	10,496.77	149.02	-150.64	377,856.42	805,216.90	32.035948	-103.481758
10,600.00	1.76	314.69	10,596.72	151.18	-152.82	377,858.58	805,214.72	32.035954	-103.481765
10,700.00	1.76	314.69	10,696.67	153.33	-155.00	377,860.73	805,212.54	32.035960	-103.481772
10,800.00	1.76	314.69	10,796.62	155.49	-157.18	377,862.89	805,210.36	32.035966	-103.481779

Planning Report - Geographic

Database: EDM r5000.141_Prod US
 Company: WCDSC Permian NM
 Project: Lea County (NAD83 New Mexico East)
 Site: Sec 21-T26S-R34E
 Well: Cobber 21-33 Fed Com 10H
 Wellbore: Wellbore #1
 Design: Permit Plan 3

Local Co-ordinate Reference: Well Cobber 21-33 Fed Com 10H
 TVD Reference: RKB @ 3351.10ft
 MD Reference: RKB @ 3351.10ft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
10,900.00	1.76	314.69	10,896.58	157.65	-159.36	377,865.04	805,208.18	32.035972	-103.481786
11,000.00	1.76	314.69	10,996.53	159.80	-161.54	377,867.20	805,206.00	32.035978	-103.481793
11,100.00	1.76	314.69	11,096.48	161.96	-163.72	377,869.36	805,203.82	32.035984	-103.481800
11,200.00	1.76	314.69	11,196.44	164.11	-165.90	377,871.51	805,201.64	32.035990	-103.481807
11,300.00	1.76	314.69	11,296.39	166.27	-168.08	377,873.67	805,199.46	32.035995	-103.481814
11,400.00	1.76	314.69	11,396.34	168.42	-170.26	377,875.82	805,197.28	32.036001	-103.481821
11,500.00	1.76	314.69	11,496.30	170.58	-172.43	377,877.98	805,195.10	32.036007	-103.481828
11,600.00	1.76	314.69	11,596.25	172.74	-174.61	377,880.13	805,192.92	32.036013	-103.481835
11,700.00	1.76	314.69	11,696.20	174.89	-176.79	377,882.29	805,190.74	32.036019	-103.481842
11,800.00	1.76	314.69	11,796.15	177.05	-178.97	377,884.45	805,188.57	32.036025	-103.481849
11,900.00	1.76	314.69	11,896.11	179.20	-181.15	377,886.60	805,186.39	32.036031	-103.481856
12,000.00	1.76	314.69	11,996.06	181.36	-183.33	377,888.76	805,184.21	32.036037	-103.481863
12,063.87	1.76	314.69	12,059.90	182.74	-184.72	377,890.14	805,182.81	32.036041	-103.481867
12,100.00	1.21	314.69	12,096.02	183.40	-185.39	377,890.79	805,182.15	32.036043	-103.481870
12,180.99	0.00	0.00	12,177.00	184.00	-186.00	377,891.40	805,181.54	32.036045	-103.481872
12,200.00	0.00	0.00	12,196.01	184.00	-186.00	377,891.40	805,181.54	32.036045	-103.481872
12,300.00	0.00	0.00	12,296.01	184.00	-186.00	377,891.40	805,181.54	32.036045	-103.481872
12,400.00	0.00	0.00	12,396.01	184.00	-186.00	377,891.40	805,181.54	32.036045	-103.481872
12,500.00	0.00	0.00	12,496.01	184.00	-186.00	377,891.40	805,181.54	32.036045	-103.481872
12,531.03	0.00	0.00	12,527.04	184.00	-186.00	377,891.40	805,181.54	32.036045	-103.481872
KOP @ 12531' MD, 50' FNL, 460' FWL									
12,600.00	6.90	179.52	12,595.85	179.85	-185.97	377,887.25	805,181.57	32.036033	-103.481872
12,700.00	16.90	179.52	12,693.57	159.27	-185.79	377,866.66	805,181.75	32.035977	-103.481872
12,772.00	24.10	179.52	12,760.97	134.07	-185.58	377,841.47	805,181.96	32.035907	-103.481871
FTP @ 12772' MD, 100' FNL, 460' FWL									
12,800.00	26.90	179.52	12,786.24	122.02	-185.48	377,829.42	805,182.06	32.035874	-103.481871
12,900.00	36.90	179.52	12,871.03	69.25	-185.03	377,776.65	805,182.51	32.035729	-103.481871
13,000.00	46.90	179.52	12,945.37	2.56	-184.47	377,709.96	805,183.07	32.035546	-103.481871
13,100.00	56.90	179.52	13,007.00	-76.03	-183.81	377,631.37	805,183.73	32.035330	-103.481871
13,200.00	66.90	179.52	13,054.05	-164.13	-183.06	377,543.27	805,184.47	32.035088	-103.481871
13,300.00	76.90	179.52	13,085.08	-259.05	-182.26	377,448.35	805,185.27	32.034827	-103.481871
13,400.00	86.90	179.52	13,099.16	-357.92	-181.43	377,349.47	805,186.11	32.034555	-103.481871
13,431.03	90.00	179.52	13,100.00	-388.94	-181.17	377,318.46	805,186.37	32.034470	-103.481871
13,500.00	90.00	179.52	13,100.00	-457.91	-180.59	377,249.49	805,186.95	32.034280	-103.481870
13,600.00	90.00	179.52	13,100.00	-557.90	-179.74	377,149.50	805,187.80	32.034005	-103.481870
13,700.00	90.00	179.52	13,100.00	-657.90	-178.90	377,049.50	805,188.64	32.033730	-103.481870
13,800.00	90.00	179.52	13,100.00	-757.90	-178.06	376,949.50	805,189.48	32.033455	-103.481870
13,900.00	90.00	179.52	13,100.00	-857.89	-177.21	376,849.51	805,190.32	32.033181	-103.481870
14,000.00	90.00	179.52	13,100.00	-957.89	-176.37	376,749.51	805,191.17	32.032906	-103.481870
14,100.00	90.00	179.52	13,100.00	-1,057.88	-175.53	376,649.52	805,192.01	32.032631	-103.481869
14,200.00	90.00	179.52	13,100.00	-1,157.88	-174.68	376,549.52	805,192.85	32.032356	-103.481869
14,300.00	90.00	179.52	13,100.00	-1,257.88	-173.84	376,449.52	805,193.70	32.032081	-103.481869
14,400.00	90.00	179.52	13,100.00	-1,357.87	-173.00	376,349.53	805,194.54	32.031806	-103.481869
14,500.00	90.00	179.52	13,100.00	-1,457.87	-172.15	376,249.53	805,195.38	32.031531	-103.481869
14,600.00	90.00	179.52	13,100.00	-1,557.87	-171.31	376,149.53	805,196.23	32.031256	-103.481868
14,700.00	90.00	179.52	13,100.00	-1,657.86	-170.47	376,049.54	805,197.07	32.030982	-103.481868
14,800.00	90.00	179.52	13,100.00	-1,757.86	-169.62	375,949.54	805,197.91	32.030707	-103.481868
14,900.00	90.00	179.52	13,100.00	-1,857.86	-168.78	375,849.55	805,198.76	32.030432	-103.481868
15,000.00	90.00	179.52	13,100.00	-1,957.85	-167.94	375,749.55	805,199.60	32.030157	-103.481868
15,100.00	90.00	179.52	13,100.00	-2,057.85	-167.09	375,649.55	805,200.44	32.029882	-103.481868
15,200.00	90.00	179.52	13,100.00	-2,157.85	-166.25	375,549.56	805,201.29	32.029607	-103.481867
15,300.00	90.00	179.52	13,100.00	-2,257.84	-165.41	375,449.56	805,202.13	32.029332	-103.481867
15,400.00	90.00	179.52	13,100.00	-2,357.84	-164.56	375,349.56	805,202.97	32.029057	-103.481867
15,500.00	90.00	179.52	13,100.00	-2,457.83	-163.72	375,249.57	805,203.82	32.028783	-103.481867

Planning Report - Geographic

Database:	EDM r5000.141_Prod US	Local Co-ordinate Reference:	Well Cobber 21-33 Fed Com 10H
Company:	WCDSC Permian NM	TVD Reference:	RKB @ 3351.10ft
Project:	Lea County (NAD83 New Mexico East)	MD Reference:	RKB @ 3351.10ft
Site:	Sec 21-T26S-R34E	North Reference:	Grid
Well:	Cobber 21-33 Fed Com 10H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 3		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
15,600.00	90.00	179.52	13,100.00	-2,557.83	-162.88	375,149.57	805,204.66	32.028508	-103.481867	
15,700.00	90.00	179.52	13,100.00	-2,657.83	-162.03	375,049.58	805,205.50	32.028233	-103.481867	
15,800.00	90.00	179.52	13,100.00	-2,757.82	-161.19	374,949.58	805,206.35	32.027958	-103.481866	
15,900.00	90.00	179.52	13,100.00	-2,857.82	-160.35	374,849.58	805,207.19	32.027683	-103.481866	
16,000.00	90.00	179.52	13,100.00	-2,957.82	-159.50	374,749.59	805,208.03	32.027408	-103.481866	
16,100.00	90.00	179.52	13,100.00	-3,057.81	-158.66	374,649.59	805,208.88	32.027133	-103.481866	
16,200.00	90.00	179.52	13,100.00	-3,157.81	-157.82	374,549.59	805,209.72	32.026858	-103.481866	
16,300.00	90.00	179.52	13,100.00	-3,257.81	-156.97	374,449.60	805,210.56	32.026584	-103.481865	
16,400.00	90.00	179.52	13,100.00	-3,357.80	-156.13	374,349.60	805,211.41	32.026309	-103.481865	
16,500.00	90.00	179.52	13,100.00	-3,457.80	-155.29	374,249.61	805,212.25	32.026034	-103.481865	
16,600.00	90.00	179.52	13,100.00	-3,557.80	-154.44	374,149.61	805,213.09	32.025759	-103.481865	
16,700.00	90.00	179.52	13,100.00	-3,657.79	-153.60	374,049.61	805,213.94	32.025484	-103.481865	
16,800.00	90.00	179.52	13,100.00	-3,757.79	-152.76	373,949.62	805,214.78	32.025209	-103.481865	
16,900.00	90.00	179.52	13,100.00	-3,857.79	-151.91	373,849.62	805,215.62	32.024934	-103.481864	
17,000.00	90.00	179.52	13,100.00	-3,957.78	-151.07	373,749.62	805,216.47	32.024659	-103.481864	
17,100.00	90.00	179.52	13,100.00	-4,057.78	-150.23	373,649.63	805,217.31	32.024385	-103.481864	
17,200.00	90.00	179.52	13,100.00	-4,157.77	-149.38	373,549.63	805,218.15	32.024110	-103.481864	
17,300.00	90.00	179.52	13,100.00	-4,257.77	-148.54	373,449.64	805,219.00	32.023835	-103.481864	
17,400.00	90.00	179.52	13,100.00	-4,357.77	-147.70	373,349.64	805,219.84	32.023560	-103.481863	
17,500.00	90.00	179.52	13,100.00	-4,457.76	-146.85	373,249.64	805,220.68	32.023285	-103.481863	
17,600.00	90.00	179.52	13,100.00	-4,557.76	-146.01	373,149.65	805,221.53	32.023010	-103.481863	
17,700.00	90.00	179.52	13,100.00	-4,657.76	-145.17	373,049.65	805,222.37	32.022735	-103.481863	
17,800.00	90.00	179.52	13,100.00	-4,757.75	-144.32	372,949.65	805,223.21	32.022460	-103.481863	
17,900.00	90.00	179.52	13,100.00	-4,857.75	-143.48	372,849.66	805,224.06	32.022186	-103.481863	
18,000.00	90.00	179.52	13,100.00	-4,957.75	-142.64	372,749.66	805,224.90	32.021911	-103.481862	
18,086.00	90.00	179.52	13,100.00	-5,043.74	-141.91	372,663.67	805,225.63	32.021674	-103.481862	
Cross section @ 18086' MD, 0' FNL, 460' FWL										
18,100.00	90.00	179.52	13,100.00	-5,057.74	-141.80	372,649.67	805,225.74	32.021636	-103.481862	
18,200.00	90.00	179.52	13,100.00	-5,157.74	-140.95	372,549.67	805,226.59	32.021361	-103.481862	
18,300.00	90.00	179.52	13,100.00	-5,257.74	-140.11	372,449.67	805,227.43	32.021086	-103.481862	
18,400.00	90.00	179.52	13,100.00	-5,357.73	-139.27	372,349.68	805,228.27	32.020811	-103.481862	
18,500.00	90.00	179.52	13,100.00	-5,457.73	-138.42	372,249.68	805,229.12	32.020536	-103.481862	
18,600.00	90.00	179.52	13,100.00	-5,557.72	-137.58	372,149.68	805,229.96	32.020261	-103.481861	
18,700.00	90.00	179.52	13,100.00	-5,657.72	-136.74	372,049.69	805,230.80	32.019987	-103.481861	
18,800.00	90.00	179.52	13,100.00	-5,757.72	-135.89	371,949.69	805,231.65	32.019712	-103.481861	
18,900.00	90.00	179.52	13,100.00	-5,857.71	-135.05	371,849.70	805,232.49	32.019437	-103.481861	
19,000.00	90.00	179.52	13,100.00	-5,957.71	-134.21	371,749.70	805,233.33	32.019162	-103.481861	
19,100.00	90.00	179.52	13,100.00	-6,057.71	-133.36	371,649.70	805,234.18	32.018887	-103.481860	
19,200.00	90.00	179.52	13,100.00	-6,157.70	-132.52	371,549.71	805,235.02	32.018612	-103.481860	
19,300.00	90.00	179.52	13,100.00	-6,257.70	-131.68	371,449.71	805,235.86	32.018337	-103.481860	
19,400.00	90.00	179.52	13,100.00	-6,357.70	-130.83	371,349.71	805,236.71	32.018062	-103.481860	
19,500.00	90.00	179.52	13,100.00	-6,457.69	-129.99	371,249.72	805,237.55	32.017787	-103.481860	
19,600.00	90.00	179.52	13,100.00	-6,557.69	-129.15	371,149.72	805,238.39	32.017513	-103.481860	
19,700.00	90.00	179.52	13,100.00	-6,657.69	-128.30	371,049.73	805,239.24	32.017238	-103.481859	
19,800.00	90.00	179.52	13,100.00	-6,757.68	-127.46	370,949.73	805,240.08	32.016963	-103.481859	
19,900.00	90.00	179.52	13,100.00	-6,857.68	-126.62	370,849.73	805,240.92	32.016688	-103.481859	
20,000.00	90.00	179.52	13,100.00	-6,957.68	-125.77	370,749.74	805,241.77	32.016413	-103.481859	
20,100.00	90.00	179.52	13,100.00	-7,057.67	-124.93	370,649.74	805,242.61	32.016138	-103.481859	
20,200.00	90.00	179.52	13,100.00	-7,157.67	-124.09	370,549.74	805,243.45	32.015863	-103.481858	
20,300.00	90.00	179.52	13,100.00	-7,257.66	-123.24	370,449.75	805,244.30	32.015588	-103.481858	
20,400.00	90.00	179.52	13,100.00	-7,357.66	-122.40	370,349.75	805,245.14	32.015314	-103.481858	
20,500.00	90.00	179.52	13,100.00	-7,457.66	-121.56	370,249.76	805,245.98	32.015039	-103.481858	
20,600.00	90.00	179.52	13,100.00	-7,557.65	-120.71	370,149.76	805,246.83	32.014764	-103.481858	
20,700.00	90.00	179.52	13,100.00	-7,657.65	-119.87	370,049.76	805,247.67	32.014489	-103.481858	

Planning Report - Geographic

Database: EDM r5000.141_Prod US
Company: WCDSC Permian NM
Project: Lea County (NAD83 New Mexico East)
Site: Sec 21-T26S-R34E
Well: Cobber 21-33 Fed Com 10H
Wellbore: Wellbore #1
Design: Permit Plan 3

Local Co-ordinate Reference: Well Cobber 21-33 Fed Com 10H
TVD Reference: RKB @ 3351.10ft
MD Reference: RKB @ 3351.10ft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
20,800.00	90.00	179.52	13,100.00	-7,757.65	-119.03	369,949.77	805,248.51	32.014214	-103.481857
20,900.00	90.00	179.52	13,100.00	-7,857.64	-118.18	369,849.77	805,249.36	32.013939	-103.481857
21,000.00	90.00	179.52	13,100.00	-7,957.64	-117.34	369,749.77	805,250.20	32.013664	-103.481857
21,100.00	90.00	179.52	13,100.00	-8,057.64	-116.50	369,649.78	805,251.04	32.013389	-103.481857
21,200.00	90.00	179.52	13,100.00	-8,157.63	-115.65	369,549.78	805,251.89	32.013115	-103.481857
21,300.00	90.00	179.52	13,100.00	-8,257.63	-114.81	369,449.79	805,252.73	32.012840	-103.481857
21,400.00	90.00	179.52	13,100.00	-8,357.63	-113.97	369,349.79	805,253.57	32.012565	-103.481856
21,500.00	90.00	179.52	13,100.00	-8,457.62	-113.12	369,249.79	805,254.42	32.012290	-103.481856
21,600.00	90.00	179.52	13,100.00	-8,557.62	-112.28	369,149.80	805,255.26	32.012015	-103.481856
21,700.00	90.00	179.52	13,100.00	-8,657.61	-111.44	369,049.80	805,256.10	32.011740	-103.481856
21,800.00	90.00	179.52	13,100.00	-8,757.61	-110.59	368,949.80	805,256.95	32.011465	-103.481856
21,900.00	90.00	179.52	13,100.00	-8,857.61	-109.75	368,849.81	805,257.79	32.011190	-103.481855
22,000.00	90.00	179.52	13,100.00	-8,957.60	-108.91	368,749.81	805,258.63	32.010916	-103.481855
22,100.00	90.00	179.52	13,100.00	-9,057.60	-108.06	368,649.82	805,259.48	32.010641	-103.481855
22,200.00	90.00	179.52	13,100.00	-9,157.60	-107.22	368,549.82	805,260.32	32.010366	-103.481855
22,300.00	90.00	179.52	13,100.00	-9,257.59	-106.38	368,449.82	805,261.16	32.010091	-103.481855
22,400.00	90.00	179.52	13,100.00	-9,357.59	-105.53	368,349.83	805,262.00	32.009816	-103.481855
22,500.00	90.00	179.52	13,100.00	-9,457.59	-104.69	368,249.83	805,262.85	32.009541	-103.481854
22,600.00	90.00	179.52	13,100.00	-9,557.58	-103.85	368,149.83	805,263.69	32.009266	-103.481854
22,700.00	90.00	179.52	13,100.00	-9,657.58	-103.00	368,049.84	805,264.53	32.008991	-103.481854
22,800.00	90.00	179.52	13,100.00	-9,757.58	-102.16	367,949.84	805,265.38	32.008717	-103.481854
22,900.00	90.00	179.52	13,100.00	-9,857.57	-101.32	367,849.85	805,266.22	32.008442	-103.481854
23,000.00	90.00	179.52	13,100.00	-9,957.57	-100.47	367,749.85	805,267.06	32.008167	-103.481853
23,100.00	90.00	179.52	13,100.00	-10,057.56	-99.63	367,649.85	805,267.91	32.007892	-103.481853
23,200.00	90.00	179.52	13,100.00	-10,157.56	-98.79	367,549.86	805,268.75	32.007617	-103.481853
23,300.00	90.00	179.52	13,100.00	-10,257.56	-97.94	367,449.86	805,269.59	32.007342	-103.481853
23,366.00	90.00	179.52	13,100.00	-10,323.56	-97.39	367,383.86	805,270.15	32.007161	-103.481853
Cross section @ 23366' MD, 0' FNL, 460' FWL									
23,400.00	90.00	179.52	13,100.00	-10,357.55	-97.10	367,349.86	805,270.44	32.007067	-103.481853
23,500.00	90.00	179.52	13,100.00	-10,457.55	-96.26	367,249.87	805,271.28	32.006792	-103.481853
23,600.00	90.00	179.52	13,100.00	-10,557.55	-95.41	367,149.87	805,272.12	32.006518	-103.481852
23,700.00	90.00	179.52	13,100.00	-10,657.54	-94.57	367,049.88	805,272.97	32.006243	-103.481852
23,800.00	90.00	179.52	13,100.00	-10,757.54	-93.73	366,949.88	805,273.81	32.005968	-103.481852
23,900.00	90.00	179.52	13,100.00	-10,857.54	-92.88	366,849.88	805,274.65	32.005693	-103.481852
24,000.00	90.00	179.52	13,100.00	-10,957.53	-92.04	366,749.89	805,275.50	32.005418	-103.481852
24,100.00	90.00	179.52	13,100.00	-11,057.53	-91.20	366,649.89	805,276.34	32.005143	-103.481852
24,200.00	90.00	179.52	13,100.00	-11,157.53	-90.35	366,549.89	805,277.18	32.004868	-103.481851
24,300.00	90.00	179.52	13,100.00	-11,257.52	-89.51	366,449.90	805,278.03	32.004593	-103.481851
24,400.00	90.00	179.52	13,100.00	-11,357.52	-88.67	366,349.90	805,278.87	32.004318	-103.481851
24,500.00	90.00	179.52	13,100.00	-11,457.52	-87.82	366,249.91	805,279.71	32.004044	-103.481851
24,600.00	90.00	179.52	13,100.00	-11,557.51	-86.98	366,149.91	805,280.56	32.003769	-103.481851
24,700.00	90.00	179.52	13,100.00	-11,657.51	-86.14	366,049.91	805,281.40	32.003494	-103.481850
24,800.00	90.00	179.52	13,100.00	-11,757.50	-85.29	365,949.92	805,282.24	32.003219	-103.481850
24,900.00	90.00	179.52	13,100.00	-11,857.50	-84.45	365,849.92	805,283.09	32.002944	-103.481850
25,000.00	90.00	179.52	13,100.00	-11,957.50	-83.61	365,749.92	805,283.93	32.002669	-103.481850
25,100.00	90.00	179.52	13,100.00	-12,057.49	-82.76	365,649.93	805,284.77	32.002394	-103.481850
25,200.00	90.00	179.52	13,100.00	-12,157.49	-81.92	365,549.93	805,285.62	32.002119	-103.481850
25,300.00	90.00	179.52	13,100.00	-12,257.49	-81.08	365,449.94	805,286.46	32.001845	-103.481849
25,400.00	90.00	179.52	13,100.00	-12,357.48	-80.23	365,349.94	805,287.30	32.001570	-103.481849
25,500.00	90.00	179.52	13,100.00	-12,457.48	-79.39	365,249.94	805,288.15	32.001295	-103.481849
25,600.00	90.00	179.52	13,100.00	-12,557.48	-78.55	365,149.95	805,288.99	32.001020	-103.481849
25,700.00	90.00	179.52	13,100.00	-12,657.47	-77.70	365,049.95	805,289.83	32.000745	-103.481849
25,772.00	90.00	179.52	13,100.00	-12,729.47	-77.10	364,977.95	805,290.44	32.000547	-103.481849
LTP @ 25772' MD, 100' FSL, 460' FWL									

Planning Report - Geographic

Database: EDM r5000.141_Prod US
 Company: WCDSC Permian NM
 Project: Lea County (NAD83 New Mexico East)
 Site: Sec 21-T26S-R34E
 Well: Cobber 21-33 Fed Com 10H
 Wellbore: Wellbore #1
 Design: Permit Plan 3

Local Co-ordinate Reference: Well Cobber 21-33 Fed Com 10H
 TVD Reference: RKB @ 3351.10ft
 MD Reference: RKB @ 3351.10ft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
25,800.00	90.00	179.52	13,100.00	-12,757.47	-76.86	364,949.95	805,290.68	32.000470	-103.481848
25,852.29	90.00	179.52	13,100.00	-12,809.76	-76.42	364,897.67	805,291.12	32.000326	-103.481848
PBHL; 20' FSL, 460' FWL									
25,852.30	90.00	179.52	13,100.00	-12,809.77	-76.42	364,897.66	805,291.12	32.000326	-103.481848

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
PBHL - Cobber 21-33 Fed Com 10H	0.00	0.00	0.00	-12,809.77	-76.42	364,897.66	805,291.12	32.000326	-103.481848
- plan misses target center by 12809.99ft at 0.00ft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Point									

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
12,531.03	12,527.04	184.00	-186.00	KOP @ 12531' MD, 50' FNL, 460' FWL
12,772.00	12,760.97	134.07	-185.58	FTP @ 12772' MD, 100' FNL, 460' FWL
18,086.00	13,100.00	-5,043.74	-141.91	Cross section @ 18086' MD, 0' FNL, 460' FWL
23,366.00	13,100.00	-10,323.56	-97.39	Cross section @ 23366' MD, 0' FNL, 460' FWL
25,772.00	13,100.00	-12,729.47	-77.10	LTP @ 25772' MD, 100' FSL, 460' FWL
25,852.29	13,100.00	-12,809.76	-76.42	PBHL, 20' FSL, 460' FWL