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

Sundry Print Report
03/14/2023

Well Name: RAGIN CAJUN 12-13 FED COM	**Well Location:** T26S / R34E / SEC 12 / NWNW / 32.063653 / -103.429644	**County or Parish/State:** LEA / NM
Well Number: 5H	**Type of Well:** OIL WELL	**Allottee or Tribe Name:**
Lease Number: NMNM100567	**Unit or CA Name:**	**Unit or CA Number:**
US Well Number: 3002548508	**Well Status:** Approved Application for Permit to Drill	**Operator:** DEVON ENERGY PRODUCTION COMPANY LP

LONG VO
Digitally signed by LONG VO
Date: 2023.03.27 15:51:48 -05'00'

Notice of Intent

Sundry ID: 2719498

Type of Submission: Notice of Intent

Type of Action: APD Change

Date Sundry Submitted: 03/13/2023

Time Sundry Submitted: 12:41

Date proposed operation will begin: 03/07/2023

Procedure Description: Devon energy Production Company, L.P. respectfully requests the addition of a pilot hole to the Ragin Cajun 12-13 Fed Com 5H. Please see attach revised drill plan, directional plans and casing spec sheets.

NOI Attachments

Procedure Description

Ragin_Cajun_12_13_Fed_Com_5H_Pilot_Hole_20230313124020.pdf

Ragin_Cajun_12_13_Fed_Com_5H_Lateral_Plan_20230313124020.pdf

5.5_17lb_P110_BTC_20230307140941.pdf

8.625_32lb_P110EC_SPRINT_FJ_VST_20230307140941.pdf

10.750_40.50lb_J55_USS_20230307140939.PDF

Ragin_Cajun_12_13_Fed_Com_5H_JCB_Pilot_Hole_Update_20230307140817.pdf

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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: REBECCA DEAL

Signed on: MAR 13, 2023 12:40 PM

Name: DEVON ENERGY PRODUCTION COMPANY LP

Title: Regulatory Analyst

Street Address: 333 W SHERIDAN AVE

City: OKLAHOMA CITY **State:** OK

Phone: (303) 299-1406

Email address: REBECCA.DEAL@DVN.COM

Field

Representative Name:

Street Address:

City: **State:** **Zip:**

Phone:

Email address:

PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	**Devon Energy Production Company LP**
LEASE NO.:	**NMNM100567**
LOCATION:	Section 12, T.26 S., R.34 E., NMPM
COUNTY:	Lea County, New Mexico

WELL NAME & NO.:	**Ragin Cajun 12-13 Fed Com 5H**
SURFACE HOLE FOOTAGE:	551'/N & 785'/W
BOTTOM HOLE FOOTAGE	20'/S & 1010'/W
ATS/API ID:	**3002548508**
APD ID:	**10400052369**
Sundry ID:	**2719498**

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
Wellhead Variance	☐ Diverter		
Other	☐ 4 String	☐ Capitan Reef	☐ WIPP
Other	☑ Fluid Filled	☑ Pilot Hole	☐ Open Annulus
Cementing	☐ Contingency Cement Squeeze	☑ EchoMeter	☐ Primary Cement Squeeze
Special Requirements	☐ Water Disposal	☑ COM	☐ Unit
Special Requirements	☐ Batch Sundry		
Special Requirements Variance	☐ Break Testing	☐ Offline Cementing	☐ Casing Clearance

A. HYDROGEN SULFIDE

A Hydrogen Sulfide (H2S) Drilling Plan shall be activated 500 feet prior to drilling into the **Delaware** formation. 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

1. The **10-3/4** inch surface casing shall be set at approximately **1075 feet** (a minimum of **25 feet (Lea County)** into the Rustler Anhydrite, above the salt, and below usable fresh water) and cemented to the surface (**450 sxs**). The surface hole shall be **14 1/2** inch in diameter.

    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.

    More cement is required if washout occurs. Adjust cement volume and excess based on a fluid caliper or similar method that reflects the as-drilled size of the wellbore.

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

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

    Option 1 (Single Stage):

    - Cement to surface. If cement does not circulate see B.1.a, c-d above.

    Option 2:

    Operator has proposed to cement in two stages by conventionally cementing the first stage and performing a bradenhead squeeze on the second stage, contingent upon no returns to surface.

    a. First stage: Operator will cement with intent to reach the top of the **Brushy Canyon at 8000' (536 sxs Class H/C+ additives)**.

    b. Second stage:

- Operator will perform bradenhead squeeze and top-out. Cement to surface. If cement does not reach surface, the appropriate BLM office shall be notified. **(Squeeze 560 sxs Class C)**

Operator has proposed to pump down 10-3/4" X 8-5/8" annulus after primary cementing stage. Operator must run Echo-meter to verify Cement Slurry/Fluid top in the annulus Or operator shall run a CBL from TD of the 8-5/8" casing to surface after the second stage BH to verify TOC.
Submit results to the BLM. No displacement fluid/wash out shall be utilized at the top of the cement slurry between second stage BH and top out. Operator must run one CBL per Well Pad.

If cement does not reach surface, the next casing string must come to surface.

Operator must use a limited flush fluid volume of 1 bbl following backside cementing procedures.

The pilot hole plugging procedure is approved as written. Note plug tops on subsequent drilling report. The BLM is to be contacted 24 hours prior to the commencement of any plugging operations **(575-689-5981 Lea County)** and when tagging the plugs. The Pilot hole plug shall be **335'** in length from 12,750' to **12415'**. (**98 sacks** Class H)

- Mud Requirement: Mud shall be placed between all or below plugs. Minimum consistency of plugging mud shall be obtained by mixing at a rate of 25 sacks (50 pounds each) of gel per 100 barrels of **brine** water. Minimum nine (9) pounds per gallon.

- Cement requirement: Sufficient cement shall be used to bring any required plug to the specified depth and length. Any given cement volumes on the proposed plugging procedure are merely estimates and are not final. Unless specific approval is received, no plug except the surface plug shall be less than 25 sacks of cement. Any plug that requires a tag will have a minimum WOC time of 4 hours.

- Subsequent Plugging Reporting: Within 30 days after plugging work is completed to the BLM. The report should give in detail the manner in which the plugging work was carried out, the extent (by depths) of cement plugs placed, and the size and location (by depths) of casing left in the well. **Show date pilot hole was plugged and tagged.**

3. 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 is required if washout occurs. Adjust cement volume and excess based on a fluid caliper or similar method that reflects the as-drilled size of the wellbore.

C. PRESSURE CONTROL

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

2.

Option 1:

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

b. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **8-5/8** inch intermediate 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.**

Option 2:

Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the **10-3/4** inch 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.

D. 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.
- The operator will submit an as-drilled survey well plat of the well completion, but are not limited to, those specified in Onshore Order 1 and 2.
- 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) 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 intergrity test can be done (prior to the cement setting up) immediately after bumping the plug.

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

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

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

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

7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

B. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.

2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: 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 cement), 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 cement plug. The BOPE test can be initiated after bumping the cement plug with the casing valve open. (only applies to single stage cement jobs, prior to the cement setting up.)

c. The tests shall be done by an independent service company utilizing a test plug not a cup or J-packer and can be initiated immediately with the casing valve open. 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.

LVO 3/27/2023

1. Geologic Formations

TVD of target	12853	Pilot hole depth	14600
MD at TD:	23061	Deepest expected fresh water	

Basin

Formation	Depth (TVD) from KB	Water/Mineral Bearing/Target Zone?	Hazards*
Rustler	930		
Salt	1400		
Base of Salt	5070		
Cherry Canyon	6390		
Brushy Canyon	8000		
1st Bone Spring Lime	9330		
Bone Spring 1st	10520		
Bone Spring 2nd	11060		
3rd Bone Spring Lime	11560		
Bone Spring 3rd	12150		
Wolfcamp	12590		
Strawn	14500		

*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)
14 1/2	10 3/4	40 1/2	J-55	BTC	0	1000	0	1000
9 7/8	8 5/8	32	P110	Sprint FJ	0	12700	0	12700
7 7/8	5 1/2	17	P110	BTC	0	23061	0	12853

• 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)

Assuming no returns are established while drilling, Devon requests to pump a two stage cement job on the intermediate casing string with the first stage being pumped conventionally with the calculated top of cement at the Brushy Canyon and the second stage performed as a bradenhead squeeze with planned cement from the Brushy canyon to surface.
If necessary, a top out consisting of Class C cement will be executed as a contingency.
Devon will report to the BLM the volume of fluid (limited to 1 bbls) used to flush intermediate casing valves following backside cementing procedures.

The final cement top will be verified by Echo-meter. Devon will include the Echo-meter verified fluid top and the volume of displacement fluid above the cement slurry in the annulus in all post-drill sundries on wells utilizing this cement program.

Casing	# Sks	TOC	Wt. ppg	Yld (ft3/sack)	Slurry Description
Surface	380	Surf	13.2	1.44	Lead: Class C Cement + additives
Int 1	560	Surf	13.0	2.3	2nd State: Bradenhead Squeeze - Lead: Class C Cement + additives
	536	8000	13.2	1.44	Tail: Class H / C + additives
Production	35	11500	9	3.27	Lead: Class H /C + additives
	1451	12100	13.2	1.44	Tail: Class H / C + additives

Casing String	% Excess
Surface	50%
Intermediate 1	30%
Prod	10%

4. Pressure Control Equipment (Three String Design)

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✓	Tested to:
Int 1	13-5/8"	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)

Section	Type	Weight (ppg)
Surface	FW Gel	8.5-9
Intermediate	DBE / Cut Brine	10-10.5
Production	OBM	10-10.5
Pilot	WBM	13-15

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 Rpeort and sbumitted 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
X	Resistivity	Intermediate & Pilot Hole
X	Density	Intermediate & Pilot Hole
X	CBL	Production casing
X	Mud log	Intermediate shoe to TD
	PEX	

7. Drilling Conditions

Condition	Specfiy what type and where?
BH pressure at deepest TVD	7107
Abnormal temperature	No

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

Hydrogren 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

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

Ragin Cajun 12-13 Fed Com 5H

9. Pilot Hole

Hole Size 7 7/8”	
From	**To**
12,700 (Pilot Begin)	14,600 (Pilot end)

- Pilot hole will be plugged back per NMOCD P&A requirements with a **cement plug**.
- Plug depths will be verified and tagged on the plug back.
- Devon will contact the NMOCD and give notice before performing any of the aforementioned procedures including the tagging of the cement plug.

PILOT HOLE ABANDONMENT		
Pilot Hole ABDMNT plug		
Slurry Top:	~~12,450~~	Tag at 12,415'
Slurry Base:	12,750	
Slurry Weight:	15.6	
Cement Plug Height:	~~--300’--~~	335'
Strawn ABDMNT plug		
Slurry Top:	14,250	
Slurry Base:	14,550	
Slurry Weight:	15.6	
Cement Plug Height:	300’	
Whipstock Set Depths		
Whip Set Depth	12,125	
Whip Window	12,100-12,110	

	TOC	Wt. (lb/gal)	H_20 (gal/sk)	Sacks	Yld (ft3/sack)	Slurry Description
Abandonment Plug (Pilot Hole)	12,450	15.6	5.24	98 ~~---86---~~	1.18	• Lead: Class H Cement + Retarder – HR-601 – 0.1% BWOC • Suspension Agent – SA-1015 – 0.05% BWOC • Fluid Loss Additive – Halad-322 – 0.5% BWOC

	TOC	Wt. (lb/gal)	H_20 (gal/sk)	Sacks	Yld (ft3/sack)	Slurry Description
Abandonment Plug (Strawn)	14,250	15.6	5.24	86	1.18	• Lead: Class H Cement + Retarder – HR-601 – 0.1% BWOC • Suspension Agent – SA-1015 – 0.05% BWOC • Fluid Loss Additive – Halad-322 – 0.5% BWOC

WCDSC Permian NM

Lea County (NAD83 New Mexico East)
Sec 12-T26S-R34E
Ragin Cajun 12-13 Fed Com 5H

Wellbore #1

Plan: Permit Plan 1

Standard Planning Report - Geographic

13 March, 2023

Planning Report - Geographic

Database:	EDM_5000.16	**Local Co-ordinate Reference:**	Well Ragin Cajun 12-13 Fed Com 5H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3304.20ft
Project:	Lea County (NAD83 New Mexico East)	**MD Reference:**	RKB @ 3304.20ft
Site:	Sec 12-T26S-R34E	**North Reference:**	Grid
Well:	Ragin Cajun 12-13 Fed Com 5H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

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 12-T26S-R34E

Site Position:		**Northing:**	388,613.22 usft	**Latitude:**	32.0651736
From:	Map	**Easting:**	820,492.31 usft	**Longitude:**	-103.4321776
Position Uncertainty:	5.00 ft	**Slot Radius:**	13.20 in	**Grid Convergence:**	0.48 °

Well Ragin Cajun 12-13 Fed Com 5H

Well Position	**+N/-S**	0.00 ft	**Northing:**	388,066.59 usft	**Latitude:**	32.0636530
	+E/-W	0.00 ft	**Easting:**	821,281.93 usft	**Longitude:**	-103.4296436
Position Uncertainty		0.50 ft	**Wellhead Elevation:**		**Ground Level:**	3,279.20 ft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	12/10/2019	6.61	59.90	47,603.78667453

Design Permit Plan 1

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	178.20

Plan Survey Tool Program **Date** 3/13/2023

	Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	23,060.68	Permit Plan 1 (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	
3,890.46	3.90	24.18	3,890.16	12.13	5.45	1.00	1.00	0.00	24.18	
11,630.16	3.90	24.18	11,611.89	492.91	221.37	0.00	0.00	0.00	0.00	
11,890.47	0.00	0.00	11,872.00	501.00	225.00	1.50	-1.50	0.00	180.00	
12,240.51	0.00	0.00	12,222.04	501.00	225.00	0.00	0.00	0.00	0.00	
13,140.51	90.00	179.51	12,795.00	-71.94	229.87	10.00	10.00	0.00	179.51	PBHL - Ragin Cajun 1
23,061.00	90.00	179.51	12,795.00	-9,992.07	314.18	0.00	0.00	0.00	0.00	

Planning Report - Geographic

Database:	EDM_5000.16	**Local Co-ordinate Reference:**	Well Ragin Cajun 12-13 Fed Com 5H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3304.20ft
Project:	Lea County (NAD83 New Mexico East)	**MD Reference:**	RKB @ 3304.20ft
Site:	Sec 12-T26S-R34E	**North Reference:**	Grid
Well:	Ragin Cajun 12-13 Fed Com 5H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

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	388,066.59	821,281.93	32.0636530	-103.4296436
100.00	0.00	0.00	100.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
200.00	0.00	0.00	200.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
300.00	0.00	0.00	300.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
400.00	0.00	0.00	400.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
500.00	0.00	0.00	500.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
600.00	0.00	0.00	600.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
700.00	0.00	0.00	700.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
800.00	0.00	0.00	800.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
900.00	0.00	0.00	900.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
1,000.00	0.00	0.00	1,000.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
1,100.00	0.00	0.00	1,100.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
1,200.00	0.00	0.00	1,200.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
1,300.00	0.00	0.00	1,300.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
1,400.00	0.00	0.00	1,400.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
1,500.00	0.00	0.00	1,500.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
1,600.00	0.00	0.00	1,600.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
1,700.00	0.00	0.00	1,700.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
1,800.00	0.00	0.00	1,800.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
1,900.00	0.00	0.00	1,900.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
2,000.00	0.00	0.00	2,000.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
2,100.00	0.00	0.00	2,100.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
2,200.00	0.00	0.00	2,200.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
2,300.00	0.00	0.00	2,300.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
2,400.00	0.00	0.00	2,400.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
2,500.00	0.00	0.00	2,500.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
2,600.00	0.00	0.00	2,600.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
2,700.00	0.00	0.00	2,700.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
2,800.00	0.00	0.00	2,800.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
2,900.00	0.00	0.00	2,900.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
3,000.00	0.00	0.00	3,000.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
3,100.00	0.00	0.00	3,100.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
3,200.00	0.00	0.00	3,200.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
3,300.00	0.00	0.00	3,300.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
3,400.00	0.00	0.00	3,400.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
3,500.00	0.00	0.00	3,500.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
3,600.00	1.00	24.18	3,600.00	0.80	0.36	388,067.38	821,282.29	32.0636551	-103.4296424
3,700.00	2.00	24.18	3,699.96	3.18	1.43	388,069.77	821,283.36	32.0636617	-103.4296389
3,800.00	3.00	24.18	3,799.86	7.16	3.22	388,073.75	821,285.15	32.0636726	-103.4296330
3,890.46	3.90	24.18	3,890.16	12.13	5.45	388,078.72	821,287.38	32.0636862	-103.4296257
3,900.00	3.90	24.18	3,899.68	12.72	5.71	388,079.31	821,287.64	32.0636878	-103.4296248
4,000.00	3.90	24.18	3,999.44	18.94	8.50	388,085.53	821,290.43	32.0637048	-103.4296156
4,100.00	3.90	24.18	4,099.21	25.15	11.29	388,091.74	821,293.22	32.0637218	-103.4296065
4,200.00	3.90	24.18	4,198.98	31.36	14.08	388,097.95	821,296.01	32.0637388	-103.4295973
4,300.00	3.90	24.18	4,298.75	37.57	16.87	388,104.16	821,298.80	32.0637558	-103.4295881
4,400.00	3.90	24.18	4,398.52	43.78	19.66	388,110.37	821,301.59	32.0637729	-103.4295790
4,500.00	3.90	24.18	4,498.28	50.00	22.45	388,116.58	821,304.38	32.0637899	-103.4295698
4,600.00	3.90	24.18	4,598.05	56.21	25.24	388,122.80	821,307.17	32.0638069	-103.4295606
4,700.00	3.90	24.18	4,697.82	62.42	28.03	388,129.01	821,309.96	32.0638239	-103.4295514
4,800.00	3.90	24.18	4,797.59	68.63	30.82	388,135.22	821,312.75	32.0638409	-103.4295423
4,900.00	3.90	24.18	4,897.35	74.84	33.61	388,141.43	821,315.54	32.0638579	-103.4295331
5,000.00	3.90	24.18	4,997.12	81.06	36.40	388,147.64	821,318.33	32.0638749	-103.4295239
5,100.00	3.90	24.18	5,096.89	87.27	39.19	388,153.86	821,321.12	32.0638919	-103.4295147
5,200.00	3.90	24.18	5,196.66	93.48	41.98	388,160.07	821,323.91	32.0639089	-103.4295056
5,300.00	3.90	24.18	5,296.43	99.69	44.77	388,166.28	821,326.70	32.0639259	-103.4294964

Planning Report - Geographic

Database:	EDM_5000.16	**Local Co-ordinate Reference:**	Well Ragin Cajun 12-13 Fed Com 5H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3304.20ft
Project:	Lea County (NAD83 New Mexico East)	**MD Reference:**	RKB @ 3304.20ft
Site:	Sec 12-T26S-R34E	**North Reference:**	Grid
Well:	Ragin Cajun 12-13 Fed Com 5H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

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	3.90	24.18	5,396.19	105.90	47.56	388,172.49	821,329.49	32.0639430	-103.4294872
5,500.00	3.90	24.18	5,495.96	112.11	50.35	388,178.70	821,332.28	32.0639600	-103.4294781
5,600.00	3.90	24.18	5,595.73	118.33	53.14	388,184.91	821,335.07	32.0639770	-103.4294689
5,700.00	3.90	24.18	5,695.50	124.54	55.93	388,191.13	821,337.86	32.0639940	-103.4294597
5,800.00	3.90	24.18	5,795.27	130.75	58.72	388,197.34	821,340.65	32.0640110	-103.4294505
5,900.00	3.90	24.18	5,895.03	136.96	61.51	388,203.55	821,343.44	32.0640280	-103.4294414
6,000.00	3.90	24.18	5,994.80	143.17	64.30	388,209.76	821,346.23	32.0640450	-103.4294322
6,100.00	3.90	24.18	6,094.57	149.39	67.09	388,215.97	821,349.02	32.0640620	-103.4294230
6,200.00	3.90	24.18	6,194.34	155.60	69.88	388,222.19	821,351.81	32.0640790	-103.4294138
6,300.00	3.90	24.18	6,294.10	161.81	72.67	388,228.40	821,354.60	32.0640960	-103.4294047
6,400.00	3.90	24.18	6,393.87	168.02	75.46	388,234.61	821,357.39	32.0641130	-103.4293955
6,500.00	3.90	24.18	6,493.64	174.23	78.25	388,240.82	821,360.18	32.0641301	-103.4293863
6,600.00	3.90	24.18	6,593.41	180.45	81.04	388,247.03	821,362.97	32.0641471	-103.4293772
6,700.00	3.90	24.18	6,693.18	186.66	83.83	388,253.25	821,365.76	32.0641641	-103.4293680
6,800.00	3.90	24.18	6,792.94	192.87	86.62	388,259.46	821,368.55	32.0641811	-103.4293588
6,900.00	3.90	24.18	6,892.71	199.08	89.41	388,265.67	821,371.34	32.0641981	-103.4293496
7,000.00	3.90	24.18	6,992.48	205.29	92.20	388,271.88	821,374.13	32.0642151	-103.4293405
7,100.00	3.90	24.18	7,092.25	211.50	94.99	388,278.09	821,376.92	32.0642321	-103.4293313
7,200.00	3.90	24.18	7,192.02	217.72	97.78	388,284.30	821,379.70	32.0642491	-103.4293221
7,300.00	3.90	24.18	7,291.78	223.93	100.57	388,290.52	821,382.49	32.0642661	-103.4293129
7,400.00	3.90	24.18	7,391.55	230.14	103.36	388,296.73	821,385.28	32.0642831	-103.4293038
7,500.00	3.90	24.18	7,491.32	236.35	106.15	388,302.94	821,388.07	32.0643002	-103.4292946
7,600.00	3.90	24.18	7,591.09	242.56	108.94	388,309.15	821,390.86	32.0643172	-103.4292854
7,700.00	3.90	24.18	7,690.86	248.78	111.73	388,315.36	821,393.65	32.0643342	-103.4292763
7,800.00	3.90	24.18	7,790.62	254.99	114.52	388,321.58	821,396.44	32.0643512	-103.4292671
7,900.00	3.90	24.18	7,890.39	261.20	117.31	388,327.79	821,399.23	32.0643682	-103.4292579
8,000.00	3.90	24.18	7,990.16	267.41	120.09	388,334.00	821,402.02	32.0643852	-103.4292487
8,100.00	3.90	24.18	8,089.93	273.62	122.88	388,340.21	821,404.81	32.0644022	-103.4292396
8,200.00	3.90	24.18	8,189.69	279.83	125.67	388,346.42	821,407.60	32.0644192	-103.4292304
8,300.00	3.90	24.18	8,289.46	286.05	128.46	388,352.63	821,410.39	32.0644362	-103.4292212
8,400.00	3.90	24.18	8,389.23	292.26	131.25	388,358.85	821,413.18	32.0644532	-103.4292120
8,500.00	3.90	24.18	8,489.00	298.47	134.04	388,365.06	821,415.97	32.0644703	-103.4292029
8,600.00	3.90	24.18	8,588.77	304.68	136.83	388,371.27	821,418.76	32.0644873	-103.4291937
8,700.00	3.90	24.18	8,688.53	310.89	139.62	388,377.48	821,421.55	32.0645043	-103.4291845
8,800.00	3.90	24.18	8,788.30	317.11	142.41	388,383.69	821,424.34	32.0645213	-103.4291754
8,900.00	3.90	24.18	8,888.07	323.32	145.20	388,389.91	821,427.13	32.0645383	-103.4291662
9,000.00	3.90	24.18	8,987.84	329.53	147.99	388,396.12	821,429.92	32.0645553	-103.4291570
9,100.00	3.90	24.18	9,087.61	335.74	150.78	388,402.33	821,432.71	32.0645723	-103.4291478
9,200.00	3.90	24.18	9,187.37	341.95	153.57	388,408.54	821,435.50	32.0645893	-103.4291387
9,300.00	3.90	24.18	9,287.14	348.17	156.36	388,414.75	821,438.29	32.0646063	-103.4291295
9,400.00	3.90	24.18	9,386.91	354.38	159.15	388,420.97	821,441.08	32.0646233	-103.4291203
9,500.00	3.90	24.18	9,486.68	360.59	161.94	388,427.18	821,443.87	32.0646404	-103.4291111
9,600.00	3.90	24.18	9,586.45	366.80	164.73	388,433.39	821,446.66	32.0646574	-103.4291020
9,700.00	3.90	24.18	9,686.21	373.01	167.52	388,439.60	821,449.45	32.0646744	-103.4290928
9,800.00	3.90	24.18	9,785.98	379.22	170.31	388,445.81	821,452.24	32.0646914	-103.4290836
9,900.00	3.90	24.18	9,885.75	385.44	173.10	388,452.02	821,455.03	32.0647084	-103.4290745
10,000.00	3.90	24.18	9,985.52	391.65	175.89	388,458.24	821,457.82	32.0647254	-103.4290653
10,100.00	3.90	24.18	10,085.28	397.86	178.68	388,464.45	821,460.61	32.0647424	-103.4290561
10,200.00	3.90	24.18	10,185.05	404.07	181.47	388,470.66	821,463.40	32.0647594	-103.4290469
10,300.00	3.90	24.18	10,284.82	410.28	184.26	388,476.87	821,466.19	32.0647764	-103.4290378
10,400.00	3.90	24.18	10,384.59	416.50	187.05	388,483.08	821,468.98	32.0647934	-103.4290286
10,500.00	3.90	24.18	10,484.36	422.71	189.84	388,489.30	821,471.77	32.0648105	-103.4290194
10,600.00	3.90	24.18	10,584.12	428.92	192.63	388,495.51	821,474.56	32.0648275	-103.4290102
10,700.00	3.90	24.18	10,683.89	435.13	195.42	388,501.72	821,477.35	32.0648445	-103.4290011
10,800.00	3.90	24.18	10,783.66	441.34	198.21	388,507.93	821,480.14	32.0648615	-103.4289919

Planning Report - Geographic

Database:	EDM_5000.16	**Local Co-ordinate Reference:**	Well Ragin Cajun 12-13 Fed Com 5H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3304.20ft
Project:	Lea County (NAD83 New Mexico East)	**MD Reference:**	RKB @ 3304.20ft
Site:	Sec 12-T26S-R34E	**North Reference:**	Grid
Well:	Ragin Cajun 12-13 Fed Com 5H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

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	3.90	24.18	10,883.43	447.56	201.00	388,514.14	821,482.93	32.0648785	-103.4289827
11,000.00	3.90	24.18	10,983.20	453.77	203.79	388,520.35	821,485.72	32.0648955	-103.4289736
11,100.00	3.90	24.18	11,082.96	459.98	206.58	388,526.57	821,488.51	32.0649125	-103.4289644
11,200.00	3.90	24.18	11,182.73	466.19	209.37	388,532.78	821,491.30	32.0649295	-103.4289552
11,300.00	3.90	24.18	11,282.50	472.40	212.16	388,538.99	821,494.08	32.0649465	-103.4289460
11,400.00	3.90	24.18	11,382.27	478.61	214.95	388,545.20	821,496.87	32.0649635	-103.4289369
11,500.00	3.90	24.18	11,482.03	484.83	217.74	388,551.41	821,499.66	32.0649806	-103.4289277
11,600.00	3.90	24.18	11,581.80	491.04	220.53	388,557.63	821,502.45	32.0649976	-103.4289185
11,630.16	3.90	24.18	11,611.89	492.91	221.37	388,559.50	821,503.30	32.0650027	-103.4289158
11,700.00	2.86	24.18	11,681.61	496.67	223.05	388,563.26	821,504.98	32.0650130	-103.4289102
11,800.00	1.36	24.18	11,781.54	500.02	224.56	388,566.61	821,506.49	32.0650222	-103.4289053
11,890.47	0.00	0.00	11,872.00	501.00	225.00	388,567.59	821,506.93	32.0650248	-103.4289038
11,900.00	0.00	0.00	11,881.53	501.00	225.00	388,567.59	821,506.93	32.0650248	-103.4289038
12,000.00	0.00	0.00	11,981.53	501.00	225.00	388,567.59	821,506.93	32.0650248	-103.4289038
12,100.00	0.00	0.00	12,081.53	501.00	225.00	388,567.59	821,506.93	32.0650248	-103.4289038
12,200.00	0.00	0.00	12,181.53	501.00	225.00	388,567.59	821,506.93	32.0650248	-103.4289038
12,240.51	0.00	0.00	12,222.04	501.00	225.00	388,567.59	821,506.93	32.0650248	-103.4289038
KOP @ 12241' MD, 50' FNL, 1010' FWL									
12,250.00	0.95	179.51	12,231.53	500.92	225.00	388,567.51	821,506.93	32.0650246	-103.4289038
12,300.00	5.95	179.51	12,281.42	497.91	225.03	388,564.50	821,506.95	32.0650164	-103.4289038
12,350.00	10.95	179.51	12,330.87	490.57	225.09	388,557.16	821,507.02	32.0649962	-103.4289038
12,400.00	15.95	179.51	12,379.48	478.95	225.19	388,545.53	821,507.12	32.0649642	-103.4289038
12,450.00	20.95	179.51	12,426.89	463.13	225.32	388,529.72	821,507.25	32.0649207	-103.4289038
12,482.00	24.15	179.51	12,456.44	450.86	225.43	388,517.45	821,507.35	32.0648870	-103.4289038
FTP @ 12482' MD, 100' FNL, 1010' FWL									
12,500.00	25.95	179.51	12,472.75	443.24	225.49	388,509.83	821,507.42	32.0648661	-103.4289038
12,550.00	30.95	179.51	12,516.70	419.43	225.69	388,486.02	821,507.62	32.0648006	-103.4289038
12,600.00	35.95	179.51	12,558.40	391.88	225.93	388,458.47	821,507.86	32.0647249	-103.4289038
12,650.00	40.95	179.51	12,597.55	360.80	226.19	388,427.39	821,508.12	32.0646394	-103.4289038
12,700.00	45.95	179.51	12,633.84	326.42	226.48	388,393.01	821,508.41	32.0645450	-103.4289037
12,750.00	50.95	179.51	12,666.99	289.02	226.80	388,355.61	821,508.73	32.0644421	-103.4289037
12,800.00	55.95	179.51	12,696.76	248.87	227.14	388,315.46	821,509.07	32.0643318	-103.4289037
12,850.00	60.95	179.51	12,722.91	206.27	227.50	388,272.86	821,509.43	32.0642147	-103.4289037
12,900.00	65.95	179.51	12,745.26	161.56	227.88	388,228.15	821,509.81	32.0640918	-103.4289037
12,950.00	70.95	179.51	12,763.62	115.07	228.28	388,181.66	821,510.21	32.0639640	-103.4289037
13,000.00	75.95	179.51	12,777.86	67.16	228.69	388,133.75	821,510.62	32.0638323	-103.4289036
13,050.00	80.95	179.51	12,787.87	18.19	229.10	388,084.78	821,511.03	32.0636977	-103.4289036
13,100.00	85.95	179.51	12,793.57	-31.46	229.53	388,035.13	821,511.45	32.0635612	-103.4289036
13,140.51	90.00	179.51	12,795.00	-71.94	229.87	387,994.65	821,511.80	32.0634499	-103.4289036
13,200.00	90.00	179.51	12,795.00	-131.43	230.38	387,935.16	821,512.30	32.0632864	-103.4289036
13,300.00	90.00	179.51	12,795.00	-231.42	231.23	387,835.17	821,513.15	32.0630115	-103.4289035
13,400.00	90.00	179.51	12,795.00	-331.42	232.07	387,735.17	821,514.00	32.0627367	-103.4289035
13,500.00	90.00	179.51	12,795.00	-431.41	232.92	387,635.18	821,514.85	32.0624618	-103.4289035
13,600.00	90.00	179.51	12,795.00	-531.41	233.77	387,535.18	821,515.70	32.0621869	-103.4289034
13,700.00	90.00	179.51	12,795.00	-631.41	234.62	387,435.18	821,516.55	32.0619121	-103.4289034
13,800.00	90.00	179.51	12,795.00	-731.40	235.47	387,335.19	821,517.40	32.0616372	-103.4289033
13,900.00	90.00	179.51	12,795.00	-831.40	236.32	387,235.19	821,518.25	32.0613623	-103.4289033
14,000.00	90.00	179.51	12,795.00	-931.40	237.17	387,135.19	821,519.10	32.0610874	-103.4289033
14,100.00	90.00	179.51	12,795.00	-1,031.39	238.02	387,035.20	821,519.95	32.0608126	-103.4289032
14,200.00	90.00	179.51	12,795.00	-1,131.39	238.87	386,935.20	821,520.80	32.0605377	-103.4289032
14,300.00	90.00	179.51	12,795.00	-1,231.39	239.72	386,835.21	821,521.65	32.0602628	-103.4289031
14,400.00	90.00	179.51	12,795.00	-1,331.38	240.57	386,735.21	821,522.50	32.0599879	-103.4289031
14,500.00	90.00	179.51	12,795.00	-1,431.38	241.42	386,635.21	821,523.35	32.0597131	-103.4289031
14,600.00	90.00	179.51	12,795.00	-1,531.37	242.27	386,535.22	821,524.20	32.0594382	-103.4289030

Planning Report - Geographic

Database:	EDM_5000.16	**Local Co-ordinate Reference:**	Well Ragin Cajun 12-13 Fed Com 5H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3304.20ft
Project:	Lea County (NAD83 New Mexico East)	**MD Reference:**	RKB @ 3304.20ft
Site:	Sec 12-T26S-R34E	**North Reference:**	Grid
Well:	Ragin Cajun 12-13 Fed Com 5H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
14,700.00	90.00	179.51	12,795.00	-1,631.37	243.12	386,435.22	821,525.05	32.0591633	-103.4289030
14,800.00	90.00	179.51	12,795.00	-1,731.37	243.97	386,335.22	821,525.90	32.0588885	-103.4289030
14,900.00	90.00	179.51	12,795.00	-1,831.36	244.82	386,235.23	821,526.75	32.0586136	-103.4289029
15,000.00	90.00	179.51	12,795.00	-1,931.36	245.67	386,135.23	821,527.60	32.0583387	-103.4289029
15,100.00	90.00	179.51	12,795.00	-2,031.36	246.52	386,035.24	821,528.45	32.0580638	-103.4289028
15,200.00	90.00	179.51	12,795.00	-2,131.35	247.37	385,935.24	821,529.30	32.0577890	-103.4289028
15,300.00	90.00	179.51	12,795.00	-2,231.35	248.22	385,835.24	821,530.15	32.0575141	-103.4289028
15,400.00	90.00	179.51	12,795.00	-2,331.35	249.07	385,735.25	821,531.00	32.0572392	-103.4289027
15,500.00	90.00	179.51	12,795.00	-2,431.34	249.92	385,635.25	821,531.85	32.0569643	-103.4289027
15,600.00	90.00	179.51	12,795.00	-2,531.34	250.77	385,535.26	821,532.70	32.0566895	-103.4289026
15,700.00	90.00	179.51	12,795.00	-2,631.34	251.62	385,435.26	821,533.55	32.0564146	-103.4289026
15,800.00	90.00	179.51	12,795.00	-2,731.33	252.47	385,335.26	821,534.40	32.0561397	-103.4289026
15,900.00	90.00	179.51	12,795.00	-2,831.33	253.32	385,235.27	821,535.25	32.0558649	-103.4289025
16,000.00	90.00	179.51	12,795.00	-2,931.32	254.17	385,135.27	821,536.10	32.0555900	-103.4289025
16,100.00	90.00	179.51	12,795.00	-3,031.32	255.02	385,035.27	821,536.95	32.0553151	-103.4289024
16,200.00	90.00	179.51	12,795.00	-3,131.32	255.87	384,935.28	821,537.80	32.0550402	-103.4289024
16,300.00	90.00	179.51	12,795.00	-3,231.31	256.72	384,835.28	821,538.65	32.0547654	-103.4289024
16,400.00	90.00	179.51	12,795.00	-3,331.31	257.57	384,735.29	821,539.50	32.0544905	-103.4289023
16,500.00	90.00	179.51	12,795.00	-3,431.31	258.42	384,635.29	821,540.35	32.0542156	-103.4289023
16,600.00	90.00	179.51	12,795.00	-3,531.30	259.27	384,535.29	821,541.20	32.0539407	-103.4289023
16,700.00	90.00	179.51	12,795.00	-3,631.30	260.12	384,435.30	821,542.05	32.0536659	-103.4289022
16,800.00	90.00	179.51	12,795.00	-3,731.30	260.97	384,335.30	821,542.90	32.0533910	-103.4289022
16,900.00	90.00	179.51	12,795.00	-3,831.29	261.82	384,235.30	821,543.75	32.0531161	-103.4289021
17,000.00	90.00	179.51	12,795.00	-3,931.29	262.67	384,135.31	821,544.60	32.0528413	-103.4289021
17,100.00	90.00	179.51	12,795.00	-4,031.28	263.52	384,035.31	821,545.45	32.0525664	-103.4289021
17,200.00	90.00	179.51	12,795.00	-4,131.28	264.37	383,935.32	821,546.30	32.0522915	-103.4289020
17,300.00	90.00	179.51	12,795.00	-4,231.28	265.22	383,835.32	821,547.15	32.0520166	-103.4289020
17,400.00	90.00	179.51	12,795.00	-4,331.27	266.07	383,735.32	821,548.00	32.0517418	-103.4289019
17,500.00	90.00	179.51	12,795.00	-4,431.27	266.92	383,635.33	821,548.85	32.0514669	-103.4289019
17,600.00	90.00	179.51	12,795.00	-4,531.27	267.77	383,535.33	821,549.70	32.0511920	-103.4289019
17,700.00	90.00	179.51	12,795.00	-4,631.26	268.62	383,435.34	821,550.55	32.0509171	-103.4289018
17,800.00	90.00	179.51	12,795.00	-4,731.26	269.47	383,335.34	821,551.40	32.0506423	-103.4289018
17,802.00	90.00	179.51	12,795.00	-4,733.26	269.49	383,333.34	821,551.42	32.0506368	-103.4289018
Cross section @ 17802' MD, 0' FNL, 1010' FWL									
17,900.00	90.00	179.51	12,795.00	-4,831.26	270.32	383,235.34	821,552.25	32.0503674	-103.4289017
18,000.00	90.00	179.51	12,795.00	-4,931.25	271.17	383,135.35	821,553.10	32.0500925	-103.4289017
18,100.00	90.00	179.51	12,795.00	-5,031.25	272.02	383,035.35	821,553.95	32.0498177	-103.4289017
18,200.00	90.00	179.51	12,795.00	-5,131.24	272.87	382,935.35	821,554.80	32.0495428	-103.4289016
18,300.00	90.00	179.51	12,795.00	-5,231.24	273.72	382,835.36	821,555.65	32.0492679	-103.4289016
18,400.00	90.00	179.51	12,795.00	-5,331.24	274.57	382,735.36	821,556.50	32.0489930	-103.4289015
18,500.00	90.00	179.51	12,795.00	-5,431.23	275.42	382,635.37	821,557.35	32.0487182	-103.4289015
18,600.00	90.00	179.51	12,795.00	-5,531.23	276.27	382,535.37	821,558.20	32.0484433	-103.4289015
18,700.00	90.00	179.51	12,795.00	-5,631.23	277.12	382,435.37	821,559.05	32.0481684	-103.4289014
18,800.00	90.00	179.51	12,795.00	-5,731.22	277.97	382,335.38	821,559.90	32.0478935	-103.4289014
18,900.00	90.00	179.51	12,795.00	-5,831.22	278.82	382,235.38	821,560.75	32.0476187	-103.4289013
19,000.00	90.00	179.51	12,795.00	-5,931.22	279.67	382,135.38	821,561.60	32.0473438	-103.4289013
19,100.00	90.00	179.51	12,795.00	-6,031.21	280.52	382,035.39	821,562.45	32.0470689	-103.4289013
19,200.00	90.00	179.51	12,795.00	-6,131.21	281.37	381,935.39	821,563.30	32.0467940	-103.4289012
19,300.00	90.00	179.51	12,795.00	-6,231.21	282.22	381,835.40	821,564.15	32.0465192	-103.4289012
19,400.00	90.00	179.51	12,795.00	-6,331.20	283.07	381,735.40	821,565.00	32.0462443	-103.4289011
19,500.00	90.00	179.51	12,795.00	-6,431.20	283.92	381,635.40	821,565.85	32.0459694	-103.4289011
19,600.00	90.00	179.51	12,795.00	-6,531.19	284.77	381,535.41	821,566.70	32.0456946	-103.4289011
19,700.00	90.00	179.51	12,795.00	-6,631.19	285.62	381,435.41	821,567.55	32.0454197	-103.4289010
19,800.00	90.00	179.51	12,795.00	-6,731.19	286.47	381,335.42	821,568.40	32.0451448	-103.4289010

Planning Report - Geographic

Database:	EDM_5000.16	**Local Co-ordinate Reference:**	Well Ragin Cajun 12-13 Fed Com 5H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3304.20ft
Project:	Lea County (NAD83 New Mexico East)	**MD Reference:**	RKB @ 3304.20ft
Site:	Sec 12-T26S-R34E	**North Reference:**	Grid
Well:	Ragin Cajun 12-13 Fed Com 5H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
19,900.00	90.00	179.51	12,795.00	-6,831.18	287.32	381,235.42	821,569.25	32.0448699	-103.4289010
20,000.00	90.00	179.51	12,795.00	-6,931.18	288.17	381,135.42	821,570.10	32.0445951	-103.4289009
20,100.00	90.00	179.51	12,795.00	-7,031.18	289.02	381,035.43	821,570.95	32.0443202	-103.4289009
20,200.00	90.00	179.51	12,795.00	-7,131.17	289.87	380,935.43	821,571.80	32.0440453	-103.4289008
20,300.00	90.00	179.51	12,795.00	-7,231.17	290.72	380,835.43	821,572.65	32.0437704	-103.4289008
20,400.00	90.00	179.51	12,795.00	-7,331.17	291.57	380,735.44	821,573.50	32.0434956	-103.4289008
20,500.00	90.00	179.51	12,795.00	-7,431.16	292.42	380,635.44	821,574.35	32.0432207	-103.4289007
20,600.00	90.00	179.51	12,795.00	-7,531.16	293.27	380,535.45	821,575.20	32.0429458	-103.4289007
20,700.00	90.00	179.51	12,795.00	-7,631.15	294.12	380,435.45	821,576.05	32.0426710	-103.4289006
20,800.00	90.00	179.51	12,795.00	-7,731.15	294.97	380,335.45	821,576.89	32.0423961	-103.4289006
20,900.00	90.00	179.51	12,795.00	-7,831.15	295.82	380,235.46	821,577.74	32.0421212	-103.4289006
21,000.00	90.00	179.51	12,795.00	-7,931.14	296.67	380,135.46	821,578.59	32.0418463	-103.4289005
21,100.00	90.00	179.51	12,795.00	-8,031.14	297.52	380,035.46	821,579.44	32.0415715	-103.4289005
21,200.00	90.00	179.51	12,795.00	-8,131.14	298.37	379,935.47	821,580.29	32.0412966	-103.4289004
21,300.00	90.00	179.51	12,795.00	-8,231.13	299.22	379,835.47	821,581.14	32.0410217	-103.4289004
21,400.00	90.00	179.51	12,795.00	-8,331.13	300.07	379,735.48	821,581.99	32.0407468	-103.4289004
21,500.00	90.00	179.51	12,795.00	-8,431.13	300.92	379,635.48	821,582.84	32.0404720	-103.4289003
21,600.00	90.00	179.51	12,795.00	-8,531.12	301.77	379,535.48	821,583.69	32.0401971	-103.4289003
21,700.00	90.00	179.51	12,795.00	-8,631.12	302.62	379,435.49	821,584.54	32.0399222	-103.4289002
21,800.00	90.00	179.51	12,795.00	-8,731.11	303.47	379,335.49	821,585.39	32.0396473	-103.4289002
21,900.00	90.00	179.51	12,795.00	-8,831.11	304.32	379,235.50	821,586.24	32.0393725	-103.4289002
22,000.00	90.00	179.51	12,795.00	-8,931.11	305.17	379,135.50	821,587.09	32.0390976	-103.4289001
22,100.00	90.00	179.51	12,795.00	-9,031.10	306.02	379,035.50	821,587.94	32.0388227	-103.4289001
22,200.00	90.00	179.51	12,795.00	-9,131.10	306.87	378,935.51	821,588.79	32.0385478	-103.4289000
22,300.00	90.00	179.51	12,795.00	-9,231.10	307.72	378,835.51	821,589.64	32.0382730	-103.4289000
22,400.00	90.00	179.51	12,795.00	-9,331.09	308.57	378,735.51	821,590.49	32.0379981	-103.4289000
22,500.00	90.00	179.51	12,795.00	-9,431.09	309.42	378,635.52	821,591.34	32.0377232	-103.4288999
22,600.00	90.00	179.51	12,795.00	-9,531.09	310.27	378,535.52	821,592.19	32.0374484	-103.4288999
22,700.00	90.00	179.51	12,795.00	-9,631.08	311.12	378,435.53	821,593.04	32.0371735	-103.4288998
22,800.00	90.00	179.51	12,795.00	-9,731.08	311.97	378,335.53	821,593.89	32.0368986	-103.4288998
22,900.00	90.00	179.51	12,795.00	-9,831.08	312.82	378,235.53	821,594.74	32.0366237	-103.4288997
22,981.00	90.00	179.51	12,795.00	-9,912.07	313.50	378,154.54	821,595.43	32.0364011	-103.4288997
LTP @ 22981' MD, 100' FSL, 1010' FWL									
23,000.00	90.00	179.51	12,795.00	-9,931.07	313.66	378,135.54	821,595.59	32.0363489	-103.4288997
23,061.00	90.00	179.51	12,795.00	-9,992.07	314.18	378,074.54	821,596.11	32.0361812	-103.4288997
PBHL; 20' FSL, 1010' FWL									

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PBHL - Ragin Cajun 12-	0.00	0.00	0.00	-9,991.75	314.18	378,074.86	821,596.11	32.0361821	-103.4288997
- plan misses target center by 9996.69ft at 0.00ft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Point									

Planning Report - Geographic

Database:	EDM_5000.16	**Local Co-ordinate Reference:**	Well Ragin Cajun 12-13 Fed Com 5H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3304.20ft
Project:	Lea County (NAD83 New Mexico East)	**MD Reference:**	RKB @ 3304.20ft
Site:	Sec 12-T26S-R34E	**North Reference:**	Grid
Well:	Ragin Cajun 12-13 Fed Com 5H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Permit Plan 1		

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
12,240.51	12,222.04	501.00	225.00	KOP @ 12241' MD, 50' FNL, 1010' FWL
12,482.00	12,456.44	450.86	225.43	FTP @ 12482' MD, 100' FNL, 1010' FWL
17,802.00	12,795.00	-4,733.26	269.49	Cross section @ 17802' MD, 0' FNL, 1010' FWL
22,981.00	12,795.00	-9,912.07	313.50	LTP @ 22981' MD, 100' FSL, 1010' FWL
23,061.00	12,795.00	-9,992.07	314.18	PBHL; 20' FSL, 1010' FWL

WCDSC Permian NM

Lea County (NAD83 New Mexico East)
Sec 12-T26S-R34E
Ragin Cajun 12-13 Fed Com 5H

Wellbore #1

Plan: Pilot Hole

Standard Planning Report - Geographic

13 March, 2023

Planning Report - Geographic

Database:	EDM_5000.16	**Local Co-ordinate Reference:**	Well Ragin Cajun 12-13 Fed Com 5H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3304.20ft
Project:	Lea County (NAD83 New Mexico East)	**MD Reference:**	RKB @ 3304.20ft
Site:	Sec 12-T26S-R34E	**North Reference:**	Grid
Well:	Ragin Cajun 12-13 Fed Com 5H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Pilot Hole		

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 12-T26S-R34E

Site Position:		**Northing:**	388,613.22 usft	**Latitude:**	32.0651736
From:	Map	**Easting:**	820,492.31 usft	**Longitude:**	-103.4321776
Position Uncertainty:	5.00 ft	**Slot Radius:**	13.20 in	**Grid Convergence:**	0.48 °

Well Ragin Cajun 12-13 Fed Com 5H

Well Position	**+N/-S**	0.00 ft	**Northing:**	388,066.59 usft	**Latitude:**	32.0636530
	+E/-W	0.00 ft	**Easting:**	821,281.93 usft	**Longitude:**	-103.4296436
Position Uncertainty		0.50 ft	**Wellhead Elevation:**		**Ground Level:**	3,279.20 ft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	12/10/2019	6.61	59.90	47,603.78667453

Design Pilot Hole

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	24.18

Plan Survey Tool Program **Date** 3/13/2023

	Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	14,600.00	Pilot Hole (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	
3,890.46	3.90	24.18	3,890.16	12.13	5.45	1.00	1.00	0.00	24.18	
11,630.16	3.90	24.18	11,611.89	492.91	221.37	0.00	0.00	0.00	0.00	
11,890.47	0.00	0.00	11,872.00	501.00	225.00	1.50	-1.50	0.00	180.00	
14,600.00	0.00	0.00	14,581.53	501.00	225.00	0.00	0.00	0.00	0.00	

Planning Report - Geographic

Database:	EDM_5000.16	**Local Co-ordinate Reference:**	Well Ragin Cajun 12-13 Fed Com 5H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3304.20ft
Project:	Lea County (NAD83 New Mexico East)	**MD Reference:**	RKB @ 3304.20ft
Site:	Sec 12-T26S-R34E	**North Reference:**	Grid
Well:	Ragin Cajun 12-13 Fed Com 5H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Pilot Hole		

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	388,066.59	821,281.93	32.0636530	-103.4296436
100.00	0.00	0.00	100.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
200.00	0.00	0.00	200.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
300.00	0.00	0.00	300.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
400.00	0.00	0.00	400.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
500.00	0.00	0.00	500.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
600.00	0.00	0.00	600.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
700.00	0.00	0.00	700.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
800.00	0.00	0.00	800.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
900.00	0.00	0.00	900.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
1,000.00	0.00	0.00	1,000.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
1,100.00	0.00	0.00	1,100.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
1,200.00	0.00	0.00	1,200.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
1,300.00	0.00	0.00	1,300.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
1,400.00	0.00	0.00	1,400.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
1,500.00	0.00	0.00	1,500.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
1,600.00	0.00	0.00	1,600.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
1,700.00	0.00	0.00	1,700.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
1,800.00	0.00	0.00	1,800.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
1,900.00	0.00	0.00	1,900.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
2,000.00	0.00	0.00	2,000.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
2,100.00	0.00	0.00	2,100.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
2,200.00	0.00	0.00	2,200.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
2,300.00	0.00	0.00	2,300.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
2,400.00	0.00	0.00	2,400.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
2,500.00	0.00	0.00	2,500.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
2,600.00	0.00	0.00	2,600.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
2,700.00	0.00	0.00	2,700.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
2,800.00	0.00	0.00	2,800.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
2,900.00	0.00	0.00	2,900.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
3,000.00	0.00	0.00	3,000.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
3,100.00	0.00	0.00	3,100.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
3,200.00	0.00	0.00	3,200.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
3,300.00	0.00	0.00	3,300.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
3,400.00	0.00	0.00	3,400.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
3,500.00	0.00	0.00	3,500.00	0.00	0.00	388,066.59	821,281.93	32.0636530	-103.4296436
3,600.00	1.00	24.18	3,600.00	0.80	0.36	388,067.38	821,282.29	32.0636551	-103.4296424
3,700.00	2.00	24.18	3,699.96	3.18	1.43	388,069.77	821,283.36	32.0636617	-103.4296389
3,800.00	3.00	24.18	3,799.86	7.16	3.22	388,073.75	821,285.15	32.0636726	-103.4296330
3,890.46	3.90	24.18	3,890.16	12.13	5.45	388,078.72	821,287.38	32.0636862	-103.4296257
3,900.00	3.90	24.18	3,899.68	12.72	5.71	388,079.31	821,287.64	32.0636878	-103.4296248
4,000.00	3.90	24.18	3,999.44	18.94	8.50	388,085.53	821,290.43	32.0637048	-103.4296156
4,100.00	3.90	24.18	4,099.21	25.15	11.29	388,091.74	821,293.22	32.0637218	-103.4296065
4,200.00	3.90	24.18	4,198.98	31.36	14.08	388,097.95	821,296.01	32.0637388	-103.4295973
4,300.00	3.90	24.18	4,298.75	37.57	16.87	388,104.16	821,298.80	32.0637558	-103.4295881
4,400.00	3.90	24.18	4,398.52	43.78	19.66	388,110.37	821,301.59	32.0637729	-103.4295790
4,500.00	3.90	24.18	4,498.28	50.00	22.45	388,116.58	821,304.38	32.0637899	-103.4295698
4,600.00	3.90	24.18	4,598.05	56.21	25.24	388,122.80	821,307.17	32.0638069	-103.4295606
4,700.00	3.90	24.18	4,697.82	62.42	28.03	388,129.01	821,309.96	32.0638239	-103.4295514
4,800.00	3.90	24.18	4,797.59	68.63	30.82	388,135.22	821,312.75	32.0638409	-103.4295423
4,900.00	3.90	24.18	4,897.35	74.84	33.61	388,141.43	821,315.54	32.0638579	-103.4295331
5,000.00	3.90	24.18	4,997.12	81.06	36.40	388,147.64	821,318.33	32.0638749	-103.4295239
5,100.00	3.90	24.18	5,096.89	87.27	39.19	388,153.86	821,321.12	32.0638919	-103.4295147
5,200.00	3.90	24.18	5,196.66	93.48	41.98	388,160.07	821,323.91	32.0639089	-103.4295056
5,300.00	3.90	24.18	5,296.43	99.69	44.77	388,166.28	821,326.70	32.0639259	-103.4294964

Planning Report - Geographic

Database:	EDM_5000.16	**Local Co-ordinate Reference:**	Well Ragin Cajun 12-13 Fed Com 5H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3304.20ft
Project:	Lea County (NAD83 New Mexico East)	**MD Reference:**	RKB @ 3304.20ft
Site:	Sec 12-T26S-R34E	**North Reference:**	Grid
Well:	Ragin Cajun 12-13 Fed Com 5H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Pilot Hole		

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	3.90	24.18	5,396.19	105.90	47.56	388,172.49	821,329.49	32.0639430	-103.4294872
5,500.00	3.90	24.18	5,495.96	112.11	50.35	388,178.70	821,332.28	32.0639600	-103.4294781
5,600.00	3.90	24.18	5,595.73	118.33	53.14	388,184.91	821,335.07	32.0639770	-103.4294689
5,700.00	3.90	24.18	5,695.50	124.54	55.93	388,191.13	821,337.86	32.0639940	-103.4294597
5,800.00	3.90	24.18	5,795.27	130.75	58.72	388,197.34	821,340.65	32.0640110	-103.4294505
5,900.00	3.90	24.18	5,895.03	136.96	61.51	388,203.55	821,343.44	32.0640280	-103.4294414
6,000.00	3.90	24.18	5,994.80	143.17	64.30	388,209.76	821,346.23	32.0640450	-103.4294322
6,100.00	3.90	24.18	6,094.57	149.39	67.09	388,215.97	821,349.02	32.0640620	-103.4294230
6,200.00	3.90	24.18	6,194.34	155.60	69.88	388,222.19	821,351.81	32.0640790	-103.4294138
6,300.00	3.90	24.18	6,294.10	161.81	72.67	388,228.40	821,354.60	32.0640960	-103.4294047
6,400.00	3.90	24.18	6,393.87	168.02	75.46	388,234.61	821,357.39	32.0641130	-103.4293955
6,500.00	3.90	24.18	6,493.64	174.23	78.25	388,240.82	821,360.18	32.0641301	-103.4293863
6,600.00	3.90	24.18	6,593.41	180.45	81.04	388,247.03	821,362.97	32.0641471	-103.4293772
6,700.00	3.90	24.18	6,693.18	186.66	83.83	388,253.25	821,365.76	32.0641641	-103.4293680
6,800.00	3.90	24.18	6,792.94	192.87	86.62	388,259.46	821,368.55	32.0641811	-103.4293588
6,900.00	3.90	24.18	6,892.71	199.08	89.41	388,265.67	821,371.34	32.0641981	-103.4293496
7,000.00	3.90	24.18	6,992.48	205.29	92.20	388,271.88	821,374.13	32.0642151	-103.4293405
7,100.00	3.90	24.18	7,092.25	211.50	94.99	388,278.09	821,376.92	32.0642321	-103.4293313
7,200.00	3.90	24.18	7,192.02	217.72	97.78	388,284.30	821,379.70	32.0642491	-103.4293221
7,300.00	3.90	24.18	7,291.78	223.93	100.57	388,290.52	821,382.49	32.0642661	-103.4293129
7,400.00	3.90	24.18	7,391.55	230.14	103.36	388,296.73	821,385.28	32.0642831	-103.4293038
7,500.00	3.90	24.18	7,491.32	236.35	106.15	388,302.94	821,388.07	32.0643002	-103.4292946
7,600.00	3.90	24.18	7,591.09	242.56	108.94	388,309.15	821,390.86	32.0643172	-103.4292854
7,700.00	3.90	24.18	7,690.86	248.78	111.73	388,315.36	821,393.65	32.0643342	-103.4292763
7,800.00	3.90	24.18	7,790.62	254.99	114.52	388,321.58	821,396.44	32.0643512	-103.4292671
7,900.00	3.90	24.18	7,890.39	261.20	117.31	388,327.79	821,399.23	32.0643682	-103.4292579
8,000.00	3.90	24.18	7,990.16	267.41	120.09	388,334.00	821,402.02	32.0643852	-103.4292487
8,100.00	3.90	24.18	8,089.93	273.62	122.88	388,340.21	821,404.81	32.0644022	-103.4292396
8,200.00	3.90	24.18	8,189.69	279.83	125.67	388,346.42	821,407.60	32.0644192	-103.4292304
8,300.00	3.90	24.18	8,289.46	286.05	128.46	388,352.63	821,410.39	32.0644362	-103.4292212
8,400.00	3.90	24.18	8,389.23	292.26	131.25	388,358.85	821,413.18	32.0644532	-103.4292120
8,500.00	3.90	24.18	8,489.00	298.47	134.04	388,365.06	821,415.97	32.0644703	-103.4292029
8,600.00	3.90	24.18	8,588.77	304.68	136.83	388,371.27	821,418.76	32.0644873	-103.4291937
8,700.00	3.90	24.18	8,688.53	310.89	139.62	388,377.48	821,421.55	32.0645043	-103.4291845
8,800.00	3.90	24.18	8,788.30	317.11	142.41	388,383.69	821,424.34	32.0645213	-103.4291754
8,900.00	3.90	24.18	8,888.07	323.32	145.20	388,389.91	821,427.13	32.0645383	-103.4291662
9,000.00	3.90	24.18	8,987.84	329.53	147.99	388,396.12	821,429.92	32.0645553	-103.4291570
9,100.00	3.90	24.18	9,087.61	335.74	150.78	388,402.33	821,432.71	32.0645723	-103.4291478
9,200.00	3.90	24.18	9,187.37	341.95	153.57	388,408.54	821,435.50	32.0645893	-103.4291387
9,300.00	3.90	24.18	9,287.14	348.17	156.36	388,414.75	821,438.29	32.0646063	-103.4291295
9,400.00	3.90	24.18	9,386.91	354.38	159.15	388,420.97	821,441.08	32.0646233	-103.4291203
9,500.00	3.90	24.18	9,486.68	360.59	161.94	388,427.18	821,443.87	32.0646404	-103.4291111
9,600.00	3.90	24.18	9,586.45	366.80	164.73	388,433.39	821,446.66	32.0646574	-103.4291020
9,700.00	3.90	24.18	9,686.21	373.01	167.52	388,439.60	821,449.45	32.0646744	-103.4290928
9,800.00	3.90	24.18	9,785.98	379.22	170.31	388,445.81	821,452.24	32.0646914	-103.4290836
9,900.00	3.90	24.18	9,885.75	385.44	173.10	388,452.02	821,455.03	32.0647084	-103.4290745
10,000.00	3.90	24.18	9,985.52	391.65	175.89	388,458.24	821,457.82	32.0647254	-103.4290653
10,100.00	3.90	24.18	10,085.28	397.86	178.68	388,464.45	821,460.61	32.0647424	-103.4290561
10,200.00	3.90	24.18	10,185.05	404.07	181.47	388,470.66	821,463.40	32.0647594	-103.4290469
10,300.00	3.90	24.18	10,284.82	410.28	184.26	388,476.87	821,466.19	32.0647764	-103.4290378
10,400.00	3.90	24.18	10,384.59	416.50	187.05	388,483.08	821,468.98	32.0647934	-103.4290286
10,500.00	3.90	24.18	10,484.36	422.71	189.84	388,489.30	821,471.77	32.0648105	-103.4290194
10,600.00	3.90	24.18	10,584.12	428.92	192.63	388,495.51	821,474.56	32.0648275	-103.4290102
10,700.00	3.90	24.18	10,683.89	435.13	195.42	388,501.72	821,477.35	32.0648445	-103.4290011
10,800.00	3.90	24.18	10,783.66	441.34	198.21	388,507.93	821,480.14	32.0648615	-103.4289919

Planning Report - Geographic

Database:	EDM_5000.16	**Local Co-ordinate Reference:**	Well Ragin Cajun 12-13 Fed Com 5H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3304.20ft
Project:	Lea County (NAD83 New Mexico East)	**MD Reference:**	RKB @ 3304.20ft
Site:	Sec 12-T26S-R34E	**North Reference:**	Grid
Well:	Ragin Cajun 12-13 Fed Com 5H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Pilot Hole		

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	3.90	24.18	10,883.43	447.56	201.00	388,514.14	821,482.93	32.0648785	-103.4289827
11,000.00	3.90	24.18	10,983.20	453.77	203.79	388,520.35	821,485.72	32.0648955	-103.4289736
11,100.00	3.90	24.18	11,082.96	459.98	206.58	388,526.57	821,488.51	32.0649125	-103.4289644
11,200.00	3.90	24.18	11,182.73	466.19	209.37	388,532.78	821,491.30	32.0649295	-103.4289552
11,300.00	3.90	24.18	11,282.50	472.40	212.16	388,538.99	821,494.08	32.0649465	-103.4289460
11,400.00	3.90	24.18	11,382.27	478.61	214.95	388,545.20	821,496.87	32.0649635	-103.4289369
11,500.00	3.90	24.18	11,482.03	484.83	217.74	388,551.41	821,499.66	32.0649806	-103.4289277
11,600.00	3.90	24.18	11,581.80	491.04	220.53	388,557.63	821,502.45	32.0649976	-103.4289185
11,630.16	3.90	24.18	11,611.89	492.91	221.37	388,559.50	821,503.30	32.0650027	-103.4289158
11,700.00	2.86	24.18	11,681.61	496.67	223.05	388,563.26	821,504.98	32.0650130	-103.4289102
11,800.00	1.36	24.18	11,781.54	500.02	224.56	388,566.61	821,506.49	32.0650222	-103.4289053
11,890.47	0.00	0.00	11,872.00	501.00	225.00	388,567.59	821,506.93	32.0650248	-103.4289038
11,900.00	0.00	0.00	11,881.53	501.00	225.00	388,567.59	821,506.93	32.0650248	-103.4289038
12,000.00	0.00	0.00	11,981.53	501.00	225.00	388,567.59	821,506.93	32.0650248	-103.4289038
12,100.00	0.00	0.00	12,081.53	501.00	225.00	388,567.59	821,506.93	32.0650248	-103.4289038
12,200.00	0.00	0.00	12,181.53	501.00	225.00	388,567.59	821,506.93	32.0650248	-103.4289038
12,240.51	0.00	0.00	12,222.04	501.00	225.00	388,567.59	821,506.93	32.0650248	-103.4289038
KOP @ 12241' MD, 50' FNL, 1010' FWL									
12,300.00	0.00	0.00	12,281.53	501.00	225.00	388,567.59	821,506.93	32.0650248	-103.4289038
12,400.00	0.00	0.00	12,381.53	501.00	225.00	388,567.59	821,506.93	32.0650248	-103.4289038
12,482.00	0.00	0.00	12,463.53	501.00	225.00	388,567.59	821,506.93	32.0650248	-103.4289038
FTP @ 12482' MD, 100' FNL, 1010' FWL									
12,500.00	0.00	0.00	12,481.53	501.00	225.00	388,567.59	821,506.93	32.0650248	-103.4289038
12,600.00	0.00	0.00	12,581.53	501.00	225.00	388,567.59	821,506.93	32.0650248	-103.4289038
12,700.00	0.00	0.00	12,681.53	501.00	225.00	388,567.59	821,506.93	32.0650248	-103.4289038
12,800.00	0.00	0.00	12,781.53	501.00	225.00	388,567.59	821,506.93	32.0650248	-103.4289038
12,900.00	0.00	0.00	12,881.53	501.00	225.00	388,567.59	821,506.93	32.0650248	-103.4289038
13,000.00	0.00	0.00	12,981.53	501.00	225.00	388,567.59	821,506.93	32.0650248	-103.4289038
13,100.00	0.00	0.00	13,081.53	501.00	225.00	388,567.59	821,506.93	32.0650248	-103.4289038
13,200.00	0.00	0.00	13,181.53	501.00	225.00	388,567.59	821,506.93	32.0650248	-103.4289038
13,300.00	0.00	0.00	13,281.53	501.00	225.00	388,567.59	821,506.93	32.0650248	-103.4289038
13,400.00	0.00	0.00	13,381.53	501.00	225.00	388,567.59	821,506.93	32.0650248	-103.4289038
13,500.00	0.00	0.00	13,481.53	501.00	225.00	388,567.59	821,506.93	32.0650248	-103.4289038
13,600.00	0.00	0.00	13,581.53	501.00	225.00	388,567.59	821,506.93	32.0650248	-103.4289038
13,700.00	0.00	0.00	13,681.53	501.00	225.00	388,567.59	821,506.93	32.0650248	-103.4289038
13,800.00	0.00	0.00	13,781.53	501.00	225.00	388,567.59	821,506.93	32.0650248	-103.4289038
13,900.00	0.00	0.00	13,881.53	501.00	225.00	388,567.59	821,506.93	32.0650248	-103.4289038
14,000.00	0.00	0.00	13,981.53	501.00	225.00	388,567.59	821,506.93	32.0650248	-103.4289038
14,100.00	0.00	0.00	14,081.53	501.00	225.00	388,567.59	821,506.93	32.0650248	-103.4289038
14,200.00	0.00	0.00	14,181.53	501.00	225.00	388,567.59	821,506.93	32.0650248	-103.4289038
14,300.00	0.00	0.00	14,281.53	501.00	225.00	388,567.59	821,506.93	32.0650248	-103.4289038
14,400.00	0.00	0.00	14,381.53	501.00	225.00	388,567.59	821,506.93	32.0650248	-103.4289038
14,500.00	0.00	0.00	14,481.53	501.00	225.00	388,567.59	821,506.93	32.0650248	-103.4289038
14,600.00	0.00	0.00	14,581.53	501.00	225.00	388,567.59	821,506.93	32.0650248	-103.4289038
PBHL @14600.00'MD, 100'FNL, 1010'FWL									

Planning Report - Geographic

Database:	EDM_5000.16	**Local Co-ordinate Reference:**	Well Ragin Cajun 12-13 Fed Com 5H
Company:	WCDSC Permian NM	**TVD Reference:**	RKB @ 3304.20ft
Project:	Lea County (NAD83 New Mexico East)	**MD Reference:**	RKB @ 3304.20ft
Site:	Sec 12-T26S-R34E	**North Reference:**	Grid
Well:	Ragin Cajun 12-13 Fed Com 5H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Pilot Hole		

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PBHL - Ragin Cajun 12-	0.00	0.00	0.00	-9,991.75	314.18	378,074.86	821,596.11	32.0361821	-103.4288997
- plan misses target center by 9996.69ft at 0.00ft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Point									

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
12,240.51	12,222.04	501.00	225.00	KOP @ 12241' MD, 50' FNL, 1010' FWL
12,482.00	12,463.53	501.00	225.00	FTP @ 12482' MD, 100' FNL, 1010' FWL
14,600.00	14,581.53	501.00	225.00	PBHL @14600.00'MD, 100'FNL, 1010'FWL

U. S. Steel Tubular Products

5.500" 17.00lbs/ft (0.304" Wall) P110

2/21/2019 8:12:22 AM

MECHANICAL PROPERTIES	Pipe	BTC	LTC	STC	
Minimum Yield Strength	110,000	--	--	--	psi
Maximum Yield Strength	140,000	--	--	--	psi
Minimum Tensile Strength	125,000	--	--	--	psi
DIMENSIONS	**Pipe**	**BTC**	**LTC**	**STC**	
Outside Diameter	5.500	6.050	6.050	--	in.
Wall Thickness	0.304	--	--	--	in.
Inside Diameter	4.892	4.892	4.892	--	in.
Standard Drift	4.767	4.767	4.767	--	in.
Alternate Drift	--	--	--	--	in.
Nominal Linear Weight, T&C	17.00	--	--	--	lbs/ft
Plain End Weight	16.89	--	--	--	lbs/ft
PERFORMANCE	**Pipe**	**BTC**	**LTC**	**STC**	
Minimum Collapse Pressure	7,480	7,480	7,480	--	psi
Minimum Internal Yield Pressure	10,640	10,640	10,640	--	psi
Minimum Pipe Body Yield Strength	546	--	--	--	1,000 lbs
Joint Strength	--	568	445	--	1,000 lbs
Reference Length	--	22,271	17,449	--	ft
MAKE-UP DATA	**Pipe**	**BTC**	**LTC**	**STC**	
Make-Up Loss	--	4.13	3.50	--	in.
Minimum Make-Up Torque	--	--	3,470	--	ft-lbs
Maximum Make-Up Torque	--	--	5,780	--	ft-lbs

U. S. Steel Tubular Products
460 Wildwood Forest Drive, Suite 300S
Spring, Texas 77380

1-877-893-9461
connections@uss.com
www.usstubular.com

U. S. Steel Tubular Products

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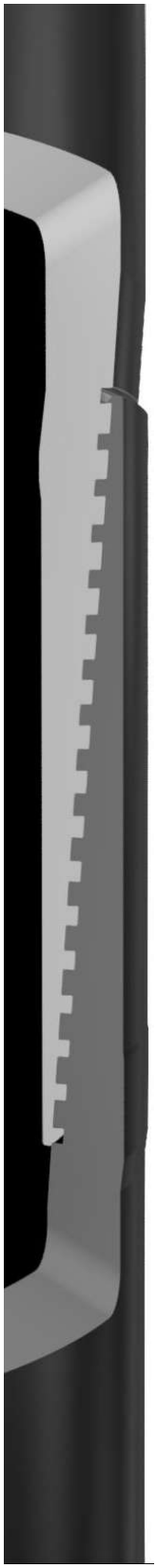
MECHANICAL PROPERTIES	Pipe	BTC	LTC	STC	
Minimum Yield Strength	55,000	--	--	--	psi
Maximum Yield Strength	80,000	--	--	--	psi
Minimum Tensile Strength	75,000	--	--	--	psi
DIMENSIONS	**Pipe**	**BTC**	**LTC**	**STC**	
Outside Diameter	10.750	11.750	--	11.750	in.
Wall Thickness	0.350	--	--	--	in.
Inside Diameter	10.050	10.050	--	10.050	in.
Standard Drift	9.894	9.894	--	9.894	in.
Alternate Drift	--	--	--	--	in.
Nominal Linear Weight, T&C	40.50	--	--	--	lbs/ft
Plain End Weight	38.91	--	--	--	lbs/ft
PERFORMANCE	**Pipe**	**BTC**	**LTC**	**STC**	
Minimum Collapse Pressure	1,580	1,580	--	1,580	psi
Minimum Internal Yield Pressure	3,130	3,130	--	3,130	psi
Minimum Pipe Body Yield Strength	629,000	--	--	--	lbs
Joint Strength	--	700	--	420	lbs
Reference Length	--	11,522	--	6,915	ft
MAKE-UP DATA	**Pipe**	**BTC**	**LTC**	**STC**	
Make-Up Loss	--	4.81	--	3.50	in.
Minimum Make-Up Torque	--	--	--	3,150	ft-lbs
Maximum Make-Up Torque	--	--	--	5,250	ft-lbs

U. S. Steel Tubular Products
10343 Sam Houston Park Dr., #120
Houston, TX 77064

1-877-893-9461
connections@uss.com
www.usstubular.com



Issued on: 16 Dec. 2020 by Logan Van Gorp

VAM® SPRINT-FJ

Connection Data Sheet

OD	Weight (lb/ft)	Wall Th.	Grade	Alt. Drift:	Connection
8 5/8 in.	Nominal: 32.00 Plain End: 31.13	0.352 in.	P110EC	7.875 in.	VAM® SPRINT-FJ

PIPE PROPERTIES		
Nominal OD	8.625	in.
Nominal ID	7.921	in.
Nominal Cross Section Area	9.149	sqin.
Grade Type	High Yield	
Min. Yield Strength	125	ksi
Max. Yield Strength	140	ksi
Min. Ultimate Tensile Strength	135	ksi

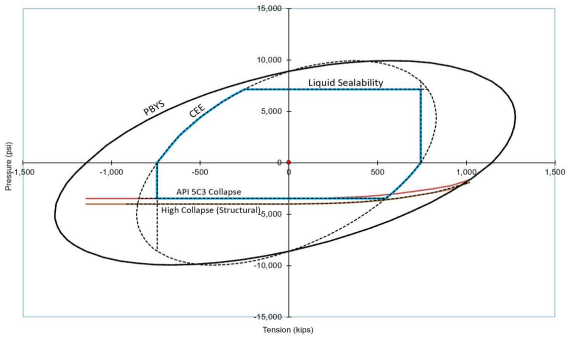
CONNECTION PROPERTIES		
Connection Type	Semi-Premium Integral Flush	
Connection OD (nom):	8.665	in.
Connection ID (nom):	7.954	in.
Make-Up Loss	2.614	in.
Critical Cross Section	6.038	sqin.
Tension Efficiency	65.0	% of pipe
Compression Efficiency	65.0	% of pipe
Internal Pressure Efficiency	80.0	% of pipe
External Pressure Efficiency	100	% of pipe

CONNECTION PERFORMANCES		
Tensile Yield Strength	744	klb
Compression Resistance	744	klb
Max. Internal Pressure	7,150	psi
Structural Collapse Resistance	4,000	psi
Max. Bending with Sealability	41	°/100ft
Max. Bending with Sealability	10	°/100ft

* 87.5% RBW

TORQUE VALUES		
Min. Make-up torque	15,000	ft.lb
Opt. Make-up torque	16,500	ft.lb
Max. Make-up torque	18,000	ft.lb
Max. Torque with Sealability (MTS)	TBD	ft.lb

VAM® SPRINT-FJ is a semi-premium flush connection designed for shale applications, where maximum clearance and high tension capacity are required for intermediate casing strings.



Do you need help on this product? - Remember no one knows VAM® like VAM®

canada@vamfieldservice.com
usa@vamfieldservice.com
mexico@vamfieldservice.com
brazil@vamfieldservice.com
uk@vamfieldservice.com
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nigeria@vamfieldservice.com
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VAM® USA

12-26-34-D Sundry ID 2719498 Ragin Cajun 12-13 Fed Com 5H Lea NM100567 DEVON ENERGY PRODUCTION COMPANY LP 13-22fa 3-27-2023 LV.xlsm

Ragin Cajun 12-13 Fed Com 5H

10 3/4 surface csg in a 14 1/2 inch hole. Design Factors — Surface

Segment	#/ft	Grade	Coupling	Body	Collapse	Burst	Length	B@s	a-B	a-C	Weight
"A"	40.50	J 55	BTC	14.45	3.14	0.45	1,075	7	0.76	5.94	43,538
"B"			BTC				0				0
	w/8.4#/g mud, 30min Sfc Csg Test psig: 1,500		Tail Cmt	does not	circ to sfc.	Totals:	1,075				43,538

Comparison of Proposed to Minimum Required Cement Volumes

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
14 1/2	0.5164	380	547	555	-1	9.00	4133	5M	1.38

Burst Frac Gradient(s) for Segment(s) A, B = , b All > 0.70, OK.

Site plat (pipe racks S or E) as per O.O.1 III.D.4.i. not found.

8 5/8 casing inside the 10 3/4 Design Factors — Int 1

Segment	#/ft	Grade	Coupling	Joint	Collapse	Burst	Length	B@s	a-B	a-C	Weight
"A"	32.00	p 110	vam sprint fj	1.83	0.58	1.02	12,700	1	1.71	0.97	406,400
"B"							0				0
	w/8.4#/g mud, 30min Sfc Csg Test psig: -537					Totals:	12,700				406,400
	The cement volume(s) are intended to achieve a top of			0	ft from surface or a		1075				overlap.

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
9 7/8	0.1261	536	772	1622	-52	10.50	4183	5M	0.61
D V Tool(s):			8000				sum of sx	Σ CuFt	Σ%excess
t by stage % :		30	25				1096	2060	27

Class 'H' tail cmt yld > 1.20

Tail cmt

5 1/2 casing inside the 8 5/8 Design Factors — Prod 1

Segment	#/ft	Grade	Coupling	Body	Collapse	Burst	Length	B@s	a-B	a-C	Weight
"A"	17.00	p 110	btc	2.50	1.07	1.52	23,061	2	2.54	1.79	392,037
"B"							0				0
	w/8.4#/g mud, 30min Sfc Csg Test psig: 2,828					Totals:	23,061				392,037
	The cement volume(s) are intended to achieve a top of			12500	ft from surface or a		200				overlap.

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
7 7/8	0.1733	1486	2204	1831	20	10.50			0.91

Class 'C' tail cmt yld > 1.35

#N/A

0 5 1/2 Design Factors — <Choose Casing>

Segment	#/ft	Grade	Coupling	#N/A	Collapse	Burst	Length	B@s	a-B	a-C	Weight
"A"			0.00				0				0
"B"			0.00				0				0
	w/8.4#/g mud, 30min Sfc Csg Test psig:					Totals:	0				0
	Cmt vol calc below includes this csg, TOC intended			#N/A	ft from surface or a		#N/A				overlap.

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
0		#N/A	#N/A	0	#N/A				

#N/A Capitan Reef est top XXXX.

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS

Action 214181

CONDITIONS

Operator: DEVON ENERGY PRODUCTION COMPANY, LP 333 West Sheridan Ave. Oklahoma City, OK 73102	OGRID: 6137
	Action Number: 214181
	Action Type: [C-103] NOI Change of Plans (C-103A)

CONDITIONS

Created By	Condition	Condition Date
pkautz	None	6/5/2023