

Well Name: RANA SALADA 12 FED COM	Well Location: T23S / R28E / SEC 12 / SWNW / 32.3224418 / -104.0482238	County or Parish/State: EDDY / NM
Well Number: 221H	Type of Well: CONVENTIONAL GAS WELL	Allottee or Tribe Name:
Lease Number: NMNM91078	Unit or CA Name:	Unit or CA Number:
US Well Number: 3001554287	Operator: NOVO OIL AND GAS NORTHERN DELAWARE LLC	

Notice of Intent

Sundry ID: 2799333

Type of Submission: Notice of Intent

Type of Action: APD Change

Date Sundry Submitted: 07/08/2024

Time Sundry Submitted: 05:22

Date proposed operation will begin: 08/08/2024

Procedure Description: API: 30-015-54287 Sundry to Revise Well Name/Number/SHL/FTP/LTP/BHL/Drilling Plan/U-Turn Well/Request Variances Well Name Change From: RANA SALADA 12 FED COM 221H To: RANA PICANTE 12 FED COM 413H Surface Hole Change From: E-12-23S-28E; 1777' FNL & 362' FWL To: E-12-23S-28E; 1717' FNL & 362' FWL NO NEW SURFACE DISTURBANCE First Take Point From: E-12-23S-28E; 843' FNL & 330' FWL To: E-12-23S-28E; 2300' FNL & 100' FWL Last Take Point From: A-12-23S-28E; 843' FNL & 330' FEL To: D-12-23S-28E; 540' FNL & 100' FWL Bottom Hole Location From: A-12-23S-28E; 843' FNL & 130' FEL To: D-12-23S-28E; 540' FNL & 100' FWL Added TP1 & TP2 to make this a UTurn well; NMOCD approval with setbacks @ 330'; Offset Operator notified Casing/Cement design per the attached drilling program. Permian Resources also requests the following variances: BOP Break Testing / OLCV / FH Attachments: C102 Layout (Old Vs. New) Layout Drilling Program Directional Plan AC 5M BOP 5M CM BOP Break Test Procedure FH Multibowl Diagram OLCV Prod Casing Spec Sheet Int Casing Spec Sheet

NOI Attachments

Procedure Description

RANA_PICANTE_12_FED_COM_413H_Sundry_Attachments_20240819083916.pdf

Well Name: RANA SALADA 12 FED
COM

Well Location: T23S / R28E / SEC 12 /
SWNW / 32.3224418 / -104.0482238

County or Parish/State: EDDY /
NM

Well Number: 221H

Type of Well: CONVENTIONAL GAS
WELL

Allottee or Tribe Name:

Lease Number: NMNM91078

Unit or CA Name:

Unit or CA Number:

US Well Number: 3001554287

Operator: NOVO OIL AND GAS
NORTHERN DELAWARE LLC

Conditions of Approval

Additional

Sec_12_23S_28E_NMP_Sundry_2799333_Rana_Picante_12_Fed_Com_413H_COAs_20240819085733.pdf

Operator

I certify that the foregoing is true and correct. Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction. Electronic submission of Sundry Notices through this system satisfies regulations requiring a

Operator Electronic Signature: JENNIFER ELROD

Signed on: AUG 19, 2024 08:39 AM

Name: NOVO OIL AND GAS NORTHERN DELAWARE LLC

Title: Senior Regulatory Analyst

Street Address: 300 N MARIENFIELD STREET SUITE 1000

City: MIDLAND

State: TX

Phone: (940) 452-6214

Email address: JENNIFER.ELROD@PERMIANRES.COM

Field

Representative Name:

Street Address:

City:

State:

Zip:

Phone:

Email address:

BLM Point of Contact

BLM POC Name: CHRISTOPHER WALLS

BLM POC Title: Petroleum Engineer

BLM POC Phone: 5752342234

BLM POC Email Address: cwalls@blm.gov

Disposition: Approved

Disposition Date: 08/23/2024

Signature: Chris Walls

Form 3160-5
(June 2019)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB No. 1004-0137
Expires: October 31, 2021

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. **NMNM91078**
6. If Indian, Allottee or Tribe Name

SUBMIT IN TRIPLICATE - Other instructions on page 2		7. If Unit of CA/Agreement, Name and/or No.
1. Type of Well ☐ Oil Well ☒ Gas Well ☐ Other		8. Well Name and No. RANA SALADA 12 FED COM/221H
2. Name of Operator NOVO OIL AND GAS NORTHERN DELAWARE LLC		9. API Well No. 3001554287
3a. Address 300 N MARIENFIELD STREET SUITE 1000, MID	3b. Phone No. (include area code) (432) 695-4222	10. Field and Pool or Exploratory Area PURPLE SAGE/Bone Spring, South
4. Location of Well (Footage, Sec., T.,R.,M., or Survey Description) SEC 12/T23S/R28E/NMP		11. Country or Parish, State EDDY/NM

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		
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal		

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 recompleate 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 perfonned 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 recompleation 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 detennined that the site is ready for final inspection.)

API: 30-015-54287

Sundry to Revise Well Name/Number/SHL/FTP/LTP/BHL/Drilling Plan/U-Turn Well/Request Variances

Well Name Change
From: RANA SALADA 12 FED COM 221H
To: RANA PICANTE 12 FED COM 413H

Surface Hole Change
From: E-12-23S-28E; 1777' FNL & 362' FWL
To: E-12-23S-28E; 1717' FNL & 362' FWL
NO NEW SURFACE DISTURBANCE
Continued on page 3 additional information

14. I hereby certify that the foregoing is true and correct. Name (Printed/Typed) JENNIFER ELROD / Ph: (940) 452-6214	Title Senior Regulatory Analyst
Signature (Electronic Submission)	Date 08/19/2024

THE SPACE FOR FEDERAL OR STATE OFFICE USE		
Approved by CHRISTOPHER WALLS / Ph: (575) 234-2234 / Approved	Title Petroleum Engineer	Date 08/23/2024
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 CARLSBAD	

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)

GENERAL INSTRUCTIONS

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

SPECIFIC INSTRUCTIONS

Item 4 - Locations on Federal or Indian land should be described in accordance with Federal requirements. Consult the local Federal office for specific instructions.

Item 13: Proposals to abandon a well and subsequent reports of abandonment should include such special information as is required by the local Federal office. In addition, such proposals and reports should include reasons for the abandonment; data on any former or present productive zones or other zones with present significant fluid contents not sealed off by cement or otherwise; depths (top and bottom) and method of placement of cement plugs; mud or other material placed below, between and above plugs; amount, size, method of parting of any casing, liner or tubing pulled and the depth to the top of any tubing left in the hole; method of closing top of well and date well site conditioned for final inspection looking for approval of the abandonment. If the proposal will involve **hydraulic fracturing operations**, you must comply with 43 CFR 3162.3-3, including providing information about the protection of usable water. Operators should provide the best available information about all formations containing water and their depths. This information could include data and interpretation of resistivity logs run on nearby wells. Information may also be obtained from state or tribal regulatory agencies and from local BLM offices.

NOTICES

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

AUTHORITY: 30 U.S.C. 181 et seq., 351 et seq., 25 U.S.C. 396; 43 CFR 3160.

PRINCIPAL PURPOSE: The information is used to: (1) Evaluate, when appropriate, approve applications, and report completion of subsequent well operations, on a Federal or Indian lease; and (2) document for administrative use, information for the management, disposal and use of National Resource lands and resources, such as: (a) evaluating the equipment and procedures to be used during a proposed subsequent well operation and reviewing the completed well operations for compliance with the approved plan; (b) requesting and granting approval to perform those actions covered by 43 CFR 3162.3-2, 3162.3-3, and 3162.3-4; (c) reporting the beginning or resumption of production, as required by 43 CFR 3162.4-1(c) and (d) analyzing future applications to drill or modify operations in light of data obtained and methods used.

ROUTINE USES: Information from the record and/or the record will be transferred to appropriate Federal, State, local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecutions in connection with congressional inquiries or to consumer reporting agencies to facilitate collection of debts owed the Government.

EFFECT OF NOT PROVIDING THE INFORMATION: Filing of this notice and report and disclosure of the information is mandatory for those subsequent well operations specified in 43 CFR 3162.3-2, 3162.3-3, 3162.3-4.

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

The BLM collects this information to evaluate proposed and/or completed subsequent well operations on Federal or Indian oil and gas leases.

Response to this request is mandatory.

The BLM would like you to know that you do not have to respond to this or any other Federal agency-sponsored information collection unless it displays a currently valid OMB control number.

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

Additional Information

Additional Remarks

First Take Point

From: E-12-23S-28E; 843' FNL & 330' FWL

To: E-12-23S-28E; 2300' FNL & 100' FWL

Last Take Point

From: A-12-23S-28E; 843' FNL & 330' FEL

To: D-12-23S-28E; 540' FNL & 100' FWL

Bottom Hole Location

From: A-12-23S-28E; 843' FNL & 130' FEL

To: D-12-23S-28E; 540' FNL & 100' FWL

Added TP1 & TP2 to make this a UTurn well; NMOCD approval with setbacks @ 330'; Offset Operator notified

Casing/Cement design per the attached drilling program.

Permian Resources also requests the following variances: BOP Break Testing / OLCV / FH

Attachments:

C102

Layout (Old Vs. New)

Layout

Drilling Program

Directional Plan

AC

5M BOP

5M CM

BOP Break Test Procedure

FH

Multibowl Diagram

OLCV

Prod Casing Spec Sheet

Int Casing Spec Sheet

Location of Well

0. SHL: SWNW / 1777 FNL / 362 FWL / TWSP: 23S / RANGE: 28E / SECTION: 12 / LAT: 32.3224418 / LONG: -104.0482238 (TVD: 0 feet, MD: 0 feet)

PPP: NWNW / 843 FNL / 330 FWL / TWSP: 23S / RANGE: 28E / SECTION: 12 / LAT: 32.3250081 / LONG: -104.0482955 (TVD: 9902 feet, MD: 10304 feet)

BHL: NENE / 843 FNL / 130 FEL / TWSP: 23S / RANGE: 28E / SECTION: 12 / LAT: 32.3251791 / LONG: -104.0324075 (TVD: 9919 feet, MD: 15123 feet)

PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	NOVO Oil & Gas Northern Delaware LLC
WELL NAME & NO.:	Rana Picante 12 Fed Com 413H
LOCATION:	Sec 12-23S-28E-NMP
COUNTY:	Eddy County, New Mexico ▼

*Previously known as **Rana Salada 12 Fed Com 221H**. Changes approved through engineering via **Sundry 2799333** on **08/16/2024**. Any previous COAs not addressed within the updated COAs still apply.*

NOTE: U-Turn Lateral Well.

COA

H ₂ S	☒ No		☐ Yes	
Potash / WIPP	☒ None	☐ Secretary	☐ R-111-Q	☐ Open Annulus ☐ WIPP
Cave / Karst	☐ Low	☒ Medium	☐ High	☐ Critical
Wellhead	☐ Conventional	☒ Multibowl	☐ Both	☐ Diverter
Cementing	☐ Primary Squeeze	☐ Cont. Squeeze	☐ EchoMeter	☐ DV Tool
Special Req	☐ Capitan Reef	☐ Water Disposal	☒ COM	☐ Unit
Waste Prev.	☐ Self-Certification	☐ Waste Min. Plan	☒ APD Submitted prior to 06/10/2024	
Additional Language	☒ Flex Hose ☐ Four-String	☒ Casing Clearance ☒ Offline Cementing	☐ Pilot Hole ☐ Fluid-Filled	☒ Break Testing

A. HYDROGEN SULFIDE

Hydrogen Sulfide (H₂S) monitors shall be installed prior to drilling out the surface shoe. If H₂S is detected in concentrations greater than 100 ppm, the Hydrogen Sulfide area shall meet 43 CFR 3176 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, provide measured values and formations to the BLM.

B. CASING

1. The **9-5/8** inch surface casing shall be set at approximately **190** feet (a minimum of 70 feet (Eddy County) into the Rustler Anhydrite, above the salt, and below usable fresh water) and cemented to the surface. *Set depth adjusted per BLM geologist.*
 - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10

hours after completing the cement job.

- b. Wait on cement (WOC) time for a primary cement job will be a minimum of **8 hours** or **500 pounds compressive strength**, whichever is greater. (This is to include the lead cement)
- c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
- d. If cement falls back, remedial cementing will be done prior to drilling out that string.

2. The minimum required fill of cement behind the **7-5/8** inch intermediate casing is:

- Cement to surface. If cement does not circulate see B.1.a, c-d above. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst, Capitan Reef, or potash.**
- ❖ In Medium Cave/Karst Areas if cement does not circulate to surface on the first two casing strings, the cement on the 3rd casing string must come to surface.

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

- Cement should tie-back at least **300 feet** into previous casing string (tieback increased due to operator not meeting 0.422" clearance requirement per 43 CFR 3172.) Operator shall provide method of verification. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst, Capitan Reef, or potash.**

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. Operator has proposed a multi-bowl wellhead assembly. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **5000 (5M)** psi.
 - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
 - b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
 - c. Manufacturer representative shall install the test plug for the initial BOP test.
 - d. If the cement does not circulate and one-inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
 - e. Whenever any seal subject to test pressure is broken, all the tests in 43 CFR 3172 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 43 CFR 3171 and 3172.
- 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.

BOPE Break Testing Variance

- BOPE Break Testing is ONLY permitted for intervals utilizing a 5M BOPE or less. **(Annular preventer must be tested to a minimum of 70% of BOPE working pressure and shall be higher than the MASP.)**
- BOPE Break Testing is NOT permitted to drilling the production hole section.
- Variance only pertains to the intermediate hole-sections and no deeper than the Bone Springs formation.
- While in transfer between wells, the BOPE shall be secured by the hydraulic carrier or cradle.
- Any well control event while drilling require notification to the BLM Petroleum Engineer **(575-706-2779)** prior to the commencement of any BOPE Break Testing operations.
- A full BOPE test is required prior to drilling the first deep intermediate hole section. If any subsequent hole interval is deeper than the first, a full BOPE test will be required. (200' TVD tolerance between intermediate shoes is allowable).
- The BLM is to be contacted (575-361-2822 Eddy County) 4 hours prior to BOPE tests.
- As a minimum, a full BOPE test shall be performed at 21-day intervals.
- In the event any repairs or replacement of the BOPE is required, the BOPE shall test as per **43 CFR 3172.**
- If in the event break testing is not utilized, then a full BOPE test would be conducted.

Offline Cementing

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

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)

Contact Eddy County Petroleum Engineering Inspection Staff:

Email or call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220;

BLM NM CFO DrillingNotifications@BLM.GOV; (575) 361-2822

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
 - i. Notify the BLM when moving in and removing the Spudder Rig.
 - ii. 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.
 - iii. BOP/BOPE test to be conducted per **43 CFR 3172** 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. For intervals in which cement to surface is required, cement to surface should be verified with a visual check and density or pH check to differentiate cement from spacer and drilling mud. The results should be documented in the driller's log and daily reports.

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 of both lead and tail cement, 2) until cement has been in place at least 8 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-Q 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 **43 CFR 3172**.
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:
 - i. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
 - ii. 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.
 - iii. Manufacturer representative shall install the test plug for the initial BOP test.
 - iv. Whenever any seal subject to test pressure is broken, all the tests in 43 CFR 3172.6(b)(9) must be followed.
 - v. 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.
 - i. 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).
 - ii. 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.)
 - iii. 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 **43 CFR 3172** 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 8 hours or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).

- iv. 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.
- v. The results of the test shall be reported to the appropriate BLM office.
- vi. 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.
- vii. 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.
- viii. 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 **43 CFR 3172**.

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.

C-102 Submit Electronically Via OCD Permitting	State of New Mexico Energy, Minerals & Natural Resources Department OIL CONSERVATION DIVISION	Revised July 9, 2024	
		Submittal Type:	☐ Initial Submittal
			☒ Amended Report
		☐ As Drilled	

WELL LOCATION INFORMATION

API Number 30-015-54287	Pool Code 98220	Pool Name PURPLE SAGE; WOLFCAMP
Property Code	Property Name RANA PICANTE 12 FED COM	Well Number 413H
OGRID No. 372920	Operator Name NOVO OIL & GAS NORTHERN DELAWARE, LLC	Ground Level Elevation 3005.9
Surface Owner: ☐ State ☐ Fee ☐ Tribal ☒ Federal		Mineral Owner: ☐ State ☐ Fee ☐ Tribal ☒ Federal

Surface Location

UL E	Section 12	Township 23 S	Range 28 E	Lot	Ft. from N/S 1717 NORTH	Ft. from E/W 362 WEST	Latitude 32.3226069°N	Longitude 104.0482219°W	County EDDY
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Bottom Hole Location

UL D	Section 12	Township 23 S	Range 28 E	Lot	Ft. from N/S 540 NORTH	Ft. from E/W 100 WEST	Latitude 32.3258329°N	Longitude 104.0490297°W	County EDDY
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Dedicated Acres 320	Infill or Defining Well Defining	Defining Well API 30-015-54287	Overlapping Spacing Unit (Y/N) Y	Consolidation Code
Order Numbers.			Well setbacks are under Common Ownership: ☒ Yes ☐ No	

Kick Off Point (KOP)

UL E	Section 12	Township 23 S	Range 28 E	Lot	Ft. from N/S 1717 NORTH	Ft. from E/W 362 WEST	Latitude 32.3226069°N	Longitude 104.0482219°W	County EDDY
---------	---------------	------------------	---------------	-----	----------------------------	--------------------------	--------------------------	----------------------------	----------------

First Take Point (FTP)

UL E	Section 12	Township 23 S	Range 28 E	Lot	Ft. from N/S 2300 NORTH	Ft. from E/W 100 WEST	Latitude 32.3209950°N	Longitude 104.0490898°W	County EDDY
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Last Take Point (LTP)

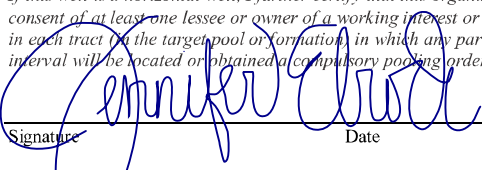
UL D	Section 12	Township 23 S	Range 28 E	Lot	Ft. from N/S 540 NORTH	Ft. from E/W 100 WEST	Latitude 32.3258329°N	Longitude 104.0490297°W	County EDDY
---------	---------------	------------------	---------------	-----	---------------------------	--------------------------	--------------------------	----------------------------	----------------

Unitized Area or Area of Uniform Interest	Spacing Unit Type ☒ Horizontal ☐ Vertical	Ground Floor Elevation: 3036'
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OPERATOR CERTIFICATIONS

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and, if the well is a vertical or directional well, that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of a working interest run leased mineral interest, or to a voluntary pooling agreement or a compulsory pooling order here to fore entered by the division.

If this well is a horizontal well, I further certify that this organization has received the consent of at least one lessee or owner of a working interest or unleased mineral interest in each tract (or the target pool or formation) in which any part of the well's completed interval will be located or obtained a compulsory pooling order from the division.


Signature _____ Date 8/12/2024

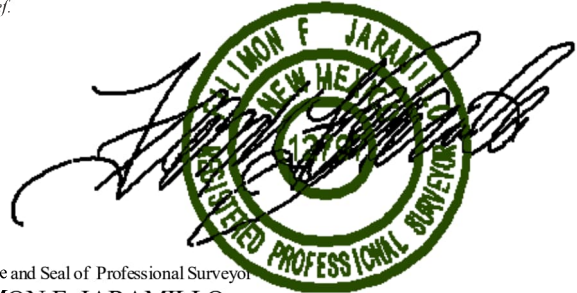
Printed Name
Jennifer Elrod

Email Address

jennifer.elrod@permianres.com

SURVEYOR CERTIFICATIONS

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.



Signature and Seal of Professional Surveyor
FILIMON F. JARAMILLO

Certificate Number

PLS 12797

Date of Survey

AUGUST 9, 2024

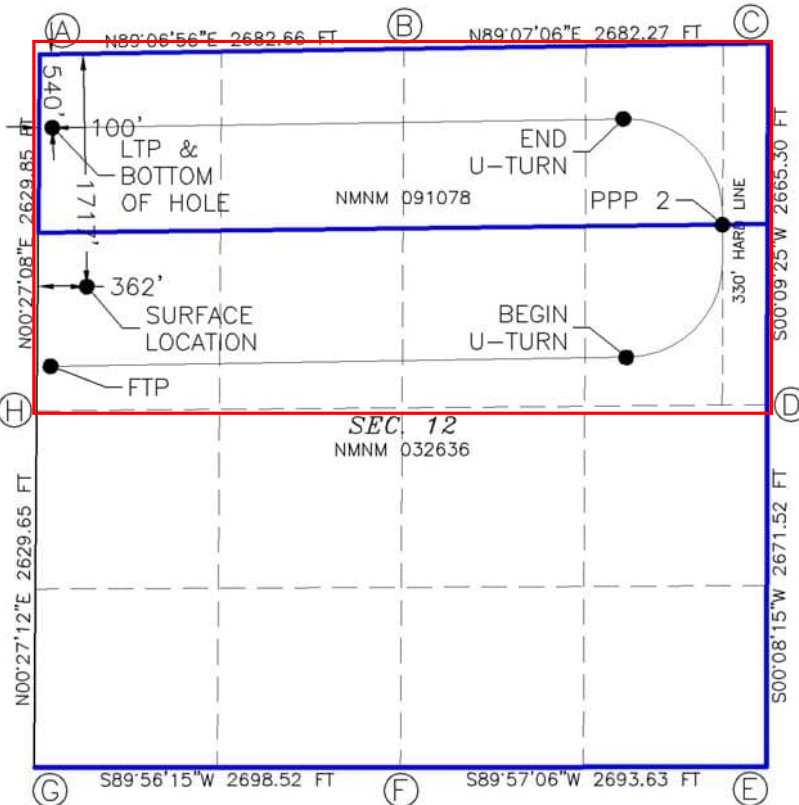
SURVEY NO. 9646D

Note: No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.

This grid represents a standard section. You may superimpose a non-standard section, or larger area, over this grid. Operators must outline the dedicated acreage in a red box, clearly show the well surface location and bottom hole location, if it is directionally drilled, with the dimensions from the section lines in the cardinal directions. If this is a horizontal wellbore show on this plat the location of the First Take Point and Last Take Point, and the point within the Completed interval (other than the First Take Point or Last Take Point) that is closest to any outer boundary of the tract.

Surveyors shall use the latest United States government survey or dependent resurvey. Well locations will be in reference to the New Mexico Principal Meridian. If the land is not surveyed, contact the OCD Engineering Bureau. Independent subdivision surveys will not be acceptable.

RANA PICANTE 12 FED COM 413H
EL. = 3005.9



GEODETIC COORDINATES
NAD 27 NMSP EAST
SURFACE LOCATION
N.= 481154.19
E.= 588225.28
LAT. = 32.3224858°N
LONG. = 104.0477272°W

GEODETIC COORDINATES
NAD 83 NMSP EAST
SURFACE LOCATION
N.= 481213.76
E.= 629407.94
LAT. = 32.3226069°N
LONG. = 104.0482219°W

KICK OFF POINT
1717' FNL, 362' FWL
NAD 27 NMSP EAST
N.= 481154.19
E.= 588225.28
LAT. = 32.3224858°N
LONG. = 104.0477272°W

KICK OFF POINT
1717' FNL, 362' FWL
NAD 83 NMSP EAST
N.= 481213.76
E.= 629407.94
LAT. = 32.3226069°N
LONG. = 104.0482219°W

FIRST TAKE POINT
2300' FNL, 100' FWL
NAD 27 NMSP EAST
N.= 480567.11
E.= 587958.74
LAT. = 32.3208739°N
LONG. = 104.0485951°W

FIRST TAKE POINT
2300' FNL, 100' FWL
NAD 83 NMSP EAST
N.= 480626.67
E.= 629141.42
LAT. = 32.3209950°N
LONG. = 104.0490898°W

LAST TAKE POINT
540' FNL, 100' FWL
NAD 27 NMSP EAST
N.= 482327.10
E.= 587972.67
LAT. = 32.3257119°N
LONG. = 104.0485348°W

LAST TAKE POINT
540' FNL, 100' FWL
NAD 83 NMSP EAST
N.= 482386.70
E.= 629155.31
LAT. = 32.3258329°N
LONG. = 104.0490297°W

BOTTOM OF HOLE
NAD 27 NMSP EAST
N.= 482327.10
E.= 587972.67
LAT. = 32.3257119°N
LONG. = 104.0485348°W

BOTTOM OF HOLE
NAD 83 NMSP EAST
N.= 482386.70
E.= 629155.31
LAT. = 32.3258329°N
LONG. = 104.0490297°W

PPP 2
1331' FNL, 330' FEL
NAD 27 NMSP EAST
N.= 481611.85
E.= 592906.37
LAT. = 32.3237087°N
LONG. = 104.0325694°W

PPP 2
1331' FNL, 330' FEL
NAD 83 NMSP EAST
N.= 481671.49
E.= 634089.09
LAT. = 32.3238299°N
LONG. = 104.0330636°W

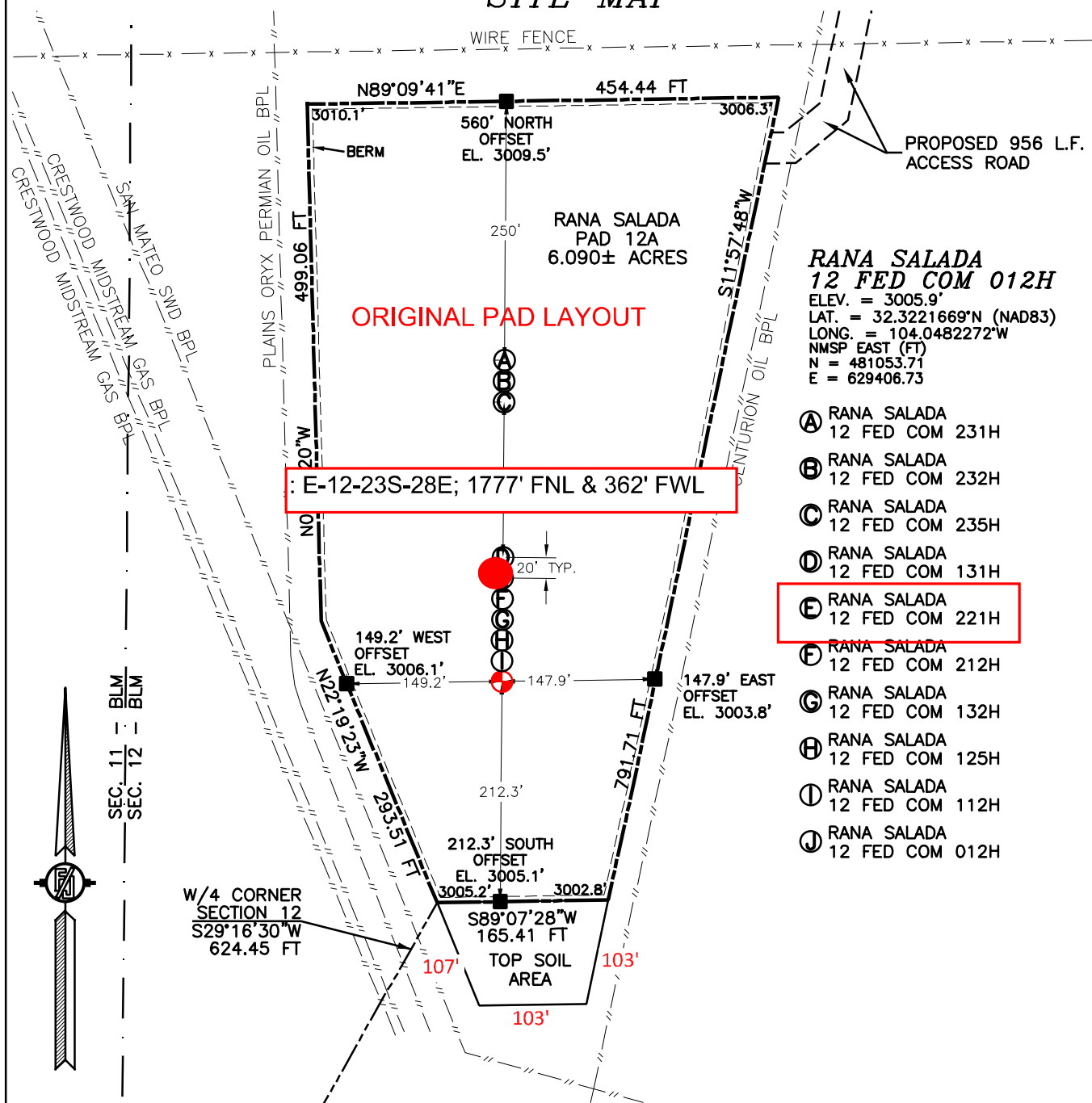
CORNER COORDINATES TABLE
NAD 27 NMSP EAST

A - N.= 482865.56	E.= 587876.96
B - N.= 482906.92	E.= 590558.67
C - N.= 482948.15	E.= 593239.99
D - N.= 480283.52	E.= 593232.62
E - N.= 477612.66	E.= 593226.13
F - N.= 477610.42	E.= 590533.14
G - N.= 477607.52	E.= 587835.26
H - N.= 480236.44	E.= 587856.14

CORNER COORDINATES TABLE
NAD 83 NMSP EAST

A - N.= 482925.17	E.= 629059.57
B - N.= 482966.56	E.= 631741.32
C - N.= 483007.83	E.= 634422.67
D - N.= 480343.13	E.= 634415.38
E - N.= 477672.21	E.= 634408.96
F - N.= 477669.94	E.= 631715.93
G - N.= 477667.00	E.= 629018.02
H - N.= 480295.99	E.= 629038.82

SECTION 12, TOWNSHIP 23 SOUTH, RANGE 28 EAST, N.M.P.M. EDDY COUNTY, STATE OF NEW MEXICO SITE MAP



RANA SALADA
12 FED COM 012H
ELEV. = 3005.9'
LAT. = 32.3221669°N (NAD83)
LONG. = 104.0482272°W
NMSP EAST (FT)
N = 481053.71
E = 629406.73

- Ⓐ RANA SALADA
12 FED COM 231H
- Ⓑ RANA SALADA
12 FED COM 232H
- Ⓒ RANA SALADA
12 FED COM 235H
- Ⓓ RANA SALADA
12 FED COM 131H
- Ⓔ RANA SALADA
12 FED COM 221H
- Ⓕ RANA SALADA
12 FED COM 212H
- Ⓖ RANA SALADA
12 FED COM 132H
- Ⓗ RANA SALADA
12 FED COM 125H
- Ⓘ RANA SALADA
12 FED COM 112H
- Ⓙ RANA SALADA
12 FED COM 012H

015 75 150 300

SCALE 1" = 150'

DIRECTIONS TO LOCATION

FROM THE INTERSECTION OF STATE ROAD 31 (POTASH MINES) AND COUNTY ROAD 805 (REFINERY RD.), GO NORTH ON REFINERY RD. APPROX. 1.15 MILES, TURN LEFT (SOUTHWEST) ON CALICHE ROAD AND GO APPROX. 0.21 MILES, TURN LEFT AND GO SOUTH-SOUTHEAST APPROX. 0.5 MILES, BEND RIGHT AND GO WEST APPROX. 0.27 MILES TO A ROAD SURVEY ON LEFT (SOUTH), FOLLOW ROAD SURVEY SOUTH APPROX. 0.18 MILES TO THE NORTHEAST PAD CORNER FOR THIS LOCATION.

I, FILMON J. JARAMILA, A NEW MEXICO REGISTERED PROFESSIONAL SURVEYOR CERTIFICATE NO. 1, DEEDER, AM RESPONSIBLE FOR THIS SURVEY. I HAVE BEEN CAREFULLY AND ACCURATELY TO THE BEST OF MY KNOWLEDGE AND BELIEF AND THE SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO.

FILMON J. JARAMILA 2023-12-797

MADRON SURVEYING, INC.

301 SOUTH CANAL
(575) 234-3327

CARLSBAD, NEW MEXICO

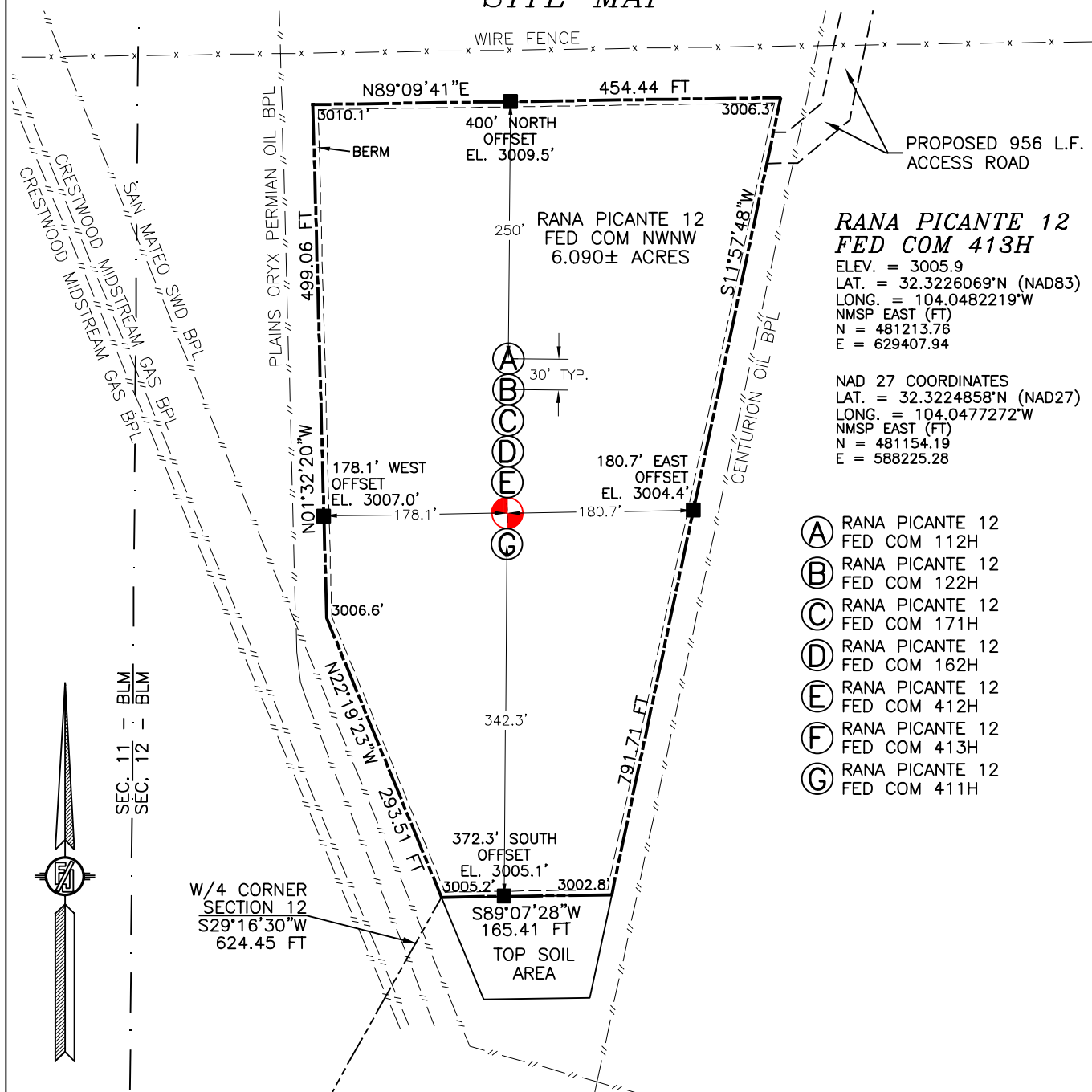
FEBRUARY 22, 2023

SURVEY NO. 9651A

SITE MAP



SECTION 12, TOWNSHIP 23 SOUTH, RANGE 28 EAST, N.M.P.M. EDDY COUNTY, STATE OF NEW MEXICO SITE MAP



- Ⓐ RANA PICANTE 12 FED COM 112H
- Ⓑ RANA PICANTE 12 FED COM 122H
- Ⓒ RANA PICANTE 12 FED COM 171H
- Ⓓ RANA PICANTE 12 FED COM 162H
- Ⓔ RANA PICANTE 12 FED COM 412H
- Ⓕ RANA PICANTE 12 FED COM 413H
- Ⓖ RANA PICANTE 12 FED COM 411H

NOVO OIL & GAS NORTHERN DELAWARE, LLC
RANA PICANTE 12 FED COM 413H
LOCATED 1717 FT. FROM THE NORTH LINE
AND 362 FT. FROM THE WEST LINE OF
SECTION 12, TOWNSHIP 23 SOUTH,
RANGE 28 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

JUNE 24, 2024

SURVEY NO. 9646B

MADRON SURVEYING, INC.

301 SOUTH CANAL
(575) 234-3327

CARLSBAD, NEW MEXICO

Permian Resources - Rana Picante 12 Fed Com 413H

1. Geologic Formations

Formation	Elevation	TVD	Lithology	Target
Rustler	-2686	350	Sandstone	No
Salado	-2472	564	Sandstone	No
Bell Canyon	-386	2650	Sandstone	No
Cherry Canyon	484	3520	Sandstone	No
Brushy Canyon	1744	4780	Sandstone	No
Bone Spring Lime	3224	6260	Sandstone	No
1st Bone Spring Sand	4284	7320	Sandstone	No
2nd Bone Spring Sand	5039	8075	Sandstone	No
3rd Bone Spring Shale	5864	8900	Sandstone	No
3rd Bone Spring Sand	6264	9300	Sandstone	No
Wolfcamp	6524	9560	Sandstone	Yes

2. Blowout Prevention

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	x	Tested to:
8.75	13-5/8"	5M	Annular	x	2500 psi
			Blind Ram	x	5000 psi
			Pipe Ram	x	
			Double Ram		
			Other*		
6.75	13-5/8"	5M	Annular	x	2500 psi
			Blind Ram	x	5000 psi
			Pipe Ram	x	
			Double Ram		
			Other*		

Equipment: BOPE will meet all requirements for above listed system per 43 CFR 3172. BOPE with working pressure ratings in excess of anticipated maximum surface pressure will be utilized for well control from drill out of surface casing to TMD. The system may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all of the components installed will be functional, tested, and will meet all requirements per 43 CFR 3172. The wellhead will be a multibowl speed head allowing for hangoff of intermediate casing of the surface x intermediate annulus without breaking the connection between the BOP & wellhead. A variance is requested to utilize a flexible choke line (flexhose) from the BOP to choke manifold.

Requesting Variance? YES

Variance request: Break testing, flex hose, and offline cement variances, see attachments in section 8.

Testing Procedure: Operator requests to ONLY test broken pressure seals per API Standard 53 and the attachments in Section 8. The BOP test shall be performed before drilling out of the surface casing shoe and will occur at a minimum: a. when initially installed, b. whenever any seal subject to test pressure is broken, c. following related repairs, d. at 21-day intervals. Testing of the ram type preventer(s) and annual type preventer(s) shall be tested per 43 CFR 3172. The BOPE configuration, choke manifold layout, and accumulator system will be in compliance with 43 CFR 3172. Bleed lines will discharge 100' from wellhead in non-H2S scenarios and 150' from wellhead in H2S scenarios.

Choke Diagram Attachment: 5 M Choke Manifold

BOP Diagram Attachment: BOP Schematic

3. Casing

String	Hole Size	Casing Size	Top	Bottom	Top TVD	Bottom TVD	Length	Grade	Weight	Connection	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
Surface	12.25	9.625	0	375	0	375	375	J55	40	BTC	13.87	0.96	Dry	6.21	Dry	5.48
Intermediate	8.75	7.625	0	9914	0	9914	9914	P110HSC	29.7	MOFXL	7.79	2.83	Dry	1.89	Dry	2.71
Production	6.75	5.5	0	9414	0	10455	9414	P110RY	20	Bushmaster	1.32	1.38	Dry	2.42	Dry	3.46
Production	6.75	5.5	9414	21341	10455	10455	11927	P110RY	20	Bushmaster	1.32	1.38	Dry	3.46	Dry	3.46
BLM Min Safety Factor											1.125	1		1.6		1.6

Non API casing spec sheets and casing design assumptions attached.

4. Cement

String	Lead/Tail	Top MD	Bottom MD	Quantity (sx)	Yield	Density	Cu Ft	Excess %	Cement Type	Additives
Surface	Tail	0	375	140	1.34	14.8	180	50%	Class C	Accelerator
Intermediate	Lead	3520	7930	500	2.08	12.7	1020	50%	Class C	Salt, Extender, and LCM
Intermediate	Tail	7930	9914	230	1.34	14.8	300	50%	Class C	Accelerator
Production	Lead	9414	10014	30	2.41	11.5	60	40%	Class H	POZ, Extender, Fluid Loss, Dispersant, Retarder
Production	Tail	10014	21341	690	1.73	12.5	1190	25%	Class H	POZ, Extender, Fluid Loss, Dispersant, Retarder

Permian Resources requests to pump a two stage cement job on the 7-5/8" intermediate casing string with the first stage being pumped conventionally with the calculated top of cement at the Cherry Canyon and the second stage performed as a bradenhead squeeze with planned cement from the Brushy Canyon to surface. If cement is not visually confirmed to circulate to surface, the final cement top after the second stage job will be verified by Echo-meter. If necessary, a top out consisting of 1,500 sack of Class C cement + 3% Salt + Bentonite Gel (2.30 yld, 12.9 ppg) will be executed as a contingency. If cement is still unable to circulate to surface, another Echo-meter run will be performed for cement top verification.

Permian Resources 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.

Permian Resources will report to the BLM the volume of fluid (limited to 5 bbls) used to flush intermediate casing valves following backside cementing procedures.

Permian Resources requests to pump an Optional Lead if well conditions dictate in an attempt to bring cement inside the surface casing. If cement reaches the desired height, the BLM will be notified and the second stage bradenhead squeeze and subsequent TOC verification will be negated.

Permian Resources requests the option to conduct the bradenhead squeeze and TOC verification offline as per standard approval from BLM when unplanned remediation is needed and batch drilling is approved. In the event the bradenhead is conducted, we will ensure the first stage cement job is cemented properly and the well is static with floats holding and no pressure on the csg annulus as with all other casing strings where batch drilling operations occur before moving off the rig. The TA cap will also be installed per Cactus procedure and pressure inside the casing will be monitored via the valve on the TA cap as per standard batch

5. Circulating Medium

Mud System Type: Closed

Will an air or gas system be used: No

Describe what will be on location to control well or mitigate other conditions: Sufficient quantities of mud materials will be on the well site at all times for the purpose of assuring well control and maintaining wellbore integrity. Surface interval will employ fresh water mud. The intermediate hole will utilize a saturated brine fluid to inhibit salt washout. The production hole will employ brine based and oil base fluid to inhibit formation reactivity and of the appropriate density to maintain well control.

Describe the mud monitoring system utilized: Centrifuge separation system. Open tank monitoring with EDR will be used for drilling fluids and return volumes. Open tank monitoring will be used for cement and cuttings return volumes. Mud properties will be monitored at least every 24 hours using industry accepted

Cuttings Volume: 7140 Cu Ft

Circulating Medium Table

Top Depth	Bottom Depth	Mud Type	Min Weight	Max Weight
0	375	Spud Mud	8.6	9.5
375	9914	Salt Saturated	10	10
9914	9414	Water Based Mud	9	10
9414	21341	OBM	9	10

6. Test, Logging, Coring

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

Will utilize MWD/LWD (Gamma Ray logging) from intermediate hole to TD of the well.

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

DIRECTIONAL SURVEY, GAMMA RAY LOG,

Coring operation description for the well:

7. Pressure

Anticipated Bottom Hole Pressure	5440	psi
Anticipated Surface Pressure	3136.5	psi
Anticipated Bottom Hole Temperature	160	°F
Anticipated Abnormal pressure, temp, or geo hazards	No	

8. Other Information

Well Plan and AC Report: attached

Batching Drilling Procedure: attached

WBD: attached

Flex Hose Specs: attached

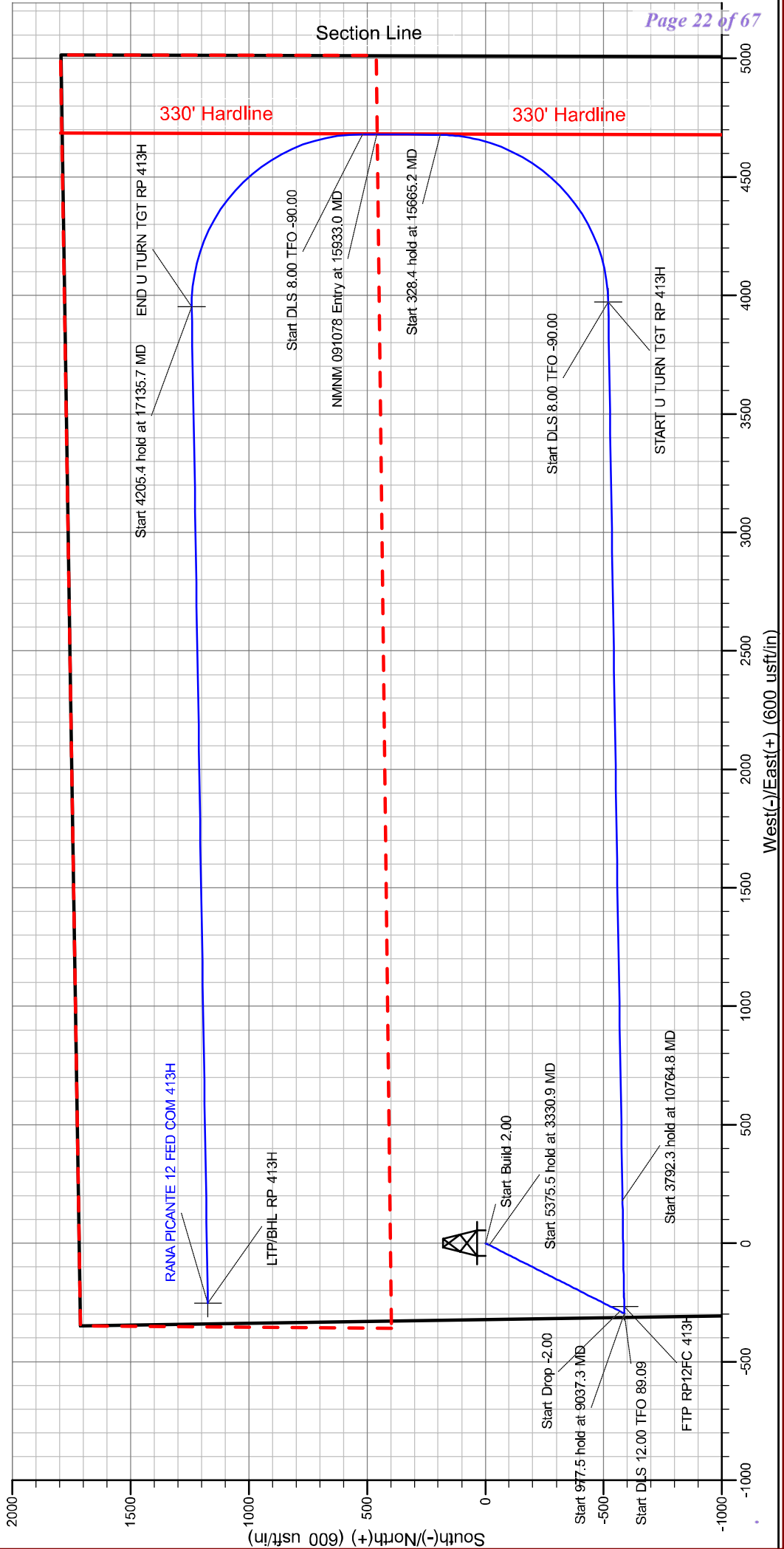
Offline Cementing Procedure: attached

County: (SP) EDDY
Pad: RANA PICANTE
Well: RANA PICANTE 12 FED COM 413H
GE: 3006.0
Rig: PWP0
Plan: PWP0

DESIGN TARGET DETAILS					
Name	TVD	+N/-S	+E/-W	Northing	Easting
END U TURN TGT RP 413H	10455.0	1241.4	3952.2	482455.12	633360.14
FTP RP12FC 413H	10455.0	-587.1	-266.5	480626.67	629141.42
LTP/BHL RP 413H	10455.0	1172.9	-252.6	482386.70	629155.31
START U TURN TGT RP 413H	10455.0	-519.2	3972.7	480694.51	633380.64

SECTION DETAILS						
MD	Inc	Azi	TVD	+N/-S	+E/W	Vsect
0.0	0.00	0.00	0.0	0.0	0.0	0.0
3000.0	0.00	0.00	3000.0	0.0	0.0	0.0
3330.9	6.62	206.80	3330.2	-17.0	-8.6	-14.8
8706.4	6.62	206.80	8669.8	-570.0	-287.9	-496.7
9037.3	0.00	0.00	9000.0	-587.1	-296.5	-511.5
10014.8	0.00	0.00	9977.5	-587.1	-296.5	-511.5
10764.8	90.00	89.09	10455.0	-579.5	180.9	-604.6
14557.1	90.00	88.09	10455.0	-519.2	3972.7	-1344.1
15965.2	90.00	0.44	10455.0	191.4	4677.5	-797.7
15993.6	90.00	0.44	10455.0	519.8	4680.0	-477.2
17135.7	90.00	269.07	10455.0	1241.4	3952.2	381.4
21341.1	90.00	269.07	10455.0	1172.9	-252.6	1199.8
						TD at 21341.1

SECTION DETAILS						
MD	Inc	Azi	TVD	+N/-S	+E/W	Vsect
0.0	0.00	0.00	0.0	0.0	0.0	0.0
3000.0	0.00	0.00	3000.0	0.0	0.0	0.0
3330.9	6.62	206.80	3330.2	-17.0	-8.6	-14.8
8706.4	6.62	206.80	8669.8	-570.0	-287.9	-496.7
9037.3	0.00	0.00	9000.0	-587.1	-296.5	-511.5
10014.8	0.00	0.00	9977.5	-587.1	-296.5	-511.5
10764.8	90.00	89.09	10455.0	-579.5	180.9	-604.6
14557.1	90.00	88.09	10455.0	-519.2	3972.7	-1344.1
15965.2	90.00	0.44	10455.0	191.4	4677.5	-797.7
15993.6	90.00	0.44	10455.0	519.8	4680.0	-477.2
17135.7	90.00	269.07	10455.0	1241.4	3952.2	381.4
21341.1	90.00	269.07	10455.0	1172.9	-252.6	1199.8
						TD at 21341.1



PERMIAN

R E S O U R C E S

NEW MEXICO

(SP) EDDY

RANA PICANTE

RANA PICANTE 12 FED COM 413H

OWB

Plan: PWP0

Standard Planning Report - Geographic

09 August, 2024

Database:	Compass_17	Local Co-ordinate Reference	Well RANA PICANTE 12 FED COM 413H
Company:	NEW MEXICO	TVD Reference:	KB @ 3036.0usft
Project:	(SP) EDDY	MD Reference:	KB @ 3036.0usft
Site:	RANA PICANTE	North Reference:	Grid
Well:	RANA PICANTE 12 FED COM 413H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	PWP0		

Project	(SP) EDDY		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site		RANA PICANTE			
Site Position:		Northing:	481,255.91 usft	Latitude:	32° 19' 21.802 N
From:	Map	Easting:	629,406.84 usft	Longitude:	104° 2' 53.610 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "		

Well	RANA PICANTE 12 FED COM 413H					
Well Position	+N/-S	0.0 usft	Northing:	481,213.76 usft	Latitude:	32° 19' 21.385 N
	+E/-W	0.0 usft	Easting:	629,407.94 usft	Longitude:	104° 2' 53.599 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	3,006.0 usft
Grid Convergence:		0.15 °				

Wellbore	OWB				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	12/31/2009	7.97	60.25	48,802.32275300

Design	PWP0			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	347.85

Plan Survey Tool Program	Date	8/9/2024		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.0	21,340.6 PWP0 (OWB)	MWD OWSG_Rev2_ MWD - Standai	

Database:	Compass_17	Local Co-ordinate Reference	Well RANA PICANTE 12 FED COM 413H
Company:	NEW MEXICO	TVD Reference:	KB @ 3036.0usft
Project:	(SP) EDDY	MD Reference:	KB @ 3036.0usft
Site:	RANA PICANTE	North Reference:	Grid
Well:	RANA PICANTE 12 FED COM 413H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	PWP0		

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
3,330.9	6.62	206.80	3,330.2	-17.0	-8.6	2.00	2.00	0.00	206.80	
8,706.4	6.62	206.80	8,669.8	-570.0	-287.9	0.00	0.00	0.00	0.00	
9,037.3	0.00	0.00	9,000.0	-587.1	-296.5	2.00	-2.00	0.00	180.00	
10,014.8	0.00	0.00	9,977.5	-587.1	-296.5	0.00	0.00	0.00	0.00	
10,764.8	90.00	89.09	10,455.0	-579.5	180.9	12.00	12.00	11.88	89.09	
14,557.1	90.00	89.09	10,455.0	-519.2	3,972.7	0.00	0.00	0.00	0.00	START U TURN TGT
15,665.2	90.00	0.44	10,455.0	191.4	4,677.5	8.00	0.00	-8.00	-90.00	
15,993.6	90.00	0.44	10,455.0	519.8	4,680.0	0.00	0.00	0.00	0.00	
17,135.7	90.00	269.07	10,455.0	1,241.4	3,952.2	8.00	0.00	-8.00	-90.00	END U TURN TGT RI
21,341.1	90.00	269.07	10,455.0	1,172.9	-252.6	0.00	0.00	0.00	0.00	LTP/BHL RP 413H

Database:	Compass_17	Local Co-ordinate Reference	Well RANA PICANTE 12 FED COM 413H
Company:	NEW MEXICO	TVD Reference:	KB @ 3036.0usft
Project:	(SP) EDDY	MD Reference:	KB @ 3036.0usft
Site:	RANA PICANTE	North Reference:	Grid
Well:	RANA PICANTE 12 FED COM 413H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	PWP0		

Planned Survey										
Measured			Vertical			Map		Map		
Depth	Inclination	Azimuth	Depth	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	
(usft)	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)			
0.0	0.00	0.00	0.0	0.0	0.0	481,213.76	629,407.94	32° 19' 21.385 N	104° 2' 53.599 W	
100.0	0.00	0.00	100.0	0.0	0.0	481,213.76	629,407.94	32° 19' 21.385 N	104° 2' 53.599 W	
200.0	0.00	0.00	200.0	0.0	0.0	481,213.76	629,407.94	32° 19' 21.385 N	104° 2' 53.599 W	
300.0	0.00	0.00	300.0	0.0	0.0	481,213.76	629,407.94	32° 19' 21.385 N	104° 2' 53.599 W	
400.0	0.00	0.00	400.0	0.0	0.0	481,213.76	629,407.94	32° 19' 21.385 N	104° 2' 53.599 W	
500.0	0.00	0.00	500.0	0.0	0.0	481,213.76	629,407.94	32° 19' 21.385 N	104° 2' 53.599 W	
600.0	0.00	0.00	600.0	0.0	0.0	481,213.76	629,407.94	32° 19' 21.385 N	104° 2' 53.599 W	
700.0	0.00	0.00	700.0	0.0	0.0	481,213.76	629,407.94	32° 19' 21.385 N	104° 2' 53.599 W	
800.0	0.00	0.00	800.0	0.0	0.0	481,213.76	629,407.94	32° 19' 21.385 N	104° 2' 53.599 W	
900.0	0.00	0.00	900.0	0.0	0.0	481,213.76	629,407.94	32° 19' 21.385 N	104° 2' 53.599 W	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	481,213.76	629,407.94	32° 19' 21.385 N	104° 2' 53.599 W	
1,100.0	0.00	0.00	1,100.0	0.0	0.0	481,213.76	629,407.94	32° 19' 21.385 N	104° 2' 53.599 W	
1,200.0	0.00	0.00	1,200.0	0.0	0.0	481,213.76	629,407.94	32° 19' 21.385 N	104° 2' 53.599 W	
1,300.0	0.00	0.00	1,300.0	0.0	0.0	481,213.76	629,407.94	32° 19' 21.385 N	104° 2' 53.599 W	
1,400.0	0.00	0.00	1,400.0	0.0	0.0	481,213.76	629,407.94	32° 19' 21.385 N	104° 2' 53.599 W	
1,500.0	0.00	0.00	1,500.0	0.0	0.0	481,213.76	629,407.94	32° 19' 21.385 N	104° 2' 53.599 W	
1,600.0	0.00	0.00	1,600.0	0.0	0.0	481,213.76	629,407.94	32° 19' 21.385 N	104° 2' 53.599 W	
1,700.0	0.00	0.00	1,700.0	0.0	0.0	481,213.76	629,407.94	32° 19' 21.385 N	104° 2' 53.599 W	
1,800.0	0.00	0.00	1,800.0	0.0	0.0	481,213.76	629,407.94	32° 19' 21.385 N	104° 2' 53.599 W	
1,900.0	0.00	0.00	1,900.0	0.0	0.0	481,213.76	629,407.94	32° 19' 21.385 N	104° 2' 53.599 W	
2,000.0	0.00	0.00	2,000.0	0.0	0.0	481,213.76	629,407.94	32° 19' 21.385 N	104° 2' 53.599 W	
2,100.0	0.00	0.00	2,100.0	0.0	0.0	481,213.76	629,407.94	32° 19' 21.385 N	104° 2' 53.599 W	
2,200.0	0.00	0.00	2,200.0	0.0	0.0	481,213.76	629,407.94	32° 19' 21.385 N	104° 2' 53.599 W	
2,300.0	0.00	0.00	2,300.0	0.0	0.0	481,213.76	629,407.94	32° 19' 21.385 N	104° 2' 53.599 W	
2,400.0	0.00	0.00	2,400.0	0.0	0.0	481,213.76	629,407.94	32° 19' 21.385 N	104° 2' 53.599 W	
2,500.0	0.00	0.00	2,500.0	0.0	0.0	481,213.76	629,407.94	32° 19' 21.385 N	104° 2' 53.599 W	
2,600.0	0.00	0.00	2,600.0	0.0	0.0	481,213.76	629,407.94	32° 19' 21.385 N	104° 2' 53.599 W	
2,700.0	0.00	0.00	2,700.0	0.0	0.0	481,213.76	629,407.94	32° 19' 21.385 N	104° 2' 53.599 W	
2,800.0	0.00	0.00	2,800.0	0.0	0.0	481,213.76	629,407.94	32° 19' 21.385 N	104° 2' 53.599 W	
2,900.0	0.00	0.00	2,900.0	0.0	0.0	481,213.76	629,407.94	32° 19' 21.385 N	104° 2' 53.599 W	
3,000.0	0.00	0.00	3,000.0	0.0	0.0	481,213.76	629,407.94	32° 19' 21.385 N	104° 2' 53.599 W	
Start Build 2.00										
3,100.0	2.00	206.80	3,100.0	-1.6	-0.8	481,212.20	629,407.16	32° 19' 21.369 N	104° 2' 53.608 W	
3,200.0	4.00	206.80	3,199.8	-6.2	-3.1	481,207.53	629,404.80	32° 19' 21.323 N	104° 2' 53.636 W	
3,300.0	6.00	206.80	3,299.5	-14.0	-7.1	481,199.75	629,400.87	32° 19' 21.246 N	104° 2' 53.682 W	
3,330.9	6.62	206.80	3,330.2	-17.0	-8.6	481,196.72	629,399.34	32° 19' 21.216 N	104° 2' 53.700 W	
Start 5375.5 hold at 3330.9 MD										
3,400.0	6.62	206.80	3,398.8	-24.1	-12.2	481,189.61	629,395.75	32° 19' 21.146 N	104° 2' 53.742 W	
3,500.0	6.62	206.80	3,498.1	-34.4	-17.4	481,179.32	629,390.55	32° 19' 21.044 N	104° 2' 53.803 W	
3,600.0	6.62	206.80	3,597.5	-44.7	-22.6	481,169.04	629,385.36	32° 19' 20.943 N	104° 2' 53.863 W	
3,700.0	6.62	206.80	3,696.8	-55.0	-27.8	481,158.75	629,380.16	32° 19' 20.841 N	104° 2' 53.924 W	
3,800.0	6.62	206.80	3,796.1	-65.3	-33.0	481,148.46	629,374.97	32° 19' 20.739 N	104° 2' 53.985 W	
3,900.0	6.62	206.80	3,895.5	-75.6	-38.2	481,138.17	629,369.77	32° 19' 20.638 N	104° 2' 54.046 W	
4,000.0	6.62	206.80	3,994.8	-85.9	-43.4	481,127.89	629,364.57	32° 19' 20.536 N	104° 2' 54.107 W	
4,100.0	6.62	206.80	4,094.1	-96.2	-48.6	481,117.60	629,359.38	32° 19' 20.434 N	104° 2' 54.168 W	
4,200.0	6.62	206.80	4,193.5	-106.4	-53.8	481,107.31	629,354.18	32° 19' 20.333 N	104° 2' 54.229 W	
4,300.0	6.62	206.80	4,292.8	-116.7	-59.0	481,097.02	629,348.99	32° 19' 20.231 N	104° 2' 54.290 W	
4,400.0	6.62	206.80	4,392.1	-127.0	-64.2	481,086.74	629,343.79	32° 19' 20.129 N	104° 2' 54.350 W	
4,500.0	6.62	206.80	4,491.5	-137.3	-69.3	481,076.45	629,338.60	32° 19' 20.028 N	104° 2' 54.411 W	
4,600.0	6.62	206.80	4,590.8	-147.6	-74.5	481,066.16	629,333.40	32° 19' 19.926 N	104° 2' 54.472 W	
4,700.0	6.62	206.80	4,690.1	-157.9	-79.7	481,055.87	629,328.21	32° 19' 19.824 N	104° 2' 54.533 W	
4,800.0	6.62	206.80	4,789.5	-168.2	-84.9	481,045.59	629,323.01	32° 19' 19.723 N	104° 2' 54.594 W	
4,900.0	6.62	206.80	4,888.8	-178.5	-90.1	481,035.30	629,317.81	32° 19' 19.621 N	104° 2' 54.655 W	

Database:	Compass_17	Local Co-ordinate Reference	Well RANA PICANTE 12 FED COM 413H
Company:	NEW MEXICO	TVD Reference:	KB @ 3036.0usft
Project:	(SP) EDDY	MD Reference:	KB @ 3036.0usft
Site:	RANA PICANTE	North Reference:	Grid
Well:	RANA PICANTE 12 FED COM 413H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	PWP0		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
5,000.0	6.62	206.80	4,988.1	-188.8	-95.3	481,025.01	629,312.62	32° 19' 19.519 N	104° 2' 54.716 W	
5,100.0	6.62	206.80	5,087.5	-199.0	-100.5	481,014.72	629,307.42	32° 19' 19.418 N	104° 2' 54.777 W	
5,200.0	6.62	206.80	5,186.8	-209.3	-105.7	481,004.44	629,302.23	32° 19' 19.316 N	104° 2' 54.837 W	
5,300.0	6.62	206.80	5,286.1	-219.6	-110.9	480,994.15	629,297.03	32° 19' 19.214 N	104° 2' 54.898 W	
5,400.0	6.62	206.80	5,385.5	-229.9	-116.1	480,983.86	629,291.84	32° 19' 19.113 N	104° 2' 54.959 W	
5,500.0	6.62	206.80	5,484.8	-240.2	-121.3	480,973.57	629,286.64	32° 19' 19.011 N	104° 2' 55.020 W	
5,600.0	6.62	206.80	5,584.1	-250.5	-126.5	480,963.28	629,281.45	32° 19' 18.909 N	104° 2' 55.081 W	
5,700.0	6.62	206.80	5,683.5	-260.8	-131.7	480,953.00	629,276.25	32° 19' 18.808 N	104° 2' 55.142 W	
5,800.0	6.62	206.80	5,782.8	-271.1	-136.9	480,942.71	629,271.05	32° 19' 18.706 N	104° 2' 55.203 W	
5,900.0	6.62	206.80	5,882.1	-281.3	-142.1	480,932.42	629,265.86	32° 19' 18.604 N	104° 2' 55.263 W	
6,000.0	6.62	206.80	5,981.5	-291.6	-147.3	480,922.13	629,260.66	32° 19' 18.503 N	104° 2' 55.324 W	
6,100.0	6.62	206.80	6,080.8	-301.9	-152.5	480,911.85	629,255.47	32° 19' 18.401 N	104° 2' 55.385 W	
6,200.0	6.62	206.80	6,180.1	-312.2	-157.7	480,901.56	629,250.27	32° 19' 18.299 N	104° 2' 55.446 W	
6,300.0	6.62	206.80	6,279.5	-322.5	-162.9	480,891.27	629,245.08	32° 19' 18.198 N	104° 2' 55.507 W	
6,400.0	6.62	206.80	6,378.8	-332.8	-168.1	480,880.98	629,239.88	32° 19' 18.096 N	104° 2' 55.568 W	
6,500.0	6.62	206.80	6,478.1	-343.1	-173.3	480,870.70	629,234.68	32° 19' 17.994 N	104° 2' 55.629 W	
6,600.0	6.62	206.80	6,577.5	-353.4	-178.5	480,860.41	629,229.49	32° 19' 17.893 N	104° 2' 55.690 W	
6,700.0	6.62	206.80	6,676.8	-363.6	-183.7	480,850.12	629,224.29	32° 19' 17.791 N	104° 2' 55.750 W	
6,800.0	6.62	206.80	6,776.1	-373.9	-188.8	480,839.83	629,219.10	32° 19' 17.689 N	104° 2' 55.811 W	
6,900.0	6.62	206.80	6,875.5	-384.2	-194.0	480,829.55	629,213.90	32° 19' 17.588 N	104° 2' 55.872 W	
7,000.0	6.62	206.80	6,974.8	-394.5	-199.2	480,819.26	629,208.71	32° 19' 17.486 N	104° 2' 55.933 W	
7,100.0	6.62	206.80	7,074.1	-404.8	-204.4	480,808.97	629,203.51	32° 19' 17.384 N	104° 2' 55.994 W	
7,200.0	6.62	206.80	7,173.5	-415.1	-209.6	480,798.68	629,198.32	32° 19' 17.283 N	104° 2' 56.055 W	
7,300.0	6.62	206.80	7,272.8	-425.4	-214.8	480,788.39	629,193.12	32° 19' 17.181 N	104° 2' 56.116 W	
7,400.0	6.62	206.80	7,372.1	-435.7	-220.0	480,778.11	629,187.92	32° 19' 17.079 N	104° 2' 56.176 W	
7,500.0	6.62	206.80	7,471.5	-445.9	-225.2	480,767.82	629,182.73	32° 19' 16.978 N	104° 2' 56.237 W	
7,600.0	6.62	206.80	7,570.8	-456.2	-230.4	480,757.53	629,177.53	32° 19' 16.876 N	104° 2' 56.298 W	
7,700.0	6.62	206.80	7,670.2	-466.5	-235.6	480,747.24	629,172.34	32° 19' 16.774 N	104° 2' 56.359 W	
7,800.0	6.62	206.80	7,769.5	-476.8	-240.8	480,736.96	629,167.14	32° 19' 16.673 N	104° 2' 56.420 W	
7,900.0	6.62	206.80	7,868.8	-487.1	-246.0	480,726.67	629,161.95	32° 19' 16.571 N	104° 2' 56.481 W	
8,000.0	6.62	206.80	7,968.2	-497.4	-251.2	480,716.38	629,156.75	32° 19' 16.469 N	104° 2' 56.542 W	
8,100.0	6.62	206.80	8,067.5	-507.7	-256.4	480,706.09	629,151.56	32° 19' 16.368 N	104° 2' 56.603 W	
8,200.0	6.62	206.80	8,166.8	-518.0	-261.6	480,695.81	629,146.36	32° 19' 16.266 N	104° 2' 56.663 W	
8,300.0	6.62	206.80	8,266.2	-528.2	-266.8	480,685.52	629,141.16	32° 19' 16.164 N	104° 2' 56.724 W	
8,400.0	6.62	206.80	8,365.5	-538.5	-272.0	480,675.23	629,135.97	32° 19' 16.063 N	104° 2' 56.785 W	
8,500.0	6.62	206.80	8,464.8	-548.8	-277.2	480,664.94	629,130.77	32° 19' 15.961 N	104° 2' 56.846 W	
8,600.0	6.62	206.80	8,564.2	-559.1	-282.4	480,654.66	629,125.58	32° 19' 15.859 N	104° 2' 56.907 W	
8,706.4	6.62	206.80	8,669.8	-570.0	-287.9	480,643.71	629,120.05	32° 19' 15.751 N	104° 2' 56.972 W	
Start Drop -2.00										
8,800.0	4.75	206.80	8,763.0	-578.3	-292.1	480,635.44	629,115.87	32° 19' 15.669 N	104° 2' 57.021 W	
8,900.0	2.75	206.80	8,862.8	-584.2	-295.0	480,629.61	629,112.93	32° 19' 15.612 N	104° 2' 57.055 W	
9,000.0	0.75	206.80	8,962.7	-586.9	-296.4	480,626.89	629,111.55	32° 19' 15.585 N	104° 2' 57.071 W	
9,037.3	0.00	0.00	9,000.0	-587.1	-296.5	480,626.67	629,111.44	32° 19' 15.583 N	104° 2' 57.072 W	
Start 977.5 hold at 9037.3 MD										
9,100.0	0.00	0.00	9,062.7	-587.1	-296.5	480,626.67	629,111.44	32° 19' 15.583 N	104° 2' 57.072 W	
9,200.0	0.00	0.00	9,162.7	-587.1	-296.5	480,626.67	629,111.44	32° 19' 15.583 N	104° 2' 57.072 W	
9,300.0	0.00	0.00	9,262.7	-587.1	-296.5	480,626.67	629,111.44	32° 19' 15.583 N	104° 2' 57.072 W	
9,400.0	0.00	0.00	9,362.7	-587.1	-296.5	480,626.67	629,111.44	32° 19' 15.583 N	104° 2' 57.072 W	
9,500.0	0.00	0.00	9,462.7	-587.1	-296.5	480,626.67	629,111.44	32° 19' 15.583 N	104° 2' 57.072 W	
9,600.0	0.00	0.00	9,562.7	-587.1	-296.5	480,626.67	629,111.44	32° 19' 15.583 N	104° 2' 57.072 W	
9,700.0	0.00	0.00	9,662.7	-587.1	-296.5	480,626.67	629,111.44	32° 19' 15.583 N	104° 2' 57.072 W	
9,800.0	0.00	0.00	9,762.7	-587.1	-296.5	480,626.67	629,111.44	32° 19' 15.583 N	104° 2' 57.072 W	
9,900.0	0.00	0.00	9,862.7	-587.1	-296.5	480,626.67	629,111.44	32° 19' 15.583 N	104° 2' 57.072 W	

Database:	Compass_17	Local Co-ordinate Reference	Well RANA PICANTE 12 FED COM 413H
Company:	NEW MEXICO	TVD Reference:	KB @ 3036.0usft
Project:	(SP) EDDY	MD Reference:	KB @ 3036.0usft
Site:	RANA PICANTE	North Reference:	Grid
Well:	RANA PICANTE 12 FED COM 413H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	PWP0		

Planned Survey										
Measured			Vertical			Map		Map		
Depth	Inclination	Azimuth	Depth	+N/-S	+E/-W	Northing	Easting		Latitude	Longitude
(usft)	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)			
10,000.0	0.00	0.00	9,962.7	-587.1	-296.5	480,626.67	629,111.44		32° 19' 15.583 N	104° 2' 57.072 W
10,014.8	0.00	0.00	9,977.5	-587.1	-296.5	480,626.67	629,111.44		32° 19' 15.583 N	104° 2' 57.072 W
Start DLS 12.00 TFO 89.09										
10,025.0	1.23	89.09	9,987.7	-587.1	-296.4	480,626.67	629,111.55		32° 19' 15.583 N	104° 2' 57.071 W
10,050.0	4.23	89.09	10,012.7	-587.1	-295.2	480,626.69	629,112.74		32° 19' 15.583 N	104° 2' 57.057 W
10,075.0	7.23	89.09	10,037.5	-587.0	-292.7	480,626.73	629,115.23		32° 19' 15.583 N	104° 2' 57.028 W
10,100.0	10.23	89.09	10,062.3	-587.0	-288.9	480,626.79	629,119.03		32° 19' 15.584 N	104° 2' 56.984 W
10,125.0	13.23	89.09	10,086.7	-586.9	-283.8	480,626.87	629,124.11		32° 19' 15.584 N	104° 2' 56.925 W
10,150.0	16.23	89.09	10,110.9	-586.8	-277.5	480,626.97	629,130.46		32° 19' 15.585 N	104° 2' 56.851 W
10,175.0	19.23	89.09	10,134.7	-586.7	-269.9	480,627.09	629,138.07		32° 19' 15.586 N	104° 2' 56.762 W
10,200.0	22.23	89.09	10,158.1	-586.5	-261.0	480,627.23	629,146.91		32° 19' 15.587 N	104° 2' 56.659 W
10,225.0	25.23	89.09	10,181.0	-586.4	-251.0	480,627.39	629,156.97		32° 19' 15.589 N	104° 2' 56.542 W
10,250.0	28.23	89.09	10,203.3	-586.2	-239.7	480,627.57	629,168.21		32° 19' 15.590 N	104° 2' 56.411 W
10,275.0	31.23	89.09	10,225.0	-586.0	-227.3	480,627.77	629,180.60		32° 19' 15.592 N	104° 2' 56.266 W
10,300.0	34.23	89.09	10,246.0	-585.8	-213.8	480,627.98	629,194.11		32° 19' 15.594 N	104° 2' 56.109 W
10,325.0	37.23	89.09	10,266.3	-585.5	-199.2	480,628.22	629,208.71		32° 19' 15.595 N	104° 2' 55.939 W
10,350.0	40.23	89.09	10,285.8	-585.3	-183.6	480,628.46	629,224.34		32° 19' 15.598 N	104° 2' 55.757 W
10,375.0	43.23	89.09	10,304.5	-585.0	-167.0	480,628.73	629,240.98		32° 19' 15.600 N	104° 2' 55.563 W
10,400.0	46.23	89.09	10,322.3	-584.8	-149.4	480,629.01	629,258.57		32° 19' 15.602 N	104° 2' 55.358 W
10,425.0	49.23	89.09	10,339.1	-584.5	-130.9	480,629.30	629,277.06		32° 19' 15.604 N	104° 2' 55.142 W
10,450.0	52.23	89.09	10,354.9	-584.2	-111.5	480,629.61	629,296.41		32° 19' 15.607 N	104° 2' 54.917 W
10,475.0	55.23	89.09	10,369.7	-583.8	-91.4	480,629.93	629,316.56		32° 19' 15.610 N	104° 2' 54.682 W
10,500.0	58.23	89.09	10,383.4	-583.5	-70.5	480,630.26	629,337.45		32° 19' 15.612 N	104° 2' 54.438 W
10,525.0	61.23	89.09	10,396.0	-583.2	-48.9	480,630.61	629,359.04		32° 19' 15.615 N	104° 2' 54.187 W
10,550.0	64.23	89.09	10,407.5	-582.8	-26.7	480,630.96	629,381.26		32° 19' 15.618 N	104° 2' 53.928 W
10,575.0	67.23	89.09	10,417.7	-582.4	-3.9	480,631.32	629,404.04		32° 19' 15.621 N	104° 2' 53.662 W
10,600.0	70.23	89.09	10,426.8	-582.1	19.4	480,631.69	629,427.33		32° 19' 15.624 N	104° 2' 53.391 W
10,625.0	73.23	89.09	10,434.6	-581.7	43.1	480,632.07	629,451.06		32° 19' 15.627 N	104° 2' 53.114 W
10,650.0	76.23	89.09	10,441.2	-581.3	67.2	480,632.45	629,475.17		32° 19' 15.630 N	104° 2' 52.833 W
10,675.0	79.23	89.09	10,446.5	-580.9	91.7	480,632.84	629,499.60		32° 19' 15.634 N	104° 2' 52.549 W
10,700.0	82.23	89.09	10,450.6	-580.5	116.3	480,633.23	629,524.26		32° 19' 15.637 N	104° 2' 52.261 W
10,725.0	85.23	89.09	10,453.3	-580.1	141.2	480,633.63	629,549.11		32° 19' 15.640 N	104° 2' 51.972 W
10,750.0	88.23	89.09	10,454.7	-579.7	166.1	480,634.02	629,574.06		32° 19' 15.643 N	104° 2' 51.681 W
10,764.8	90.00	89.09	10,455.0	-579.5	180.9	480,634.26	629,588.84		32° 19' 15.645 N	104° 2' 51.509 W
Start 3792.3 hold at 10764.8 MD										
10,800.0	90.00	89.09	10,455.0	-578.9	216.1	480,634.82	629,624.05		32° 19' 15.650 N	104° 2' 51.098 W
10,900.0	90.00	89.09	10,455.0	-577.4	316.1	480,636.41	629,724.04		32° 19' 15.663 N	104° 2' 49.933 W
11,000.0	90.00	89.09	10,455.0	-575.8	416.1	480,637.99	629,824.03		32° 19' 15.676 N	104° 2' 48.768 W
11,100.0	90.00	89.09	10,455.0	-574.2	516.1	480,639.58	629,924.02		32° 19' 15.689 N	104° 2' 47.602 W
11,200.0	90.00	89.09	10,455.0	-572.6	616.1	480,641.17	630,024.00		32° 19' 15.702 N	104° 2' 46.437 W
11,300.0	90.00	89.09	10,455.0	-571.0	716.0	480,642.76	630,123.99		32° 19' 15.715 N	104° 2' 45.272 W
11,400.0	90.00	89.09	10,455.0	-569.4	816.0	480,644.35	630,223.98		32° 19' 15.728 N	104° 2' 44.106 W
11,500.0	90.00	89.09	10,455.0	-567.8	916.0	480,645.94	630,323.96		32° 19' 15.741 N	104° 2' 42.941 W
11,600.0	90.00	89.09	10,455.0	-566.2	1,016.0	480,647.53	630,423.95		32° 19' 15.754 N	104° 2' 41.776 W
11,700.0	90.00	89.09	10,455.0	-564.6	1,116.0	480,649.12	630,523.94		32° 19' 15.768 N	104° 2' 40.611 W
11,800.0	90.00	89.09	10,455.0	-563.1	1,216.0	480,650.70	630,623.93		32° 19' 15.781 N	104° 2' 39.445 W
11,900.0	90.00	89.09	10,455.0	-561.5	1,316.0	480,652.29	630,723.91		32° 19' 15.794 N	104° 2' 38.280 W
12,000.0	90.00	89.09	10,455.0	-559.9	1,416.0	480,653.88	630,823.90		32° 19' 15.807 N	104° 2' 37.115 W
12,100.0	90.00	89.09	10,455.0	-558.3	1,515.9	480,655.47	630,923.89		32° 19' 15.820 N	104° 2' 35.949 W
12,200.0	90.00	89.09	10,455.0	-556.7	1,615.9	480,657.06	631,023.88		32° 19' 15.833 N	104° 2' 34.784 W
12,300.0	90.00	89.09	10,455.0	-555.1	1,715.9	480,658.65	631,123.86		32° 19' 15.846 N	104° 2' 33.619 W
12,400.0	90.00	89.09	10,455.0	-553.5	1,815.9	480,660.24	631,223.85		32° 19' 15.859 N	104° 2' 32.453 W
12,500.0	90.00	89.09	10,455.0	-551.9	1,915.9	480,661.83	631,323.84		32° 19' 15.872 N	104° 2' 31.288 W

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Database:	Compass_17	Local Co-ordinate Reference	Well RANA PICANTE 12 FED COM 413H
Company:	NEW MEXICO	TVD Reference:	KB @ 3036.0usft
Project:	(SP) EDDY	MD Reference:	KB @ 3036.0usft
Site:	RANA PICANTE	North Reference:	Grid
Well:	RANA PICANTE 12 FED COM 413H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	PWP0		

Planned Survey										
Measured			Vertical			Map		Map		
Depth	Inclination	Azimuth	Depth	+N/-S	+E/-W	Northing	Easting		Latitude	Longitude
(usft)	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)			
12,600.0	90.00	89.09	10,455.0	-550.3	2,015.9	480,663.42	631,423.83		32° 19' 15.885 N	104° 2' 30.123 W
12,700.0	90.00	89.09	10,455.0	-548.8	2,115.9	480,665.00	631,523.81		32° 19' 15.898 N	104° 2' 28.958 W
12,800.0	90.00	89.09	10,455.0	-547.2	2,215.9	480,666.59	631,623.80		32° 19' 15.911 N	104° 2' 27.792 W
12,900.0	90.00	89.09	10,455.0	-545.6	2,315.8	480,668.18	631,723.79		32° 19' 15.924 N	104° 2' 26.627 W
13,000.0	90.00	89.09	10,455.0	-544.0	2,415.8	480,669.77	631,823.78		32° 19' 15.937 N	104° 2' 25.462 W
13,100.0	90.00	89.09	10,455.0	-542.4	2,515.8	480,671.36	631,923.76		32° 19' 15.950 N	104° 2' 24.296 W
13,200.0	90.00	89.09	10,455.0	-540.8	2,615.8	480,672.95	632,023.75		32° 19' 15.963 N	104° 2' 23.131 W
13,300.0	90.00	89.09	10,455.0	-539.2	2,715.8	480,674.54	632,123.74		32° 19' 15.976 N	104° 2' 21.966 W
13,400.0	90.00	89.09	10,455.0	-537.6	2,815.8	480,676.13	632,223.72		32° 19' 15.989 N	104° 2' 20.800 W
13,500.0	90.00	89.09	10,455.0	-536.0	2,915.8	480,677.72	632,323.71		32° 19' 16.002 N	104° 2' 19.635 W
13,600.0	90.00	89.09	10,455.0	-534.5	3,015.8	480,679.30	632,423.70		32° 19' 16.015 N	104° 2' 18.470 W
13,700.0	90.00	89.09	10,455.0	-532.9	3,115.7	480,680.89	632,523.69		32° 19' 16.028 N	104° 2' 17.305 W
13,800.0	90.00	89.09	10,455.0	-531.3	3,215.7	480,682.48	632,623.67		32° 19' 16.041 N	104° 2' 16.139 W
13,900.0	90.00	89.09	10,455.0	-529.7	3,315.7	480,684.07	632,723.66		32° 19' 16.054 N	104° 2' 14.974 W
14,000.0	90.00	89.09	10,455.0	-528.1	3,415.7	480,685.66	632,823.65		32° 19' 16.067 N	104° 2' 13.809 W
14,100.0	90.00	89.09	10,455.0	-526.5	3,515.7	480,687.25	632,923.64		32° 19' 16.080 N	104° 2' 12.643 W
14,200.0	90.00	89.09	10,455.0	-524.9	3,615.7	480,688.84	633,023.62		32° 19' 16.093 N	104° 2' 11.478 W
14,300.0	90.00	89.09	10,455.0	-523.3	3,715.7	480,690.43	633,123.61		32° 19' 16.106 N	104° 2' 10.313 W
14,400.0	90.00	89.09	10,455.0	-521.7	3,815.7	480,692.02	633,223.60		32° 19' 16.119 N	104° 2' 9.147 W
14,500.0	90.00	89.09	10,455.0	-520.2	3,915.6	480,693.60	633,323.59		32° 19' 16.132 N	104° 2' 7.982 W
14,557.1	90.00	89.09	10,455.0	-519.2	3,972.7	480,694.51	633,380.64		32° 19' 16.139 N	104° 2' 7.317 W
Start DLS 8.00 TFO -90.00										
14,600.0	90.00	85.65	10,455.0	-517.3	4,015.6	480,696.48	633,423.53		32° 19' 16.158 N	104° 2' 6.817 W
14,650.0	90.00	81.65	10,455.0	-511.8	4,065.3	480,702.00	633,473.21		32° 19' 16.211 N	104° 2' 6.238 W
14,700.0	90.00	77.65	10,455.0	-502.8	4,114.4	480,710.98	633,522.39		32° 19' 16.298 N	104° 2' 5.665 W
14,750.0	90.00	73.65	10,455.0	-490.4	4,162.9	480,723.37	633,570.82		32° 19' 16.420 N	104° 2' 5.100 W
14,800.0	90.00	69.65	10,455.0	-474.7	4,210.3	480,739.10	633,618.27		32° 19' 16.574 N	104° 2' 4.546 W
14,850.0	90.00	65.65	10,455.0	-455.7	4,256.6	480,758.11	633,664.50		32° 19' 16.761 N	104° 2' 4.007 W
14,900.0	90.00	61.65	10,455.0	-433.5	4,301.4	480,780.29	633,709.30		32° 19' 16.979 N	104° 2' 3.484 W
14,950.0	90.00	57.65	10,455.0	-408.2	4,344.5	480,805.55	633,752.44		32° 19' 17.228 N	104° 2' 2.981 W
15,000.0	90.00	53.65	10,455.0	-380.0	4,385.8	480,833.75	633,793.72		32° 19' 17.506 N	104° 2' 2.499 W
15,050.0	90.00	49.65	10,455.0	-349.0	4,425.0	480,864.76	633,832.92		32° 19' 17.812 N	104° 2' 2.041 W
15,100.0	90.00	45.65	10,455.0	-315.3	4,461.9	480,898.43	633,869.87		32° 19' 18.144 N	104° 2' 1.609 W
15,150.0	90.00	41.65	10,455.0	-279.2	4,496.4	480,934.60	633,904.38		32° 19' 18.501 N	104° 2' 1.206 W
15,200.0	90.00	37.65	10,455.0	-240.7	4,528.3	480,973.09	633,936.28		32° 19' 18.881 N	104° 2' 0.833 W
15,250.0	90.00	33.65	10,455.0	-200.1	4,557.5	481,013.71	633,965.42		32° 19' 19.282 N	104° 2' 0.492 W
15,300.0	90.00	29.65	10,455.0	-157.5	4,583.7	481,056.26	633,991.66		32° 19' 19.702 N	104° 2' 0.185 W
15,350.0	90.00	25.65	10,455.0	-113.2	4,606.9	481,100.54	634,014.86		32° 19' 20.140 N	104° 1' 59.913 W
15,400.0	90.00	21.65	10,455.0	-67.4	4,627.0	481,146.33	634,034.92		32° 19' 20.592 N	104° 1' 59.677 W
15,450.0	90.00	17.65	10,455.0	-20.4	4,643.8	481,193.41	634,051.73		32° 19' 21.058 N	104° 1' 59.480 W
15,500.0	90.00	13.65	10,455.0	27.8	4,657.3	481,241.54	634,065.22		32° 19' 21.534 N	104° 1' 59.321 W
15,550.0	90.00	9.65	10,455.0	76.7	4,667.4	481,290.50	634,075.32		32° 19' 22.018 N	104° 1' 59.202 W
15,600.0	90.00	5.65	10,455.0	126.3	4,674.0	481,340.05	634,081.98		32° 19' 22.508 N	104° 1' 59.123 W
15,650.0	90.00	1.65	10,455.0	176.2	4,677.2	481,389.93	634,085.16		32° 19' 23.002 N	104° 1' 59.084 W
15,665.2	90.00	0.44	10,455.0	191.4	4,677.5	481,405.17	634,085.44		32° 19' 23.152 N	104° 1' 59.080 W
Start 328.4 hold at 15665.2 MD										
15,700.0	90.00	0.44	10,455.0	226.2	4,677.8	481,439.93	634,085.71		32° 19' 23.496 N	104° 1' 59.076 W
15,800.0	90.00	0.44	10,455.0	326.2	4,678.5	481,539.93	634,086.47		32° 19' 24.486 N	104° 1' 59.064 W
15,900.0	90.00	0.44	10,455.0	426.2	4,679.3	481,639.93	634,087.23		32° 19' 25.475 N	104° 1' 59.052 W
15,933.0	90.00	0.44	10,455.0	459.1	4,679.5	481,672.89	634,087.48		32° 19' 25.802 N	104° 1' 59.048 W
NNNM 091078 Entry at 15933.0 MD										
15,993.6	90.00	0.44	10,455.0	519.8	4,680.0	481,733.57	634,087.94		32° 19' 26.402 N	104° 1' 59.040 W
Start DLS 8.00 TFO -90.00										

Database:	Compass_17	Local Co-ordinate Reference	Well RANA PICANTE 12 FED COM 413H
Company:	NEW MEXICO	TVD Reference:	KB @ 3036.0usft
Project:	(SP) EDDY	MD Reference:	KB @ 3036.0usft
Site:	RANA PICANTE	North Reference:	Grid
Well:	RANA PICANTE 12 FED COM 413H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	PWP0		

Planned Survey										
Measured			Vertical			Map		Map		
Depth	Inclination	Azimuth	Depth	+N/-S	+E/-W	Northing	Easting		Latitude	Longitude
(usft)	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)			
16,000.0	90.00	359.93	10,455.0	526.2	4,680.0	481,739.92	634,087.96		32° 19' 26.465 N	104° 1' 59.040 W
16,050.0	90.00	355.93	10,455.0	576.1	4,678.2	481,789.88	634,086.16		32° 19' 26.959 N	104° 1' 59.059 W
16,100.0	90.00	351.93	10,455.0	625.8	4,672.9	481,839.59	634,080.87		32° 19' 27.451 N	104° 1' 59.119 W
16,150.0	90.00	347.93	10,455.0	675.0	4,664.2	481,888.81	634,072.13		32° 19' 27.939 N	104° 1' 59.220 W
16,200.0	90.00	343.93	10,455.0	723.5	4,652.0	481,937.30	634,059.97		32° 19' 28.419 N	104° 1' 59.360 W
16,250.0	90.00	339.93	10,455.0	771.1	4,636.5	481,984.82	634,044.46		32° 19' 28.890 N	104° 1' 59.539 W
16,300.0	90.00	335.93	10,455.0	817.4	4,617.7	482,031.15	634,025.68		32° 19' 29.349 N	104° 1' 59.756 W
16,350.0	90.00	331.93	10,455.0	862.3	4,595.8	482,076.05	634,003.71		32° 19' 29.794 N	104° 2' 0.011 W
16,400.0	90.00	327.93	10,455.0	905.6	4,570.7	482,119.31	633,978.66		32° 19' 30.222 N	104° 2' 0.301 W
16,450.0	90.00	323.93	10,455.0	947.0	4,542.7	482,160.72	633,950.65		32° 19' 30.633 N	104° 2' 0.626 W
16,500.0	90.00	319.93	10,455.0	986.3	4,511.9	482,200.07	633,919.83		32° 19' 31.023 N	104° 2' 0.984 W
16,550.0	90.00	315.93	10,455.0	1,023.4	4,478.4	482,237.18	633,886.33		32° 19' 31.391 N	104° 2' 1.374 W
16,600.0	90.00	311.93	10,455.0	1,058.1	4,442.4	482,271.86	633,850.33		32° 19' 31.735 N	104° 2' 1.792 W
16,650.0	90.00	307.93	10,455.0	1,090.2	4,404.0	482,303.95	633,811.99		32° 19' 32.054 N	104° 2' 2.238 W
16,700.0	90.00	303.93	10,455.0	1,119.5	4,363.6	482,333.28	633,771.51		32° 19' 32.345 N	104° 2' 2.709 W
16,750.0	90.00	299.93	10,455.0	1,146.0	4,321.1	482,359.72	633,729.08		32° 19' 32.608 N	104° 2' 3.202 W
16,800.0	90.00	295.93	10,455.0	1,169.4	4,277.0	482,383.13	633,684.92		32° 19' 32.841 N	104° 2' 3.716 W
16,850.0	90.00	291.93	10,455.0	1,189.6	4,231.3	482,403.40	633,639.22		32° 19' 33.043 N	104° 2' 4.248 W
16,900.0	90.00	287.93	10,455.0	1,206.7	4,184.3	482,420.44	633,592.23		32° 19' 33.213 N	104° 2' 4.795 W
16,950.0	90.00	283.93	10,455.0	1,220.4	4,136.2	482,434.16	633,544.15		32° 19' 33.350 N	104° 2' 5.355 W
17,000.0	90.00	279.93	10,455.0	1,230.7	4,087.3	482,444.49	633,495.24		32° 19' 33.454 N	104° 2' 5.925 W
17,050.0	90.00	275.93	10,455.0	1,237.6	4,037.8	482,451.39	633,445.73		32° 19' 33.523 N	104° 2' 6.502 W
17,100.0	90.00	271.93	10,455.0	1,241.1	3,987.9	482,454.81	633,395.86		32° 19' 33.558 N	104° 2' 7.083 W
17,135.7	90.00	269.07	10,455.0	1,241.4	3,952.2	482,455.12	633,360.14		32° 19' 33.562 N	104° 2' 7.499 W
Start 4205.4 hold at 17135.7 MD										
17,200.0	90.00	269.07	10,455.0	1,240.3	3,887.9	482,454.08	633,295.87		32° 19' 33.554 N	104° 2' 8.248 W
17,300.0	90.00	269.07	10,455.0	1,238.7	3,787.9	482,452.45	633,195.89		32° 19' 33.541 N	104° 2' 9.413 W
17,400.0	90.00	269.07	10,455.0	1,237.1	3,688.0	482,450.83	633,095.90		32° 19' 33.527 N	104° 2' 10.579 W
17,500.0	90.00	269.07	10,455.0	1,235.4	3,588.0	482,449.21	632,995.91		32° 19' 33.514 N	104° 2' 11.744 W
17,600.0	90.00	269.07	10,455.0	1,233.8	3,488.0	482,447.59	632,895.93		32° 19' 33.501 N	104° 2' 12.909 W
17,700.0	90.00	269.07	10,455.0	1,232.2	3,388.0	482,445.96	632,795.94		32° 19' 33.487 N	104° 2' 14.075 W
17,800.0	90.00	269.07	10,455.0	1,230.6	3,288.0	482,444.34	632,695.95		32° 19' 33.474 N	104° 2' 15.240 W
17,900.0	90.00	269.07	10,455.0	1,229.0	3,188.0	482,442.72	632,595.97		32° 19' 33.461 N	104° 2' 16.406 W
18,000.0	90.00	269.07	10,455.0	1,227.3	3,088.0	482,441.09	632,495.98		32° 19' 33.447 N	104° 2' 17.571 W
18,100.0	90.00	269.07	10,455.0	1,225.7	2,988.0	482,439.47	632,395.99		32° 19' 33.434 N	104° 2' 18.736 W
18,200.0	90.00	269.07	10,455.0	1,224.1	2,888.1	482,437.85	632,296.00		32° 19' 33.421 N	104° 2' 19.902 W
18,300.0	90.00	269.07	10,455.0	1,222.5	2,788.1	482,436.22	632,196.02		32° 19' 33.407 N	104° 2' 21.067 W
18,400.0	90.00	269.07	10,455.0	1,220.8	2,688.1	482,434.60	632,096.03		32° 19' 33.394 N	104° 2' 22.232 W
18,500.0	90.00	269.07	10,455.0	1,219.2	2,588.1	482,432.98	631,996.04		32° 19' 33.381 N	104° 2' 23.398 W
18,600.0	90.00	269.07	10,455.0	1,217.6	2,488.1	482,431.35	631,896.06		32° 19' 33.367 N	104° 2' 24.563 W
18,700.0	90.00	269.07	10,455.0	1,216.0	2,388.1	482,429.73	631,796.07		32° 19' 33.354 N	104° 2' 25.728 W
18,800.0	90.00	269.07	10,455.0	1,214.3	2,288.1	482,428.11	631,696.08		32° 19' 33.341 N	104° 2' 26.894 W
18,900.0	90.00	269.07	10,455.0	1,212.7	2,188.2	482,426.49	631,596.10		32° 19' 33.327 N	104° 2' 28.059 W
19,000.0	90.00	269.07	10,455.0	1,211.1	2,088.2	482,424.86	631,496.11		32° 19' 33.314 N	104° 2' 29.225 W
19,100.0	90.00	269.07	10,455.0	1,209.5	1,988.2	482,423.24	631,396.12		32° 19' 33.300 N	104° 2' 30.390 W
19,200.0	90.00	269.07	10,455.0	1,207.9	1,888.2	482,421.62	631,296.14		32° 19' 33.287 N	104° 2' 31.555 W
19,300.0	90.00	269.07	10,455.0	1,206.2	1,788.2	482,419.99	631,196.15		32° 19' 33.274 N	104° 2' 32.721 W
19,400.0	90.00	269.07	10,455.0	1,204.6	1,688.2	482,418.37	631,096.16		32° 19' 33.260 N	104° 2' 33.886 W
19,500.0	90.00	269.07	10,455.0	1,203.0	1,588.2	482,416.75	630,996.18		32° 19' 33.247 N	104° 2' 35.051 W
19,600.0	90.00	269.07	10,455.0	1,201.4	1,488.2	482,415.12	630,896.19		32° 19' 33.234 N	104° 2' 36.217 W
19,700.0	90.00	269.07	10,455.0	1,199.7	1,388.3	482,413.50	630,796.20		32° 19' 33.220 N	104° 2' 37.382 W
19,800.0	90.00	269.07	10,455.0	1,198.1	1,288.3	482,411.88	630,696.22		32° 19' 33.207 N	104° 2' 38.547 W
19,900.0	90.00	269.07	10,455.0	1,196.5	1,188.3	482,410.25	630,596.23		32° 19' 33.193 N	104° 2' 39.713 W
20,000.0	90.00	269.07	10,455.0	1,194.9	1,088.3	482,408.63	630,496.24		32° 19' 33.180 N	104° 2' 40.878 W

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Database:	Compass_17	Local Co-ordinate Reference	Well RANA PICANTE 12 FED COM 413H
Company:	NEW MEXICO	TVD Reference:	KB @ 3036.0usft
Project:	(SP) EDDY	MD Reference:	KB @ 3036.0usft
Site:	RANA PICANTE	North Reference:	Grid
Well:	RANA PICANTE 12 FED COM 413H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	PWP0		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
20,100.0	90.00	269.07	10,455.0	1,193.2	988.3	482,407.01	630,396.25	32° 19' 33.167 N	104° 2' 42.043 W	
20,200.0	90.00	269.07	10,455.0	1,191.6	888.3	482,405.38	630,296.27	32° 19' 33.153 N	104° 2' 43.209 W	
20,300.0	90.00	269.07	10,455.0	1,190.0	788.3	482,403.76	630,196.28	32° 19' 33.140 N	104° 2' 44.374 W	
20,400.0	90.00	269.07	10,455.0	1,188.4	688.4	482,402.14	630,096.29	32° 19' 33.126 N	104° 2' 45.540 W	
20,500.0	90.00	269.07	10,455.0	1,186.8	588.4	482,400.52	629,996.31	32° 19' 33.113 N	104° 2' 46.705 W	
20,600.0	90.00	269.07	10,455.0	1,185.1	488.4	482,398.89	629,896.32	32° 19' 33.100 N	104° 2' 47.870 W	
20,700.0	90.00	269.07	10,455.0	1,183.5	388.4	482,397.27	629,796.33	32° 19' 33.086 N	104° 2' 49.036 W	
20,800.0	90.00	269.07	10,455.0	1,181.9	288.4	482,395.65	629,696.35	32° 19' 33.073 N	104° 2' 50.201 W	
20,900.0	90.00	269.07	10,455.0	1,180.3	188.4	482,394.02	629,596.36	32° 19' 33.059 N	104° 2' 51.366 W	
21,000.0	90.00	269.07	10,455.0	1,178.6	88.4	482,392.40	629,496.37	32° 19' 33.046 N	104° 2' 52.532 W	
21,100.0	90.00	269.07	10,455.0	1,177.0	-11.6	482,390.78	629,396.39	32° 19' 33.032 N	104° 2' 53.697 W	
21,200.0	90.00	269.07	10,455.0	1,175.4	-111.5	482,389.15	629,296.40	32° 19' 33.019 N	104° 2' 54.862 W	
21,300.0	90.00	269.07	10,455.0	1,173.8	-211.5	482,387.53	629,196.41	32° 19' 33.006 N	104° 2' 56.028 W	
21,341.1	90.00	269.07	10,455.0	1,172.9	-252.6	482,386.70	629,155.31	32° 19' 32.998 N	104° 2' 56.507 W	
TD at 21341.1										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
END U TURN TGT RP 4 - plan hits target center - Point	0.00	0.00	10,455.0	1,241.4	3,952.2	482,455.12	633,360.14	32° 19' 33.562 N	104° 2' 7.499 W	
LTP/BHL RP 413H - plan hits target center - Point	0.00	0.00	10,455.0	1,172.9	-252.6	482,386.70	629,155.31	32° 19' 32.998 N	104° 2' 56.507 W	
FTP RP12FC 413H - plan misses target center by 177.0usft at 10402.6usft MD (10324.1 TVD, -584.7 N, -147.5 E) - Point	0.00	0.00	10,455.0	-587.1	-266.5	480,626.67	629,141.42	32° 19' 15.582 N	104° 2' 56.723 W	
START U TURN TGT RF - plan hits target center - Point	0.00	0.00	10,455.0	-519.2	3,972.7	480,694.51	633,380.64	32° 19' 16.139 N	104° 2' 7.317 W	

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Comment	
3,000.0	3,000.0	0.0	0.0	Start Build 2.00	
3,330.9	3,330.2	-17.0	-8.6	Start 5375.5 hold at 3330.9 MD	
8,706.4	8,669.8	-570.0	-287.9	Start Drop -2.00	
9,037.3	9,000.0	-587.1	-296.5	Start 977.5 hold at 9037.3 MD	
10,014.8	9,977.5	-587.1	-296.5	Start DLS 12.00 TFO 89.09	
10,764.8	10,455.0	-579.5	180.9	Start 3792.3 hold at 10764.8 MD	
14,557.1	10,455.0	-519.2	3,972.7	Start DLS 8.00 TFO -90.00	
15,665.2	10,455.0	191.4	4,677.5	Start 328.4 hold at 15665.2 MD	
15,933.0	10,455.0	459.1	4,679.5	NMNM 091078 Entry at 15933.0 MD	
15,993.6	10,455.0	519.8	4,680.0	Start DLS 8.00 TFO -90.00	
17,135.7	10,455.0	1,241.4	3,952.2	Start 4205.4 hold at 17135.7 MD	
21,341.1	10,455.0	1,172.9	-252.6	TD at 21341.1	

PERMIAN

R E S O U R C E S

NEW MEXICO

(SP) EDDY

RANA PICANTE

RANA PICANTE 12 FED COM 413H

OWB

PWP0

Anticollision Report

09 August, 2024

Company:	NEW MEXICO	Local Co-ordinate Reference	Well RANA PICANTE 12 FED COM 413H
Project:	(SP) EDDY	TVD Reference:	KB @ 3036.0usft
Reference Site:	RANA PICANTE	MD Reference:	KB @ 3036.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	RANA PICANTE 12 FED COM 413H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass_17
Reference Design:	PWP0	Offset TVD Reference:	Offset Datum

Reference	PWP0		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method	Stations	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum centre distance of 1,000.0usft	Error Surface:	Pedal Curve
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program		Date	8/9/2024		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.0	21,340.6	PWP0 (OWB)	MWD	OWSG_Rev2_ MWD - Standard	

Summary						
Site Name	Reference Measure	Offset Measure	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation	Warning
Offset Well - Wellbore - Design						
RANA PICANTE						
RANA PICANTE 12 FED COM 112H - OWB - PWP0	3,339.1	3,354.9	32.1	8.4	1.356	Level 3, CC, ES, SF
RANA PICANTE 12 FED COM 122H - OWB - PWP0	2,329.2	2,337.7	62.9	46.4	3.818	CC, ES
RANA PICANTE 12 FED COM 122H - OWB - PWP0	6,500.0	6,518.4	98.4	51.1	2.080	SF
RANA PICANTE 12 FED COM 162H - OWB - PWP0	2,566.3	2,569.9	22.0	3.9	1.217	Level 3, CC
RANA PICANTE 12 FED COM 162H - OWB - PWP0	8,400.0	8,420.1	63.3	2.7	1.044	Level 3, ES, SF
RANA PICANTE 12 FED COM 171H - OWB - PWP0	2,039.2	2,039.6	89.3	74.9	6.213	CC
RANA PICANTE 12 FED COM 171H - OWB - PWP0	2,100.0	2,100.0	89.5	74.7	6.046	ES
RANA PICANTE 12 FED COM 171H - OWB - PWP0	2,200.0	2,198.9	91.1	75.6	5.875	SF
RANA PICANTE 12 FED COM 412H - OWB - PWP0	1,800.0	1,799.0	30.0	17.3	2.362	CC, ES
RANA PICANTE 12 FED COM 412H - OWB - PWP0	15,700.0	15,076.0	203.9	17.9	1.096	Level 3, SF

Offset Design	RANA PICANTE - RANA PICANTE 12 FED COM 112H - OWB - PWP0										Offset Site Error:	0.0 usft
Survey Program:	O-MWD										Offset Well Error:	0.0 usft
Reference	Offset	Semi Major Axis	Highside	Offset Wellbore Centre	Distance	Rule Assigned:	Minimum	Separation	Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Separation (usft)	Factor
0.0	0.0	0.6	0.6	0.0	0.0	0.46	149.9	1.2	149.9			
100.0	100.0	100.6	100.6	0.3	0.3	0.46	149.9	1.2	149.9	149.4	0.50	297.483
200.0	200.0	200.6	200.6	0.6	0.6	0.46	149.9	1.2	149.9	148.7	1.22	122.801
300.0	300.0	300.6	300.6	1.0	1.0	0.46	149.9	1.2	149.9	148.0	1.94	77.370
400.0	400.0	400.6	400.6	1.3	1.3	0.46	149.9	1.2	149.9	147.3	2.65	56.476
500.0	500.0	500.6	500.6	1.7	1.7	0.46	149.9	1.2	149.9	146.6	3.37	44.468
600.0	600.0	600.6	600.6	2.0	2.0	0.46	149.9	1.2	149.9	145.8	4.09	36.670
700.0	700.0	700.6	700.6	2.4	2.4	0.46	149.9	1.2	149.9	145.1	4.81	31.200
800.0	800.0	800.6	800.6	2.8	2.8	0.46	149.9	1.2	149.9	144.4	5.52	27.149
900.0	900.0	900.6	900.6	3.1	3.1	0.46	149.9	1.2	149.9	143.7	6.24	24.030
1,000.0	1,000.0	1,000.6	1,000.6	3.5	3.5	0.46	149.9	1.2	149.9	143.0	6.96	21.553
1,100.0	1,100.0	1,100.6	1,100.6	3.8	3.8	0.46	149.9	1.2	149.9	142.3	7.67	19.539
1,200.0	1,200.0	1,200.6	1,200.6	4.2	4.2	0.46	149.9	1.2	149.9	141.5	8.39	17.870
1,300.0	1,300.0	1,300.6	1,300.6	4.6	4.6	0.46	149.9	1.2	149.9	140.8	9.11	16.463
1,400.0	1,400.0	1,400.6	1,400.6	4.9	4.9	0.46	149.9	1.2	149.9	140.1	9.82	15.262
1,500.0	1,500.0	1,500.6	1,500.6	5.3	5.3	0.46	149.9	1.2	149.9	139.4	10.54	14.224

Company:	NEW MEXICO	Local Co-ordinate Reference	Well RANA PICANTE 12 FED COM 413H
Project:	(SP) EDDY	TVD Reference:	KB @ 3036.0usft
Reference Site:	RANA PICANTE	MD Reference:	KB @ 3036.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	RANA PICANTE 12 FED COM 413H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass_17
Reference Design:	PWP0	Offset TVD Reference:	Offset Datum

Offset Design RANA PICANTE - RANA PICANTE 12 FED COM 112H - OWB - PWP0													Offset Site Error:	0.0 usft
Survey Program: O-MWD													Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
1,600.0	1,600.0	1,600.6	1,600.6	5.6	5.6	0.46	149.9	1.2	149.9	138.7	11.26	13.318		
1,700.0	1,700.0	1,700.6	1,700.6	6.0	6.0	0.46	149.9	1.2	149.9	138.0	11.98	12.521		
1,800.0	1,800.0	1,800.6	1,800.6	6.3	6.3	0.46	149.9	1.2	149.9	137.2	12.69	11.813		
1,900.0	1,900.0	1,900.6	1,900.6	6.7	6.7	0.46	149.9	1.2	149.9	136.5	13.41	11.182		
2,000.0	2,000.0	2,000.6	2,000.6	7.1	7.1	0.46	149.9	1.2	149.9	135.8	14.13	10.614		
2,100.0	2,100.0	2,100.6	2,100.6	7.4	7.4	0.46	149.9	1.2	149.9	135.1	14.84	10.101		
2,200.0	2,200.0	2,200.6	2,200.6	7.8	7.8	0.46	149.9	1.2	149.9	134.4	15.56	9.636		
2,300.0	2,300.0	2,300.6	2,300.6	8.1	8.1	0.46	149.9	1.2	149.9	133.7	16.28	9.212		
2,400.0	2,400.0	2,405.9	2,405.9	8.5	8.5	0.28	148.0	0.7	148.1	131.1	16.98	8.722		
2,500.0	2,500.0	2,511.0	2,510.8	8.9	8.8	-0.29	142.4	-0.7	142.8	125.1	17.66	8.087		
2,600.0	2,600.0	2,615.4	2,614.8	9.2	9.2	-1.33	133.1	-3.1	133.9	115.6	18.31	7.314		
2,700.0	2,700.0	2,719.0	2,717.5	9.6	9.5	-3.02	120.3	-6.3	121.6	102.7	18.94	6.422		
2,800.0	2,800.0	2,821.6	2,818.7	9.9	9.9	-5.75	104.0	-10.5	106.1	86.6	19.56	5.426		
2,900.0	2,900.0	2,922.8	2,917.9	10.3	10.2	-10.34	84.6	-15.4	87.7	67.5	20.17	4.348		
3,000.0	3,000.0	3,022.0	3,014.4	10.6	10.6	-18.72	62.3	-21.1	67.2	46.4	20.85	3.225		
3,100.0	3,100.0	3,119.4	3,108.9	11.0	11.0	120.98	39.5	-26.9	49.4	27.7	21.67	2.278		
3,200.0	3,199.8	3,217.5	3,204.1	11.3	11.4	101.01	16.5	-32.8	37.5	15.0	22.56	1.663		
3,300.0	3,299.5	3,316.2	3,299.9	11.6	11.8	76.32	-6.7	-38.7	32.4	9.1	23.39	1.387 Level 3		
3,330.9	3,330.2	3,346.8	3,329.6	11.7	11.9	68.82	-13.8	-40.5	32.1	8.5	23.60	1.360 Level 3		
3,339.1	3,338.3	3,354.9	3,337.4	11.8	11.9	66.90	-15.7	-41.0	32.1	8.4	23.65	1.356 Level 3, CC, ES, SF		
3,400.0	3,398.8	3,415.3	3,396.0	12.0	12.2	52.79	-29.9	-44.6	33.1	9.1	23.98	1.379 Level 3		
3,500.0	3,498.1	3,514.4	3,492.2	12.3	12.6	33.31	-53.1	-50.5	38.6	14.1	24.45	1.579		
3,600.0	3,597.5	3,613.5	3,588.3	12.6	13.0	19.78	-76.4	-56.4	47.3	22.4	24.95	1.897		
3,700.0	3,696.8	3,712.6	3,684.5	13.0	13.4	10.78	-99.6	-62.3	57.9	32.3	25.53	2.267		
3,800.0	3,796.1	3,811.7	3,780.7	13.3	13.9	4.63	-122.8	-68.3	69.4	43.2	26.16	2.652		
3,900.0	3,895.5	3,910.8	3,876.8	13.7	14.3	0.26	-146.1	-74.2	81.5	54.6	26.82	3.037		
4,000.0	3,994.8	4,009.9	3,973.0	14.0	14.8	-2.97	-169.3	-80.1	93.9	66.4	27.50	3.414		
4,100.0	4,094.1	4,109.0	4,069.1	14.4	15.2	-5.44	-192.5	-86.0	106.5	78.3	28.19	3.779		
4,200.0	4,193.5	4,208.1	4,165.3	14.7	15.7	-7.38	-215.8	-91.9	119.3	90.4	28.88	4.131		
4,300.0	4,292.8	4,307.2	4,261.5	15.1	16.2	-8.95	-239.0	-97.9	132.2	102.6	29.59	4.469		
4,400.0	4,392.1	4,406.4	4,357.6	15.5	16.6	-10.24	-262.2	-103.8	145.2	114.9	30.30	4.793		
4,500.0	4,491.5	4,505.5	4,453.8	15.8	17.1	-11.32	-285.5	-109.7	158.3	127.2	31.01	5.103		
4,600.0	4,590.8	4,604.6	4,550.0	16.2	17.6	-12.23	-308.7	-115.6	171.3	139.6	31.72	5.401		
4,700.0	4,690.1	4,703.7	4,646.1	16.6	18.0	-13.01	-331.9	-121.5	184.5	152.0	32.44	5.686		
4,800.0	4,789.5	4,802.8	4,742.3	16.9	18.5	-13.69	-355.2	-127.4	197.6	164.5	33.17	5.959		
4,900.0	4,888.8	4,901.9	4,838.4	17.3	19.0	-14.28	-378.4	-133.4	210.8	176.9	33.89	6.221		
5,000.0	4,988.1	5,001.0	4,934.6	17.7	19.5	-14.81	-401.6	-139.3	224.0	189.4	34.62	6.472		
5,100.0	5,087.5	5,100.1	5,030.8	18.1	20.0	-15.27	-424.9	-145.2	237.2	201.9	35.34	6.712		
5,200.0	5,186.8	5,199.2	5,126.9	18.4	20.5	-15.69	-448.1	-151.1	250.5	214.4	36.07	6.943		
5,300.0	5,286.1	5,298.3	5,223.1	18.8	20.9	-16.06	-471.3	-157.0	263.7	226.9	36.81	7.165		
5,400.0	5,385.5	5,397.4	5,319.2	19.2	21.4	-16.40	-494.6	-162.9	277.0	239.4	37.54	7.378		
5,500.0	5,484.8	5,502.8	5,421.7	19.6	22.0	-16.74	-518.6	-169.1	289.6	251.2	38.40	7.542		
5,600.0	5,584.1	5,613.7	5,530.3	20.0	22.5	-17.12	-540.3	-174.6	298.8	259.5	39.32	7.600		
5,700.0	5,683.5	5,725.3	5,640.3	20.3	23.0	-17.56	-558.0	-179.1	304.2	264.0	40.18	7.569		
5,800.0	5,782.8	5,837.1	5,751.3	20.7	23.4	-18.05	-571.6	-182.5	305.6	264.7	41.00	7.455		
5,900.0	5,882.1	5,948.8	5,862.6	21.1	23.8	-18.63	-580.9	-184.9	303.3	261.5	41.76	7.263		
6,000.0	5,981.5	6,060.2	5,973.8	21.5	24.2	-19.32	-586.0	-186.2	297.1	254.6	42.45	6.997		
6,100.0	6,080.8	6,167.8	6,081.4	21.9	24.6	-20.12	-587.1	-186.5	287.2	244.1	43.11	6.661		
6,200.0	6,180.1	6,267.1	6,180.7	22.3	24.8	-20.94	-587.1	-186.5	276.4	232.6	43.82	6.308		
6,300.0	6,279.5	6,366.5	6,280.1	22.6	25.1	-21.82	-587.1	-186.5	265.7	221.1	44.53	5.966		
6,400.0	6,378.8	6,465.8	6,379.4	23.0	25.4	-22.79	-587.1	-186.5	255.0	209.7	45.24	5.636		

Company:	NEW MEXICO	Local Co-ordinate Reference	Well RANA PICANTE 12 FED COM 413H
Project:	(SP) EDDY	TVD Reference:	KB @ 3036.0usft
Reference Site:	RANA PICANTE	MD Reference:	KB @ 3036.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	RANA PICANTE 12 FED COM 413H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass_17
Reference Design:	PWP0	Offset TVD Reference:	Offset Datum

Offset Design RANA PICANTE - RANA PICANTE 12 FED COM 112H - OWB - PWP0												Offset Site Error:	0.0 usft
Survey Program: O-MWD												Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
							+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
6,500.0	6,478.1	6,565.1	6,478.7	23.4	25.7	-23.83	-587.1	-186.5	244.4	198.4	45.96	5.317	
6,600.0	6,577.5	6,664.5	6,578.1	23.8	26.0	-24.97	-587.1	-186.5	233.9	187.2	46.69	5.009	
6,700.0	6,676.8	6,763.8	6,677.4	24.2	26.3	-26.22	-587.1	-186.5	223.5	176.0	47.42	4.712	
6,800.0	6,776.1	6,863.1	6,776.7	24.6	26.6	-27.58	-587.1	-186.5	213.2	165.0	48.16	4.426	
6,900.0	6,875.5	6,962.5	6,876.1	25.0	26.9	-29.09	-587.1	-186.5	203.0	154.1	48.92	4.150	
7,000.0	6,974.8	7,058.6	6,971.6	25.4	27.2	-33.45	-586.9	-177.1	193.7	143.9	49.82	3.889	
7,085.8	7,060.0	7,134.1	7,044.1	25.7	27.4	-41.05	-586.6	-156.5	190.0	139.2	50.76	3.743	
7,100.0	7,074.1	7,145.7	7,055.0	25.7	27.4	-42.53	-586.6	-152.3	190.1	139.2	50.90	3.736	
7,200.0	7,173.5	7,220.4	7,121.8	26.1	27.6	-53.40	-586.0	-119.2	200.3	149.1	51.18	3.914	
7,300.0	7,272.8	7,282.1	7,172.7	26.5	27.7	-63.24	-585.5	-84.3	229.8	180.2	49.64	4.630	
7,400.0	7,372.1	7,332.5	7,210.6	26.9	27.8	-70.91	-585.0	-51.1	277.7	230.9	46.80	5.934	
7,500.0	7,471.5	7,375.0	7,239.7	27.3	27.8	-76.75	-584.5	-20.2	339.5	295.6	43.86	7.739	
7,600.0	7,570.8	7,407.1	7,259.8	27.7	27.9	-80.68	-584.1	4.9	410.9	369.8	41.08	10.002	
7,700.0	7,670.2	7,434.9	7,275.7	28.1	27.9	-83.73	-583.7	27.5	488.9	450.0	38.89	12.570	
7,800.0	7,769.5	7,458.0	7,288.0	28.5	27.9	-86.03	-583.4	47.2	571.5	534.4	37.16	15.382	
7,900.0	7,868.8	7,475.0	7,296.4	28.9	27.9	-87.59	-583.2	61.9	657.5	621.8	35.67	18.432	
8,000.0	7,968.2	7,500.0	7,307.9	29.3	27.9	-89.70	-582.9	84.1	746.0	711.1	34.95	21.347	
8,100.0	8,067.5	7,508.5	7,311.5	29.7	27.9	-90.36	-582.7	91.9	836.3	802.4	33.88	24.686	
8,200.0	8,166.8	7,525.0	7,318.1	30.1	27.9	-91.59	-582.5	106.9	928.1	894.7	33.35	27.828	

Company:	NEW MEXICO	Local Co-ordinate Reference	Well RANA PICANTE 12 FED COM 413H
Project:	(SP) EDDY	TVD Reference:	KB @ 3036.0usft
Reference Site:	RANA PICANTE	MD Reference:	KB @ 3036.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	RANA PICANTE 12 FED COM 413H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass_17
Reference Design:	PWP0	Offset TVD Reference:	Offset Datum

Offset Design RANA PICANTE - RANA PICANTE 12 FED COM 122H - OWB - PWP0													Offset Site Error:	0.0 usft
Survey Program: O-MWD													Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
0.0	0.0	0.8	0.8	0.0	0.0	0.45	120.0	0.9	120.0					
100.0	100.0	100.8	100.8	0.3	0.3	0.45	120.0	0.9	120.0	119.5	0.50	237.699		
200.0	200.0	200.8	200.8	0.6	0.6	0.45	120.0	0.9	120.0	118.8	1.22	98.205		
300.0	300.0	300.8	300.8	1.0	1.0	0.45	120.0	0.9	120.0	118.0	1.94	61.886		
400.0	400.0	400.8	400.8	1.3	1.3	0.45	120.0	0.9	120.0	117.3	2.66	45.178		
500.0	500.0	500.8	500.8	1.7	1.7	0.45	120.0	0.9	120.0	116.6	3.37	35.574		
600.0	600.0	600.8	600.8	2.0	2.0	0.45	120.0	0.9	120.0	115.9	4.09	29.337		
700.0	700.0	700.8	700.8	2.4	2.4	0.45	120.0	0.9	120.0	115.2	4.81	24.961		
800.0	800.0	800.8	800.8	2.8	2.8	0.45	120.0	0.9	120.0	114.5	5.52	21.721		
900.0	900.0	900.8	900.8	3.1	3.1	0.45	120.0	0.9	120.0	113.7	6.24	19.226		
1,000.0	1,000.0	1,000.8	1,000.8	3.5	3.5	0.45	120.0	0.9	120.0	113.0	6.96	17.244		
1,100.0	1,100.0	1,100.8	1,100.8	3.8	3.8	0.45	120.0	0.9	120.0	112.3	7.67	15.633		
1,200.0	1,200.0	1,200.8	1,200.8	4.2	4.2	0.45	120.0	0.9	120.0	111.6	8.39	14.298		
1,300.0	1,300.0	1,300.8	1,300.8	4.6	4.6	0.45	120.0	0.9	120.0	110.9	9.11	13.172		
1,400.0	1,400.0	1,400.8	1,400.8	4.9	4.9	0.45	120.0	0.9	120.0	110.1	9.82	12.211		
1,500.0	1,500.0	1,500.8	1,500.8	5.3	5.3	0.45	120.0	0.9	120.0	109.4	10.54	11.381		
1,600.0	1,600.0	1,604.5	1,604.5	5.6	5.6	-0.03	118.4	-0.1	118.4	107.2	11.25	10.525		
1,700.0	1,700.0	1,707.9	1,707.7	6.0	6.0	-1.54	113.6	-3.1	113.8	101.9	11.94	9.537		
1,800.0	1,800.0	1,810.7	1,810.1	6.3	6.3	-4.33	105.7	-8.0	106.4	93.8	12.62	8.434		
1,900.0	1,900.0	1,912.7	1,911.3	6.7	6.7	-8.88	94.8	-14.8	96.5	83.2	13.30	7.260		
2,000.0	2,000.0	2,013.5	2,010.7	7.1	7.0	-16.10	81.1	-23.4	85.0	71.0	14.00	6.074		
2,100.0	2,100.0	2,111.9	2,107.7	7.4	7.4	-26.00	66.6	-32.5	74.4	59.7	14.74	5.051		
2,200.0	2,200.0	2,210.4	2,204.7	7.8	7.7	-38.57	52.1	-41.6	66.8	51.3	15.50	4.309		
2,300.0	2,300.0	2,308.9	2,301.7	8.1	8.1	-53.39	37.6	-50.7	63.1	46.9	16.26	3.882		
2,329.2	2,329.2	2,337.7	2,330.0	8.2	8.2	-57.92	33.4	-53.3	62.9	46.4	16.48	3.818 CC, ES		
2,400.0	2,400.0	2,407.4	2,398.7	8.5	8.5	-68.82	23.1	-59.7	64.1	47.1	16.99	3.773		
2,500.0	2,500.0	2,505.9	2,495.6	8.9	8.9	-82.83	8.7	-68.8	69.6	51.9	17.68	3.934		
2,600.0	2,600.0	2,604.4	2,592.6	9.2	9.3	-94.28	-5.8	-77.9	78.5	60.2	18.34	4.281		
2,700.0	2,700.0	2,702.8	2,689.6	9.6	9.7	-103.15	-20.3	-87.0	90.0	71.0	19.01	4.736		
2,800.0	2,800.0	2,801.3	2,786.6	9.9	10.1	-109.92	-34.8	-96.1	103.2	83.5	19.68	5.242		
2,900.0	2,900.0	2,899.8	2,883.6	10.3	10.5	-115.12	-49.3	-105.1	117.4	97.0	20.36	5.767		
3,000.0	3,000.0	2,998.3	2,980.6	10.6	10.9	-119.18	-63.8	-114.2	132.4	111.3	21.04	6.291		
3,100.0	3,100.0	3,097.0	3,077.8	11.0	11.3	30.99	-78.3	-123.3	146.4	124.7	21.72	6.740		
3,200.0	3,199.8	3,196.3	3,175.6	11.3	11.8	29.11	-92.9	-132.5	157.7	135.3	22.40	7.041		
3,300.0	3,299.5	3,295.9	3,273.7	11.6	12.2	28.07	-107.6	-141.7	166.1	143.0	23.09	7.194		
3,330.9	3,330.2	3,326.7	3,304.0	11.7	12.3	27.88	-112.1	-144.5	168.0	144.7	23.30	7.212		
3,400.0	3,398.8	3,395.7	3,372.0	12.0	12.6	27.58	-122.3	-150.9	172.1	148.3	23.78	7.237		
3,500.0	3,498.1	3,495.5	3,470.3	12.3	13.0	27.17	-137.0	-160.1	178.0	153.5	24.48	7.271		
3,600.0	3,597.5	3,595.3	3,568.6	12.6	13.5	26.78	-151.6	-169.3	183.9	158.8	25.19	7.303		
3,700.0	3,696.8	3,695.1	3,666.9	13.0	13.9	26.42	-166.3	-178.5	189.9	164.0	25.89	7.333		
3,800.0	3,796.1	3,795.0	3,765.2	13.3	14.3	26.08	-181.0	-187.7	195.8	169.2	26.60	7.360		
3,900.0	3,895.5	3,894.8	3,863.5	13.7	14.8	25.76	-195.7	-196.9	201.7	174.4	27.32	7.386		
4,000.0	3,994.8	3,994.6	3,961.8	14.0	15.2	25.46	-210.4	-206.1	207.7	179.7	28.03	7.409		
4,100.0	4,094.1	4,094.4	4,060.1	14.4	15.6	25.17	-225.1	-215.3	213.6	184.9	28.75	7.432		
4,200.0	4,193.5	4,194.2	4,158.4	14.7	16.1	24.91	-239.8	-224.5	219.6	190.1	29.46	7.453		
4,300.0	4,292.8	4,296.4	4,259.0	15.1	16.5	24.66	-254.7	-233.8	225.4	195.2	30.22	7.459		
4,400.0	4,392.1	4,404.4	4,365.9	15.5	17.0	24.66	-267.9	-242.1	228.6	197.5	31.03	7.365		
4,500.0	4,491.5	4,512.5	4,473.4	15.8	17.4	25.01	-277.7	-248.2	228.2	196.3	31.82	7.171		
4,600.0	4,590.8	4,620.4	4,581.0	16.2	17.8	25.71	-284.0	-252.2	224.2	191.7	32.57	6.886		
4,700.0	4,690.1	4,727.8	4,688.3	16.6	18.2	26.82	-286.9	-254.0	216.9	183.6	33.28	6.517		
4,800.0	4,789.5	4,829.8	4,790.3	16.9	18.5	28.27	-287.1	-254.2	206.8	172.9	33.98	6.087		

Company:	NEW MEXICO	Local Co-ordinate Reference	Well RANA PICANTE 12 FED COM 413H
Project:	(SP) EDDY	TVD Reference:	KB @ 3036.0usft
Reference Site:	RANA PICANTE	MD Reference:	KB @ 3036.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	RANA PICANTE 12 FED COM 413H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass_17
Reference Design:	PWP0	Offset TVD Reference:	Offset Datum

Offset Design RANA PICANTE - RANA PICANTE 12 FED COM 122H - OWB - PWP0													Offset Site Error:	0.0 usft
Survey Program: O-MWD													Offset Well Error:	0.0 usft
Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning	
							+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)				
4,900.0	4,888.8	4,929.1	4,889.6	17.3	18.8	29.86	-287.1	-254.2	196.7	162.0	34.69	5.671		
5,000.0	4,988.1	5,028.4	4,988.9	17.7	19.1	31.61	-287.1	-254.2	186.8	151.4	35.42	5.275		
5,100.0	5,087.5	5,127.8	5,088.3	18.1	19.4	33.56	-287.1	-254.2	177.1	140.9	36.15	4.898		
5,200.0	5,186.8	5,227.1	5,187.6	18.4	19.7	35.74	-287.1	-254.2	167.6	130.7	36.89	4.542		
5,300.0	5,286.1	5,326.4	5,286.9	18.8	20.0	38.17	-287.1	-254.2	158.3	120.7	37.65	4.206		
5,400.0	5,385.5	5,425.8	5,386.3	19.2	20.4	40.89	-287.1	-254.2	149.4	111.0	38.42	3.890		
5,500.0	5,484.8	5,525.1	5,485.6	19.6	20.7	43.95	-287.1	-254.2	140.9	101.7	39.20	3.594		
5,600.0	5,584.1	5,624.4	5,584.9	20.0	21.0	47.39	-287.1	-254.2	132.8	92.8	40.00	3.320		
5,700.0	5,683.5	5,723.8	5,684.3	20.3	21.3	51.26	-287.1	-254.2	125.3	84.4	40.81	3.069		
5,800.0	5,782.8	5,823.1	5,783.6	20.7	21.6	55.60	-287.1	-254.2	118.4	76.7	41.65	2.842		
5,900.0	5,882.1	5,922.4	5,882.9	21.1	22.0	60.43	-287.1	-254.2	112.2	69.7	42.49	2.641		
6,000.0	5,981.5	6,021.8	5,982.3	21.5	22.3	65.78	-287.1	-254.2	107.0	63.6	43.34	2.468		
6,100.0	6,080.8	6,121.1	6,081.6	21.9	22.6	71.61	-287.1	-254.2	102.8	58.6	44.19	2.325		
6,200.0	6,180.1	6,220.4	6,180.9	22.3	22.9	77.87	-287.1	-254.2	99.7	54.7	45.02	2.214		
6,300.0	6,279.5	6,319.8	6,280.3	22.6	23.2	84.44	-287.1	-254.2	97.9	52.1	45.83	2.137		
6,382.9	6,361.8	6,402.1	6,362.6	23.0	23.5	90.00	-287.1	-254.2	97.4	51.0	46.46	2.097		
6,400.0	6,378.8	6,419.1	6,379.6	23.0	23.6	91.15	-287.1	-254.2	97.5	50.9	46.59	2.092		
6,500.0	6,478.1	6,518.4	6,478.9	23.4	23.9	97.83	-287.1	-254.2	98.4	51.1	47.30	2.080 SF		
6,600.0	6,577.5	6,617.8	6,578.3	23.8	24.2	104.31	-287.1	-254.2	100.6	52.6	47.96	2.098		
6,700.0	6,676.8	6,717.1	6,677.6	24.2	24.6	110.43	-287.1	-254.2	104.1	55.5	48.58	2.142		
6,800.0	6,776.1	6,816.4	6,776.9	24.6	24.9	116.10	-287.1	-254.2	108.7	59.5	49.18	2.209		
6,900.0	6,875.5	6,915.8	6,876.3	25.0	25.2	121.28	-287.1	-254.2	114.2	64.5	49.76	2.295		
7,000.0	6,974.8	7,015.1	6,975.6	25.4	25.5	125.94	-287.1	-254.2	120.6	70.3	50.34	2.396		
7,100.0	7,074.1	7,114.4	7,074.9	25.7	25.9	130.11	-287.1	-254.2	127.8	76.9	50.92	2.509		
7,200.0	7,173.5	7,213.8	7,174.3	26.1	26.2	133.83	-287.1	-254.2	135.5	84.0	51.51	2.631		
7,300.0	7,272.8	7,313.1	7,273.6	26.5	26.5	137.13	-287.1	-254.2	143.8	91.7	52.11	2.759		
7,400.0	7,372.1	7,412.4	7,372.9	26.9	26.9	140.07	-287.1	-254.2	152.4	99.7	52.72	2.892		
7,500.0	7,471.5	7,511.8	7,472.3	27.3	27.2	142.69	-287.1	-254.2	161.5	108.1	53.34	3.027		
7,600.0	7,570.8	7,611.1	7,571.6	27.7	27.5	145.03	-287.1	-254.2	170.8	116.8	53.97	3.165		
7,700.0	7,670.2	7,710.4	7,671.0	28.1	27.9	147.13	-287.1	-254.2	180.4	125.8	54.60	3.304		
7,800.0	7,769.5	7,809.8	7,770.3	28.5	28.2	149.01	-287.1	-254.2	190.2	134.9	55.25	3.442		
7,900.0	7,868.8	7,909.3	7,869.8	28.9	28.5	150.80	-287.1	-253.8	200.2	144.3	55.90	3.581		
8,000.0	7,968.2	8,006.1	7,965.6	29.3	28.8	155.91	-286.9	-240.6	210.8	154.4	56.35	3.741		
8,100.0	8,067.5	8,092.6	8,047.2	29.7	29.1	164.12	-286.4	-212.7	226.5	170.1	56.35	4.019		
8,200.0	8,166.8	8,165.5	8,111.3	30.1	29.2	172.80	-285.9	-177.9	253.0	197.5	55.48	4.560		
8,300.0	8,266.2	8,225.0	8,159.2	30.5	29.3	-179.71	-285.4	-142.7	293.3	239.7	53.59	5.473		
8,400.0	8,365.5	8,275.0	8,195.7	30.9	29.4	-173.55	-284.8	-108.6	346.6	295.4	51.19	6.770		
8,500.0	8,464.8	8,313.2	8,221.2	31.3	29.4	-169.10	-284.4	-80.1	410.5	361.9	48.57	8.452		
8,600.0	8,564.2	8,350.0	8,243.4	31.6	29.5	-165.10	-284.0	-50.8	482.4	435.9	46.48	10.379		
8,706.4	8,669.8	8,375.0	8,257.2	32.1	29.5	-162.56	-283.6	-30.0	565.2	521.0	44.22	12.782		
8,800.0	8,763.0	8,400.0	8,269.9	32.4	29.5	-161.00	-283.3	-8.5	641.4	598.5	42.82	14.979		
8,900.0	8,862.8	8,414.1	8,276.6	32.8	29.5	-160.72	-283.1	3.9	724.2	683.1	41.14	17.606		
9,000.0	8,962.7	8,425.0	8,281.5	33.2	29.5	-160.84	-283.0	13.7	808.5	768.8	39.68	20.377		
9,037.3	9,000.0	8,437.4	8,286.8	33.3	29.6	46.57	-282.8	24.9	840.1	800.6	39.47	21.281		
9,100.0	9,062.7	8,450.0	8,291.9	33.5	29.6	47.55	-282.6	36.4	893.8	854.9	38.94	22.957		
9,200.0	9,162.7	8,460.3	8,295.8	33.8	29.6	48.34	-282.5	45.9	981.3	943.3	38.01	25.816		

Company:	NEW MEXICO	Local Co-ordinate Reference	Well RANA PICANTE 12 FED COM 413H
Project:	(SP) EDDY	TVD Reference:	KB @ 3036.0usft
Reference Site:	RANA PICANTE	MD Reference:	KB @ 3036.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	RANA PICANTE 12 FED COM 413H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass_17
Reference Design:	PWP0	Offset TVD Reference:	Offset Datum

Offset Design RANA PICANTE - RANA PICANTE 12 FED COM 162H - OWB - PWP0													Offset Site Error:	0.0 usft
Survey Program: O-MWD													Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre		Rule Assigned:				Warning	
							+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	0.57	59.8	0.6	59.9					
100.0	100.0	100.0	100.0	0.3	0.3	0.57	59.8	0.6	59.9	59.4	0.50	119.262		
200.0	200.0	200.0	200.0	0.6	0.6	0.57	59.8	0.6	59.9	58.6	1.22	49.108		
300.0	300.0	300.0	300.0	1.0	1.0	0.57	59.8	0.6	59.9	57.9	1.94	30.920		
400.0	400.0	400.0	400.0	1.3	1.3	0.57	59.8	0.6	59.9	57.2	2.65	22.563		
500.0	500.0	500.0	500.0	1.7	1.7	0.57	59.8	0.6	59.9	56.5	3.37	17.762		
600.0	600.0	600.0	600.0	2.0	2.0	0.57	59.8	0.6	59.9	55.8	4.09	14.646		
700.0	700.0	700.0	700.0	2.4	2.4	0.57	59.8	0.6	59.9	55.0	4.80	12.460		
800.0	800.0	800.0	800.0	2.8	2.8	0.57	59.8	0.6	59.9	54.3	5.52	10.842		
900.0	900.0	900.0	900.0	3.1	3.1	0.57	59.8	0.6	59.9	53.6	6.24	9.596		
1,000.0	1,000.0	1,000.0	1,000.0	3.5	3.5	0.57	59.8	0.6	59.9	52.9	6.95	8.607		
1,100.0	1,100.0	1,100.0	1,100.0	3.8	3.8	0.57	59.8	0.6	59.9	52.2	7.67	7.802		
1,200.0	1,200.0	1,200.0	1,200.0	4.2	4.2	0.57	59.8	0.6	59.9	51.5	8.39	7.135		
1,300.0	1,300.0	1,300.0	1,300.0	4.6	4.6	0.57	59.8	0.6	59.9	50.7	9.11	6.574		
1,400.0	1,400.0	1,400.0	1,400.0	4.9	4.9	0.57	59.8	0.6	59.9	50.0	9.82	6.094		
1,500.0	1,500.0	1,500.0	1,500.0	5.3	5.3	0.57	59.8	0.6	59.9	49.3	10.54	5.679		
1,600.0	1,600.0	1,600.0	1,600.0	5.6	5.6	0.57	59.8	0.6	59.9	48.6	11.26	5.317		
1,700.0	1,700.0	1,700.0	1,700.0	6.0	6.0	0.57	59.8	0.6	59.9	47.9	11.97	4.999		
1,800.0	1,800.0	1,800.0	1,800.0	6.3	6.3	0.57	59.8	0.6	59.9	47.2	12.69	4.717		
1,900.0	1,900.0	1,900.0	1,900.0	6.7	6.7	0.57	59.8	0.6	59.9	46.4	13.41	4.464		
2,000.0	2,000.0	2,000.0	2,000.0	7.1	7.1	0.57	59.8	0.6	59.9	45.7	14.12	4.238		
2,100.0	2,100.0	2,101.9	2,101.9	7.4	7.4	-0.08	58.2	-0.1	58.2	43.4	14.82	3.926		
2,200.0	2,200.0	2,203.6	2,203.4	7.8	7.7	-2.29	53.1	-2.1	53.3	37.8	15.49	3.440		
2,300.0	2,300.0	2,304.8	2,304.2	8.1	8.1	-7.00	44.8	-5.5	45.4	29.2	16.15	2.809		
2,400.0	2,400.0	2,405.2	2,403.9	8.5	8.4	-16.97	33.3	-10.2	35.1	18.3	16.82	2.085		
2,500.0	2,500.0	2,504.6	2,502.0	8.9	8.8	-40.58	18.8	-16.1	24.8	7.3	17.56	1.414 Level 3		
2,566.3	2,566.3	2,569.9	2,566.3	9.1	9.0	-67.87	8.3	-20.4	22.0	3.9	18.07	1.217 Level 3, CC		
2,600.0	2,600.0	2,603.1	2,599.0	9.2	9.1	-82.54	3.0	-22.5	22.8	4.5	18.29	1.244 Level 3		
2,700.0	2,700.0	2,701.6	2,696.0	9.6	9.5	-113.97	-12.9	-29.0	32.0	13.1	18.88	1.694		
2,800.0	2,800.0	2,800.0	2,793.0	9.9	9.8	-129.04	-28.7	-35.4	46.2	26.6	19.51	2.366		
2,900.0	2,900.0	2,898.5	2,889.9	10.3	10.2	-136.79	-44.6	-41.9	62.0	41.8	20.17	3.072		
3,000.0	3,000.0	2,997.0	2,986.9	10.6	10.6	-141.35	-60.4	-48.3	78.5	57.6	20.86	3.762		
3,100.0	3,100.0	3,095.8	3,084.2	11.0	11.0	9.00	-76.3	-54.8	93.5	72.0	21.53	4.345		
3,200.0	3,199.8	3,195.0	3,181.9	11.3	11.3	7.18	-92.3	-61.3	105.4	83.2	22.20	4.747		
3,300.0	3,299.5	3,294.6	3,280.0	11.6	11.7	5.91	-108.3	-67.8	113.8	90.9	22.87	4.976		
3,330.9	3,330.2	3,325.5	3,310.4	11.7	11.9	5.59	-113.2	-69.8	115.7	92.6	23.08	5.014		
3,400.0	3,398.8	3,394.4	3,378.3	12.0	12.1	4.94	-124.3	-74.3	119.7	96.1	23.55	5.081		
3,500.0	3,498.1	3,494.3	3,476.6	12.3	12.6	4.07	-140.4	-80.8	125.4	101.1	24.23	5.174		
3,600.0	3,597.5	3,594.1	3,574.9	12.6	13.0	3.27	-156.4	-87.4	131.1	106.2	24.92	5.261		
3,700.0	3,696.8	3,693.9	3,673.2	13.0	13.4	2.54	-172.5	-93.9	136.9	111.3	25.61	5.344		
3,800.0	3,796.1	3,793.7	3,771.5	13.3	13.8	1.87	-188.6	-100.4	142.7	116.4	26.30	5.423		
3,900.0	3,895.5	3,893.5	3,869.8	13.7	14.2	1.25	-204.6	-107.0	148.5	121.5	27.00	5.498		
4,000.0	3,994.8	3,993.4	3,968.1	14.0	14.6	0.68	-220.7	-113.5	154.3	126.6	27.70	5.570		
4,100.0	4,094.1	4,093.2	4,066.4	14.4	15.0	0.15	-236.7	-120.0	160.1	131.7	28.40	5.637		
4,200.0	4,193.5	4,193.0	4,164.7	14.7	15.5	-0.34	-252.8	-126.6	166.0	136.8	29.10	5.702		
4,300.0	4,292.8	4,292.8	4,263.0	15.1	15.9	-0.80	-268.8	-133.1	171.8	142.0	29.81	5.763		
4,400.0	4,392.1	4,392.6	4,361.3	15.5	16.3	-1.23	-284.9	-139.6	177.7	147.2	30.52	5.822		
4,500.0	4,491.5	4,492.4	4,459.6	15.8	16.7	-1.63	-301.0	-146.2	183.6	152.3	31.23	5.878		
4,600.0	4,590.8	4,592.3	4,557.9	16.2	17.2	-2.01	-317.0	-152.7	189.4	157.5	31.94	5.931		
4,700.0	4,690.1	4,692.1	4,656.2	16.6	17.6	-2.36	-333.1	-159.2	195.3	162.7	32.65	5.982		
4,800.0	4,789.5	4,791.9	4,754.6	16.9	18.0	-2.69	-349.1	-165.7	201.2	167.9	33.37	6.031		

Company:	NEW MEXICO	Local Co-ordinate Reference	Well RANA PICANTE 12 FED COM 413H
Project:	(SP) EDDY	TVD Reference:	KB @ 3036.0usft
Reference Site:	RANA PICANTE	MD Reference:	KB @ 3036.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	RANA PICANTE 12 FED COM 413H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass_17
Reference Design:	PWP0	Offset TVD Reference:	Offset Datum

Offset Design RANA PICANTE - RANA PICANTE 12 FED COM 162H - OWB - PWP0												Offset Site Error:	0.0 usft
Survey Program: O-MWD												Offset Well Error:	0.0 usft
Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
4,900.0	4,888.8	4,891.7	4,852.9	17.3	18.5	-3.01	-365.2	-172.3	207.1	173.0	34.08	6.077	
5,000.0	4,988.1	4,991.5	4,951.2	17.7	18.9	-3.30	-381.2	-178.8	213.0	178.2	34.80	6.122	
5,100.0	5,087.5	5,091.4	5,049.5	18.1	19.3	-3.58	-397.3	-185.3	219.0	183.4	35.52	6.165	
5,200.0	5,186.8	5,191.2	5,147.8	18.4	19.8	-3.85	-413.3	-191.9	224.9	188.6	36.24	6.206	
5,300.0	5,286.1	5,291.0	5,246.1	18.8	20.2	-4.10	-429.4	-198.4	230.8	193.8	36.96	6.245	
5,400.0	5,385.5	5,390.8	5,344.4	19.2	20.6	-4.34	-445.5	-204.9	236.7	199.1	37.68	6.283	
5,500.0	5,484.8	5,490.6	5,442.7	19.6	21.1	-4.57	-461.5	-211.5	242.7	204.3	38.40	6.319	
5,600.0	5,584.1	5,590.5	5,541.0	20.0	21.5	-4.79	-477.6	-218.0	248.6	209.5	39.13	6.354	
5,700.0	5,683.5	5,690.3	5,639.3	20.3	22.0	-4.99	-493.6	-224.5	254.6	214.7	39.85	6.387	
5,800.0	5,782.8	5,790.1	5,737.6	20.7	22.4	-5.19	-509.7	-231.0	260.5	219.9	40.58	6.420	
5,900.0	5,882.1	5,889.9	5,835.9	21.1	22.8	-5.38	-525.7	-237.6	266.4	225.1	41.30	6.451	
6,000.0	5,981.5	5,989.7	5,934.2	21.5	23.3	-5.56	-541.8	-244.1	272.4	230.4	42.03	6.481	
6,100.0	6,080.8	6,090.3	6,033.2	21.9	23.7	-5.73	-558.0	-250.7	278.3	235.6	42.77	6.508	
6,200.0	6,180.1	6,201.0	6,142.7	22.3	24.2	-5.93	-573.6	-257.0	282.1	238.5	43.63	6.466	
6,300.0	6,279.5	6,312.0	6,252.9	22.6	24.6	-6.14	-585.2	-261.8	282.0	237.6	44.43	6.347	
6,400.0	6,378.8	6,422.7	6,363.3	23.0	25.1	-6.38	-592.9	-264.9	278.0	232.9	45.17	6.155	
6,500.0	6,478.1	6,532.9	6,473.4	23.4	25.4	-6.65	-596.7	-266.4	270.2	224.4	45.85	5.894	
6,600.0	6,577.5	6,637.0	6,577.5	23.8	25.8	-6.96	-597.1	-266.6	259.2	212.7	46.51	5.573	
6,700.0	6,676.8	6,736.3	6,676.8	24.2	26.1	-7.28	-597.1	-266.6	247.7	200.6	47.19	5.250	
6,800.0	6,776.1	6,835.6	6,776.1	24.6	26.4	-7.64	-597.1	-266.6	236.3	188.4	47.88	4.935	
6,900.0	6,875.5	6,935.0	6,875.5	25.0	26.7	-8.03	-597.1	-266.6	224.9	176.3	48.58	4.630	
7,000.0	6,974.8	7,034.3	6,974.8	25.4	27.0	-8.46	-597.1	-266.6	213.5	164.2	49.27	4.333	
7,100.0	7,074.1	7,133.6	7,074.1	25.7	27.3	-8.94	-597.1	-266.6	202.1	152.1	49.97	4.045	
7,200.0	7,173.5	7,233.0	7,173.5	26.1	27.6	-9.48	-597.1	-266.6	190.7	140.1	50.66	3.764	
7,300.0	7,272.8	7,332.3	7,272.8	26.5	27.9	-10.08	-597.1	-266.6	179.4	128.0	51.37	3.492	
7,400.0	7,372.1	7,431.7	7,372.1	26.9	28.2	-10.77	-597.1	-266.6	168.0	116.0	52.07	3.227	
7,500.0	7,471.5	7,531.0	7,471.5	27.3	28.5	-11.56	-597.1	-266.6	156.7	103.9	52.78	2.969	
7,600.0	7,570.8	7,630.3	7,570.8	27.7	28.8	-12.47	-597.1	-266.6	145.4	91.9	53.49	2.719	
7,700.0	7,670.2	7,729.7	7,670.2	28.1	29.1	-13.53	-597.1	-266.6	134.2	80.0	54.20	2.476	
7,800.0	7,769.5	7,829.0	7,769.5	28.5	29.4	-14.78	-597.1	-266.6	123.0	68.1	54.93	2.240	
7,900.0	7,868.8	7,928.3	7,868.8	28.9	29.8	-16.29	-597.1	-266.6	111.9	56.2	55.66	2.011	
8,000.0	7,968.2	8,027.7	7,968.2	29.3	30.1	-18.12	-597.1	-266.6	100.9	44.5	56.41	1.789	
8,100.0	8,067.5	8,127.0	8,067.5	29.7	30.4	-20.41	-597.1	-266.6	90.0	32.8	57.18	1.574	
8,200.0	8,166.8	8,226.3	8,166.8	30.1	30.7	-23.31	-597.1	-266.6	79.3	21.3	57.99	1.367 Level 3	
8,300.0	8,266.2	8,325.6	8,266.1	30.5	31.0	-28.40	-597.1	-265.0	68.8	9.9	58.90	1.169 Level 3	
8,388.1	8,353.7	8,409.4	8,348.6	30.8	31.3	-45.49	-596.8	-251.0	63.1	2.7	60.42	1.045 Level 3	
8,400.0	8,365.5	8,420.1	8,358.9	30.9	31.3	-48.70	-596.8	-248.2	63.3	2.7	60.62	1,044 Level 3, ES, SF	
8,500.0	8,464.8	8,503.4	8,436.6	31.3	31.5	-75.52	-596.3	-218.4	80.7	20.9	59.75	1,350 Level 3	
8,600.0	8,564.2	8,575.0	8,498.4	31.6	31.6	-92.53	-595.8	-182.4	125.2	69.2	55.97	2.237	
8,706.4	8,669.8	8,633.6	8,544.5	32.1	31.7	-100.95	-595.2	-146.2	190.8	139.3	51.49	3.706	
8,800.0	8,763.0	8,675.0	8,574.2	32.4	31.8	-106.44	-594.8	-117.5	257.7	209.4	48.33	5.332	
8,900.0	8,862.8	8,716.0	8,601.1	32.8	31.8	-110.76	-594.3	-86.5	334.8	288.7	46.10	7.262	
9,000.0	8,962.7	8,750.0	8,621.3	33.2	31.8	-114.12	-593.9	-59.2	415.8	371.6	44.20	9.406	
9,037.3	9,000.0	8,759.6	8,626.6	33.3	31.8	91.56	-593.8	-51.2	446.8	403.3	43.46	10.281	
9,100.0	9,062.7	8,775.0	8,634.9	33.5	31.8	91.44	-593.6	-38.2	499.8	457.4	42.40	11.788	
9,200.0	9,162.7	8,800.0	8,647.3	33.8	31.8	91.26	-593.2	-16.6	586.5	545.3	41.24	14.221	
9,300.0	9,262.7	8,825.0	8,658.7	34.1	31.8	91.10	-592.9	5.7	675.5	635.0	40.50	16.679	
9,400.0	9,362.7	8,836.4	8,663.4	34.5	31.8	91.03	-592.7	16.1	766.0	726.5	39.47	19.406	
9,500.0	9,462.7	8,850.0	8,668.8	34.8	31.8	90.96	-592.5	28.6	857.9	819.0	38.86	22.079	
9,600.0	9,562.7	8,863.7	8,673.8	35.1	31.8	90.89	-592.3	41.3	950.9	912.4	38.45	24.728	

Company:	NEW MEXICO	Local Co-ordinate Reference	Well RANA PICANTE 12 FED COM 413H
Project:	(SP) EDDY	TVD Reference:	KB @ 3036.0usft
Reference Site:	RANA PICANTE	MD Reference:	KB @ 3036.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	RANA PICANTE 12 FED COM 413H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass_17
Reference Design:	PWP0	Offset TVD Reference:	Offset Datum

Offset Design RANA PICANTE - RANA PICANTE 12 FED COM 171H - OWB - PWP0													Offset Site Error:	0.0 usft
Survey Program: O-MWD													Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
0.0	0.0	0.1	0.1	0.0	0.0	0.53	89.9	0.8	89.9					
100.0	100.0	100.1	100.1	0.3	0.3	0.53	89.9	0.8	89.9	89.4	0.50	178.953		
200.0	200.0	200.1	200.1	0.6	0.6	0.53	89.9	0.8	89.9	88.7	1.22	73.718		
300.0	300.0	300.1	300.1	1.0	1.0	0.53	89.9	0.8	89.9	87.9	1.94	46.420		
400.0	400.0	400.1	400.1	1.3	1.3	0.53	89.9	0.8	89.9	87.2	2.65	33.876		
500.0	500.0	500.1	500.1	1.7	1.7	0.53	89.9	0.8	89.9	86.5	3.37	26.669		
600.0	600.0	600.1	600.1	2.0	2.0	0.53	89.9	0.8	89.9	85.8	4.09	21.991		
700.0	700.0	700.1	700.1	2.4	2.4	0.53	89.9	0.8	89.9	85.1	4.80	18.709		
800.0	800.0	800.1	800.1	2.8	2.8	0.53	89.9	0.8	89.9	84.4	5.52	16.279		
900.0	900.0	900.1	900.1	3.1	3.1	0.53	89.9	0.8	89.9	83.6	6.24	14.408		
1,000.0	1,000.0	1,000.1	1,000.1	3.5	3.5	0.53	89.9	0.8	89.9	82.9	6.95	12.923		
1,100.0	1,100.0	1,100.1	1,100.1	3.8	3.8	0.53	89.9	0.8	89.9	82.2	7.67	11.715		
1,200.0	1,200.0	1,200.1	1,200.1	4.2	4.2	0.53	89.9	0.8	89.9	81.5	8.39	10.714		
1,300.0	1,300.0	1,300.1	1,300.1	4.6	4.6	0.53	89.9	0.8	89.9	80.8	9.11	9.870		
1,400.0	1,400.0	1,400.1	1,400.1	4.9	4.9	0.53	89.9	0.8	89.9	80.1	9.82	9.150		
1,500.0	1,500.0	1,500.1	1,500.1	5.3	5.3	0.53	89.9	0.8	89.9	79.3	10.54	8.527		
1,600.0	1,600.0	1,600.1	1,600.1	5.6	5.6	0.53	89.9	0.8	89.9	78.6	11.26	7.984		
1,700.0	1,700.0	1,700.1	1,700.1	6.0	6.0	0.53	89.9	0.8	89.9	77.9	11.97	7.506		
1,800.0	1,800.0	1,800.1	1,800.1	6.3	6.3	0.53	89.9	0.8	89.9	77.2	12.69	7.082		
1,900.0	1,900.0	1,900.4	1,900.4	6.7	6.7	-0.59	89.7	-0.9	89.7	76.3	13.40	6.694		
2,000.0	2,000.0	2,000.5	2,000.3	7.1	7.0	-3.94	89.2	-6.1	89.4	75.3	14.10	6.338		
2,039.2	2,039.2	2,039.6	2,039.3	7.2	7.2	-5.87	88.8	-9.1	89.3	74.9	14.38	6.213 CC		
2,100.0	2,100.0	2,100.0	2,099.5	7.4	7.4	-9.51	88.3	-14.8	89.5	74.7	14.80	6.046 ES		
2,200.0	2,200.0	2,198.9	2,197.6	7.8	7.7	-17.09	87.0	-26.8	91.1	75.6	15.50	5.875 SF		
2,300.0	2,300.0	2,296.8	2,294.3	8.1	8.1	-26.12	85.5	-41.9	95.4	79.2	16.20	5.889		
2,400.0	2,400.0	2,395.3	2,391.3	8.5	8.5	-35.13	83.7	-58.9	102.8	85.9	16.89	6.086		
2,500.0	2,500.0	2,493.7	2,488.3	8.9	8.8	-42.81	82.0	-75.9	112.4	94.8	17.57	6.394		
2,600.0	2,600.0	2,592.2	2,585.2	9.2	9.2	-49.20	80.2	-92.9	123.7	105.4	18.26	6.772		
2,700.0	2,700.0	2,690.7	2,682.2	9.6	9.6	-54.48	78.5	-110.0	136.3	117.3	18.95	7.189		
2,800.0	2,800.0	2,789.2	2,779.2	9.9	10.0	-58.85	76.7	-127.0	149.8	130.2	19.65	7.625		
2,900.0	2,900.0	2,887.7	2,876.2	10.3	10.4	-62.49	75.0	-144.0	164.1	143.7	20.34	8.066		
3,000.0	3,000.0	2,986.1	2,973.2	10.6	10.8	-65.54	73.2	-161.0	178.9	157.9	21.04	8.502		
3,100.0	3,100.0	3,084.8	3,070.3	11.0	11.2	85.30	71.5	-178.0	194.0	172.3	21.73	8.927		
3,200.0	3,199.8	3,183.6	3,167.6	11.3	11.6	84.19	69.7	-195.1	208.9	186.5	22.41	9.322		
3,300.0	3,299.5	3,282.5	3,265.1	11.6	12.0	84.09	68.0	-212.2	223.6	200.5	23.11	9.674		
3,330.9	3,330.2	3,313.1	3,295.2	11.7	12.1	84.23	67.4	-217.5	228.0	204.7	23.33	9.774		
3,400.0	3,398.8	3,386.5	3,367.6	12.0	12.4	84.95	66.2	-229.3	237.2	213.4	23.89	9.932		
3,500.0	3,498.1	3,493.8	3,473.9	12.3	12.9	86.29	64.8	-243.3	247.9	223.2	24.69	10.042		
3,600.0	3,597.5	3,601.4	3,581.1	12.6	13.3	87.97	63.7	-253.3	255.5	230.0	25.47	10.032		
3,700.0	3,696.8	3,709.2	3,688.7	13.0	13.7	90.02	63.1	-259.4	260.1	233.9	26.23	9.917		
3,800.0	3,796.1	3,816.8	3,796.2	13.3	14.0	92.50	62.9	-261.4	261.9	235.0	26.97	9.714		
3,900.0	3,895.5	3,916.1	3,895.6	13.7	14.4	94.99	62.9	-261.4	262.7	235.0	27.68	9.489		
4,000.0	3,994.8	4,015.4	3,994.9	14.0	14.7	97.47	62.9	-261.4	264.0	235.5	28.41	9.292		
4,100.0	4,094.1	4,114.8	4,094.2	14.4	15.1	99.92	62.9	-261.4	265.7	236.6	29.13	9.122		
4,200.0	4,193.5	4,214.1	4,193.6	14.7	15.4	102.33	62.9	-261.4	267.9	238.1	29.85	8.976		
4,300.0	4,292.8	4,313.4	4,292.9	15.1	15.7	104.70	62.9	-261.4	270.7	240.1	30.58	8.851		
4,400.0	4,392.1	4,412.8	4,392.2	15.5	16.1	107.02	62.9	-261.4	273.8	242.5	31.30	8.748		
4,500.0	4,491.5	4,512.1	4,491.6	15.8	16.4	109.28	62.9	-261.4	277.4	245.4	32.03	8.663		
4,600.0	4,590.8	4,611.4	4,590.9	16.2	16.7	111.48	62.9	-261.4	281.5	248.7	32.75	8.594		
4,700.0	4,690.1	4,710.8	4,690.2	16.6	17.1	113.62	62.9	-261.4	285.9	252.5	33.47	8.542		
4,800.0	4,789.5	4,810.1	4,789.6	16.9	17.4	115.69	62.9	-261.4	290.8	256.6	34.20	8.503		

Company:	NEW MEXICO	Local Co-ordinate Reference	Well RANA PICANTE 12 FED COM 413H
Project:	(SP) EDDY	TVD Reference:	KB @ 3036.0usft
Reference Site:	RANA PICANTE	MD Reference:	KB @ 3036.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	RANA PICANTE 12 FED COM 413H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass_17
Reference Design:	PWP0	Offset TVD Reference:	Offset Datum

Offset Design RANA PICANTE - RANA PICANTE 12 FED COM 171H - OWB - PWP0												Offset Site Error:	0.0 usft
Survey Program: O-MWD												Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Reference Depth (usft)	Measured Depth (usft)	Vertical Offset Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
4,900.0	4,888.8	4,909.4	4,888.9	17.3	17.8	117.69	62.9	-261.4	296.0	261.1	34.92	8.477	
5,000.0	4,988.1	5,008.8	4,988.2	17.7	18.1	119.62	62.9	-261.4	301.5	265.9	35.63	8.462	
5,100.0	5,087.5	5,108.1	5,087.6	18.1	18.5	121.48	62.9	-261.4	307.4	271.1	36.35	8.457	
5,200.0	5,186.8	5,207.4	5,186.9	18.4	18.8	123.27	62.9	-261.4	313.6	276.5	37.07	8.461	
5,300.0	5,286.1	5,306.8	5,286.2	18.8	19.1	124.98	62.9	-261.4	320.1	282.3	37.78	8.472	
5,400.0	5,385.5	5,406.1	5,385.6	19.2	19.5	126.63	62.9	-261.4	326.9	288.4	38.50	8.491	
5,500.0	5,484.8	5,505.4	5,484.9	19.6	19.8	128.21	62.9	-261.4	333.9	294.7	39.21	8.517	
5,600.0	5,584.1	5,604.8	5,584.2	20.0	20.2	129.73	62.9	-261.4	341.2	301.3	39.92	8.547	
5,700.0	5,683.5	5,704.1	5,683.6	20.3	20.5	131.18	62.9	-261.4	348.7	308.1	40.63	8.583	
5,800.0	5,782.8	5,803.4	5,782.9	20.7	20.9	132.57	62.9	-261.4	356.4	315.1	41.34	8.622	
5,900.0	5,882.1	5,902.8	5,882.2	21.1	21.2	133.90	62.9	-261.4	364.3	322.3	42.05	8.665	
6,000.0	5,981.5	6,002.1	5,981.6	21.5	21.6	135.17	62.9	-261.4	372.5	329.7	42.75	8.712	
6,100.0	6,080.8	6,101.4	6,080.9	21.9	21.9	136.39	62.9	-261.4	380.7	337.3	43.46	8.761	
6,200.0	6,180.1	6,200.8	6,180.2	22.3	22.3	137.56	62.9	-261.4	389.2	345.0	44.17	8.812	
6,300.0	6,279.5	6,300.1	6,279.6	22.6	22.6	138.68	62.9	-261.4	397.8	352.9	44.87	8.865	
6,400.0	6,378.8	6,399.4	6,378.9	23.0	23.0	139.75	62.9	-261.4	406.6	361.0	45.58	8.919	
6,500.0	6,478.1	6,498.8	6,478.2	23.4	23.3	140.77	62.9	-261.4	415.4	369.2	46.29	8.975	
6,600.0	6,577.5	6,598.1	6,577.6	23.8	23.7	141.75	62.9	-261.4	424.5	377.5	46.99	9.032	
6,700.0	6,676.8	6,697.4	6,676.9	24.2	24.0	142.69	62.9	-261.4	433.6	385.9	47.70	9.090	
6,800.0	6,776.1	6,796.8	6,776.2	24.6	24.4	143.59	62.9	-261.4	442.8	394.4	48.40	9.149	
6,900.0	6,875.5	6,896.1	6,875.6	25.0	24.7	144.46	62.9	-261.4	452.2	403.1	49.11	9.208	
7,000.0	6,974.8	6,995.4	6,974.9	25.4	25.1	145.29	62.9	-261.4	461.6	411.8	49.81	9.267	
7,100.0	7,074.1	7,094.8	7,074.2	25.7	25.4	146.08	62.9	-261.4	471.2	420.6	50.52	9.326	
7,200.0	7,173.5	7,194.1	7,173.6	26.1	25.7	146.85	62.9	-261.4	480.8	429.6	51.23	9.386	
7,300.0	7,272.8	7,293.4	7,272.9	26.5	26.1	147.58	62.9	-261.4	490.5	438.6	51.93	9.445	
7,400.0	7,372.1	7,392.8	7,372.2	26.9	26.4	148.29	62.9	-261.4	500.3	447.6	52.64	9.504	
7,500.0	7,471.5	7,492.1	7,471.6	27.3	26.8	148.97	62.9	-261.4	510.1	456.8	53.34	9.563	
7,600.0	7,570.8	7,591.4	7,570.9	27.7	27.1	149.62	62.9	-261.4	520.1	466.0	54.05	9.622	
7,700.0	7,670.2	7,690.8	7,670.3	28.1	27.5	150.25	62.9	-261.4	530.1	475.3	54.76	9.680	
7,800.0	7,769.5	7,790.1	7,769.6	28.5	27.9	150.86	62.9	-261.4	540.1	484.7	55.46	9.738	
7,900.0	7,868.8	7,889.4	7,868.9	28.9	28.2	151.44	62.9	-261.4	550.2	494.1	56.17	9.796	
8,000.0	7,968.2	7,988.8	7,968.3	29.3	28.6	152.00	62.9	-261.4	560.4	503.5	56.88	9.852	
8,100.0	8,067.5	8,088.1	8,067.6	29.7	28.9	152.55	62.9	-261.4	570.6	513.0	57.59	9.909	
8,200.0	8,166.8	8,187.4	8,166.9	30.1	29.3	153.07	62.9	-261.4	580.9	522.6	58.29	9.965	
8,300.0	8,266.2	8,286.8	8,266.3	30.5	29.6	153.57	62.9	-261.4	591.2	532.2	59.00	10.020	
8,400.0	8,365.5	8,386.1	8,365.6	30.9	30.0	154.06	62.9	-261.4	601.5	541.8	59.71	10.074	
8,500.0	8,464.8	8,484.8	8,464.3	31.3	30.3	154.54	62.9	-261.2	611.9	551.5	60.41	10.130	
8,600.0	8,564.2	8,576.4	8,555.1	31.6	30.6	155.98	63.1	-250.2	623.1	562.1	61.01	10.212	
8,706.4	8,669.8	8,664.2	8,638.6	32.1	30.8	158.75	63.5	-223.6	637.6	576.1	61.49	10.369	
8,800.0	8,763.0	8,730.9	8,698.0	32.4	31.0	161.73	64.0	-193.4	653.1	591.4	61.69	10.587	
8,900.0	8,862.8	8,791.5	8,747.9	32.8	31.2	164.90	64.5	-159.0	672.6	611.1	61.56	10.926	
9,000.0	8,962.7	8,842.4	8,786.1	33.2	31.3	167.85	65.0	-125.5	696.7	635.7	61.00	11.421	
9,037.3	9,000.0	8,859.2	8,797.9	33.3	31.4	15.66	65.2	-113.6	707.0	646.3	60.68	11.652	
9,100.0	9,062.7	8,884.9	8,815.2	33.5	31.4	17.20	65.5	-94.5	726.6	666.6	59.99	12.113	
9,200.0	9,162.7	8,925.0	8,839.9	33.8	31.6	19.68	66.0	-63.0	765.0	706.3	58.69	13.035	
9,300.0	9,262.7	8,950.0	8,854.0	34.1	31.7	21.26	66.3	-42.3	811.6	754.6	56.96	14.247	
9,400.0	9,362.7	8,975.0	8,867.0	34.5	31.7	22.85	66.6	-21.0	865.5	810.3	55.22	15.674	
9,500.0	9,462.7	9,000.0	8,878.8	34.8	31.8	24.46	67.0	1.0	925.9	872.4	53.56	17.289	
9,600.0	9,562.7	9,013.0	8,884.5	35.1	31.9	25.30	67.1	12.7	991.8	940.0	51.80	19.147	

Company:	NEW MEXICO	Local Co-ordinate Reference	Well RANA PICANTE 12 FED COM 413H
Project:	(SP) EDDY	TVD Reference:	KB @ 3036.0usft
Reference Site:	RANA PICANTE	MD Reference:	KB @ 3036.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	RANA PICANTE 12 FED COM 413H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass_17
Reference Design:	PWP0	Offset TVD Reference:	Offset Datum

Offset Design RANA PICANTE - RANA PICANTE 12 FED COM 412H - OWB - PWP0													Offset Site Error:	0.0 usft
Survey Program: O-MWD													Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning	
							+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)				
0.0	0.0	0.0	0.0	0.0	0.0	0.59	30.0	0.3	30.0					
100.0	100.0	99.0	99.0	0.3	0.2	0.59	30.0	0.3	30.0	29.5	0.50	60.001		
200.0	200.0	199.0	199.0	0.6	0.6	0.59	30.0	0.3	30.0	28.7	1.22	24.655		
300.0	300.0	299.0	299.0	1.0	1.0	0.59	30.0	0.3	30.0	28.0	1.93	15.507		
400.0	400.0	399.0	399.0	1.3	1.3	0.59	30.0	0.3	30.0	27.3	2.65	11.310		
500.0	500.0	499.0	499.0	1.7	1.7	0.59	30.0	0.3	30.0	26.6	3.37	8.901		
600.0	600.0	599.0	599.0	2.0	2.0	0.59	30.0	0.3	30.0	25.9	4.08	7.338		
700.0	700.0	699.0	699.0	2.4	2.4	0.59	30.0	0.3	30.0	25.2	4.80	6.242		
800.0	800.0	799.0	799.0	2.8	2.8	0.59	30.0	0.3	30.0	24.4	5.52	5.431		
900.0	900.0	899.0	899.0	3.1	3.1	0.59	30.0	0.3	30.0	23.7	6.23	4.806		
1,000.0	1,000.0	999.0	999.0	3.5	3.5	0.59	30.0	0.3	30.0	23.0	6.95	4.311		
1,100.0	1,100.0	1,099.0	1,099.0	3.8	3.8	0.59	30.0	0.3	30.0	22.3	7.67	3.908		
1,200.0	1,200.0	1,199.0	1,199.0	4.2	4.2	0.59	30.0	0.3	30.0	21.6	8.38	3.573		
1,300.0	1,300.0	1,299.0	1,299.0	4.6	4.5	0.59	30.0	0.3	30.0	20.9	9.10	3.292		
1,400.0	1,400.0	1,399.0	1,399.0	4.9	4.9	0.59	30.0	0.3	30.0	20.1	9.82	3.052		
1,500.0	1,500.0	1,499.0	1,499.0	5.3	5.3	0.59	30.0	0.3	30.0	19.4	10.54	2.844		
1,600.0	1,600.0	1,599.0	1,599.0	5.6	5.6	0.59	30.0	0.3	30.0	18.7	11.25	2.663		
1,700.0	1,700.0	1,699.0	1,699.0	6.0	6.0	0.59	30.0	0.3	30.0	18.0	11.97	2.503		
1,800.0	1,800.0	1,799.0	1,799.0	6.3	6.3	0.59	30.0	0.3	30.0	17.3	12.69	2.362 CC, ES		
1,900.0	1,900.0	1,898.2	1,898.2	6.7	6.7	-1.61	31.2	-0.9	31.2	17.8	13.39	2.328		
2,000.0	2,000.0	1,997.2	1,997.1	7.1	7.0	-7.31	34.8	-4.5	35.1	21.0	14.09	2.493		
2,100.0	2,100.0	2,095.8	2,095.2	7.4	7.4	-14.31	40.8	-10.4	42.3	27.5	14.77	2.863		
2,200.0	2,200.0	2,193.6	2,192.4	7.8	7.8	-20.79	49.2	-18.7	53.0	37.6	15.43	3.436		
2,300.0	2,300.0	2,290.5	2,288.1	8.1	8.1	-25.99	59.8	-29.1	67.4	51.3	16.06	4.195		
2,400.0	2,400.0	2,388.8	2,384.9	8.5	8.5	-29.77	71.9	-41.1	84.0	67.3	16.75	5.015		
2,500.0	2,500.0	2,487.3	2,481.9	8.9	8.9	-32.31	84.0	-53.1	100.9	83.4	17.45	5.781		
2,600.0	2,600.0	2,585.7	2,578.9	9.2	9.2	-34.11	96.2	-65.2	117.9	99.8	18.16	6.495		
2,700.0	2,700.0	2,684.2	2,675.8	9.6	9.6	-35.46	108.4	-77.2	135.0	116.2	18.86	7.159		
2,800.0	2,800.0	2,782.7	2,772.8	9.9	10.0	-36.50	120.5	-89.2	152.2	132.6	19.57	7.776		
2,900.0	2,900.0	2,881.2	2,869.8	10.3	10.4	-37.34	132.7	-101.2	169.4	149.1	20.28	8.352		
3,000.0	3,000.0	2,979.7	2,966.8	10.6	10.8	-38.02	144.9	-113.2	186.7	165.7	21.00	8.890		
3,100.0	3,100.0	3,078.0	3,063.7	11.0	11.2	114.74	157.0	-125.3	204.6	183.0	21.69	9.433		
3,200.0	3,199.8	3,176.1	3,160.2	11.3	11.6	115.11	169.1	-137.2	224.1	201.7	22.38	10.014		
3,300.0	3,299.5	3,273.7	3,256.4	11.6	12.0	116.09	181.2	-149.1	245.0	222.0	23.07	10.624		
3,330.9	3,330.2	3,303.8	3,286.0	11.7	12.2	116.49	184.9	-152.8	251.9	228.6	23.28	10.819		
3,400.0	3,398.8	3,370.9	3,352.1	12.0	12.4	117.63	193.2	-161.0	267.3	243.6	23.76	11.252		
3,500.0	3,498.1	3,468.1	3,447.8	12.3	12.8	119.06	205.2	-172.9	289.9	265.4	24.45	11.853		
3,600.0	3,597.5	3,565.3	3,543.5	12.6	13.3	120.29	217.2	-184.7	312.6	287.4	25.15	12.425		
3,700.0	3,696.8	3,662.5	3,639.2	13.0	13.7	121.35	229.2	-196.6	335.4	309.5	25.86	12.969		
3,800.0	3,796.1	3,759.7	3,735.0	13.3	14.1	122.28	241.2	-208.5	358.3	331.7	26.57	13.485		
3,900.0	3,895.5	3,856.8	3,830.7	13.7	14.5	123.10	253.2	-220.3	381.2	354.0	27.28	13.976		
4,000.0	3,994.8	3,958.1	3,930.4	14.0	14.9	123.86	265.6	-232.6	404.2	376.1	28.04	14.415		
4,100.0	4,094.1	4,071.7	4,042.8	14.4	15.4	124.74	277.2	-244.0	424.4	395.5	28.91	14.683		
4,200.0	4,193.5	4,186.7	4,157.2	14.7	15.8	125.72	285.7	-252.4	441.0	411.3	29.75	14.827		
4,300.0	4,292.8	4,302.8	4,273.0	15.1	16.3	126.82	291.0	-257.7	453.9	423.4	30.55	14.859		
4,400.0	4,392.1	4,419.7	4,389.9	15.5	16.7	128.05	292.9	-259.6	463.2	431.9	31.32	14.791		
4,500.0	4,491.5	4,520.3	4,490.5	15.8	17.0	129.16	292.9	-259.6	470.4	438.4	32.03	14.686		
4,600.0	4,590.8	4,619.6	4,589.8	16.2	17.3	130.23	292.9	-259.6	477.8	445.1	32.74	14.592		
4,700.0	4,690.1	4,718.9	4,689.1	16.6	17.7	131.27	292.9	-259.6	485.4	451.9	33.46	14.506		
4,800.0	4,789.5	4,818.3	4,788.5	16.9	18.0	132.27	292.9	-259.6	493.1	458.9	34.17	14.428		
4,900.0	4,888.8	4,917.6	4,887.8	17.3	18.3	133.24	292.9	-259.6	500.9	466.0	34.89	14.357		

Company:	NEW MEXICO	Local Co-ordinate Reference	Well RANA PICANTE 12 FED COM 413H
Project:	(SP) EDDY	TVD Reference:	KB @ 3036.0usft
Reference Site:	RANA PICANTE	MD Reference:	KB @ 3036.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	RANA PICANTE 12 FED COM 413H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass_17
Reference Design:	PWP0	Offset TVD Reference:	Offset Datum

Offset Design RANA PICANTE - RANA PICANTE 12 FED COM 412H - OWB - PWP0												Offset Site Error:	0.0 usft
Survey Program: O-MWD												Offset Well Error:	0.0 usft
Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,000.0	4,988.1	5,016.9	4,987.1	17.7	18.7	134.18	292.9	-259.6	508.9	473.3	35.60	14.293	
5,100.0	5,087.5	5,116.3	5,086.5	18.1	19.0	135.10	292.9	-259.6	517.0	480.7	36.32	14.235	
5,200.0	5,186.8	5,215.6	5,185.8	18.4	19.4	135.98	292.9	-259.6	525.3	488.2	37.04	14.183	
5,300.0	5,286.1	5,314.9	5,285.1	18.8	19.7	136.84	292.9	-259.6	533.7	495.9	37.75	14.136	
5,400.0	5,385.5	5,414.3	5,384.5	19.2	20.0	137.67	292.9	-259.6	542.1	503.7	38.47	14.093	
5,500.0	5,484.8	5,513.6	5,483.8	19.6	20.4	138.47	292.9	-259.6	550.7	511.6	39.18	14.055	
5,600.0	5,584.1	5,612.9	5,583.1	20.0	20.7	139.25	292.9	-259.6	559.5	519.6	39.90	14.021	
5,700.0	5,683.5	5,712.3	5,682.5	20.3	21.1	140.01	292.9	-259.6	568.3	527.6	40.62	13.991	
5,800.0	5,782.8	5,811.6	5,781.8	20.7	21.4	140.74	292.9	-259.6	577.2	535.8	41.33	13.964	
5,900.0	5,882.1	5,910.9	5,881.1	21.1	21.7	141.45	292.9	-259.6	586.2	544.1	42.05	13.940	
6,000.0	5,981.5	6,010.3	5,980.5	21.5	22.1	142.14	292.9	-259.6	595.2	552.5	42.76	13.919	
6,100.0	6,080.8	6,109.6	6,079.8	21.9	22.4	142.81	292.9	-259.6	604.4	560.9	43.48	13.901	
6,200.0	6,180.1	6,208.9	6,179.1	22.3	22.8	143.46	292.9	-259.6	613.6	569.4	44.20	13.885	
6,300.0	6,279.5	6,308.3	6,278.5	22.6	23.1	144.09	292.9	-259.6	623.0	578.1	44.91	13.871	
6,400.0	6,378.8	6,407.6	6,377.8	23.0	23.4	144.70	292.9	-259.6	632.4	586.7	45.63	13.860	
6,500.0	6,478.1	6,506.9	6,477.1	23.4	23.8	145.30	292.9	-259.6	641.8	595.5	46.34	13.850	
6,600.0	6,577.5	6,606.3	6,576.5	23.8	24.1	145.87	292.9	-259.6	651.3	604.3	47.06	13.842	
6,700.0	6,676.8	6,705.6	6,675.8	24.2	24.5	146.43	292.9	-259.6	660.9	613.2	47.77	13.835	
6,800.0	6,776.1	6,804.9	6,775.1	24.6	24.8	146.98	292.9	-259.6	670.6	622.1	48.49	13.831	
6,900.0	6,875.5	6,904.3	6,874.5	25.0	25.2	147.50	292.9	-259.6	680.3	631.1	49.20	13.827	
7,000.0	6,974.8	7,003.6	6,973.8	25.4	25.5	148.02	292.9	-259.6	690.1	640.2	49.92	13.825	
7,100.0	7,074.1	7,102.9	7,073.1	25.7	25.9	148.52	292.9	-259.6	699.9	649.3	50.63	13.823	
7,200.0	7,173.5	7,202.3	7,172.5	26.1	26.2	149.00	292.9	-259.6	709.8	658.4	51.35	13.823	
7,300.0	7,272.8	7,301.6	7,271.8	26.5	26.6	149.47	292.9	-259.6	719.7	667.6	52.06	13.824	
7,400.0	7,372.1	7,400.9	7,371.1	26.9	26.9	149.93	292.9	-259.6	729.6	676.9	52.77	13.826	
7,500.0	7,471.5	7,500.3	7,470.5	27.3	27.2	150.38	292.9	-259.6	739.7	686.2	53.49	13.828	
7,600.0	7,570.8	7,599.6	7,569.8	27.7	27.6	150.81	292.9	-259.6	749.7	695.5	54.20	13.831	
7,700.0	7,670.2	7,699.0	7,669.2	28.1	27.9	151.24	292.9	-259.6	759.8	704.9	54.92	13.835	
7,800.0	7,769.5	7,798.3	7,768.5	28.5	28.3	151.65	292.9	-259.6	770.0	714.3	55.63	13.840	
7,900.0	7,868.8	7,897.6	7,867.8	28.9	28.6	152.05	292.9	-259.6	780.1	723.8	56.35	13.845	
8,000.0	7,968.2	7,997.0	7,967.2	29.3	29.0	152.44	292.9	-259.6	790.3	733.3	57.06	13.850	
8,100.0	8,067.5	8,096.3	8,066.5	29.7	29.3	152.82	292.9	-259.6	800.6	742.8	57.78	13.856	
8,200.0	8,166.8	8,195.6	8,165.8	30.1	29.7	153.19	292.9	-259.6	810.9	752.4	58.49	13.863	
8,300.0	8,266.2	8,295.0	8,265.2	30.5	30.0	153.55	292.9	-259.6	821.2	762.0	59.21	13.870	
8,400.0	8,365.5	8,394.3	8,364.5	30.9	30.4	153.91	292.9	-259.6	831.5	771.6	59.92	13.877	
8,500.0	8,464.8	8,493.6	8,463.8	31.3	30.7	154.25	292.9	-259.6	841.9	781.3	60.64	13.885	
8,600.0	8,564.2	8,593.0	8,563.2	31.6	31.1	154.59	292.9	-259.6	852.3	791.0	61.35	13.893	
8,706.4	8,669.8	8,698.6	8,668.8	32.1	31.5	154.94	292.9	-259.6	863.4	801.3	62.11	13.901	
8,800.0	8,763.0	8,791.8	8,762.0	32.4	31.8	155.27	292.9	-259.6	871.8	809.1	62.78	13.887	
8,900.0	8,862.8	8,891.6	8,861.8	32.8	32.1	155.49	292.9	-259.6	877.8	814.3	63.49	13.826	
9,000.0	8,962.7	8,991.5	8,961.7	33.2	32.5	155.60	292.9	-259.6	880.6	816.4	64.20	13.717	
9,037.3	9,000.0	9,028.8	8,999.0	33.3	32.6	2.40	292.9	-259.6	880.8	816.3	64.46	13.665	
9,100.0	9,062.7	9,091.5	9,061.7	33.5	32.8	2.40	292.9	-259.6	880.8	815.9	64.89	13.574	
9,200.0	9,162.7	9,191.5	9,161.7	33.8	33.2	2.40	292.9	-259.6	880.8	815.2	65.58	13.431	
9,300.0	9,262.7	9,291.5	9,261.7	34.1	33.5	2.40	292.9	-259.6	880.8	814.5	66.27	13.291	
9,400.0	9,362.7	9,391.5	9,361.7	34.5	33.9	2.40	292.9	-259.6	880.8	813.8	66.96	13.154	
9,500.0	9,462.7	9,491.5	9,461.7	34.8	34.2	2.40	292.9	-259.6	880.8	813.1	67.65	13.019	
9,600.0	9,562.7	9,591.5	9,561.7	35.1	34.6	2.40	292.9	-259.6	880.8	812.4	68.35	12.887	
9,700.0	9,662.7	9,691.5	9,661.7	35.4	34.9	2.40	292.9	-259.6	880.8	811.7	69.04	12.758	
9,800.0	9,762.7	9,791.5	9,761.7	35.8	35.3	2.40	292.9	-259.6	880.8	811.1	69.73	12.631	
9,900.0	9,862.7	9,891.5	9,861.7	36.1	35.7	2.40	292.9	-259.6	880.8	810.4	70.43	12.506	

Company:	NEW MEXICO	Local Co-ordinate Reference	Well RANA PICANTE 12 FED COM 413H
Project:	(SP) EDDY	TVD Reference:	KB @ 3036.0usft
Reference Site:	RANA PICANTE	MD Reference:	KB @ 3036.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	RANA PICANTE 12 FED COM 413H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass_17
Reference Design:	PWP0	Offset TVD Reference:	Offset Datum

Offset Design RANA PICANTE - RANA PICANTE 12 FED COM 412H - OWB - PWP0													Offset Site Error:	0.0 usft
Survey Program: O-MWD													Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Reference Depth (usft)	Measured Depth (usft)	Vertical Offset Depth (usft)	Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
10,000.0	9,962.7	9,991.5	9,961.7	36.4	36.0	2.40	292.9	-259.6	880.8	809.7	71.12	12.384		
10,014.8	9,977.5	10,006.3	9,976.5	36.5	36.1	2.40	292.9	-259.6	880.8	809.6	71.22	12.366		
10,025.0	9,987.7	10,015.6	9,985.8	36.5	36.1	-86.69	292.9	-259.5	880.8	809.5	71.29	12.355		
10,050.0	10,012.7	10,038.2	10,008.4	36.6	36.2	-86.70	292.9	-258.6	880.8	809.3	71.45	12.328		
10,075.0	10,037.5	10,060.8	10,030.8	36.7	36.2	-86.72	293.0	-256.6	880.8	809.2	71.60	12.302		
10,100.0	10,062.3	10,083.3	10,053.2	36.7	36.3	-86.75	293.0	-253.5	880.7	809.0	71.74	12.276		
10,125.0	10,086.7	10,106.0	10,075.5	36.8	36.4	-86.78	293.1	-249.4	880.7	808.8	71.88	12.252		
10,150.0	10,110.9	10,128.6	10,097.5	36.9	36.4	-86.82	293.2	-244.3	880.7	808.7	72.02	12.228		
10,175.0	10,134.7	10,151.2	10,119.3	36.9	36.5	-86.88	293.3	-238.0	880.6	808.5	72.16	12.205		
10,200.0	10,158.1	10,175.0	10,141.8	37.0	36.6	-86.94	293.4	-230.4	880.6	808.3	72.29	12.181		
10,225.0	10,181.0	10,196.7	10,161.9	37.0	36.6	-87.00	293.5	-222.5	880.5	808.1	72.41	12.160		
10,250.0	10,203.3	10,219.4	10,182.7	37.1	36.7	-87.08	293.7	-213.2	880.5	808.0	72.54	12.139		
10,275.0	10,225.0	10,242.3	10,203.1	37.2	36.8	-87.16	293.9	-202.9	880.4	807.8	72.66	12.118		
10,300.0	10,246.0	10,265.1	10,223.0	37.2	36.8	-87.25	294.0	-191.6	880.4	807.6	72.78	12.097		
10,325.0	10,266.3	10,288.1	10,242.4	37.2	36.9	-87.34	294.3	-179.4	880.3	807.4	72.90	12.077		
10,350.0	10,285.8	10,311.1	10,261.2	37.3	36.9	-87.44	294.5	-166.2	880.3	807.2	73.01	12.056		
10,375.0	10,304.5	10,334.1	10,279.4	37.3	37.0	-87.55	294.7	-152.0	880.2	807.1	73.13	12.036		
10,400.0	10,322.3	10,357.3	10,297.0	37.3	37.0	-87.67	295.0	-137.0	880.1	806.9	73.25	12.016		
10,425.0	10,339.1	10,380.5	10,313.8	37.4	37.1	-87.79	295.2	-121.1	880.1	806.7	73.37	11.995		
10,450.0	10,354.9	10,403.7	10,329.9	37.4	37.1	-87.92	295.5	-104.3	880.0	806.5	73.50	11.974		
10,475.0	10,369.7	10,427.1	10,345.3	37.4	37.2	-88.05	295.8	-86.6	879.9	806.3	73.63	11.952		
10,500.0	10,383.4	10,450.0	10,359.4	37.4	37.2	-88.19	296.1	-68.7	879.9	806.1	73.76	11.929		
10,525.0	10,396.0	10,474.2	10,373.4	37.4	37.3	-88.33	296.4	-49.0	879.8	805.9	73.90	11.905		
10,550.0	10,407.5	10,497.8	10,386.2	37.4	37.3	-88.48	296.8	-29.0	879.8	805.7	74.05	11.881		
10,575.0	10,417.7	10,521.6	10,398.0	37.4	37.4	-88.63	297.1	-8.4	879.7	805.5	74.21	11.855		
10,600.0	10,426.8	10,545.5	10,408.7	37.4	37.5	-88.79	297.4	12.9	879.7	805.3	74.38	11.827		
10,625.0	10,434.6	10,569.4	10,418.5	37.4	37.6	-88.95	297.8	34.8	879.7	805.1	74.56	11.799		
10,650.0	10,441.2	10,593.6	10,427.2	37.4	37.6	-89.11	298.2	57.3	879.6	804.9	74.74	11.769		
10,675.0	10,446.5	10,617.8	10,434.7	37.4	37.7	-89.28	298.6	80.3	879.6	804.7	74.94	11.737		
10,700.0	10,450.6	10,642.1	10,441.1	37.4	37.8	-89.44	299.0	103.8	879.6	804.5	75.15	11.704		
10,725.0	10,453.3	10,666.6	10,446.4	37.4	37.9	-89.61	299.4	127.7	879.6	804.2	75.37	11.670		
10,726.1	10,453.4	10,667.7	10,446.6	37.5	37.9	-89.62	299.4	128.8	879.6	804.2	75.38	11.669		
10,750.0	10,454.7	10,691.2	10,450.4	37.6	38.0	-89.78	299.8	152.0	879.6	804.0	75.60	11.635		
10,764.8	10,455.0	10,705.9	10,452.2	37.6	38.1	-89.88	300.0	166.5	879.6	803.9	75.74	11.613		
10,800.0	10,455.0	10,740.9	10,454.7	37.8	38.3	-90.05	300.6	201.5	879.6	803.6	76.09	11.560		
10,900.0	10,455.0	10,841.0	10,455.0	38.5	38.9	-90.07	302.2	301.5	879.7	802.4	77.28	11.384		
11,000.0	10,455.0	10,941.0	10,455.0	39.2	39.6	-90.07	303.9	401.5	879.8	801.1	78.72	11.176		
11,100.0	10,455.0	11,041.0	10,455.0	40.1	40.4	-90.07	305.6	501.5	879.9	799.4	80.43	10.940		
11,200.0	10,455.0	11,141.0	10,455.0	41.1	41.4	-90.07	307.2	601.4	879.9	797.6	82.38	10.682		
11,300.0	10,455.0	11,241.0	10,455.0	42.3	42.4	-90.07	308.9	701.4	880.0	795.4	84.56	10.407		
11,400.0	10,455.0	11,341.0	10,455.0	43.5	43.6	-90.07	310.6	801.4	880.1	793.1	86.96	10.121		
11,500.0	10,455.0	11,441.0	10,455.0	44.8	44.9	-90.07	312.2	901.4	880.2	790.6	89.55	9.829		
11,600.0	10,455.0	11,541.0	10,455.0	46.2	46.3	-90.07	313.9	1,001.4	880.2	787.9	92.32	9.535		
11,700.0	10,455.0	11,641.0	10,455.0	47.7	47.7	-90.06	315.5	1,101.4	880.3	785.1	95.25	9.242		
11,800.0	10,455.0	11,741.0	10,455.0	49.3	49.2	-90.06	317.2	1,201.4	880.4	782.0	98.33	8.953		
11,900.0	10,455.0	11,841.0	10,455.0	50.9	50.8	-90.06	318.9	1,301.3	880.4	778.9	101.55	8.670		
12,000.0	10,455.0	11,941.0	10,455.0	52.6	52.5	-90.06	320.5	1,401.3	880.5	775.6	104.89	8.395		
12,100.0	10,455.0	12,041.0	10,455.0	54.3	54.2	-90.06	322.2	1,501.3	880.6	772.3	108.34	8.128		
12,200.0	10,455.0	12,141.0	10,455.0	56.1	56.0	-90.06	323.8	1,601.3	880.7	768.8	111.90	7.870		
12,300.0	10,455.0	12,241.0	10,455.0	57.9	57.8	-90.06	325.5	1,701.3	880.7	765.2	115.54	7.623		
12,400.0	10,455.0	12,341.0	10,455.0	59.8	59.6	-90.06	327.2	1,801.3	880.8	761.5	119.27	7.385		

Company:	NEW MEXICO	Local Co-ordinate Reference	Well RANA PICANTE 12 FED COM 413H
Project:	(SP) EDDY	TVD Reference:	KB @ 3036.0usft
Reference Site:	RANA PICANTE	MD Reference:	KB @ 3036.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	RANA PICANTE 12 FED COM 413H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass_17
Reference Design:	PWP0	Offset TVD Reference:	Offset Datum

Offset Design RANA PICANTE - RANA PICANTE 12 FED COM 412H - OWB - PWP0												Offset Site Error:	0.0 usft
Survey Program: O-MWD												Offset Well Error:	0.0 usft
Measured Depth (usft)	Reference Vertical Depth (usft)	Measured Depth (usft)	Offset Vertical Depth (usft)	Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
							+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
12,500.0	10,455.0	12,441.0	10,455.0	61.7	61.5	-90.06	328.8	1,901.3	880.9	757.8	123.07	7.157	
12,600.0	10,455.0	12,541.0	10,455.0	63.6	63.5	-90.06	330.5	2,001.2	881.0	754.0	126.94	6.940	
12,700.0	10,455.0	12,641.0	10,455.0	65.6	65.4	-90.06	332.2	2,101.2	881.0	750.1	130.88	6.732	
12,800.0	10,455.0	12,741.0	10,455.0	67.6	67.4	-90.06	333.8	2,201.2	881.1	746.2	134.87	6.533	
12,900.0	10,455.0	12,841.0	10,455.0	69.7	69.4	-90.06	335.5	2,301.2	881.2	742.3	138.92	6.343	
13,000.0	10,455.0	12,941.0	10,455.0	71.7	71.5	-90.06	337.1	2,401.2	881.2	738.2	143.01	6.162	
13,100.0	10,455.0	13,041.0	10,455.0	73.8	73.5	-90.06	338.8	2,501.2	881.3	734.2	147.15	5.989	
13,200.0	10,455.0	13,141.0	10,455.0	75.9	75.6	-90.06	340.5	2,601.2	881.4	730.1	151.33	5.824	
13,300.0	10,455.0	13,241.0	10,455.0	78.0	77.7	-90.06	342.1	2,701.1	881.5	725.9	155.54	5.667	
13,400.0	10,455.0	13,341.0	10,455.0	80.1	79.8	-90.06	343.8	2,801.1	881.5	721.7	159.79	5.517	
13,500.0	10,455.0	13,441.0	10,455.0	82.3	82.0	-90.06	345.4	2,901.1	881.6	717.5	164.07	5.373	
13,600.0	10,455.0	13,541.0	10,455.0	84.4	84.1	-90.06	347.1	3,001.1	881.7	713.3	168.38	5.236	
13,700.0	10,455.0	13,641.0	10,455.0	86.6	86.3	-90.06	348.8	3,101.1	881.8	709.0	172.72	5.105	
13,800.0	10,455.0	13,741.0	10,455.0	88.8	88.4	-90.06	350.4	3,201.1	881.8	704.8	177.08	4.980	
13,900.0	10,455.0	13,841.0	10,455.0	91.0	90.6	-90.06	352.1	3,301.1	881.9	700.4	181.46	4.860	
14,000.0	10,455.0	13,941.0	10,455.0	93.2	92.8	-90.06	353.8	3,401.1	882.0	696.1	185.87	4.745	
14,100.0	10,455.0	14,041.0	10,455.0	95.4	95.0	-90.06	355.4	3,501.0	882.0	691.8	190.30	4.635	
14,200.0	10,455.0	14,141.0	10,455.0	97.6	97.3	-90.06	357.1	3,601.0	882.1	687.4	194.74	4.530	
14,300.0	10,455.0	14,241.0	10,455.0	99.8	99.5	-90.06	358.7	3,701.0	882.2	683.0	199.20	4.429	
14,400.0	10,455.0	14,341.0	10,455.0	102.1	101.7	-90.06	360.4	3,801.0	882.3	678.6	203.68	4.332	
14,500.0	10,455.0	14,441.0	10,455.0	104.3	104.0	-90.06	362.1	3,901.0	882.3	674.2	208.17	4.238	
14,557.1	10,455.0	14,498.0	10,455.0	105.6	105.2	-90.06	363.0	3,958.0	882.4	671.6	210.74	4.187	
14,600.0	10,455.0	14,540.9	10,455.0	106.6	106.2	-90.06	363.7	4,000.9	881.1	668.4	212.68	4.143	
14,650.0	10,455.0	14,590.7	10,455.0	107.7	107.3	-90.07	364.5	4,050.7	876.4	661.5	214.91	4.078	
14,700.0	10,455.0	14,640.0	10,455.0	108.8	108.5	-90.07	365.4	4,100.0	868.3	651.1	217.12	3.999	
14,750.0	10,455.0	14,688.7	10,455.0	109.8	109.5	-90.07	366.2	4,148.6	856.7	637.4	219.29	3.907	
14,800.0	10,455.0	14,736.4	10,455.0	110.8	110.6	-90.07	367.0	4,196.3	841.7	620.3	221.40	3.802	
14,850.0	10,455.0	14,782.9	10,455.0	111.8	111.7	-90.08	367.7	4,242.9	823.5	600.1	223.43	3.686	
14,900.0	10,455.0	14,828.1	10,455.0	112.7	112.7	-90.08	368.5	4,288.0	802.1	576.7	225.39	3.559	
14,950.0	10,455.0	14,871.6	10,455.0	113.6	113.7	-90.09	369.2	4,331.6	777.5	550.3	227.26	3.421	
15,000.0	10,455.0	14,913.4	10,455.0	114.4	114.7	-90.09	369.9	4,373.3	750.0	521.0	229.03	3.275	
15,050.0	10,455.0	14,953.1	10,455.0	115.1	115.6	-90.10	370.6	4,413.0	719.7	489.0	230.68	3.120	
15,100.0	10,455.0	14,990.6	10,455.0	115.8	116.4	-90.11	371.2	4,450.5	686.6	454.4	232.22	2.957	
15,150.0	10,455.0	15,025.7	10,455.0	116.4	117.2	-90.13	371.8	4,485.6	651.0	417.4	233.63	2.787	
15,200.0	10,455.0	15,058.2	10,455.0	117.0	118.0	-90.15	372.3	4,518.2	613.1	378.2	234.92	2.610	
15,250.0	10,455.0	15,076.0	10,455.0	117.5	118.4	-90.17	372.6	4,535.9	573.1	337.3	235.81	2.430	
15,300.0	10,455.0	15,076.0	10,455.0	117.9	118.4	-90.19	372.6	4,535.9	532.3	296.4	235.90	2.256	
15,350.0	10,455.0	15,076.0	10,455.0	118.2	118.4	-90.21	372.6	4,535.9	491.0	255.7	235.33	2.086	
15,400.0	10,455.0	15,076.0	10,455.0	118.5	118.4	-90.23	372.6	4,535.9	449.4	215.4	234.00	1.920	
15,450.0	10,455.0	15,076.0	10,455.0	118.7	118.4	-90.26	372.6	4,535.9	407.5	175.8	231.70	1.759	
15,500.0	10,455.0	15,076.0	10,455.0	118.9	118.4	-90.29	372.6	4,535.9	365.6	137.4	228.17	1.602	
15,550.0	10,455.0	15,076.0	10,455.0	119.1	118.4	-90.32	372.6	4,535.9	323.8	100.8	222.94	1.452 Level 3	
15,600.0	10,455.0	15,076.0	10,455.0	119.1	118.4	-90.35	372.6	4,535.9	282.4	67.1	215.27	1.312 Level 3	
15,650.0	10,455.0	15,076.0	10,455.0	119.2	118.4	-90.39	372.6	4,535.9	242.0	38.1	203.85	1.187 Level 3	
15,665.2	10,455.0	15,076.0	10,455.0	119.2	118.4	-90.40	372.6	4,535.9	230.0	30.7	199.30	1.154 Level 3	
15,700.0	10,455.0	15,076.0	10,455.0	119.2	118.4	-90.40	372.6	4,535.9	203.9	17.9	185.94	1.096 Level 3, SF	
15,800.0	10,455.0	15,076.0	10,455.0	119.3	118.4	-90.40	372.6	4,535.9	150.0	38.3	111.69	1.343 Level 3	
15,845.4	10,455.0	15,076.0	10,455.0	119.3	118.4	-90.40	372.6	4,535.9	143.0	65.1	77.89	1.835	
15,900.0	10,455.0	15,076.0	10,455.0	119.4	118.4	-90.40	372.6	4,535.9	153.1	52.0	101.08	1.514	
15,993.6	10,455.0	15,076.0	10,455.0	119.4	118.4	-90.40	372.6	4,535.9	206.0	37.0	168.98	1.219 Level 3	
16,000.0	10,455.0	15,076.0	10,455.0	119.4	118.4	-90.40	372.6	4,535.9	210.6	38.5	172.07	1.224 Level 3	

Company:	NEW MEXICO	Local Co-ordinate Reference	Well RANA PICANTE 12 FED COM 413H
Project:	(SP) EDDY	TVD Reference:	KB @ 3036.0usft
Reference Site:	RANA PICANTE	MD Reference:	KB @ 3036.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	RANA PICANTE 12 FED COM 413H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass_17
Reference Design:	PWP0	Offset TVD Reference:	Offset Datum

Offset Design RANA PICANTE - RANA PICANTE 12 FED COM 412H - OWB - PWP0													Offset Site Error:	0.0 usft
Survey Program: O-MWD													Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Reference Depth (usft)	Measured Depth (usft)	Vertical Offset Depth (usft)	Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning	
							+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)				
16,050.0	10,455.0	15,076.0	10,455.0	119.5	118.4	-90.37	372.6	4,535.9	248.3	56.6	191.71	1.295	Level 3	
16,100.0	10,455.0	15,076.0	10,455.0	119.5	118.4	-90.33	372.6	4,535.9	287.9	82.6	205.29	1.402	Level 3	
16,150.0	10,455.0	15,076.0	10,455.0	119.4	118.4	-90.30	372.6	4,535.9	328.5	113.6	214.94	1.528		
16,200.0	10,455.0	15,076.0	10,455.0	119.4	118.4	-90.27	372.6	4,535.9	369.6	147.7	221.96	1.665		
16,250.0	10,455.0	15,076.0	10,455.0	119.4	118.4	-90.25	372.6	4,535.9	411.0	183.8	227.13	1.809		
16,300.0	10,455.0	15,076.0	10,455.0	119.4	118.4	-90.22	372.6	4,535.9	452.2	221.3	230.95	1.958		
16,350.0	10,455.0	15,076.0	10,455.0	119.3	118.4	-90.20	372.6	4,535.9	493.3	259.6	233.72	2.111		
16,400.0	10,455.0	15,076.0	10,455.0	119.3	118.4	-90.18	372.6	4,535.9	534.1	298.4	235.65	2.266		
16,450.0	10,455.0	15,076.0	10,455.0	119.3	118.4	-90.17	372.6	4,535.9	574.4	337.5	236.89	2.425		
16,500.0	10,455.0	15,062.2	10,455.0	119.4	118.0	-90.15	372.4	4,522.1	614.0	377.0	237.02	2.591		
16,550.0	10,455.0	15,029.3	10,455.0	119.4	117.3	-90.13	371.8	4,489.2	651.7	415.3	236.35	2.757		
16,600.0	10,455.0	14,993.9	10,455.0	119.5	116.5	-90.11	371.2	4,453.8	687.0	451.3	235.65	2.915		
16,650.0	10,455.0	14,956.1	10,455.0	119.7	115.6	-90.10	370.6	4,416.0	719.7	484.7	234.94	3.063		
16,700.0	10,455.0	14,916.1	10,455.0	119.8	114.7	-90.09	370.0	4,376.0	749.7	515.4	234.22	3.201		
16,750.0	10,455.0	14,874.1	10,455.0	120.0	113.8	-90.09	369.3	4,334.0	776.8	543.3	233.49	3.327		
16,800.0	10,455.0	14,830.3	10,455.0	120.3	112.8	-90.08	368.5	4,290.3	801.0	568.2	232.75	3.441		
16,850.0	10,455.0	14,785.0	10,455.0	120.6	111.7	-90.08	367.8	4,244.9	822.0	590.0	232.02	3.543		
16,900.0	10,455.0	14,738.3	10,455.0	120.9	110.7	-90.07	367.0	4,198.2	839.8	608.5	231.28	3.631		
16,950.0	10,455.0	14,690.4	10,455.0	121.2	109.6	-90.07	366.2	4,150.4	854.3	623.8	230.55	3.706		
17,000.0	10,455.0	14,641.7	10,455.0	121.6	108.5	-90.07	365.4	4,101.7	865.5	635.6	229.82	3.766		
17,050.0	10,455.0	14,592.3	10,455.0	121.9	107.4	-90.07	364.6	4,052.3	873.2	644.1	229.10	3.811		
17,100.0	10,455.0	14,542.5	10,455.0	122.3	106.2	-90.07	363.7	4,002.5	877.4	649.0	228.38	3.842		
17,135.7	10,455.0	14,506.8	10,455.0	122.6	105.4	-90.06	363.2	3,966.8	878.3	650.5	227.87	3.855		
17,200.0	10,455.0	14,442.5	10,455.0	123.1	104.0	-90.06	362.1	3,902.5	878.4	651.4	226.97	3.870		
17,300.0	10,455.0	14,342.5	10,455.0	124.0	101.8	-90.06	360.4	3,802.5	878.4	652.8	225.60	3.894		
17,400.0	10,455.0	14,242.5	10,455.0	124.9	99.5	-90.06	358.8	3,702.6	878.4	654.1	224.28	3.917		
17,500.0	10,455.0	14,142.5	10,455.0	125.9	97.3	-90.06	357.1	3,602.6	878.5	655.5	223.01	3.939		
17,600.0	10,455.0	14,042.5	10,455.0	126.8	95.1	-90.06	355.4	3,502.6	878.5	656.7	221.79	3.961		
17,700.0	10,455.0	13,942.5	10,455.0	127.9	92.9	-90.06	353.8	3,402.6	878.5	657.9	220.62	3.982		
17,800.0	10,455.0	13,842.5	10,455.0	128.9	90.7	-90.06	352.1	3,302.6	878.6	659.1	219.49	4.003		
17,900.0	10,455.0	13,742.5	10,455.0	130.0	88.5	-90.06	350.5	3,202.6	878.6	660.2	218.41	4.023		
18,000.0	10,455.0	13,642.5	10,455.0	131.1	86.3	-90.06	348.8	3,102.6	878.7	661.3	217.37	4.042		
18,100.0	10,455.0	13,542.5	10,455.0	132.3	84.1	-90.06	347.1	3,002.6	878.7	662.3	216.38	4.061		
18,200.0	10,455.0	13,442.5	10,455.0	133.5	82.0	-90.06	345.5	2,902.7	878.7	663.3	215.44	4.079		
18,300.0	10,455.0	13,342.5	10,455.0	134.7	79.9	-90.06	343.8	2,802.7	878.8	664.2	214.55	4.096		
18,400.0	10,455.0	13,242.5	10,455.0	136.0	77.7	-90.06	342.1	2,702.7	878.8	665.1	213.70	4.112		
18,500.0	10,455.0	13,142.5	10,455.0	137.3	75.6	-90.06	340.5	2,602.7	878.9	666.0	212.90	4.128		
18,600.0	10,455.0	13,042.5	10,455.0	138.6	73.6	-90.06	338.8	2,502.7	878.9	666.7	212.15	4.143		
18,700.0	10,455.0	12,942.5	10,455.0	140.0	71.5	-90.06	337.2	2,402.7	878.9	667.5	211.45	4.157		
18,800.0	10,455.0	12,842.5	10,455.0	141.4	69.5	-90.06	335.5	2,302.7	879.0	668.2	210.80	4.170		
18,900.0	10,455.0	12,742.5	10,455.0	142.8	67.4	-90.06	333.8	2,202.8	879.0	668.8	210.20	4.182		
19,000.0	10,455.0	12,642.5	10,455.0	144.2	65.4	-90.06	332.2	2,102.8	879.0	669.4	209.66	4.193		
19,100.0	10,455.0	12,542.5	10,455.0	145.7	63.5	-90.06	330.5	2,002.8	879.1	669.9	209.16	4.203		
19,200.0	10,455.0	12,442.5	10,455.0	147.2	61.6	-90.06	328.9	1,902.8	879.1	670.4	208.73	4.212		
19,300.0	10,455.0	12,342.5	10,455.0	148.7	59.7	-90.06	327.2	1,802.8	879.2	670.8	208.36	4.220		
19,400.0	10,455.0	12,242.5	10,455.0	150.2	57.8	-90.06	325.5	1,702.8	879.2	671.2	208.04	4.226		
19,500.0	10,455.0	12,142.5	10,455.0	151.8	56.0	-90.06	323.9	1,602.8	879.2	671.4	207.79	4.231		
19,600.0	10,455.0	12,042.5	10,455.0	153.4	54.2	-90.06	322.2	1,502.9	879.3	671.7	207.61	4.235		
19,700.0	10,455.0	11,942.5	10,455.0	155.0	52.5	-90.06	320.5	1,402.9	879.3	671.8	207.51	4.238		
19,800.0	10,455.0	11,842.5	10,455.0	156.6	50.9	-90.06	318.9	1,302.9	879.4	671.9	207.48	4.238		
19,900.0	10,455.0	11,742.5	10,455.0	158.3	49.3	-90.06	317.2	1,202.9	879.4	671.9	207.53	4.237		

Company:	NEW MEXICO	Local Co-ordinate Reference	Well RANA PICANTE 12 FED COM 413H
Project:	(SP) EDDY	TVD Reference:	KB @ 3036.0usft
Reference Site:	RANA PICANTE	MD Reference:	KB @ 3036.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	RANA PICANTE 12 FED COM 413H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass_17
Reference Design:	PWP0	Offset TVD Reference:	Offset Datum

Offset Design RANA PICANTE - RANA PICANTE 12 FED COM 412H - OWB - PWP0													Offset Site Error:	0.0 usft	
Survey Program:		O-MWD		Reference		Offset		Semi Major Axis		Offset Wellbore Centre		Rule Assigned:		Offset Well Error:	0.0 usft
Measured	Vertical	Measured	Vertical	Reference	Offset	Highside			Distance					Warning	
Depth	Depth	Depth	Depth			Toolface	+N/-S	+E/-W	Between	Between	Minimum	Separation			
(usft)	(usft)	(usft)	(usft)	(usft)	(usft)	(°)	(usft)	(usft)	Centres	Ellipses	Separation	Factor			
									(usft)	(usft)	(usft)				
20,000.0	10,455.0	11,642.5	10,455.0	159.9	47.7	-90.06	315.6	1,102.9	879.4	671.8	207.67	4.235			
20,100.0	10,455.0	11,542.5	10,455.0	161.6	46.3	-90.06	313.9	1,002.9	879.5	671.6	207.90	4.230			
20,200.0	10,455.0	11,442.5	10,455.0	163.3	44.9	-90.06	312.2	902.9	879.5	671.3	208.23	4.224			
20,300.0	10,455.0	11,342.5	10,455.0	165.1	43.6	-90.06	310.6	803.0	879.5	670.9	208.68	4.215			
20,400.0	10,455.0	11,242.5	10,455.0	166.8	42.5	-90.06	308.9	703.0	879.6	670.4	209.23	4.204			
20,500.0	10,455.0	11,142.5	10,455.0	168.6	41.4	-90.06	307.3	603.0	879.6	669.7	209.91	4.190			
20,600.0	10,455.0	11,042.5	10,455.0	170.3	40.4	-90.06	305.6	503.0	879.7	668.9	210.73	4.174			
20,700.0	10,455.0	10,942.5	10,455.0	172.1	39.6	-90.06	303.9	403.0	879.7	668.0	211.68	4.156			
20,800.0	10,455.0	10,842.5	10,455.0	173.9	38.9	-90.06	302.3	303.0	879.7	667.0	212.78	4.135			
20,900.0	10,455.0	10,742.5	10,454.7	175.7	38.3	-90.05	300.6	203.0	879.8	665.8	214.01	4.111			
21,000.0	10,455.0	10,644.4	10,441.7	177.6	37.8	-89.20	299.0	106.0	879.9	664.5	215.37	4.086			
21,100.0	10,455.0	10,555.1	10,412.8	179.4	37.5	-87.32	297.6	21.6	881.0	664.4	216.65	4.067			
21,200.0	10,455.0	10,478.6	10,375.9	181.3	37.3	-84.93	296.5	-45.3	884.9	667.4	217.46	4.069			
21,300.0	10,455.0	10,415.3	10,337.6	183.1	37.1	-82.47	295.6	-95.6	893.4	676.0	217.38	4.110			
21,341.1	10,455.0	10,392.9	10,322.5	183.5	37.1	-81.50	295.4	-112.2	898.4	681.8	216.66	4.147			

PERMIAN

RESOURCES

Anticollision Report

Company:	NEW MEXICO	Local Co-ordinate Reference	Well RANA PICANTE 12 FED COM 413H
Project:	(SP) EDDY	TVD Reference:	KB @ 3036.0usft
Reference Site:	RANA PICANTE	MD Reference:	KB @ 3036.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	RANA PICANTE 12 FED COM 413H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass_17
Reference Design:	PWP0	Offset TVD Reference:	Offset Datum

Reference Depths are relative to KB @ 3036.0usft

Offset Depths are relative to Offset Datum

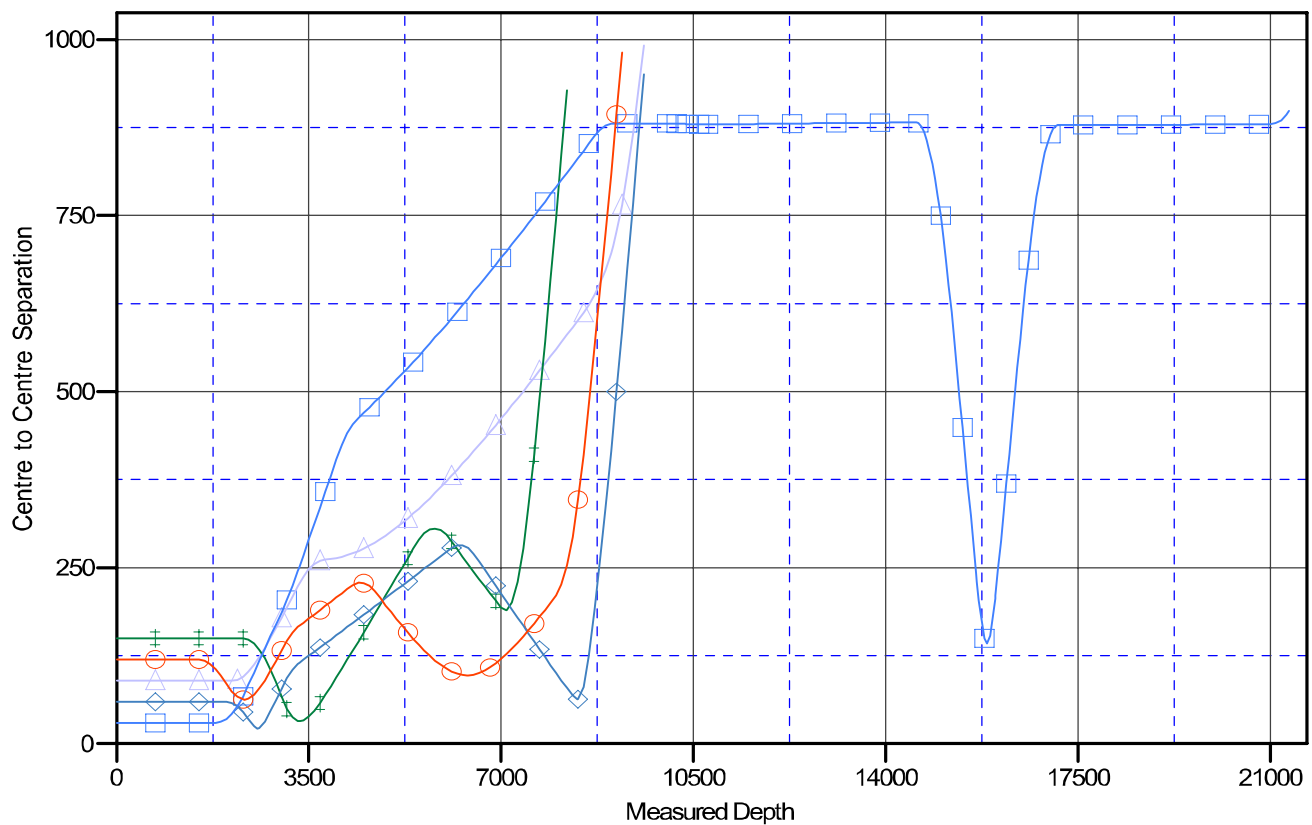
Central Meridian is 104° 20' 0.000 W

Coordinates are relative to: RANA PICANTE 12 FED COM 413H

Coordinate System is US State Plane 1983, New Mexico Eastern Zone

Grid Convergence at Surface is: 0.15°

Ladder Plot



LEGEND

RANA PICANTE 12 FED COM 171H (DWS/PWP0 V0) RANA PICANTE 12 FED COM 112H (DWS/PWP0 V0) RANA PICANTE 12 FED COM 122H (DWS/PWP0 V0)

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

PERMIAN

RESOURCES

Anticollision Report

Company:	NEW MEXICO	Local Co-ordinate Reference	Well RANA PICANTE 12 FED COM 413H
Project:	(SP) EDDY	TVD Reference:	KB @ 3036.0usft
Reference Site:	RANA PICANTE	MD Reference:	KB @ 3036.0usft
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	RANA PICANTE 12 FED COM 413H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	OWB	Database:	Compass_17
Reference Design:	PWP0	Offset TVD Reference:	Offset Datum

Reference Depths are relative to KB @ 3036.0usft

Offset Depths are relative to Offset Datum

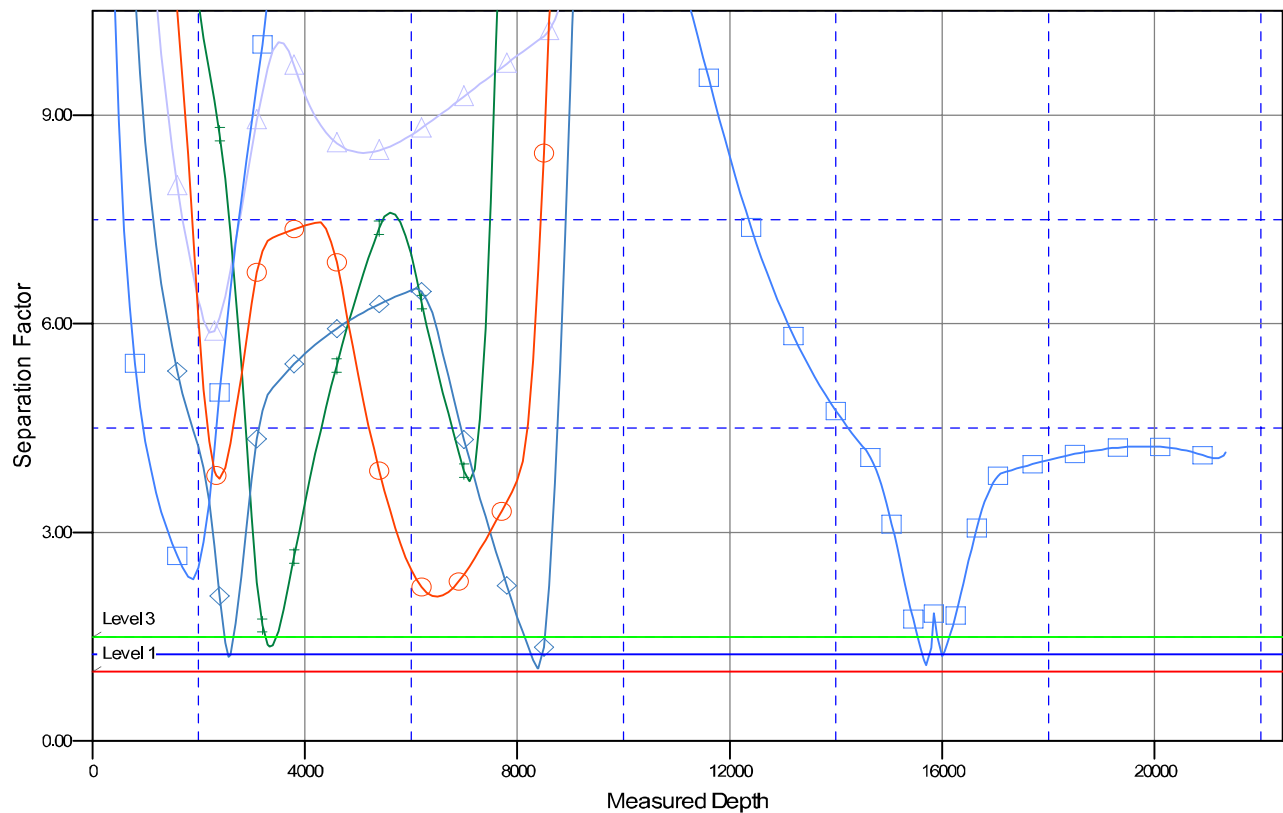
Central Meridian is 104° 20' 0.000 W

Coordinates are relative to: RANA PICANTE 12 FED COM 413H

Coordinate System is US State Plane 1983, New Mexico Eastern Zone

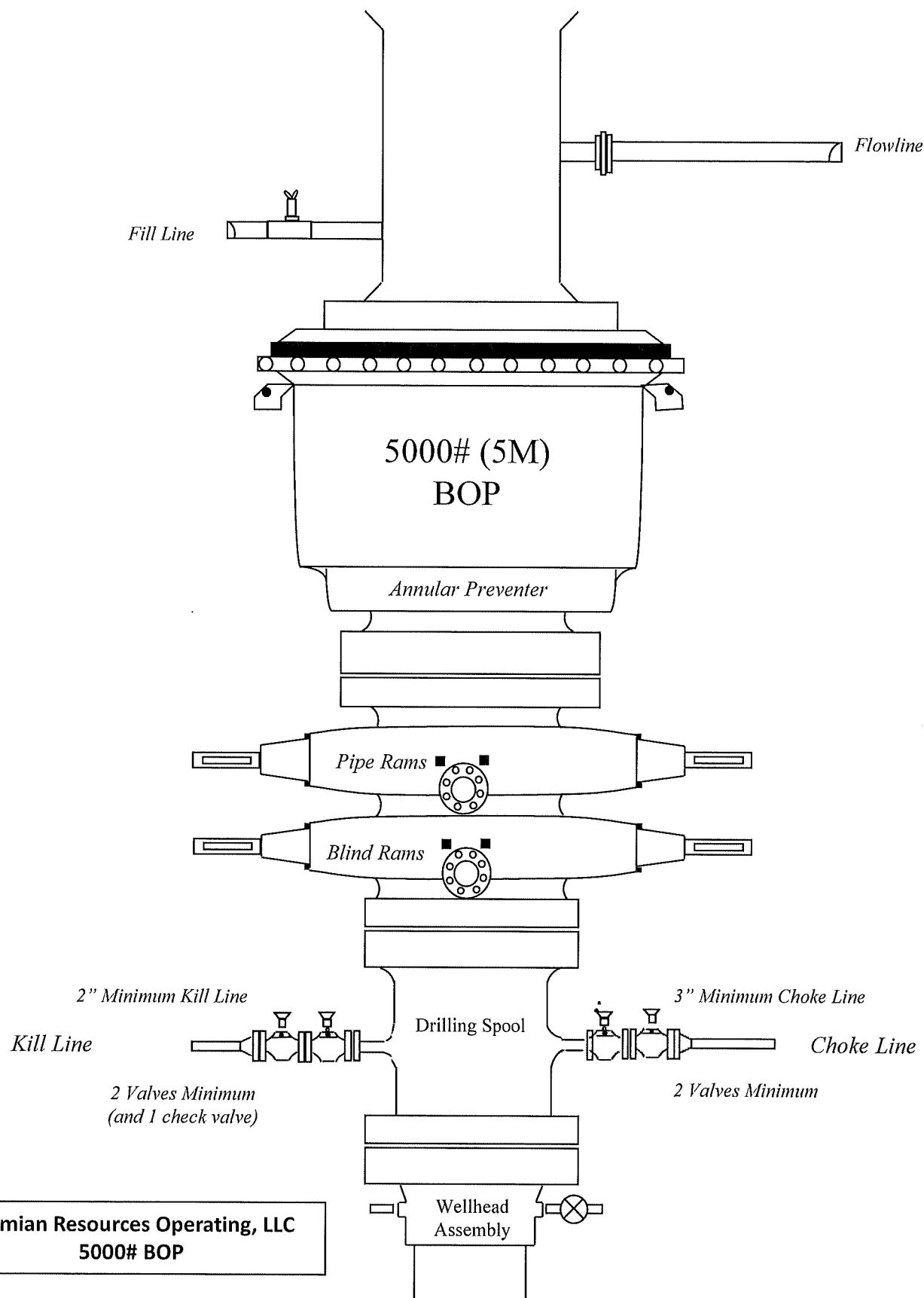
Grid Convergence at Surface is: 0.15°

Separation Factor Plot



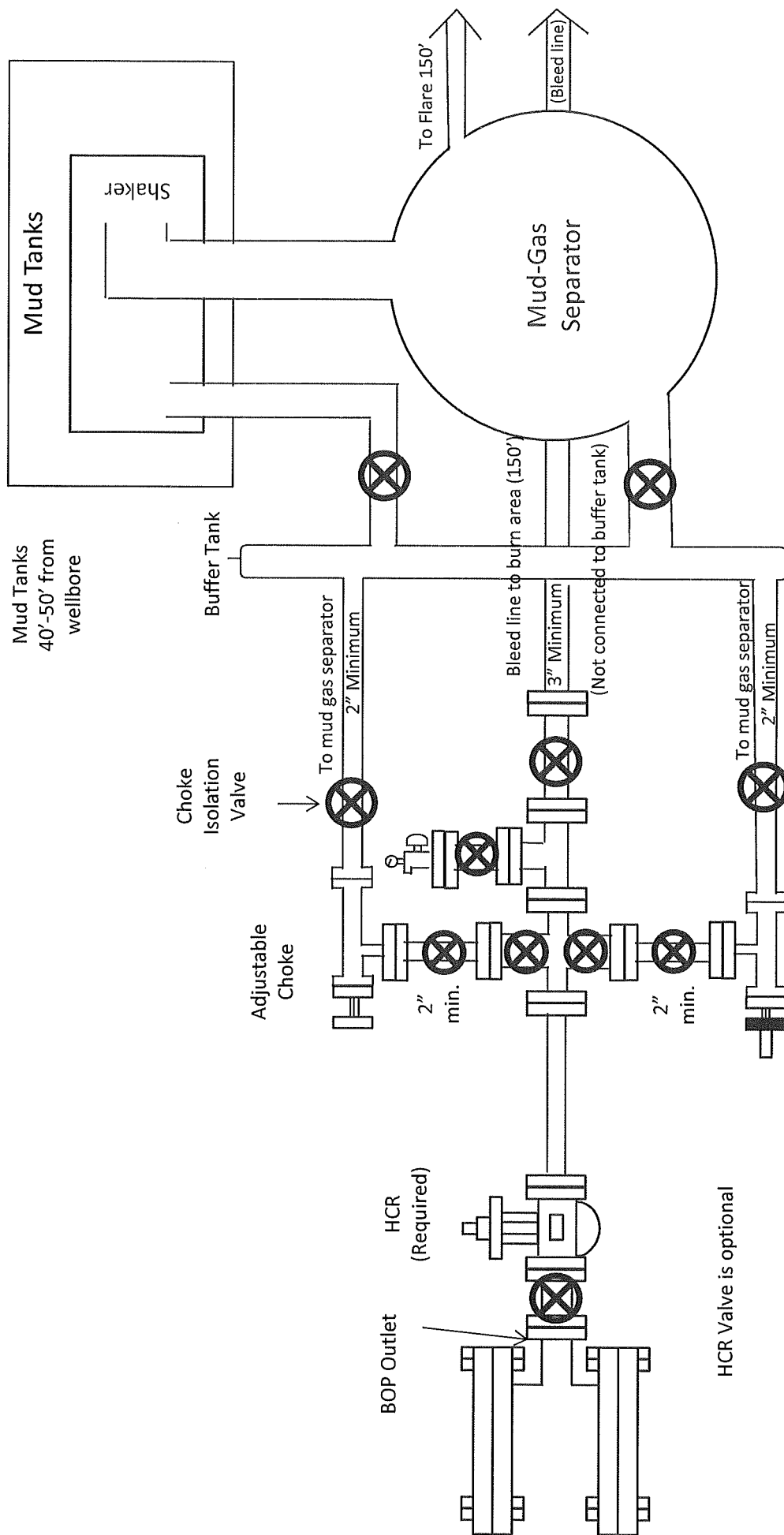
LEGEND

RANA PICANTE 12 FED COM 171HDWB/PWP0
 RANA PICANTE 12 FED COM 112HDWB/PWP0
 RANA PICANTE 12 FED COM 122HDWB/PWP0



Bleed lines will discharge 100' from WH in non-H2S scenarios
and 150' from WH in H2S scenarios.

Bleed lines will discharge 100' from WH in non-H2S scenarios and 150' from WH in H2S scenarios.



Drilling Operations Choke Manifold 5M Service

5M Choke Manifold Diagram
Permian Resources Operating, LLC

Permian Resources BOP Break Testing Variance Procedure

Subject: Request for a Variance Allowing break Testing of the Blowout Preventer Equipment (BOPE). Permian Resources requests a variance to ONLY test broken pressure seals on the BOPE and function test BOP when skidding a drilling rig between multiple wells on a pad.

Background

Title 43 CFR 3172, Drilling Operations, Sections 6.b.9.iv states that the BOP test must be performed whenever any seal subject to test pressure is broken. The current interpretation of the Bureau of Land Management (BLM) requires a complete BOP test and not just a test of the affected component. 43 CFR 3172.13, Variances from minimum standards states, "An operator may request the authorized officer to approve a variance from any of the minimum standards prescribed in [§§ 3172.6](#) through [3172.12](#). All such requests shall be submitted in writing to the appropriate authorized officer and provide information as to the circumstances which warrant approval of the variance(s) requested and the proposed alternative methods by which the related minimum standard(s) are to be satisfied. The authorized officer, after considering all relevant factors, if appropriate, may approve the requested variance(s) if it is determined that the proposed alternative(s) meet or exceed the objectives of the applicable minimum standard(s)". Permian Resources feels the break testing the BOPE is such a situation. Therefore, as per 43 CFR 3172.13, Permian Resources submits this request for the variance.

Supporting Documentation

The language used in 43 CFR 3172 became effective on December 19, 1988 and has remained the standard for regulating BLM onshore drilling operations for over 30 years. During this time, there have been significant changes in drilling technology. The BLM continues to use the variance request process to allow for the use of modern technology and acceptable engineering practices that have arisen since 43 CFR 3172 was originally released. The Permian Resources drilling rig fleet has many modern upgrades that allow the intact BOP stack to be moved between well slots on a multi-well pad, as well as, wellhead designs that incorporate quick connects facilitating release of the BOP from the wellhead without breaking any BOP stack components apart. These technologies have been used extensively offshore, and other regulators, API, and many operators around the world have endorsed break testing as safe and reliable.

Figure 1: Winch System attached to BOP Stack



Figure 2: BOP Winch System



American Petroleum Institute (API) standards, specification and recommended practices are considered the industry standard and are consistently utilized and referenced by the industry. 43 CFR 3172 recognizes API recommended Practices (RP) 53 in its original development. API Standard 53, Well Control Equipment Systems for Drilling Wells (Fifth Edition, December 2018, Annex C, Table C.4) recognizes break testing as an acceptable practice. Specifically, API Standard 53, Section 5.3.7.1 states "A pressure test of the pressure containing component shall be performed following the disconnection or repair, limited to the affected component." See Table C.4 below for reference.

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API STANDARD 53

Table C.4—Initial Pressure Testing, Surface BOP Stacks

Component to be Pressure Tested	Pressure Test—Low Pressure ^{a,c} psig (MPa)	Pressure Test—High Pressure ^{a,c}	
		Change Out of Component, Elastomer, or Ring Gasket	No Change Out of Component, Elastomer, or Ring Gasket
Annular preventer ^b	250 to 350 (1.72 to 2.41)	RWP of annular preventer	MASP or 70% annular RWP, whichever is lower.
Fixed pipe, variable bore, blind, and BSR preventers ^{a,c}	250 to 350 (1.72 to 2.41)	RWP of ram preventer or wellhead system, whichever is lower	ITP
Choke and kill line and BOP side outlet valves below ram preventers (both sides)	250 to 350 (1.72 to 2.41)	RWP of side outlet valve or wellhead system, whichever is lower	ITP
Choke manifold—upstream of chokes ^a	250 to 350 (1.72 to 2.41)	RWP of ram preventers or wellhead system, whichever is lower	ITP
Choke manifold—downstream of chokes ^a	250 to 350 (1.72 to 2.41)	RWP of valve(s), line(s), or MASP for the well program, whichever is lower	
Kelly, kelly valves, drill pipe safety valves, IBOPs	250 to 350 (1.72 to 2.41)	MASP for the well program	

^a Pressure test evaluation periods shall be a minimum of five minutes.

No visible leaks.

The pressure shall remain stable during the evaluation period. The pressure shall not decrease below the intended test pressure.

^b Annular(s) and VBR(s) shall be pressure tested on the largest and smallest OD drill pipe to be used in well program.

^c For pad drilling operations, moving from one wellhead to another within the 21 days, pressure testing is required for pressure-containing and pressure-controlling connections when the integrity of a pressure seal is broken.

^d For surface offshore operations, the ram BOPs shall be pressure tested with the ram locks engaged and the closing and locking pressure vented during the initial test. For land operations, the ram BOPs shall be pressure tested with the ram locks engaged and the closing and locking pressure vented at commissioning and annually.

^e Adjustable chokes are not required to be full sealing devices. Pressure testing against a closed choke is not required.

The Bureau of Safety and Environmental Enforcement (BSEE), Department of Interior, has also utilized the API standards, specification and best practices in the development of its offshore oil and gas regulations and incorporates them by reference within its regulations.

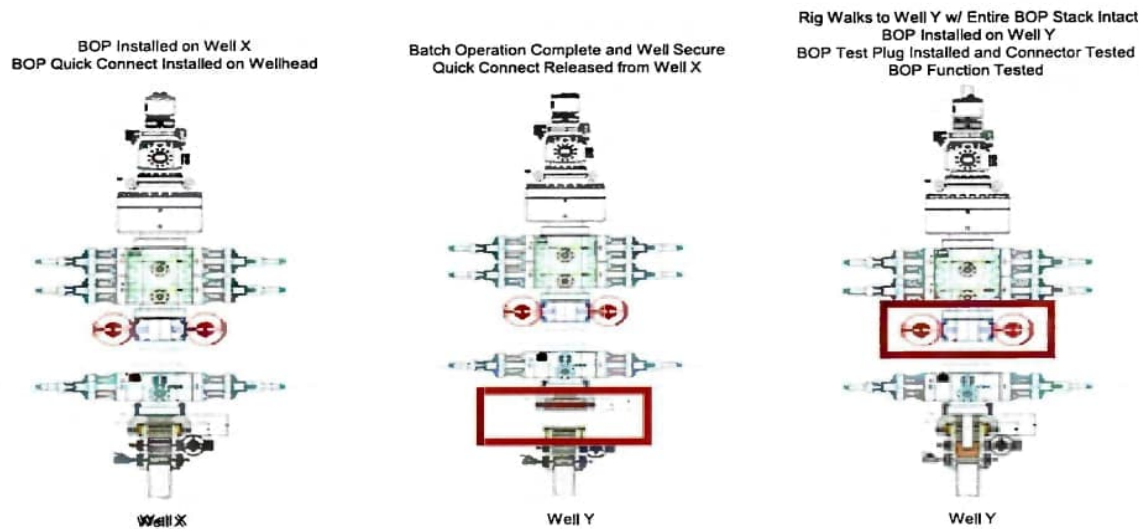
Break testing has been approved by the BLM in the past with other operators based on the detailed information provided in this document.

Permian Resources feels break testing and our current procedures meet the intent of 43 CFR 3172 and often exceed it. There has been no evidence that break testing results in more components failing than seen on full BOP tests. Permian Resources internal standards require complete BOPE tests more often than that of 43 CFR 3172 (every 21 days). In addition to function testing the annular, pipe rams and blind rams after each BOP nipple up, Permian Resources performs a choke drill with the rig crew prior to drilling out every casing shoe. This is additional training for the rig crew that exceeds the requirements of 43 CFR 3172.

Procedures

- 1) Permian Resources will use this document for our break testing plan for New Mexico Delaware Basin. The summary below will be referenced in the APD or Sundry Notice and receive approval prior to implementing this variance.
- 2) Permian Resources will perform BOP break testing on multi-wells pads where multiple intermediate sections can be drilled and cased within the 21-day BOP test window.
 - a) A full BOP test will be conducted on the first well on the pad.
 - b) The first intermediate hole section drilled on the pad will be the deepest. All the remaining hole sections will be the same formation depth or shallower.
 - c) A full BOP test will be required if the intermediate hole section being drilled has a MASP over 5M.
 - d) A full BOP test will be required prior to drilling any production hole.
- 3) After performing a complete BOP test on the first well, the intermediate hole section will be drilled and cased, two breaks would be made on the BOP equipment.
 - a) Between the HCV valve and choke line connection
 - b) Between the BOP quick connect and the wellhead
- 4) The BOP is then lifted and removed from the wellhead by a hydraulic system.
- 5) After skidding to the next well, the BOP is moved to the wellhead by the same hydraulic system and installed.
- 6) The connections mentioned in 3a and 3b will then be reconnected.
- 7) Install test plug into the wellhead using test joint or drill pipe.
- 8) A shell test is performed against the upper pipe rams testing the two breaks.
- 9) The shell test will consist of a 250 psi low test and a high test to the value submitted in the APD or Sundry (e.g. 5,000 psi or 10,000psi).
- 10) Function tests will be performed on the following components: lower pipe rams, blind rams, and annular.
- 11) For a multi-well pad the same two breaks on the BOP would be made and on the next wells and steps 4 through 10 would be repeated.
- 12) A second break test would only be done if the intermediate hole section being drilled could not be completed within the 21 day BOP test window.

Note: Picture below highlights BOP components that will be tested during batch operations



Summary

A variance is requested to ONLY test broken pressure seals on the BOP equipment when moving from wellhead to wellhead which is in compliance with API Standard 53. API Standard 53 states, that for pad drilling operations, moving from one wellhead to another within 21 days, pressure testing is required for pressure-containing and pressure-controlling connections when the integrity of a pressure seal is broken.

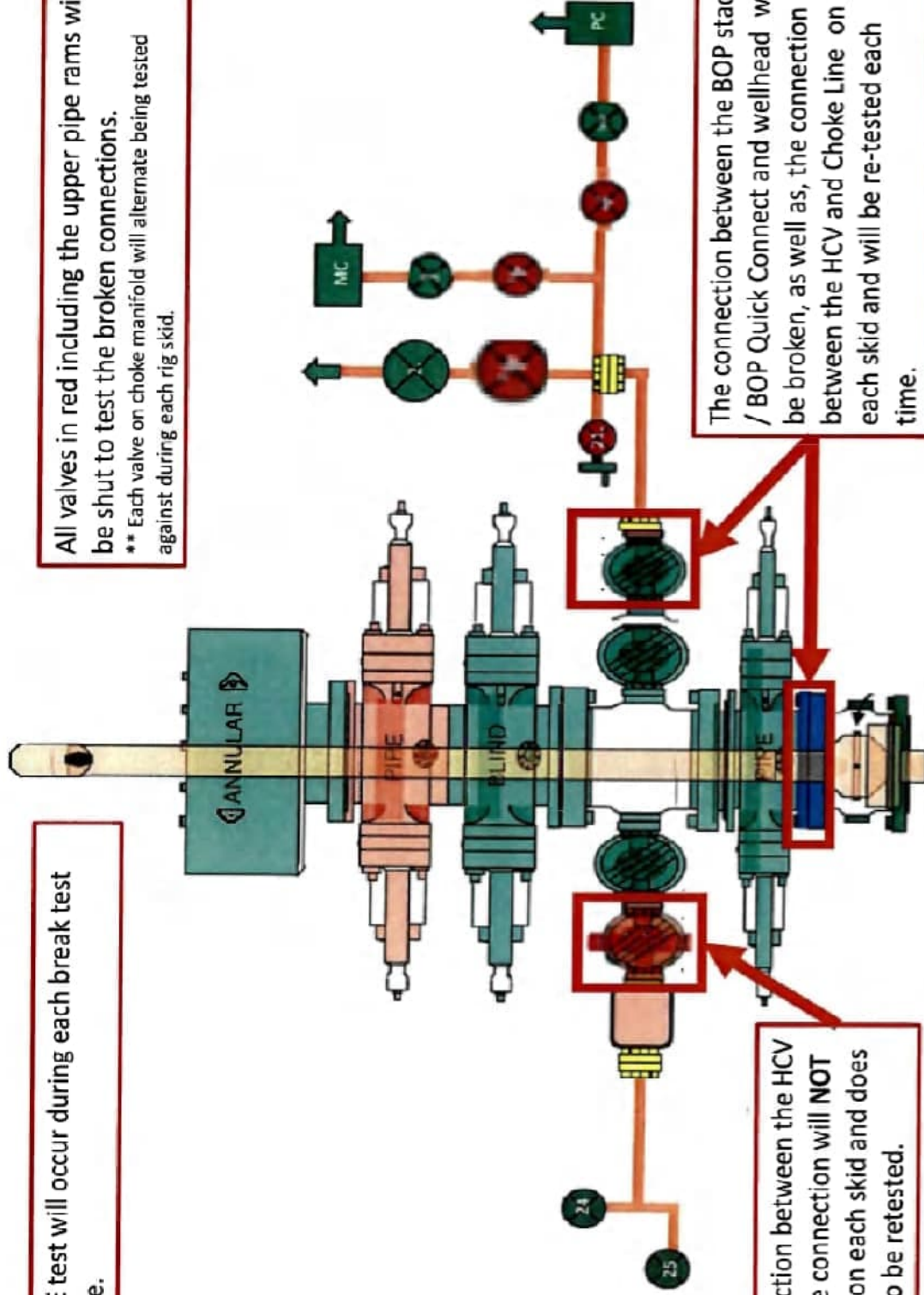
The BOP will be secured by a hydraulic carrier or cradle. The BLM will be contacted if a Well Control event occurs prior to the commencement of a BOPE Break Testing operation.

Based on public data and the supporting documentation submitted herein to the BLM, we will request permission to ONLY retest broken pressure seals if the following conditions are met:

- 1) After a full BOP test is conducted on the first well on the pad.
- 2) The first intermediate hole section drilled on the pad will be the deepest. All the remaining hole sections will be the same depth or shallower.
- 3) A full BOP test will be required if the intermediate hole section being drilled has a MASP over 5M.
- 4) A full BOP test will be required prior to drilling the production hole.

Only **ONE** test will occur during each break test procedure.

All valves in red including the upper pipe rams will be shut to test the broken connections.
** Each valve on choke manifold will alternate being tested against during each rig skid.



The connection between the BOP stack / BOP Quick Connect and wellhead will be broken, as well as, the connection between the HCV and Choke Line on each skid and will be re-tested each time.

The connection between the HCV and kill line connection will **NOT** be broken on each skid and does not need to be retested.

**BLACK GOLD®**

GATES ENGINEERING & SERVICES NORTH AMERICA
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Houston, TX. 77086

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FAX: +1 (281) 602-4147
EMAIL: gesna.quality@gates.com
WEB: www.gates.com/oilandgas

CERTIFICATE OF CONFORMANCE

This is to verify that the items detailed below meet the requirements of the Customer's Purchase Order referenced herein, and are in Conformance with applicable specifications, and that Records of Required Tests are on file and subject to examination. The following items were inspected and hydrostatically tested at **Gates Engineering & Services North America** facilities in Houston, TX, USA.

CUSTOMER: HELMERICH & PAYNE INTERNATIONAL DRILLING CO.
CUSTOMER P.O.#: 740414061 (SN: 62429 - 88061537)
CUSTOMER P/N: SN: 62429 - 88061537

PART DESCRIPTION: INSPECT AND RETEST CUSTOMER HOSE 3IN X 16FT CHOKE & KILL ASSEMBLY C/W 3-1/16
FLANGES BX154 SS INLAID RING GROOVE EACH END

SALES ORDER #: 525826
QUANTITY: 1
SERIAL #: 62429 H3-012523-17

SIGNATURE:

F. Cisneros

TITLE:

QUALITY ASSURANCE

DATE:

1/26/2023



H3-12183

1/25/2023 2:59:32 PM

TEST REPORT

CUSTOMER

Company: HELMERICH & PAYNE
INTERNATIONAL DRILLING CO.
Production description: SN62429
Sales order #: 525826
Customer reference:

TEST OBJECT

Serial number: H3-012523-17
Lot number:
Description: SN62429
Hose ID: 3.0 CK03 16C 10K
Part number:

TEST INFORMATION

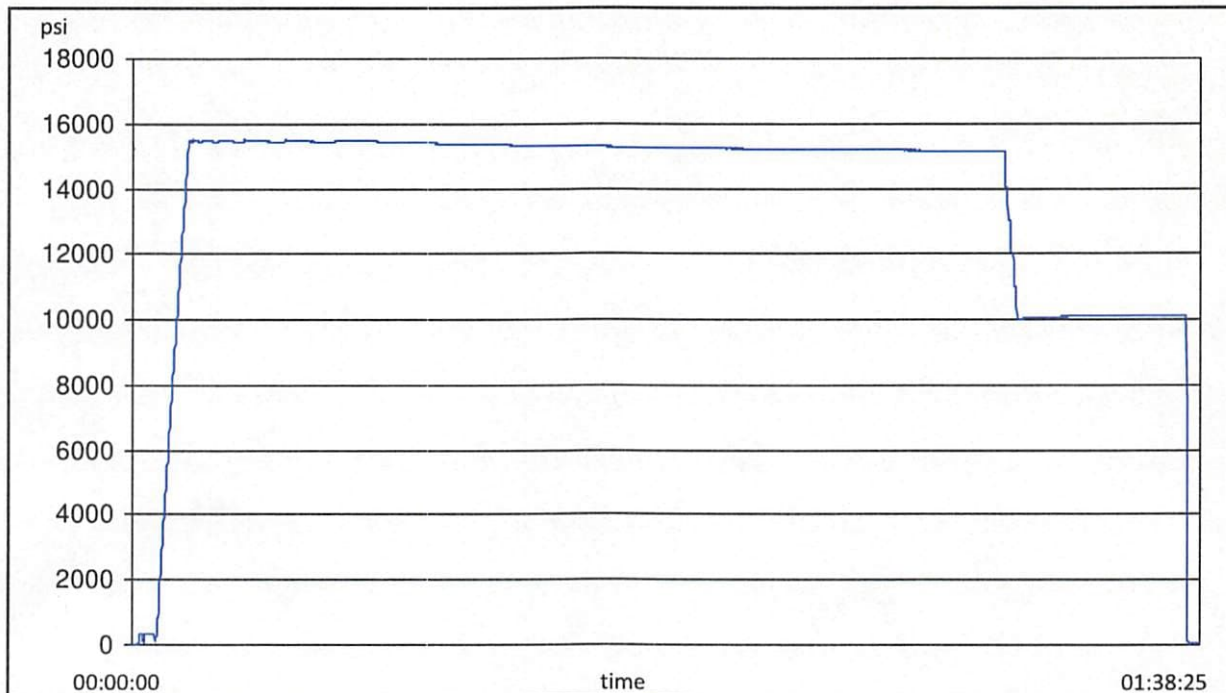
Test procedure: GTS-04-053
Test pressure: 15000.00 psi
Test pressure hold: 3600.00 sec
Work pressure: 10000.00 psi
Work pressure hold: 900.00 sec
Length difference: 0.00 %
Length difference: 0.00 inch

Fitting 1: 3.0 x 3-1/16 10K
Part number:
Description:
Fitting 2: 3.0 x 3-1/16 10K
Part number:
Description:

Visual check:
Pressure test result: PASS
Length measurement result:

Length: 16 feet

Test operator: Martin





H3-12183

1/25/2023 2:59:32 PM

TEST REPORT

GAUGE TRACEABILITY

Description	Serial number	Calibration date	Calibration due date
S-25-A-W	110AQA1S	2022-03-09	2023-03-09
S-25-A-W	110CBWVV	2022-03-09	2023-03-09

Comment



CONTITECH RUBBER
Industrial Kft.

No: QC-DB-062 / 2022

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ContiTech

TEST CERTIFICATE according to EN 10204 3.1 and Supplier's Declaration of Conformity acc. to ISO/IEC 17050-1				CERT. N°: 81142	
CUSTOMER: ContiTech Oil & Marine Corp.			C.O. N°: 4501624407		
Supplier's name: Contitech Rubber Industrial Kft.			Supplier's address: Budapesti út 10. H-6728 Szeged		
CONTITECH ORDER N°: 1386035		HOSE TYPE: 3" ID Choke & Kill Hose			
HOSE SERIAL N°: 81142		NOMINAL / ACTUAL LENGTH: 7,92 m / 7,90 m			
W.P. 69,0 MPa 10000 psi		T.P. 103,5 MPa 15000 psi		Duration: 60 min.	
Pressure test with water at ambient temperature					
See attachment (1 page)					
COUPLINGS Type		Serial N°		Quality	
3" coupling with		4411		AISI 4130	
3 1/16" 10K API b.w. Flange end				AISI 4130	
3" coupling with		4428		AISI 4130	
3 1/16" 10K API Swivel Flange end				AISI 4130	
Hub				AISI 4130	
Not Designed For Well Testing				API Spec 16C 3rd Edition – FSL3	
Fire Rated				Temperature rate: "B"	
All metal parts are flawless					
WE CERTIFY THAT THE ABOVE HOSE HAS BEEN MANUFACTURED IN ACCORDANCE WITH THE TERMS OF THE ORDER INSPECTED AND PRESSURE TESTED AS ABOVE WITH SATISFACTORY RESULT.					
STATEMENT OF CONFORMITY: We hereby certify that the above items/equipment supplied by us are in conformity with the terms, conditions and specifications of the above Customer Order and that these items/equipment were fabricated inspected and tested in accordance with the referenced standards, other technical standards and specifications and meet the relevant acceptance criteria and design requirements. This declaration of conformity is issued under the sole responsibility of the manufacturer.					
COUNTRY OF ORIGIN HUNGARY/EU					
Date:		Inspector		Quality Control	
28. February 2022.				 ContiTech Rubber Industrial Kft. Quality Control Dept. (1) István Farkas	
				 Lajos Bacsa	

ATTACHMENT OF QUALITY CONTROL
INSPECTION AND TEST CERTIFICATE
No: 81137, 81138, 81139,
81140, 81141, 81142

CONTITECH RUBBER
Industrial Kft.

No: QC-DB-062 / 2022

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1/1

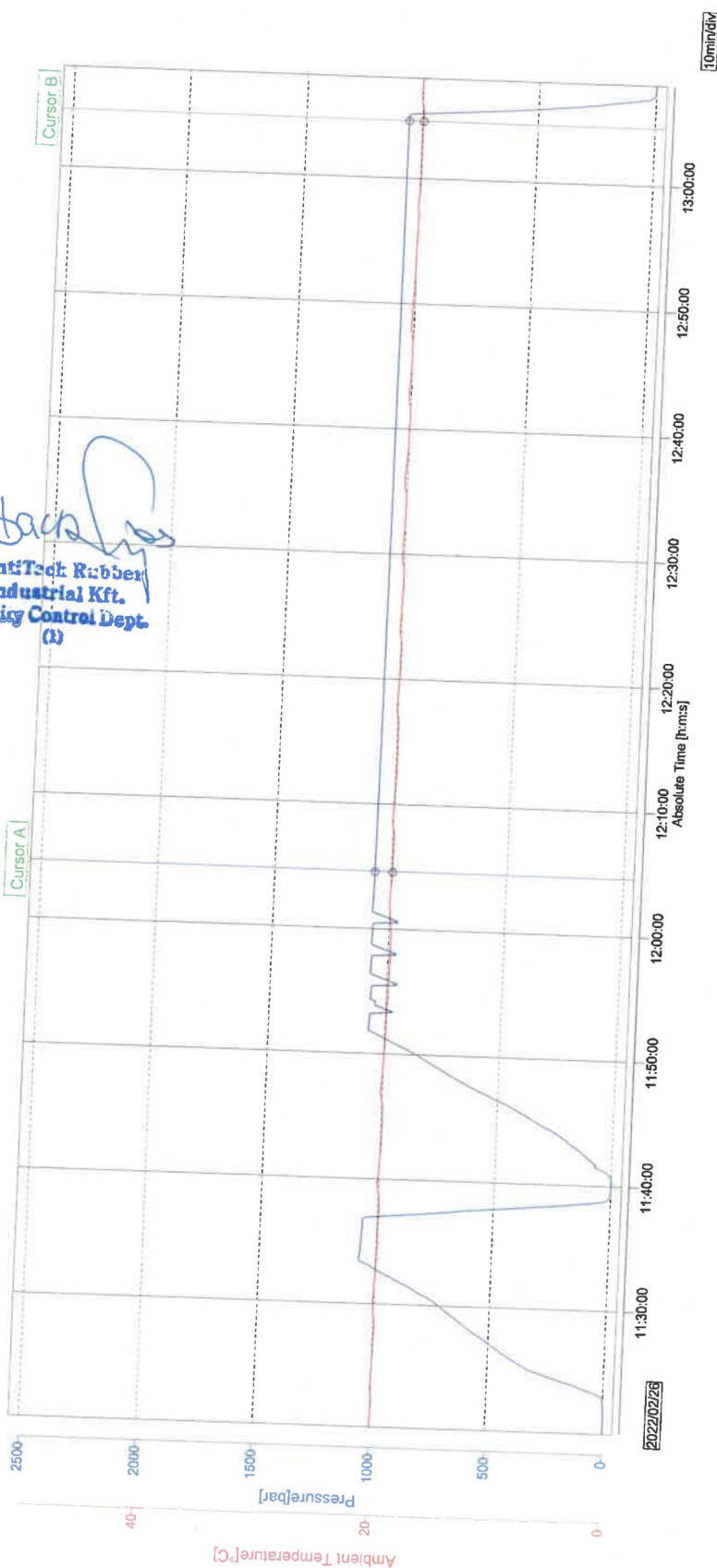
Sampling Int. : 5.000 sec
Start Time : 2022/02/26 11:20:10.000
Stop Time : 2022/02/26 13:08:00.000

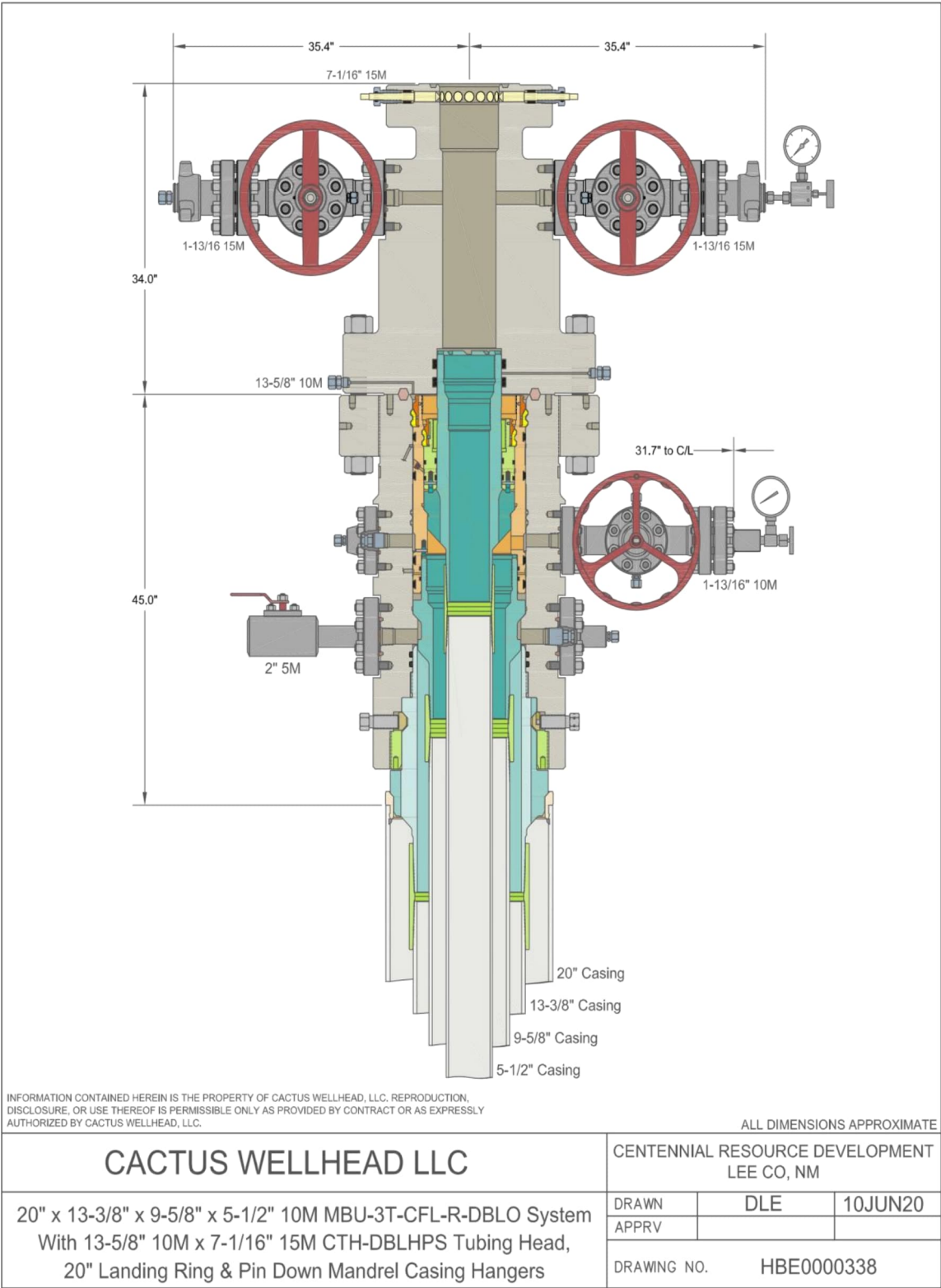
File Name : 048171_81137-81142.GEV
File Message : 81137,81138,81139,81140,81141,81142
Device Type : GX10
Serial No. : SFP606399
Data Count : 1295

Print Group : Press-Temp
Print Range : 2022/02/26 11:20:10.000 - 2022/02/26 13:08:00.000
Comment : 110BFGHI 81137,81138,81139,81140,81141,81142

Data No.	Cursor A	Cursor B	Difference
Absolute Time	2022/02/26 12:04:35.000	2022/02/26 13:04:35.000	01:00:00.000
Tag Comment	Value A	Value B	Value B-A
Pressure[bar]	1070.80	1057.49	-13.31
Ambient Temperature[°C]	19.90	19.88	-0.02

Yakov
Contitech Rubber
Industrial Kft.
Quality Control Dept.
(3)

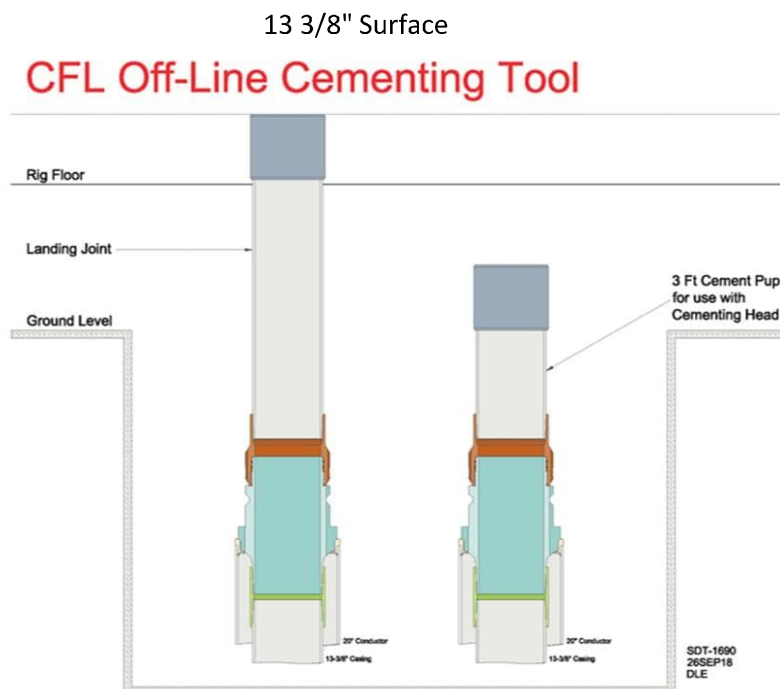




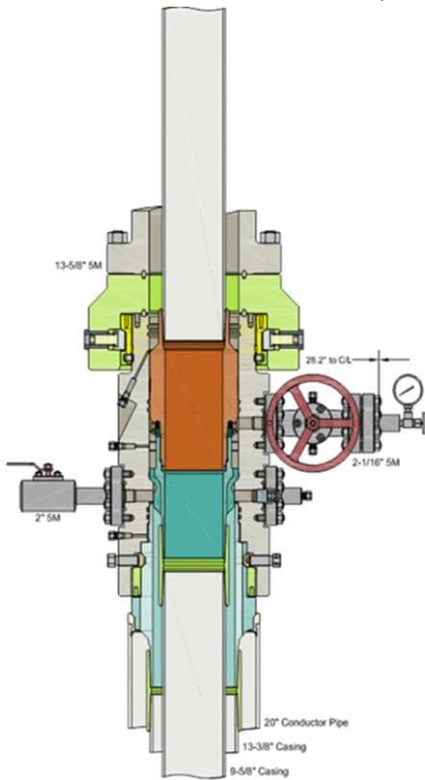
Permian Resources Offline Cementing Procedure

13-3/8" & 9-5/8" Casing

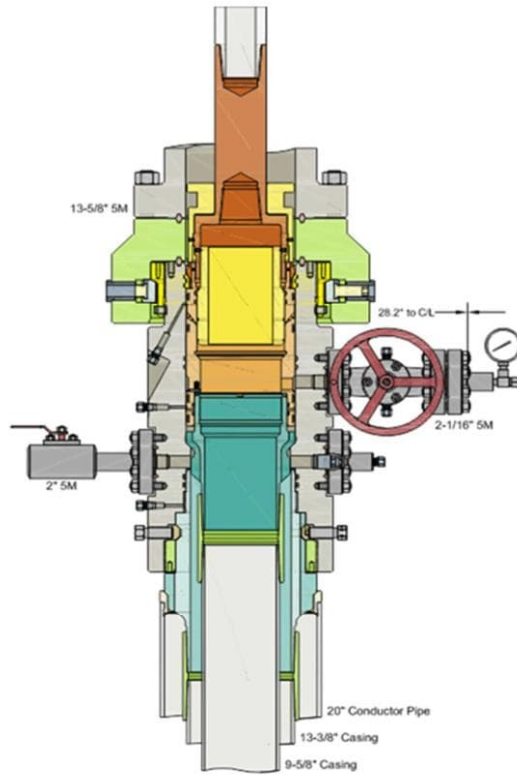
1. Drill hole to Total Depth with Rig and perform wellbore cleanup cycles.
2. Run and casing to Depth.
3. Land casing with mandrel.
4. Circulate 1.5 csg capacity.
5. Flow test – Confirm well is static and floats are holding.
6. Set Annular packoff and pressure test. Test to 5k.
7. Nipple down BOP and install cap flange.
8. Skid rig to next well on pad
9. Remove cap flange (confirm well is static before removal)
 - a) If well is not static use the casing outlet valves to kill well
 - b) Drillers method will be used in well control event
 - c) High pressure return line will be rigged up to lower casing valve and run to choke manifold to control annular pressure
 - d) Kill mud will be circulated once influx is circulated out of hole
 - e) Confirm well is static and remove cap flange to start offline cement operations
10. Install offline cement tool.
11. Rig up cementers.
12. Circulate bottoms up with cement truck
13. Commence planned cement job, take returns through the annulus wellhead valve
14. After plug is bumped confirm floats hold and well is static
15. Rig down cementers and equipment
16. Install night cap with pressure gauge to monitor.



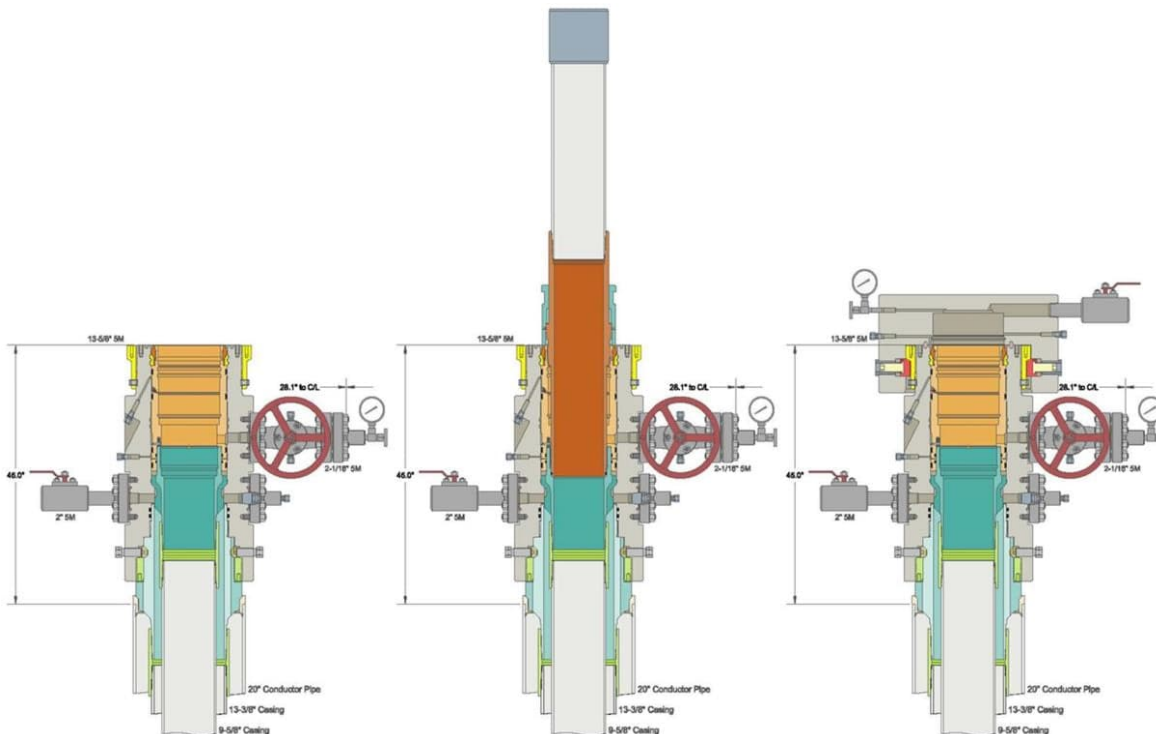
9 5/8" Intermediate



Run 9-5/8" Casing
Land Casing on 9-5/8" Mandrel Hanger
Cement 9-5/8" Casing
Retrieve Running Tool



Run 13-5/8" Packoff
Test Upper and Lower Seals
Engage Lockring
Retrieve Running Tool



Geometry

Imperial

S.I.

Pipe Body

Grade *	P110HC		P110HC	
Pipe OD (D)	7 5/8	in	193.68	mm
Weight	29.70	lb/ft	44.25	kg/m
Actual weight	29.04		43.26	kg/m
Wall Thickness (t)	0.375	in	9.53	mm
Pipe ID (d)	6.875	in	174.63	mm
Pipe body cross section	8.537	in ²	5,508	mm ²
Drift Dia.	6.750	in	171.45	mm

Connection

Box OD (W)	7.625	in	193.68	mm
PIN ID	6.875	in	174.63	mm
Make up Loss	4.219	in	107.16	mm
Box Critical Area	5.714	in ²	3686	mm ²
Joint load efficiency	70	%	70	%
Thread Taper	1 / 10 (1.2" per ft)			
Number of Threads	5 TPI			

Performance

Performance Properties for Pipe Body

S.M.Y.S. *	939	kips	4,177	kN
M.I.Y.P. *	9,470	psi	65.31	MPa
Collapse Strength *	7,050	psi	48.62	MPa

Note S.M.Y.S. = Specified Minimum YIELD Strength of Pipe body

M.I.Y.P. = Minimum Internal Yield Pressure of Pipe body

* BMP P110HC: MinYS110ksi, Collapse 7,050psi

Performance Data Sheet: SOP-12-F05 Rev.1, dated 9/6/2018

Performance Properties for Connection

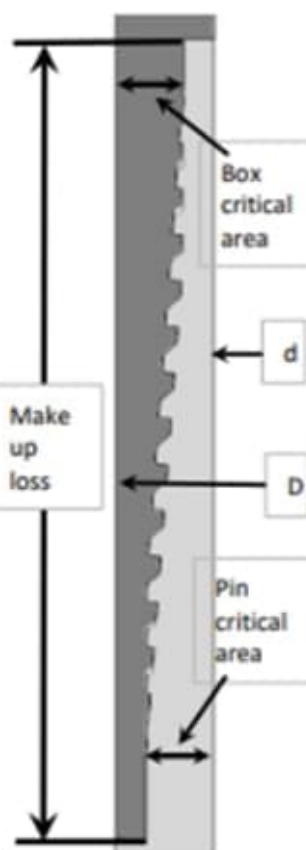
Tensile Yield load	657 kips (70% of S.M.Y.S.)
Min. Compression Yield	657 kips (70% of S.M.Y.S.)
Internal Pressure	7,580 psi (80% of M.I.Y.P.)
External Pressure	100% of Collapse Strength
Max. DLS (deg. /100ft)	27

Recommended Torque

Min.	15,500	ft-lb	21,000	N-m
Opti.	17,200	ft-lb	23,300	N-m
Max.	18,900	ft-lb	25,600	N-m
Operational Max.	23,600	ft-lb	32,000	N-m

Note : Operational Max. torque can be applied for high torque application

MO-FXL



Geometry

Imperial

S.I.

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Performance Data Sheet: SOP-12-F05 Rev.1, dated 9/6/2018

Performance Properties for Connection

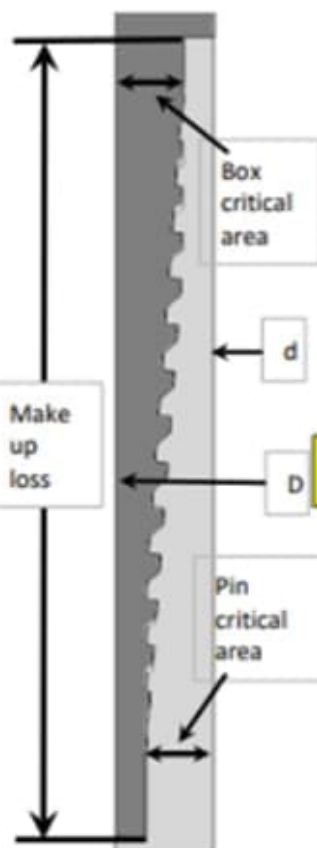
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Note : Operational Max. torque can be applied for high torque application

MO-FXL



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 376945

CONDITIONS

Operator: NOVO OIL & GAS NORTHERN DELAWARE, LLC 300 N. Marienfeld St Ste 1000 Midland, TX 79701	OGRID: 372920
	Action Number: 376945
	Action Type: [C-103] NOI Change of Plans (C-103A)

CONDITIONS

Created By	Condition	Condition Date
ward.rikala	All original COA's still apply. Additionally, if cement is not circulated to surface during cementing operations, then a CBL is required.	8/26/2024