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.

SUBMIT IN TRIPLICATE *- Other instructions on page 2*

5. Lease Serial No. NMNM59383

6. If Indian, Allottee or Tribe Name

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 0503 FED COM/014

2. Name of Operator NOVO OIL AND GAS NORTHERN DELAWARE LLC

9. API Well No. 3001554055

3a. Address 228 ST. CHARLES AVENUE, SUITE 912, NEW (

3b. Phone No. *(include area code)* (504) 523-1831

10. Field and Pool or Exploratory Area HARROUN RANCH/DELAWARE, NE

4. Location of Well *(Footage, Sec., T.,R.,M., or Survey Description)* SEC 8/T23S/R29E/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
	☐ Alter Casing	☐ Hydraulic Fracturing	☐ Reclamation	☐ Well Integrity
☐ Subsequent Report	☐ Casing Repair	☐ New Construction	☐ Recomplete	☐ Other
	☑ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
☐ Final Abandonment Notice	☐ 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 recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be 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 recompletion in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has detennined that the site is ready for final inspection.)

API: 30-015-54055
APD CHANGE SUNDRY FILED TO REVISE WELL NAME & NUMBER, POOL CODE/TARGET DEPTH, SURFACE HOLE, FIRST TAKE POINT, LAST TAKE POINT, & BOTTOM HOLE LOCATION;
WELL NAME & NUMBER
FROM: RANA SALADA 0503 FED COM 014H
TO: RANA SALADA 0503 FED COM 224H;
POOL NAME/TARGET DEPTH
FROM: (96878) HARROUN RANCH; DELAWARE, NE
TO: (98220) PURPLE SAGE; WOLFCAMP;
SURFACE HOLE LOCATION
FROM: C-8-23S-29E; 495' FNL, 2257' FWL
TO: C-8-23S-29E; 518' FNL, 2276' FWL;
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 01/23/2024

THE SPACE FOR FEDERAL OR STATE OFICE USE

Approved by CHRISTOPHER WALLS / Ph: (575) 234-2234 / Approved

Title Petroleum Engineer

Date 02/07/2024

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 ofthis form to U.S. Department ofthe Interior, Bureau ofLand 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: O-5-23S-29E; 990' FSL, 2540' FEL

TO: O-5-23S-29E; 990' FSL, 2310' FEL;

LAST TAKE POINT

FROM: M-3-23S-29E; 990' FSL, 1220' FWL

TO: M-3-23S-29E; 990' FSL, 990' FWL;

BOTTOM HOLE LOCATION

FROM: M-3-23S-29E; 990' FSL, 1310' FWL

TO: M-3-23S-29E; 990' FSL, 990' FWL;

UPDATED DRILLING AND DIRECTIONAL PLANS ATTACHED

Location of Well

0. SHL: NENW / 495 FNL / 2257 FWL / TWSP: 23S / RANGE: 29E / SECTION: 8 / LAT: 32.3256647 / LONG: -104.008353 (TVD: 0 feet, MD: 0 feet)

PPP: SWSE / 990 FSL / 2540 FWL / TWSP: 23S / RANGE: 29E / SECTION: 5 / LAT: 32.3297612 / LONG: -104.0067028 (TVD: 6450 feet, MD: 6905 feet)

BHL: SWSW / 990 FSL / 1310 FWL / TWSP: 23S / RANGE: 29E / SECTION: 3 / LAT: 32.3298236 / LONG: -103.9770452 (TVD: 6690 feet, MD: 16019 feet)

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 Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-102
Revised August 1, 2011
Submit one copy to appropriate District Office

☒ AMENDED REPORT

WELL NAME & NUMBER, POOL, SHL, FTP, LTP, BHL

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1] API Number	[2] Pool Code	[3] Pool Name
30-015-54055	98220	PURPLE SAGE; WOLFCAMP

[4] Property Code	[5] Property Name	[6] Well Number
334600	**RANA SALADA 0503 FED COM**	**224H**

[7] OGRID No.	[8] Operator Name	[9] Elevation
372920	**NOVO OIL & GAS NORTHERN DELAWARE, LLC**	**3064.6**

[10] Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
C	**8**	**23 S**	**29 E**		**518**	**NORTH**	**2276**	**WEST**	**EDDY**

[11] Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	**3**	**23 S**	**29 E**		**990**	**SOUTH**	**990**	**WEST**	**EDDY**

[12] Dedicated Acres	[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
280			

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.

RANA SALADA 0503 FED COM 224H
EL. = 3064.6

GEODETIC COORDINATES NAD 27 NMSP EAST	KICK OFF POINT NAD 27 NMSP EAST	FIRST TAKE POINT NAD 27 NMSP EAST	LAST TAKE POINT NAD 27 NMSP EAST	BOTTOM OF HOLE NAD 27 NMSP EAST	PPP2 NAD 27 NMSP EAST
SURFACE LOCATION	518' FSL, 2276' FWL	990' FSL, 2310' FEL	990' FSL, 990' FWL	N.= 483847.90	987' FSL, 1328' FEL
N.= 482278.55	N.= 482278.55	N.= 483795.32	N.= 483847.90	E.= 609882.93	N.= 483801.31
E.= 600556.02	E.= 600556.02	E.= 601272.47	E.= 609882.93	LAT. = 32.3297124'N	E.= 602254.65
LAT. = 32.3254799'N	LAT. = 32.3254799'N	LAT. = 32.3296433'N	LAT. = 32.3297124'N	LONG. = 103.9775883'W	LAT. = 32.3296515'N
LONG. = 104.0077991'W	LONG. = 104.0077991'W	LONG. = 104.0054647'W	LONG. = 103.9775883'W		LONG. = 104.0022849'W

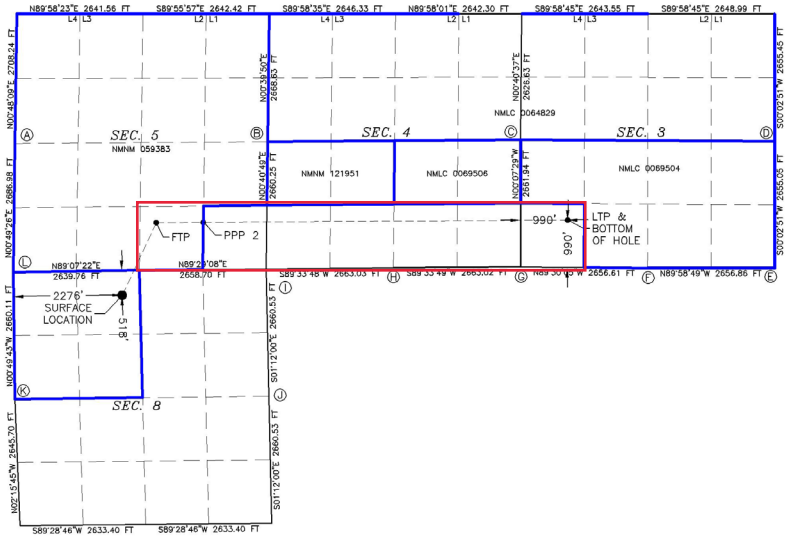
GEODETIC COORDINATES NAD 83 NMSP EAST	KICK OFF POINT NAD 83 NMSP EAST	FIRST TAKE POINT NAD 83 NMSP EAST	LAST TAKE POINT NAD 83 NMSP EAST	BOTTOM OF HOLE NAD 83 NMSP EAST	PPP2 NAD 83 NMSP EAST
SURFACE LOCATION	518' FSL, 2276' FWL	990' FSL, 2310' FEL	990' FSL, 990' FWL	N.= 483907.72	987' FSL, 1328' FEL
N.= 482338.30	N.= 482338.30	N.= 483855.11	N.= 483907.72	E.= 651065.74	N.= 483861.12
E.= 641738.83	E.= 641738.83	E.= 642455.24	E.= 651065.74	LAT. = 32.3298342'N	E.= 643437.44
LAT. = 32.3256015'N	LAT. = 32.3256015'N	LAT. = 32.3297650'N	LAT. = 32.3298342'N	LONG. = 103.9780810'W	LAT. = 32.3297732'N
LONG. = 104.0082925'W	LONG. = 104.0082925'W	LONG. = 104.0059581'W	LONG. = 103.9780810'W		LONG. = 104.0027782'W

CORNER COORDINATES TABLE NAD 27 NMSP EAST

A – N.= 485447.97	E.= 598312.46	
B – N.= 485485.55	E.= 603602.21	
C – N.= 485527.97	E.= 608889.55	
D – N.= 485497.06	E.= 614209.73	
E – N.= 482842.66	E.= 614207.45	
F – N.= 482843.58	E.= 611551.18	
G – N.= 482866.70	E.= 608895.27	
H – N.= 482846.43	E.= 606232.92	
I – N.= 482826.14	E.= 603570.56	
J – N.= 480166.84	E.= 603626.20	
K – N.= 480102.74	E.= 598312.15	
L – N.= 482761.92	E.= 598273.76	

CORNER COORDINATES TABLE NAD 83 NMSP EAST

A – N.= 485507.76	E.= 639495.15	
B – N.= 485545.40	E.= 644784.96	
C – N.= 485587.83	E.= 650072.31	
D – N.= 485556.92	E.= 655392.50	
E – N.= 482902.46	E.= 655390.29	
F – N.= 482903.38	E.= 652734.02	
G – N.= 482926.50	E.= 650078.10	
H – N.= 482906.22	E.= 647415.75	
I – N.= 482885.93	E.= 644753.39	
J – N.= 480226.58	E.= 644809.10	
K – N.= 480162.41	E.= 639494.98	
L – N.= 482821.66	E.= 639456.52	



[17] OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and 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 such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Signature 01/23/2024 Date

JENNIFER ELROD
Printed Name

jennifer.elrod@permres.com
E-mail Address

[18] SURVEYOR CERTIFICATION

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.

JANUARY 15, 2024
Date of Survey

Signature and Seal of Professional Surveyor:

Certificate Number: FILIMON F. JARAMILLO, PLS 12797
SURVEY NO. 9588C

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
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1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-102
Revised August 1, 2011
Submit one copy to appropriate District Office

☒ AMENDED REPORT

WELL NAME & NUMBER, POOL, SHL, FTP, LTP, BHL

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LONG. = 104.0077991°W	LONG. = 104.0077991°W	LONG. = 104.0054647°W	LONG. = 103.9775883°W		LONG. = 104.0022849°W

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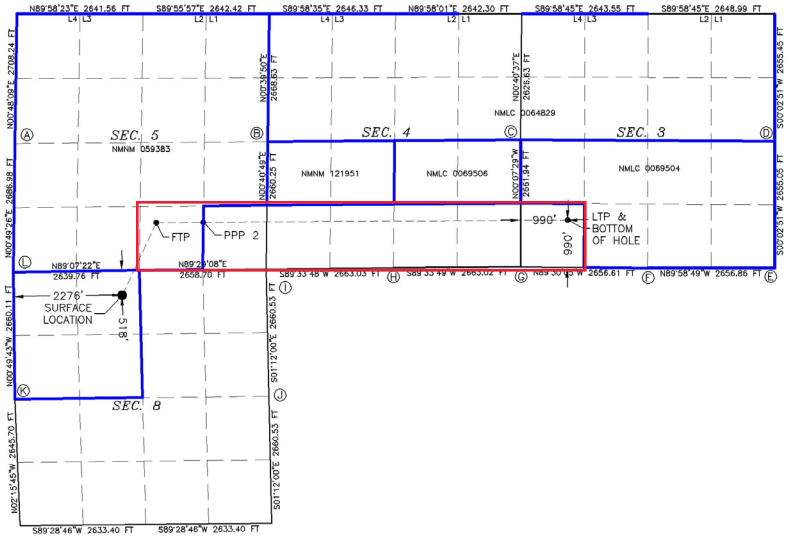

[17] OPERATOR CERTIFICATION

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Signature 01/23/2024 Date

JENNIFER ELROD
Printed Name

jennifer.elrod@permres.com
E-mail Address

[18] SURVEYOR CERTIFICATION

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.

JANUARY 15, 2024
Date of Survey

Signature and Seal of Professional Surveyor:

Certificate Number: FILIMON F. JARAMILLO, PLS 12797
SURVEY NO. 9588C

Permian Resources - Rana Salada 0503 Fed Com 224H

1. Geologic Formations

Formation	Lithology	Elevation	TVD	Target
Rustler	Sandstone	2744	350	No
Top of Salt	Salt	2544	550	No
Lamar	Anhydrite/Shale	244	2850	No
Capitan	Limestone	NP	NP	No
Cherry Canyon	Sandstone	-823	3917	No
Brushy Canyon	Sandstone	-2266	5360	No
Bone Spring Lime	Limestone	-3474	6568	No
1st Bone Spring Sand	Sandstone/Limestone/Shale	-4537	7631	No
2nd Bone Spring Sand	Sandstone/Limestone/Shale	-4803	7897	No
3rd Bone Spring Sand	Sandstone/Limestone/Shale	-5616	8710	No
Wolfcamp A/XY	Sandstone/Limestone/Shale	-6760	9854	Yes
0	Sandstone/Limestone/Shale	0	0	No

2. Blowout Prevention

BOP installed and tested before drilling	Size?	Min. Required WP	Type	x	Tested to:
8.75	13-5/8"	5M	Annular	x	5000 psi
			Blind Ram	x	5000 psi
			Pipe Ram	x	
			Double Ram		
			Other*		
6.75	13-5/8"	10M	Annular	x	50% testing pressure
			Blind Ram	x	5000 psi
			Pipe Ram	x	
			Double Ram		
			Other*		

Equipment: 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 the components installed will be functional and tested. All BOPE connections shall be flanged, welded or clamped. All choke lines shall be straight unless targeted with running tees or tee blocks are used, and choke lines shall be anchored to prevent whip and reduce vibrations. All valves in the choke line & the choke manifold shall be full opening as to not cause restrictions and to allow for straight fluid paths to minimize potential erosion. All gauges utilized in the well control system shall be of a type designed for drilling fluid service. A top drive inside BOP valve will be utilized at all times. Subs equipped with full opening valves sized to fit the drill pipe and collars will be available on the rig floor in the open position. The key to operate said valve equipped subs will be on the rig floor at all times. The accumulator system will have sufficient capacity to open the HCR and close all three sets of rams plus the annular preventer while retaining at least 300 psi above precharge on the closing manifold (accumulator system shall be capable of doing so without using the closing unit pumps). The fluid reservoir capacity will be double the usable fluid volume of the accumulator system capacity, and the fluid level will be maintained at the manufacturer's recommended level. Prior to connecting the closing unit to the BOP stack, an accumulator precharge pressure test shall be performed to ensure the precharge pressure is within 100 psi of the desired precharge pressure (only nitrogen gas will be used to precharge). Two independent power sources will be made available at all times to power the closing unit pumps so that the pumps can automatically start when the closing valve manifold pressure has decreased to the preset level. Closing unit pumps will be sized to allow opening of HCR and closing of annular preventer on 5" drill pipe achieving at least 200 psi above precharge pressure with the accumulator system isolated from service in less than two minutes. A valve shall be installed in the closing line as close to the annular preventer as possible to act as a locking device; the valve shall be maintained in the open position and shall be closed only when the power source for the accumulator system is inoperative. Remote controls capable of opening and closing all preventers & the HCR shall be readily accessible to the driller; master controls with the same capability will be operable at the accumulator. The wellhead will be a multibowl speed head allowing for hangoff of intermediate casing & isolation of the 133/8 x 95/8 annulus without breaking the connection between the BOP & wellhead to install an additional casing head. A wear bushing will be installed & inspected frequently to guard against internal wear to wellhead. VBRs (variablebore rams) will be run in upper rambody of BOP stack to provide redundancy to annular preventer while RIH w/ production casing;

Requesting Variance? YES
Variance request: Flex hose and offline cement variances, see attachments in section 8.
Testing Procedure: 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 30 day intervals e. checked daily as to mechanical operating conditions. The ram type preventer(s) will be tested using a test plug to 250 psi (low) and 5,000 psi (high) (casinghead WP) with a test plug upon its installation onto the 13 surface casing. If a test plug is not used, the ram type preventer(s) shall be tested to 70% of the minimum internal yield pressure of the casing. The annular type preventer(s) shall be tested to 3500 psi. Pressure will be maintained for at least 10 minutes or until provisions of the test are met, whichever is longer. A Sundry Notice (Form 3160 5), along with a copy of the BOP test report, shall be submitted to the local BLM office within 5 working days following the test. If the bleed line is connected into the buffer tank (header), all BOP equipment including the buffer tank and associated valves will be rated at the required BOP pressure. The BLM office will be provided with a minimum of four (4) hours notice of BOP testing to allow witnessing. The BOP Configuration, choke manifold layout, and accumulator system, will be in compliance with Onshore Order 2 for a 5,000 psi system. A remote accumulator and a multi-bowl system will be used, please see attachment in section 8 for multi-bowl procedure. Pressures, capacities, and specific placement and use of the manual and/or hydraulic controls, accumulator controls, bleed lines, etc., will be identified at the time of the BLM 'witnessed BOP test. Any remote controls will be capable of both opening and closing all preventers and shall be readily accessible.

Choke Diagram Attachemnt: 5 M Choe 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	390	0	390	390	J55	40	BTC	13.34	###	Dry	6.18	Dry	5.45
Intermediate	8.75	7.625	0	9977	0	9977	9977	P110HC	29.7	MOFXL	5.33	2.95	Wet	1.90	Wet	2.71
Production	6.75	5.5	0	9477	0	10362	9477	P110RY	20	GEOCONN	1.87	2.41	Dry	2.09	Dry	2.09
Production	6.75	5.5	9477	19438	10362	10362	9961	P110RY	20	Bushmaster SL	1.87	2.41	Dry	2.09	Dry	2.09
								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	Quanity (sx)	Yield	Density	Cu Ft	Excess %	Cement Type	Additives
Surface	lead	0	310	110	1.88	12.9	200	100%	Class C	EconoCem-HLC + 5% Salt + 5% Kol-Seal
Surface	Tail	310	390	30	1.34	14.8	40	50%	Class C	Accelerator
Intermediate	Lead	0	7980	650	1.88	12.9	1210	50%	Class C	EconoCem-HLC + 5% Salt + 5% Kol-Seal
Intermediate	Tail	7980	9977	240	1.34	14.8	310	50%	Class C	Retarder
Production	Lead	9477	10077	70	2.41	11.5	150	40%	Class H	POZ, Extender, Fluid Loss, Dispersant, Retarder
Production	Tail	10077	19438	570	1.73	12.5	980	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 drilling ops.

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 oter 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 mud check practices.

Cuttings Volume: 6680 Cu Ft

Circulating Medium Table

Top Depth	Bottom Depth	Mud Type	Min Weight	Max Weight
0	390	Spud Mud	8.6	9.5
390	9977	Water Based Mud	10	10
9977	9477	OBM	9	11
9477	19438	OBM	9	11

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:
N/A

7. Pressure

Anticipated Bottom Hole Pressure	5930	psi
Anticipated Surface Pressure	3647	psi
Anticipated Bottom Hole Temperature	159	°F
Anticipated Abnormal pressure, temp, or geo hazards	No	

8. Waste Management

Waste Type:	**Drilling**
Waste content description:	Fresh water based drilling fluid
Amount of waste:	1500 bbls
Waste disposal frequency:	Weekly (after drilling all surfaces)
Safe containment description:	Steel tanks with plastic-lined containment berms
Waste disposal type:	Haul to commercial facility
Disposal location ownership:	Commercial
Waste Type:	**Grey Water & Human Waste**
Waste content description:	Grey Water/Human Waste
Amount of waste:	5000 gallons
Waste disposal frequency:	Weekly
Safe containment description:	Approved waste storage tanks with containment
Waste disposal type:	Haul to commercial facility
Disposal location ownership:	Commercial
Waste Type:	**Garbage**
Waste content description:	General trash/garbage
Amount of waste:	5000 lbs
Waste disposal frequency:	Weekly
Safe containment description:	Enclosed trash trailer
Waste disposal type:	Haul to commercial facility
Disposal location ownership:	Commercial
Waste Type:	**Drilling**
Waste content description:	Drill Cuttings
Amount of waste:	6680 Cu Ft
Waste disposal frequency:	Per well
Safe containment description:	Steel tanks
Waste disposal type:	Haul to commercial facility
Disposal location ownership:	Commercial
Waste Type:	**Drilling**
Waste content description:	Brine water based drilling fluid
Amount of waste:	1500 bbls
Waste disposal frequency:	Monthly
Safe containment description:	Steel tanks with plastic-lined containment berms
Waste disposal type:	Haul to commercial facility
Disposal location ownership:	Commercial

9. Other Information

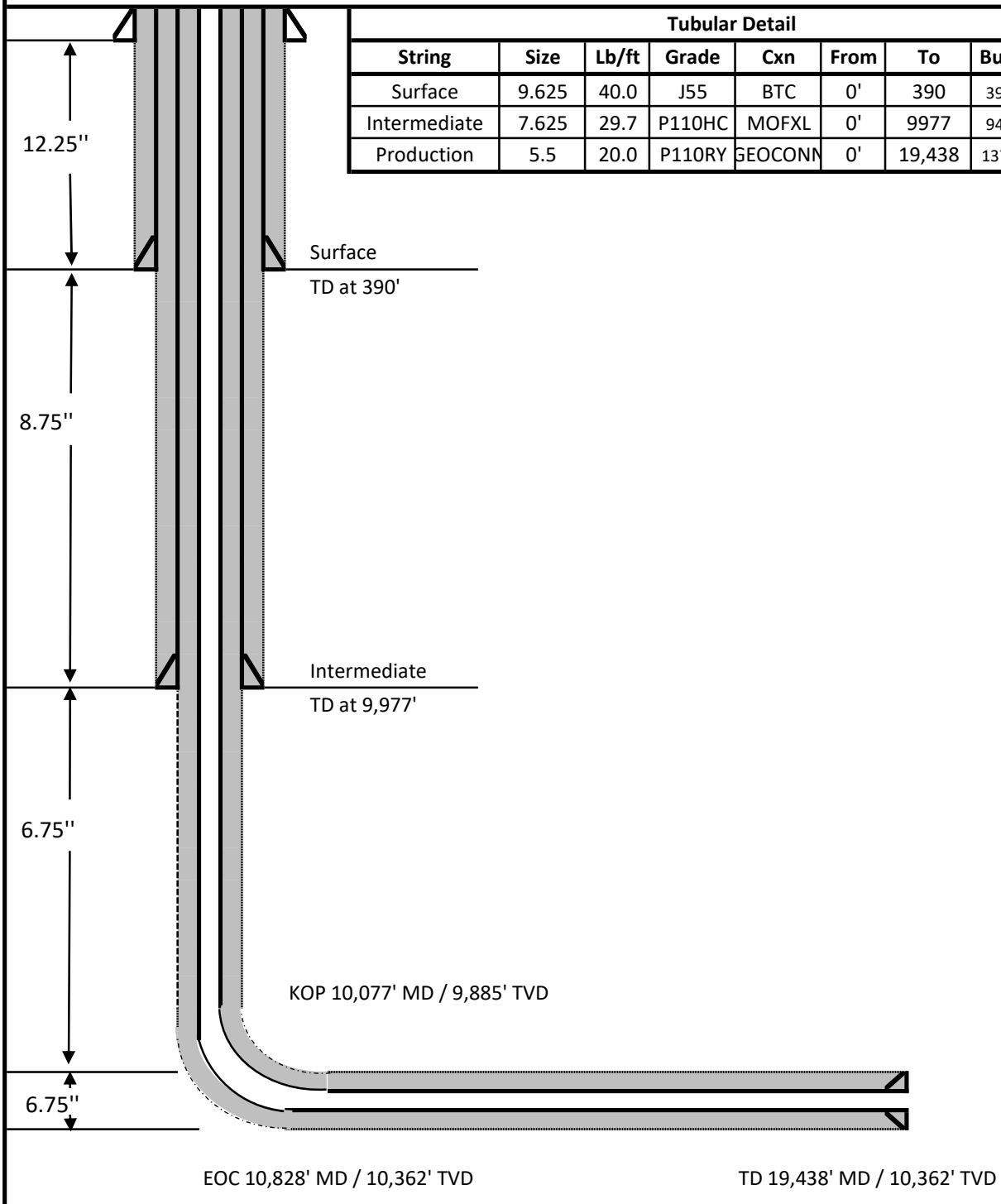
Well Plan and AC Report: attached
Batching Drilling Procedure: attached
WBD: attached
Flex Hose Specs: attached
Offline Cementing Procedure Attached:

Permian Resources

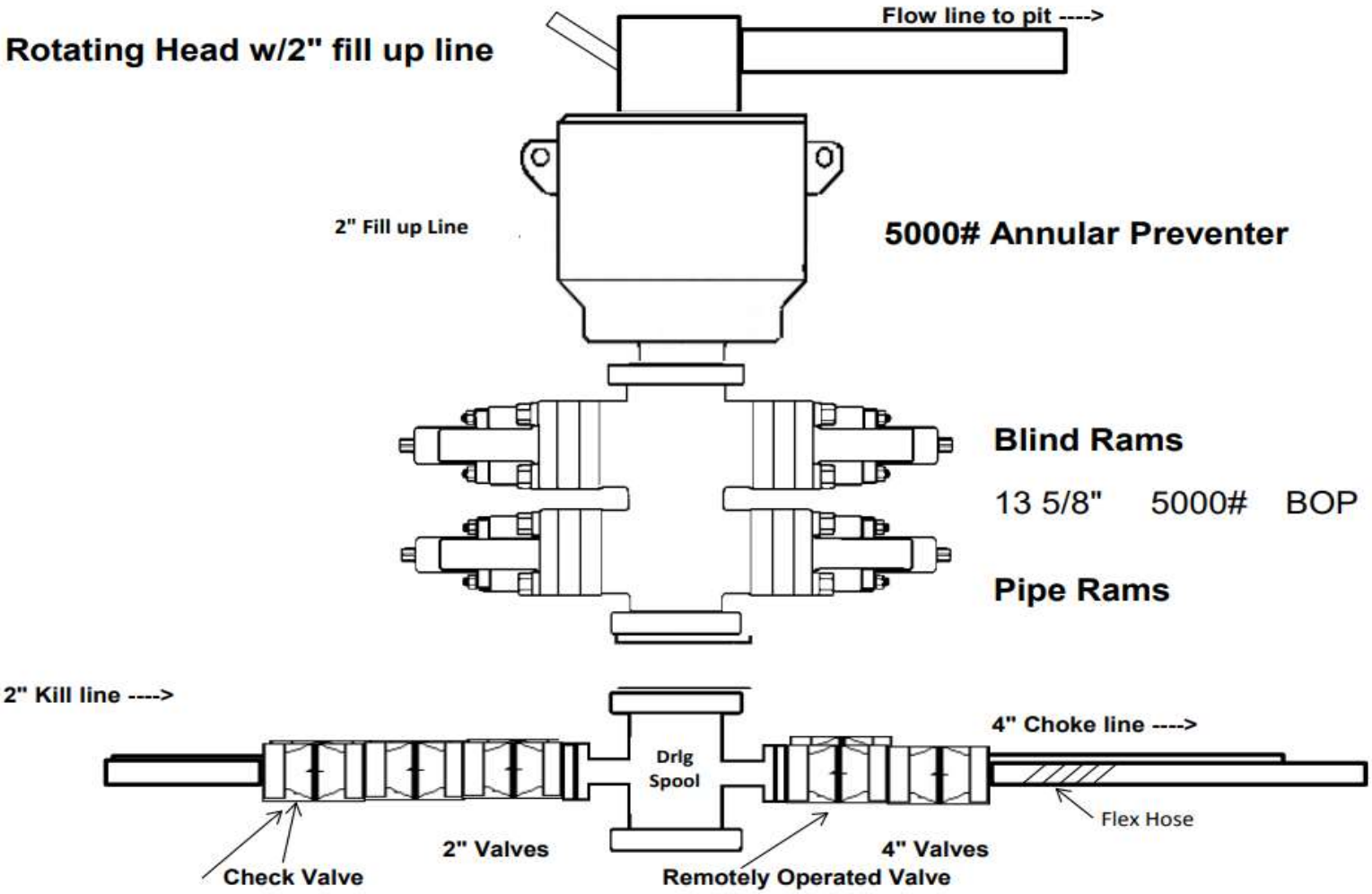
Well: Rana Salada 0503 Fed Com 224H
State New Mexico **County:** Eddy
FM Target: Wolfcamp A
Location: Lot C, Section 8, T23S, R29E, 518' FNL, 2276' FWL
SLC: Lot M, Section 3, T23S, R29E, 990' FSL, 990' FWL
KB Elev: 3094 **KB:** 30 **GL Elev:** 3064

Tubular Detail

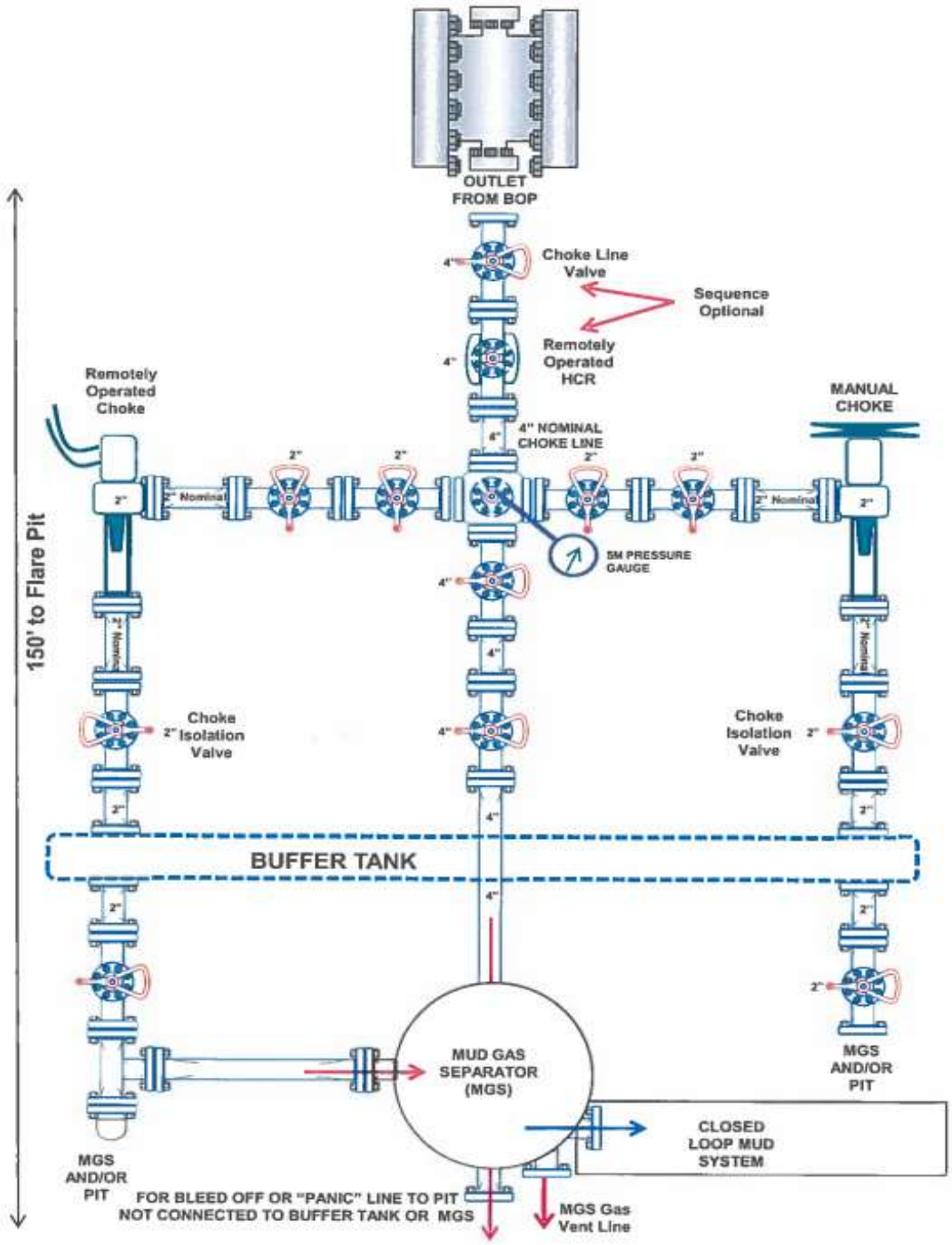
String	Size	Lb/ft	Grade	Cxn	From	To	Burst	Cllps
Surface	9.625	40.0	J55	BTC	0'	390	3950	2,570
Intermediate	7.625	29.7	P110HC	MOFXL	0'	9977	9470	7,050
Production	5.5	20.0	P110RY	GEOCONN	0'	19,438	13720	11,100



5,000 psi BOP Schematic



5M Choke Manifold Equipment (WITH MGS + CLOSED LOOP)



Continental
ContiTech

CONTITECH RUBBER Industrial Kft.	No:QC-DB- 210/ 2014
	Page: 9 / 113

QUALITY CONTROL INSPECTION AND TEST CERTIFICATE					CERT. N°:	504	
PURCHASER:	ContiTech Oil & Marine Corp.				P.O. N°:	4500409659	
CONTITECH RUBBER order N°:	538236		HOSE TYPE:	3" ID	Choke and Kill Hose		
HOSE SERIAL N°:	67255		NOMINAL / ACTUAL LENGTH:		10,67 m / 10,77 m		
W.P. 68,9 MPa	10000 psi		T.P. 103,4 MPa	15000 psi	Duration:	60	min.

Pressure test with water at
ambient tempecature

See attachment. (1 page)

↑ 10 mm = 10 Min.
→ 10 mm = 20 MPa

COUPLINGS Type	Serial N°		Quality	Heat N°
3" coupling with	9251	9254	AISI 4130	A0579N
4 1/16" 10K API b.w. Flange end			AISI 4130	035608

Not Designed For Well Testing **API Spec 16 C**

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.

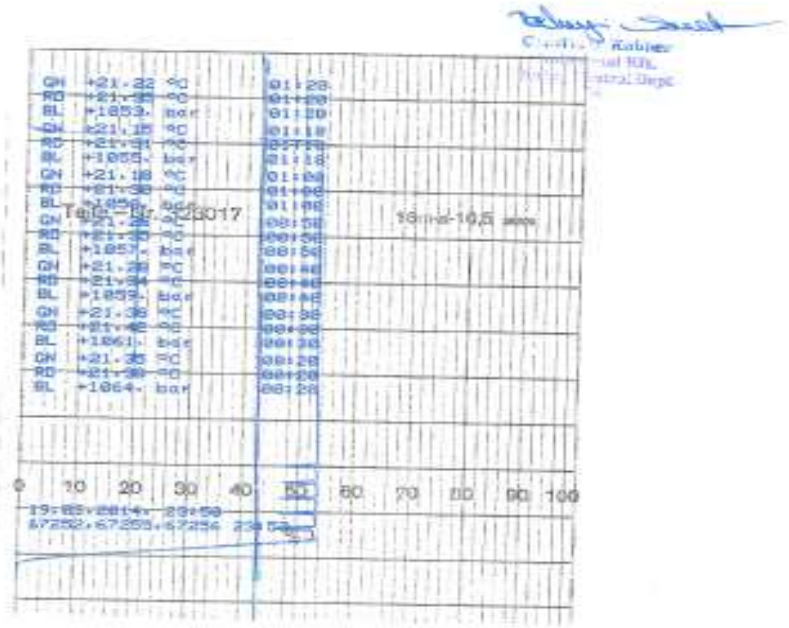
STATEMENT OF CONFORMITY: We hereby certify that the above items/equipment supplied by us are in conformity with the terms, conditions and specifications of the above Purchaser Order and that these items/equipment were fabricated inspected and tested in accordance with the referenced standards, codes and specifications and meet the relevant acceptance criteria and design requirements.

COUNTRY OF ORIGIN HUNGARY/EU

Date:	Inspector	Quality Control
20. March 2014.		

ATTACHMENT OF QUALITY CONTROL INSPECTION AND TEST CERTIFICATE *No: 501, 504, 505*

Page: 1 / 1



Hose Data Sheet

CRI Order No.	538236
Customer	ContiTech Oil & Marine Corp.
Customer Order No	4500409659
Item No.	1
Hose Type	Flexible Hose
Standard	**API SPEC 16 C**
Inside dia in inches	3
Length	35 ft
Type of coupling one end	FLANGE 4.1/16" 10K API SPEC 6A TYPE 6BX FLANGE C/W BX155 R.GR.SOUR
Type of coupling other end	FLANGE 4.1/16" 10K API SPEC 6A TYPE 6BX FLANGE C/W BX155 R.GR.SOUR
H2S service NACE MR0175	Yes
Working Pressure	10 000 psi
Design Pressure	10 000 psi
Test Pressure	15 000 psi
Safety Factor	2,25
Marking	USUAL PHOENIX
Cover	NOT FIRE RESISTANT
Outside protection	St.steel outer wrap
Internal stripwound tube	No
Lining	OIL + GAS RESISTANT SOUR
Safety clamp	No
Lifting collar	No
Element C	No
Safety chain	No
Safety wire rope	No
Max.design temperature [°C]	100
Min.design temperature [°C]	-20
Min. Bend Radius operating [m]	0,90
Min. Bend Radius storage [m]	0,90
Electrical continuity	The Hose is electrically continuous
Type of packing	WOODEN CRATE ISPM-15

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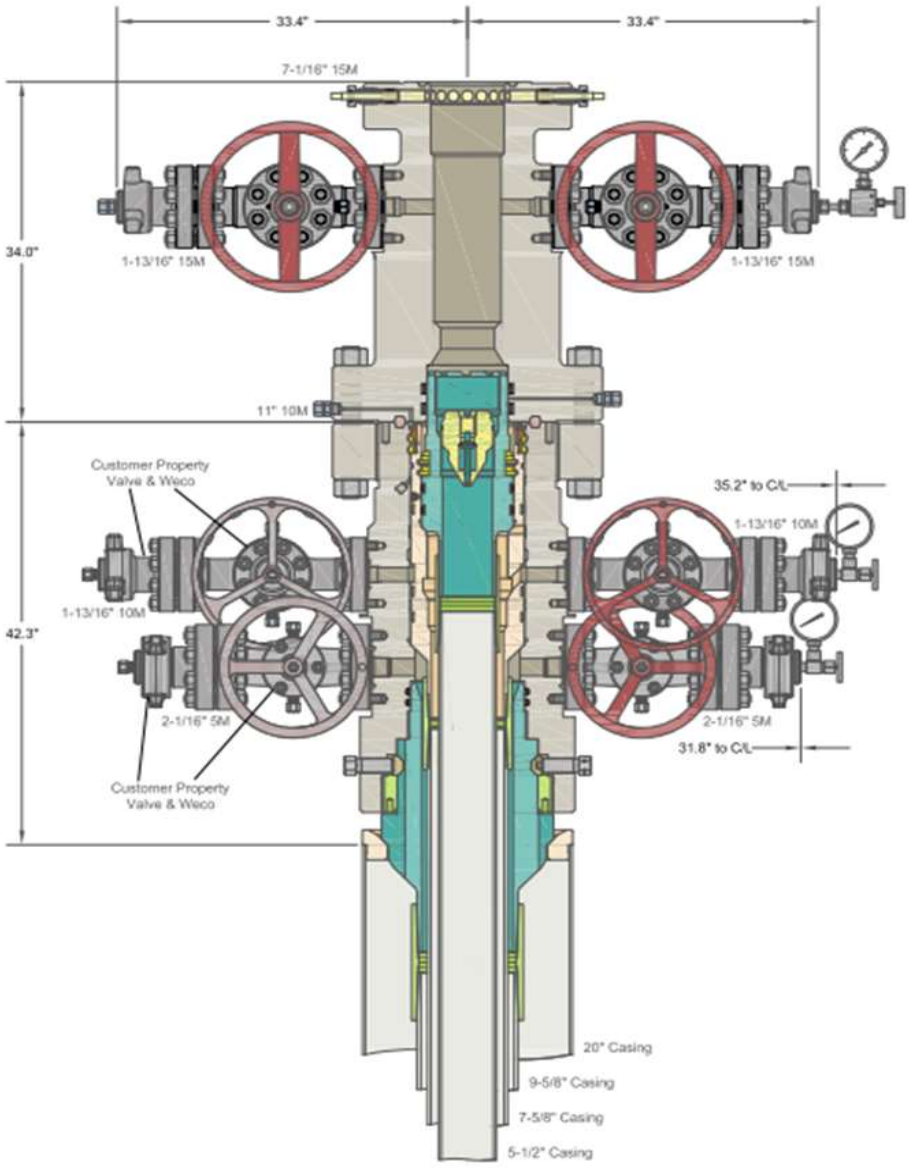


ALL DIMENSIONS APPROXIMATE

CACTUS WELLHEAD LLC	PERMIAN RESOURCES HOBBS, NM		
20" x 9-5/8" x 7-5/8" x 5-1/2" MBU-T-CFL-R-DLBO Wellhead System With 11" 10M x 7-1/16" 15M CTH-DBLHPS Tubing Head And Hand Wheel Casing Valves & Back Pressure Valve	DRAWN	DLE	26OCT23
	APPRV		
	DRAWING NO.	HBE0001074	

Permian Resources Casing Design Criteria

A sundry will be requested if any lesser grade or different size casing is substituted. All casing will be centralized as specified in On Shore Order II. Casing will be tested as specified in On Shore Order II.

Casing Design Assumptions:

Surface

1) Burst Design Loads
   a) Displacement to Gas
      (1) Internal: Assumes a full column of gas in the casing with a gas gradient of 0.7 psi/ft in the absence of better information. It is limited to the controlling pressure based on the maximum expected pore pressure within the next drilling interval.
      (2) External: Mud weight to TOC and cement mix water gradient (8.4 ppg) below TOC.
   b) Casing Pressure Test
      (1) Internal: Displacement fluid plus surface pressure required to comply with regulatory casing test pressure requirements of Onshore Oil and Gas Order No. 2 and NM NMAC 19.15.16 of NMOCD regulations.
      (2) External: Mud weight to TOC and cement mix water gradient (8.4 ppg) below TOC.
2) Collapse Loads
   a) Cementing
      (1) Internal: Displacement fluid density.
      (2) External: Mud weight from TOC to surface and cement slurry weight from TOC to shoe.
   b) Lost Returns with Mud Drop
      (1) Internal: Lost circulation at the TD of the next hole section and the fluid level falls to a depth where the hydrostatic pressure of the mud column equals pore pressure at the depth of the lost circulation zone.
      (2) External: Mud weight to TOC and cement slurry(s) density below TOC.
3) Tension Loads
   a) Overpull Force
      1. Axial: Buoyant weight of the string plus planned 100,000 lbs applied in stuck pipe situation.
   b) Green Cement Casing Test
      1. Axial: Buoyant weight of the string plus cement plug bump pressure load.

Intermediate I

1) Burst Design Loads
   a) Displacement to Gas
      (1) Internal: Assumes a full column of gas in the casing with a gas gradient of 0.7 psi/ft in the absence of better information. It is limited to the controlling pressure based on the maximum expected pore pressure within the next drilling interval.
      (2) External: Mud weight to TOC and cement mix water gradient (8.4 ppg) below TOC.
   b) Casing Pressure Test
      (1) Internal: Displacement fluid plus surface pressure required to comply with regulatory casing test pressure requirements of Onshore Oil and Gas Order No. 2 and NM NMAC 19.15.16 of NMOCD regulations.

(2) External: Mud weight to TOC and cement mix water gradient (8.4 ppg) below TOC.

2) Collapse Loads
   a) Cementing
      (1) Internal: Displacement fluid density.
      (2) External: Mud weight from TOC to surface and cement slurry weight from TOC to shoe.
   b) Lost Returns with Mud Drop
      (1) Internal: Lost circulation at the TD of the next hole section and the fluid level falls to a depth where the hydrostatic pressure of the mud column equals pore pressure at the depth of the lost circulation zone.
      (2) External: Mud weight to TOC and cement slurry(s) density below TOC.
3) Tension Loads
   a) Overpull Force
      1. Axial: Buoyant weight of the string plus planned 100,000 lbs applied in stuck pipe situation.
   b) Green Cement Casing Test
      1. Axial: Buoyant weight of the string plus cement plug bump pressure load.

<u>Intermediate or Intermediate II</u>

1) Burst Design Loads
   a) Gas Kick Profile
      (1) Internal: Load profile based on influx encountered in lateral portion of wellbore with a maximum influx volume of 150 bbl and a kick intensity of 1.5 ppg using maximum anticipated MW of 9.9 ppg.
      (2) External: Mud weight to TOC and cement mix water gradient (8.4 ppg) below TOC.
   b) Casing Pressure Test
      (1) Internal: Displacement fluid plus surface pressure required to comply with regulatory casing test pressure requirements of Onshore Oil and Gas Order No. 2 and NM NMAC 19.15.16 of NMOCD regulations.
      (2) External: Mud weight to TOC and cement mix water gradient (8.4 ppg) below TOC.
2) Collapse Loads
   a) Cementing
      (1) Internal: Displacement fluid density.
      (2) External: Mud weight from TOC to surface and cement slurry weight from TOC to shoe.
   b) Lost Returns with Mud Drop
      (1) Internal: Lost circulation at the deepest TVD of the next hole section and the fluid level falls to a depth where the hydrostatic pressure of the mud column equals pore pressure at the depth of the lost circulation zone.
      (2) External: Mud weight to TOC and cement slurry(s) density below TOC.
3) Tension Loads
   a) Overpull Force
      1. Axial: Buoyant weight of the string plus planned 100,000 lbs applied in stuck pipe situation.
   b) Green Cement Casing Test
      1. Axial: Buoyant weight of the string plus cement plug bump pressure load.

Production

1) Burst Design Loads
   a) Injection Down Casing
      (1) Internal: Surface pressure plus injection fluid gradient.
      (2) External: Mud base-fluid density to top of cement and cement mix water gradient (8.4 ppg) below TOC.
   b) Casing Pressure Test (Drilling)
      (1) Internal: Displacement fluid plus surface pressure required to comply with regulatory casing test pressure requirements of Onshore Oil and Gas Order No. 2 and NM NMAC 19.15.16 of NMOCD regulations.
      (2) External: Mud weight to TOC and cement mix water gradient (8.4 ppg) below TOC.
   c) Casing Pressure Test (Production)
      (1) Internal: The design pressure test should be the greater of the planned test pressure prior to simulation down the casing, the regulatory test pressure, and the expected gas lift system pressure. The design test fluid should be the fluid associated with the pressure test having the greatest pressure.
      (2) External: Mud base-fluid density to top of cement and cement mix water gradient (8.4 ppg) below TOC.
   d) Tubing Leak
      (1) Internal: SITP plus a packer fluid gradient to the top of packer.
      (2) External: Mud base-fluid density to top of cement and cement mix water gradient (8.4 ppg) below TOC.
2) Collapse Loads
   a) Cementing
      (1) Internal: Displacement fluid density.
      (2) External: Mud weight to TOC and cement slurry(s) density below TOC.
   b) Full Evacuation
      (1) Internal: Full void pipe.
      (2) External: Mud weight to TOC and cement slurry(s) density below TOC.
3) Tension Loads
   a) Overpull Force
      1. Axial: Buoyant weight of the string plus planned 100,000 lbs applied in stuck pipe situation.
   b) Green Cement Casing Test
      1. Axial: Buoyant weight of the string plus cement plug bump pressure load.

Permian Resources
Multi-Well Pad Batch Drilling Procedure

Surface Casing - PR intends to Batch set all surface casing to a depth approved in the APD. Surface Holes will be batch drilled by a rig. Appropriate notifications will be made prior to spudding the well, running and cementing casing and prior to skidding to the rig to the next well on pad.

1. Drill Surface hole to Approved Depth with Rig and perform wellbore cleanup cycles. Trip out and rack back drilling BHA.
2. Run and land planned surface casing see Illustration 1-1 Below to depth approved in APD.
3. Set packoff and test to 5k psi
4. Offline Cement
5. Install wellhead with pressure gauge and nightcap. Nightcap is shown on final wellhead Stack up Illustration #2-2.
6. Skid Rig to adjacent well to drill Surface hole.
7. Surface casing test will be performed by the rig in order to allow ample time for Cement to develop 500psi compressive strength. Casing test to 0.22 psi/ft or 1500 psi whichever is greater - not to exceed 70% casing burst.

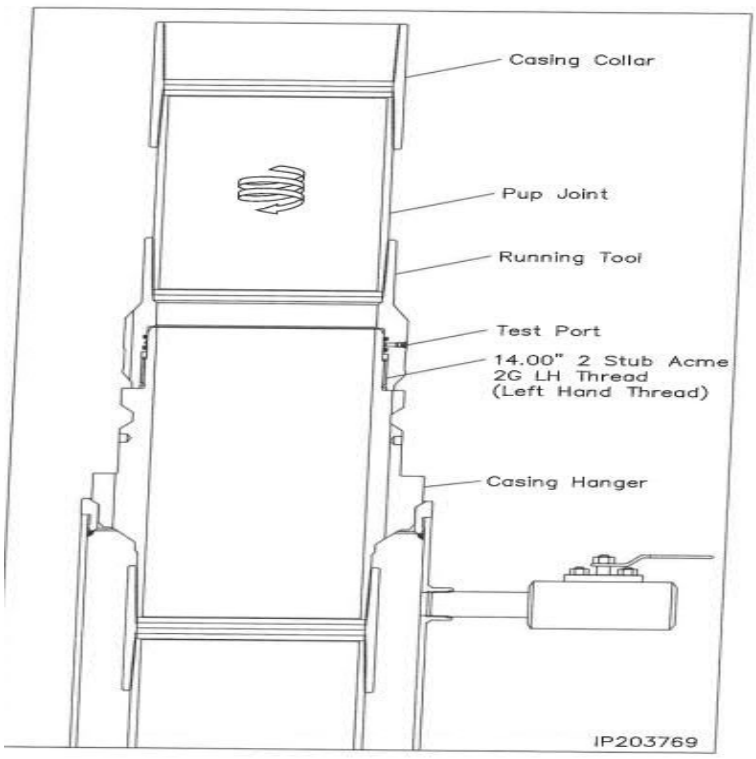


Illustration 1-1

Intermediate Casing – PR intends to Batch set all intermediate casing strings to a depth approved in the APD. Intermediate Holes will be batch drilled by the rig. Appropriate notifications will be made prior to testing BOPE, and prior to running/cementing all casing strings.

1. Rig will remove the nightcap and install and test BOPE.
2. Test Surface casing per COA WOC timing (.22 psi/ft or 1500 psi whichever is greater) - not to exceed 70% casing burst. Cement must have achieved 500psi compressive strength prior to test.
3. Install wear bushing then drill out surface casing shoe-track plus 20' and conduct FIT to minimum of the MW equivalent anticipated to control the formation pressure to the next casing point.
4. Drill Intermediate hole to approved casing point. Trip out of hole with BHA to run Casing.
5. Remove wear bushing then run and land Intermediate Casing with mandrel hanger in wellhead.
6. Cement casing to surface with floats holding.
7. Washout stack then run wash tool in wellhead and wash hanger and pack-off setting area.
8. Install pack-off and test void to 5,000 psi for 15 minutes. Nightcap shown on final wellhead stack up illustration 2-2 on page 3.
9. Test casing per COA WOC timing (.22 psi/ft or 1500 psi whichever is greater) - not to exceed 70% casing burst. Cement must have achieved 500psi compressive strength prior to test.
10. Install nightcap – skid rig to adjacent well to drill Intermediate hole.

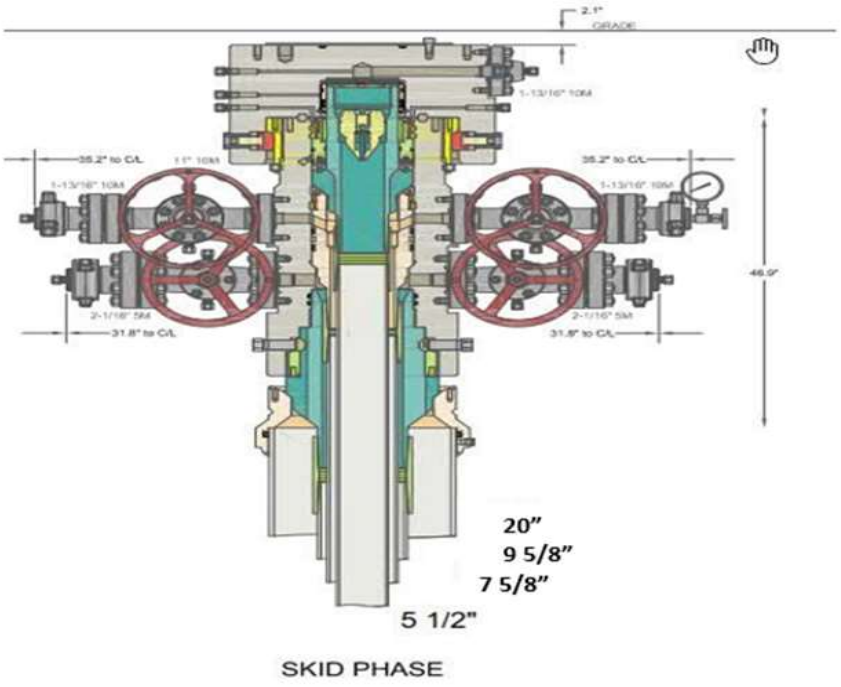


Illustration 2-2

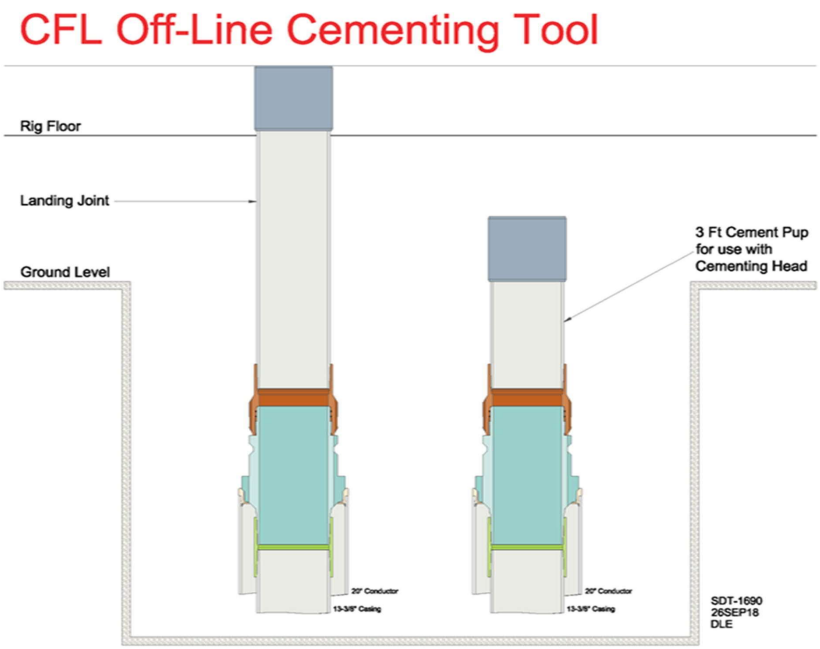
Production Casing – PR intends to Batch set all Production casings with Rig. Appropriate notifications will be made prior Testing BOPE, and prior to running/cementing all casing strings.

1. Big Rig will remove the nightcap and install and test BOPE.
2. Install wear bushing then drill Intermediate shoe-track plus 20' and conduct FIT to minimum MW equivalent to control the formation pressure to TD of well.
3. Drill Vertical hole to KOP – Trip out for Curve BHA.
4. Drill Curve, landing in production interval – Trip for Lateral BHA.
5. Drill Lateral / Production hole to Permitted BHL, perform cleanup cycles and trip out to run 51/2" Production Casing.
6. Remove wear bushing then run 5-1/2" production casing to TD landing casing mandrel in wellhead.
7. Cement 5-1/2" Production string with floats holding.
8. Run in with wash tool and wash wellhead area – install pack-off and test void to 5,000psi for 15 minutes.
9. Install BPV in 5-1/2" mandrel hanger – Nipple down BOPE and install nightcap.
10. Test nightcap void to 5,000psi for 30 minutes per illustration 2-2
11. Skid rig to adjacent well on pad to drill production hole.

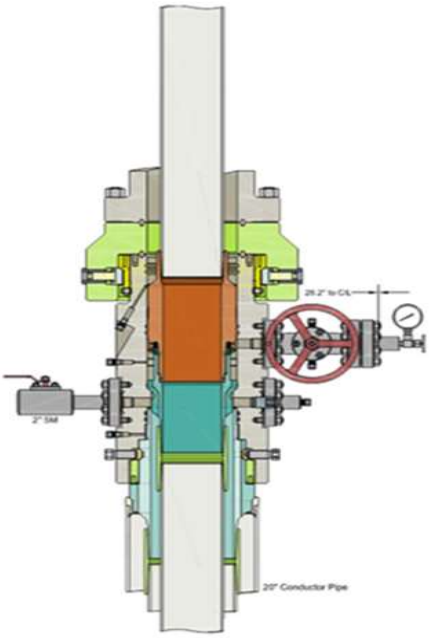
Permian Resources Offline Cementing Procedure
Surface & Intermediate Casing

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.

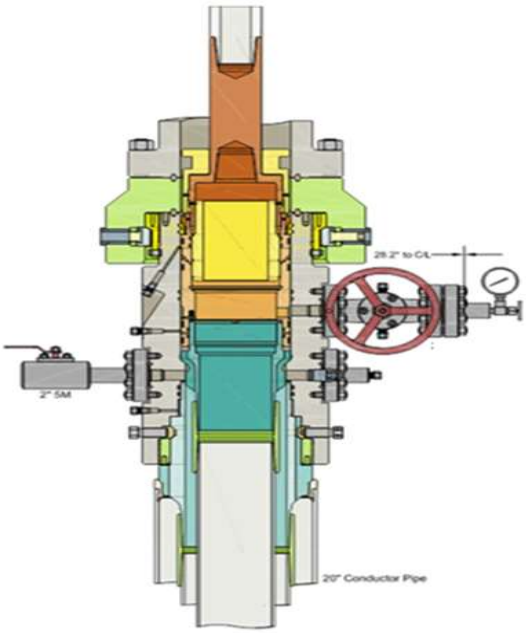
Surface Casing



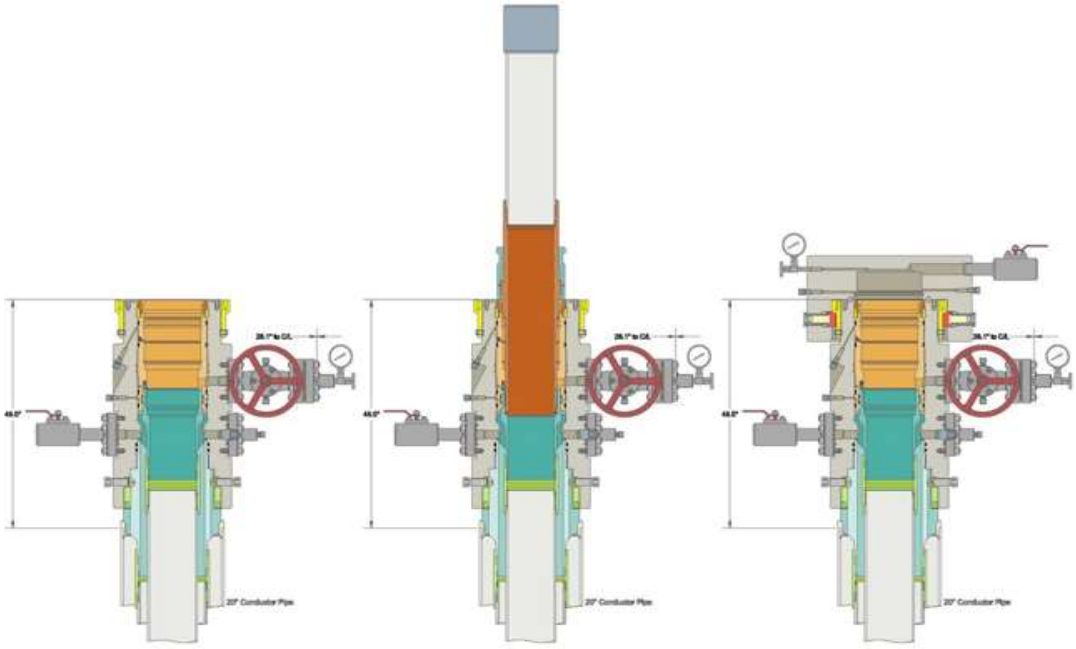
Intermediate



Run 7 5/8" Casing
Land Casing on 7 5/8" Mandrel Hanger
Cement 7 5/8" Casing
Retrieve Running Tool



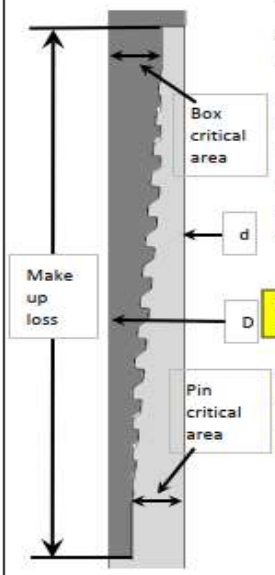
Run 9 5/8" Packoff
Test Upper and Lower Seals
Engage Lockring
Retrieve Running Tool



Metal One Corp.	MO-FXL	CDS#	MO-FXL 7-5/8 29.7
Metal One	Pipe Body: BMP P110HC MinYS110ksi		P110HC
	Connection Data Sheet		MinYS110ksi
		Date	10-Mar-21

Geometry

MO-FXL



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

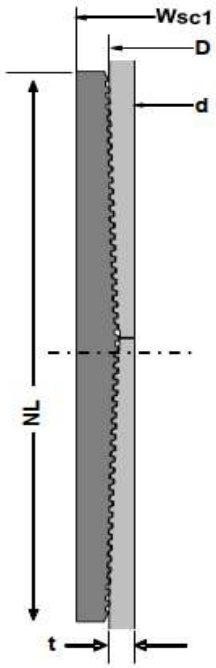
Min.	15,500	ft-lb	21,000	N-m
Opti.	17,200	ft-lb	23,300	N-m
Max.	18,900	ft-lb	25,600	N-m
Operational Max.	23,600	ft-lb	32,000	N-m

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

Metal One Corp.	GEOCONN-SC Pipe Body: SeAH P110RY(SMYS110ksi) & 95%RBW *1 Coupling: P110CY (SMYS110ksi) Connection Data Sheet	Page	MAI GC 5.5 20 SeAH PRY 95%RW
Metal One			SC-CplgOD 6.050 P110CY
		Date	29-Sep-21
		Rev.	0

Geometry

GEOCONN-SC



Pipe Body

Grade *1	SeAH P110RY	-	SeAH P110RY	
SMYS	110	ksi	110	ksi
Pipe OD (D)	5.500	in	139.70	mm
Weight	20.00	lb/ft	29.80	kg/m
Wall Thickness (t)	0.361	in	9.17	mm
Pipe ID (d)	4.778	in	121.36	mm
Drift Dia.	4.653	in	118.19	mm

Connection

Coupling SMYS	110	ksi	110	ksi
Coupling OD (Wsc1)	6.050	in	153.67	mm
Coupling Length (NL)	8.350	in	212.09	mm
Make up Loss	4.125	in	104.78	mm
Pipe Critical Area	5.83	in^2	3,760	mm^2
Box Critical Area	6.00	in^2	3,874	mm^2
Thread Taper	1 / 16 (3/4" per ft)			
Number of Threads	5 TPI			

Performance

Performance Properties for Pipe Body

S.M.Y.S.	641	kips	2,852	kN
M.I.Y.P. *1	13,720	psi	94.62	MPa
Collapse Strength	11,100	psi	76.55	MPa

Note S.M.Y.S.= Specified Minimum YIELD Strength of Pipe body
M.I.Y.P. = Minimum Internal Yield Pressure of Pipe body

*1 Pipe: SeAH P110RY (SMYS110ksi), Min Wall Thickness of Pipe Body: 95% of Nom wall

Performance Properties for Connection

Min. Connection Joint Strength	100% of S.M.Y.S.
Min. Compression Yield	100% of S.M.Y.S.
Internal Pressure	100% of M.I.Y.P.
External Pressure	100% of Collapse Strength
Max. DLS (deg. /100ft)	>90

Recommended Torque

Min.	14,600	ft-lb	19,700	N-m
Opti.	16,200	ft-lb	21,900	N-m
Max.	17,800	ft-lb	24,100	N-m
Operational Max.	19,500	ft-lb	26,400	N-m

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

SeAH

5.5" 20# .361" P-110 Restricted Yield (RY)

Dimensions (Nominal)

Outside Diameter	5.500	in.
Wall	0.361	in.
Inside Diameter	4.778	in.
Drift	4.653	in.
Weight, T&C	20.000	lbs/ft
Weight, PE	19.830	lbs/ft

Performance Properties (Minimum)

Minimum Yield Strength	110000	psi
Maximum Yield Strength	125000	psi
Collapse, PE	11100	psi
Internal Yield Pressure		
PE	12630	psi
LTC	12360	psi
BTC	12360	psi
Yield Strength, Pipe Body	641	1000 lbs
Joint Strength		
LTC	548	1000 lbs
BTC	667	1000 lbs

Fermata Technologies

5.500 x 20.00# P-110 RY Bushmaster® SL (95% RBW)

Pipe Body Data		
Nominal OD	5.500	Inches
Wall Thickness	0.361	Inches
Weight	20.00	lb/ft
PE Weight	19.83	lb/ft
Nominal ID	4.778	Inches
Drift	4.653	Inches
Minimum Yield Strength	110,000	PSI
Minimum Tensile Strength	125,000	PSI
RBW	95.0%	Rating

Connection Data		
Connection OD	5.900	Inches
Connection ID	4.778	Inches
Make-Up Loss	4.892	Inches
Tension Efficiency	100%	Rating
Compression Efficiency	100%	Rating
Yield Strength in Tension	641,000	LBS.
Yield Strength in Compression	641,000	LBS.
MIYP (Burst)	13,720	PSI
Collapse*	11,110	PSI
Uniaxial Bending	92	º/100 FT

Make-Up Torque		
Yield Torque	41,000	FT-LBS.
Max Operating Torque	32,800	FT-LBS.
Max Make-Up	22,000	FT-LBS.
Optimum Make-Up	20,000	FT-LBS.
Minimum Make-Up	18,000	FT-LBS.

For Technical Support please email support@fermata-tech.com or call (281) 941-5257. 9/21/2023

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*Collapse value based on API collapse +10-15% depending on D/t ratio and is used for example only. The actual collapse rating is 100% of pipe body and will vary depending on the mill. Verify the collapse rating of the pipe body with the manufacturer.

NEW MEXICO

(SP) EDDY
RANA SALADA PROJECT
RANA SALADA 0503 FED COM 224H

OWB
PWP0

Anticollision Report

23 January, 2024

Permian Resources

Anticollision Report

Company:	NEW MEXICO	**Local Co-ordinate Reference:**	Well RANA SALADA 0503 FED COM 224H
Project:	(SP) EDDY	**TVD Reference:**	KB @ 3095.0usft
Reference Site:	RANA SALADA PROJECT	**MD Reference:**	KB @ 3095.0usft
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	RANA SALADA 0503 FED COM 224H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OWB	**Database:**	Compass
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 800.0usft	**Error Surface:**	Pedal Curve
Warning Levels Evaluated at:	2.00 **Sigma**	**Casing Method:**	Not applied

Survey Tool Program **Date** 1/23/2024

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	19,437.3	PWP0 (OWB)	MWD	OWSG_Rev2_ MWD - Standard

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
RANA SALADA PROJECT						
RANA SALADA 0503 FED COM 204H - OWB - PWP0	2,000.0	2,000.0	33.0	18.9	2.337	CC
RANA SALADA 0503 FED COM 204H - OWB - PWP0	2,300.0	2,302.1	33.9	17.7	2.086	ES
RANA SALADA 0503 FED COM 204H - OWB - PWP0	19,437.8	19,372.2	662.3	216.5	1.486	Level 3, SF
RANA SALADA 0604 FED COM 203H - OWB - PWP0	15,459.5	22,970.0	671.7	229.5	1.519	CC, ES, SF
RANA SALADA 0604 FED COM 223H - OWB - PWP0						Out of range
RANA SALADA 0605 FED COM 204H - OWB - PWP0	10,387.5	17,705.3	768.2	564.1	3.763	CC, ES
RANA SALADA 0605 FED COM 204H - OWB - PWP0	10,400.0	17,705.3	768.4	564.2	3.762	SF
RANA SALADA 0605 FED COM 224H - OWB - PWP0	10,350.0	17,651.1	336.9	250.5	3.898	SF
RANA SALADA 0605 FED COM 224H - OWB - PWP0	10,361.0	17,651.1	336.6	250.3	3.900	CC, ES

Offset Design: RANA SALADA PROJECT - RANA SALADA 0503 FED COM 204H - OWB - PWP0 **Offset Site Error:** 0.0 usft

Survey Program: 0-MWD **Rule Assigned:** **Offset Well Error:** 0.0 usft

Reference 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
0.0	0.0	0.0	0.0	0.0	0.0	140.68	-25.5	20.9	33.0				
100.0	100.0	100.0	100.0	0.3	0.3	140.68	-25.5	20.9	33.0	32.5	0.50	65.784	
200.0	200.0	200.0	200.0	0.6	0.6	140.68	-25.5	20.9	33.0	31.8	1.22	27.087	
300.0	300.0	300.0	300.0	1.0	1.0	140.68	-25.5	20.9	33.0	31.1	1.94	17.055	
400.0	400.0	400.0	400.0	1.3	1.3	140.68	-25.5	20.9	33.0	30.4	2.65	12.446	
500.0	500.0	500.0	500.0	1.7	1.7	140.68	-25.5	20.9	33.0	29.6	3.37	9.798	
600.0	600.0	600.0	600.0	2.0	2.0	140.68	-25.5	20.9	33.0	28.9	4.09	8.079	
700.0	700.0	700.0	700.0	2.4	2.4	140.68	-25.5	20.9	33.0	28.2	4.80	6.873	
800.0	800.0	800.0	800.0	2.8	2.8	140.68	-25.5	20.9	33.0	27.5	5.52	5.980	
900.0	900.0	900.0	900.0	3.1	3.1	140.68	-25.5	20.9	33.0	26.8	6.24	5.293	
1,000.0	1,000.0	1,000.0	1,000.0	3.5	3.5	140.68	-25.5	20.9	33.0	26.1	6.95	4.747	
1,100.0	1,100.0	1,100.0	1,100.0	3.8	3.8	140.68	-25.5	20.9	33.0	25.3	7.67	4.304	
1,200.0	1,200.0	1,200.0	1,200.0	4.2	4.2	140.68	-25.5	20.9	33.0	24.6	8.39	3.936	
1,300.0	1,300.0	1,300.0	1,300.0	4.6	4.6	140.68	-25.5	20.9	33.0	23.9	9.11	3.626	
1,400.0	1,400.0	1,400.0	1,400.0	4.9	4.9	140.68	-25.5	20.9	33.0	23.2	9.82	3.361	
1,500.0	1,500.0	1,500.0	1,500.0	5.3	5.3	140.68	-25.5	20.9	33.0	22.5	10.54	3.133	
1,600.0	1,600.0	1,600.0	1,600.0	5.6	5.6	140.68	-25.5	20.9	33.0	21.8	11.26	2.933	
1,700.0	1,700.0	1,700.0	1,700.0	6.0	6.0	140.68	-25.5	20.9	33.0	21.0	11.97	2.757	

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

Permian Resources

Anticollision Report

Company:	NEW MEXICO	**Local Co-ordinate Reference:**	Well RANA SALADA 0503 FED COM 224H
Project:	(SP) EDDY	**TVD Reference:**	KB @ 3095.0usft
Reference Site:	RANA SALADA PROJECT	**MD Reference:**	KB @ 3095.0usft
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	RANA SALADA 0503 FED COM 224H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OWB	**Database:**	Compass
Reference Design:	PWP0	**Offset TVD Reference:**	Offset Datum

Offset Design: RANA SALADA PROJECT - RANA SALADA 0503 FED COM 204H - OWB - PWP0 — **Offset Site Error:** 0.0 usft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 usft

Reference 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)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
1,800.0	1,800.0	1,800.0	1,800.0	6.3	6.3	140.68	-25.5	20.9	33.0	20.3	12.69	2.602	
1,900.0	1,900.0	1,900.0	1,900.0	6.7	6.7	140.68	-25.5	20.9	33.0	19.6	13.41	2.462	
2,000.0	2,000.0	2,000.0	2,000.0	7.1	7.1	140.68	-25.5	20.9	33.0	18.9	14.12	2.337 CC	
2,100.0	2,100.0	2,100.7	2,100.7	7.4	7.4	131.52	-23.8	21.3	33.1	18.3	14.84	2.231	
2,200.0	2,199.8	2,201.4	2,201.2	7.8	7.8	131.02	-18.7	22.6	33.4	17.9	15.55	2.149	
2,300.0	2,299.5	2,302.1	2,301.5	8.1	8.1	130.20	-10.1	24.6	33.9	17.7	16.25	2.086 ES	
2,400.0	2,398.7	2,402.8	2,401.4	8.5	8.5	129.10	1.9	27.5	34.6	17.7	16.96	2.041	
2,500.0	2,497.5	2,502.7	2,500.4	8.9	8.9	130.17	15.5	30.7	36.6	18.9	17.68	2.069	
2,600.0	2,595.6	2,602.6	2,599.3	9.2	9.2	134.77	29.0	34.0	41.0	22.6	18.40	2.226	
2,700.0	2,693.1	2,702.2	2,698.0	9.6	9.6	141.17	42.5	37.2	48.2	29.1	19.11	2.522	
2,750.0	2,741.5	2,751.9	2,747.1	9.8	9.8	144.50	49.2	38.8	53.1	33.6	19.47	2.726	
2,800.0	2,789.8	2,801.5	2,796.3	10.0	10.0	147.54	55.9	40.4	58.5	38.6	19.83	2.948	
2,900.0	2,886.4	2,900.7	2,894.6	10.4	10.4	152.19	69.3	43.6	69.6	49.1	20.54	3.388	
3,000.0	2,982.9	3,000.0	2,992.8	10.9	10.7	155.54	82.8	46.8	81.1	59.8	21.27	3.812	
3,100.0	3,079.5	3,099.2	3,091.1	11.3	11.1	158.06	96.2	50.1	92.8	70.8	21.99	4.217	
3,200.0	3,176.1	3,198.5	3,189.4	11.7	11.5	160.01	109.6	53.3	104.6	81.8	22.72	4.602	
3,300.0	3,272.7	3,297.7	3,287.7	12.2	11.9	161.56	123.1	56.5	116.5	93.0	23.46	4.966	
3,400.0	3,369.3	3,397.0	3,386.0	12.6	12.3	162.83	136.5	59.7	128.5	104.3	24.19	5.310	
3,500.0	3,465.9	3,496.2	3,484.2	13.1	12.7	163.88	149.9	62.9	140.5	115.6	24.93	5.636	
3,600.0	3,562.5	3,595.4	3,582.5	13.6	13.1	164.76	163.4	66.1	152.6	126.9	25.67	5.943	
3,700.0	3,659.1	3,694.7	3,680.8	14.0	13.4	165.52	176.8	69.4	164.7	138.2	26.41	6.235	
3,800.0	3,755.7	3,793.9	3,779.1	14.5	13.8	166.17	190.2	72.6	176.8	149.6	27.15	6.510	
3,900.0	3,852.3	3,893.2	3,877.3	15.0	14.2	166.73	203.7	75.8	188.9	161.0	27.90	6.772	
4,000.0	3,948.9	3,992.4	3,975.6	15.5	14.6	167.23	217.1	79.0	201.1	172.4	28.65	7.020	
4,100.0	4,045.5	4,091.7	4,073.9	16.0	15.0	167.67	230.5	82.2	213.3	183.9	29.39	7.255	
4,200.0	4,142.1	4,190.9	4,172.2	16.5	15.4	168.07	244.0	85.4	225.4	195.3	30.14	7.479	
4,300.0	4,238.6	4,290.1	4,270.5	17.0	15.8	168.42	257.4	88.6	237.6	206.7	30.89	7.692	
4,400.0	4,335.2	4,389.4	4,368.7	17.4	16.2	168.74	270.8	91.9	249.8	218.2	31.65	7.895	
4,500.0	4,431.8	4,488.6	4,467.0	17.9	16.6	169.03	284.3	95.1	262.0	229.6	32.40	8.088	
4,600.0	4,528.4	4,587.9	4,565.3	18.4	17.0	169.29	297.7	98.3	274.3	241.1	33.15	8.273	
4,700.0	4,625.0	4,687.1	4,663.6	18.9	17.4	169.53	311.1	101.5	286.5	252.6	33.91	8.449	
4,800.0	4,721.6	4,786.4	4,761.8	19.5	17.8	169.76	324.6	104.7	298.7	264.0	34.66	8.618	
4,900.0	4,818.2	4,885.6	4,860.1	20.0	18.2	169.96	338.0	107.9	310.9	275.5	35.42	8.779	
5,000.0	4,914.8	4,984.8	4,958.4	20.5	18.6	170.15	351.4	111.2	323.2	287.0	36.17	8.934	
5,100.0	5,011.4	5,084.1	5,056.7	21.0	19.0	170.32	364.9	114.4	335.4	298.5	36.93	9.082	
5,200.0	5,108.0	5,183.3	5,155.0	21.5	19.4	170.48	378.3	117.6	347.6	310.0	37.69	9.224	
5,300.0	5,204.6	5,282.6	5,253.2	22.0	19.8	170.64	391.7	120.8	359.9	321.4	38.45	9.360	
5,400.0	5,301.2	5,381.8	5,351.5	22.5	20.2	170.78	405.2	124.0	372.1	332.9	39.21	9.492	
5,500.0	5,397.8	5,481.1	5,449.8	23.0	20.6	170.91	418.6	127.2	384.4	344.4	39.97	9.618	
5,600.0	5,494.4	5,580.3	5,548.1	23.5	21.0	171.03	432.0	130.4	396.6	355.9	40.73	9.739	
5,700.0	5,590.9	5,679.6	5,646.3	24.0	21.4	171.15	445.5	133.7	408.9	367.4	41.49	9.856	
5,800.0	5,687.5	5,778.8	5,744.6	24.6	21.8	171.26	458.9	136.9	421.1	378.9	42.25	9.968	
5,900.0	5,784.1	5,878.0	5,842.9	25.1	22.3	171.37	472.3	140.1	433.4	390.4	43.01	10.076	
6,000.0	5,880.7	5,977.3	5,941.2	25.6	22.7	171.46	485.8	143.3	445.6	401.9	43.77	10.181	
6,100.0	5,977.3	6,076.5	6,039.5	26.1	23.1	171.56	499.2	146.5	457.9	413.3	44.53	10.282	
6,200.0	6,073.9	6,175.8	6,137.7	26.6	23.5	171.64	512.6	149.7	470.1	424.8	45.29	10.379	
6,300.0	6,170.5	6,275.0	6,236.0	27.2	23.9	171.73	526.1	153.0	482.4	436.3	46.06	10.474	
6,400.0	6,267.1	6,374.3	6,334.3	27.7	24.3	171.81	539.5	156.2	494.6	447.8	46.82	10.565	
6,500.0	6,363.7	6,473.5	6,432.6	28.2	24.7	171.88	552.9	159.4	506.9	459.3	47.58	10.653	
6,600.0	6,460.3	6,572.7	6,530.8	28.7	25.1	171.95	566.4	162.6	519.2	470.8	48.35	10.738	
6,700.0	6,556.9	6,672.0	6,629.1	29.2	25.5	172.02	579.8	165.8	531.4	482.3	49.11	10.821	
6,800.0	6,653.5	6,771.2	6,727.4	29.8	25.9	172.09	593.2	169.0	543.7	493.8	49.88	10.901	

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

Permian Resources

Anticollision Report

Company:	NEW MEXICO	**Local Co-ordinate Reference:**	Well RANA SALADA 0503 FED COM 224H
Project:	(SP) EDDY	**TVD Reference:**	KB @ 3095.0usft
Reference Site:	RANA SALADA PROJECT	**MD Reference:**	KB @ 3095.0usft
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	RANA SALADA 0503 FED COM 224H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OWB	**Database:**	Compass
Reference Design:	PWP0	**Offset TVD Reference:**	Offset Datum

Offset Design: RANA SALADA PROJECT - RANA SALADA 0503 FED COM 204H - OWB - PWP0 — **Offset Site Error:** 0.0 usft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 usft

Reference 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)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
6,900.0	6,750.1	6,870.5	6,825.7	30.3	26.3	172.15	606.7	172.2	555.9	505.3	50.64	10.978	
7,000.0	6,846.6	6,969.7	6,924.0	30.8	26.7	172.21	620.1	175.5	568.2	516.8	51.40	11.054	
7,100.0	6,943.2	7,069.0	7,022.2	31.3	27.1	172.27	633.5	178.7	580.5	528.3	52.17	11.127	
7,200.0	7,039.8	7,168.2	7,120.5	31.9	27.5	172.32	646.9	181.9	592.7	539.8	52.93	11.197	
7,300.0	7,136.4	7,267.5	7,218.8	32.4	28.0	172.38	660.4	185.1	605.0	551.3	53.70	11.266	
7,400.0	7,233.0	7,366.7	7,317.1	32.9	28.4	172.43	673.8	188.3	617.3	562.8	54.47	11.333	
7,500.0	7,329.6	7,465.9	7,415.3	33.4	28.8	172.48	687.2	191.5	629.5	574.3	55.23	11.398	
7,600.0	7,426.2	7,565.2	7,513.6	34.0	29.2	172.52	700.7	194.8	641.8	585.8	56.00	11.461	
7,700.0	7,522.8	7,664.4	7,611.9	34.5	29.6	172.57	714.1	198.0	654.1	597.3	56.76	11.522	
7,800.0	7,619.4	7,763.7	7,710.2	35.0	30.0	172.61	727.5	201.2	666.3	608.8	57.53	11.582	
7,900.0	7,716.0	7,862.9	7,808.5	35.5	30.4	172.65	741.0	204.4	678.6	620.3	58.30	11.640	
7,918.1	7,733.4	7,880.9	7,826.2	35.6	30.5	172.66	743.4	205.0	680.8	622.4	58.44	11.651	
8,000.0	7,812.9	7,962.3	7,906.9	36.1	30.8	172.70	754.4	207.6	689.7	630.6	59.06	11.678	
8,100.0	7,910.5	8,062.0	8,005.6	36.5	31.2	172.72	767.9	210.9	697.4	637.6	59.82	11.658	
8,200.0	8,008.9	8,161.9	8,104.5	37.0	31.6	172.68	781.4	214.1	701.7	641.1	60.58	11.583	
8,300.0	8,107.8	8,261.9	8,203.5	37.4	32.0	172.60	795.0	217.3	702.5	641.2	61.33	11.455	
8,400.0	8,207.2	8,361.8	8,302.5	37.8	32.5	172.48	808.5	220.6	699.8	637.8	62.07	11.275	
8,500.0	8,306.9	8,461.6	8,401.3	38.1	32.9	172.30	822.0	223.8	693.7	630.9	62.80	11.047	
8,600.0	8,406.8	8,549.5	8,488.4	38.5	33.2	172.11	833.5	226.5	684.7	621.3	63.46	10.789	
8,668.1	8,474.9	8,600.0	8,538.6	38.7	33.4	-179.01	839.0	227.9	678.1	614.2	63.84	10.622	
8,700.0	8,506.8	8,630.2	8,568.7	38.7	33.5	-179.07	842.0	228.6	675.0	610.9	64.05	10.538	
8,800.0	8,606.8	8,711.4	8,649.6	39.0	33.9	-179.19	848.3	230.1	667.2	602.6	64.59	10.329	
8,900.0	8,706.8	8,800.0	8,738.1	39.3	34.2	-179.27	852.6	231.1	662.2	597.0	65.17	10.161	
9,000.0	8,806.8	8,874.4	8,812.5	39.6	34.4	-179.30	854.2	231.5	659.9	594.4	65.55	10.067	
9,048.2	8,855.0	8,916.9	8,855.0	39.7	34.6	-179.31	854.3	231.5	659.8	594.0	65.80	10.027	
9,100.0	8,906.8	8,968.8	8,906.8	39.9	34.7	-179.31	854.3	231.5	659.8	593.6	66.15	9.974	
9,200.0	9,006.8	9,068.8	9,006.8	40.1	35.1	-179.31	854.3	231.5	659.8	593.0	66.83	9.872	
9,300.0	9,106.8	9,168.8	9,106.8	40.4	35.4	-179.31	854.3	231.5	659.8	592.3	67.52	9.772	
9,400.0	9,206.8	9,268.8	9,206.8	40.7	35.7	-179.31	854.3	231.5	659.8	591.6	68.20	9.675	
9,500.0	9,306.8	9,368.8	9,306.8	41.0	36.0	-179.31	854.3	231.5	659.8	590.9	68.88	9.579	
9,600.0	9,406.8	9,468.8	9,406.8	41.3	36.4	-179.31	854.3	231.5	659.8	590.2	69.56	9.485	
9,700.0	9,506.8	9,568.8	9,506.8	41.6	36.7	-179.31	854.3	231.5	659.8	589.5	70.25	9.392	
9,800.0	9,606.8	9,668.8	9,606.8	41.9	37.0	-179.31	854.3	231.5	659.8	588.9	70.93	9.302	
9,900.0	9,706.8	9,768.8	9,706.8	42.2	37.4	-179.31	854.3	231.5	659.8	588.2	71.62	9.213	
10,000.0	9,806.8	9,868.8	9,806.8	42.4	37.7	-179.31	854.3	231.5	659.8	587.5	72.30	9.125	
10,077.7	9,884.5	9,946.5	9,884.5	42.7	37.9	-179.31	854.3	231.5	659.8	587.0	72.84	9.059	
10,100.0	9,906.8	9,968.8	9,906.8	42.7	38.0	91.09	854.3	231.5	659.8	586.8	72.99	9.040	
10,125.0	9,931.7	9,993.7	9,931.7	42.8	38.1	91.24	854.3	231.5	659.8	586.7	73.15	9.020	
10,150.0	9,956.5	10,019.1	9,957.2	42.9	38.2	91.48	854.3	231.8	659.9	586.6	73.32	9.001	
10,175.0	9,981.2	10,045.0	9,983.0	43.0	38.3	91.73	854.3	233.5	660.0	586.5	73.49	8.980	
10,200.0	10,005.5	10,071.0	10,008.8	43.0	38.3	91.97	854.3	236.5	660.1	586.4	73.68	8.959	
10,225.0	10,029.5	10,097.2	10,034.6	43.1	38.4	92.21	854.3	241.0	660.2	586.3	73.87	8.937	
10,250.0	10,053.1	10,123.5	10,060.2	43.2	38.5	92.44	854.4	247.0	660.3	586.2	74.06	8.915	
10,275.0	10,076.3	10,150.0	10,085.7	43.3	38.6	92.66	854.4	254.3	660.4	586.1	74.27	8.892	
10,300.0	10,098.9	10,176.7	10,110.8	43.3	38.7	92.88	854.5	263.2	660.5	586.0	74.47	8.869	
10,325.0	10,120.9	10,203.5	10,135.6	43.4	38.8	93.09	854.5	273.5	660.7	586.0	74.69	8.846	
10,350.0	10,142.3	10,230.5	10,159.9	43.5	38.9	93.29	854.6	285.3	660.8	585.9	74.91	8.822	
10,375.0	10,163.0	10,257.6	10,183.6	43.6	39.0	93.49	854.7	298.4	660.9	585.8	75.13	8.797	
10,400.0	10,182.9	10,284.9	10,206.6	43.6	39.1	93.67	854.8	313.0	661.0	585.7	75.36	8.772	
10,425.0	10,202.0	10,312.3	10,228.9	43.7	39.2	93.84	854.9	329.0	661.2	585.6	75.59	8.746	
10,450.0	10,220.2	10,339.8	10,250.3	43.8	39.3	94.01	855.0	346.3	661.3	585.5	75.84	8.720	
10,475.0	10,237.5	10,367.5	10,270.8	43.9	39.4	94.16	855.1	364.9	661.4	585.3	76.09	8.693	

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

Permian Resources

Anticollision Report

Company:	NEW MEXICO	**Local Co-ordinate Reference:**	Well RANA SALADA 0503 FED COM 224H
Project:	(SP) EDDY	**TVD Reference:**	KB @ 3095.0usft
Reference Site:	RANA SALADA PROJECT	**MD Reference:**	KB @ 3095.0usft
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	RANA SALADA 0503 FED COM 224H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OWB	**Database:**	Compass
Reference Design:	PWP0	**Offset TVD Reference:**	Offset Datum

Offset Design: RANA SALADA PROJECT - RANA SALADA 0503 FED COM 204H - OWB - PWP0 — **Offset Site Error:** 0.0 usft

Survey Program: 0-MWD — **Rule Assigned:** — **Offset Well Error:** 0.0 usft

Reference 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
10,500.0	10,253.9	10,395.3	10,290.3	43.9	39.5	94.29	855.2	384.7	661.5	585.2	76.35	8.665	
10,525.0	10,269.2	10,423.2	10,308.6	44.0	39.5	94.42	855.3	405.8	661.7	585.0	76.62	8.636	
10,550.0	10,283.5	10,451.2	10,325.8	44.1	39.6	94.53	855.5	427.9	661.8	584.9	76.90	8.606	
10,575.0	10,296.7	10,479.3	10,341.6	44.2	39.8	94.63	855.6	451.1	661.8	584.7	77.19	8.574	
10,600.0	10,308.7	10,507.5	10,356.1	44.3	39.9	94.71	855.7	475.2	661.9	584.4	77.50	8.541	
10,625.0	10,319.6	10,535.7	10,369.2	44.3	40.0	94.78	855.9	500.2	662.0	584.2	77.82	8.507	
10,650.0	10,329.3	10,564.0	10,380.8	44.4	40.1	94.83	856.0	526.0	662.0	583.9	78.16	8.471	
10,675.0	10,337.8	10,592.3	10,390.9	44.5	40.2	94.87	856.2	552.5	662.1	583.6	78.51	8.433	
10,700.0	10,345.0	10,620.6	10,399.4	44.6	40.4	94.89	856.4	579.5	662.1	583.2	78.87	8.394	
10,725.0	10,351.0	10,649.0	10,406.2	44.7	40.5	94.90	856.5	607.0	662.1	582.9	79.26	8.354	
10,750.0	10,355.7	10,677.3	10,411.5	44.8	40.7	94.90	856.7	634.9	662.1	582.4	79.65	8.312	
10,775.0	10,359.1	10,705.7	10,415.0	44.9	40.8	94.87	856.9	663.0	662.1	582.0	80.06	8.269	
10,800.0	10,361.2	10,734.0	10,416.9	45.0	41.0	94.83	857.1	691.2	662.0	581.6	80.49	8.226	
10,825.0	10,362.0	10,761.1	10,417.3	45.1	41.2	94.79	857.2	718.3	662.0	581.1	80.90	8.183	
10,827.5	10,362.0	10,763.6	10,417.3	45.1	41.2	94.79	857.2	720.8	662.0	581.1	80.93	8.180	
10,827.7	10,362.0	10,763.7	10,417.3	45.1	41.2	94.79	857.2	721.0	662.0	581.1	80.94	8.179	
10,900.0	10,362.0	10,836.1	10,417.3	45.5	41.7	94.79	857.7	793.3	662.0	579.9	82.10	8.063	
11,000.0	10,362.0	10,936.1	10,417.3	46.1	42.5	94.79	858.3	893.3	662.0	578.1	83.92	7.889	
11,100.0	10,362.0	11,036.1	10,417.3	46.9	43.5	94.79	858.9	993.3	662.0	576.1	85.96	7.702	
11,200.0	10,362.0	11,136.1	10,417.3	47.7	44.6	94.79	859.5	1,093.3	662.0	573.8	88.22	7.505	
11,300.0	10,362.0	11,236.1	10,417.3	48.7	45.8	94.80	860.1	1,193.3	662.0	571.3	90.67	7.301	
11,400.0	10,362.0	11,336.1	10,417.3	49.8	47.0	94.80	860.7	1,293.3	662.0	568.7	93.31	7.095	
11,500.0	10,362.0	11,436.1	10,417.3	51.0	48.4	94.80	861.3	1,393.3	662.0	565.9	96.12	6.887	
11,600.0	10,362.0	11,536.1	10,417.3	52.3	49.9	94.80	861.9	1,493.3	662.0	562.9	99.08	6.681	
11,700.0	10,362.0	11,636.1	10,417.3	53.7	51.4	94.80	862.5	1,593.3	662.0	559.8	102.19	6.479	
11,800.0	10,362.0	11,736.1	10,417.3	55.2	53.0	94.80	863.1	1,693.3	662.0	556.6	105.42	6.280	
11,900.0	10,362.0	11,836.1	10,417.4	56.7	54.7	94.80	863.7	1,793.3	662.0	553.3	108.77	6.087	
12,000.0	10,362.0	11,936.1	10,417.4	58.3	56.4	94.80	864.4	1,893.3	662.0	549.8	112.22	5.899	
12,100.0	10,362.0	12,036.1	10,417.4	60.0	58.1	94.80	865.0	1,993.3	662.0	546.3	115.77	5.719	
12,200.0	10,362.0	12,136.1	10,417.4	61.7	59.9	94.80	865.6	2,093.3	662.0	542.6	119.41	5.544	
12,300.0	10,362.0	12,236.1	10,417.4	63.5	61.8	94.80	866.2	2,193.3	662.0	538.9	123.13	5.377	
12,400.0	10,362.0	12,336.1	10,417.4	65.3	63.7	94.80	866.8	2,293.3	662.1	535.1	126.92	5.216	
12,500.0	10,362.0	12,436.1	10,417.4	67.2	65.6	94.80	867.4	2,393.3	662.1	531.3	130.78	5.062	
12,600.0	10,362.0	12,536.1	10,417.4	69.1	67.5	94.80	868.0	2,493.3	662.1	527.4	134.70	4.915	
12,700.0	10,362.0	12,636.1	10,417.4	71.0	69.5	94.80	868.6	2,593.3	662.1	523.4	138.68	4.774	
12,800.0	10,362.0	12,736.1	10,417.4	73.0	71.5	94.81	869.2	2,693.2	662.1	519.4	142.71	4.639	
12,900.0	10,362.0	12,836.1	10,417.4	75.0	73.6	94.81	869.8	2,793.2	662.1	515.3	146.78	4.511	
13,000.0	10,362.0	12,936.1	10,417.5	77.0	75.6	94.81	870.4	2,893.2	662.1	511.2	150.90	4.387	
13,100.0	10,362.0	13,036.1	10,417.5	79.0	77.7	94.81	871.0	2,993.2	662.1	507.0	155.06	4.270	
13,200.0	10,362.0	13,136.1	10,417.5	81.1	79.8	94.81	871.6	3,093.2	662.1	502.8	159.25	4.157	
13,300.0	10,362.0	13,236.1	10,417.5	83.1	81.9	94.81	872.3	3,193.2	662.1	498.6	163.48	4.050	
13,400.0	10,362.0	13,336.1	10,417.5	85.2	84.0	94.81	872.9	3,293.2	662.1	494.3	167.74	3.947	
13,500.0	10,362.0	13,436.1	10,417.5	87.3	86.2	94.81	873.5	3,393.2	662.1	490.1	172.03	3.849	
13,600.0	10,362.0	13,536.1	10,417.5	89.5	88.3	94.81	874.1	3,493.2	662.1	485.7	176.34	3.755	
13,700.0	10,362.0	13,636.1	10,417.5	91.6	90.5	94.81	874.7	3,593.2	662.1	481.4	180.68	3.664	
13,800.0	10,362.0	13,736.1	10,417.5	93.8	92.7	94.81	875.3	3,693.2	662.1	477.0	185.05	3.578	
13,900.0	10,362.0	13,836.1	10,417.5	95.9	94.9	94.81	875.9	3,793.2	662.1	472.7	189.43	3.495	
14,000.0	10,362.0	13,936.1	10,417.5	98.1	97.1	94.81	876.5	3,893.2	662.1	468.3	193.84	3.416	
14,100.0	10,362.0	14,036.1	10,417.5	100.3	99.3	94.81	877.1	3,993.2	662.1	463.8	198.26	3.340	
14,200.0	10,362.0	14,136.1	10,417.6	102.5	101.5	94.81	877.7	4,093.2	662.1	459.4	202.70	3.266	
14,300.0	10,362.0	14,236.1	10,417.6	104.7	103.8	94.82	878.3	4,193.2	662.1	454.9	207.16	3.196	
14,400.0	10,362.0	14,336.1	10,417.6	106.9	106.0	94.82	878.9	4,293.2	662.1	450.5	211.64	3.129	

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

Permian Resources

Anticollision Report

Company:	NEW MEXICO	**Local Co-ordinate Reference:**	Well RANA SALADA 0503 FED COM 224H
Project:	(SP) EDDY	**TVD Reference:**	KB @ 3095.0usft
Reference Site:	RANA SALADA PROJECT	**MD Reference:**	KB @ 3095.0usft
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	RANA SALADA 0503 FED COM 224H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OWB	**Database:**	Compass
Reference Design:	PWP0	**Offset TVD Reference:**	Offset Datum

Offset Design: RANA SALADA PROJECT - RANA SALADA 0503 FED COM 204H - OWB - PWP0 — **Offset Site Error:** 0.0 usft

Survey Program: 0-MWD — **Rule Assigned:** — **Offset Well Error:** 0.0 usft

Reference 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
14,500.0	10,362.0	14,436.1	10,417.6	109.2	108.3	94.82	879.5	4,393.2	662.1	446.0	216.12	3.064	
14,600.0	10,362.0	14,536.1	10,417.6	111.4	110.5	94.82	880.2	4,493.2	662.1	441.5	220.62	3.001	
14,700.0	10,362.0	14,636.1	10,417.6	113.6	112.8	94.82	880.8	4,593.2	662.1	437.0	225.14	2.941	
14,800.0	10,362.0	14,736.1	10,417.6	115.9	115.0	94.82	881.4	4,693.2	662.1	432.5	229.66	2.883	
14,900.0	10,362.0	14,836.1	10,417.6	118.1	117.3	94.82	882.0	4,793.2	662.1	427.9	234.20	2.827	
15,000.0	10,362.0	14,936.1	10,417.6	120.4	119.6	94.82	882.6	4,893.2	662.1	423.4	238.75	2.773	
15,100.0	10,362.0	15,036.1	10,417.6	122.7	121.9	94.82	883.2	4,993.2	662.1	418.8	243.31	2.721	
15,200.0	10,362.0	15,136.1	10,417.6	124.9	124.2	94.82	883.8	5,093.2	662.1	414.3	247.87	2.671	
15,300.0	10,362.0	15,236.1	10,417.6	127.2	126.4	94.82	884.4	5,193.2	662.1	409.7	252.45	2.623	
15,400.0	10,362.0	15,336.1	10,417.7	129.5	128.7	94.82	885.0	5,293.2	662.1	405.1	257.04	2.576	
15,500.0	10,362.0	15,436.1	10,417.7	131.8	131.0	94.82	885.6	5,393.2	662.1	400.5	261.63	2.531	
15,600.0	10,362.0	15,536.1	10,417.7	134.1	133.4	94.82	886.2	5,493.2	662.1	395.9	266.23	2.487	
15,700.0	10,362.0	15,636.1	10,417.7	136.4	135.7	94.83	886.8	5,593.2	662.1	391.3	270.84	2.445	
15,800.0	10,362.0	15,736.1	10,417.7	138.7	138.0	94.83	887.4	5,693.2	662.2	386.7	275.45	2.404	
15,900.0	10,362.0	15,836.1	10,417.7	141.0	140.3	94.83	888.1	5,793.2	662.2	382.1	280.07	2.364	
16,000.0	10,362.0	15,936.1	10,417.7	143.3	142.6	94.83	888.7	5,893.2	662.2	377.5	284.70	2.326	
16,100.0	10,362.0	16,036.1	10,417.7	145.6	144.9	94.83	889.3	5,993.2	662.2	372.8	289.33	2.289	
16,200.0	10,362.0	16,136.1	10,417.7	147.9	147.3	94.83	889.9	6,093.2	662.2	368.2	293.97	2.252	
16,300.0	10,362.0	16,236.1	10,417.7	150.2	149.6	94.83	890.5	6,193.2	662.2	363.6	298.62	2.217	
16,400.0	10,362.0	16,336.1	10,417.7	152.6	151.9	94.83	891.1	6,293.2	662.2	358.9	303.26	2.183	
16,500.0	10,362.0	16,436.1	10,417.7	154.9	154.2	94.83	891.7	6,393.2	662.2	354.3	307.92	2.150	
16,600.0	10,362.0	16,536.1	10,417.8	157.2	156.6	94.83	892.3	6,493.2	662.2	349.6	312.58	2.118	
16,700.0	10,362.0	16,636.1	10,417.8	159.5	158.9	94.83	892.9	6,593.2	662.2	344.9	317.24	2.087	
16,800.0	10,362.0	16,736.1	10,417.8	161.9	161.3	94.83	893.5	6,693.2	662.2	340.3	321.91	2.057	
16,900.0	10,362.0	16,836.1	10,417.8	164.2	163.6	94.83	894.1	6,793.2	662.2	335.6	326.58	2.028	
17,000.0	10,362.0	16,936.1	10,417.8	166.5	165.9	94.83	894.7	6,893.2	662.2	330.9	331.26	1.999	
17,100.0	10,362.0	17,036.1	10,417.8	168.9	168.3	94.83	895.3	6,993.2	662.2	326.3	335.94	1.971	
17,200.0	10,362.0	17,136.1	10,417.8	171.2	170.6	94.84	895.9	7,093.2	662.2	321.6	340.62	1.944	
17,300.0	10,362.0	17,236.1	10,417.8	173.5	173.0	94.84	896.6	7,193.2	662.2	316.9	345.31	1.918	
17,400.0	10,362.0	17,336.1	10,417.8	175.9	175.3	94.84	897.2	7,293.2	662.2	312.2	349.99	1.892	
17,500.0	10,362.0	17,436.1	10,417.8	178.2	177.7	94.84	897.8	7,393.2	662.2	307.5	354.69	1.867	
17,600.0	10,362.0	17,536.1	10,417.8	180.6	180.0	94.84	898.4	7,493.2	662.2	302.8	359.38	1.843	
17,700.0	10,362.0	17,636.1	10,417.9	182.9	182.4	94.84	899.0	7,593.2	662.2	298.1	364.08	1.819	
17,800.0	10,362.0	17,736.1	10,417.9	185.3	184.8	94.84	899.6	7,693.2	662.2	293.4	368.78	1.796	
17,900.0	10,362.0	17,836.1	10,417.9	187.6	187.1	94.84	900.2	7,793.2	662.2	288.7	373.49	1.773	
18,000.0	10,362.0	17,936.1	10,417.9	190.0	189.5	94.84	900.8	7,893.2	662.2	284.0	378.20	1.751	
18,100.0	10,362.0	18,036.1	10,417.9	192.3	191.8	94.84	901.4	7,993.2	662.2	279.3	382.91	1.729	
18,200.0	10,362.0	18,136.1	10,417.9	194.7	194.2	94.84	902.0	8,093.1	662.2	274.6	387.62	1.708	
18,300.0	10,362.0	18,236.1	10,417.9	197.1	196.6	94.84	902.6	8,193.1	662.2	269.9	392.33	1.688	
18,400.0	10,362.0	18,336.1	10,417.9	199.4	198.9	94.84	903.2	8,293.1	662.2	265.2	397.05	1.668	
18,500.0	10,362.0	18,436.1	10,417.9	201.8	201.3	94.84	903.8	8,393.1	662.2	260.5	401.77	1.648	
18,600.0	10,362.0	18,536.1	10,417.9	204.1	203.7	94.84	904.5	8,493.1	662.2	255.7	406.49	1.629	
18,700.0	10,362.0	18,636.1	10,417.9	206.5	206.0	94.85	905.1	8,593.1	662.2	251.0	411.21	1.610	
18,800.0	10,362.0	18,736.1	10,417.9	208.9	208.4	94.85	905.7	8,693.1	662.2	246.3	415.94	1.592	
18,900.0	10,362.0	18,836.1	10,418.0	211.2	210.8	94.85	906.3	8,793.1	662.2	241.6	420.66	1.574	
19,000.0	10,362.0	18,936.1	10,418.0	213.6	213.1	94.85	906.9	8,893.1	662.2	236.9	425.39	1.557	
19,100.0	10,362.0	19,036.1	10,418.0	216.0	215.5	94.85	907.5	8,993.1	662.2	232.1	430.12	1.540	
19,200.0	10,362.0	19,136.1	10,418.0	218.3	217.9	94.85	908.1	9,093.1	662.3	227.4	434.85	1.523	
19,300.0	10,362.0	19,236.1	10,418.0	220.7	220.2	94.85	908.7	9,193.1	662.3	222.7	439.59	1.507	
19,400.0	10,362.0	19,336.1	10,418.0	223.1	222.6	94.85	909.3	9,293.1	662.3	217.9	444.32	1.490	Level 3
19,403.4	10,362.0	19,339.5	10,418.0	223.1	222.7	94.85	909.3	9,296.5	662.3	217.8	444.46	1.490	Level 3
19,437.8	10,362.0	19,372.2	10,418.0	223.7	223.5	94.85	909.5	9,329.2	662.3	216.5	445.73	1.486	Level 3, SF

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

Permian Resources

Anticollision Report

Company:	NEW MEXICO	**Local Co-ordinate Reference:**	Well RANA SALADA 0503 FED COM 224H
Project:	(SP) EDDY	**TVD Reference:**	KB @ 3095.0usft
Reference Site:	RANA SALADA PROJECT	**MD Reference:**	KB @ 3095.0usft
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	RANA SALADA 0503 FED COM 224H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OWB	**Database:**	Compass
Reference Design:	PWP0	**Offset TVD Reference:**	Offset Datum

Permian Resources

Anticollision Report

Company:	NEW MEXICO	**Local Co-ordinate Reference:**	Well RANA SALADA 0503 FED COM 224H
Project:	(SP) EDDY	**TVD Reference:**	KB @ 3095.0usft
Reference Site:	RANA SALADA PROJECT	**MD Reference:**	KB @ 3095.0usft
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	RANA SALADA 0503 FED COM 224H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OWB	**Database:**	Compass
Reference Design:	PWP0	**Offset TVD Reference:**	Offset Datum

Offset Design: RANA SALADA PROJECT - RANA SALADA 0604 FED COM 203H - OWB - PWP0 — **Offset Site Error:** 0.0 usft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 usft

Reference 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)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
10,225.0	10,029.5	17,893.5	10,297.0	43.1	191.7	-95.83	2,257.4	268.3	795.6	580.8	214.72	3.705	
10,250.0	10,053.1	17,901.7	10,297.0	43.2	191.9	-96.28	2,257.4	276.5	787.3	570.4	216.98	3.629	
10,275.0	10,076.3	17,911.1	10,297.0	43.3	192.1	-96.54	2,257.3	285.9	779.9	560.7	219.13	3.559	
10,300.0	10,098.9	17,921.8	10,297.0	43.3	192.4	-96.65	2,257.2	296.5	773.2	552.0	221.16	3.496	
10,325.0	10,120.9	17,933.6	10,297.0	43.4	192.7	-96.59	2,257.1	308.3	767.2	544.1	223.06	3.439	
10,350.0	10,142.3	17,946.5	10,297.0	43.5	193.0	-96.39	2,257.0	321.3	761.9	537.1	224.83	3.389	
10,375.0	10,163.0	17,960.6	10,297.0	43.6	193.3	-96.06	2,256.9	335.3	757.4	530.9	226.48	3.344	
10,400.0	10,182.9	17,975.7	10,297.0	43.6	193.7	-95.61	2,256.8	350.4	753.5	525.5	227.99	3.305	
10,425.0	10,202.0	17,991.8	10,297.0	43.7	194.0	-95.07	2,256.6	366.5	750.2	520.8	229.37	3.271	
10,450.0	10,220.2	18,008.9	10,297.0	43.8	194.4	-94.44	2,256.5	383.6	747.4	516.8	230.63	3.241	
10,475.0	10,237.5	18,026.9	10,297.0	43.9	194.9	-93.75	2,256.3	401.7	745.2	513.4	231.78	3.215	
10,500.0	10,253.9	18,045.8	10,297.0	43.9	195.3	-93.01	2,256.2	420.6	743.5	510.7	232.83	3.193	
10,525.0	10,269.2	18,065.6	10,297.0	44.0	195.8	-92.24	2,256.0	440.3	742.1	508.3	233.79	3.174	
10,550.0	10,283.5	18,086.1	10,297.0	44.1	196.3	-91.45	2,255.8	460.9	741.1	506.5	234.68	3.158	
10,575.0	10,296.7	18,107.3	10,297.0	44.2	196.8	-90.67	2,255.7	482.1	740.4	504.9	235.50	3.144	
10,600.0	10,308.7	18,129.2	10,297.0	44.3	197.3	-89.91	2,255.5	504.0	739.9	503.7	236.27	3.132	
10,625.0	10,319.6	18,151.7	10,297.0	44.3	197.8	-89.19	2,255.3	526.5	739.6	502.6	237.01	3.121	
10,650.0	10,329.3	18,174.8	10,297.0	44.4	198.4	-88.52	2,255.1	549.5	739.4	501.7	237.72	3.111	
10,675.0	10,337.8	18,198.3	10,297.0	44.5	198.9	-87.92	2,254.9	573.0	739.3	500.9	238.41	3.101	
10,700.0	10,345.0	18,222.2	10,297.0	44.6	199.5	-87.39	2,254.7	597.0	739.3	500.2	239.11	3.092	
10,725.0	10,351.0	18,246.5	10,297.0	44.7	200.1	-86.95	2,254.5	621.2	739.2	499.4	239.80	3.083	
10,750.0	10,355.7	18,271.0	10,297.0	44.8	200.7	-86.60	2,254.3	645.8	739.1	498.6	240.51	3.073	
10,775.0	10,359.1	18,295.8	10,297.0	44.9	201.3	-86.36	2,254.1	670.5	739.0	497.7	241.24	3.063	
10,800.0	10,361.2	18,320.7	10,297.0	45.0	201.8	-86.22	2,253.9	695.5	738.7	496.7	241.98	3.053	
10,825.0	10,362.0	18,345.7	10,297.0	45.1	202.4	-86.19	2,253.7	720.4	738.4	495.7	242.75	3.042	
10,827.7	10,362.0	18,348.4	10,297.0	45.1	202.5	-86.20	2,253.6	723.1	738.4	495.6	242.83	3.041	
10,900.0	10,362.0	18,420.7	10,297.0	45.5	204.2	-86.19	2,253.0	795.4	737.3	492.2	245.11	3.008	
11,000.0	10,362.0	18,520.7	10,297.0	46.1	206.6	-86.18	2,252.2	895.4	735.9	487.5	248.37	2.963	
11,100.0	10,362.0	18,620.7	10,297.0	46.9	209.0	-86.18	2,251.4	995.4	734.5	482.7	251.75	2.917	
11,200.0	10,362.0	18,720.6	10,297.0	47.7	211.4	-86.17	2,250.5	1,095.4	733.0	477.8	255.24	2.872	
11,300.0	10,362.0	18,820.6	10,297.0	48.7	213.7	-86.16	2,249.7	1,195.4	731.6	472.8	258.83	2.827	
11,400.0	10,362.0	18,920.6	10,297.0	49.8	216.1	-86.15	2,248.9	1,295.4	730.1	467.6	262.51	2.781	
11,500.0	10,362.0	19,020.6	10,297.0	51.0	218.5	-86.15	2,248.0	1,395.3	728.7	462.4	266.27	2.737	
11,600.0	10,362.0	19,120.6	10,297.0	52.3	220.9	-86.14	2,247.2	1,495.3	727.3	457.1	270.12	2.692	
11,700.0	10,362.0	19,220.6	10,297.0	53.7	223.3	-86.13	2,246.4	1,595.3	725.8	451.8	274.03	2.649	
11,800.0	10,362.0	19,320.6	10,297.0	55.2	225.6	-86.12	2,245.5	1,695.3	724.4	446.4	278.01	2.606	
11,900.0	10,362.0	19,420.6	10,297.0	56.7	228.0	-86.11	2,244.7	1,795.3	722.9	440.9	282.06	2.563	
12,000.0	10,362.0	19,520.6	10,297.0	58.3	230.4	-86.11	2,243.9	1,895.3	721.5	435.3	286.15	2.521	
12,100.0	10,362.0	19,620.6	10,297.0	60.0	232.8	-86.10	2,243.0	1,995.3	720.0	429.8	290.30	2.480	
12,200.0	10,362.0	19,720.5	10,297.0	61.7	235.2	-86.09	2,242.2	2,095.2	718.6	424.1	294.49	2.440	
12,300.0	10,362.0	19,820.5	10,297.0	63.5	237.6	-86.08	2,241.4	2,195.2	717.2	418.4	298.72	2.401	
12,400.0	10,362.0	19,920.5	10,297.0	65.3	239.9	-86.08	2,240.5	2,295.2	715.7	412.7	302.99	2.362	
12,500.0	10,362.0	20,020.5	10,297.0	67.2	242.3	-86.07	2,239.7	2,395.2	714.3	407.0	307.29	2.324	
12,600.0	10,362.0	20,120.5	10,297.0	69.1	244.7	-86.06	2,238.9	2,495.2	712.8	401.2	311.62	2.287	
12,700.0	10,362.0	20,220.5	10,297.0	71.0	247.1	-86.05	2,238.0	2,595.2	711.4	395.4	315.99	2.251	
12,800.0	10,362.0	20,320.5	10,297.0	73.0	249.5	-86.04	2,237.2	2,695.2	710.0	389.6	320.38	2.216	
12,900.0	10,362.0	20,420.5	10,297.0	75.0	251.9	-86.04	2,236.3	2,795.1	708.5	383.7	324.79	2.181	
13,000.0	10,362.0	20,520.5	10,297.0	77.0	254.3	-86.03	2,235.5	2,895.1	707.1	377.8	329.23	2.148	
13,100.0	10,362.0	20,620.4	10,297.0	79.0	256.7	-86.02	2,234.7	2,995.1	705.6	371.9	333.69	2.115	
13,200.0	10,362.0	20,720.4	10,297.0	81.1	259.0	-86.01	2,233.8	3,095.1	704.2	366.0	338.16	2.082	
13,300.0	10,362.0	20,820.4	10,297.0	83.1	261.4	-86.00	2,233.0	3,195.1	702.8	360.1	342.66	2.051	
13,400.0	10,362.0	20,920.4	10,297.0	85.2	263.8	-85.99	2,232.2	3,295.1	701.3	354.1	347.17	2.020	

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

Permian Resources

Anticollision Report

Company:	NEW MEXICO	**Local Co-ordinate Reference:**	Well RANA SALADA 0503 FED COM 224H
Project:	(SP) EDDY	**TVD Reference:**	KB @ 3095.0usft
Reference Site:	RANA SALADA PROJECT	**MD Reference:**	KB @ 3095.0usft
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	RANA SALADA 0503 FED COM 224H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OWB	**Database:**	Compass
Reference Design:	PWP0	**Offset TVD Reference:**	Offset Datum

Offset Design: RANA SALADA PROJECT - RANA SALADA 0604 FED COM 203H - OWB - PWP0 — **Offset Site Error:** 0.0 usft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 usft

Reference 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)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
13,500.0	10,362.0	21,020.4	10,297.0	87.3	266.2	-85.99	2,231.3	3,395.1	699.9	348.2	351.69	1.990	
13,600.0	10,362.0	21,120.4	10,297.0	89.5	268.6	-85.98	2,230.5	3,495.0	698.4	342.2	356.23	1.961	
13,700.0	10,362.0	21,220.4	10,297.0	91.6	271.0	-85.97	2,229.7	3,595.0	697.0	336.2	360.78	1.932	
13,800.0	10,362.0	21,320.4	10,297.0	93.8	273.4	-85.96	2,228.8	3,695.0	695.5	330.2	365.35	1.904	
13,900.0	10,362.0	21,420.4	10,297.0	95.9	275.8	-85.95	2,228.0	3,795.0	694.1	324.2	369.92	1.876	
14,000.0	10,362.0	21,520.4	10,297.0	98.1	278.2	-85.94	2,227.2	3,895.0	692.7	318.2	374.51	1.850	
14,100.0	10,362.0	21,620.3	10,297.0	100.3	280.6	-85.94	2,226.3	3,995.0	691.2	312.1	379.11	1.823	
14,200.0	10,362.0	21,720.3	10,297.0	102.5	283.0	-85.93	2,225.5	4,095.0	689.8	306.1	383.71	1.798	
14,300.0	10,362.0	21,820.3	10,297.0	104.7	285.4	-85.92	2,224.7	4,194.9	688.3	300.0	388.33	1.773	
14,400.0	10,362.0	21,920.3	10,297.0	106.9	287.8	-85.91	2,223.8	4,294.9	686.9	294.0	392.95	1.748	
14,500.0	10,362.0	22,020.3	10,297.0	109.2	290.1	-85.90	2,223.0	4,394.9	685.5	287.9	397.58	1.724	
14,600.0	10,362.0	22,120.3	10,297.0	111.4	292.5	-85.89	2,222.2	4,494.9	684.0	281.8	402.21	1.701	
14,700.0	10,362.0	22,220.3	10,297.0	113.6	294.9	-85.88	2,221.3	4,594.9	682.6	275.7	406.86	1.678	
14,800.0	10,362.0	22,320.3	10,297.0	115.9	297.3	-85.88	2,220.5	4,694.9	681.1	269.6	411.50	1.655	
14,900.0	10,362.0	22,420.3	10,297.0	118.1	299.7	-85.87	2,219.7	4,794.9	679.7	263.5	416.16	1.633	
15,000.0	10,362.0	22,520.2	10,297.0	120.4	302.1	-85.86	2,218.8	4,894.9	678.3	257.4	420.82	1.612	
15,100.0	10,362.0	22,620.2	10,297.0	122.7	304.5	-85.85	2,218.0	4,994.8	676.8	251.3	425.49	1.591	
15,200.0	10,362.0	22,720.2	10,297.0	124.9	306.9	-85.84	2,217.2	5,094.8	675.4	245.2	430.16	1.570	
15,300.0	10,362.0	22,820.2	10,297.0	127.2	309.3	-85.83	2,216.3	5,194.8	673.9	239.1	434.83	1.550	
15,400.0	10,362.0	22,920.2	10,297.0	129.5	311.7	-85.82	2,215.5	5,294.8	672.5	233.0	439.51	1.530	
15,459.5	10,362.0	22,970.0	10,297.0	130.9	312.9	-85.82	2,215.1	5,344.6	671.7	229.5	442.21	1.519	CC, ES, SF
15,500.0	10,362.0	22,970.0	10,297.0	131.8	312.9	-85.82	2,215.1	5,344.6	672.9	230.1	442.80	1.520	
15,600.0	10,362.0	22,970.0	10,297.0	134.1	312.9	-85.82	2,215.1	5,344.6	686.2	248.3	437.90	1.567	
15,700.0	10,362.0	22,970.0	10,297.0	136.4	312.9	-85.82	2,215.1	5,344.6	713.5	288.3	425.18	1.678	
15,800.0	10,362.0	22,970.0	10,297.0	138.7	312.9	-85.82	2,215.1	5,344.6	753.1	346.1	406.99	1.850	

Permian Resources

Anticollision Report

Company:	NEW MEXICO	**Local Co-ordinate Reference:**	Well RANA SALADA 0503 FED COM 224H
Project:	(SP) EDDY	**TVD Reference:**	KB @ 3095.0usft
Reference Site:	RANA SALADA PROJECT	**MD Reference:**	KB @ 3095.0usft
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	RANA SALADA 0503 FED COM 224H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OWB	**Database:**	Compass
Reference Design:	PWP0	**Offset TVD Reference:**	Offset Datum

Offset Design: RANA SALADA PROJECT - RANA SALADA 0605 FED COM 204H - OWB - PWP0 — **Offset Site Error:** 0.0 usft

Survey Program: 0-MWD — **Rule Assigned:** — **Offset Well Error:** 0.0 usft

Reference 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
10,225.0	10,029.5	17,705.3	10,381.0	43.1	186.7	116.91	848.8	32.7	798.4	601.9	196.50	4.063	
10,250.0	10,053.1	17,705.3	10,381.0	43.2	186.7	117.86	848.8	32.7	790.0	591.7	198.34	3.983	
10,275.0	10,076.3	17,705.3	10,381.0	43.3	186.7	118.64	848.8	32.7	782.9	583.0	199.97	3.915	
10,300.0	10,098.9	17,705.3	10,381.0	43.3	186.7	119.26	848.8	32.7	777.2	575.8	201.37	3.859	
10,325.0	10,120.9	17,705.3	10,381.0	43.4	186.7	119.72	848.8	32.7	772.8	570.3	202.51	3.816	
10,350.0	10,142.3	17,705.3	10,381.0	43.5	186.7	120.03	848.8	32.7	769.9	566.5	203.38	3.785	
10,375.0	10,163.0	17,705.3	10,381.0	43.6	186.7	120.18	848.8	32.7	768.4	564.4	203.97	3.767	
10,387.5	10,173.0	17,705.3	10,381.0	43.6	186.7	120.20	848.8	32.7	768.2	564.1	204.15	3.763	CC, ES
10,400.0	10,182.9	17,705.3	10,381.0	43.6	186.7	120.18	848.8	32.7	768.4	564.2	204.25	3.762	SF
10,425.0	10,202.0	17,705.3	10,381.0	43.7	186.7	120.03	848.8	32.7	769.9	565.6	204.24	3.769	
10,450.0	10,220.2	17,705.3	10,381.0	43.8	186.7	119.72	848.8	32.7	772.8	568.9	203.94	3.789	
10,475.0	10,237.5	17,705.3	10,381.0	43.9	186.7	119.26	848.8	32.7	777.2	573.8	203.36	3.822	
10,500.0	10,253.9	17,705.3	10,381.0	43.9	186.7	118.64	848.8	32.7	782.9	580.4	202.51	3.866	
10,525.0	10,269.2	17,705.3	10,381.0	44.0	186.7	117.86	848.8	32.7	790.0	588.6	201.41	3.922	
10,550.0	10,283.5	17,705.3	10,381.0	44.1	186.7	116.91	848.8	32.7	798.4	598.3	200.09	3.990	

Permian Resources

Anticollision Report

Company:	NEW MEXICO	**Local Co-ordinate Reference:**	Well RANA SALADA 0503 FED COM 224H
Project:	(SP) EDDY	**TVD Reference:**	KB @ 3095.0usft
Reference Site:	RANA SALADA PROJECT	**MD Reference:**	KB @ 3095.0usft
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	RANA SALADA 0503 FED COM 224H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OWB	**Database:**	Compass
Reference Design:	PWP0	**Offset TVD Reference:**	Offset Datum

Offset Design: RANA SALADA PROJECT - RANA SALADA 0605 FED COM 224H - OWB - PWP0 — **Offset Site Error:** 0.0 usft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 usft

Reference 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)	Rule Assigned: Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,800.0	9,606.8	17,651.1	10,314.0	41.9	187.2	-91.50	1,508.8	42.2	759.0	676.6	82.36	9.216	
9,900.0	9,706.8	17,651.1	10,314.0	42.2	187.2	-91.50	1,508.8	42.2	662.9	580.0	82.97	7.990	
10,000.0	9,806.8	17,651.1	10,314.0	42.4	187.2	-91.50	1,508.8	42.2	568.3	484.6	83.70	6.790	
10,077.7	9,884.5	17,651.1	10,314.0	42.7	187.2	-91.50	1,508.8	42.2	496.2	411.8	84.36	5.881	
10,100.0	9,906.8	17,651.1	10,314.0	42.7	187.2	178.96	1,508.8	42.2	476.0	391.4	84.58	5.628	
10,125.0	9,931.7	17,651.1	10,314.0	42.8	187.2	179.05	1,508.8	42.2	454.2	369.4	84.85	5.354	
10,150.0	9,956.5	17,651.1	10,314.0	42.9	187.2	179.12	1,508.8	42.2	433.5	348.4	85.14	5.092	
10,175.0	9,981.2	17,651.1	10,314.0	43.0	187.2	179.18	1,508.8	42.2	414.2	328.7	85.45	4.847	
10,200.0	10,005.5	17,651.1	10,314.0	43.0	187.2	179.22	1,508.8	42.2	396.3	310.5	85.76	4.621	
10,225.0	10,029.5	17,651.1	10,314.0	43.1	187.2	179.25	1,508.8	42.2	380.3	294.2	86.06	4.418	
10,250.0	10,053.1	17,651.1	10,314.0	43.2	187.2	179.28	1,508.8	42.2	366.3	280.0	86.32	4.244	
10,275.0	10,076.3	17,651.1	10,314.0	43.3	187.2	179.30	1,508.8	42.2	354.8	268.2	86.51	4.101	
10,300.0	10,098.9	17,651.1	10,314.0	43.3	187.2	179.31	1,508.8	42.2	345.9	259.3	86.60	3.994	
10,325.0	10,120.9	17,651.1	10,314.0	43.4	187.2	179.32	1,508.8	42.2	339.8	253.3	86.57	3.926	
10,350.0	10,142.3	17,651.1	10,314.0	43.5	187.2	179.33	1,508.8	42.2	336.9	250.5	86.41	3.898	SF
10,361.0	10,151.5	17,651.1	10,314.0	43.5	187.2	179.33	1,508.8	42.2	336.6	250.3	86.31	3.900	CC, ES
10,375.0	10,163.0	17,651.1	10,314.0	43.6	187.2	179.33	1,508.8	42.2	337.1	250.9	86.15	3.913	
10,400.0	10,182.9	17,651.1	10,314.0	43.6	187.2	179.32	1,508.8	42.2	340.4	254.6	85.80	3.967	
10,425.0	10,202.0	17,651.1	10,314.0	43.7	187.2	179.31	1,508.8	42.2	346.8	261.4	85.41	4.060	
10,450.0	10,220.2	17,651.1	10,314.0	43.8	187.2	179.30	1,508.8	42.2	356.0	271.0	85.02	4.187	
10,475.0	10,237.5	17,651.1	10,314.0	43.9	187.2	179.28	1,508.8	42.2	367.9	283.2	84.67	4.345	
10,500.0	10,253.9	17,651.1	10,314.0	43.9	187.2	179.25	1,508.8	42.2	382.1	297.7	84.38	4.528	
10,525.0	10,269.2	17,651.1	10,314.0	44.0	187.2	179.22	1,508.8	42.2	398.3	314.2	84.14	4.734	
10,550.0	10,283.5	17,651.1	10,314.0	44.1	187.2	179.17	1,508.8	42.2	416.4	332.4	83.96	4.959	
10,575.0	10,296.7	17,651.1	10,314.0	44.2	187.2	179.12	1,508.8	42.2	435.9	352.1	83.84	5.200	
10,600.0	10,308.7	17,651.1	10,314.0	44.3	187.2	179.04	1,508.8	42.2	456.8	373.0	83.75	5.454	
10,625.0	10,319.6	17,651.1	10,314.0	44.3	187.2	178.95	1,508.8	42.2	478.6	394.9	83.69	5.719	
10,650.0	10,329.3	17,651.1	10,314.0	44.4	187.2	178.82	1,508.8	42.2	501.4	417.7	83.65	5.993	
10,675.0	10,337.8	17,651.1	10,314.0	44.5	187.2	178.64	1,508.8	42.2	524.8	441.1	83.63	6.275	
10,700.0	10,345.0	17,651.1	10,314.0	44.6	187.2	178.38	1,508.8	42.2	548.7	465.1	83.61	6.563	
10,725.0	10,351.0	17,651.1	10,314.0	44.7	187.2	177.97	1,508.8	42.2	573.1	489.5	83.60	6.855	
10,750.0	10,355.7	17,651.1	10,314.0	44.8	187.2	177.21	1,508.8	42.2	597.7	514.1	83.60	7.150	
10,775.0	10,359.1	17,651.1	10,314.0	44.9	187.2	175.41	1,508.8	42.2	622.6	539.0	83.60	7.447	
10,800.0	10,361.2	17,651.1	10,314.0	45.0	187.2	166.18	1,508.8	42.2	647.5	563.9	83.60	7.746	
10,825.0	10,362.0	17,651.1	10,314.0	45.1	187.2	12.06	1,508.8	42.2	672.5	588.9	83.60	8.045	
10,827.7	10,362.0	17,651.1	10,314.0	45.1	187.2	10.06	1,508.8	42.2	675.2	591.6	83.60	8.077	
10,900.0	10,362.0	17,651.1	10,314.0	45.5	187.2	10.06	1,508.8	42.2	747.5	663.9	83.60	8.941	

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

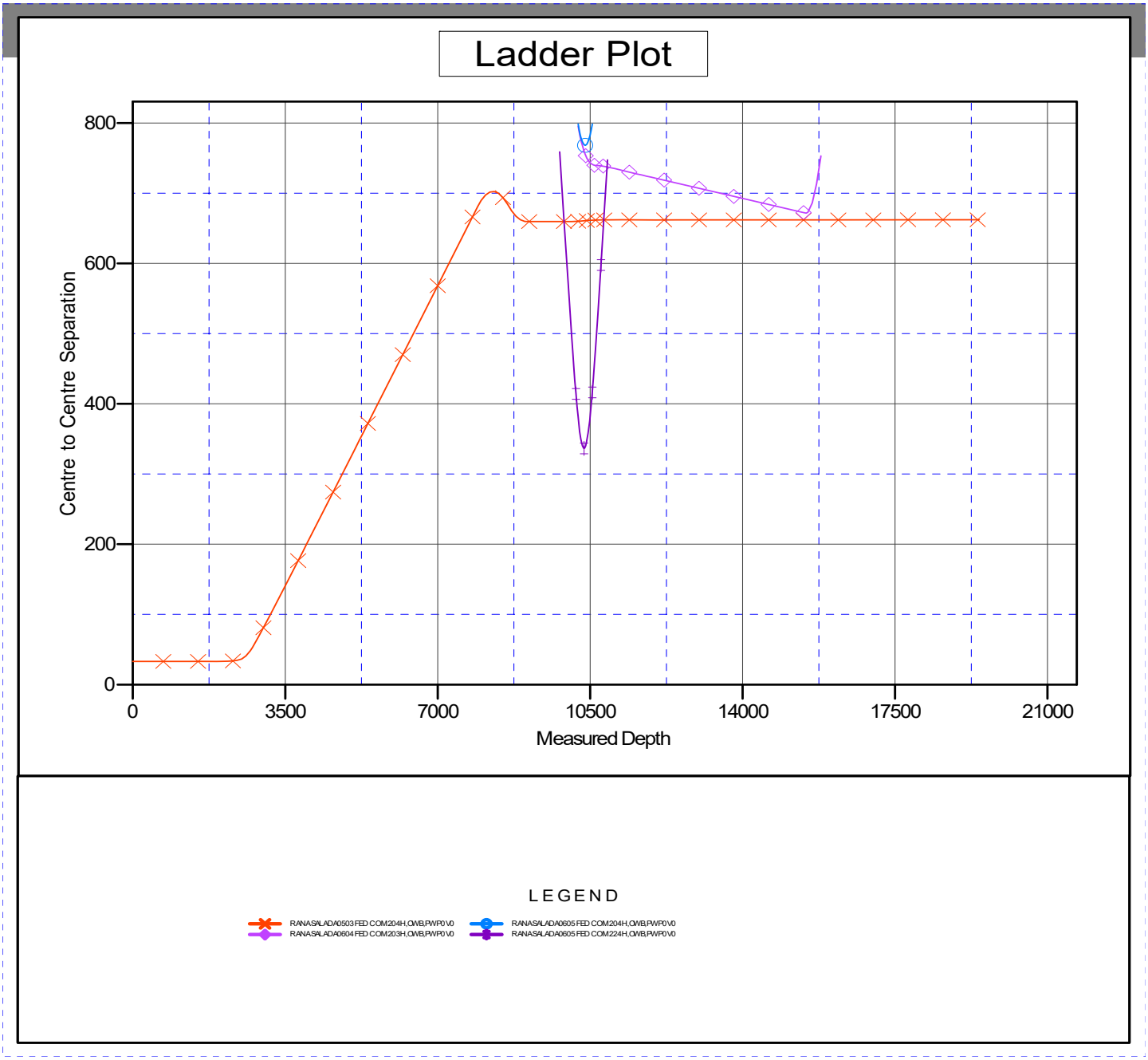
Permian Resources

Anticollision Report

Company:	NEW MEXICO	**Local Co-ordinate Reference:**	Well RANA SALADA 0503 FED COM 224H
Project:	(SP) EDDY	**TVD Reference:**	KB @ 3095.0usft
Reference Site:	RANA SALADA PROJECT	**MD Reference:**	KB @ 3095.0usft
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	RANA SALADA 0503 FED COM 224H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OWB	**Database:**	Compass
Reference Design:	PWP0	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to KB @ 3095.0usft
Offset Depths are relative to Offset Datum
Central Meridian is 104° 20' 0.000 W

Coordinates are relative to: RANA SALADA 0503 FED COM 224H
Coordinate System is US State Plane 1983, New Mexico Eastern Zone
Grid Convergence at Surface is: 0.17°



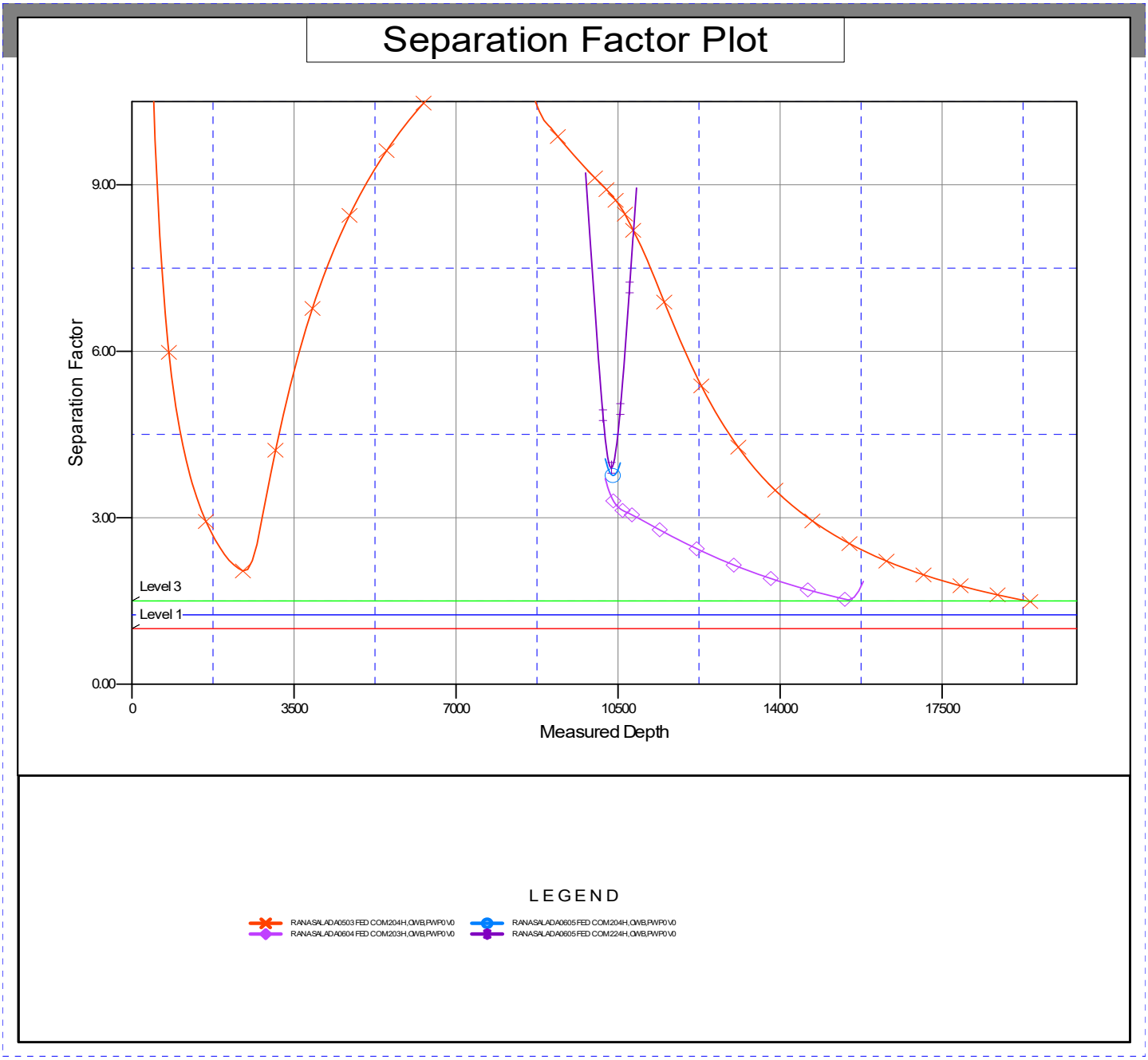
Permian Resources

Anticollision Report

Company:	NEW MEXICO	**Local Co-ordinate Reference:**	Well RANA SALADA 0503 FED COM 224H
Project:	(SP) EDDY	**TVD Reference:**	KB @ 3095.0usft
Reference Site:	RANA SALADA PROJECT	**MD Reference:**	KB @ 3095.0usft
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	RANA SALADA 0503 FED COM 224H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OWB	**Database:**	Compass
Reference Design:	PWP0	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to KB @ 3095.0usft
Offset Depths are relative to Offset Datum
Central Meridian is 104° 20' 0.000 W

Coordinates are relative to: RANA SALADA 0503 FED COM 224H
Coordinate System is US State Plane 1983, New Mexico Eastern Zone
Grid Convergence at Surface is: 0.17°



NEW MEXICO

(SP) EDDY
RANA SALADA PROJECT
RANA SALADA 0503 FED COM 224H

OWB

Plan: PWP0

Standard Planning Report - Geographic

23 January, 2024

Permian Resources

Planning Report - Geographic

Database:	Compass	**Local Co-ordinate Reference:**	Well RANA SALADA 0503 FED COM 224H
Company:	NEW MEXICO	**TVD Reference:**	KB @ 3095.0usft
Project:	(SP) EDDY	**MD Reference:**	KB @ 3095.0usft
Site:	RANA SALADA PROJECT	**North Reference:**	Grid
Well:	RANA SALADA 0503 FED COM 224H	**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 SALADA PROJECT

Site Position:		**Northing:**	484,881.97 usft	**Latitude:**	32° 19' 57.559 N
From:	Map	**Easting:**	634,054.58 usft	**Longitude:**	104° 1' 59.326 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "		

Well RANA SALADA 0503 FED COM 224H

Well Position	**+N/-S**	0.0 usft	**Northing:**	482,338.30 usft	**Latitude:**	32° 19' 32.165 N
	+E/-W	0.0 usft	**Easting:**	641,738.83 usft	**Longitude:**	104° 0' 29.853 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	usft	**Ground Level:**	3,065.0 usft
Grid Convergence:		0.17 °				

Wellbore OWB

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	12/31/2009	7.96	60.26	48,808.26271993

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	80.45

Plan Survey Tool Program **Date** 1/23/2024

	Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.0	19,437.3	PWP0 (OWB)	MWD OWSG_Rev2_ MWD - Star	

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	
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,750.0	15.00	8.99	2,741.5	96.4	15.3	2.00	2.00	0.00	8.99	
7,918.1	15.00	8.99	7,733.4	1,417.6	224.2	0.00	0.00	0.00	0.00	
8,668.1	0.00	0.00	8,474.9	1,514.0	239.5	2.00	-2.00	0.00	180.00	
10,077.7	0.00	0.00	9,884.5	1,514.0	239.5	0.00	0.00	0.00	0.00	
10,827.7	90.00	89.65	10,362.0	1,516.9	717.0	12.00	12.00	11.95	89.65	
19,437.8	90.00	89.65	10,362.0	1,569.4	9,326.9	0.00	0.00	0.00	0.00	BHL-RS 0503 FED

Permian Resources

Planning Report - Geographic

Database:	Compass	**Local Co-ordinate Reference:**	Well RANA SALADA 0503 FED COM 224H
Company:	NEW MEXICO	**TVD Reference:**	KB @ 3095.0usft
Project:	(SP) EDDY	**MD Reference:**	KB @ 3095.0usft
Site:	RANA SALADA PROJECT	**North Reference:**	Grid
Well:	RANA SALADA 0503 FED COM 224H	**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
0.0	0.00	0.00	0.0	0.0	0.0	482,338.30	641,738.83	32° 19' 32.165 N	104° 0' 29.853 W
100.0	0.00	0.00	100.0	0.0	0.0	482,338.30	641,738.83	32° 19' 32.165 N	104° 0' 29.853 W
200.0	0.00	0.00	200.0	0.0	0.0	482,338.30	641,738.83	32° 19' 32.165 N	104° 0' 29.853 W
300.0	0.00	0.00	300.0	0.0	0.0	482,338.30	641,738.83	32° 19' 32.165 N	104° 0' 29.853 W
400.0	0.00	0.00	400.0	0.0	0.0	482,338.30	641,738.83	32° 19' 32.165 N	104° 0' 29.853 W
500.0	0.00	0.00	500.0	0.0	0.0	482,338.30	641,738.83	32° 19' 32.165 N	104° 0' 29.853 W
600.0	0.00	0.00	600.0	0.0	0.0	482,338.30	641,738.83	32° 19' 32.165 N	104° 0' 29.853 W
700.0	0.00	0.00	700.0	0.0	0.0	482,338.30	641,738.83	32° 19' 32.165 N	104° 0' 29.853 W
800.0	0.00	0.00	800.0	0.0	0.0	482,338.30	641,738.83	32° 19' 32.165 N	104° 0' 29.853 W
900.0	0.00	0.00	900.0	0.0	0.0	482,338.30	641,738.83	32° 19' 32.165 N	104° 0' 29.853 W
1,000.0	0.00	0.00	1,000.0	0.0	0.0	482,338.30	641,738.83	32° 19' 32.165 N	104° 0' 29.853 W
1,100.0	0.00	0.00	1,100.0	0.0	0.0	482,338.30	641,738.83	32° 19' 32.165 N	104° 0' 29.853 W
1,200.0	0.00	0.00	1,200.0	0.0	0.0	482,338.30	641,738.83	32° 19' 32.165 N	104° 0' 29.853 W
1,300.0	0.00	0.00	1,300.0	0.0	0.0	482,338.30	641,738.83	32° 19' 32.165 N	104° 0' 29.853 W
1,400.0	0.00	0.00	1,400.0	0.0	0.0	482,338.30	641,738.83	32° 19' 32.165 N	104° 0' 29.853 W
1,500.0	0.00	0.00	1,500.0	0.0	0.0	482,338.30	641,738.83	32° 19' 32.165 N	104° 0' 29.853 W
1,600.0	0.00	0.00	1,600.0	0.0	0.0	482,338.30	641,738.83	32° 19' 32.165 N	104° 0' 29.853 W
1,700.0	0.00	0.00	1,700.0	0.0	0.0	482,338.30	641,738.83	32° 19' 32.165 N	104° 0' 29.853 W
1,800.0	0.00	0.00	1,800.0	0.0	0.0	482,338.30	641,738.83	32° 19' 32.165 N	104° 0' 29.853 W
1,900.0	0.00	0.00	1,900.0	0.0	0.0	482,338.30	641,738.83	32° 19' 32.165 N	104° 0' 29.853 W
2,000.0	0.00	0.00	2,000.0	0.0	0.0	482,338.30	641,738.83	32° 19' 32.165 N	104° 0' 29.853 W
Start Build 2.00									
2,100.0	2.00	8.99	2,100.0	1.7	0.3	482,340.02	641,739.11	32° 19' 32.182 N	104° 0' 29.850 W
2,200.0	4.00	8.99	2,199.8	6.9	1.1	482,345.19	641,739.92	32° 19' 32.234 N	104° 0' 29.840 W
2,300.0	6.00	8.99	2,299.5	15.5	2.5	482,353.80	641,741.29	32° 19' 32.319 N	104° 0' 29.824 W
2,400.0	8.00	8.99	2,398.7	27.5	4.4	482,365.84	641,743.19	32° 19' 32.438 N	104° 0' 29.801 W
2,500.0	10.00	8.99	2,497.5	43.0	6.8	482,381.29	641,745.63	32° 19' 32.591 N	104° 0' 29.772 W
2,600.0	12.00	8.99	2,595.6	61.8	9.8	482,400.13	641,748.62	32° 19' 32.777 N	104° 0' 29.737 W
2,700.0	14.00	8.99	2,693.1	84.1	13.3	482,422.35	641,752.13	32° 19' 32.997 N	104° 0' 29.695 W
2,750.0	15.00	8.99	2,741.5	96.4	15.3	482,434.72	641,754.09	32° 19' 33.119 N	104° 0' 29.672 W
Start 5168.1 hold at 2750.0 MD									
2,800.0	15.00	8.99	2,789.8	109.2	17.3	482,447.50	641,756.11	32° 19' 33.246 N	104° 0' 29.648 W
2,900.0	15.00	8.99	2,886.4	134.8	21.3	482,473.06	641,760.15	32° 19' 33.498 N	104° 0' 29.600 W
3,000.0	15.00	8.99	2,982.9	160.3	25.4	482,498.63	641,764.20	32° 19' 33.751 N	104° 0' 29.552 W
3,100.0	15.00	8.99	3,079.5	185.9	29.4	482,524.19	641,768.24	32° 19' 34.004 N	104° 0' 29.504 W
3,200.0	15.00	8.99	3,176.1	211.5	33.5	482,549.76	641,772.28	32° 19' 34.257 N	104° 0' 29.455 W
3,300.0	15.00	8.99	3,272.7	237.0	37.5	482,575.32	641,776.33	32° 19' 34.510 N	104° 0' 29.407 W
3,400.0	15.00	8.99	3,369.3	262.6	41.5	482,600.88	641,780.37	32° 19' 34.763 N	104° 0' 29.359 W
3,500.0	15.00	8.99	3,465.9	288.1	45.6	482,626.45	641,784.42	32° 19' 35.015 N	104° 0' 29.311 W
3,600.0	15.00	8.99	3,562.5	313.7	49.6	482,652.01	641,788.46	32° 19' 35.268 N	104° 0' 29.263 W
3,700.0	15.00	8.99	3,659.1	339.3	53.7	482,677.58	641,792.50	32° 19' 35.521 N	104° 0' 29.215 W
3,800.0	15.00	8.99	3,755.7	364.8	57.7	482,703.14	641,796.55	32° 19' 35.774 N	104° 0' 29.167 W
3,900.0	15.00	8.99	3,852.3	390.4	61.8	482,728.70	641,800.59	32° 19' 36.027 N	104° 0' 29.119 W
4,000.0	15.00	8.99	3,948.9	416.0	65.8	482,754.27	641,804.64	32° 19' 36.280 N	104° 0' 29.071 W
4,100.0	15.00	8.99	4,045.5	441.5	69.8	482,779.83	641,808.68	32° 19' 36.533 N	104° 0' 29.023 W
4,200.0	15.00	8.99	4,142.1	467.1	73.9	482,805.40	641,812.72	32° 19' 36.785 N	104° 0' 28.975 W
4,300.0	15.00	8.99	4,238.6	492.7	77.9	482,830.96	641,816.77	32° 19' 37.038 N	104° 0' 28.927 W
4,389.0	15.00	8.99	4,324.6	515.4	81.5	482,853.71	641,820.37	32° 19' 37.263 N	104° 0' 28.884 W
NMNM 059383 Entry at 4389.0 MD									
4,400.0	15.00	8.99	4,335.2	518.2	82.0	482,856.52	641,820.81	32° 19' 37.291 N	104° 0' 28.879 W
4,500.0	15.00	8.99	4,431.8	543.8	86.0	482,882.09	641,824.86	32° 19' 37.544 N	104° 0' 28.831 W
4,600.0	15.00	8.99	4,528.4	569.4	90.1	482,907.65	641,828.90	32° 19' 37.797 N	104° 0' 28.783 W
4,700.0	15.00	8.99	4,625.0	594.9	94.1	482,933.22	641,832.94	32° 19' 38.050 N	104° 0' 28.735 W
4,800.0	15.00	8.99	4,721.6	620.5	98.2	482,958.78	641,836.99	32° 19' 38.303 N	104° 0' 28.687 W

Permian Resources

Planning Report - Geographic

Database:	Compass	**Local Co-ordinate Reference:**	Well RANA SALADA 0503 FED COM 224H
Company:	NEW MEXICO	**TVD Reference:**	KB @ 3095.0usft
Project:	(SP) EDDY	**MD Reference:**	KB @ 3095.0usft
Site:	RANA SALADA PROJECT	**North Reference:**	Grid
Well:	RANA SALADA 0503 FED COM 224H	**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
4,900.0	15.00	8.99	4,818.2	646.0	102.2	482,984.34	641,841.03	32° 19' 38.555 N	104° 0' 28.639 W
5,000.0	15.00	8.99	4,914.8	671.6	106.2	483,009.91	641,845.08	32° 19' 38.808 N	104° 0' 28.591 W
5,100.0	15.00	8.99	5,011.4	697.2	110.3	483,035.47	641,849.12	32° 19' 39.061 N	104° 0' 28.543 W
5,200.0	15.00	8.99	5,108.0	722.7	114.3	483,061.04	641,853.16	32° 19' 39.314 N	104° 0' 28.495 W
5,300.0	15.00	8.99	5,204.6	748.3	118.4	483,086.60	641,857.21	32° 19' 39.567 N	104° 0' 28.447 W
5,400.0	15.00	8.99	5,301.2	773.9	122.4	483,112.16	641,861.25	32° 19' 39.820 N	104° 0' 28.399 W
5,500.0	15.00	8.99	5,397.8	799.4	126.5	483,137.73	641,865.30	32° 19' 40.073 N	104° 0' 28.351 W
5,600.0	15.00	8.99	5,494.4	825.0	130.5	483,163.29	641,869.34	32° 19' 40.325 N	104° 0' 28.303 W
5,700.0	15.00	8.99	5,590.9	850.6	134.5	483,188.86	641,873.38	32° 19' 40.578 N	104° 0' 28.255 W
5,800.0	15.00	8.99	5,687.5	876.1	138.6	483,214.42	641,877.43	32° 19' 40.831 N	104° 0' 28.207 W
5,900.0	15.00	8.99	5,784.1	901.7	142.6	483,239.98	641,881.47	32° 19' 41.084 N	104° 0' 28.159 W
6,000.0	15.00	8.99	5,880.7	927.2	146.7	483,265.55	641,885.52	32° 19' 41.337 N	104° 0' 28.110 W
6,100.0	15.00	8.99	5,977.3	952.8	150.7	483,291.11	641,889.56	32° 19' 41.590 N	104° 0' 28.062 W
6,200.0	15.00	8.99	6,073.9	978.4	154.8	483,316.68	641,893.60	32° 19' 41.843 N	104° 0' 28.014 W
6,300.0	15.00	8.99	6,170.5	1,003.9	158.8	483,342.24	641,897.65	32° 19' 42.095 N	104° 0' 27.966 W
6,400.0	15.00	8.99	6,267.1	1,029.5	162.9	483,367.80	641,901.69	32° 19' 42.348 N	104° 0' 27.918 W
6,500.0	15.00	8.99	6,363.7	1,055.1	166.9	483,393.37	641,905.74	32° 19' 42.601 N	104° 0' 27.870 W
6,600.0	15.00	8.99	6,460.3	1,080.6	170.9	483,418.93	641,909.78	32° 19' 42.854 N	104° 0' 27.822 W
6,700.0	15.00	8.99	6,556.9	1,106.2	175.0	483,444.50	641,913.82	32° 19' 43.107 N	104° 0' 27.774 W
6,800.0	15.00	8.99	6,653.5	1,131.8	179.0	483,470.06	641,917.87	32° 19' 43.360 N	104° 0' 27.726 W
6,900.0	15.00	8.99	6,750.1	1,157.3	183.1	483,495.62	641,921.91	32° 19' 43.613 N	104° 0' 27.678 W
7,000.0	15.00	8.99	6,846.6	1,182.9	187.1	483,521.19	641,925.96	32° 19' 43.865 N	104° 0' 27.630 W
7,100.0	15.00	8.99	6,943.2	1,208.5	191.2	483,546.75	641,930.00	32° 19' 44.118 N	104° 0' 27.582 W
7,200.0	15.00	8.99	7,039.8	1,234.0	195.2	483,572.32	641,934.04	32° 19' 44.371 N	104° 0' 27.534 W
7,300.0	15.00	8.99	7,136.4	1,259.6	199.3	483,597.88	641,938.09	32° 19' 44.624 N	104° 0' 27.486 W
7,400.0	15.00	8.99	7,233.0	1,285.1	203.3	483,623.44	641,942.13	32° 19' 44.877 N	104° 0' 27.438 W
7,500.0	15.00	8.99	7,329.6	1,310.7	207.3	483,649.01	641,946.18	32° 19' 45.130 N	104° 0' 27.390 W
7,600.0	15.00	8.99	7,426.2	1,336.3	211.4	483,674.57	641,950.22	32° 19' 45.382 N	104° 0' 27.342 W
7,700.0	15.00	8.99	7,522.8	1,361.8	215.4	483,700.14	641,954.26	32° 19' 45.635 N	104° 0' 27.294 W
7,800.0	15.00	8.99	7,619.4	1,387.4	219.5	483,725.70	641,958.31	32° 19' 45.888 N	104° 0' 27.246 W
7,900.0	15.00	8.99	7,716.0	1,413.0	223.5	483,751.26	641,962.35	32° 19' 46.141 N	104° 0' 27.198 W
7,918.1	15.00	8.99	7,733.4	1,417.6	224.2	483,755.88	641,963.08	32° 19' 46.187 N	104° 0' 27.189 W
Start Drop -2.00									
8,000.0	13.36	8.99	7,812.9	1,437.4	227.4	483,775.71	641,966.22	32° 19' 46.383 N	104° 0' 27.152 W
8,100.0	11.36	8.99	7,910.5	1,458.6	230.7	483,796.85	641,969.56	32° 19' 46.592 N	104° 0' 27.112 W
8,200.0	9.36	8.99	8,008.9	1,476.3	233.5	483,814.62	641,972.37	32° 19' 46.768 N	104° 0' 27.079 W
8,300.0	7.36	8.99	8,107.8	1,490.7	235.8	483,828.98	641,974.64	32° 19' 46.910 N	104° 0' 27.052 W
8,400.0	5.36	8.99	8,207.2	1,501.6	237.5	483,839.92	641,976.38	32° 19' 47.018 N	104° 0' 27.031 W
8,500.0	3.36	8.99	8,306.9	1,509.1	238.7	483,847.43	641,977.56	32° 19' 47.092 N	104° 0' 27.017 W
8,600.0	1.36	8.99	8,406.8	1,513.2	239.4	483,851.50	641,978.21	32° 19' 47.132 N	104° 0' 27.009 W
8,668.1	0.00	0.00	8,474.9	1,514.0	239.5	483,852.30	641,978.33	32° 19' 47.140 N	104° 0' 27.008 W
Start 1409.6 hold at 8668.1 MD									
8,700.0	0.00	0.00	8,506.8	1,514.0	239.5	483,852.30	641,978.33	32° 19' 47.140 N	104° 0' 27.008 W
8,800.0	0.00	0.00	8,606.8	1,514.0	239.5	483,852.30	641,978.33	32° 19' 47.140 N	104° 0' 27.008 W
8,900.0	0.00	0.00	8,706.8	1,514.0	239.5	483,852.30	641,978.33	32° 19' 47.140 N	104° 0' 27.008 W
9,000.0	0.00	0.00	8,806.8	1,514.0	239.5	483,852.30	641,978.33	32° 19' 47.140 N	104° 0' 27.008 W
9,100.0	0.00	0.00	8,906.8	1,514.0	239.5	483,852.30	641,978.33	32° 19' 47.140 N	104° 0' 27.008 W
9,200.0	0.00	0.00	9,006.8	1,514.0	239.5	483,852.30	641,978.33	32° 19' 47.140 N	104° 0' 27.008 W
9,300.0	0.00	0.00	9,106.8	1,514.0	239.5	483,852.30	641,978.33	32° 19' 47.140 N	104° 0' 27.008 W
9,400.0	0.00	0.00	9,206.8	1,514.0	239.5	483,852.30	641,978.33	32° 19' 47.140 N	104° 0' 27.008 W
9,500.0	0.00	0.00	9,306.8	1,514.0	239.5	483,852.30	641,978.33	32° 19' 47.140 N	104° 0' 27.008 W
9,600.0	0.00	0.00	9,406.8	1,514.0	239.5	483,852.30	641,978.33	32° 19' 47.140 N	104° 0' 27.008 W
9,700.0	0.00	0.00	9,506.8	1,514.0	239.5	483,852.30	641,978.33	32° 19' 47.140 N	104° 0' 27.008 W
9,800.0	0.00	0.00	9,606.8	1,514.0	239.5	483,852.30	641,978.33	32° 19' 47.140 N	104° 0' 27.008 W

Permian Resources

Planning Report - Geographic

Database:	Compass	**Local Co-ordinate Reference:**	Well RANA SALADA 0503 FED COM 224H
Company:	NEW MEXICO	**TVD Reference:**	KB @ 3095.0usft
Project:	(SP) EDDY	**MD Reference:**	KB @ 3095.0usft
Site:	RANA SALADA PROJECT	**North Reference:**	Grid
Well:	RANA SALADA 0503 FED COM 224H	**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
9,900.0	0.00	0.00	9,706.8	1,514.0	239.5	483,852.30	641,978.33	32° 19' 47.140 N	104° 0' 27.008 W
10,000.0	0.00	0.00	9,806.8	1,514.0	239.5	483,852.30	641,978.33	32° 19' 47.140 N	104° 0' 27.008 W
10,077.7	0.00	0.00	9,884.5	1,514.0	239.5	483,852.30	641,978.33	32° 19' 47.140 N	104° 0' 27.008 W
Start DLS 12.00 TFO 89.65									
10,100.0	2.68	89.65	9,906.8	1,514.0	240.0	483,852.30	641,978.86	32° 19' 47.140 N	104° 0' 27.002 W
10,125.0	5.68	89.65	9,931.7	1,514.0	241.8	483,852.32	641,980.68	32° 19' 47.140 N	104° 0' 26.981 W
10,150.0	8.68	89.65	9,956.5	1,514.0	245.0	483,852.33	641,983.80	32° 19' 47.141 N	104° 0' 26.944 W
10,175.0	11.68	89.65	9,981.2	1,514.1	249.4	483,852.36	641,988.22	32° 19' 47.141 N	104° 0' 26.893 W
10,200.0	14.68	89.65	10,005.5	1,514.1	255.1	483,852.40	641,993.92	32° 19' 47.141 N	104° 0' 26.826 W
10,225.0	17.68	89.65	10,029.5	1,514.1	262.0	483,852.44	642,000.88	32° 19' 47.141 N	104° 0' 26.745 W
10,250.0	20.68	89.65	10,053.1	1,514.2	270.3	483,852.49	642,009.10	32° 19' 47.141 N	104° 0' 26.649 W
10,275.0	23.68	89.65	10,076.3	1,514.2	279.7	483,852.55	642,018.53	32° 19' 47.142 N	104° 0' 26.539 W
10,300.0	26.68	89.65	10,098.9	1,514.3	290.3	483,852.61	642,029.17	32° 19' 47.142 N	104° 0' 26.415 W
10,325.0	29.68	89.65	10,120.9	1,514.4	302.1	483,852.68	642,040.97	32° 19' 47.142 N	104° 0' 26.278 W
10,350.0	32.68	89.65	10,142.3	1,514.5	315.1	483,852.76	642,053.91	32° 19' 47.143 N	104° 0' 26.127 W
10,375.0	35.68	89.65	10,163.0	1,514.5	329.1	483,852.85	642,067.95	32° 19' 47.143 N	104° 0' 25.963 W
10,400.0	38.68	89.65	10,182.9	1,514.6	344.2	483,852.94	642,083.06	32° 19' 47.144 N	104° 0' 25.787 W
10,425.0	41.68	89.65	10,202.0	1,514.7	360.4	483,853.04	642,099.19	32° 19' 47.144 N	104° 0' 25.599 W
10,450.0	44.68	89.65	10,220.2	1,514.8	377.5	483,853.14	642,116.29	32° 19' 47.145 N	104° 0' 25.400 W
10,475.0	47.68	89.65	10,237.5	1,515.0	395.5	483,853.25	642,134.33	32° 19' 47.145 N	104° 0' 25.190 W
10,500.0	50.68	89.65	10,253.9	1,515.1	414.4	483,853.37	642,153.24	32° 19' 47.146 N	104° 0' 24.969 W
10,525.0	53.68	89.65	10,269.2	1,515.2	434.2	483,853.49	642,172.99	32° 19' 47.146 N	104° 0' 24.739 W
10,550.0	56.68	89.65	10,283.5	1,515.3	454.7	483,853.61	642,193.51	32° 19' 47.147 N	104° 0' 24.500 W
10,575.0	59.68	89.65	10,296.7	1,515.4	475.9	483,853.74	642,214.75	32° 19' 47.148 N	104° 0' 24.252 W
10,600.0	62.68	89.65	10,308.7	1,515.6	497.8	483,853.88	642,236.65	32° 19' 47.148 N	104° 0' 23.997 W
10,625.0	65.68	89.65	10,319.6	1,515.7	520.3	483,854.01	642,259.15	32° 19' 47.149 N	104° 0' 23.735 W
10,650.0	68.68	89.65	10,329.3	1,515.9	543.4	483,854.15	642,282.19	32° 19' 47.150 N	104° 0' 23.466 W
10,675.0	71.68	89.65	10,337.8	1,516.0	566.9	483,854.30	642,305.71	32° 19' 47.150 N	104° 0' 23.192 W
10,700.0	74.68	89.65	10,345.0	1,516.1	590.8	483,854.44	642,329.63	32° 19' 47.151 N	104° 0' 22.913 W
10,725.0	77.68	89.65	10,351.0	1,516.3	615.1	483,854.59	642,353.91	32° 19' 47.152 N	104° 0' 22.630 W
10,750.0	80.68	89.65	10,355.7	1,516.4	639.6	483,854.74	642,378.46	32° 19' 47.152 N	104° 0' 22.344 W
10,775.0	83.68	89.65	10,359.1	1,516.6	664.4	483,854.89	642,403.22	32° 19' 47.153 N	104° 0' 22.056 W
10,800.0	86.68	89.65	10,361.2	1,516.7	689.3	483,855.04	642,428.13	32° 19' 47.154 N	104° 0' 21.765 W
10,825.0	89.68	89.65	10,362.0	1,516.9	714.3	483,855.20	642,453.12	32° 19' 47.155 N	104° 0' 21.474 W
10,827.7	90.00	89.65	10,362.0	1,516.9	717.0	483,855.21	642,455.79	32° 19' 47.155 N	104° 0' 21.443 W
Start 8610.1 hold at 10827.7 MD									
10,900.0	90.00	89.65	10,362.0	1,517.4	789.3	483,855.65	642,528.12	32° 19' 47.157 N	104° 0' 20.600 W
11,000.0	90.00	89.65	10,362.0	1,518.0	889.3	483,856.26	642,628.11	32° 19' 47.160 N	104° 0' 19.435 W
11,100.0	90.00	89.65	10,362.0	1,518.6	989.3	483,856.87	642,728.11	32° 19' 47.163 N	104° 0' 18.269 W
11,200.0	90.00	89.65	10,362.0	1,519.2	1,089.3	483,857.48	642,828.11	32° 19' 47.166 N	104° 0' 17.104 W
11,300.0	90.00	89.65	10,362.0	1,519.8	1,189.3	483,858.09	642,928.11	32° 19' 47.169 N	104° 0' 15.938 W
11,400.0	90.00	89.65	10,362.0	1,520.4	1,289.3	483,858.70	643,028.11	32° 19' 47.172 N	104° 0' 14.773 W
11,500.0	90.00	89.65	10,362.0	1,521.0	1,389.3	483,859.31	643,128.10	32° 19' 47.175 N	104° 0' 13.607 W
11,600.0	90.00	89.65	10,362.0	1,521.6	1,489.3	483,859.92	643,228.10	32° 19' 47.178 N	104° 0' 12.442 W
11,700.0	90.00	89.65	10,362.0	1,522.2	1,589.3	483,860.53	643,328.10	32° 19' 47.181 N	104° 0' 11.276 W
11,800.0	90.00	89.65	10,362.0	1,522.8	1,689.3	483,861.14	643,428.10	32° 19' 47.184 N	104° 0' 10.110 W
11,813.0	90.00	89.65	10,362.0	1,522.9	1,702.2	483,861.22	643,441.07	32° 19' 47.184 N	104° 0' 9.959 W
NMNM 059383 Exit at 11813.0 MD									
11,900.0	90.00	89.65	10,362.0	1,523.5	1,789.3	483,861.75	643,528.10	32° 19' 47.187 N	104° 0' 8.945 W
12,000.0	90.00	89.65	10,362.0	1,524.1	1,889.3	483,862.36	643,628.09	32° 19' 47.190 N	104° 0' 7.779 W
12,100.0	90.00	89.65	10,362.0	1,524.7	1,989.3	483,862.97	643,728.09	32° 19' 47.193 N	104° 0' 6.614 W
12,200.0	90.00	89.65	10,362.0	1,525.3	2,089.3	483,863.58	643,828.09	32° 19' 47.196 N	104° 0' 5.448 W
12,300.0	90.00	89.65	10,362.0	1,525.9	2,189.3	483,864.19	643,928.09	32° 19' 47.199 N	104° 0' 4.283 W
12,400.0	90.00	89.65	10,362.0	1,526.5	2,289.3	483,864.80	644,028.09	32° 19' 47.202 N	104° 0' 3.117 W

Permian Resources

Planning Report - Geographic

Database:	Compass	**Local Co-ordinate Reference:**	Well RANA SALADA 0503 FED COM 224H
Company:	NEW MEXICO	**TVD Reference:**	KB @ 3095.0usft
Project:	(SP) EDDY	**MD Reference:**	KB @ 3095.0usft
Site:	RANA SALADA PROJECT	**North Reference:**	Grid
Well:	RANA SALADA 0503 FED COM 224H	**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
12,500.0	90.00	89.65	10,362.0	1,527.1	2,389.3	483,865.41	644,128.09	32° 19' 47.205 N	104° 0' 1.952 W
12,600.0	90.00	89.65	10,362.0	1,527.7	2,489.2	483,866.02	644,228.08	32° 19' 47.208 N	104° 0' 0.786 W
12,700.0	90.00	89.65	10,362.0	1,528.3	2,589.2	483,866.63	644,328.08	32° 19' 47.211 N	103° 59' 59.621 W
12,800.0	90.00	89.65	10,362.0	1,528.9	2,689.2	483,867.24	644,428.08	32° 19' 47.214 N	103° 59' 58.455 W
12,900.0	90.00	89.65	10,362.0	1,529.5	2,789.2	483,867.85	644,528.08	32° 19' 47.217 N	103° 59' 57.290 W
13,000.0	90.00	89.65	10,362.0	1,530.2	2,889.2	483,868.46	644,628.08	32° 19' 47.220 N	103° 59' 56.124 W
13,100.0	90.00	89.65	10,362.0	1,530.8	2,989.2	483,869.07	644,728.07	32° 19' 47.222 N	103° 59' 54.959 W
13,200.0	90.00	89.65	10,362.0	1,531.4	3,089.2	483,869.68	644,828.07	32° 19' 47.225 N	103° 59' 53.793 W
13,300.0	90.00	89.65	10,362.0	1,532.0	3,189.2	483,870.29	644,928.07	32° 19' 47.228 N	103° 59' 52.628 W
13,400.0	90.00	89.65	10,362.0	1,532.6	3,289.2	483,870.90	645,028.07	32° 19' 47.231 N	103° 59' 51.462 W
13,500.0	90.00	89.65	10,362.0	1,533.2	3,389.2	483,871.51	645,128.07	32° 19' 47.234 N	103° 59' 50.297 W
13,600.0	90.00	89.65	10,362.0	1,533.8	3,489.2	483,872.12	645,228.06	32° 19' 47.237 N	103° 59' 49.131 W
13,700.0	90.00	89.65	10,362.0	1,534.4	3,589.2	483,872.73	645,328.06	32° 19' 47.240 N	103° 59' 47.966 W
13,800.0	90.00	89.65	10,362.0	1,535.0	3,689.2	483,873.34	645,428.06	32° 19' 47.243 N	103° 59' 46.800 W
13,900.0	90.00	89.65	10,362.0	1,535.6	3,789.2	483,873.95	645,528.06	32° 19' 47.246 N	103° 59' 45.635 W
14,000.0	90.00	89.65	10,362.0	1,536.3	3,889.2	483,874.56	645,628.06	32° 19' 47.249 N	103° 59' 44.469 W
14,100.0	90.00	89.65	10,362.0	1,536.9	3,989.2	483,875.17	645,728.06	32° 19' 47.252 N	103° 59' 43.304 W
14,200.0	90.00	89.65	10,362.0	1,537.5	4,089.2	483,875.78	645,828.05	32° 19' 47.255 N	103° 59' 42.138 W
14,300.0	90.00	89.65	10,362.0	1,538.1	4,189.2	483,876.39	645,928.05	32° 19' 47.258 N	103° 59' 40.973 W
14,400.0	90.00	89.65	10,362.0	1,538.7	4,289.2	483,877.00	646,028.05	32° 19' 47.260 N	103° 59' 39.807 W
14,500.0	90.00	89.65	10,362.0	1,539.3	4,389.2	483,877.61	646,128.05	32° 19' 47.263 N	103° 59' 38.642 W
14,600.0	90.00	89.65	10,362.0	1,539.9	4,489.2	483,878.22	646,228.05	32° 19' 47.266 N	103° 59' 37.476 W
14,700.0	90.00	89.65	10,362.0	1,540.5	4,589.2	483,878.83	646,328.04	32° 19' 47.269 N	103° 59' 36.311 W
14,800.0	90.00	89.65	10,362.0	1,541.1	4,689.2	483,879.44	646,428.04	32° 19' 47.272 N	103° 59' 35.145 W
14,900.0	90.00	89.65	10,362.0	1,541.7	4,789.2	483,880.05	646,528.04	32° 19' 47.275 N	103° 59' 33.980 W
15,000.0	90.00	89.65	10,362.0	1,542.4	4,889.2	483,880.66	646,628.04	32° 19' 47.278 N	103° 59' 32.814 W
15,100.0	90.00	89.65	10,362.0	1,543.0	4,989.2	483,881.27	646,728.04	32° 19' 47.281 N	103° 59' 31.649 W
15,200.0	90.00	89.65	10,362.0	1,543.6	5,089.2	483,881.88	646,828.04	32° 19' 47.284 N	103° 59' 30.483 W
15,300.0	90.00	89.65	10,362.0	1,544.2	5,189.2	483,882.49	646,928.03	32° 19' 47.286 N	103° 59' 29.318 W
15,400.0	90.00	89.65	10,362.0	1,544.8	5,289.2	483,883.10	647,028.03	32° 19' 47.289 N	103° 59' 28.152 W
15,500.0	90.00	89.65	10,362.0	1,545.4	5,389.2	483,883.71	647,128.03	32° 19' 47.292 N	103° 59' 26.987 W
15,600.0	90.00	89.65	10,362.0	1,546.0	5,489.2	483,884.32	647,228.03	32° 19' 47.295 N	103° 59' 25.821 W
15,700.0	90.00	89.65	10,362.0	1,546.6	5,589.2	483,884.93	647,328.03	32° 19' 47.298 N	103° 59' 24.656 W
15,800.0	90.00	89.65	10,362.0	1,547.2	5,689.2	483,885.54	647,428.02	32° 19' 47.301 N	103° 59' 23.490 W
15,900.0	90.00	89.65	10,362.0	1,547.8	5,789.2	483,886.15	647,528.02	32° 19' 47.304 N	103° 59' 22.325 W
16,000.0	90.00	89.65	10,362.0	1,548.5	5,889.2	483,886.76	647,628.02	32° 19' 47.307 N	103° 59' 21.159 W
16,100.0	90.00	89.65	10,362.0	1,549.1	5,989.2	483,887.37	647,728.02	32° 19' 47.309 N	103° 59' 19.994 W
16,200.0	90.00	89.65	10,362.0	1,549.7	6,089.2	483,887.98	647,828.02	32° 19' 47.312 N	103° 59' 18.828 W
16,300.0	90.00	89.65	10,362.0	1,550.3	6,189.2	483,888.59	647,928.01	32° 19' 47.315 N	103° 59' 17.663 W
16,400.0	90.00	89.65	10,362.0	1,550.9	6,289.2	483,889.20	648,028.01	32° 19' 47.318 N	103° 59' 16.497 W
16,500.0	90.00	89.65	10,362.0	1,551.5	6,389.2	483,889.80	648,128.01	32° 19' 47.321 N	103° 59' 15.332 W
16,600.0	90.00	89.65	10,362.0	1,552.1	6,489.2	483,890.41	648,228.01	32° 19' 47.324 N	103° 59' 14.166 W
16,700.0	90.00	89.65	10,362.0	1,552.7	6,589.2	483,891.02	648,328.01	32° 19' 47.326 N	103° 59' 13.001 W
16,800.0	90.00	89.65	10,362.0	1,553.3	6,689.2	483,891.63	648,428.01	32° 19' 47.329 N	103° 59' 11.835 W
16,900.0	90.00	89.65	10,362.0	1,553.9	6,789.2	483,892.24	648,528.00	32° 19' 47.332 N	103° 59' 10.670 W
17,000.0	90.00	89.65	10,362.0	1,554.6	6,889.2	483,892.85	648,628.00	32° 19' 47.335 N	103° 59' 9.504 W
17,100.0	90.00	89.65	10,362.0	1,555.2	6,989.2	483,893.46	648,728.00	32° 19' 47.338 N	103° 59' 8.339 W
17,200.0	90.00	89.65	10,362.0	1,555.8	7,089.2	483,894.07	648,828.00	32° 19' 47.341 N	103° 59' 7.173 W
17,300.0	90.00	89.65	10,362.0	1,556.4	7,189.2	483,894.68	648,928.00	32° 19' 47.343 N	103° 59' 6.008 W
17,400.0	90.00	89.65	10,362.0	1,557.0	7,289.2	483,895.29	649,027.99	32° 19' 47.346 N	103° 59' 4.842 W
17,500.0	90.00	89.65	10,362.0	1,557.6	7,389.2	483,895.90	649,127.99	32° 19' 47.349 N	103° 59' 3.677 W
17,600.0	90.00	89.65	10,362.0	1,558.2	7,489.2	483,896.51	649,227.99	32° 19' 47.352 N	103° 59' 2.511 W
17,700.0	90.00	89.65	10,362.0	1,558.8	7,589.2	483,897.12	649,327.99	32° 19' 47.355 N	103° 59' 1.346 W
17,800.0	90.00	89.65	10,362.0	1,559.4	7,689.2	483,897.73	649,427.99	32° 19' 47.357 N	103° 59' 0.180 W
17,900.0	90.00	89.65	10,362.0	1,560.0	7,789.2	483,898.34	649,527.99	32° 19' 47.360 N	103° 58' 59.015 W

Permian Resources

Planning Report - Geographic

Database:	Compass	**Local Co-ordinate Reference:**	Well RANA SALADA 0503 FED COM 224H
Company:	NEW MEXICO	**TVD Reference:**	KB @ 3095.0usft
Project:	(SP) EDDY	**MD Reference:**	KB @ 3095.0usft
Site:	RANA SALADA PROJECT	**North Reference:**	Grid
Well:	RANA SALADA 0503 FED COM 224H	**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
18,000.0	90.00	89.65	10,362.0	1,560.7	7,889.1	483,898.95	649,627.98	32° 19' 47.363 N	103° 58' 57.849 W
18,100.0	90.00	89.65	10,362.0	1,561.3	7,989.1	483,899.56	649,727.98	32° 19' 47.366 N	103° 58' 56.684 W
18,200.0	90.00	89.65	10,362.0	1,561.9	8,089.1	483,900.17	649,827.98	32° 19' 47.369 N	103° 58' 55.518 W
18,300.0	90.00	89.65	10,362.0	1,562.5	8,189.1	483,900.78	649,927.98	32° 19' 47.371 N	103° 58' 54.353 W
18,400.0	90.00	89.65	10,362.0	1,563.1	8,289.1	483,901.39	650,027.98	32° 19' 47.374 N	103° 58' 53.187 W
18,500.0	90.00	89.65	10,362.0	1,563.7	8,389.1	483,902.00	650,127.97	32° 19' 47.377 N	103° 58' 52.022 W
18,600.0	90.00	89.65	10,362.0	1,564.3	8,489.1	483,902.61	650,227.97	32° 19' 47.380 N	103° 58' 50.856 W
18,700.0	90.00	89.65	10,362.0	1,564.9	8,589.1	483,903.22	650,327.97	32° 19' 47.383 N	103° 58' 49.691 W
18,800.0	90.00	89.65	10,362.0	1,565.5	8,689.1	483,903.83	650,427.97	32° 19' 47.385 N	103° 58' 48.525 W
18,900.0	90.00	89.65	10,362.0	1,566.1	8,789.1	483,904.44	650,527.97	32° 19' 47.388 N	103° 58' 47.360 W
19,000.0	90.00	89.65	10,362.0	1,566.8	8,889.1	483,905.05	650,627.96	32° 19' 47.391 N	103° 58' 46.194 W
19,100.0	90.00	89.65	10,362.0	1,567.4	8,989.1	483,905.66	650,727.96	32° 19' 47.394 N	103° 58' 45.029 W
19,200.0	90.00	89.65	10,362.0	1,568.0	9,089.1	483,906.27	650,827.96	32° 19' 47.396 N	103° 58' 43.863 W
19,300.0	90.00	89.65	10,362.0	1,568.6	9,189.1	483,906.88	650,927.96	32° 19' 47.399 N	103° 58' 42.698 W
19,400.0	90.00	89.65	10,362.0	1,569.2	9,289.1	483,907.49	651,027.96	32° 19' 47.402 N	103° 58' 41.532 W
19,437.8	90.00	89.65	10,362.0	1,569.4	9,326.9	483,907.72	651,065.74	32° 19' 47.403 N	103° 58' 41.092 W
TD at 19437.8									

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
BHL-RS 0503 FED C(- plan hits target center - Point	0.00	0.00	10,362.0	1,569.4	9,326.9	483,907.72	651,065.74	32° 19' 47.403 N	103° 58' 41.092 W
FTP-RS 0503 FED C(- plan misses target center by 0.1usft at 10827.1usft MD (10362.0 TVD, 1516.9 N, 716.4 E) - Point	0.00	0.00	10,362.0	1,516.8	716.4	483,855.11	642,455.24	32° 19' 47.154 N	104° 0' 21.449 W

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
2,000.0	2,000.0	0.0	0.0	Start Build 2.00
2,750.0	2,741.5	96.4	15.3	Start 5168.1 hold at 2750.0 MD
4,389.0	4,324.6	515.4	81.5	NMNM 059383 Entry at 4389.0 MD
7,918.1	7,733.4	1,417.6	224.2	Start Drop -2.00
8,668.1	8,474.9	1,514.0	239.5	Start 1409.6 hold at 8668.1 MD
10,077.7	9,884.5	1,514.0	239.5	Start DLS 12.00 TFO 89.65
10,827.7	10,362.0	1,516.9	717.0	Start 8610.1 hold at 10827.7 MD
11,813.0	10,362.0	1,522.9	1,702.2	NMNM 059383 Exit at 11813.0 MD
19,437.8	10,362.0	1,569.4	9,326.9	TD at 19437.8

Sec1-T23SR28E_RANA SALADA 0605 FED COM 201H_Eddy_NMNM61349_Permian Resources_2-6-2024_JS

RANA SALADA 0605 FED COM 201H

9 5/8	surface csg in a	12 1/4	inch hole.		Design Factors			Surface				
Segment	#/ft	Grade		Coupling	Body	Collapse	Burst	Length	B@s	a-B	a-C	Weight
"A"	40.00	J 55		btc	40.38	13.35	0.77	390	23	1.33	24.09	15,600
"B"				btc				0				0
	w/8.4#/g mud, 30min Sfc Csg Test psig:	1,500		Tail Cmt	does not	circ to sfc.		Totals:	390			15,600

Comparison of Proposed to Minimum Required Cement Volumes

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
12 1/4	0.3132	140	247	122	102	9.50	2975	3M	0.81

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

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

7 5/8	casing inside the	9 5/8			Design Factors			Int 1				
Segment	#/ft	Grade		Coupling	Joint	Collapse	Burst	Length	B@s	a-B	a-C	Weight
"A"	29.70	P 110		mo-fxl	2.23	1.37	1.27	9,935	1	2.06	2.37	295,070
"B"								0				0
	w/8.4#/g mud, 30min Sfc Csg Test psig:	971						Totals:	9,935			295,070
	The cement volume(s) are intended to achieve a top of				0	ft from surface or a			390			overlap.

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
8 3/4	0.1005	880	1525	1001	52	10.00	3678	5M	0.56
D V Tool(s):							sum of sx	Σ CuFt	Σ%excess
t by stage % :		#VALUE!	#VALUE!				880	1525	52

Class 'H' tail cmt yld > 1.20

Tail cmt

5 1/2	casing inside the	7 5/8			Design Factors			Prod 1				
Segment	#/ft	Grade		Coupling	Joint	Collapse	Burst	Length	B@s	a-B	a-C	Weight
"A"	20.00	P 110		geoconn	3.06	2.06	2.29	9,435	2	3.73	3.35	188,700
"B"	20.00	P 110		bushmaster sl	6.18	1.67	2.29	11,130	2	3.73	3.02	222,600
	w/8.4#/g mud, 30min Sfc Csg Test psig:	2,076						Totals:	20,565			411,300
	The cement volume(s) are intended to achieve a top of				9735	ft from surface or a			200			overlap.

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
6 3/4	0.0835	710	1276	906	41	11.00			0.35

Class 'C' tail cmt yld > 1.35

#N/A

0		5 1/2			Design Factors			<Choose Casing>				
Segment	#/ft	Grade		Coupling	#N/A	Collapse	Burst	Length	B@s	a-B	a-C	Weight
"A"				0.00				0				0
"B"				0.00				0				0
	w/8.4#/g mud, 30min Sfc Csg Test psig:							Totals:	0			0
	Cmt vol calc below includes this csg, TOC intended				#N/A	ft from surface or a			#N/A			overlap.

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

#N/A Capitan Reef est top XXXX.

PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	NOVO OIL & GAS NORTHERN DELAWARE, LLC
WELL NAME & NO.:	RANA SALADA 0503 FED COM 224H
SURFACE HOLE FOOTAGE:	518'/N & 2276'/W
BOTTOM HOLE FOOTAGE	990'/S & 990'/W
LOCATION:	Section 8, T.23 S., R.29 E., NMP
COUNTY:	Eddy County, New Mexico

COA

H2S	(•) Yes	( ) No	
Potash	( ) None	( ) Secretary	(•) R-111-P
Cave/Karst Potential	( ) Low	(•) Medium	( ) High
Cave/Karst Potential	( ) Critical		
Variance	( ) None	(•) Flex Hose	( ) Other
Wellhead	( ) Conventional	(•) Multibowl	( ) Both
Wellhead Variance	( ) Diverter		
Other	[ ] 4 String	[ ] Capitan Reef	[ ] WIPP
Other	[ ] Fluid Filled	[ ] Pilot Hole	[ ] Open Annulus
Cementing	[ ] Contingency Cement Squeeze	[ ] EchoMeter	[ ] Primary Cement Squeeze
Special Requirements	[ ] Water Disposal	[x] COM	[ ] Unit
Special Requirements	[ ] Batch Sundry		
Special Requirements Variance	[x] Break Testing	[x] Offline Cementing	[x] Casing Clearance

A. HYDROGEN SULFIDE

A Hydrogen Sulfide (H2S) Drilling Plan shall be activated AT SPUD. As a result, the Hydrogen Sulfide area must meet 43 CFR part 3170 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.

B. CASING

Primary Casing Design:

1. Th **9-5/8** inch surface casing shall be set at approximately 390 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. The surface hole shall be **12** ¼ inch in diameter.

a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
b. Wait on cement (WOC) time for a primary cement job will be a minimum of **24 hours in the Potash Area** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)
c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
d. If cement falls back, remedial cementing will be done prior to drilling out that string.

2. The minimum required fill of cement behind the **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 or potash.**

❖ In R111 Potash Areas if cement does not circulate to surface on the first two salt protection casing strings, the cement on the 3rd casing salt string must come to surface.

❖ 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 **500 feet** into previous casing string. 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 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. This assembly will only be tested when installed on the **9-5/8** inch surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **5000 (5M)** psi.

a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
c. Manufacturer representative shall install the test plug for the initial BOP test.
d. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
e. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.

D. SPECIAL REQUIREMENT (S)

Communitization Agreement

- The operator will submit a Communitization Agreement to the Santa Fe Office, 301 Dinosaur Trail Santa Fe, New Mexico 87508, at least 90 days before the anticipated date of first production from a well subject to a spacing order issued by the New Mexico Oil Conservation Division. The Communitization Agreement will include the signatures of all working interest owners in all Federal and Indian leases subject to the Communitization Agreement (i.e., operating rights owners and lessees of record), or certification that the operator has obtained the written signatures of all such owners and will make those signatures available to the BLM immediately upon request.
- The operator will submit an as-drilled survey well plat of the well completion, but are not limited to, those specified in Onshore Order 1 and 2.
- If the operator does not comply with this condition of approval, the BLM may take enforcement actions that include, but are not limited to, those specified in 43 CFR 3163.1.
- In addition, the well sign shall include the surface and bottom hole lease numbers. When the Communitization Agreement number is known, it shall also be on the sign.

(Note: For a minimum 5M BOPE or less (Utilizing a 10M BOPE system)
BOPE Break Testing Variance

- BOPE Break Testing is ONLY permitted for 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 Onshore Oil and Gas Order No. 2.
- 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.

Casing Clearance:
Operator casing variance is approved for the utilization of 9-5/8 inch surface casing in a 12 ¼ inch surface hole.

Operator shall clean up cycles until wellbore is clear of cuttings and any large debris, ensure cutting sizes are adequate "coffee ground or less" before cementing.

GENERAL REQUIREMENTS

The BLM is to be notified in advance for a representative to witness:

a. Spudding well (minimum of 24 hours)
b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
c. BOPE tests (minimum of 4 hours)

☒ Eddy County
EMAIL or call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220,
BLM_NM_CFO_DrillingNotifications@BLM.GOV
(575) 361-2822

☒ Lea County
Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240,
(575) 689-5981

1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.

   a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after

installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).

b. When the operator proposes to set surface casing with Spudder Rig
   - Notify the BLM when moving in and removing the Spudder Rig.
   - Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
   - BOP/BOPE test to be conducted per **43 CFR part 3170 Subpart 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. The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

A. CASING

1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.

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

3. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for

details regarding lead cement slurry requirements. The casing intergrity test can be done (prior to the cement setting up) immediately after bumping the plug.

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

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

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

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

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

B. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in **43 CFR part 3170 Subpart 3172** and **API STD 53 Sec. 5.3**.

2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: The flex line must meet the requirements of API 16C. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.

3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.

4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:

    a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
    b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
    c. Manufacturer representative shall install the test plug for the initial BOP test.
    d. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.
    e. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.

5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.

    a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead cement), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

    b. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the cement plug. The BOPE test can be initiated after bumping the cement plug with the casing valve open. (only applies to single stage cement jobs, prior to the cement setting up.)

    c. The tests shall be done by an independent service company utilizing a test plug not a cup or J-packer and can be initiated immediately with the casing valve open. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to **43 CFR part 3170 Subpart 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 water basin (8 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).

d. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.

e. The results of the test shall be reported to the appropriate BLM office.

f. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.

g. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.

h. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per **43 CFR part 3170 Subpart 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.

JS 2/7/2024

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

Operator: NOVO OIL & GAS NORTHERN DELAWARE, LLC 300 N. Marienfeld St Ste 1000 Midland, TX 79701	OGRID: 372920
	Action Number: 312685
	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.	4/18/2024