

Form 3160-5
(June 2019)UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTFORM APPROVED
OMB No. 1004-0137
Expires: October 31, 2021**SUNDRY NOTICES AND REPORTS ON WELLS**
Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.

5. Lease Serial No. NMNM91078

6. If Indian, Allottee or Tribe Name

SUBMIT IN TRIPLICATE - Other instructions on page 2

1. Type of Well

☐ Oil Well ☒ Gas Well ☐ Other

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

3a. Address 1001 West Wilshire Boulevard Suite 206, Oklahoma City, OK 73102
3b. Phone No. (include area code) (405) 404-04144. Location of Well (Footage, Sec., T., R., M., or Survey Description)
SEC 1/T23S/R28E/NMP

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

8. Well Name and No. RANA SALADA FED 01/231H

9. API Well No. 3001548579

10. Field and Pool or Exploratory Area
Purple Sage/Wolfcamp11. Country or Parish, State
EDDY/NM

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

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

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat 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.)

Novo Oil & Gas Northern Delaware, LLC respectfully request to make the following APD changes:

Change SHL from 144 FNL & 243 FWL to 144 FNL & 507 FWL, Section 1, T-23-S, R-28-E.

Change BHL from 330 FNL & 100 FEL, Section 1 to 2,510 FNL & 330 FWL, Section 12, T-23-S, R-28-E.

Change Drilling Direction from West to East to North to South direction.

Casing/Cement/Mud Program changes attached.

14. I hereby certify that the foregoing is true and correct. Name (Printed/Typed)
JUSTIN CARTER / Ph: (405) 286-3375

Title Landman

Signature

Date

04/05/2023

THE SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by

CODY LAYTON / Ph: (575) 234-5959 / Approved

Title Assistant Field Manager Lands & I

Date 05/22/2023

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

Office CARLSBAD

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

(Instructions on page 2)

GENERAL INSTRUCTIONS

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

SPECIFIC INSTRUCTIONS

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

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

NOTICES

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

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

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

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

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

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

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

Response to this request is mandatory.

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

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

Additional Information

Location of Well

0. SHL: LOT 4 / 144 FNL / 507 FWL / TWSP: 23S / RANGE: 28E / SECTION: 1 / LAT: 32.3416134 / LONG: -104.0484546 (TVD: 0 feet, MD: 0 feet)

PPP: LOT 1 / 334 FNL / 570 FEL / TWSP: 23S / RANGE: 28E / SECTION: 2 / LAT: 32.3410931 / LONG: -104.0510858 (TVD: 10069 feet, MD: 10161 feet)

BHL: LOT 1 / 330 FNL / 130 FEL / TWSP: 23S / RANGE: 28E / SECTION: 1 / LAT: 32.3411412 / LONG: -104.0323714 (TVD: 10579 feet, MD: 16209 feet)

Well Name: RANA SALADA FED 01	Well Location: T23S / R28E / SEC 1 / LOT 4 /	County or Parish/State:
Well Number: 231H	Type of Well: CONVENTIONAL GAS WELL	Allottee or Tribe Name:
Lease Number: NMNM91078	Unit or CA Name:	Unit or CA Number:
US Well Number: 3001548579	Well Status: Approved Application for Permit to Drill	Operator: NOVO OIL AND GAS NORTHERN DELAWARE LLC

Notice of Intent

Sundry ID: 2724590

Type of Submission: Notice of Intent

Date Sundry Submitted: 04/05/2023

Date proposed operation will begin: 06/01/2023

Type of Action: APD Change

Time Sundry Submitted: 03:02

Procedure Description: Novo Oil & Gas Northern Delaware, LLC respectfully request to make the following APD changes: Change SHL from 144' FNL & 243' FWL to 144' FNL & 507' FWL, Section 1, T-23-S, R-28-E. Change BHL from 330' FNL & 100' FEL, Section 1 to 2,510' FNL & 330' FWL, Section 12, T-23-S, R-28-E. Change Drilling Direction from West to East to North to South direction. Casing/Cement/Mud Program changes attached.

NOI Attachments

Procedure Description

Change_of_Plans_Rana_Salada_Fed_01_231H_20230405150050.pdf

Well Name: RANA SALADA FED 01	Well Location: T23S / R28E / SEC 1 / LOT 4 /	County or Parish/State:
Well Number: 231H	Type of Well: CONVENTIONAL GAS WELL	Allottee or Tribe Name:
Lease Number: NMNM91078	Unit or CA Name:	Unit or CA Number:
US Well Number: 3001548579	Well Status: Approved Application for Permit to Drill	Operator: NOVO OIL AND GAS NORTHERN DELAWARE LLC

Conditions of Approval

Additional
Sec_1__23S_28E_NMP__Rana_Salada_Fed_01_231H_Eddy_NMNM91078_NOVO_COAs_20230516132631.pdf

Operator

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

Operator Electronic Signature: JUSTIN CARTER
Name: NOVO OIL AND GAS NORTHERN DELAWARE LLC
Title: Landman
Street Address: 1001 West Wilshire Boulevard Suite 206
City: Oklahoma City **State:** OK
Phone: (405) 286-3375
Email address: JCARTER@NOVOOG.COM

Signed on: APR 05, 2023 03:01 PM

Field

Representative Name:
Street Address:
City: **State:** **Zip:**
Phone:
Email address:

BLM Point of Contact

BLM POC Name: Bobby Ballard
BLM POC Phone: 5752342235
Disposition: Approved
Signature: Cody R. Layton

BLM POC Title: Natural Resource Specialist
BLM POC Email Address: bballard@blm.gov
Disposition Date: 05/22/2023

Rana Salada Fed 01 231H

CHANGE TO PLANS

Move Surface Hole Location

From: 144' FNL & 243' FWL, Section 1, T-23-S, R-28-E

To: 144' FNL & 507' FWL, Section 1, T-23-S, R-28-E

Move Bottom Hole Location

From: 330' FNL & 100' FEL, Section 1, T-23-S, R-28-E

To: 2,510' FNL & 330' FWL, Section 12, T-23-S, R-28-E

Drilling Direction Change

From: West to East

To: North to South

Single Stage Cement Job for 13-3/8" Surface Casing String (TOC = Surface)

Tail: 334 Sacks; 541.9 cu. ft.; 100% excess. 1.62 cu.ft./sx; 13.8 ppg; Class C + Gel + Accelerator + LCM; 1,500 psi 14-hour compressive strength.

Singe Stage Cement Job for 8-5/8" Intermediate Casing String (TOC = Surface)

Lead: 609 Sacks; 2,178 cu. ft.; 100% excess. 3.58 cu.ft./sx; 10 ppg; Class C or H + Fluid Loss + Retarder + LCM + possibly beads; 900 psi 24-hour compressive strength.

Tail: 130 Sacks; 180.7 cu. ft.; 50% excess. 1.39 cu.ft./sx; 13.8 ppg; Class C or H + Fluid Loss + Retarder + LCM; 1,200 psi 14-hour compressive strength.

Single Stage Cement Job for 5-1/2" Production Casing String (TOC = Surface)

Lead: 701 Sacks; 1,486 cu. ft.; 20% excess. 2.12 cu.ft./sx; 12 ppg; Class H + Fluid Loss + Retarder + LCM; 1,200 psi 24-hour compressive strength.

Tail: 1,608 Sacks; 2,556 cu. ft.; 20% excess. 13.2 cu.ft./sx; 13.2 ppg; Class H + Fluid Loss + Retarder + LCM; 1,200 psi 14-hour compressive strength.

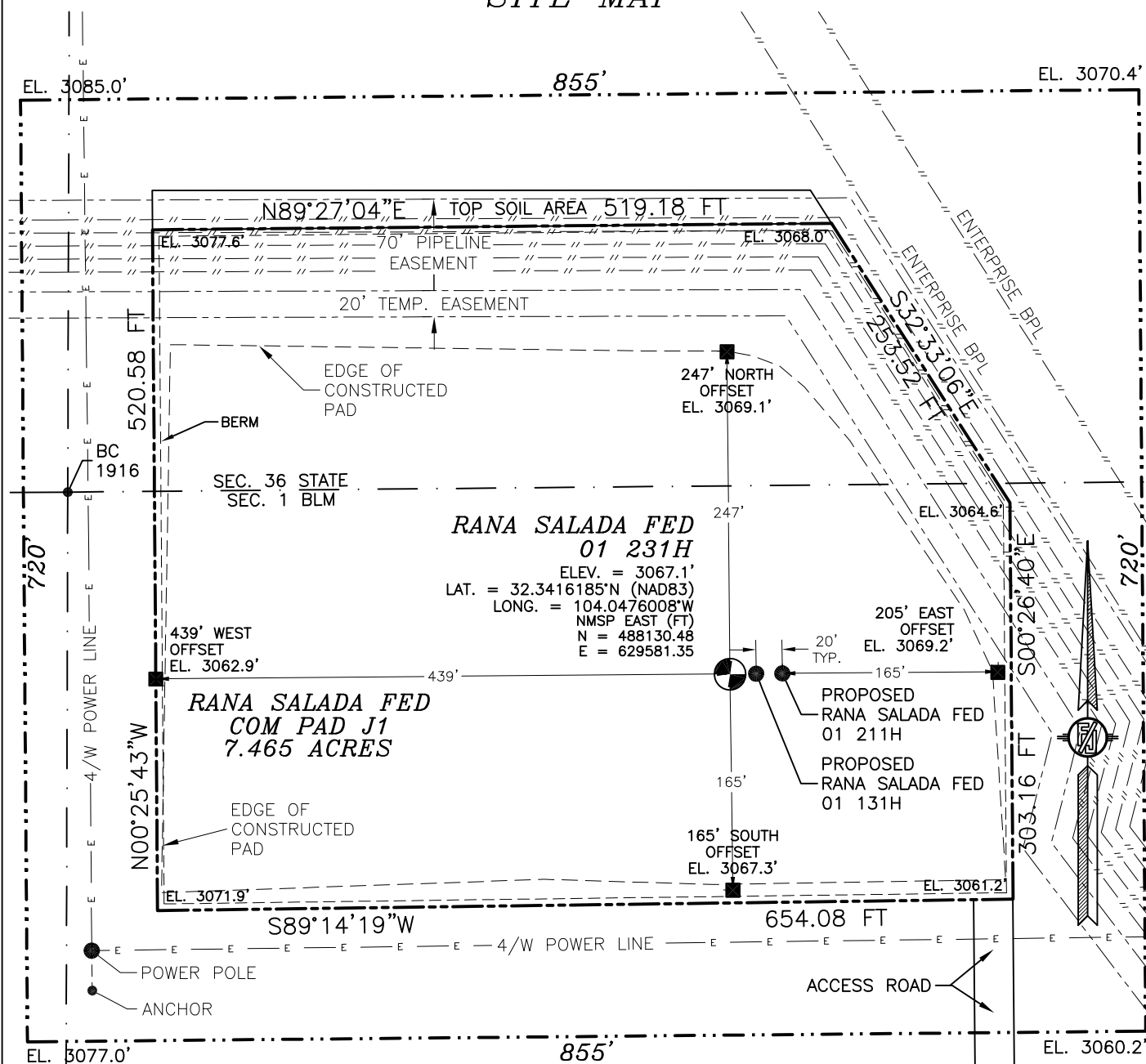
Drilling Fluid Program Changes

Water base spud mud: 0 – 390'; 8.30 ppg

Brine: 390' – 9,061'; 8.8-9.6 ppg

Oil Based mud: 9,061' – 17,671'; 11-12.5 ppg

SECTION 1, TOWNSHIP 23 SOUTH, RANGE 28 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
SITE MAP



012 60 120 240

SCALE 1" = 120'

DIRECTIONS TO LOCATION

FROM ST. HWY. 31 AND CR. 605 (REFINERY ROAD) GO NORTHWEST ON REFINERY ROAD 1.6 MILES, TURN RIGHT ON CALICHE LEASE ROAD AND GO NORTH 815'. END RIGHT AND GO EAST-NORTHEAST 365' TO A ROAD SURVEY AND FOLLOW CLASS NORTH 222' TO THE SOUTHEAST PAD CORNER FOR THIS LOCATION.

I, FILMON F. JARAMILA, A NEW MEXICO REGISTERED PROFESSIONAL SURVEYOR CERTIFY THAT I PREPARED AND AM RESPONSIBLE FOR THIS SURVEY. I HAVE BEEN LICENSED BY THE STATE OF NEW MEXICO TO THE BEST OF MY KNOWLEDGE AND BELIEF AND I HAVE CONDUCTED AND PLAT MEET THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO.

FILMON F. JARAMILA 2023 2797

MADRON SURVEYING, INC.

301 SOUTH CANAL
(575) 234-3341

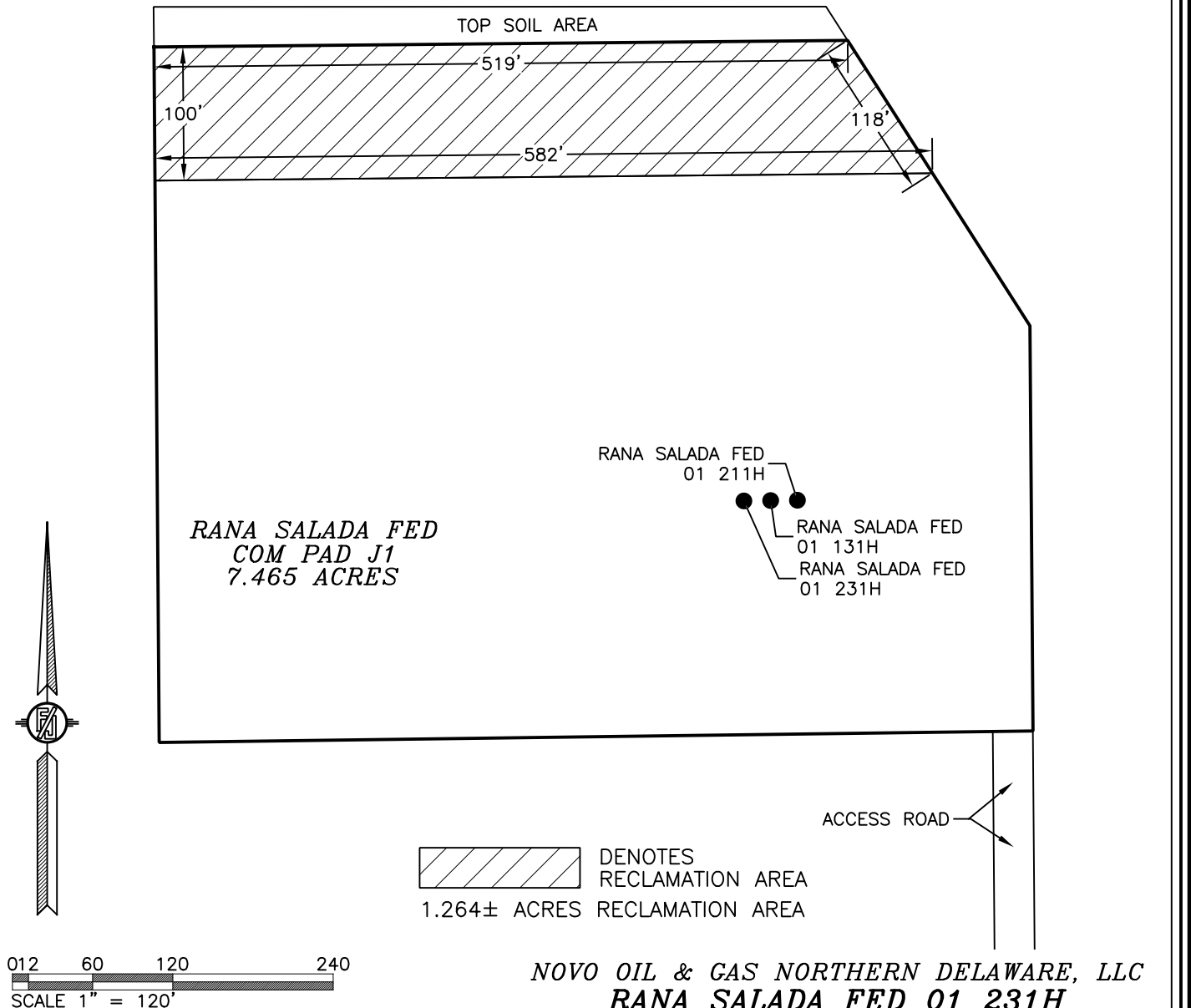
CARLSBAD, NEW MEXICO

NOVO OIL & GAS NORTHERN DELAWARE, LLC
RANA SALADA FED 01 231H
LOCATED 144 FT. FROM THE NORTH LINE
AND 507 FT. FROM THE WEST LINE OF
SECTION 1, TOWNSHIP 23 SOUTH,
RANGE 28 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

OCTOBER 12, 2022

SURVEY NO. 7989B

SECTION 1, TOWNSHIP 23 SOUTH, RANGE 28 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO
 INTERIM SITE RECLAMATION



NOVO OIL & GAS NORTHERN DELAWARE, LLC
RANA SALADA FED 01 231H
 LOCATED 144 FT. FROM THE NORTH LINE
 AND 507 FT. FROM THE WEST LINE OF
 SECTION 1, TOWNSHIP 23 SOUTH,
 RANGE 28 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO

OCTOBER 12, 2022

SURVEY NO. 7989B

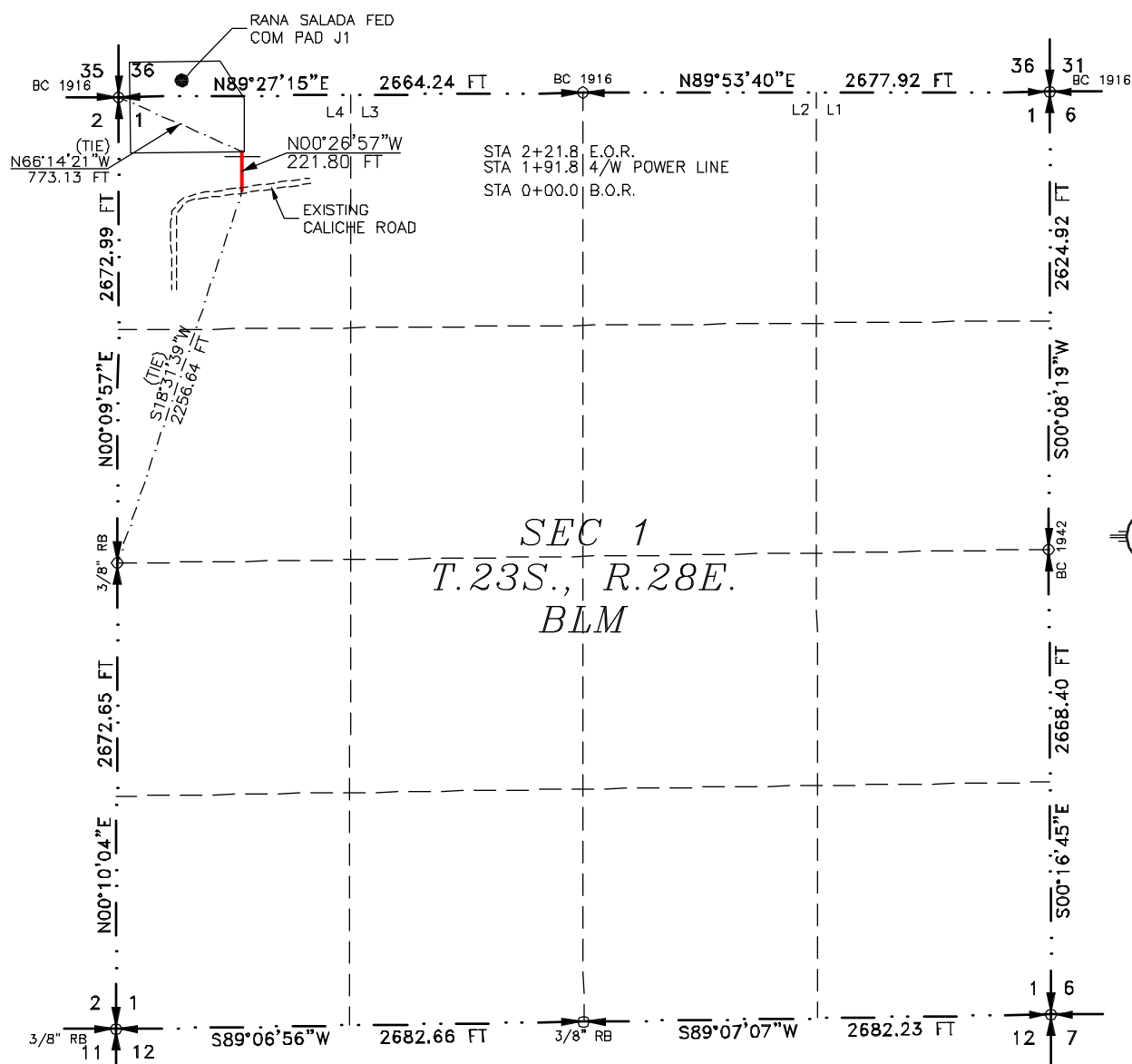
MADRON SURVEYING, INC. 301 SOUTH CANAL CARLSBAD, NEW MEXICO
 (575) 234-3341



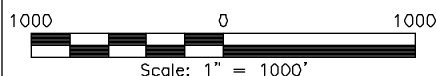
ACCESS ROAD PLAT

ACCESS ROAD FOR RANA SALADA FED COM PAD J1
(RANA SALADA FED 01 231H, 131H, & 211H)

NOVO OIL & GAS NORTHERN DELAWARE, LLC
CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 1, TOWNSHIP 23 SOUTH, RANGE 28 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
OCTOBER 12, 2022



SEE NEXT SHEET (2-2) FOR DESCRIPTION

**GENERAL NOTES**

- 1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.
- 2.) BASIS OF BEARING AND DISTANCE IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

SHEET: 1-2

MADRON SURVEYING, INC. 301 SOUTH CANAL CARLSBAD, NEW MEXICO (575) 234-3341

SURVEYOR CERTIFICATE

I, FILMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 25TH DAY OF OCTOBER 2022

FILMON F. JARAMILLO, PLS. 12797
MADRON SURVEYING, INC.
301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

SURVEY NO. 7989B

MADRON SURVEYING, INC. 301 SOUTH CANAL CARLSBAD, NEW MEXICO (575) 234-3341

ACCESS ROAD PLAT

ACCESS ROAD FOR RANA SALADA FED COM PAD J1
(RANA SALADA FED 01 231H, 131H, & 211H)

NOVO OIL & GAS NORTHERN DELAWARE, LLC
CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 1, TOWNSHIP 23 SOUTH, RANGE 28 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
OCTOBER 12, 2022

DESCRIPTION

A STRIP OF LAND 30 FEET WIDE CROSSING BUREAU OF LAND MANAGEMENT LAND IN SECTION 1, TOWNSHIP 23 SOUTH, RANGE 28 EAST, N.M.P.M., EDDY COUNTY, STATE OF NEW MEXICO AND BEING 15 FEET EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE SURVEY:

BEGINNING AT A POINT WITHIN LOT 4 OF SAID SECTION 1, TOWNSHIP 23 SOUTH, RANGE 28 EAST, N.M.P.M., WHENCE THE WEST QUARTER CORNER OF SAID SECTION 1, TOWNSHIP 23 SOUTH, RANGE 28 EAST, N.M.P.M. BEARS S18°31'39"W, A DISTANCE OF 2256.64 FEET;
THENCE N00°26'57"W A DISTANCE OF 221.80 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTHWEST CORNER OF SAID SECTION 1, TOWNSHIP 23 SOUTH, RANGE 28 EAST, N.M.P.M. BEARS N66°14'21"W, A DISTANCE OF 773.13 FEET;

SAID STRIP OF LAND BEING 221.80 FEET OR 13.44 RODS IN LENGTH, CONTAINING 0.153 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

LOT 4 221.80 L.F. 13.44 RODS 0.153 ACRES

SURVEYOR CERTIFICATE

I, FILIMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 25TH DAY OF OCTOBER 2022

MADRON SURVEYING, INC.
301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

SURVEY NO. 7989B

GENERAL NOTES

1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.

2.) BASIS OF BEARING AND DISTANCE IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

SHEET: 2-2

MADRON SURVEYING, INC. 301 SOUTH CANAL
(575) 234-3341 CARLSBAD, NEW MEXICO

NOVO OIL & GAS NORTHERN DELAWARE, LLC
Rana Salada Fed 01 231H
 SHL: 144' FNL & 507' FWL' of Section 01-23S-28E
 BHL: 2,510' FNL & 330' FWL Section 12-23S-28E
Eddy County, New Mexico



Drilling Program

1. ESTIMATED TOPS

Formation Name	TVD KB	MD'	Bearing
Quaternary	0	-	Water
Rustler anhydrite (surface csg @ 390' MD)	310	310	N/A
Salado salt	564	574	N/A
Lamar limestone	2,880	2,900	N/A
Bell Canyon sandstone	2,880	2,910	Hydrocarbons
Cherry Canyon sandstone	3,930	3,970	Hydrocarbons
Brushy Canyon sandstone	5,375	5,425	Hydrocarbons
Bone Spring limestone	6,465	6,525	Hydrocarbons
Avalon shale	6,963	7,033	Hydrocarbons
1st Bone Spring sandstone	7,540	7,620	Hydrocarbons
2nd Bone Spring carbonate	7,820	7,910	Hydrocarbons
2nd Bone Spring sandstone	8,290	8,390	Hydrocarbons
3rd Bone Spring carbonate	8,655	8,765	Hydrocarbons
Wolfcamp XY	9,710	9,830	Hydrocarbons
Wolfcamp A	9,900	10,030	Hydrocarbons
Wolfcamp B	10,205	10,345	Hydrocarbons
Wolfcamp B Flow Unit	10,520	10,670	Hydrocarbons
Wolfcamp C	10,650	10,650	Hydrocarbons
Intermediate Casing Point	9,061	9,181	
KOP	9,161	9,291	
TD	9,761	17,671	

2. NOTABLE ZONES

3. PRESSURE CONTROL

A 13.625" 5M Blowout Preventer system will be installed on a multi-bowl (speed head) wellhead with a 13.625" flanged casing spool.

Top flange of casing spool will be set in a cellar below ground level. BOP system will consist of a single pipe ram on the bottom, mud cross, double pipe ram with blind rams on bottom and pipe rams on top, and annular preventer. Blowout preventer will be installed on top of the 13.375" surface casing and will remain installed to TD of the well. Wellhead, blowout preventer, and choke manifold diagram are included.

Variance is requested to use a co-flex hose between the BOP system and choke manifold. A typical co-flex pressure test certificate is attached. An equipment specific co-flex pressure test certificate will be on site when testing the BOP.

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

The BOP system will be isolated with a test plug and tested by an independent tester to 250 psi low and 5,000 psi high for 10 minutes.

The Surface Casing will be pressure tested to 250 psi low and 1500 psi high. Intermediate Casing will be pressure tested to 250 psi low and (.22 psi x Shoe TVD, which is equivalent to 1993.42 psi) high for 30 minutes

NOVO OIL & GAS NORTHERN DELAWARE, LLC
Rana Salada Fed 01 231H
 SHL: 144' FNL & 507' FWL' of Section 01-23S-28E
 BHL: 2,510' FNL & 330' FWL Section 12-23S-28E
Eddy County, New Mexico



4. CASING & CEMENT

Variance is requested for an option to use a surface rig to drill the surface hole, set the surface casing, and cement the surface casing. If the schedule between rigs would preclude presetting the surface casing, then the primary rig will MIRU and drill all of the well.

All casing will be API and new. See attached casing assumption worksheet.

Casing Details

Name	Hole Size	Casing Size	Standard	Tapered	Top MD	BTM MD	Top TVD	BTM TVD	Grade	Weight	Thread	Collapse	Burst	Tension
Surface	17 1/2	13 3/8	API	No	0	390	0	390	J-55	54.5	BTC	1.125	1.125	1.6
Intermediate	9 7/8	8 5/8	API	No	0	9,211	0	9,061	P-110 HP	32	Talon HTQ	1.125	1.125	1.6
Production	7 7/8	5 1/2	API	No	0	17,671	0	9,761	P-110 EC	20	DWC/C- IS +	1.125	1.125	1.6

Alternate grades and/or higher weights could be substituted to meet maximum stimulation pressures or due to coupling availability.

Name	Hole Size	Casing Size	Standard	Tapered	Top MD	BTM MD	Top TVD	BTM TVD	Grade	Weight	Thread	Collapse	Burst	Tension
Intermediate	9 7/8	8 5/8	API	No	0	9,211	0	9,061	P-110 HP	32	TLW	1.125	1.125	1.6
Production	7 7/8	5 1/2	API	No	0	17,671	0	9,761	P-110 EC	17	DWC/C- IS +	1.125	1.125	1.6

Cement Details

Name	Type	Top MD	Sacks	Yield	Cu. Ft	Weight	Excess	Cement	Additives
Surface	Tail	0	334	1.62	541.9	13.8	100%	C	Gel, Accelerator, LCM
Intermediate	Lead	0	609	3.58	2178.8	10	100%	C or H	Fluid Loss, Retarder, LCM, Possibly beads
	Tail	8061	130	1.39	180.7	13.8	50%	C or H	Fluid Loss, Retarder, LCM
Production	Lead	0	701	2.12	1486.4	12	20%	H	Fluid Loss, Retarder, LCM
	Tail	7061	1608	1.59	2556.9	13.2	20%	H	Fluid Loss, Retarder, LCM

5. MUD PROGRAM

An electronic PVT mud system will monitor flow rate, pump pressure, stroke rate, and volume. All necessary mud products (barite, bentonite, LCM) to control weight and fluid loss will be on site at all times. Mud program may change due to hole conditions. A closed loop system will be used.

Name	Top	Bottom	Type	Mud Weight	Visc	Fluid Loss
Surface	0	390'	Water Based Spud Mud	8.30	30-60	NC
Intermediate	390	9061	Brine Diesel Emulsion	8.8-9.6	35-45	NC
Production	9061	17671	Oil Based Mud	11-12.5	35-65	4-6

6. CORES, TEST, & LOGS

No core or drill stem test is planned. A 2-person mud logging program will be used from ≈3000' to TD. GR log will be acquired by MWD tools from the intermediate casing to TD.

7. DOWN HOLE CONDITIONS

No abnormal pressure or temperature is expected. Maximum anticipated surface pressure is ≈3757 psi. Anticipated bottom hole pressure is ≈5679 psi. Expected bottom hole temperature is ≈215° F.

8. OTHER INFORMATION

Anticipated spud date is upon approval. It is expected it will take ≈3 months to drill and complete the well.

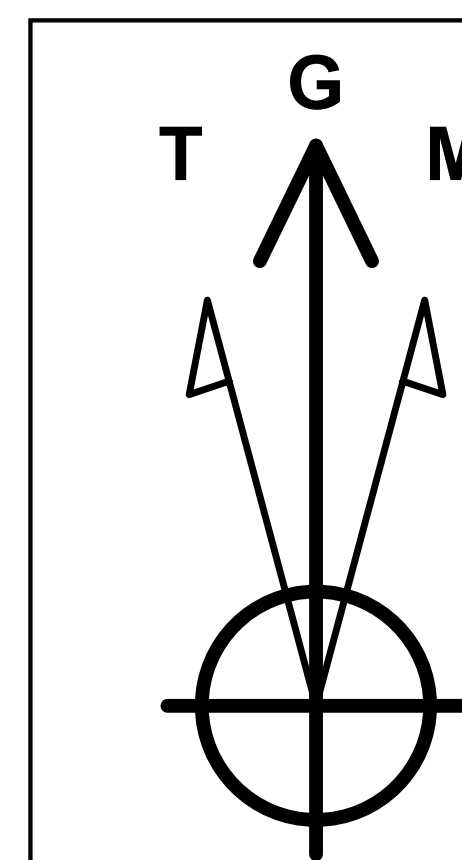
WELL DETAILS: RANA-SALADA-FED-01-231H Plan 1

GL Elev (ft).: 3067.10
+N/-S 0.00 +E/-W 0.00 Northing 488130.48 Easting 629581.35 Latitude 32.34161844 Longitude -104.04760081

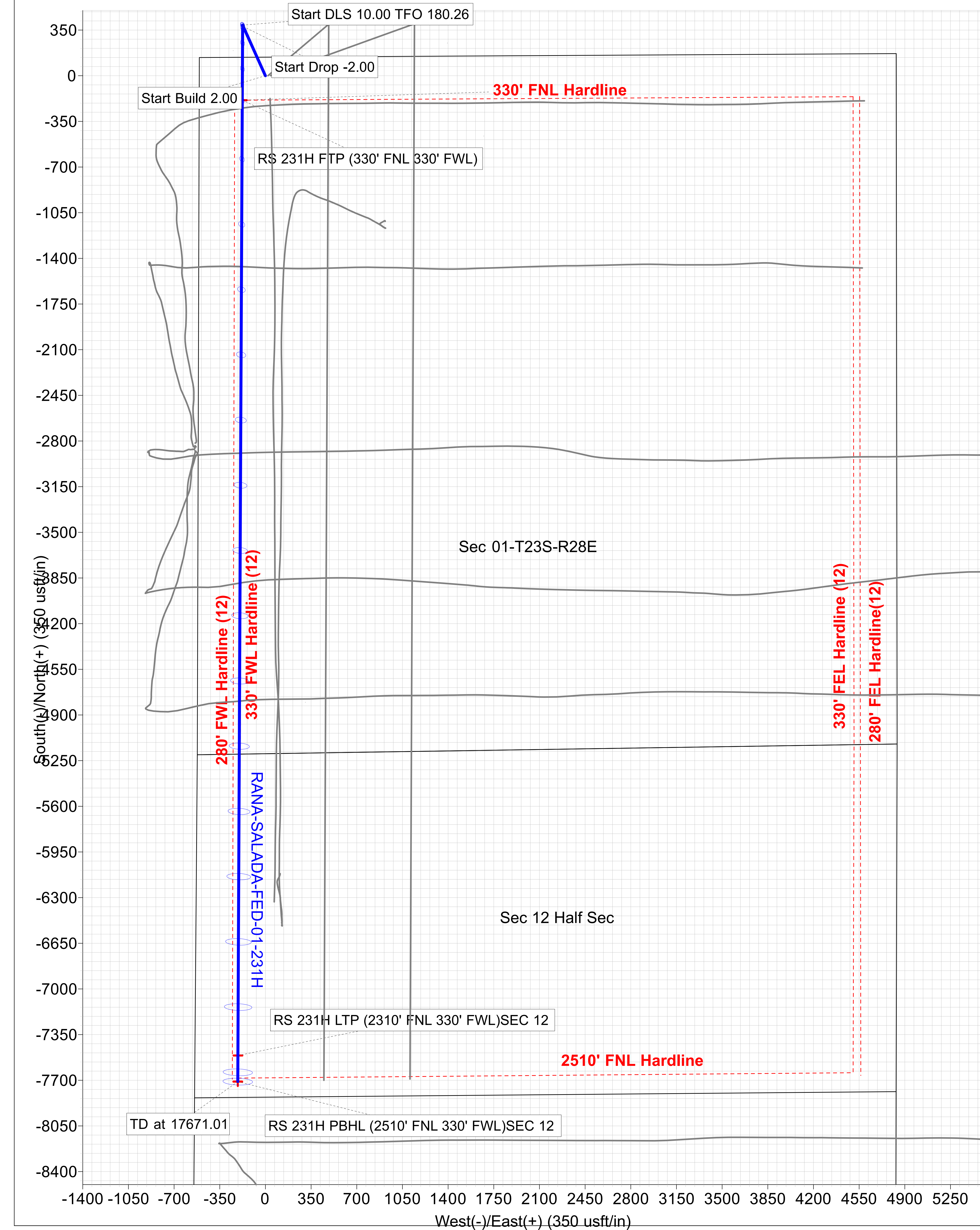
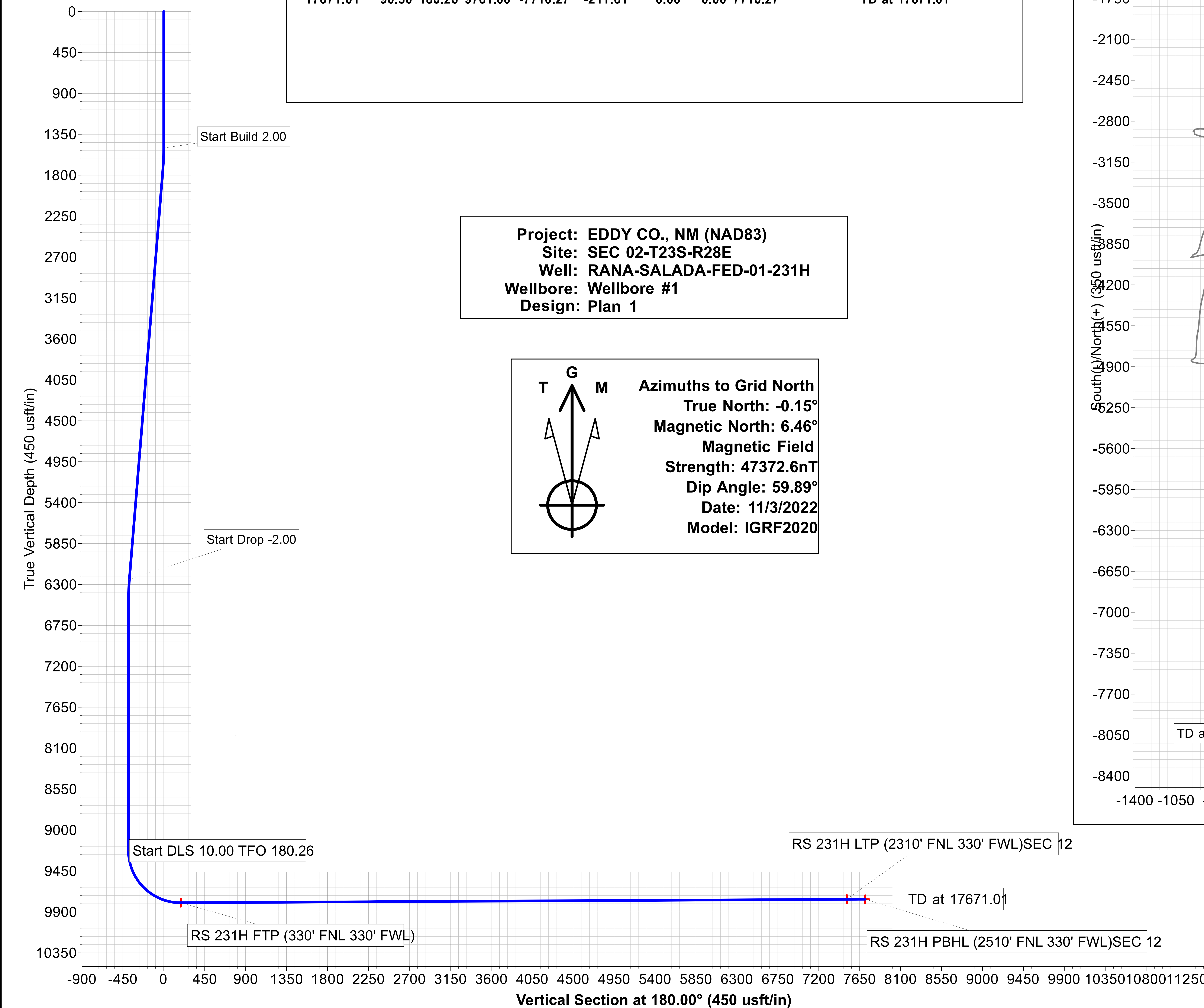
SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1500.00	0.00	0.00	1500.00	0.00	0.00	0.00	0.00	0.00	Start Build 2.00
1756.15	5.12	335.76	1755.80	10.43	-4.70	2.00	335.76	-10.43	Start 4506.39 hold at 1756.15 MD
6262.54	5.12	335.76	6244.20	377.35	-169.90	0.00	0.00	-377.35	Start Drop -2.00
6518.68	0.00	0.00	6500.00	387.78	-174.60	2.00	180.00	-387.78	Start 2727.05 hold at 6518.68 MD
9245.73	0.00	0.00	9227.05	387.78	-174.60	0.00	0.00	-387.78	Start DLS 10.00 TFO 180.26
10148.70	90.30	180.26	9800.00	-188.14	-177.23	10.00	180.26	188.14	Start 7522.31 hold at 10148.70 MD
17671.01	90.30	180.26	9761.00	-7710.27	-211.61	0.00	0.00	7710.27	TD at 17671.01

Project: EDDY CO., NM (NAD83)
Site: SEC 02-T23S-R28E
Well: RANA-SALADA-FED-01-231H
Wellbore: Wellbore #1
Design: Plan 1



Azimuths to Grid North
True North: -0.15°
Magnetic North: 6.46°
Magnetic Field
Strength: 47372.6nT
Dip Angle: 59.89°
Date: 11/3/2022
Model: IGRF2020





NOVO Oil & Gas

EDDY CO., NM (NAD83)

SEC 02-T23S-R28E

RANA-SALADA-FED-01-231H

Wellbore #1

Plan: Plan 1

Standard Planning Report

04 November, 2022





Planning Report



Database:	1 - EDM Production	Local Co-ordinate Reference:	Well RANA-SALADA-FED-01-231H
Company:	NOVO Oil & Gas	TVD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Project:	EDDY CO., NM (NAD83)	MD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Site:	SEC 02-T23S-R28E	North Reference:	Grid
Well:	RANA-SALADA-FED-01-231H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan 1		

Project	EDDY CO., NM (NAD83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site		SEC 02-T23S-R28E			
Site Position:		Northing:	485,314.80 usft	Latitude:	32.33388258
From:	Map	Easting:	629,041.60 usft	Longitude:	-104.04937266
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "		

Well	RANA-SALADA-FED-01-231H					
Well Position	+N/-S	0.00 usft	Northing:	488,130.48 usft	Latitude:	32.34161844
	+E/-W	0.00 usft	Easting:	629,581.35 usft	Longitude:	-104.04760081
Position Uncertainty		0.50 usft	Wellhead Elevation:	usft	Ground Level:	3,067.10 usft
Grid Convergence:		0.15 °				

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2020	11/3/2022	6.61	59.89	47,372.55056057

Design	Plan 1				
Audit Notes:					
Version:		Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	180.00	

Plan Survey Tool Program	Date	11/4/2022			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	17,670.98	Plan 1 (Wellbore #1)	MWD+HRGM	
				OWSG MWD + HRGM	

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
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,756.15	5.12	335.76	1,755.80	10.43	-4.70	2.00	2.00	0.00	335.76	
6,262.54	5.12	335.76	6,244.20	377.35	-169.90	0.00	0.00	0.00	0.00	
6,518.68	0.00	0.00	6,500.00	387.78	-174.60	2.00	-2.00	0.00	180.00	
9,245.73	0.00	0.00	9,227.05	387.78	-174.60	0.00	0.00	0.00	0.00	
10,148.70	90.30	180.26	9,800.00	-188.14	-177.23	10.00	10.00	-19.91	180.26	
17,671.01	90.30	180.26	9,761.00	-7,710.27	-211.61	0.00	0.00	0.00	0.00	



Planning Report



Database:	1 - EDM Production	Local Co-ordinate Reference:	Well RANA-SALADA-FED-01-231H
Company:	NOVO Oil & Gas	TVD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Project:	EDDY CO., NM (NAD83)	MD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Site:	SEC 02-T23S-R28E	North Reference:	Grid
Well:	RANA-SALADA-FED-01-231H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan 1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
1,600.00	2.00	335.76	1,599.98	1.59	-0.72	-1.59	2.00	2.00	0.00
1,700.00	4.00	335.76	1,699.84	6.36	-2.87	-6.36	2.00	2.00	0.00
1,756.15	5.12	335.76	1,755.80	10.43	-4.70	-10.43	2.00	2.00	0.00
Start 4506.39 hold at 1756.15 MD									
1,800.00	5.12	335.76	1,799.48	14.01	-6.31	-14.01	0.00	0.00	0.00
1,900.00	5.12	335.76	1,899.08	22.15	-9.97	-22.15	0.00	0.00	0.00
2,000.00	5.12	335.76	1,998.68	30.29	-13.64	-30.29	0.00	0.00	0.00
2,100.00	5.12	335.76	2,098.29	38.43	-17.30	-38.43	0.00	0.00	0.00
2,200.00	5.12	335.76	2,197.89	46.57	-20.97	-46.57	0.00	0.00	0.00
2,300.00	5.12	335.76	2,297.49	54.72	-24.64	-54.72	0.00	0.00	0.00
2,400.00	5.12	335.76	2,397.09	62.86	-28.30	-62.86	0.00	0.00	0.00
2,500.00	5.12	335.76	2,496.69	71.00	-31.97	-71.00	0.00	0.00	0.00
2,600.00	5.12	335.76	2,596.29	79.14	-35.63	-79.14	0.00	0.00	0.00
2,700.00	5.12	335.76	2,695.89	87.28	-39.30	-87.28	0.00	0.00	0.00
2,800.00	5.12	335.76	2,795.49	95.43	-42.97	-95.43	0.00	0.00	0.00
2,900.00	5.12	335.76	2,895.09	103.57	-46.63	-103.57	0.00	0.00	0.00
3,000.00	5.12	335.76	2,994.69	111.71	-50.30	-111.71	0.00	0.00	0.00
3,100.00	5.12	335.76	3,094.29	119.85	-53.96	-119.85	0.00	0.00	0.00
3,200.00	5.12	335.76	3,193.89	127.99	-57.63	-127.99	0.00	0.00	0.00
3,300.00	5.12	335.76	3,293.49	136.14	-61.30	-136.14	0.00	0.00	0.00
3,400.00	5.12	335.76	3,393.09	144.28	-64.96	-144.28	0.00	0.00	0.00
3,500.00	5.12	335.76	3,492.69	152.42	-68.63	-152.42	0.00	0.00	0.00
3,600.00	5.12	335.76	3,592.29	160.56	-72.29	-160.56	0.00	0.00	0.00
3,700.00	5.12	335.76	3,691.89	168.70	-75.96	-168.70	0.00	0.00	0.00
3,800.00	5.12	335.76	3,791.49	176.85	-79.63	-176.85	0.00	0.00	0.00
3,900.00	5.12	335.76	3,891.10	184.99	-83.29	-184.99	0.00	0.00	0.00
4,000.00	5.12	335.76	3,990.70	193.13	-86.96	-193.13	0.00	0.00	0.00
4,100.00	5.12	335.76	4,090.30	201.27	-90.62	-201.27	0.00	0.00	0.00
4,200.00	5.12	335.76	4,189.90	209.41	-94.29	-209.41	0.00	0.00	0.00
4,300.00	5.12	335.76	4,289.50	217.56	-97.96	-217.56	0.00	0.00	0.00
4,400.00	5.12	335.76	4,389.10	225.70	-101.62	-225.70	0.00	0.00	0.00
4,500.00	5.12	335.76	4,488.70	233.84	-105.29	-233.84	0.00	0.00	0.00
4,600.00	5.12	335.76	4,588.30	241.98	-108.95	-241.98	0.00	0.00	0.00
4,700.00	5.12	335.76	4,687.90	250.12	-112.62	-250.12	0.00	0.00	0.00
4,800.00	5.12	335.76	4,787.50	258.27	-116.29	-258.27	0.00	0.00	0.00
4,900.00	5.12	335.76	4,887.10	266.41	-119.95	-266.41	0.00	0.00	0.00



Planning Report



Database:	1 - EDM Production	Local Co-ordinate Reference:	Well RANA-SALADA-FED-01-231H
Company:	NOVO Oil & Gas	TVD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Project:	EDDY CO., NM (NAD83)	MD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Site:	SEC 02-T23S-R28E	North Reference:	Grid
Well:	RANA-SALADA-FED-01-231H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan 1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
5,000.00	5.12	335.76	4,986.70	274.55	-123.62	-274.55	0.00	0.00	0.00	
5,100.00	5.12	335.76	5,086.30	282.69	-127.28	-282.69	0.00	0.00	0.00	
5,200.00	5.12	335.76	5,185.90	290.83	-130.95	-290.83	0.00	0.00	0.00	
5,300.00	5.12	335.76	5,285.50	298.98	-134.62	-298.98	0.00	0.00	0.00	
5,400.00	5.12	335.76	5,385.10	307.12	-138.28	-307.12	0.00	0.00	0.00	
5,500.00	5.12	335.76	5,484.70	315.26	-141.95	-315.26	0.00	0.00	0.00	
5,600.00	5.12	335.76	5,584.30	323.40	-145.61	-323.40	0.00	0.00	0.00	
5,700.00	5.12	335.76	5,683.91	331.54	-149.28	-331.54	0.00	0.00	0.00	
5,800.00	5.12	335.76	5,783.51	339.69	-152.95	-339.69	0.00	0.00	0.00	
5,900.00	5.12	335.76	5,883.11	347.83	-156.61	-347.83	0.00	0.00	0.00	
6,000.00	5.12	335.76	5,982.71	355.97	-160.28	-355.97	0.00	0.00	0.00	
6,100.00	5.12	335.76	6,082.31	364.11	-163.94	-364.11	0.00	0.00	0.00	
6,200.00	5.12	335.76	6,181.91	372.25	-167.61	-372.25	0.00	0.00	0.00	
6,262.54	5.12	335.76	6,244.20	377.35	-169.90	-377.35	0.00	0.00	0.00	
Start Drop -2.00										
6,300.00	4.37	335.76	6,281.53	380.17	-171.17	-380.17	2.00	-2.00	0.00	
6,400.00	2.37	335.76	6,381.35	385.54	-173.59	-385.54	2.00	-2.00	0.00	
6,500.00	0.37	335.76	6,481.32	387.72	-174.57	-387.72	2.00	-2.00	0.00	
6,518.68	0.00	0.00	6,500.00	387.78	-174.60	-387.78	2.00	-2.00	0.00	
Start 2727.05 hold at 6518.68 MD										
6,600.00	0.00	0.00	6,581.32	387.78	-174.60	-387.78	0.00	0.00	0.00	
6,700.00	0.00	0.00	6,681.32	387.78	-174.60	-387.78	0.00	0.00	0.00	
6,800.00	0.00	0.00	6,781.32	387.78	-174.60	-387.78	0.00	0.00	0.00	
6,900.00	0.00	0.00	6,881.32	387.78	-174.60	-387.78	0.00	0.00	0.00	
7,000.00	0.00	0.00	6,981.32	387.78	-174.60	-387.78	0.00	0.00	0.00	
7,100.00	0.00	0.00	7,081.32	387.78	-174.60	-387.78	0.00	0.00	0.00	
7,200.00	0.00	0.00	7,181.32	387.78	-174.60	-387.78	0.00	0.00	0.00	
7,300.00	0.00	0.00	7,281.32	387.78	-174.60	-387.78	0.00	0.00	0.00	
7,400.00	0.00	0.00	7,381.32	387.78	-174.60	-387.78	0.00	0.00	0.00	
7,500.00	0.00	0.00	7,481.32	387.78	-174.60	-387.78	0.00	0.00	0.00	
7,600.00	0.00	0.00	7,581.32	387.78	-174.60	-387.78	0.00	0.00	0.00	
7,700.00	0.00	0.00	7,681.32	387.78	-174.60	-387.78	0.00	0.00	0.00	
7,800.00	0.00	0.00	7,781.32	387.78	-174.60	-387.78	0.00	0.00	0.00	
7,900.00	0.00	0.00	7,881.32	387.78	-174.60	-387.78	0.00	0.00	0.00	
8,000.00	0.00	0.00	7,981.32	387.78	-174.60	-387.78	0.00	0.00	0.00	
8,100.00	0.00	0.00	8,081.32	387.78	-174.60	-387.78	0.00	0.00	0.00	
8,200.00	0.00	0.00	8,181.32	387.78	-174.60	-387.78	0.00	0.00	0.00	
8,300.00	0.00	0.00	8,281.32	387.78	-174.60	-387.78	0.00	0.00	0.00	
8,400.00	0.00	0.00	8,381.32	387.78	-174.60	-387.78	0.00	0.00	0.00	
8,500.00	0.00	0.00	8,481.32	387.78	-174.60	-387.78	0.00	0.00	0.00	
8,600.00	0.00	0.00	8,581.32	387.78	-174.60	-387.78	0.00	0.00	0.00	
8,700.00	0.00	0.00	8,681.32	387.78	-174.60	-387.78	0.00	0.00	0.00	
8,800.00	0.00	0.00	8,781.32	387.78	-174.60	-387.78	0.00	0.00	0.00	
8,900.00	0.00	0.00	8,881.32	387.78	-174.60	-387.78	0.00	0.00	0.00	
9,000.00	0.00	0.00	8,981.32	387.78	-174.60	-387.78	0.00	0.00	0.00	
9,100.00	0.00	0.00	9,081.32	387.78	-174.60	-387.78	0.00	0.00	0.00	
9,200.00	0.00	0.00	9,181.32	387.78	-174.60	-387.78	0.00	0.00	0.00	
9,245.73	0.00	0.00	9,227.05	387.78	-174.60	-387.78	0.00	0.00	0.00	
Start DLS 10.00 TFO 180.26										
9,250.00	0.43	180.26	9,231.32	387.76	-174.60	-387.76	10.00	10.00	0.00	
9,300.00	5.43	180.26	9,281.24	385.21	-174.61	-385.21	10.00	10.00	0.00	
9,350.00	10.43	180.26	9,330.74	378.32	-174.64	-378.32	10.00	10.00	0.00	
9,400.00	15.43	180.26	9,379.46	367.14	-174.69	-367.14	10.00	10.00	0.00	



Planning Report



Database:	1 - EDM Production	Local Co-ordinate Reference:	Well RANA-SALADA-FED-01-231H
Company:	NOVO Oil & Gas	TVD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Project:	EDDY CO., NM (NAD83)	MD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Site:	SEC 02-T23S-R28E	North Reference:	Grid
Well:	RANA-SALADA-FED-01-231H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan 1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
9,450.00	20.43	180.26	9,427.02	351.75	-174.76	-351.75	10.00	10.00	0.00
9,500.00	25.43	180.26	9,473.05	332.28	-174.85	-332.28	10.00	10.00	0.00
9,550.00	30.43	180.26	9,517.22	308.87	-174.96	-308.87	10.00	10.00	0.00
9,600.00	35.43	180.26	9,559.17	281.70	-175.08	-281.70	10.00	10.00	0.00
9,650.00	40.43	180.26	9,598.60	250.98	-175.23	-250.98	10.00	10.00	0.00
9,700.00	45.43	180.26	9,635.20	216.94	-175.38	-216.94	10.00	10.00	0.00
9,750.00	50.43	180.26	9,668.69	179.84	-175.55	-179.84	10.00	10.00	0.00
9,800.00	55.43	180.26	9,698.82	139.96	-175.73	-139.96	10.00	10.00	0.00
9,850.00	60.43	180.26	9,725.37	97.60	-175.93	-97.60	10.00	10.00	0.00
9,900.00	65.43	180.26	9,748.12	53.09	-176.13	-53.09	10.00	10.00	0.00
9,950.00	70.43	180.26	9,766.90	6.77	-176.34	-6.77	10.00	10.00	0.00
10,000.00	75.43	180.26	9,781.57	-41.01	-176.56	41.01	10.00	10.00	0.00
10,050.00	80.43	180.26	9,792.03	-89.88	-176.78	89.88	10.00	10.00	0.00
10,100.00	85.43	180.26	9,798.18	-139.49	-177.01	139.49	10.00	10.00	0.00
10,148.70	90.30	180.26	9,800.00	-188.14	-177.23	188.14	10.00	10.00	0.00
Start 7522.31 hold at 10148.70 MD									
10,200.00	90.30	180.26	9,799.73	-239.44	-177.47	239.44	0.00	0.00	0.00
10,300.00	90.30	180.26	9,799.22	-339.43	-177.92	339.43	0.00	0.00	0.00
10,400.00	90.30	180.26	9,798.70	-439.43	-178.38	439.43	0.00	0.00	0.00
10,500.00	90.30	180.26	9,798.18	-539.43	-178.84	539.43	0.00	0.00	0.00
10,600.00	90.30	180.26	9,797.66	-639.43	-179.29	639.43	0.00	0.00	0.00
10,700.00	90.30	180.26	9,797.14	-739.43	-179.75	739.43	0.00	0.00	0.00
10,800.00	90.30	180.26	9,796.62	-839.42	-180.21	839.42	0.00	0.00	0.00
10,900.00	90.30	180.26	9,796.11	-939.42	-180.67	939.42	0.00	0.00	0.00
11,000.00	90.30	180.26	9,795.59	-1,039.42	-181.12	1,039.42	0.00	0.00	0.00
11,100.00	90.30	180.26	9,795.07	-1,139.42	-181.58	1,139.42	0.00	0.00	0.00
11,200.00	90.30	180.26	9,794.55	-1,239.41	-182.04	1,239.41	0.00	0.00	0.00
11,300.00	90.30	180.26	9,794.03	-1,339.41	-182.49	1,339.41	0.00	0.00	0.00
11,400.00	90.30	180.26	9,793.51	-1,439.41	-182.95	1,439.41	0.00	0.00	0.00
11,500.00	90.30	180.26	9,792.99	-1,539.41	-183.41	1,539.41	0.00	0.00	0.00
11,600.00	90.30	180.26	9,792.48	-1,639.40	-183.86	1,639.40	0.00	0.00	0.00
11,700.00	90.30	180.26	9,791.96	-1,739.40	-184.32	1,739.40	0.00	0.00	0.00
11,800.00	90.30	180.26	9,791.44	-1,839.40	-184.78	1,839.40	0.00	0.00	0.00
11,900.00	90.30	180.26	9,790.92	-1,939.40	-185.24	1,939.40	0.00	0.00	0.00
12,000.00	90.30	180.26	9,790.40	-2,039.39	-185.69	2,039.39	0.00	0.00	0.00
12,100.00	90.30	180.26	9,789.88	-2,139.39	-186.15	2,139.39	0.00	0.00	0.00
12,200.00	90.30	180.26	9,789.37	-2,239.39	-186.61	2,239.39	0.00	0.00	0.00
12,300.00	90.30	180.26	9,788.85	-2,339.39	-187.06	2,339.39	0.00	0.00	0.00
12,400.00	90.30	180.26	9,788.33	-2,439.38	-187.52	2,439.38	0.00	0.00	0.00
12,500.00	90.30	180.26	9,787.81	-2,539.38	-187.98	2,539.38	0.00	0.00	0.00
12,600.00	90.30	180.26	9,787.29	-2,639.38	-188.43	2,639.38	0.00	0.00	0.00
12,700.00	90.30	180.26	9,786.77	-2,739.38	-188.89	2,739.38	0.00	0.00	0.00
12,800.00	90.30	180.26	9,786.25	-2,839.38	-189.35	2,839.38	0.00	0.00	0.00
12,900.00	90.30	180.26	9,785.74	-2,939.37	-189.81	2,939.37	0.00	0.00	0.00
13,000.00	90.30	180.26	9,785.22	-3,039.37	-190.26	3,039.37	0.00	0.00	0.00
13,100.00	90.30	180.26	9,784.70	-3,139.37	-190.72	3,139.37	0.00	0.00	0.00
13,200.00	90.30	180.26	9,784.18	-3,239.37	-191.18	3,239.37	0.00	0.00	0.00
13,300.00	90.30	180.26	9,783.66	-3,339.36	-191.63	3,339.36	0.00	0.00	0.00
13,400.00	90.30	180.26	9,783.14	-3,439.36	-192.09	3,439.36	0.00	0.00	0.00
13,500.00	90.30	180.26	9,782.63	-3,539.36	-192.55	3,539.36	0.00	0.00	0.00
13,600.00	90.30	180.26	9,782.11	-3,639.36	-193.00	3,639.36	0.00	0.00	0.00
13,700.00	90.30	180.26	9,781.59	-3,739.35	-193.46	3,739.35	0.00	0.00	0.00
13,800.00	90.30	180.26	9,781.07	-3,839.35	-193.92	3,839.35	0.00	0.00	0.00
13,900.00	90.30	180.26	9,780.55	-3,939.35	-194.38	3,939.35	0.00	0.00	0.00



Planning Report



Database:	1 - EDM Production	Local Co-ordinate Reference:	Well RANA-SALADA-FED-01-231H
Company:	NOVO Oil & Gas	TVD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Project:	EDDY CO., NM (NAD83)	MD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Site:	SEC 02-T23S-R28E	North Reference:	Grid
Well:	RANA-SALADA-FED-01-231H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan 1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
14,000.00	90.30	180.26	9,780.03	-4,039.35	-194.83	4,039.35	0.00	0.00	0.00
14,100.00	90.30	180.26	9,779.51	-4,139.34	-195.29	4,139.34	0.00	0.00	0.00
14,200.00	90.30	180.26	9,779.00	-4,239.34	-195.75	4,239.34	0.00	0.00	0.00
14,300.00	90.30	180.26	9,778.48	-4,339.34	-196.20	4,339.34	0.00	0.00	0.00
14,400.00	90.30	180.26	9,777.96	-4,439.34	-196.66	4,439.34	0.00	0.00	0.00
14,500.00	90.30	180.26	9,777.44	-4,539.33	-197.12	4,539.33	0.00	0.00	0.00
14,600.00	90.30	180.26	9,776.92	-4,639.33	-197.58	4,639.33	0.00	0.00	0.00
14,700.00	90.30	180.26	9,776.40	-4,739.33	-198.03	4,739.33	0.00	0.00	0.00
14,800.00	90.30	180.26	9,775.89	-4,839.33	-198.49	4,839.33	0.00	0.00	0.00
14,900.00	90.30	180.26	9,775.37	-4,939.33	-198.95	4,939.33	0.00	0.00	0.00
15,000.00	90.30	180.26	9,774.85	-5,039.32	-199.40	5,039.32	0.00	0.00	0.00
15,100.00	90.30	180.26	9,774.33	-5,139.32	-199.86	5,139.32	0.00	0.00	0.00
15,200.00	90.30	180.26	9,773.81	-5,239.32	-200.32	5,239.32	0.00	0.00	0.00
15,300.00	90.30	180.26	9,773.29	-5,339.32	-200.77	5,339.32	0.00	0.00	0.00
15,400.00	90.30	180.26	9,772.77	-5,439.31	-201.23	5,439.31	0.00	0.00	0.00
15,500.00	90.30	180.26	9,772.26	-5,539.31	-201.69	5,539.31	0.00	0.00	0.00
15,600.00	90.30	180.26	9,771.74	-5,639.31	-202.15	5,639.31	0.00	0.00	0.00
15,700.00	90.30	180.26	9,771.22	-5,739.31	-202.60	5,739.31	0.00	0.00	0.00
15,800.00	90.30	180.26	9,770.70	-5,839.30	-203.06	5,839.30	0.00	0.00	0.00
15,900.00	90.30	180.26	9,770.18	-5,939.30	-203.52	5,939.30	0.00	0.00	0.00
16,000.00	90.30	180.26	9,769.66	-6,039.30	-203.97	6,039.30	0.00	0.00	0.00
16,100.00	90.30	180.26	9,769.15	-6,139.30	-204.43	6,139.30	0.00	0.00	0.00
16,200.00	90.30	180.26	9,768.63	-6,239.29	-204.89	6,239.29	0.00	0.00	0.00
16,300.00	90.30	180.26	9,768.11	-6,339.29	-205.34	6,339.29	0.00	0.00	0.00
16,400.00	90.30	180.26	9,767.59	-6,439.29	-205.80	6,439.29	0.00	0.00	0.00
16,500.00	90.30	180.26	9,767.07	-6,539.29	-206.26	6,539.29	0.00	0.00	0.00
16,600.00	90.30	180.26	9,766.55	-6,639.28	-206.72	6,639.28	0.00	0.00	0.00
16,700.00	90.30	180.26	9,766.03	-6,739.28	-207.17	6,739.28	0.00	0.00	0.00
16,800.00	90.30	180.26	9,765.52	-6,839.28	-207.63	6,839.28	0.00	0.00	0.00
16,900.00	90.30	180.26	9,765.00	-6,939.28	-208.09	6,939.28	0.00	0.00	0.00
17,000.00	90.30	180.26	9,764.48	-7,039.27	-208.54	7,039.27	0.00	0.00	0.00
17,100.00	90.30	180.26	9,763.96	-7,139.27	-209.00	7,139.27	0.00	0.00	0.00
17,200.00	90.30	180.26	9,763.44	-7,239.27	-209.46	7,239.27	0.00	0.00	0.00
17,300.00	90.30	180.26	9,762.92	-7,339.27	-209.91	7,339.27	0.00	0.00	0.00
17,400.00	90.30	180.26	9,762.41	-7,439.27	-210.37	7,439.27	0.00	0.00	0.00
17,500.00	90.30	180.26	9,761.89	-7,539.26	-210.83	7,539.26	0.00	0.00	0.00
17,600.00	90.30	180.26	9,761.37	-7,639.26	-211.29	7,639.26	0.00	0.00	0.00
17,671.01	90.30	180.26	9,761.00	-7,710.27	-211.61	7,710.27	0.00	0.00	0.00
TD at 17671.01									



Planning Report



Database:	1 - EDM Production	Local Co-ordinate Reference:	Well RANA-SALADA-FED-01-231H
Company:	NOVO Oil & Gas	TVD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Project:	EDDY CO., NM (NAD83)	MD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Site:	SEC 02-T23S-R28E	North Reference:	Grid
Well:	RANA-SALADA-FED-01-231H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan 1		

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
RS 231H LTP (2310' FN - plan misses target center by 2.14usft at 17471.00usft MD (9762.04 TVD, -7510.26 N, -210.70 E) - Point	0.00	0.00	9,760.00	-7,510.25	-210.04	480,620.23	629,371.31	32.32097560	-104.04834560
RS 231H PBHL (2510' F - plan hits target center - Point	0.00	0.00	9,761.00	-7,710.27	-211.61	480,420.21	629,369.74	32.32042580	-104.04835240
RS 231H FTP (330' FNL - plan hits target center - Point	0.00	0.00	9,800.00	-187.69	-177.23	487,942.79	629,404.12	32.34110380	-104.04817630

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
17,671.01	9,761.00	20" Casing	20	24	

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
1,500.00	1,500.00	0.00	0.00	Start Build 2.00	
1,756.15	1,755.80	10.43	-4.70	Start 4506.39 hold at 1756.15 MD	
6,262.54	6,244.20	377.35	-169.90	Start Drop -2.00	
6,518.68	6,500.00	387.78	-174.60	Start 2727.05 hold at 6518.68 MD	
9,245.73	9,227.05	387.78	-174.60	Start DLS 10.00 TFO 180.26	
10,148.70	9,800.00	-188.14	-177.23	Start 7522.31 hold at 10148.70 MD	
17,671.01	9,761.00	-7,710.27	-211.61	TD at 17671.01	



NOVO Oil & Gas

EDDY CO., NM (NAD83)

SEC 02-T23S-R28E

RANA-SALADA-FED-01-231H

Wellbore #1

Plan 1

Anticollision Report

04 November, 2022





Anticollision Report



Company:	NOVO Oil & Gas	Local Co-ordinate Reference:	Well RANA-SALADA-FED-01-231H
Project:	EDDY CO., NM (NAD83)	TVD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Reference Site:	SEC 02-T23S-R28E	MD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	RANA-SALADA-FED-01-231H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	1 - EDM Production
Reference Design:	Plan 1	Offset TVD Reference:	Offset Datum

Reference	Plan 1
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria
Interpolation Method:	MD Interval 100.00usft
Depth Range:	Unlimited
Results Limited by:	Maximum centre distance of 2,199.98usft
Warning Levels Evaluated at:	2.00 Sigma
Error Model:	ISCWSA
Scan Method:	Closest Approach 3D
Error Surface:	Pedal Curve
Casing Method:	Not applied

Survey Tool Program		Date	11/4/2022		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	17,670.98	Plan 1 (Wellbore #1)	MWD+HRGM	OWSG MWD + HRGM	

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
SEC 02-T23S-R28E						
Offset-001 Lentini `1` Fed (P/A) - Wellbore #1 - Wellbore	1,500.00	1,482.90	410.26	403.90	64.423	CC, ES
Offset-001 Lentini `1` Fed (P/A) - Wellbore #1 - Wellbore	6,500.00	6,400.00	829.26	800.48	28.813	SF
Offset-Longview Fed 1-21H - Wellbore #1 - Wellbore #1	7,922.62	7,945.00	1,341.15	1,299.28	32.030	CC, ES
Offset-Longview Fed 1-21H - Wellbore #1 - Wellbore #1	16,500.00	13,690.00	1,427.64	1,323.78	13.746	SF
Offset-Longview Federal 12-13H - Wellbore #1 - Wellbore	7,455.97	13,517.00	600.80	539.71	9.835	CC, ES, SF
Rana Salada Fed Com 0106 133H - Wellbore #1 - FINAL	14,803.83	9,980.91	711.47	599.43	6.350	CC, ES
Rana Salada Fed Com 0106 133H - Wellbore #1 - FINAL	14,900.00	9,985.02	717.93	604.32	6.319	SF
Rana Salada Fed Com 0106 213H - Wellbore #1 - FINAL	12,871.40	9,802.67	698.64	632.46	10.557	CC, ES
Rana Salada Fed Com 0106 213H - Wellbore #1 - FINAL	13,000.00	9,804.93	710.38	642.36	10.444	SF
Rana Salada Fed Com 0106 223H - Wellbore #1 - FINAL	13,923.76	9,876.28	720.14	631.97	8.167	CC, ES
Rana Salada Fed Com 0106 223H - Wellbore #1 - FINAL	14,000.00	9,879.62	724.16	634.53	8.080	SF
Rana Salada Fed Com 0106 233H - Wellbore #1 - FINAL	11,411.72	9,954.95	706.74	647.80	11.991	CC, ES
Rana Salada Fed Com 0106 233H - Wellbore #1 - FINAL	11,500.00	9,957.07	712.23	652.33	11.891	SF
Rana Salada Fed Com 0106 236H - Wellbore #1 - FINAL	10,493.76	10,140.24	654.94	592.48	10.487	CC
Rana Salada Fed Com 0106 236H - Wellbore #1 - FINAL	10,500.00	10,139.91	654.96	592.44	10.476	ES
Rana Salada Fed Com 0106 236H - Wellbore #1 - FINAL	10,600.00	10,134.56	663.47	600.11	10.472	SF
RANA-SALADA-FED-01-131H - Wellbore #1 - Plan 1	1,500.00	1,500.00	20.00	10.59	2.126	CC, ES, SF
RANA-SALADA-FED-01-211H - Wellbore #1 - Plan 1	1,500.00	1,500.00	40.00	30.12	4.048	CC, ES, SF
Sec 14-T23S-28E						
CB Boba Fett 14 11 Fed 09 403H Package 9 - Wellbore #	9,900.00	23,167.72	641.94	415.27	2.832	SF
CB Boba Fett 14 11 Fed 09 403H Package 9 - Wellbore #	17,671.01	15,404.56	606.48	392.43	2.833	CC, ES
Valkyrie Pad (Grid)						
Valkyrie 12 WXY Federal Com 11H - Wellbore #1 - Final S	17,671.01	9,706.00	1,781.51	1,730.75	35.101	CC, ES, SF
Valkyrie 12 WXY Federal Com 7H - Wellbore #1 - Final S	17,671.01	9,685.23	500.46	441.40	8.474	CC, ES, SF

Offset Design: SEC 02-T23S-R28E - Offset-001 Lentini `1` Fed (P/A) - Wellbore #1 - Wellbore #1													Offset Site Error: 0.00 usft	
Survey Program: 6400-MWD				Rule Assigned:									Offset Well Error: 0.00 usft	
Reference		Offset		Semi Major Axis		Offset Wellbore Centre			Distance		Rule Assigned:		Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.50	0.00	172.32	-406.59	54.79	410.62					
100.00	100.00	82.90	82.90	0.66	0.09	172.32	-406.59	54.79	410.26	409.51	0.75	545.869		
200.00	200.00	182.90	182.90	1.35	0.21	172.32	-406.59	54.79	410.26	408.71	1.55	264.044		

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



Anticollision Report



Company:	NOVO Oil & Gas	Local Co-ordinate Reference:	Well RANA-SALADA-FED-01-231H
Project:	EDDY CO., NM (NAD83)	TVD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Reference Site:	SEC 02-T23S-R28E	MD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	RANA-SALADA-FED-01-231H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	1 - EDM Production
Reference Design:	Plan 1	Offset TVD Reference:	Offset Datum

Offset Design: SEC 02-T23S-R28E - Offset-001 Lentini `1` Fed (P/A) - Wellbore #1 - Wellbore #1												Offset Site Error:	0.00 usft
Survey Program: 6400-MWD												Offset Well Error:	0.00 usft
Rule Assigned:												Warning	
Measured Depth (usft)	Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
300.00	300.00	282.90	282.90	1.82	0.32	172.32	-406.59	54.79	410.26	408.13	2.13	192.214	
400.00	400.00	382.90	382.90	2.19	0.43	172.32	-406.59	54.79	410.26	407.64	2.62	156.592	
500.00	500.00	482.90	482.90	2.51	0.54	172.32	-406.59	54.79	410.26	407.21	3.05	134.372	
600.00	600.00	582.90	582.90	2.80	0.65	172.32	-406.59	54.79	410.26	406.81	3.45	118.842	
700.00	700.00	682.90	682.90	3.06	0.77	172.32	-406.59	54.79	410.26	406.44	3.83	107.215	
800.00	800.00	782.90	782.90	3.30	0.88	172.32	-406.59	54.79	410.26	406.08	4.18	98.097	
900.00	900.00	882.90	882.90	3.53	0.99	172.32	-406.59	54.79	410.26	405.74	4.52	90.706	
1,000.00	1,000.00	982.90	982.90	3.75	1.10	172.32	-406.59	54.79	410.26	405.41	4.85	84.562	
1,100.00	1,100.00	1,082.90	1,082.90	3.96	1.21	172.32	-406.59	54.79	410.26	405.09	5.17	79.353	
1,200.00	1,200.00	1,182.90	1,182.90	4.15	1.33	172.32	-406.59	54.79	410.26	404.78	5.48	74.866	
1,300.00	1,300.00	1,282.90	1,282.90	4.34	1.44	172.32	-406.59	54.79	410.26	404.48	5.78	70.951	
1,400.00	1,400.00	1,382.90	1,382.90	4.53	1.55	172.32	-406.59	54.79	410.26	404.19	6.08	67.498	
1,500.00	1,500.00	1,482.90	1,482.90	4.70	1.66	172.32	-406.59	54.79	410.26	403.90	6.37	64.423 CC, ES	
1,600.00	1,599.98	1,582.88	1,582.88	5.05	1.78	-163.50	-406.59	54.79	411.94	405.12	6.82	60.398	
1,700.00	1,699.84	1,682.74	1,682.74	5.70	1.89	-163.67	-406.59	54.79	416.96	409.42	7.54	55.285	
1,800.00	1,799.48	1,782.38	1,782.38	5.91	2.00	-163.96	-406.59	54.79	425.01	417.15	7.86	54.086	
1,900.00	1,899.08	1,881.98	1,881.98	6.10	2.11	-164.29	-406.59	54.79	433.60	425.44	8.16	53.139	
2,000.00	1,998.68	1,981.58	1,981.58	6.32	2.22	-164.60	-406.59	54.79	442.20	433.71	8.49	52.070	
2,100.00	2,098.29	2,081.19	2,081.19	6.56	2.33	-164.91	-406.59	54.79	450.82	441.98	8.84	50.997	
2,200.00	2,197.89	2,180.79	2,180.79	6.81	2.45	-165.20	-406.59	54.79	459.45	450.25	9.20	49.933	
2,300.00	2,297.49	2,280.39	2,280.39	7.08	2.56	-165.47	-406.59	54.79	468.09	458.52	9.57	48.889	
2,400.00	2,397.09	2,379.99	2,379.99	7.35	2.67	-165.74	-406.59	54.79	476.74	466.78	9.96	47.872	
2,500.00	2,496.69	2,479.59	2,479.59	7.64	2.78	-166.00	-406.59	54.79	485.40	475.05	10.35	46.887	
2,600.00	2,596.29	2,579.19	2,579.19	7.93	2.89	-166.25	-406.59	54.79	494.08	483.32	10.76	45.938	
2,700.00	2,695.89	2,678.79	2,678.79	8.23	3.00	-166.50	-406.59	54.79	502.76	491.59	11.17	45.026	
2,800.00	2,795.49	2,778.39	2,778.39	8.54	3.12	-166.73	-406.59	54.79	511.44	499.86	11.58	44.152	
2,900.00	2,895.09	2,877.99	2,877.99	8.86	3.23	-166.95	-406.59	54.79	520.14	508.13	12.01	43.316	
3,000.00	2,994.69	2,977.59	2,977.59	9.18	3.34	-167.17	-406.59	54.79	528.84	516.41	12.44	42.519	
3,100.00	3,094.29	3,077.19	3,077.19	9.51	3.45	-167.38	-406.59	54.79	537.56	524.68	12.87	41.758	
3,200.00	3,193.89	3,176.79	3,176.79	9.84	3.56	-167.59	-406.59	54.79	546.28	532.96	13.31	41.033	
3,300.00	3,293.49	3,276.39	3,276.39	10.18	3.68	-167.79	-406.59	54.79	555.00	541.24	13.76	40.342	
3,400.00	3,393.09	3,375.99	3,375.99	10.52	3.79	-167.98	-406.59	54.79	563.73	549.53	14.21	39.683	
3,500.00	3,492.69	3,475.59	3,475.59	10.86	3.90	-168.16	-406.59	54.79	572.47	557.81	14.66	39.056	
3,600.00	3,592.29	3,575.19	3,575.19	11.21	4.01	-168.35	-406.59	54.79	581.21	566.10	15.11	38.459	
3,700.00	3,691.89	3,674.79	3,674.79	11.55	4.12	-168.52	-406.59	54.79	589.96	574.39	15.57	37.889	
3,800.00	3,791.49	3,774.39	3,774.39	11.91	4.23	-168.69	-406.59	54.79	598.72	582.69	16.03	37.347	
3,900.00	3,891.10	3,874.00	3,874.00	12.26	4.35	-168.86	-406.59	54.79	607.48	590.98	16.49	36.829	
4,000.00	3,990.70	3,973.60	3,973.60	12.62	4.46	-169.02	-406.59	54.79	616.24	599.28	16.96	36.334	
4,100.00	4,090.30	4,073.20	4,073.20	12.97	4.57	-169.17	-406.59	54.79	625.01	607.58	17.43	35.863	
4,200.00	4,189.90	4,172.80	4,172.80	13.33	4.68	-169.32	-406.59	54.79	633.79	615.89	17.90	35.412	
4,300.00	4,289.50	4,272.40	4,272.40	13.70	4.79	-169.47	-406.59	54.79	642.56	624.19	18.37	34.981	
4,400.00	4,389.10	4,372.00	4,372.00	14.06	4.90	-169.61	-406.59	54.79	651.35	632.50	18.84	34.568	
4,500.00	4,488.70	4,471.60	4,471.60	14.42	5.02	-169.75	-406.59	54.79	660.13	640.82	19.32	34.174	
4,600.00	4,588.30	4,571.20	4,571.20	14.79	5.13	-169.89	-406.59	54.79	668.92	649.13	19.79	33.796	
4,700.00	4,687.90	4,670.80	4,670.80	15.16	5.24	-170.02	-406.59	54.79	677.72	657.44	20.27	33.434	
4,800.00	4,787.50	4,770.40	4,770.40	15.52	5.35	-170.15	-406.59	54.79	686.51	665.76	20.75	33.086	
4,900.00	4,887.10	4,870.00	4,870.00	15.89	5.46	-170.28	-406.59	54.79	695.31	674.08	21.23	32.753	
5,000.00	4,986.70	4,969.60	4,969.60	16.26	5.57	-170.40	-406.59	54.79	704.12	682.41	21.71	32.433	
5,100.00	5,086.30	5,069.20	5,069.20	16.63	5.69	-170.52	-406.59	54.79	712.92	690.73	22.19	32.125	
5,200.00	5,185.90	5,168.80	5,168.80	17.01	5.80	-170.64	-406.59	54.79	721.73	699.06	22.67	31.830	
5,300.00	5,285.50	5,268.40	5,268.40	17.38	5.91	-170.75	-406.59	54.79	730.55	707.39	23.16	31.545	
5,400.00	5,385.10	5,368.00	5,368.00	17.75	6.02	-170.86	-406.59	54.79	739.36	715.72	23.64	31.271	

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



Anticollision Report



Company:	NOVO Oil & Gas	Local Co-ordinate Reference:	Well RANA-SALADA-FED-01-231H
Project:	EDDY CO., NM (NAD83)	TVD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Reference Site:	SEC 02-T23S-R28E	MD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	RANA-SALADA-FED-01-231H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	1 - EDM Production
Reference Design:	Plan 1	Offset TVD Reference:	Offset Datum

Offset Design: SEC 02-T23S-R28E - Offset-001 Lentini `1` Fed (P/A) - Wellbore #1 - Wellbore #1											Offset Site Error:	0.00 usft
Survey Program: 6400-MWD											Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Offset Wellbore Centre		Distance		Rule Assigned:	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor
5,500.00	5,484.70	5,467.60	5,467.60	18.13	6.13	-170.97	-406.59	54.79	748.18	724.05	24.13	31.008
5,600.00	5,584.30	5,567.20	5,567.20	18.50	6.24	-171.08	-406.59	54.79	757.00	732.38	24.61	30.754
5,700.00	5,683.91	5,666.81	5,666.81	18.88	6.36	-171.18	-406.59	54.79	765.82	740.72	25.10	30.509
5,800.00	5,783.51	5,766.41	5,766.41	19.25	6.47	-171.28	-406.59	54.79	774.65	749.06	25.59	30.272
5,900.00	5,883.11	5,866.01	5,866.01	19.63	6.58	-171.38	-406.59	54.79	783.48	757.40	26.08	30.044
6,000.00	5,982.71	5,965.61	5,965.61	20.01	6.69	-171.48	-406.59	54.79	792.31	765.74	26.57	29.824
6,100.00	6,082.31	6,065.21	6,065.21	20.39	6.80	-171.57	-406.59	54.79	801.14	774.08	27.06	29.611
6,200.00	6,181.91	6,164.81	6,164.81	20.76	6.92	-171.66	-406.59	54.79	809.97	782.43	27.55	29.405
6,300.00	6,281.53	6,264.43	6,264.43	21.12	7.03	-171.76	-406.59	54.79	818.57	790.55	28.02	29.218
6,400.00	6,381.35	6,364.25	6,364.25	21.52	7.14	-171.84	-406.59	54.79	824.39	795.87	28.52	28.904
6,500.00	6,481.32	6,400.00	6,400.00	21.91	7.18	-171.86	-406.59	54.79	829.26	800.48	28.78	28.813 SF
6,600.00	6,581.32	6,400.00	6,400.00	21.96	7.18	163.89	-406.59	54.79	842.98	814.60	28.38	29.703
6,700.00	6,681.32	6,400.00	6,400.00	22.01	7.18	163.89	-406.59	54.79	868.02	840.23	27.78	31.243
6,800.00	6,781.32	6,400.00	6,400.00	22.06	7.18	163.89	-406.59	54.79	903.49	876.43	27.06	33.384
6,900.00	6,881.32	6,400.00	6,400.00	22.12	7.18	163.89	-406.59	54.79	948.23	921.94	26.29	36.066
7,000.00	6,981.32	6,400.00	6,400.00	22.17	7.18	163.89	-406.59	54.79	1,000.99	975.47	25.53	39.215
7,100.00	7,081.32	6,400.00	6,400.00	22.22	7.18	163.89	-406.59	54.79	1,060.58	1,035.77	24.81	42.750
7,200.00	7,181.32	6,400.00	6,400.00	22.27	7.18	163.89	-406.59	54.79	1,125.91	1,101.74	24.17	46.591
7,300.00	7,281.32	6,400.00	6,400.00	22.33	7.18	163.89	-406.59	54.79	1,196.04	1,172.43	23.61	50.656
7,400.00	7,381.32	6,400.00	6,400.00	22.38	7.18	163.89	-406.59	54.79	1,270.18	1,247.03	23.15	54.876
7,500.00	7,481.32	6,400.00	6,400.00	22.43	7.18	163.89	-406.59	54.79	1,347.66	1,324.89	22.77	59.185
7,600.00	7,581.32	6,400.00	6,400.00	22.49	7.18	163.89	-406.59	54.79	1,427.95	1,405.47	22.48	63.531
7,700.00	7,681.32	6,400.00	6,400.00	22.54	7.18	163.89	-406.59	54.79	1,510.59	1,488.33	22.26	67.871
7,800.00	7,781.32	6,400.00	6,400.00	22.59	7.18	163.89	-406.59	54.79	1,595.22	1,573.12	22.10	72.171
7,900.00	7,881.32	6,400.00	6,400.00	22.65	7.18	163.89	-406.59	54.79	1,681.54	1,659.53	22.01	76.406
8,000.00	7,981.32	6,400.00	6,400.00	22.70	7.18	163.89	-406.59	54.79	1,769.30	1,747.33	21.96	80.557
8,100.00	8,081.32	6,400.00	6,400.00	22.75	7.18	163.89	-406.59	54.79	1,858.29	1,836.33	21.96	84.611
8,200.00	8,181.32	6,400.00	6,400.00	22.81	7.18	163.89	-406.59	54.79	1,948.36	1,926.36	22.00	88.560
8,300.00	8,281.32	6,400.00	6,400.00	22.86	7.18	163.89	-406.59	54.79	2,039.35	2,017.28	22.07	92.399
8,400.00	8,381.32	6,400.00	6,400.00	22.92	7.18	163.89	-406.59	54.79	2,131.15	2,108.98	22.17	96.126

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



Anticollision Report



Company:	NOVO Oil & Gas	Local Co-ordinate Reference:	Well RANA-SALADA-FED-01-231H
Project:	EDDY CO., NM (NAD83)	TVD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Reference Site:	SEC 02-T23S-R28E	MD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	RANA-SALADA-FED-01-231H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	1 - EDM Production
Reference Design:	Plan 1	Offset TVD Reference:	Offset Datum

Offset Design: SEC 02-T23S-R28E - Offset-Longview Fed 1-21H - Wellbore #1 - Wellbore #1													Offset Site Error: 0.00 usft
Survey Program: 2-MWD													Offset Well Error: 0.00 usft
Rule Assigned:													Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
0.00	0.00	0.00	0.00	0.50	0.00	140.58	-1,116.69	917.85	1,445.92				
100.00	100.00	70.70	70.70	0.66	0.16	140.58	-1,116.53	917.81	1,445.36	1,444.54	0.82	1,772.397	
200.00	200.00	181.33	181.33	1.35	0.41	140.56	-1,115.64	917.59	1,444.60	1,442.85	1.75	823.404	
300.00	300.00	279.34	279.32	1.82	0.61	140.54	-1,114.45	917.26	1,443.46	1,441.04	2.42	595.667	
400.00	400.00	383.74	383.72	2.19	0.82	140.52	-1,113.25	916.93	1,442.38	1,439.37	3.01	479.306	
500.00	500.00	482.62	482.59	2.51	1.03	140.51	-1,111.96	916.46	1,441.07	1,437.53	3.54	407.519	
600.00	600.00	573.61	573.58	2.80	1.21	140.50	-1,111.27	915.93	1,440.11	1,436.10	4.01	359.409	
700.00	700.00	670.41	670.38	3.06	1.41	140.52	-1,111.20	915.39	1,439.69	1,435.23	4.47	322.228	
800.00	800.00	770.73	770.69	3.30	1.62	140.56	-1,111.57	914.32	1,439.31	1,434.38	4.92	292.285	
900.00	900.00	868.62	868.56	3.53	1.83	140.63	-1,112.38	912.79	1,438.95	1,433.59	5.36	268.257	
1,000.00	1,000.00	970.62	970.53	3.75	2.06	140.73	-1,113.71	910.74	1,438.69	1,432.88	5.80	247.910	
1,100.00	1,100.00	1,073.89	1,073.75	3.96	2.29	140.86	-1,115.51	907.69	1,438.17	1,431.93	6.24	230.516	
1,200.00	1,200.00	1,176.26	1,176.02	4.15	2.52	141.04	-1,117.67	903.89	1,437.47	1,430.81	6.67	215.577	
1,300.00	1,300.00	1,275.83	1,275.48	4.34	2.73	141.22	-1,119.94	899.84	1,436.70	1,429.62	7.07	203.095	
1,400.00	1,400.00	1,374.90	1,374.44	4.53	2.95	141.40	-1,122.26	895.84	1,436.00	1,428.53	7.47	192.227	
1,500.00	1,500.00	1,475.16	1,474.58	4.70	3.17	141.59	-1,124.75	891.65	1,435.34	1,427.47	7.88	182.260	
1,520.06	1,520.06	1,495.34	1,494.74	4.77	3.22	165.87	-1,125.25	890.80	1,435.27	1,427.29	7.98	179.875	
1,600.00	1,599.98	1,572.84	1,572.15	5.05	3.39	166.03	-1,127.18	887.60	1,436.42	1,428.00	8.42	170.538	
1,700.00	1,699.84	1,670.62	1,669.84	5.70	3.59	166.23	-1,129.52	883.96	1,441.08	1,431.84	9.25	155.872	
1,800.00	1,799.48	1,767.97	1,767.11	5.91	3.79	166.44	-1,131.61	880.83	1,448.95	1,439.30	9.65	150.147	
1,900.00	1,899.08	1,857.74	1,856.83	6.10	3.98	166.63	-1,133.53	878.43	1,457.71	1,447.68	10.02	145.410	
2,000.00	1,998.68	1,940.12	1,939.18	6.32	4.15	166.78	-1,135.39	877.37	1,467.41	1,456.99	10.41	140.915	
2,100.00	2,098.29	2,021.38	2,020.41	6.56	4.31	166.87	-1,137.43	877.85	1,478.44	1,467.63	10.81	136.753	
2,200.00	2,197.89	2,111.95	2,110.93	6.81	4.50	166.95	-1,139.76	879.60	1,490.34	1,479.09	11.24	132.586	
2,300.00	2,297.49	2,200.00	2,198.93	7.08	4.68	167.00	-1,142.09	881.72	1,502.62	1,490.94	11.68	128.678	
2,400.00	2,397.09	2,291.14	2,289.98	7.35	4.87	167.06	-1,144.87	884.40	1,515.52	1,503.39	12.13	124.903	
2,500.00	2,496.69	2,383.11	2,381.83	7.64	5.06	167.09	-1,148.03	887.87	1,529.21	1,516.61	12.60	121.375	
2,600.00	2,596.29	2,477.29	2,475.87	7.93	5.26	167.12	-1,151.35	891.88	1,543.26	1,530.19	13.08	118.001	
2,700.00	2,695.89	2,582.36	2,580.78	8.23	5.48	167.14	-1,155.04	896.42	1,557.35	1,543.76	13.59	114.585	
2,800.00	2,795.49	2,698.87	2,697.15	8.54	5.71	167.16	-1,158.27	901.08	1,570.66	1,556.52	14.14	111.118	
2,900.00	2,895.09	2,810.54	2,808.73	8.86	5.94	167.18	-1,160.43	904.94	1,582.97	1,568.30	14.67	107.872	
3,000.00	2,994.69	2,918.81	2,916.95	9.18	6.16	167.21	-1,162.20	907.87	1,594.60	1,579.38	15.21	104.811	
3,100.00	3,094.29	3,025.50	3,023.59	9.51	6.39	167.25	-1,163.66	910.36	1,605.80	1,590.05	15.76	101.919	
3,200.00	3,193.89	3,135.00	3,133.07	9.84	6.61	167.28	-1,164.49	912.53	1,616.29	1,599.98	16.31	99.098	
3,300.00	3,293.49	3,237.19	3,235.25	10.18	6.83	167.32	-1,165.32	914.12	1,626.58	1,609.72	16.85	96.519	
3,400.00	3,393.09	3,339.58	3,337.62	10.52	7.04	167.37	-1,165.83	915.51	1,636.49	1,619.09	17.40	94.055	
3,500.00	3,492.69	3,438.90	3,436.94	10.86	7.25	167.41	-1,166.54	916.84	1,646.58	1,628.64	17.94	91.771	
3,600.00	3,592.29	3,544.80	3,542.83	11.21	7.47	167.47	-1,167.07	917.84	1,656.26	1,637.75	18.50	89.504	
3,700.00	3,691.89	3,643.15	3,641.18	11.55	7.67	167.51	-1,167.42	918.86	1,665.87	1,646.82	19.05	87.444	
3,800.00	3,791.49	3,742.24	3,740.25	11.91	7.88	167.56	-1,167.83	919.92	1,675.56	1,655.95	19.60	85.481	
3,900.00	3,891.10	3,846.00	3,844.01	12.26	8.10	167.62	-1,168.41	920.68	1,685.17	1,665.00	20.17	83.555	
4,000.00	3,990.70	3,953.59	3,951.60	12.62	8.32	167.68	-1,168.71	921.11	1,694.35	1,673.61	20.75	81.666	
4,100.00	4,090.30	4,060.32	4,058.32	12.97	8.55	167.76	-1,168.95	920.84	1,703.10	1,681.78	21.33	79.850	
4,200.00	4,189.90	4,183.28	4,181.28	13.33	8.81	167.87	-1,168.88	919.67	1,711.29	1,689.34	21.95	77.954	
4,300.00	4,289.50	4,358.51	4,356.35	13.70	9.17	168.09	-1,165.76	913.27	1,716.55	1,693.86	22.69	75.663	
4,400.00	4,389.10	4,673.61	4,668.42	14.06	9.84	168.75	-1,142.37	879.14	1,712.41	1,688.87	23.55	72.728	
4,500.00	4,488.70	4,797.49	4,789.51	14.42	10.13	169.20	-1,129.61	856.28	1,701.89	1,677.74	24.16	70.456	
4,600.00	4,588.30	4,904.01	4,893.41	14.79	10.39	169.60	-1,118.08	835.86	1,690.61	1,665.85	24.76	68.285	
4,700.00	4,687.90	5,001.47	4,988.45	15.16	10.64	169.97	-1,107.27	817.18	1,679.20	1,653.84	25.36	66.227	
4,800.00	4,787.50	5,077.00	5,062.17	15.52	10.84	170.25	-1,098.93	803.03	1,668.26	1,642.32	25.94	64.311	
4,900.00	4,887.10	5,135.61	5,119.57	15.89	10.99	170.48	-1,093.45	792.55	1,659.36	1,632.84	26.51	62.586	
5,000.00	4,986.70	5,206.23	5,189.04	16.26	11.17	170.77	-1,089.03	780.66	1,653.31	1,626.22	27.09	61.021	

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



Anticollision Report



Company:	NOVO Oil & Gas	Local Co-ordinate Reference:	Well RANA-SALADA-FED-01-231H
Project:	EDDY CO., NM (NAD83)	TVD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Reference Site:	SEC 02-T23S-R28E	MD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	RANA-SALADA-FED-01-231H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	1 - EDM Production
Reference Design:	Plan 1	Offset TVD Reference:	Offset Datum

Offset Design: SEC 02-T23S-R28E - Offset-Longview Fed 1-21H - Wellbore #1 - Wellbore #1													Offset Site Error: 0.00 usft
Survey Program: 2-MWD													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
5,100.00	5,086.30	5,338.82	5,319.30	16.63	11.55	171.34	-1,080.23	757.52	1,646.91	1,619.15	27.76	59.321	
5,200.00	5,185.90	5,439.07	5,417.51	17.01	11.84	171.79	-1,072.75	738.85	1,639.22	1,610.82	28.40	57.726	
5,300.00	5,285.50	5,540.46	5,516.89	17.38	12.14	172.25	-1,065.15	720.23	1,631.75	1,602.72	29.03	56.201	
5,400.00	5,385.10	5,645.84	5,620.12	17.75	12.47	172.73	-1,056.99	700.69	1,624.07	1,594.39	29.69	54.705	
5,500.00	5,484.70	5,750.70	5,722.76	18.13	12.80	173.21	-1,048.50	680.98	1,616.06	1,585.71	30.35	53.251	
5,600.00	5,584.30	5,844.01	5,814.15	18.50	13.10	173.63	-1,040.79	663.78	1,608.20	1,577.21	30.99	51.892	
5,700.00	5,683.91	5,951.84	5,919.80	18.88	13.45	174.11	-1,031.83	644.17	1,600.55	1,568.90	31.66	50.560	
5,800.00	5,783.51	6,079.27	6,044.19	19.25	13.89	174.71	-1,019.75	619.29	1,591.20	1,558.84	32.35	49.180	
5,900.00	5,883.11	6,175.24	6,137.77	19.63	14.22	175.17	-1,010.16	600.32	1,581.47	1,548.45	33.02	47.893	
6,000.00	5,982.71	6,266.51	6,226.80	20.01	14.54	175.62	-1,001.54	582.15	1,572.25	1,538.57	33.68	46.678	
6,100.00	6,082.31	6,347.07	6,305.51	20.39	14.81	176.01	-994.23	566.60	1,563.81	1,529.48	34.33	45.549	
6,200.00	6,181.91	6,422.27	6,379.20	20.76	15.06	176.37	-988.34	552.85	1,557.01	1,522.04	34.97	44.525	
6,300.00	6,281.53	6,506.34	6,461.86	21.12	15.33	176.74	-982.16	538.83	1,551.28	1,515.69	35.59	43.585	
6,400.00	6,381.35	6,606.91	6,560.83	21.52	15.66	177.16	-975.15	522.39	1,543.34	1,507.06	36.28	42.541	
6,500.00	6,481.32	6,715.43	6,667.42	21.91	16.03	177.65	-967.20	503.61	1,531.24	1,494.26	36.98	41.408	
6,600.00	6,581.32	6,804.36	6,754.86	21.96	16.33	153.81	-960.88	488.65	1,517.34	1,480.02	37.32	40.659	
6,700.00	6,681.32	6,913.96	6,862.41	22.01	16.71	154.37	-953.55	468.95	1,503.35	1,465.65	37.70	39.881	
6,800.00	6,781.32	7,012.08	6,958.46	22.06	17.06	154.92	-946.83	450.04	1,488.76	1,450.69	38.07	39.106	
6,900.00	6,881.32	7,103.82	7,048.39	22.12	17.39	155.43	-940.95	432.92	1,474.95	1,436.52	38.43	38.382	
7,000.00	6,981.32	7,227.80	7,169.96	22.17	17.83	156.10	-931.92	410.34	1,460.76	1,421.92	38.84	37.613	
7,100.00	7,081.32	7,322.95	7,263.10	22.22	18.18	156.61	-923.80	392.61	1,445.34	1,406.13	39.20	36.867	
7,200.00	7,181.32	7,418.21	7,356.47	22.27	18.52	157.12	-915.95	375.50	1,430.57	1,391.01	39.57	36.157	
7,300.00	7,281.32	7,522.31	7,458.60	22.33	18.90	157.66	-906.89	357.47	1,415.76	1,375.82	39.94	35.448	
7,400.00	7,381.32	7,614.34	7,548.93	22.38	19.23	158.12	-898.63	341.88	1,400.96	1,360.67	40.29	34.768	
7,500.00	7,481.32	7,740.40	7,672.68	22.43	19.68	158.73	-886.23	321.37	1,385.78	1,345.09	40.69	34.061	
7,600.00	7,581.32	7,833.55	7,763.79	22.49	20.03	159.28	-878.16	304.14	1,370.82	1,329.75	41.07	33.382	
7,700.00	7,681.32	7,882.00	7,809.93	22.54	20.26	159.82	-875.50	289.70	1,355.82	1,314.39	41.43	32.727	
7,800.00	7,781.32	7,913.00	7,838.98	22.59	20.42	160.26	-875.72	278.91	1,345.62	1,303.93	41.69	32.275	
7,900.00	7,881.32	7,945.00	7,868.84	22.65	20.58	160.74	-878.33	267.72	1,341.34	1,299.46	41.89	32.023	
7,922.62	7,903.94	7,945.00	7,868.84	22.66	20.58	160.74	-878.33	267.72	1,341.15	1,299.28	41.87	32.030 CC, ES	
8,000.00	7,981.32	7,976.00	7,897.68	22.70	20.71	161.23	-882.91	257.33	1,342.97	1,300.98	42.00	31.979	
8,100.00	8,081.32	7,992.01	7,912.56	22.75	20.78	161.47	-885.93	252.26	1,349.97	1,308.08	41.89	32.225	
8,200.00	8,181.32	8,008.00	7,927.42	22.81	20.84	161.71	-889.35	247.44	1,362.73	1,321.05	41.68	32.692	
8,300.00	8,281.32	8,039.00	7,956.17	22.86	20.95	162.16	-897.22	238.96	1,380.72	1,339.18	41.54	33.240	
8,400.00	8,381.32	8,071.00	7,985.74	22.92	21.04	162.58	-907.07	231.74	1,404.17	1,362.83	41.34	33.966	
8,500.00	8,481.32	8,102.00	8,014.16	22.97	21.11	162.94	-918.03	226.01	1,432.59	1,391.50	41.09	34.868	
8,600.00	8,581.32	8,134.00	8,043.19	23.03	21.17	163.30	-930.47	220.84	1,465.33	1,424.52	40.81	35.905	
8,700.00	8,681.32	8,165.00	8,070.93	23.08	21.22	163.63	-943.55	216.38	1,502.09	1,461.58	40.51	37.082	
8,800.00	8,781.32	8,197.00	8,099.04	23.14	21.27	163.97	-958.22	212.05	1,542.74	1,502.53	40.21	38.367	
8,900.00	8,881.32	8,211.31	8,111.38	23.19	21.30	164.12	-965.21	210.20	1,587.02	1,547.31	39.71	39.967	
9,000.00	8,981.32	8,228.00	8,125.54	23.25	21.32	164.30	-973.81	208.14	1,635.22	1,595.98	39.24	41.670	
9,100.00	9,081.32	8,260.00	8,151.80	23.30	21.37	164.64	-991.71	204.44	1,687.20	1,648.23	38.98	43.289	
9,200.00	9,181.32	8,260.00	8,151.80	23.36	21.37	164.64	-991.71	204.44	1,742.28	1,703.92	38.36	45.419	
9,300.00	9,281.24	8,291.00	8,175.98	23.31	21.41	-14.38	-1,010.77	200.89	1,798.60	1,760.56	38.04	47.280	
9,400.00	9,379.46	8,303.58	8,185.45	23.27	21.43	-13.04	-1,018.92	199.36	1,845.04	1,807.51	37.53	49.161	
9,500.00	9,473.05	8,323.00	8,199.67	23.18	21.45	-12.10	-1,031.89	196.83	1,879.49	1,842.44	37.05	50.735	
9,600.00	9,559.17	8,354.00	8,221.43	23.06	21.50	-11.47	-1,053.53	192.49	1,901.27	1,864.59	36.68	51.841	
9,700.00	9,635.20	8,386.00	8,242.82	22.93	21.56	-11.14	-1,076.86	187.81	1,909.98	1,873.66	36.32	52.583	
9,800.00	9,698.82	8,417.00	8,262.52	22.80	21.62	-11.11	-1,100.34	183.16	1,905.39	1,869.41	35.99	52.948	
9,900.00	9,748.12	8,431.34	8,271.25	22.71	21.65	-11.42	-1,111.53	181.03	1,887.49	1,851.96	35.53	53.128	
10,000.00	9,781.57	8,449.00	8,281.64	22.65	21.69	-12.03	-1,125.58	178.53	1,856.91	1,821.77	35.14	52.845	
10,100.00	9,798.18	8,480.00	8,298.93	22.66	21.75	-13.02	-1,150.99	174.51	1,813.96	1,779.00	34.96	51.889	

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



Anticollision Report



Company:	NOVO Oil & Gas	Local Co-ordinate Reference:	Well RANA-SALADA-FED-01-231H
Project:	EDDY CO., NM (NAD83)	TVD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Reference Site:	SEC 02-T23S-R28E	MD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	RANA-SALADA-FED-01-231H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	1 - EDM Production
Reference Design:	Plan 1	Offset TVD Reference:	Offset Datum

Offset Design: SEC 02-T23S-R28E - Offset-Longview Fed 1-21H - Wellbore #1 - Wellbore #1													Offset Site Error: 0.00 usft
Survey Program: 2-MWD													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
10,200.00	9,799.73	8,512.00	8,315.58	22.75	21.83	-13.71	-1,178.02	170.52	1,761.19	1,726.46	34.73	50.714	
10,300.00	9,799.22	8,527.69	8,323.30	22.87	21.87	-13.71	-1,191.53	168.50	1,709.39	1,675.19	34.20	49.980	
10,400.00	9,798.70	8,543.00	8,330.51	23.02	21.91	-13.70	-1,204.88	166.51	1,660.90	1,627.17	33.73	49.242	
10,500.00	9,798.18	8,575.00	8,344.61	23.21	22.01	-13.68	-1,233.32	162.44	1,615.55	1,582.07	33.47	48.262	
10,600.00	9,797.66	8,606.00	8,357.27	23.45	22.11	-13.67	-1,261.37	158.74	1,573.51	1,540.22	33.28	47.276	
10,700.00	9,797.14	8,638.00	8,369.36	23.75	22.22	-13.65	-1,290.80	155.34	1,534.88	1,501.70	33.19	46.252	
10,800.00	9,796.62	8,670.00	8,380.25	24.13	22.34	-13.65	-1,320.74	152.33	1,500.05	1,466.87	33.18	45.204	
10,900.00	9,796.11	8,701.00	8,389.60	24.60	22.47	-13.63	-1,350.16	149.55	1,469.18	1,435.90	33.28	44.140	
11,000.00	9,795.59	8,743.28	8,400.46	25.18	22.66	-13.60	-1,390.86	145.88	1,442.26	1,408.71	33.56	42.976	
11,100.00	9,795.07	8,775.50	8,407.23	25.87	22.82	-13.58	-1,422.26	143.44	1,419.70	1,385.80	33.90	41.883	
11,200.00	9,794.55	8,796.00	8,410.82	26.65	22.93	-13.57	-1,442.40	142.28	1,401.85	1,367.52	34.33	40.835	
11,300.00	9,794.03	8,852.37	8,418.40	27.54	23.25	-13.55	-1,498.19	139.69	1,387.82	1,352.84	34.97	39.682	
11,400.00	9,793.51	8,891.00	8,421.82	28.50	23.50	-13.53	-1,536.64	138.08	1,378.04	1,342.37	35.67	38.631	
11,500.00	9,792.99	8,934.20	8,423.76	29.52	23.79	-13.48	-1,579.75	136.12	1,372.46	1,335.99	36.47	37.629	
11,581.23	9,792.57	8,969.86	8,423.70	30.40	24.06	-13.42	-1,615.37	134.44	1,371.22	1,334.03	37.19	36.874	
11,600.00	9,792.48	8,986.00	8,423.40	30.61	24.18	-13.39	-1,631.48	133.72	1,371.29	1,333.93	37.35	36.713	
11,700.00	9,791.96	9,061.53	8,421.26	31.73	24.81	-13.26	-1,706.92	130.53	1,372.59	1,334.32	38.28	35.861	
11,800.00	9,791.44	9,162.16	8,417.97	32.90	25.68	-13.13	-1,807.44	127.48	1,374.69	1,335.46	39.22	35.048	
11,900.00	9,790.92	9,337.20	8,419.90	34.09	27.29	-13.04	-1,982.39	123.80	1,371.87	1,331.62	40.26	34.079	
12,000.00	9,790.40	9,439.72	8,422.54	35.31	28.36	-13.04	-2,084.86	122.61	1,368.71	1,327.38	41.33	33.114	
12,100.00	9,789.88	9,522.00	8,424.94	36.56	29.29	-13.11	-2,167.10	123.31	1,365.65	1,323.22	42.43	32.184	
12,200.00	9,789.37	9,638.85	8,429.51	37.82	30.59	-13.26	-2,283.84	125.41	1,361.73	1,318.11	43.62	31.219	
12,300.00	9,788.85	9,724.55	8,432.43	39.09	31.63	-13.40	-2,369.46	127.44	1,358.57	1,313.77	44.80	30.326	
12,384.85	9,788.41	9,774.00	8,433.13	40.19	32.24	-13.43	-2,418.91	127.73	1,357.29	1,311.52	45.77	29.652	
12,400.00	9,788.33	9,784.82	8,433.06	40.38	32.38	-13.43	-2,429.73	127.76	1,357.33	1,311.37	45.95	29.537	
12,500.00	9,787.81	9,872.50	8,432.02	41.69	33.52	-13.44	-2,517.41	127.86	1,358.11	1,310.93	47.18	28.786	
12,600.00	9,787.29	10,002.88	8,432.12	43.00	35.21	-13.50	-2,647.77	128.51	1,357.61	1,309.10	48.52	27.983	
12,648.34	9,787.04	10,037.44	8,432.05	43.64	35.69	-13.49	-2,682.32	128.06	1,357.37	1,308.25	49.11	27.637	
12,700.00	9,786.77	10,076.80	8,431.58	44.32	36.25	-13.48	-2,721.67	127.66	1,357.63	1,307.87	49.76	27.283	
12,800.00	9,786.25	10,220.70	8,431.31	45.65	38.18	-13.39	-2,865.53	124.60	1,356.92	1,305.77	51.15	26.529	
12,900.00	9,785.74	10,292.71	8,431.75	46.99	39.23	-13.35	-2,937.53	123.10	1,355.50	1,303.07	52.43	25.855	
12,911.32	9,785.68	10,300.47	8,431.71	47.14	39.35	-13.34	-2,945.29	123.02	1,355.48	1,302.91	52.57	25.783	
13,000.00	9,785.22	10,363.12	8,430.82	48.34	40.30	-13.34	-3,007.93	122.78	1,356.29	1,302.57	53.72	25.247	
13,100.00	9,784.70	10,463.04	8,428.28	49.69	41.77	-13.34	-3,107.81	122.76	1,358.37	1,303.27	55.09	24.656	
13,200.00	9,784.18	10,593.94	8,425.35	51.04	43.70	-13.29	-3,238.67	121.41	1,360.14	1,303.60	56.54	24.056	
13,208.84	9,784.13	10,610.07	8,425.32	51.16	43.93	-13.28	-3,254.80	121.14	1,360.09	1,303.41	56.68	23.997	
13,300.00	9,783.66	10,653.41	8,424.09	52.41	44.57	-13.25	-3,298.12	120.40	1,361.35	1,303.52	57.83	23.540	
13,400.00	9,783.14	10,799.29	8,419.95	53.77	46.73	-13.16	-3,443.91	118.34	1,363.90	1,304.57	59.33	22.989	
13,400.19	9,783.14	10,761.02	8,420.55	53.77	46.16	-13.17	-3,405.64	118.76	1,363.83	1,304.58	59.24	23.021	
13,500.00	9,782.63	10,851.60	8,418.55	55.14	47.52	-13.14	-3,496.20	118.01	1,365.46	1,304.83	60.63	22.522	
13,600.00	9,782.11	10,982.35	8,414.55	56.52	49.51	-13.03	-3,626.85	115.51	1,367.76	1,305.65	62.11	22.021	
13,700.00	9,781.59	11,085.34	8,412.99	57.89	51.05	-12.86	-3,729.73	111.02	1,367.85	1,304.35	63.50	21.540	
13,800.00	9,781.07	11,160.57	8,410.91	59.28	52.23	-12.71	-3,804.85	107.48	1,369.09	1,304.24	64.85	21.112	
13,900.00	9,780.55	11,287.42	8,407.62	60.66	54.20	-12.56	-3,931.59	103.68	1,370.65	1,304.33	66.32	20.668	
14,000.00	9,780.03	11,400.23	8,408.03	62.05	55.92	-12.51	-4,044.38	101.86	1,369.44	1,301.65	67.79	20.202	
14,053.38	9,779.76	11,443.00	8,407.86	62.79	56.59	-12.50	-4,087.15	101.30	1,369.27	1,300.73	68.54	19.976	
14,100.00	9,779.51	11,474.45	8,407.44	63.44	57.11	-12.49	-4,118.59	100.94	1,369.56	1,300.37	69.19	19.793	
14,200.00	9,779.00	11,556.36	8,405.08	64.83	58.45	-12.45	-4,200.46	100.14	1,371.68	1,301.06	70.61	19.425	
14,300.00	9,778.48	11,681.53	8,403.08	66.22	60.43	-12.41	-4,325.61	98.74	1,372.44	1,300.30	72.14	19.024	
14,400.00	9,777.96	11,760.64	8,401.99	67.62	61.69	-12.45	-4,404.70	99.52	1,373.62	1,300.03	73.59	18.665	
14,500.00	9,777.44	11,835.98	8,399.62	69.02	62.93	-12.53	-4,479.97	101.57	1,376.82	1,301.77	75.05	18.346	
14,600.00	9,776.92	11,958.90	8,395.33	70.42	64.91	-12.55	-4,602.80	102.49	1,380.01	1,303.38	76.63	18.009	

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



Anticollision Report



Company:	NOVO Oil & Gas	Local Co-ordinate Reference:	Well RANA-SALADA-FED-01-231H
Project:	EDDY CO., NM (NAD83)	TVD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Reference Site:	SEC 02-T23S-R28E	MD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	RANA-SALADA-FED-01-231H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	1 - EDM Production
Reference Design:	Plan 1	Offset TVD Reference:	Offset Datum

Offset Design: SEC 02-T23S-R28E - Offset-Longview Fed 1-21H - Wellbore #1 - Wellbore #1												Offset Site Error:	0.00 usft
Survey Program: 2-MWD												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
14,700.00	9,776.40	12,050.31	8,392.76	71.82	66.37	-12.48	-4,694.16	100.62	1,381.96	1,303.88	78.07	17.701	
14,800.00	9,775.89	12,123.93	8,388.85	73.22	67.57	-12.38	-4,767.65	98.79	1,386.09	1,306.64	79.45	17.446	
14,900.00	9,775.37	12,291.42	8,382.46	74.63	70.25	-12.09	-4,934.86	91.95	1,388.62	1,307.61	81.01	17.141	
14,910.40	9,775.31	12,309.95	8,382.27	74.77	70.54	-12.06	-4,953.38	91.07	1,388.58	1,307.42	81.17	17.108	
15,000.00	9,774.85	12,366.22	8,380.89	76.03	71.47	-11.96	-5,009.57	88.61	1,389.37	1,306.96	82.41	16.859	
15,100.00	9,774.33	12,483.50	8,377.79	77.44	73.39	-11.82	-5,126.75	85.02	1,390.98	1,307.09	83.89	16.581	
15,200.00	9,773.81	12,555.35	8,376.23	78.85	74.57	-11.78	-5,198.57	84.12	1,392.46	1,307.13	85.33	16.319	
15,300.00	9,773.29	12,688.09	8,373.34	80.26	76.75	-11.75	-5,331.27	83.06	1,394.07	1,307.17	86.90	16.042	
15,400.00	9,772.77	12,768.00	8,371.85	81.67	78.06	-11.73	-5,411.16	82.45	1,395.26	1,306.88	88.37	15.788	
15,500.00	9,772.26	12,863.00	8,369.95	83.08	79.62	-11.71	-5,506.14	81.79	1,396.68	1,306.81	89.87	15.540	
15,600.00	9,771.74	12,958.00	8,367.54	84.50	81.19	-11.70	-5,601.10	81.62	1,398.72	1,307.33	91.39	15.305	
15,700.00	9,771.22	13,076.98	8,364.36	85.91	83.18	-11.61	-5,720.01	79.31	1,400.56	1,307.65	92.91	15.074	
15,800.00	9,770.70	13,173.49	8,361.93	87.32	84.80	-11.51	-5,816.45	76.72	1,402.06	1,307.68	94.38	14.856	
15,888.32	9,770.24	13,278.78	8,361.19	88.58	86.54	-11.46	-5,921.72	75.17	1,401.94	1,306.20	95.74	14.643	
15,900.00	9,770.18	13,287.64	8,361.12	88.74	86.69	-11.46	-5,930.58	75.08	1,401.95	1,306.04	95.91	14.617	
16,000.00	9,769.66	13,362.65	8,359.86	90.16	87.95	-11.44	-6,005.58	74.49	1,403.03	1,305.64	97.39	14.406	
16,100.00	9,769.15	13,441.85	8,357.02	91.57	89.31	-11.42	-6,084.72	73.93	1,405.94	1,307.09	98.85	14.223	
16,200.00	9,768.63	13,555.38	8,353.27	92.99	91.20	-11.32	-6,198.17	71.76	1,408.30	1,307.93	100.38	14.030	
16,300.00	9,768.11	13,627.16	8,350.00	94.41	92.41	-11.23	-6,269.84	69.66	1,411.80	1,310.03	101.76	13.874	
16,400.00	9,767.59	13,690.00	8,346.20	95.83	93.48	-11.14	-6,332.54	67.69	1,417.04	1,313.97	103.07	13.748	
16,500.00	9,767.07	13,690.00	8,346.20	97.25	93.48	-11.14	-6,332.54	67.69	1,427.64	1,323.78	103.86	13.746 SF	
16,600.00	9,766.55	13,690.00	8,346.20	98.67	93.48	-11.14	-6,332.54	67.69	1,445.11	1,340.86	104.24	13.863	
16,700.00	9,766.03	13,690.00	8,346.20	100.09	93.48	-11.14	-6,332.54	67.69	1,469.18	1,364.94	104.24	14.094	
16,800.00	9,765.52	13,690.00	8,346.20	101.52	93.48	-11.14	-6,332.54	67.69	1,499.55	1,395.66	103.89	14.433	
16,900.00	9,765.00	13,690.00	8,346.20	102.94	93.48	-11.14	-6,332.54	67.69	1,535.84	1,432.59	103.25	14.875	
17,000.00	9,764.48	13,690.00	8,346.20	104.36	93.48	-11.14	-6,332.54	67.69	1,577.65	1,475.28	102.37	15.412	
17,100.00	9,763.96	13,690.00	8,346.20	105.78	93.48	-11.14	-6,332.54	67.69	1,624.54	1,523.25	101.29	16.038	
17,200.00	9,763.44	13,690.00	8,346.20	107.21	93.48	-11.14	-6,332.54	67.69	1,676.10	1,576.02	100.08	16.748	
17,300.00	9,762.92	13,690.00	8,346.20	108.63	93.48	-11.14	-6,332.54	67.69	1,731.90	1,633.13	98.76	17.536	
17,400.00	9,762.41	13,690.00	8,346.20	110.06	93.48	-11.14	-6,332.54	67.69	1,791.54	1,694.15	97.39	18.395	
17,500.00	9,761.89	13,690.00	8,346.20	111.48	93.48	-11.14	-6,332.54	67.69	1,854.67	1,758.68	95.99	19.321	
17,600.00	9,761.37	13,690.00	8,346.20	112.91	93.48	-11.14	-6,332.54	67.69	1,920.93	1,826.33	94.59	20.307	
17,671.01	9,761.00	13,690.00	8,346.20	113.92	93.48	-11.14	-6,332.54	67.69	1,969.71	1,876.10	93.61	21.042	

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



Anticollision Report



Company:	NOVO Oil & Gas	Local Co-ordinate Reference:	Well RANA-SALADA-FED-01-231H
Project:	EDDY CO., NM (NAD83)	TVD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Reference Site:	SEC 02-T23S-R28E	MD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	RANA-SALADA-FED-01-231H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	1 - EDM Production
Reference Design:	Plan 1	Offset TVD Reference:	Offset Datum

Offset Design: SEC 02-T23S-R28E - Offset-Longview Federal 12-13H - Wellbore #1 - Wellbore #1													Offset Site Error:	0.00 usft	
Survey Program:		377-MWD			Offset		Semi Major Axis		Offset Wellbore Centre		Rule Assigned:			Offset Well Error:	0.00 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning		
5,400.00	5,385.10	13,517.00	7,381.18	17.75	105.01	-176.75	-175.01	35.72	2,115.22	2,060.45	54.77	38.622			
5,500.00	5,484.70	13,517.00	7,381.18	18.13	105.01	-176.75	-175.01	35.72	2,021.01	1,965.98	55.03	36.724			
5,600.00	5,584.30	13,517.00	7,381.18	18.50	105.01	-176.75	-175.01	35.72	1,927.39	1,872.08	55.31	34.846			
5,700.00	5,683.91	13,517.00	7,381.18	18.88	105.01	-176.75	-175.01	35.72	1,834.44	1,778.83	55.61	32.989			
5,800.00	5,783.51	13,517.00	7,381.18	19.25	105.01	-176.75	-175.01	35.72	1,742.26	1,686.34	55.92	31.156			
5,900.00	5,883.11	13,517.00	7,381.18	19.63	105.01	-176.75	-175.01	35.72	1,651.00	1,594.75	56.25	29.349			
6,000.00	5,982.71	13,517.00	7,381.18	20.01	105.01	-176.75	-175.01	35.72	1,560.82	1,504.20	56.61	27.571			
6,100.00	6,082.31	13,517.00	7,381.18	20.39	105.01	-176.75	-175.01	35.72	1,471.89	1,414.90	56.99	25.826			
6,200.00	6,181.91	13,517.00	7,381.18	20.76	105.01	-176.75	-175.01	35.72	1,384.49	1,327.08	57.40	24.118			
6,300.00	6,281.53	13,517.00	7,381.18	21.12	105.01	-176.68	-175.01	35.72	1,298.77	1,240.93	57.84	22.455			
6,400.00	6,381.35	13,517.00	7,381.18	21.52	105.01	-176.49	-175.01	35.72	1,213.68	1,155.37	58.31	20.816			
6,500.00	6,481.32	13,517.00	7,381.18	21.91	105.01	-176.29	-175.01	35.72	1,129.05	1,070.28	58.78	19.209			
6,600.00	6,581.32	13,517.00	7,381.18	21.96	105.01	159.51	-175.01	35.72	1,045.77	986.67	59.10	17.695			
6,700.00	6,681.32	13,517.00	7,381.18	22.01	105.01	159.51	-175.01	35.72	965.63	906.22	59.41	16.252			
6,800.00	6,781.32	13,517.00	7,381.18	22.06	105.01	159.51	-175.01	35.72	889.53	829.80	59.72	14.895			
6,900.00	6,881.32	13,517.00	7,381.18	22.12	105.01	159.51	-175.01	35.72	818.57	758.57	60.01	13.641			
7,000.00	6,981.32	13,517.00	7,381.18	22.17	105.01	159.51	-175.01	35.72	754.23	693.98	60.26	12.517			
7,100.00	7,081.32	13,517.00	7,381.18	22.22	105.01	159.51	-175.01	35.72	698.34	637.87	60.47	11.549			
7,200.00	7,181.32	13,517.00	7,381.18	22.27	105.01	159.51	-175.01	35.72	653.06	592.42	60.64	10.770			
7,300.00	7,281.32	13,517.00	7,381.18	22.33	105.01	159.51	-175.01	35.72	620.72	559.92	60.79	10.210			
7,400.00	7,381.32	13,517.00	7,381.18	22.38	105.01	159.51	-175.01	35.72	603.40	542.43	60.97	9.896			
7,455.97	7,437.29	13,517.00	7,381.18	22.41	105.01	159.51	-175.01	35.72	600.80	539.71	61.09	9.835 CC, ES, SF			
7,500.00	7,481.32	13,517.00	7,381.18	22.43	105.01	159.51	-175.01	35.72	602.41	541.23	61.19	9.846			
7,600.00	7,581.32	13,517.00	7,381.18	22.49	105.01	159.51	-175.01	35.72	617.83	556.42	61.40	10.062			
7,700.00	7,681.32	13,517.00	7,381.18	22.54	105.01	159.51	-175.01	35.72	648.47	586.90	61.57	10.533			
7,800.00	7,781.32	13,517.00	7,381.18	22.59	105.01	159.51	-175.01	35.72	692.33	630.67	61.66	11.228			
7,900.00	7,881.32	13,517.00	7,381.18	22.65	105.01	159.51	-175.01	35.72	747.08	685.40	61.68	12.111			
8,000.00	7,981.32	13,517.00	7,381.18	22.70	105.01	159.51	-175.01	35.72	810.52	748.84	61.67	13.142			
8,100.00	8,081.32	13,517.00	7,381.18	22.75	105.01	159.51	-175.01	35.72	880.76	819.10	61.66	14.284			
8,200.00	8,181.32	13,517.00	7,381.18	22.81	105.01	159.51	-175.01	35.72	956.32	894.65	61.67	15.508			
8,300.00	8,281.32	13,517.00	7,381.18	22.86	105.01	159.51	-175.01	35.72	1,036.03	974.33	61.70	16.790			
8,400.00	8,381.32	13,517.00	7,381.18	22.92	105.01	159.51	-175.01	35.72	1,119.00	1,057.23	61.77	18.115			
8,500.00	8,481.32	13,517.00	7,381.18	22.97	105.01	159.51	-175.01	35.72	1,204.56	1,142.69	61.87	19.468			
8,600.00	8,581.32	13,517.00	7,381.18	23.03	105.01	159.51	-175.01	35.72	1,292.20	1,230.19	62.01	20.840			
8,700.00	8,681.32	13,517.00	7,381.18	23.08	105.01	159.51	-175.01	35.72	1,381.52	1,319.35	62.16	22.224			
8,800.00	8,781.32	13,517.00	7,381.18	23.14	105.01	159.51	-175.01	35.72	1,472.21	1,409.86	62.34	23.614			
8,900.00	8,881.32	13,517.00	7,381.18	23.19	105.01	159.51	-175.01	35.72	1,564.03	1,501.49	62.54	25.007			
9,000.00	8,981.32	13,517.00	7,381.18	23.25	105.01	159.51	-175.01	35.72	1,656.81	1,594.05	62.76	26.399			
9,100.00	9,081.32	13,517.00	7,381.18	23.30	105.01	159.51	-175.01	35.72	1,750.37	1,687.38	62.99	27.788			
9,200.00	9,181.32	13,517.00	7,381.18	23.36	105.01	159.51	-175.01	35.72	1,844.62	1,781.39	63.23	29.172			
9,300.00	9,281.24	13,517.00	7,381.18	23.31	105.01	-16.23	-175.01	35.72	1,938.62	1,875.14	63.48	30.539			
9,400.00	9,379.46	13,517.00	7,381.18	23.27	105.01	-11.59	-175.01	35.72	2,027.37	1,963.56	63.81	31.771			
9,500.00	9,473.05	13,517.00	7,381.18	23.18	105.01	-9.08	-175.01	35.72	2,108.56	2,044.35	64.22	32.836			
9,600.00	9,559.17	13,517.00	7,381.18	23.06	105.01	-7.57	-175.01	35.72	2,180.70	2,116.01	64.68	33.714			

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



Anticollision Report



Company:	NOVO Oil & Gas	Local Co-ordinate Reference:	Well RANA-SALADA-FED-01-231H
Project:	EDDY CO., NM (NAD83)	TVD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Reference Site:	SEC 02-T23S-R28E	MD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	RANA-SALADA-FED-01-231H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	1 - EDM Production
Reference Design:	Plan 1	Offset TVD Reference:	Offset Datum

Offset Design: SEC 02-T23S-R28E - Rana Salada Fed Com 0106 133H - Wellbore #1 - FINAL SURVEYS												Offset Site Error:	0.00 usft
Survey Program: 179-MWD, 498-MWD												Offset Well Error:	0.50 usft
Rule Assigned:												Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
12,700.00	9,786.77	11,366.15	10,572.20	44.32	39.61	-172.07	-4,784.58	-86.94	2,194.21	2,138.04	56.17	39.067	
12,800.00	9,786.25	11,362.98	10,572.15	45.65	39.60	-172.29	-4,784.76	-90.10	2,101.52	2,045.02	56.51	37.192	
12,900.00	9,785.74	11,359.65	10,572.09	46.99	39.59	-172.52	-4,784.95	-93.43	2,009.53	1,952.67	56.87	35.337	
13,000.00	9,785.22	11,356.12	10,572.04	48.34	39.57	-172.77	-4,785.16	-96.94	1,918.33	1,861.08	57.25	33.507	
13,100.00	9,784.70	11,352.40	10,571.98	49.69	39.56	-173.03	-4,785.39	-100.66	1,828.04	1,770.38	57.66	31.703	
13,200.00	9,784.18	11,348.45	10,571.91	51.04	39.54	-173.31	-4,785.64	-104.60	1,738.79	1,680.70	58.10	29.930	
13,300.00	9,783.66	11,344.27	10,571.84	52.41	39.53	-173.61	-4,785.92	-108.77	1,650.77	1,592.21	58.56	28.191	
13,400.00	9,783.14	11,323.00	10,571.44	53.77	39.45	-175.11	-4,787.45	-129.98	1,564.30	1,505.52	58.78	26.612	
13,500.00	9,782.63	11,323.00	10,571.44	55.14	39.45	-175.11	-4,787.45	-129.98	1,479.29	1,419.93	59.36	24.919	
13,600.00	9,782.11	11,323.00	10,571.44	56.52	39.45	-175.11	-4,787.45	-129.98	1,396.27	1,336.30	59.97	23.281	
13,700.00	9,781.59	9,936.11	9,689.24	57.89	39.02	83.25	-4,837.67	-906.39	1,312.47	1,252.18	60.29	21.770	
13,800.00	9,781.07	9,940.02	9,693.15	59.28	39.03	83.56	-4,837.84	-906.61	1,229.70	1,166.49	63.21	19.454	
13,900.00	9,780.55	9,943.97	9,697.08	60.66	39.04	83.88	-4,838.02	-906.83	1,149.66	1,083.04	66.61	17.259	
14,000.00	9,780.03	9,947.93	9,701.04	62.05	39.04	84.20	-4,838.20	-907.06	1,072.95	1,002.40	70.56	15.207	
14,100.00	9,779.51	9,951.93	9,705.02	63.44	39.05	84.52	-4,838.38	-907.28	1,000.36	925.28	75.07	13.325	
14,200.00	9,779.00	9,955.95	9,709.04	64.83	39.06	84.84	-4,838.56	-907.50	932.83	852.65	80.18	11.634	
14,300.00	9,778.48	9,960.01	9,713.08	66.22	39.07	85.17	-4,838.74	-907.73	871.55	785.73	85.82	10.156	
14,400.00	9,777.96	9,964.09	9,717.15	67.62	39.07	85.49	-4,838.93	-907.96	817.91	726.08	91.83	8.906	
14,500.00	9,777.44	9,968.20	9,721.25	69.02	39.08	85.82	-4,839.12	-908.19	773.52	675.59	97.93	7.898	
14,600.00	9,776.92	9,972.34	9,725.38	70.42	39.09	86.16	-4,839.31	-908.42	740.04	636.36	103.68	7.138	
14,700.00	9,776.40	9,976.51	9,729.53	71.82	39.10	86.49	-4,839.50	-908.65	718.99	610.47	108.52	6.625	
14,800.00	9,775.89	9,980.75	9,733.77	73.22	39.10	86.83	-4,839.69	-908.88	711.48	599.54	111.94	6.356	
14,803.83	9,775.87	9,980.91	9,733.93	73.28	39.10	86.85	-4,839.70	-908.89	711.47	599.43	112.04	6.350 CC, ES	
14,900.00	9,775.37	9,985.02	9,738.03	74.63	39.11	87.18	-4,839.89	-909.12	717.93	604.32	113.61	6.319 SF	
15,000.00	9,774.85	9,989.32	9,742.31	76.03	39.12	87.52	-4,840.09	-909.35	737.98	624.45	113.53	6.500	
15,100.00	9,774.33	9,993.63	9,746.62	77.44	39.13	87.87	-4,840.29	-909.59	770.56	658.61	111.95	6.883	
15,200.00	9,773.81	9,997.98	9,750.95	78.85	39.14	88.22	-4,840.49	-909.83	814.17	704.87	109.30	7.449	
15,300.00	9,773.29	10,002.34	9,755.30	80.26	39.14	88.57	-4,840.70	-910.06	867.15	761.12	106.03	8.178	
15,400.00	9,772.77	10,006.72	9,759.68	81.67	39.15	88.92	-4,840.90	-910.30	927.89	825.40	102.49	9.053	
15,500.00	9,772.26	10,011.13	9,764.07	83.08	39.16	89.28	-4,841.11	-910.54	994.98	896.04	98.94	10.056	
15,600.00	9,771.74	10,015.57	9,768.50	84.50	39.17	89.63	-4,841.32	-910.78	1,067.22	971.69	95.53	11.172	
15,700.00	9,771.22	10,020.02	9,772.94	85.91	39.18	89.99	-4,841.53	-911.02	1,143.62	1,051.28	92.34	12.385	
15,800.00	9,770.70	10,024.50	9,777.41	87.32	39.19	90.35	-4,841.74	-911.25	1,223.42	1,134.01	89.42	13.682	
15,900.00	9,770.18	10,029.01	9,781.90	88.74	39.20	90.71	-4,841.95	-911.49	1,305.99	1,219.24	86.76	15.054	
16,000.00	9,769.66	10,033.54	9,786.42	90.16	39.20	91.07	-4,842.17	-911.73	1,390.84	1,306.49	84.35	16.488	
16,100.00	9,769.15	10,038.09	9,790.96	91.57	39.21	91.44	-4,842.38	-911.97	1,477.57	1,395.38	82.19	17.978	
16,200.00	9,768.63	10,042.67	9,795.53	92.99	39.22	91.80	-4,842.60	-912.21	1,565.87	1,485.63	80.24	19.515	
16,300.00	9,768.11	10,047.27	9,800.12	94.41	39.23	92.17	-4,842.82	-912.45	1,655.49	1,577.00	78.49	21.092	
16,400.00	9,767.59	10,051.90	9,804.74	95.83	39.24	92.54	-4,843.04	-912.70	1,746.22	1,669.31	76.91	22.704	
16,500.00	9,767.07	10,056.55	9,809.38	97.25	39.25	92.91	-4,843.27	-912.94	1,837.91	1,762.42	75.49	24.346	
16,600.00	9,766.55	10,061.23	9,814.04	98.67	39.26	93.28	-4,843.49	-913.18	1,930.41	1,856.21	74.21	26.014	
16,700.00	9,766.03	10,537.65	10,264.34	100.09	39.93	128.83	-4,873.84	-809.18	2,023.22	1,957.97	65.25	31.007	
16,800.00	9,765.52	10,559.23	10,282.27	101.52	39.94	130.40	-4,874.89	-797.23	2,115.74	2,051.92	63.82	33.150	

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



Anticollision Report



Company:	NOVO Oil & Gas	Local Co-ordinate Reference:	Well RANA-SALADA-FED-01-231H
Project:	EDDY CO., NM (NAD83)	TVD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Reference Site:	SEC 02-T23S-R28E	MD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	RANA-SALADA-FED-01-231H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	1 - EDM Production
Reference Design:	Plan 1	Offset TVD Reference:	Offset Datum

Offset Design: SEC 02-T23S-R28E - Rana Salada Fed Com 0106 213H - Wellbore #1 - FINAL SURVEYS													Offset Site Error: 0.00 usft
Survey Program: 179-MWD, 509-MWD													Offset Well Error: 0.50 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
10,800.00	9,796.62	9,770.88	9,756.35	24.13	20.49	87.73	-2,906.91	-888.49	2,185.78	2,145.85	39.93	54.744	
10,900.00	9,796.11	9,772.24	9,757.71	24.60	20.49	87.84	-2,906.94	-888.48	2,091.28	2,051.35	39.93	52.378	
11,000.00	9,795.59	9,773.62	9,759.09	25.18	20.50	87.95	-2,906.96	-888.47	1,997.32	1,957.36	39.95	49.991	
11,100.00	9,795.07	9,775.01	9,760.48	25.87	20.50	88.07	-2,906.99	-888.46	1,903.97	1,863.95	40.02	47.581	
11,200.00	9,794.55	9,776.42	9,761.89	26.65	20.50	88.18	-2,907.02	-888.46	1,811.33	1,771.20	40.12	45.146	
11,300.00	9,794.03	9,777.85	9,763.32	27.54	20.50	88.30	-2,907.05	-888.45	1,719.51	1,679.22	40.28	42.684	
11,400.00	9,793.51	9,779.29	9,764.76	28.50	20.51	88.42	-2,907.08	-888.44	1,628.65	1,588.13	40.52	40.194	
11,500.00	9,792.99	9,780.75	9,766.22	29.52	20.51	88.54	-2,907.11	-888.43	1,538.93	1,498.08	40.85	37.676	
11,600.00	9,792.48	9,782.23	9,767.70	30.61	20.51	88.66	-2,907.15	-888.42	1,450.55	1,409.26	41.29	35.132	
11,700.00	9,791.96	9,783.73	9,769.20	31.73	20.52	88.78	-2,907.18	-888.41	1,363.78	1,321.90	41.87	32.569	
11,800.00	9,791.44	9,785.24	9,770.71	32.90	20.52	88.90	-2,907.21	-888.40	1,278.93	1,236.30	42.64	29.996	
11,900.00	9,790.92	9,786.77	9,772.24	34.09	20.52	89.03	-2,907.24	-888.39	1,196.43	1,152.81	43.62	27.431	
12,000.00	9,790.40	9,788.32	9,773.79	35.31	20.52	89.16	-2,907.28	-888.38	1,116.79	1,071.93	44.85	24.898	
12,100.00	9,789.88	9,789.89	9,775.36	36.56	20.53	89.28	-2,907.31	-888.37	1,040.67	994.27	46.39	22.431	
12,200.00	9,789.37	9,791.48	9,776.95	37.82	20.53	89.41	-2,907.35	-888.37	968.89	920.62	48.27	20.071	
12,300.00	9,788.85	9,793.09	9,778.55	39.09	20.53	89.55	-2,907.38	-888.36	902.50	851.99	50.51	17.867	
12,400.00	9,788.33	9,794.72	9,780.18	40.38	20.54	89.68	-2,907.42	-888.35	842.77	789.66	53.10	15.871	
12,500.00	9,787.81	9,796.36	9,781.83	41.69	20.54	89.82	-2,907.46	-888.34	791.20	735.22	55.98	14.134	
12,600.00	9,787.29	9,798.03	9,783.50	43.00	20.54	89.95	-2,907.49	-888.33	749.49	690.48	59.01	12.701	
12,700.00	9,786.77	9,799.72	9,785.19	44.32	20.55	90.09	-2,907.53	-888.32	719.36	657.37	61.98	11.605	
12,800.00	9,786.25	9,801.44	9,786.90	45.65	20.55	90.23	-2,907.57	-888.31	702.28	637.65	64.63	10.866	
12,871.40	9,785.88	9,802.67	9,788.13	46.61	20.55	90.33	-2,907.60	-888.30	698.64	632.46	66.18	10.557 CC, ES	
12,900.00	9,785.74	9,803.17	9,788.63	46.99	20.55	90.37	-2,907.61	-888.30	699.23	632.53	66.70	10.483	
13,000.00	9,785.22	9,804.93	9,790.39	48.34	20.56	90.52	-2,907.65	-888.29	710.38	642.36	68.02	10.444 SF	
13,100.00	9,784.70	9,806.70	9,792.17	49.69	20.56	90.66	-2,907.69	-888.28	735.08	666.51	68.57	10.720	
13,200.00	9,784.18	9,808.51	9,793.97	51.04	20.56	90.81	-2,907.73	-888.27	772.04	703.59	68.46	11.278	
13,300.00	9,783.66	9,810.33	9,795.79	52.41	20.57	90.96	-2,907.78	-888.26	819.60	751.75	67.85	12.080	
13,400.00	9,783.14	9,812.18	9,797.64	53.77	20.57	91.11	-2,907.82	-888.25	876.03	809.11	66.93	13.090	
13,500.00	9,782.63	9,814.06	9,799.52	55.14	20.58	91.27	-2,907.86	-888.24	939.74	873.91	65.84	14.274	
13,600.00	9,782.11	9,815.96	9,801.42	56.52	20.58	91.42	-2,907.91	-888.23	1,009.35	944.66	64.69	15.603	
13,700.00	9,781.59	9,817.89	9,803.34	57.89	20.58	91.58	-2,907.95	-888.22	1,083.73	1,020.17	63.55	17.052	
13,800.00	9,781.07	9,819.84	9,805.30	59.28	20.59	91.74	-2,908.00	-888.21	1,161.95	1,099.48	62.47	18.600	
13,900.00	9,780.55	9,821.82	9,807.27	60.66	20.59	91.90	-2,908.05	-888.19	1,243.29	1,181.84	61.45	20.231	
14,000.00	9,780.03	9,823.82	9,809.28	62.05	20.59	92.07	-2,908.10	-888.18	1,327.19	1,266.67	60.52	21.930	
14,100.00	9,779.51	9,825.86	9,811.31	63.44	20.60	92.23	-2,908.15	-888.17	1,413.18	1,353.51	59.66	23.686	
14,200.00	9,779.00	9,827.92	9,813.38	64.83	20.60	92.40	-2,908.20	-888.16	1,500.90	1,442.01	58.89	25.488	
14,300.00	9,778.48	9,830.01	9,815.47	66.22	20.61	92.57	-2,908.25	-888.15	1,590.07	1,531.89	58.18	27.329	
14,400.00	9,777.96	9,832.13	9,817.59	67.62	20.61	92.75	-2,908.30	-888.14	1,680.46	1,622.91	57.55	29.202	
14,500.00	9,777.44	9,834.29	9,819.74	69.02	20.62	92.92	-2,908.35	-888.13	1,771.88	1,714.91	56.97	31.102	
14,600.00	9,776.92	9,836.47	9,821.92	70.42	20.62	93.10	-2,908.41	-888.12	1,864.17	1,807.72	56.45	33.024	
14,700.00	9,776.40	10,342.65	10,297.64	71.82	21.18	131.92	-2,940.69	-761.95	1,956.19	1,906.89	49.30	39.680	
14,800.00	9,775.89	10,343.30	10,298.14	73.22	21.18	131.97	-2,940.71	-761.53	2,048.51	1,999.47	49.04	41.769	
14,900.00	9,775.37	10,343.88	10,298.59	74.63	21.18	132.01	-2,940.72	-761.16	2,141.53	2,092.71	48.82	43.866	

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



Anticollision Report



Company:	NOVO Oil & Gas	Local Co-ordinate Reference:	Well RANA-SALADA-FED-01-231H
Project:	EDDY CO., NM (NAD83)	TVD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Reference Site:	SEC 02-T23S-R28E	MD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	RANA-SALADA-FED-01-231H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	1 - EDM Production
Reference Design:	Plan 1	Offset TVD Reference:	Offset Datum

Offset Design: SEC 02-T23S-R28E - Rana Salada Fed Com 0106 223H - Wellbore #1 - FINAL SURVEYS												Offset Site Error:	0.00 usft
Survey Program: 129-MWD, 416-MWD												Offset Well Error:	0.50 usft
Rule Assigned:												Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
11,800.00	9,791.44	11,252.72	10,558.41	32.90	30.01	-168.89	-3,869.12	-40.98	2,175.37	2,121.90	53.47	40.683	
11,900.00	9,790.92	11,245.30	10,557.98	34.09	29.90	-169.41	-3,869.81	-48.36	2,082.58	2,028.91	53.67	38.802	
12,000.00	9,790.40	11,237.30	10,557.46	35.31	29.79	-169.97	-3,870.59	-56.30	1,990.46	1,936.57	53.88	36.940	
12,100.00	9,789.88	11,222.00	10,556.32	36.56	29.57	-171.04	-3,872.15	-71.48	1,899.10	1,845.11	53.98	35.179	
12,200.00	9,789.37	11,222.00	10,556.32	37.82	29.57	-171.04	-3,872.15	-71.48	1,808.57	1,754.18	54.39	33.255	
12,300.00	9,788.85	11,222.00	10,556.32	39.09	29.57	-171.04	-3,872.15	-71.48	1,719.09	1,664.28	54.81	31.363	
12,400.00	9,788.33	11,222.00	10,556.32	40.38	29.57	-171.04	-3,872.15	-71.48	1,630.84	1,575.57	55.27	29.509	
12,500.00	9,787.81	11,222.00	10,556.32	41.69	29.57	-171.04	-3,872.15	-71.48	1,544.02	1,488.28	55.74	27.698	
12,600.00	9,787.29	11,194.73	10,554.23	43.00	29.23	-172.97	-3,875.20	-98.49	1,458.44	1,402.67	55.78	26.148	
12,700.00	9,786.77	11,187.57	10,553.72	44.32	29.15	-173.49	-3,876.05	-105.59	1,375.03	1,318.85	56.17	24.479	
12,800.00	9,786.25	11,180.06	10,553.20	45.65	29.06	-174.03	-3,876.96	-113.03	1,293.89	1,237.31	56.57	22.871	
12,900.00	9,785.74	11,172.17	10,552.68	46.99	28.97	-174.59	-3,877.94	-120.83	1,215.48	1,158.51	56.97	21.334	
13,000.00	9,785.22	11,163.89	10,552.15	48.34	28.88	-175.19	-3,879.00	-129.02	1,140.37	1,083.01	57.36	19.881	
13,100.00	9,784.70	11,155.18	10,551.62	49.69	28.79	-175.82	-3,880.14	-137.64	1,069.23	1,011.53	57.71	18.529	
13,200.00	9,784.18	11,146.01	10,551.08	51.04	28.70	-176.49	-3,881.38	-146.72	1,002.91	944.92	57.99	17.293	
13,300.00	9,783.66	11,127.00	10,550.06	52.41	28.52	-177.88	-3,884.05	-165.51	942.47	884.42	58.05	16.235	
13,400.00	9,783.14	10,561.00	10,347.83	53.77	27.68	139.98	-3,926.03	-672.54	888.34	827.94	60.40	14.707	
13,500.00	9,782.63	9,858.74	9,736.09	55.14	27.74	86.65	-3,958.81	-913.61	835.36	764.22	71.14	11.742	
13,600.00	9,782.11	9,862.73	9,740.07	56.52	27.75	86.97	-3,959.01	-913.74	789.44	713.69	75.75	10.421	
13,700.00	9,781.59	9,866.81	9,744.14	57.89	27.76	87.29	-3,959.21	-913.88	754.04	673.75	80.28	9.392	
13,800.00	9,781.07	9,870.98	9,748.31	59.28	27.77	87.63	-3,959.42	-914.02	730.68	646.32	84.36	8.662	
13,900.00	9,780.55	9,875.25	9,752.57	60.66	27.78	87.97	-3,959.64	-914.16	720.53	632.96	87.57	8.228	
13,923.76	9,780.43	9,876.28	9,753.60	60.99	27.78	88.05	-3,959.69	-914.20	720.14	631.97	88.17	8.167 CC, ES	
14,000.00	9,780.03	9,879.62	9,756.93	62.05	27.79	88.31	-3,959.86	-914.31	724.16	634.53	89.63	8.080 SF	
14,100.00	9,779.51	9,884.10	9,761.40	63.44	27.80	88.67	-3,960.09	-914.47	741.35	650.93	90.42	8.199	
14,200.00	9,779.00	9,888.68	9,765.97	64.83	27.81	89.03	-3,960.33	-914.63	771.20	681.14	90.06	8.563	
14,300.00	9,778.48	9,893.38	9,770.66	66.22	27.82	89.41	-3,960.58	-914.80	812.32	723.51	88.81	9.147	
14,400.00	9,777.96	9,898.19	9,775.46	67.62	27.83	89.79	-3,960.84	-914.97	863.09	776.12	86.97	9.924	
14,500.00	9,777.44	9,901.00	9,778.26	69.02	27.83	90.01	-3,960.99	-915.07	921.93	837.11	84.82	10.869	
14,600.00	9,776.92	9,907.31	9,784.56	70.42	27.85	90.51	-3,961.33	-915.30	987.38	904.84	82.54	11.963	
14,700.00	9,776.40	9,911.73	9,788.98	71.82	27.86	90.86	-3,961.57	-915.47	1,058.23	977.94	80.29	13.180	
14,800.00	9,775.89	9,916.15	9,793.38	73.22	27.87	91.21	-3,961.81	-915.64	1,133.46	1,055.32	78.14	14.506	
14,900.00	9,775.37	9,920.57	9,797.79	74.63	27.88	91.56	-3,962.05	-915.81	1,212.26	1,136.13	76.13	15.923	
15,000.00	9,774.85	9,924.98	9,802.19	76.03	27.89	91.91	-3,962.29	-915.99	1,293.98	1,219.69	74.29	17.418	
15,100.00	9,774.33	9,929.38	9,806.58	77.44	27.90	92.26	-3,962.53	-916.16	1,378.09	1,305.48	72.61	18.980	
15,200.00	9,773.81	9,933.78	9,810.98	78.85	27.91	92.61	-3,962.76	-916.34	1,464.19	1,393.11	71.08	20.599	
15,300.00	9,773.29	9,938.18	9,815.37	80.26	27.92	92.95	-3,963.00	-916.53	1,551.94	1,482.24	69.70	22.266	
15,400.00	9,772.77	9,942.58	9,819.75	81.67	27.93	93.30	-3,963.24	-916.71	1,641.08	1,572.63	68.45	23.974	
15,500.00	9,772.26	9,946.97	9,824.13	83.08	27.94	93.65	-3,963.47	-916.90	1,731.39	1,664.07	67.33	25.717	
15,600.00	9,771.74	9,951.36	9,828.51	84.50	27.95	93.99	-3,963.71	-917.09	1,822.71	1,756.40	66.31	27.489	
15,700.00	9,771.22	9,955.74	9,832.88	85.91	27.96	94.33	-3,963.95	-917.29	1,914.88	1,849.50	65.38	29.287	
15,800.00	9,770.70	9,960.13	9,837.25	87.32	27.97	94.68	-3,964.18	-917.48	2,007.79	1,943.24	64.55	31.106	
15,900.00	9,770.18	9,964.50	9,841.62	88.74	27.98	95.02	-3,964.42	-917.68	2,101.34	2,037.55	63.79	32.942	
16,000.00	9,769.66	9,968.88	9,845.98	90.16	27.99	95.36	-3,964.65	-917.88	2,195.45	2,132.35	63.10	34.793	

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



Anticollision Report



Company:	NOVO Oil & Gas	Local Co-ordinate Reference:	Well RANA-SALADA-FED-01-231H
Project:	EDDY CO., NM (NAD83)	TVD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Reference Site:	SEC 02-T23S-R28E	MD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	RANA-SALADA-FED-01-231H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	1 - EDM Production
Reference Design:	Plan 1	Offset TVD Reference:	Offset Datum

Offset Design: SEC 02-T23S-R28E - Rana Salada Fed Com 0106 233H - Wellbore #1 - FINAL SURVEYS													Offset Site Error: 0.00 usft
Survey Program: 137-MWD													Offset Well Error: 0.50 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
6,700.00	6,681.32	7,097.00	6,964.33	22.01	24.97	-162.77	-1,685.44	-817.38	2,189.12	2,151.29	37.83	57.872	
6,800.00	6,781.32	7,162.76	7,029.05	22.06	25.20	-162.56	-1,675.11	-822.71	2,176.60	2,138.51	38.09	57.148	
6,900.00	6,881.32	7,242.19	7,107.57	22.12	25.46	-162.33	-1,664.54	-828.35	2,165.91	2,127.54	38.37	56.448	
7,000.00	6,981.32	7,338.34	7,397.63	22.17	26.63	-161.41	-1,608.59	-846.15	2,147.29	2,108.08	39.21	54.763	
7,100.00	7,081.32	7,600.75	7,458.54	22.22	26.89	-161.22	-1,595.31	-849.05	2,128.57	2,089.07	39.50	53.882	
7,200.00	7,181.32	7,664.00	7,520.55	22.27	27.14	-161.03	-1,583.25	-852.05	2,111.84	2,072.05	39.79	53.078	
7,300.00	7,281.32	7,736.53	7,591.89	22.33	27.40	-160.83	-1,570.56	-855.31	2,096.60	2,056.52	40.08	52.316	
7,400.00	7,381.32	7,850.01	7,703.54	22.38	27.82	-160.54	-1,550.66	-859.40	2,081.15	2,040.70	40.45	51.451	
7,500.00	7,481.32	7,948.00	7,799.94	22.43	28.18	-160.30	-1,533.38	-862.40	2,065.50	2,024.71	40.79	50.640	
7,600.00	7,581.32	8,037.04	7,887.61	22.49	28.51	-160.07	-1,518.12	-865.64	2,050.51	2,009.40	41.11	49.877	
7,700.00	7,681.32	8,128.15	7,977.31	22.54	28.84	-159.83	-1,502.59	-869.00	2,035.70	1,994.26	41.44	49.125	
7,800.00	7,781.32	8,191.50	8,039.85	22.59	29.05	-159.69	-1,492.64	-870.73	2,021.91	1,980.22	41.69	48.501	
7,900.00	7,881.32	8,255.14	8,102.88	22.65	29.25	-159.56	-1,483.98	-872.37	2,009.98	1,968.06	41.92	47.945	
8,000.00	7,981.32	8,325.00	8,172.21	22.70	29.45	-159.42	-1,475.62	-874.16	1,999.64	1,957.49	42.16	47.431	
8,100.00	8,081.32	8,411.79	8,258.47	22.75	29.69	-159.27	-1,466.25	-876.26	1,990.37	1,947.95	42.43	46.913	
8,200.00	8,181.32	8,492.93	8,339.20	22.81	29.90	-159.14	-1,458.23	-877.94	1,981.86	1,939.19	42.67	46.444	
8,300.00	8,281.32	8,578.41	8,424.32	22.86	30.11	-159.02	-1,450.62	-879.60	1,974.22	1,931.30	42.92	45.994	
8,400.00	8,381.32	8,651.58	8,497.24	22.92	30.28	-158.92	-1,444.70	-881.13	1,967.46	1,924.33	43.13	45.615	
8,500.00	8,481.32	8,704.00	8,549.54	22.97	30.39	-158.86	-1,441.42	-881.97	1,962.44	1,919.17	43.27	45.354	
8,600.00	8,581.32	8,798.00	8,643.45	23.03	30.56	-158.79	-1,437.51	-882.99	1,958.96	1,915.46	43.51	45.028	
8,700.00	8,681.32	8,866.67	8,712.11	23.08	30.67	-158.76	-1,435.88	-883.38	1,956.81	1,913.16	43.65	44.827	
8,800.00	8,781.32	8,962.23	8,807.64	23.14	30.82	-158.72	-1,434.11	-884.17	1,955.39	1,911.51	43.88	44.560	
8,900.00	8,881.32	9,054.28	8,899.64	23.19	30.96	-158.64	-1,432.01	-886.34	1,954.13	1,910.02	44.11	44.302	
9,000.00	8,981.32	9,135.42	8,980.75	23.25	31.08	-158.58	-1,430.81	-888.08	1,953.54	1,909.25	44.30	44.101	
9,003.30	8,984.62	9,137.98	8,983.32	23.25	31.09	-158.58	-1,430.79	-888.12	1,953.54	1,909.24	44.30	44.096	
9,100.00	9,081.32	9,215.70	9,061.02	23.30	31.19	-158.54	-1,430.75	-889.35	1,954.04	1,909.57	44.47	43.939	
9,200.00	9,181.32	9,301.96	9,147.27	23.36	31.30	-158.51	-1,431.48	-890.77	1,955.42	1,910.76	44.66	43.786	
9,300.00	9,281.24	9,394.64	9,239.93	23.31	31.40	-158.51	-1,432.90	-891.90	1,954.89	1,910.13	44.77	43.670	
9,400.00	9,379.46	9,489.07	9,334.33	23.27	31.50	-158.51	-1,434.90	-892.45	1,940.22	1,895.24	44.98	43.140	
9,500.00	9,473.05	9,582.84	9,428.07	23.18	31.59	-158.51	-1,437.25	-892.26	1,909.93	1,864.81	45.12	42.329	
9,600.00	9,559.17	9,667.93	9,513.13	23.06	31.67	-158.51	-1,439.61	-891.81	1,865.11	1,819.90	45.21	41.257	
9,700.00	9,635.20	9,746.68	9,591.86	22.93	31.74	-158.51	-1,441.77	-891.47	1,807.17	1,761.91	45.26	39.929	
9,800.00	9,698.82	9,810.64	9,655.78	22.80	31.80	-158.51	-1,443.61	-891.09	1,738.15	1,692.88	45.27	38.396	
9,900.00	9,748.12	9,863.28	9,708.39	22.71	31.85	-158.51	-1,445.18	-890.64	1,660.37	1,615.11	45.27	36.679	
10,000.00	9,781.57	9,900.09	9,745.19	22.65	31.88	-158.51	-1,446.29	-890.29	1,576.53	1,531.27	45.27	34.828	
10,100.00	9,798.18	9,919.96	9,765.05	22.66	31.90	-158.51	-1,446.89	-890.08	1,489.56	1,444.27	45.29	32.889	
10,200.00	9,799.73	9,924.60	9,769.68	22.75	31.91	-158.51	-1,447.03	-890.03	1,402.45	1,357.08	45.36	30.915	
10,300.00	9,799.22	9,927.13	9,772.22	22.87	31.91	-158.51	-1,447.11	-890.00	1,317.06	1,271.56	45.50	28.945	
10,400.00	9,798.70	9,929.67	9,774.76	23.02	31.91	-158.51	-1,447.18	-889.97	1,233.87	1,188.15	45.73	26.984	
10,500.00	9,798.18	9,932.21	9,777.30	23.21	31.91	-158.51	-1,447.26	-889.94	1,153.35	1,107.28	46.07	25.036	
10,600.00	9,797.66	9,934.75	9,779.84	23.45	31.92	-158.51	-1,447.34	-889.92	1,076.09	1,029.52	46.57	23.105	
10,700.00	9,797.14	9,937.30	9,782.38	23.75	31.92	-158.51	-1,447.41	-889.89	1,002.86	955.57	47.29	21.205	
10,800.00	9,796.62	9,939.84	9,784.92	24.13	31.92	-158.51	-1,447.49	-889.86	934.59	886.31	48.28	19.356	
10,900.00	9,796.11	9,942.36	9,787.44	24.60	31.92	-158.51	-1,447.57	-889.83	872.46	822.87	49.59	17.593	
11,000.00	9,795.59	9,944.86	9,789.93	25.18	31.93	-158.51	-1,447.64	-889.80	817.86	766.63	51.23	15.965	
11,100.00	9,795.07	9,947.34	9,792.41	25.87	31.93	-158.51	-1,447.72	-889.78	772.39	719.26	53.14	14.536	
11,200.00	9,794.55	9,949.80	9,794.87	26.65	31.93	-158.51	-1,447.79	-889.75	737.75	682.57	55.18	13.370	
11,300.00	9,794.03	9,952.24	9,797.31	27.54	31.93	-158.51	-1,447.86	-889.72	715.51	658.37	57.14	12.522	
11,400.00	9,793.51	9,954.67	9,799.74	28.50	31.94	-158.51	-1,447.94	-889.69	706.84	648.06	58.78	12.026	
11,411.72	9,793.45	9,954.95	9,800.02	28.62	31.94	-158.51	-1,447.94	-889.69	706.74	647.80	58.94	11.991 CC, ES	
11,500.00	9,792.99	9,957.07	9,802.15	29.52	31.94	-158.51	-1,448.01	-889.67	712.23	652.33	59.90	11.891 SF	
11,600.00	9,792.48	9,959.47	9,804.53	30.61	31.94	-158.51	-1,448.08	-889.64	731.37	670.94	60.43	12.102	

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



Anticollision Report



Company:	NOVO Oil & Gas	Local Co-ordinate Reference:	Well RANA-SALADA-FED-01-231H
Project:	EDDY CO., NM (NAD83)	TVD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Reference Site:	SEC 02-T23S-R28E	MD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	RANA-SALADA-FED-01-231H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	1 - EDM Production
Reference Design:	Plan 1	Offset TVD Reference:	Offset Datum

Offset Design: SEC 02-T23S-R28E - Rana Salada Fed Com 0106 233H - Wellbore #1 - FINAL SURVEYS												Offset Site Error:	0.00 usft
Survey Program: 137-MWD												Offset Well Error:	0.50 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
11,700.00	9,791.96	9,961.84	9,806.91	31.73	31.94	91.20	-1,448.15	-889.62	763.24	702.80	60.44	12.628	
11,800.00	9,791.44	9,964.20	9,809.26	32.90	31.94	91.39	-1,448.22	-889.59	806.32	746.27	60.05	13.428	
11,900.00	9,790.92	9,966.54	9,811.60	34.09	31.95	91.58	-1,448.29	-889.57	858.93	799.52	59.41	14.458	
12,000.00	9,790.40	9,968.86	9,813.92	35.31	31.95	91.77	-1,448.35	-889.54	919.43	860.78	58.65	15.676	
12,100.00	9,789.88	9,971.17	9,816.23	36.56	31.95	91.95	-1,448.42	-889.52	986.37	928.51	57.86	17.047	
12,200.00	9,789.37	9,973.46	9,818.52	37.82	31.95	92.14	-1,448.49	-889.49	1,058.54	1,001.44	57.10	18.539	
12,300.00	9,788.85	9,975.73	9,820.79	39.09	31.95	92.32	-1,448.55	-889.47	1,134.93	1,078.54	56.39	20.128	
12,400.00	9,788.33	9,977.99	9,823.05	40.38	31.96	92.50	-1,448.62	-889.44	1,214.75	1,159.00	55.74	21.792	
12,500.00	9,787.81	9,980.24	9,825.30	41.69	31.96	92.69	-1,448.68	-889.42	1,297.36	1,242.20	55.17	23.518	
12,600.00	9,787.29	9,982.46	9,827.52	43.00	31.96	92.87	-1,448.75	-889.40	1,382.27	1,327.62	54.65	25.291	
12,700.00	9,786.77	9,984.68	9,829.73	44.32	31.96	93.05	-1,448.81	-889.37	1,469.08	1,414.88	54.20	27.103	
12,800.00	9,786.25	9,986.87	9,831.93	45.65	31.97	93.22	-1,448.87	-889.35	1,557.47	1,503.66	53.81	28.946	
12,900.00	9,785.74	9,989.06	9,834.11	46.99	31.97	93.40	-1,448.94	-889.33	1,647.18	1,593.72	53.46	30.813	
13,000.00	9,785.22	9,991.22	9,836.28	48.34	31.97	93.58	-1,449.00	-889.30	1,738.01	1,684.86	53.15	32.701	
13,100.00	9,784.70	9,993.38	9,838.43	49.69	31.97	93.75	-1,449.06	-889.28	1,829.80	1,776.92	52.88	34.604	
13,200.00	9,784.18	9,995.51	9,840.57	51.04	31.97	93.92	-1,449.12	-889.26	1,922.40	1,869.76	52.64	36.520	
13,300.00	9,783.66	9,997.64	9,842.69	52.41	31.98	94.09	-1,449.18	-889.24	2,015.71	1,963.28	52.43	38.446	
13,400.00	9,783.14	9,999.75	9,844.80	53.77	31.98	94.26	-1,449.24	-889.22	2,109.63	2,057.39	52.24	40.380	

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



Anticollision Report



Company:	NOVO Oil & Gas	Local Co-ordinate Reference:	Well RANA-SALADA-FED-01-231H
Project:	EDDY CO., NM (NAD83)	TVD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Reference Site:	SEC 02-T23S-R28E	MD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	RANA-SALADA-FED-01-231H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	1 - EDM Production
Reference Design:	Plan 1	Offset TVD Reference:	Offset Datum

Offset Design: SEC 02-T23S-R28E - Rana Salada Fed Com 0106 236H - Wellbore #1 - FINAL SURVEYS													Offset Site Error:	0.00 usft
Survey Program: 260-MWD													Offset Well Error:	0.50 usft
Measured Depth (usft)	Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
3,400.00	3,393.09	4,307.77	4,157.63	10.52	18.91	-141.51	-1,832.84	-606.83	2,188.23	2,166.97	21.26	102.923		
3,500.00	3,492.69	4,370.84	4,216.64	10.86	19.30	-141.46	-1,810.56	-606.73	2,160.58	2,138.77	21.81	99.084		
3,600.00	3,592.29	4,449.00	4,290.20	11.21	19.77	-141.38	-1,784.14	-606.91	2,134.45	2,112.07	22.38	95.387		
3,700.00	3,691.89	4,535.92	4,372.15	11.55	20.29	-141.29	-1,755.17	-607.69	2,109.00	2,086.02	22.97	91.803		
3,800.00	3,791.49	4,658.09	4,486.77	11.91	21.05	-141.11	-1,713.00	-610.01	2,082.63	2,058.97	23.66	88.014		
3,900.00	3,891.10	4,749.86	4,572.62	12.26	21.64	-140.94	-1,680.67	-612.76	2,055.87	2,031.56	24.30	84.597		
4,000.00	3,990.70	4,827.00	4,644.78	12.62	22.13	-140.77	-1,653.60	-615.98	2,029.57	2,004.66	24.92	81.452		
4,100.00	4,090.30	4,908.74	4,721.38	12.97	22.64	-140.56	-1,625.37	-620.27	2,004.10	1,978.55	25.55	78.439		
4,200.00	4,189.90	4,974.18	4,782.92	13.33	23.03	-140.38	-1,603.46	-624.19	1,979.88	1,953.74	26.14	75.734		
4,300.00	4,289.50	5,015.00	4,821.47	13.70	23.27	-140.27	-1,590.32	-626.75	1,957.53	1,930.86	26.67	73.400		
4,400.00	4,389.10	5,087.17	4,890.13	14.06	23.67	-140.08	-1,568.57	-631.31	1,936.96	1,909.70	27.26	71.057		
4,500.00	4,488.70	5,149.61	4,950.06	14.42	23.99	-139.94	-1,551.44	-635.03	1,918.71	1,890.90	27.81	68.997		
4,600.00	4,588.30	5,229.36	5,027.09	14.79	24.38	-139.80	-1,531.09	-638.57	1,901.98	1,873.59	28.38	67.009		
4,700.00	4,687.90	5,373.02	5,165.90	15.16	25.07	-139.70	-1,494.21	-639.74	1,884.09	1,855.02	29.07	64.812		
4,800.00	4,787.50	5,519.45	5,306.49	15.52	25.82	-139.67	-1,453.33	-637.49	1,863.17	1,833.43	29.74	62.643		
4,900.00	4,887.10	5,632.55	5,414.60	15.89	26.44	-139.60	-1,420.15	-637.04	1,841.46	1,811.08	30.38	60.615		
5,000.00	4,986.70	5,784.53	5,558.64	16.26	27.33	-139.32	-1,371.83	-640.74	1,818.24	1,787.13	31.12	58.433		
5,100.00	5,086.30	5,876.18	5,644.97	16.63	27.89	-139.10	-1,341.21	-643.99	1,793.61	1,761.83	31.78	56.444		
5,200.00	5,185.90	5,992.75	5,754.07	17.01	28.63	-138.75	-1,300.55	-649.45	1,767.78	1,735.28	32.50	54.395		
5,300.00	5,285.50	6,055.00	5,812.42	17.38	29.02	-138.55	-1,279.09	-652.60	1,742.72	1,709.59	33.13	52.606		
5,400.00	5,385.10	6,121.62	5,875.26	17.75	29.41	-138.34	-1,257.27	-656.20	1,719.47	1,685.72	33.75	50.948		
5,500.00	5,484.70	6,196.90	5,946.73	18.13	29.85	-138.10	-1,234.07	-660.80	1,698.19	1,663.80	34.39	49.385		
5,600.00	5,584.30	6,326.28	6,069.37	18.50	30.60	-137.64	-1,193.83	-669.61	1,677.09	1,641.94	35.15	47.716		
5,700.00	5,683.91	6,417.82	6,155.91	18.88	31.13	-137.34	-1,164.39	-674.49	1,654.45	1,618.63	35.82	46.186		
5,800.00	5,783.51	6,488.93	6,223.52	19.25	31.52	-137.14	-1,142.55	-677.37	1,632.90	1,596.46	36.44	44.813		
5,900.00	5,883.11	6,558.59	6,290.23	19.63	31.89	-136.98	-1,122.62	-679.59	1,613.11	1,576.08	37.03	43.562		
6,000.00	5,982.71	6,623.00	6,352.34	20.01	32.21	-136.89	-1,105.60	-680.46	1,594.99	1,557.40	37.59	42.434		
6,100.00	6,082.31	6,690.79	6,418.15	20.39	32.51	-136.84	-1,089.35	-680.59	1,578.87	1,540.75	38.11	41.426		
6,200.00	6,181.91	6,778.19	6,503.48	20.76	32.88	-136.82	-1,070.43	-680.29	1,564.64	1,525.98	38.66	40.475		
6,300.00	6,281.53	6,949.45	6,669.82	21.12	33.65	-136.69	-1,029.89	-677.77	1,548.00	1,508.68	39.31	39.377		
6,400.00	6,381.35	7,075.06	6,790.50	21.52	34.30	-136.10	-995.07	-678.76	1,526.22	1,486.24	39.97	38.180		
6,500.00	6,481.32	7,170.38	6,881.47	21.91	34.83	-135.31	-966.80	-681.73	1,500.90	1,460.28	40.62	36.946		
6,600.00	6,581.32	7,234.24	6,942.59	21.96	35.16	-159.13	-948.41	-684.01	1,475.13	1,434.12	41.01	35.968		
6,700.00	6,681.32	7,285.00	6,991.54	22.01	35.42	-158.87	-935.11	-685.86	1,451.95	1,410.59	41.36	35.108		
6,800.00	6,781.32	7,356.38	7,060.74	22.06	35.75	-158.49	-917.94	-689.21	1,431.17	1,389.45	41.73	34.299		
6,900.00	6,881.32	7,426.57	7,128.98	22.12	36.06	-158.07	-902.23	-693.95	1,412.66	1,370.56	42.10	33.558		
7,000.00	6,981.32	7,503.50	7,203.78	22.17	36.40	-157.54	-885.68	-701.01	1,395.94	1,353.44	42.50	32.847		
7,100.00	7,081.32	7,619.06	7,315.87	22.22	36.91	-156.63	-860.77	-714.00	1,380.29	1,337.20	43.09	32.030		
7,200.00	7,181.32	7,743.28	7,434.99	22.27	37.53	-155.48	-829.29	-729.75	1,361.70	1,317.91	43.79	31.095		
7,300.00	7,281.32	7,821.96	7,510.02	22.33	37.94	-154.65	-808.70	-741.44	1,343.70	1,299.36	44.34	30.305		
7,400.00	7,381.32	7,891.64	7,576.47	22.38	38.29	-153.87	-791.18	-752.91	1,327.70	1,282.86	44.84	29.609		
7,500.00	7,481.32	7,959.58	7,641.81	22.43	38.61	-153.15	-775.93	-763.62	1,314.22	1,268.92	45.31	29.008		
7,600.00	7,581.32	8,042.00	7,721.81	22.49	38.95	-152.38	-759.84	-775.18	1,302.96	1,257.15	45.81	28.445		
7,700.00	7,681.32	8,136.50	7,814.12	22.54	39.31	-151.59	-743.10	-786.42	1,292.69	1,246.36	46.33	27.903		
7,800.00	7,781.32	8,252.36	7,927.38	22.59	39.75	-150.66	-721.80	-798.38	1,281.34	1,234.38	46.96	27.289		
7,900.00	7,881.32	8,325.00	7,998.68	22.65	40.02	-150.13	-709.49	-804.83	1,270.89	1,223.55	47.34	26.846		
8,000.00	7,981.32	8,405.70	8,078.36	22.70	40.27	-149.64	-698.15	-810.64	1,262.29	1,214.58	47.70	26.461		
8,100.00	8,081.32	8,504.03	8,175.83	22.75	40.55	-149.15	-686.38	-816.08	1,254.75	1,206.64	48.11	26.079		
8,200.00	8,181.32	8,610.85	8,281.72	22.81	40.85	-148.64	-673.42	-821.44	1,246.91	1,198.35	48.56	25.679		
8,300.00	8,281.32	8,709.05	8,379.03	22.86	41.14	-148.14	-661.18	-826.40	1,238.89	1,189.92	48.97	25.298		
8,400.00	8,381.32	8,829.37	8,498.13	22.92	41.50	-147.50	-645.41	-832.93	1,230.74	1,181.24	49.50	24.863		
8,500.00	8,481.32	8,950.53	8,617.80	22.97	41.89	-146.88	-626.83	-836.45	1,219.15	1,169.13	50.01	24.378		

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



Anticollision Report



Company:	NOVO Oil & Gas	Local Co-ordinate Reference:	Well RANA-SALADA-FED-01-231H
Project:	EDDY CO., NM (NAD83)	TVD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Reference Site:	SEC 02-T23S-R28E	MD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	RANA-SALADA-FED-01-231H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	1 - EDM Production
Reference Design:	Plan 1	Offset TVD Reference:	Offset Datum

Offset Design: SEC 02-T23S-R28E - Rana Salada Fed Com 0106 236H - Wellbore #1 - FINAL SURVEYS													Offset Site Error: 0.00 usft
Survey Program: 260-MWD													Offset Well Error: 0.50 usft
Reference		Offset		Semi Major Axis			Offset Wellbore Centre		Distance		Minimum	Separation	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Separation (usft)	Factor	
8,600.00	8,581.32	9,035.82	8,702.32	23.03	42.14	-146.55	-615.44	-837.41	1,208.55	1,158.21	50.35	24.005	
8,700.00	8,681.32	9,126.90	8,792.76	23.08	42.39	-146.25	-604.64	-837.78	1,198.88	1,148.21	50.67	23.661	
8,800.00	8,781.32	9,220.12	8,885.42	23.14	42.63	-145.98	-594.47	-837.74	1,189.79	1,138.80	50.98	23.337	
8,900.00	8,881.32	9,311.55	8,976.38	23.19	42.85	-145.73	-585.24	-837.52	1,181.28	1,130.00	51.28	23.038	
9,000.00	8,981.32	9,401.77	9,066.23	23.25	43.05	-145.52	-577.05	-837.23	1,173.59	1,122.03	51.55	22.765	
9,100.00	9,081.32	9,492.37	9,156.52	23.30	43.25	-145.32	-569.55	-837.05	1,166.66	1,114.84	51.82	22.513	
9,200.00	9,181.32	9,584.05	9,247.95	23.36	43.43	-145.13	-562.81	-836.98	1,160.57	1,108.48	52.08	22.283	
9,300.00	9,281.24	9,681.25	9,344.93	23.31	43.62	35.15	-556.26	-836.68	1,152.76	1,100.48	52.28	22.049	
9,400.00	9,379.46	9,775.87	9,439.36	23.27	43.80	37.03	-550.28	-836.14	1,132.63	1,080.00	52.63	21.520	
9,500.00	9,473.05	9,864.64	9,527.97	23.18	43.96	40.42	-544.95	-835.57	1,099.63	1,046.64	52.99	20.752	
9,600.00	9,559.17	9,944.81	9,608.00	23.06	44.10	45.56	-540.36	-835.09	1,055.39	1,002.02	53.37	19.774	
9,700.00	9,635.20	10,015.48	9,678.56	22.93	44.23	52.71	-536.52	-834.70	1,002.17	948.36	53.81	18.623	
9,800.00	9,698.82	10,559.06	10,183.28	22.80	46.08	97.92	-429.08	-719.23	924.48	872.26	52.22	17.703	
9,900.00	9,748.12	10,566.48	10,189.59	22.71	46.12	110.56	-426.50	-716.32	847.01	794.05	52.96	15.994	
10,000.00	9,781.57	10,563.65	10,187.18	22.65	46.11	118.73	-427.49	-717.42	779.15	725.29	53.86	14.467	
10,100.00	9,798.18	10,549.99	10,175.58	22.66	46.04	122.99	-432.26	-722.82	725.71	670.82	54.89	13.220	
10,200.00	9,799.73	10,531.00	10,159.55	22.75	45.94	123.23	-438.96	-730.49	689.70	633.83	55.87	12.344	
10,300.00	9,799.22	10,500.38	10,133.96	22.87	45.77	120.76	-449.98	-743.21	666.60	609.66	56.94	11.706	
10,400.00	9,798.70	10,473.06	10,111.41	23.02	45.62	118.55	-460.04	-754.88	656.56	598.64	57.92	11.335	
10,493.76	9,798.21	10,140.24	9,803.16	23.20	44.44	90.50	-530.22	-833.71	654.94	592.48	62.45	10.487 CC	
10,500.00	9,798.18	10,139.91	9,802.83	23.21	44.44	90.47	-530.24	-833.72	654.96	592.44	62.52	10.476 ES	
10,600.00	9,797.66	10,134.56	9,797.49	23.45	44.43	90.01	-530.49	-833.76	663.47	600.11	63.36	10.472 SF	
10,700.00	9,797.14	10,129.16	9,792.10	23.75	44.42	89.54	-530.75	-833.81	686.55	622.98	63.57	10.799	
10,800.00	9,796.62	10,123.70	9,786.64	24.13	44.41	89.06	-531.02	-833.86	722.81	659.58	63.23	11.432	
10,900.00	9,796.11	10,118.18	9,781.13	24.60	44.40	88.58	-531.28	-833.91	770.39	707.90	62.49	12.328	
11,000.00	9,795.59	10,112.61	9,775.57	25.18	44.39	88.09	-531.55	-833.95	827.34	765.79	61.54	13.443	
11,100.00	9,795.07	10,106.97	9,769.94	25.87	44.38	87.60	-531.83	-834.00	891.86	831.33	60.53	14.734	
11,200.00	9,794.55	10,101.28	9,764.25	26.65	44.37	87.10	-532.11	-834.05	962.43	902.88	59.55	16.163	
11,300.00	9,794.03	10,095.52	9,758.50	27.54	44.36	86.60	-532.40	-834.10	1,037.82	979.18	58.64	17.698	
11,400.00	9,793.51	10,089.70	9,752.68	28.50	44.35	86.10	-532.69	-834.15	1,117.05	1,059.22	57.83	19.315	
11,500.00	9,792.99	10,083.81	9,746.81	29.52	44.34	85.59	-532.98	-834.20	1,199.36	1,142.23	57.13	20.993	
11,600.00	9,792.48	10,077.86	9,740.86	30.61	44.33	85.07	-533.28	-834.24	1,284.17	1,227.64	56.53	22.717	
11,700.00	9,791.96	10,071.85	9,734.86	31.73	44.32	84.55	-533.59	-834.29	1,370.99	1,314.98	56.01	24.476	
11,800.00	9,791.44	10,065.77	9,728.78	32.90	44.31	84.02	-533.90	-834.34	1,459.48	1,403.91	55.58	26.260	
11,900.00	9,790.92	10,059.61	9,722.64	34.09	44.30	83.50	-534.21	-834.39	1,549.35	1,494.14	55.21	28.064	
12,000.00	9,790.40	10,053.50	9,716.53	35.31	44.29	82.97	-534.53	-834.43	1,640.37	1,585.48	54.90	29.882	
12,100.00	9,789.88	10,047.35	9,710.39	36.56	44.28	82.44	-534.85	-834.48	1,732.36	1,677.73	54.63	31.710	
12,200.00	9,789.37	10,041.15	9,704.20	37.82	44.27	81.91	-535.17	-834.53	1,825.18	1,770.77	54.41	33.545	
12,300.00	9,788.85	10,034.91	9,697.97	39.09	44.26	81.38	-535.50	-834.57	1,918.70	1,864.47	54.22	35.384	
12,400.00	9,788.33	10,028.63	9,691.70	40.38	44.25	80.85	-535.83	-834.61	2,012.82	1,958.75	54.07	37.226	
12,500.00	9,787.81	10,022.31	9,685.38	41.69	44.24	80.31	-536.16	-834.66	2,107.47	2,053.53	53.94	39.070	

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



Anticollision Report



Company:	NOVO Oil & Gas	Local Co-ordinate Reference:	Well RANA-SALADA-FED-01-231H
Project:	EDDY CO., NM (NAD83)	TVD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Reference Site:	SEC 02-T23S-R28E	MD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	RANA-SALADA-FED-01-231H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	1 - EDM Production
Reference Design:	Plan 1	Offset TVD Reference:	Offset Datum

Offset Design: SEC 02-T23S-R28E - RANA-SALADA-FED-01-131H - Wellbore #1 - Plan 1												Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HRGM												Offset Well Error:	0.50 usft
Reference	Offset	Semi Major Axis		Distance		Rule Assigned:		Warning					
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
0.00	0.00	0.00	0.00	0.50	0.50	89.08	0.32	20.00	20.00				
100.00	100.00	100.00	100.00	0.66	0.66	89.08	0.32	20.00	20.00	18.69	1.32	15.186	
200.00	200.00	200.00	200.00	1.35	1.35	89.08	0.32	20.00	20.00	17.31	2.70	7.416	
300.00	300.00	300.00	300.00	1.82	1.82	89.08	0.32	20.00	20.00	16.37	3.63	5.504	
400.00	400.00	400.00	400.00	2.19	2.19	89.08	0.32	20.00	20.00	15.62	4.38	4.566	
500.00	500.00	500.00	500.00	2.51	2.51	89.08	0.32	20.00	20.00	14.98	5.02	3.982	
600.00	600.00	600.00	600.00	2.80	2.80	89.08	0.32	20.00	20.00	14.41	5.60	3.574	
700.00	700.00	700.00	700.00	3.06	3.06	89.08	0.32	20.00	20.00	13.88	6.12	3.268	
800.00	800.00	800.00	800.00	3.30	3.30	89.08	0.32	20.00	20.00	13.39	6.61	3.027	
900.00	900.00	900.00	900.00	3.53	3.53	89.08	0.32	20.00	20.00	12.94	7.07	2.831	
1,000.00	1,000.00	1,000.00	1,000.00	3.75	3.75	89.08	0.32	20.00	20.00	12.50	7.50	2.668	
1,100.00	1,100.00	1,100.00	1,100.00	3.96	3.96	89.08	0.32	20.00	20.00	12.09	7.91	2.529	
1,200.00	1,200.00	1,200.00	1,200.00	4.15	4.15	89.08	0.32	20.00	20.00	11.70	8.31	2.408	
1,300.00	1,300.00	1,300.00	1,300.00	4.34	4.34	89.08	0.32	20.00	20.00	11.32	8.69	2.303	
1,400.00	1,400.00	1,400.00	1,400.00	4.53	4.53	89.08	0.32	20.00	20.00	10.95	9.05	2.209	
1,500.00	1,500.00	1,500.00	1,500.00	4.70	4.70	89.08	0.32	20.00	20.00	10.59	9.41	2.126 CC, ES, SF	
1,600.00	1,599.98	1,599.42	1,599.40	5.05	5.03	114.58	1.44	21.32	22.04	12.20	9.84	2.241	
1,700.00	1,699.84	1,698.58	1,698.42	5.70	5.67	117.25	4.77	25.25	28.19	17.67	10.52	2.679	
1,800.00	1,799.48	1,797.24	1,796.71	5.91	6.26	119.41	10.28	31.75	38.34	27.33	11.01	3.481	
1,900.00	1,899.08	1,895.59	1,894.34	6.10	6.59	118.50	17.91	40.75	51.12	39.72	11.40	4.485	
2,000.00	1,998.68	1,994.66	1,992.56	6.32	6.79	117.28	26.28	50.63	64.69	52.94	11.75	5.505	
2,100.00	2,098.29	2,093.72	2,090.78	6.56	7.01	116.48	34.66	60.52	78.27	66.14	12.14	6.449	
2,200.00	2,197.89	2,192.79	2,188.99	6.81	7.26	115.92	43.03	70.40	91.87	79.33	12.54	7.328	
2,300.00	2,297.49	2,291.86	2,287.21	7.08	7.52	115.50	51.41	80.29	105.47	92.53	12.95	8.147	
2,400.00	2,397.09	2,390.93	2,385.43	7.35	7.80	115.18	59.78	90.17	119.08	105.72	13.37	8.909	
2,500.00	2,496.69	2,490.00	2,483.64	7.64	8.08	114.92	68.16	100.05	132.69	118.90	13.80	9.618	
2,600.00	2,596.29	2,589.06	2,581.86	7.93	8.38	114.72	76.54	109.94	146.31	132.07	14.24	10.277	
2,700.00	2,695.89	2,688.13	2,680.08	8.23	8.69	114.54	84.91	119.82	159.92	145.24	14.68	10.892	
2,800.00	2,795.49	2,787.20	2,778.30	8.54	9.01	114.40	93.29	129.70	173.54	158.40	15.14	11.465	
2,900.00	2,895.09	2,886.27	2,876.51	8.86	9.34	114.27	101.66	139.59	187.15	171.55	15.60	11.999	
3,000.00	2,994.69	2,985.34	2,974.73	9.18	9.68	114.17	110.04	149.47	200.77	184.70	16.06	12.498	
3,100.00	3,094.29	3,084.40	3,072.95	9.51	10.02	114.07	118.41	159.35	214.39	197.85	16.54	12.964	
3,200.00	3,193.89	3,183.47	3,171.16	9.84	10.36	113.99	126.79	169.24	228.00	210.99	17.01	13.401	
3,300.00	3,293.49	3,282.54	3,269.38	10.18	10.72	113.92	135.17	179.12	241.62	224.13	17.50	13.810	
3,400.00	3,393.09	3,381.61	3,367.60	10.52	11.08	113.85	143.54	189.00	255.24	237.26	17.98	14.194	
3,500.00	3,492.69	3,480.67	3,465.82	10.86	11.44	113.79	151.92	198.89	268.86	250.39	18.47	14.554	
3,600.00	3,592.29	3,579.74	3,564.03	11.21	11.81	113.74	160.29	208.77	282.48	263.51	18.97	14.893	
3,700.00	3,691.89	3,678.81	3,662.25	11.55	12.18	113.69	168.67	218.65	296.10	276.64	19.46	15.213	
3,800.00	3,791.49	3,777.88	3,760.47	11.91	12.55	113.65	177.04	228.54	309.72	289.76	19.96	15.514	
3,900.00	3,891.10	3,876.95	3,858.69	12.26	12.93	113.60	185.42	238.42	323.34	302.87	20.47	15.798	
4,000.00	3,990.70	3,976.01	3,956.90	12.62	13.31	113.57	193.79	248.30	336.96	315.99	20.97	16.066	
4,100.00	4,090.30	4,075.08	4,055.12	12.97	13.69	113.53	202.17	258.19	350.58	329.10	21.48	16.320	
4,200.00	4,189.90	4,174.15	4,153.34	13.33	14.07	113.50	210.55	268.07	364.20	342.21	21.99	16.561	
4,300.00	4,289.50	4,273.22	4,251.55	13.70	14.46	113.47	218.92	277.95	377.82	355.32	22.50	16.789	
4,400.00	4,389.10	4,372.29	4,349.77	14.06	14.85	113.45	227.30	287.84	391.44	368.42	23.02	17.006	
4,500.00	4,488.70	4,471.35	4,447.99	14.42	15.24	113.42	235.67	297.72	405.06	381.53	23.53	17.212	
4,600.00	4,588.30	4,570.42	4,546.21	14.79	15.63	113.40	244.05	307.60	418.68	394.63	24.05	17.408	
4,700.00	4,687.90	4,669.49	4,644.42	15.16	16.02	113.37	252.42	317.49	432.30	407.73	24.57	17.594	
4,800.00	4,787.50	4,768.56	4,742.64	15.52	16.42	113.35	260.80	327.37	445.93	420.83	25.09	17.772	
4,900.00	4,887.10	4,867.63	4,840.86	15.89	16.82	113.33	269.18	337.25	459.55	433.93	25.61	17.941	
5,000.00	4,986.70	4,966.69	4,939.07	16.26	17.21	113.31	277.55	347.14	473.17	447.03	26.14	18.103	
5,100.00	5,086.30	5,065.76	5,037.29	16.63	17.61	113.30	285.93	357.02	486.79	460.13	26.66	18.258	

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



Anticollision Report



Company:	NOVO Oil & Gas	Local Co-ordinate Reference:	Well RANA-SALADA-FED-01-231H
Project:	EDDY CO., NM (NAD83)	TVD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Reference Site:	SEC 02-T23S-R28E	MD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	RANA-SALADA-FED-01-231H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	1 - EDM Production
Reference Design:	Plan 1	Offset TVD Reference:	Offset Datum

Offset Design: SEC 02-T23S-R28E - RANA-SALADA-FED-01-131H - Wellbore #1 - Plan 1													Offset Site Error: 0.00 usft
Survey Program: 0-MWD+HRGM													Offset Well Error: 0.50 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
5,200.00	5,185.90	5,164.83	5,135.51	17.01	18.01	113.28	294.30	366.90	500.41	473.22	27.19	18.406	
5,300.00	5,285.50	5,263.90	5,233.73	17.38	18.41	113.26	302.68	376.79	514.03	486.32	27.71	18.548	
5,400.00	5,385.10	5,362.96	5,331.94	17.75	18.82	113.25	311.05	386.67	527.65	499.41	28.24	18.683	
5,500.00	5,484.70	5,462.03	5,430.16	18.13	19.22	113.24	319.43	396.55	541.27	512.50	28.77	18.813	
5,600.00	5,584.30	5,561.10	5,528.38	18.50	19.62	113.22	327.81	406.44	554.89	525.59	29.30	18.938	
5,700.00	5,683.91	5,660.17	5,626.59	18.88	20.03	113.21	336.18	416.32	568.52	538.68	29.83	19.058	
5,800.00	5,783.51	5,759.24	5,724.81	19.25	20.43	113.20	344.56	426.20	582.14	551.77	30.36	19.173	
5,900.00	5,883.11	5,858.30	5,823.03	19.63	20.84	113.19	352.93	436.09	595.76	564.86	30.89	19.284	
6,000.00	5,982.71	5,957.37	5,921.25	20.01	21.25	113.17	361.31	445.97	609.38	577.95	31.43	19.390	
6,100.00	6,082.31	6,056.44	6,019.46	20.39	21.66	113.16	369.68	455.85	623.00	591.04	31.96	19.493	
6,200.00	6,181.91	6,155.51	6,117.68	20.76	22.06	113.15	378.06	465.74	636.62	604.14	32.49	19.597	
6,300.00	6,281.53	6,273.92	6,235.33	21.12	22.55	113.31	386.70	475.93	648.79	615.72	33.07	19.618	
6,400.00	6,381.35	6,394.84	6,355.93	21.52	23.11	113.55	392.28	482.51	656.63	622.95	33.69	19.493	
6,500.00	6,481.32	6,516.26	6,477.29	21.91	23.55	113.64	394.56	485.21	659.83	625.66	34.18	19.306	
6,600.00	6,581.32	6,620.29	6,581.32	21.96	23.61	89.41	394.62	485.28	659.92	625.63	34.28	19.249	
6,700.00	6,681.32	6,720.29	6,681.32	22.01	23.66	89.41	394.62	485.28	659.92	625.51	34.41	19.180	
6,800.00	6,781.32	6,820.29	6,781.32	22.06	23.70	89.41	394.62	485.28	659.92	625.38	34.53	19.109	
6,900.00	6,881.32	6,920.29	6,881.32	22.12	23.75	89.41	394.62	485.28	659.92	625.25	34.66	19.038	
7,000.00	6,981.32	7,020.29	6,981.32	22.17	23.79	89.41	394.62	485.28	659.92	625.12	34.79	18.968	
7,100.00	7,081.32	7,120.29	7,081.32	22.22	23.84	89.41	394.62	485.28	659.92	625.00	34.92	18.898	
7,200.00	7,181.32	7,220.29	7,181.32	22.27	23.88	89.41	394.62	485.28	659.92	624.87	35.05	18.828	
7,300.00	7,281.32	7,320.29	7,281.32	22.33	23.93	89.41	394.62	485.28	659.92	624.74	35.18	18.759	
7,400.00	7,381.32	7,420.29	7,381.32	22.38	23.97	89.41	394.62	485.28	659.92	624.61	35.31	18.690	
7,500.00	7,481.32	7,520.29	7,481.32	22.43	24.02	89.41	394.62	485.28	659.92	624.48	35.44	18.622	
7,600.00	7,581.32	7,620.29	7,581.32	22.49	24.06	89.41	394.62	485.28	659.92	624.35	35.57	18.554	
7,700.00	7,681.32	7,720.29	7,681.32	22.54	24.11	89.41	394.62	485.28	659.92	624.22	35.70	18.486	
7,800.00	7,781.32	7,820.29	7,781.32	22.59	24.16	89.41	394.62	485.28	659.92	624.09	35.83	18.419	
7,900.00	7,881.32	7,920.29	7,881.32	22.65	24.20	89.41	394.62	485.28	659.92	623.96	35.96	18.352	
8,000.00	7,981.32	8,020.29	7,981.32	22.70	24.25	89.41	394.62	485.28	659.92	623.83	36.09	18.286	
8,100.00	8,081.32	8,120.29	8,081.32	22.75	24.30	89.41	394.62	485.28	659.92	623.70	36.22	18.220	
8,200.00	8,181.32	8,220.29	8,181.32	22.81	24.34	89.41	394.62	485.28	659.92	623.56	36.35	18.154	
8,300.00	8,281.32	8,320.29	8,281.32	22.86	24.39	89.41	394.62	485.28	659.92	623.43	36.48	18.088	
8,400.00	8,381.32	8,420.29	8,381.32	22.92	24.44	89.41	394.62	485.28	659.92	623.30	36.61	18.023	
8,500.00	8,481.32	8,520.29	8,481.32	22.97	24.49	89.41	394.62	485.28	659.92	623.17	36.75	17.959	
8,600.00	8,581.32	8,620.29	8,581.32	23.03	24.54	89.41	394.62	485.28	659.92	623.04	36.88	17.894	
8,700.00	8,681.32	8,720.29	8,681.32	23.08	24.58	89.41	394.62	485.28	659.92	622.90	37.01	17.830	
8,800.00	8,781.32	8,820.29	8,781.32	23.14	24.63	89.41	394.62	485.28	659.92	622.77	37.14	17.767	
8,900.00	8,881.32	8,920.29	8,881.32	23.19	24.68	89.41	394.62	485.28	659.92	622.64	37.28	17.703	
9,000.00	8,981.32	9,020.29	8,981.32	23.25	24.73	89.41	394.62	485.28	659.92	622.51	37.41	17.640	
9,100.00	9,081.32	9,120.29	9,081.32	23.30	24.78	89.41	394.62	485.28	659.92	622.37	37.54	17.578	
9,200.00	9,181.32	9,220.29	9,181.32	23.36	24.83	89.41	394.62	485.28	659.92	622.24	37.68	17.516	
9,200.01	9,181.32	9,220.29	9,181.32	23.36	24.83	89.41	394.62	485.28	659.92	622.24	37.68	17.516	
9,300.00	9,281.24	9,320.21	9,281.24	23.31	24.88	-91.07	394.62	485.28	659.96	622.22	37.74	17.485	
9,400.00	9,379.46	9,418.43	9,379.46	23.27	24.92	-92.55	394.62	485.28	660.55	622.79	37.76	17.493	
9,500.00	9,473.05	9,517.80	9,478.76	23.18	24.89	-95.14	392.28	485.27	662.87	625.14	37.73	17.570	
9,600.00	9,559.17	9,627.26	9,586.17	23.06	24.77	-97.92	372.08	485.18	666.97	629.40	37.56	17.757	
9,700.00	9,635.20	9,745.54	9,695.61	22.93	24.60	-100.55	327.78	484.98	672.31	635.00	37.31	18.019	
9,800.00	9,698.82	9,873.64	9,801.14	22.80	24.43	-102.94	255.64	484.65	678.20	641.16	37.04	18.310	
9,900.00	9,748.12	10,011.73	9,893.91	22.71	24.29	-104.91	153.81	484.18	683.67	646.82	36.86	18.550	
10,000.00	9,781.57	10,158.52	9,962.84	22.65	24.29	-106.28	24.66	483.59	687.73	650.83	36.90	18.638	
10,100.00	9,798.18	10,310.87	9,997.36	22.66	24.49	-106.87	-123.27	482.92	689.52	652.25	37.27	18.500	
10,200.00	9,799.73	10,431.20	9,999.67	22.75	24.81	-106.86	-243.51	482.37	689.47	651.58	37.90	18.194	

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



Anticollision Report



Company:	NOVO Oil & Gas	Local Co-ordinate Reference:	Well RANA-SALADA-FED-01-231H
Project:	EDDY CO., NM (NAD83)	TVD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Reference Site:	SEC 02-T23S-R28E	MD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	RANA-SALADA-FED-01-231H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	1 - EDM Production
Reference Design:	Plan 1	Offset TVD Reference:	Offset Datum

Offset Design: SEC 02-T23S-R28E - RANA-SALADA-FED-01-131H - Wellbore #1 - Plan 1													Offset Site Error:	0.00 usft	
Survey Program:		0-MWD+HRGM		Offset			Semi Major Axis		Offset Wellbore Centre		Rule Assigned:			Offset Well Error:	0.50 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Distance Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning		
10,300.00	9,799.22	10,531.20	9,999.14	22.87	25.14	-106.86	-343.51	481.91	689.47	650.79	38.68	17.824			
10,400.00	9,798.70	10,631.20	9,998.61	23.02	25.52	-106.85	-443.51	481.46	689.47	649.81	39.65	17.387			
10,500.00	9,798.18	10,731.20	9,998.07	23.21	25.95	-106.85	-543.50	481.00	689.46	648.67	40.79	16.901			
10,600.00	9,797.66	10,831.20	9,997.54	23.45	26.44	-106.85	-643.50	480.54	689.46	647.38	42.08	16.383			
10,700.00	9,797.14	10,931.20	9,997.01	23.75	26.99	-106.85	-743.50	480.09	689.46	645.94	43.52	15.844			
10,800.00	9,796.62	11,031.20	9,996.48	24.13	27.59	-106.85	-843.50	479.63	689.45	644.38	45.07	15.296			
10,900.00	9,796.11	11,131.20	9,995.95	24.60	28.25	-106.85	-943.49	479.17	689.45	642.71	46.74	14.750			
11,000.00	9,795.59	11,231.20	9,995.41	25.18	28.96	-106.85	-1,043.49	478.72	689.45	640.93	48.52	14.211			
11,100.00	9,795.07	11,331.20	9,994.88	25.87	29.73	-106.85	-1,143.49	478.26	689.44	639.06	50.38	13.685			
11,200.00	9,794.55	11,431.20	9,994.35	26.65	30.55	-106.85	-1,243.49	477.81	689.44	637.11	52.33	13.175			
11,300.00	9,794.03	11,531.20	9,993.82	27.54	31.41	-106.85	-1,343.48	477.35	689.44	635.09	54.35	12.685			
11,400.00	9,793.51	11,631.20	9,993.29	28.50	32.32	-106.84	-1,443.48	476.89	689.43	633.00	56.43	12.217			
11,500.00	9,792.99	11,731.20	9,992.75	29.52	33.27	-106.84	-1,543.48	476.44	689.43	630.85	58.58	11.769			
11,600.00	9,792.48	11,831.20	9,992.22	30.61	34.26	-106.84	-1,643.48	475.98	689.43	628.65	60.78	11.344			
11,700.00	9,791.96	11,931.20	9,991.69	31.73	35.28	-106.84	-1,743.47	475.52	689.42	626.40	63.02	10.940			
11,800.00	9,791.44	12,031.20	9,991.16	32.90	36.34	-106.84	-1,843.47	475.07	689.42	624.11	65.31	10.556			
11,900.00	9,790.92	12,131.20	9,990.63	34.09	37.42	-106.84	-1,943.47	474.61	689.42	621.79	67.63	10.194			
12,000.00	9,790.40	12,231.20	9,990.09	35.31	38.54	-106.84	-2,043.47	474.16	689.42	619.42	69.99	9.850			
12,100.00	9,789.88	12,331.20	9,989.56	36.56	39.67	-106.84	-2,143.46	473.70	689.41	617.03	72.38	9.525			
12,200.00	9,789.37	12,431.20	9,989.03	37.82	40.83	-106.84	-2,243.46	473.24	689.41	614.61	74.80	9.217			
12,300.00	9,788.85	12,531.20	9,988.50	39.09	42.00	-106.83	-2,343.46	472.79	689.41	612.16	77.24	8.925			
12,400.00	9,788.33	12,631.20	9,987.97	40.38	43.20	-106.83	-2,443.46	472.33	689.40	609.69	79.71	8.649			
12,500.00	9,787.81	12,731.20	9,987.43	41.69	44.41	-106.83	-2,543.45	471.87	689.40	607.20	82.20	8.387			
12,600.00	9,787.29	12,831.20	9,986.90	43.00	45.63	-106.83	-2,643.45	471.42	689.40	604.69	84.71	8.139			
12,700.00	9,786.77	12,931.20	9,986.37	44.32	46.87	-106.83	-2,743.45	470.96	689.39	602.16	87.23	7.903			
12,800.00	9,786.25	13,031.20	9,985.84	45.65	48.13	-106.83	-2,843.45	470.51	689.39	599.62	89.77	7.679			
12,900.00	9,785.74	13,131.20	9,985.31	46.99	49.39	-106.83	-2,943.45	470.05	689.39	597.06	92.33	7.467			
13,000.00	9,785.22	13,231.20	9,984.77	48.34	50.66	-106.83	-3,043.44	469.59	689.38	594.49	94.90	7.265			
13,100.00	9,784.70	13,331.20	9,984.24	49.69	51.95	-106.83	-3,143.44	469.14	689.38	591.90	97.48	7.072			
13,200.00	9,784.18	13,431.20	9,983.71	51.04	53.24	-106.82	-3,243.44	468.68	689.38	589.31	100.07	6.889			
13,300.00	9,783.66	13,531.20	9,983.18	52.41	54.54	-106.82	-3,343.44	468.22	689.37	586.70	102.67	6.714			
13,400.00	9,783.14	13,631.20	9,982.65	53.77	55.85	-106.82	-3,443.43	467.77	689.37	584.08	105.29	6.548			
13,500.00	9,782.63	13,731.20	9,982.11	55.14	57.16	-106.82	-3,543.43	467.31	689.37	581.46	107.91	6.388			
13,600.00	9,782.11	13,831.20	9,981.58	56.52	58.48	-106.82	-3,643.43	466.86	689.36	578.82	110.54	6.236			
13,700.00	9,781.59	13,931.20	9,981.05	57.89	59.81	-106.82	-3,743.43	466.40	689.36	576.18	113.18	6.091			
13,800.00	9,781.07	14,031.20	9,980.52	59.28	61.14	-106.82	-3,843.42	465.94	689.36	573.53	115.83	5.952			
13,900.00	9,780.55	14,131.20	9,979.99	60.66	62.48	-106.82	-3,943.42	465.49	689.35	570.88	118.48	5.818			
14,000.00	9,780.03	14,231.20	9,979.45	62.05	63.82	-106.82	-4,043.42	465.03	689.35	568.21	121.14	5.691			
14,100.00	9,779.51	14,331.20	9,978.92	63.44	65.17	-106.81	-4,143.42	464.57	689.35	565.54	123.80	5.568			
14,200.00	9,779.00	14,431.20	9,978.39	64.83	66.52	-106.81	-4,243.41	464.12	689.35	562.87	126.48	5.450			
14,300.00	9,778.48	14,531.20	9,977.86	66.22	67.88	-106.81	-4,343.41	463.66	689.34	560.19	129.15	5.337			
14,400.00	9,777.96	14,631.20	9,977.33	67.62	69.24	-106.81	-4,443.41	463.21	689.34	557.51	131.83	5.229			
14,500.00	9,777.44	14,731.20	9,976.79	69.02	70.60	-106.81	-4,543.41	462.75	689.34	554.82	134.52	5.124			
14,600.00	9,776.92	14,831.20	9,976.26	70.42	71.97	-106.81	-4,643.40	462.29	689.33	552.12	137.21	5.024			
14,700.00	9,776.40	14,931.20	9,975.73	71.82	73.33	-106.81	-4,743.40	461.84	689.33	549.42	139.90	4.927			
14,800.00	9,775.89	15,031.20	9,975.20	73.22	74.71	-106.81	-4,843.40	461.38	689.33	546.72	142.60	4.834			
14,900.00	9,775.37	15,131.20	9,974.67	74.63	76.08	-106.81	-4,943.40	460.92	689.32	544.02	145.31	4.744			
15,000.00	9,774.85	15,231.20	9,974.13	76.03	77.46	-106.80	-5,043.39	460.47	689.32	541.31	148.01	4.657			
15,100.00	9,774.33	15,331.20	9,973.60	77.44	78.84	-106.80	-5,143.39	460.01	689.32	538.60	150.72	4.573			
15,200.00	9,773.81	15,431.20	9,973.07	78.85	80.22	-106.80	-5,243.39	459.56	689.31	535.88	153.43	4.493			
15,300.00	9,773.29	15,531.20	9,972.54	80.26	81.60	-106.80	-5,343.39	459.10	689.31	533.16	156.15	4.414			
15,400.00	9,772.77	15,631.20	9,972.01	81.67	82.99	-106.80	-5,443.38	458.64	689.31	530.44	158.87	4.339			

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



Anticollision Report



Company:	NOVO Oil & Gas	Local Co-ordinate Reference:	Well RANA-SALADA-FED-01-231H
Project:	EDDY CO., NM (NAD83)	TVD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Reference Site:	SEC 02-T23S-R28E	MD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	RANA-SALADA-FED-01-231H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	1 - EDM Production
Reference Design:	Plan 1	Offset TVD Reference:	Offset Datum

Offset Design: SEC 02-T23S-R28E - RANA-SALADA-FED-01-131H - Wellbore #1 - Plan 1												Offset Site Error:	0.00 usft	
Survey Program:		0-MWD+HRGM				Rule Assigned:							Offset Well Error:	0.50 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)				
15,500.00	9,772.26	15,731.20	9,971.47	83.08	84.38	-106.80	-5,543.38	458.19	689.30	527.72	161.59	4.266		
15,600.00	9,771.74	15,831.20	9,970.94	84.50	85.77	-106.80	-5,643.38	457.73	689.30	524.99	164.31	4.195		
15,700.00	9,771.22	15,931.20	9,970.41	85.91	87.16	-106.80	-5,743.38	457.27	689.30	522.26	167.04	4.127		
15,800.00	9,770.70	16,031.20	9,969.88	87.32	88.55	-106.80	-5,843.37	456.82	689.29	519.53	169.76	4.060		
15,900.00	9,770.18	16,131.20	9,969.35	88.74	89.94	-106.79	-5,943.37	456.36	689.29	516.80	172.49	3.996		
16,000.00	9,769.66	16,231.20	9,968.81	90.16	91.34	-106.79	-6,043.37	455.91	689.29	514.06	175.23	3.934		
16,100.00	9,769.15	16,331.20	9,968.28	91.57	92.74	-106.79	-6,143.37	455.45	689.28	511.33	177.96	3.873		
16,200.00	9,768.63	16,431.20	9,967.75	92.99	94.14	-106.79	-6,243.36	454.99	689.28	508.59	180.70	3.815		
16,300.00	9,768.11	16,531.20	9,967.22	94.41	95.54	-106.79	-6,343.36	454.54	689.28	505.85	183.43	3.758		
16,400.00	9,767.59	16,631.20	9,966.69	95.83	96.94	-106.79	-6,443.36	454.08	689.28	503.10	186.17	3.702		
16,500.00	9,767.07	16,731.20	9,966.15	97.25	98.34	-106.79	-6,543.36	453.62	689.27	500.36	188.91	3.649		
16,600.00	9,766.55	16,831.20	9,965.62	98.67	99.75	-106.79	-6,643.35	453.17	689.27	497.61	191.66	3.596		
16,700.00	9,766.03	16,931.20	9,965.09	100.09	101.15	-106.79	-6,743.35	452.71	689.27	494.86	194.40	3.546		
16,800.00	9,765.52	17,031.20	9,964.56	101.52	102.56	-106.78	-6,843.35	452.26	689.26	492.12	197.15	3.496		
16,900.00	9,765.00	17,131.20	9,964.03	102.94	103.96	-106.78	-6,943.35	451.80	689.26	489.36	199.89	3.448		
17,000.00	9,764.48	17,231.20	9,963.49	104.36	105.37	-106.78	-7,043.34	451.34	689.26	486.61	202.64	3.401		
17,100.00	9,763.96	17,331.20	9,962.96	105.78	106.78	-106.78	-7,143.34	450.89	689.25	483.86	205.39	3.356		
17,200.00	9,763.44	17,431.20	9,962.43	107.21	108.19	-106.78	-7,243.34	450.43	689.25	481.11	208.14	3.311		
17,300.00	9,762.92	17,531.20	9,961.90	108.63	109.60	-106.78	-7,343.34	449.97	689.25	478.35	210.90	3.268		
17,400.00	9,762.41	17,631.20	9,961.37	110.06	111.01	-106.78	-7,443.33	449.52	689.24	475.59	213.65	3.226		
17,500.00	9,761.89	17,731.20	9,960.83	111.48	112.42	-106.78	-7,543.33	449.06	689.24	472.84	216.40	3.185		
17,600.00	9,761.37	17,831.20	9,960.30	112.91	113.84	-106.78	-7,643.33	448.61	689.24	470.08	219.16	3.145		
17,656.38	9,761.08	17,887.59	9,960.00	113.71	114.64	-106.78	-7,699.71	448.35	689.24	468.53	220.71	3.123		
17,671.01	9,761.00	17,887.95	9,960.00	113.92	114.65	-106.78	-7,700.08	448.35	689.38	468.53	220.86	3.121		

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



Anticollision Report



Company:	NOVO Oil & Gas	Local Co-ordinate Reference:	Well RANA-SALADA-FED-01-231H
Project:	EDDY CO., NM (NAD83)	TVD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Reference Site:	SEC 02-T23S-R28E	MD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	RANA-SALADA-FED-01-231H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	1 - EDM Production
Reference Design:	Plan 1	Offset TVD Reference:	Offset Datum

Offset Design: SEC 02-T23S-R28E - RANA-SALADA-FED-01-211H - Wellbore #1 - Plan 1												Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IGRF												Offset Well Error:	0.50 usft
Reference	Offset	Semi Major Axis		Distance		Rule Assigned:		Warning					
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
0.00	0.00	0.00	0.00	0.50	0.50	89.20	0.56	40.00	40.00				
100.00	100.00	100.00	100.00	0.66	0.52	89.20	0.56	40.00	40.00	38.83	1.18	34.007	
200.00	200.00	200.00	200.00	1.35	0.70	89.20	0.56	40.00	40.00	37.95	2.05	19.507	
300.00	300.00	300.00	300.00	1.82	0.99	89.20	0.56	40.00	40.00	37.20	2.80	14.265	
400.00	400.00	400.00	400.00	2.19	1.31	89.20	0.56	40.00	40.00	36.50	3.50	11.431	
500.00	500.00	500.00	500.00	2.51	1.65	89.20	0.56	40.00	40.00	35.85	4.16	9.622	
600.00	600.00	600.00	600.00	2.80	1.99	89.20	0.56	40.00	40.00	35.21	4.79	8.353	
700.00	700.00	700.00	700.00	3.06	2.34	89.20	0.56	40.00	40.00	34.60	5.40	7.408	
800.00	800.00	800.00	800.00	3.30	2.69	89.20	0.56	40.00	40.00	34.01	5.99	6.673	
900.00	900.00	900.00	900.00	3.53	3.04	89.20	0.56	40.00	40.00	33.43	6.58	6.083	
1,000.00	1,000.00	1,000.00	1,000.00	3.75	3.40	89.20	0.56	40.00	40.00	32.86	7.15	5.598	
1,100.00	1,100.00	1,100.00	1,100.00	3.96	3.75	89.20	0.56	40.00	40.00	32.30	7.71	5.190	
1,200.00	1,200.00	1,200.00	1,200.00	4.15	4.11	89.20	0.56	40.00	40.00	31.74	8.26	4.842	
1,300.00	1,300.00	1,300.00	1,300.00	4.34	4.46	89.20	0.56	40.00	40.00	31.20	8.81	4.542	
1,400.00	1,400.00	1,400.00	1,400.00	4.53	4.82	89.20	0.56	40.00	40.00	30.66	9.35	4.280	
1,500.00	1,500.00	1,500.00	1,500.00	4.70	5.18	89.20	0.56	40.00	40.00	30.12	9.88	4.048	CC, ES, SF
1,600.00	1,599.98	1,598.63	1,598.61	5.05	5.52	114.79	1.14	41.60	42.34	31.92	10.42	4.064	
1,700.00	1,699.84	1,696.89	1,696.73	5.70	5.87	118.04	2.85	46.36	49.45	38.42	11.03	4.482	
1,800.00	1,799.48	1,794.42	1,793.90	5.91	6.21	121.57	5.68	54.22	61.35	49.84	11.51	5.328	
1,900.00	1,899.08	1,891.18	1,889.97	6.10	6.56	123.11	9.60	65.09	76.64	64.64	12.01	6.384	
2,000.00	1,998.68	1,987.01	1,984.66	6.32	6.92	123.15	14.56	78.85	94.86	82.37	12.49	7.594	
2,100.00	2,098.29	2,081.70	2,077.71	6.56	7.29	122.39	20.51	95.37	115.93	102.97	12.96	8.948	
2,200.00	2,197.89	2,175.08	2,168.85	6.81	7.68	121.26	27.40	114.49	139.85	126.45	13.41	10.432	
2,300.00	2,297.49	2,266.98	2,257.85	7.08	8.08	119.99	35.16	136.01	166.62	152.78	13.84	12.039	
2,400.00	2,397.09	2,362.28	2,349.68	7.35	8.53	118.80	43.80	160.00	195.11	180.76	14.35	13.599	
2,500.00	2,496.69	2,458.06	2,441.96	7.64	9.00	117.90	52.49	184.11	223.67	208.80	14.87	15.037	
2,600.00	2,596.29	2,553.84	2,534.25	7.93	9.48	117.20	61.18	208.23	252.27	236.86	15.41	16.370	
2,700.00	2,695.89	2,649.63	2,626.54	8.23	9.98	116.65	69.87	232.35	280.90	264.95	15.95	17.608	
2,800.00	2,795.49	2,745.41	2,718.83	8.54	10.49	116.20	78.56	256.47	309.55	293.05	16.50	18.759	
2,900.00	2,895.09	2,841.19	2,811.12	8.86	11.01	115.82	87.25	280.58	338.21	321.16	17.05	19.832	
3,000.00	2,994.69	2,936.97	2,903.41	9.18	11.53	115.50	95.94	304.70	366.88	349.27	17.61	20.833	
3,100.00	3,094.29	3,032.76	2,995.70	9.51	12.07	115.23	104.63	328.82	395.57	377.40	18.17	21.768	
3,200.00	3,193.89	3,128.54	3,087.98	9.84	12.61	115.00	113.32	352.93	424.26	405.52	18.74	22.644	
3,300.00	3,293.49	3,224.32	3,180.27	10.18	13.15	114.80	122.01	377.05	452.95	433.65	19.30	23.466	
3,400.00	3,393.09	3,320.11	3,272.56	10.52	13.70	114.62	130.70	401.17	481.65	461.78	19.87	24.238	
3,500.00	3,492.69	3,415.89	3,364.85	10.86	14.26	114.46	139.39	425.28	510.36	489.91	20.44	24.964	
3,600.00	3,592.29	3,511.67	3,457.14	11.21	14.82	114.31	148.07	449.40	539.06	518.04	21.02	25.648	
3,700.00	3,691.89	3,607.45	3,549.43	11.55	15.38	114.18	156.76	473.52	567.77	546.18	21.59	26.293	
3,800.00	3,791.49	3,703.24	3,641.72	11.91	15.95	114.07	165.45	497.64	596.48	574.31	22.17	26.903	
3,900.00	3,891.10	3,799.02	3,734.01	12.26	16.52	113.96	174.14	521.75	625.20	602.45	22.75	27.481	
4,000.00	3,990.70	3,894.80	3,826.29	12.62	17.09	113.87	182.83	545.87	653.91	630.58	23.33	28.027	
4,100.00	4,090.30	3,990.58	3,918.58	12.97	17.66	113.78	191.52	569.99	682.63	658.72	23.91	28.546	
4,200.00	4,189.90	4,086.37	4,010.87	13.33	18.24	113.70	200.21	594.10	711.35	686.85	24.50	29.038	
4,300.00	4,289.50	4,182.15	4,103.16	13.70	18.81	113.62	208.90	618.22	740.07	714.99	25.08	29.506	
4,400.00	4,389.10	4,277.93	4,195.45	14.06	19.39	113.56	217.59	642.34	768.79	743.12	25.67	29.952	
4,500.00	4,488.70	4,373.72	4,287.74	14.42	19.97	113.49	226.28	666.45	797.51	771.26	26.25	30.376	
4,600.00	4,588.30	4,469.50	4,380.03	14.79	20.55	113.43	234.97	690.57	826.24	799.39	26.84	30.781	
4,700.00	4,687.90	4,565.28	4,472.31	15.16	21.14	113.38	243.66	714.69	854.96	827.53	27.43	31.168	
4,800.00	4,787.50	4,661.06	4,564.60	15.52	21.72	113.32	252.35	738.80	883.68	855.66	28.02	31.537	
4,900.00	4,887.10	4,756.85	4,656.89	15.89	22.31	113.28	261.04	762.92	912.41	883.80	28.61	31.890	
5,000.00	4,986.70	4,852.63	4,749.18	16.26	22.90	113.23	269.73	787.04	941.13	911.93	29.20	32.228	
5,100.00	5,086.30	4,948.41	4,841.47	16.63	23.48	113.19	278.42	811.16	969.86	940.07	29.79	32.551	

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



Anticollision Report



Company:	NOVO Oil & Gas	Local Co-ordinate Reference:	Well RANA-SALADA-FED-01-231H
Project:	EDDY CO., NM (NAD83)	TVD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Reference Site:	SEC 02-T23S-R28E	MD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	RANA-SALADA-FED-01-231H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	1 - EDM Production
Reference Design:	Plan 1	Offset TVD Reference:	Offset Datum

Offset Design: SEC 02-T23S-R28E - RANA-SALADA-FED-01-211H - Wellbore #1 - Plan 1												Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IGRF												Offset Well Error:	0.50 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
5,200.00	5,185.90	5,044.20	4,933.76	17.01	24.07	113.15	287.11	835.27	998.59	968.20	30.39	32.862	
5,300.00	5,285.50	5,139.98	5,026.05	17.38	24.66	113.11	295.80	859.39	1,027.31	996.33	30.98	33.159	
5,400.00	5,385.10	5,235.76	5,118.34	17.75	25.25	113.07	304.49	883.51	1,056.04	1,024.47	31.58	33.445	
5,500.00	5,484.70	5,331.54	5,210.62	18.13	25.84	113.04	313.18	907.62	1,084.77	1,052.60	32.17	33.720	
5,600.00	5,584.30	5,427.33	5,302.91	18.50	26.43	113.00	321.87	931.74	1,113.50	1,080.73	32.77	33.984	
5,700.00	5,683.91	5,523.11	5,395.20	18.88	27.03	112.97	330.56	955.86	1,142.23	1,108.86	33.36	34.238	
5,800.00	5,783.51	5,618.89	5,487.49	19.25	27.62	112.94	339.25	979.97	1,170.95	1,137.00	33.96	34.482	
5,900.00	5,883.11	5,714.68	5,579.78	19.63	28.21	112.92	347.94	1,004.09	1,199.68	1,165.13	34.56	34.718	
6,000.00	5,982.71	5,810.46	5,672.07	20.01	28.80	112.89	356.63	1,028.21	1,228.41	1,193.26	35.15	34.945	
6,100.00	6,082.31	5,929.08	5,786.50	20.39	29.53	112.87	367.22	1,057.60	1,256.85	1,220.95	35.90	35.009	
6,200.00	6,181.91	6,095.91	5,949.19	20.76	30.45	112.95	379.70	1,092.24	1,281.18	1,244.27	36.91	34.713	
6,300.00	6,281.53	6,266.82	6,117.79	21.12	31.24	113.27	389.14	1,118.43	1,299.99	1,262.18	37.81	34.381	
6,400.00	6,381.35	6,441.04	6,291.05	21.52	31.91	113.65	395.23	1,135.35	1,312.08	1,273.46	38.62	33.972	
6,500.00	6,481.32	6,617.18	6,467.01	21.91	32.45	113.80	397.76	1,142.35	1,317.04	1,277.74	39.30	33.515	
6,600.00	6,581.32	6,731.49	6,581.32	21.96	32.74	89.56	397.82	1,142.52	1,317.16	1,277.47	39.69	33.186	
6,700.00	6,681.32	6,831.49	6,681.32	22.01	33.00	89.56	397.82	1,142.52	1,317.16	1,277.08	40.08	32.864	
6,800.00	6,781.32	6,931.49	6,781.32	22.06	33.25	89.56	397.82	1,142.52	1,317.16	1,276.69	40.47	32.546	
6,900.00	6,881.32	7,031.49	6,881.32	22.12	33.51	89.56	397.82	1,142.52	1,317.16	1,276.30	40.86	32.232	
7,000.00	6,981.32	7,131.49	6,981.32	22.17	33.77	89.56	397.82	1,142.52	1,317.16	1,275.90	41.26	31.924	
7,100.00	7,081.32	7,231.49	7,081.32	22.22	34.03	89.56	397.82	1,142.52	1,317.16	1,275.51	41.66	31.620	
7,200.00	7,181.32	7,331.49	7,181.32	22.27	34.29	89.56	397.82	1,142.52	1,317.16	1,275.11	42.05	31.322	
7,300.00	7,281.32	7,431.49	7,281.32	22.33	34.55	89.56	397.82	1,142.52	1,317.16	1,274.71	42.45	31.028	
7,400.00	7,381.32	7,531.49	7,381.32	22.38	34.82	89.56	397.82	1,142.52	1,317.16	1,274.31	42.85	30.740	
7,500.00	7,481.32	7,631.49	7,481.32	22.43	35.09	89.56	397.82	1,142.52	1,317.16	1,273.91	43.25	30.456	
7,600.00	7,581.32	7,731.49	7,581.32	22.49	35.35	89.56	397.82	1,142.52	1,317.16	1,273.51	43.65	30.176	
7,700.00	7,681.32	7,831.49	7,681.32	22.54	35.62	89.56	397.82	1,142.52	1,317.16	1,273.11	44.05	29.901	
7,800.00	7,781.32	7,931.49	7,781.32	22.59	35.90	89.56	397.82	1,142.52	1,317.16	1,272.71	44.45	29.630	
7,900.00	7,881.32	8,031.49	7,881.32	22.65	36.17	89.56	397.82	1,142.52	1,317.16	1,272.31	44.86	29.364	
8,000.00	7,981.32	8,131.49	7,981.32	22.70	36.45	89.56	397.82	1,142.52	1,317.16	1,271.90	45.26	29.102	
8,100.00	8,081.32	8,231.49	8,081.32	22.75	36.72	89.56	397.82	1,142.52	1,317.16	1,271.50	45.66	28.844	
8,200.00	8,181.32	8,331.49	8,181.32	22.81	37.00	89.56	397.82	1,142.52	1,317.16	1,271.09	46.07	28.590	
8,300.00	8,281.32	8,431.49	8,281.32	22.86	37.28	89.56	397.82	1,142.52	1,317.16	1,270.69	46.48	28.340	
8,400.00	8,381.32	8,531.49	8,381.32	22.92	37.56	89.56	397.82	1,142.52	1,317.16	1,270.28	46.88	28.094	
8,500.00	8,481.32	8,631.49	8,481.32	22.97	37.84	89.56	397.82	1,142.52	1,317.16	1,269.87	47.29	27.852	
8,600.00	8,581.32	8,731.49	8,581.32	23.03	38.12	89.56	397.82	1,142.52	1,317.16	1,269.46	47.70	27.614	
8,700.00	8,681.32	8,831.49	8,681.32	23.08	38.41	89.56	397.82	1,142.52	1,317.16	1,269.05	48.11	27.379	
8,800.00	8,781.32	8,931.49	8,781.32	23.14	38.69	89.56	397.82	1,142.52	1,317.16	1,268.65	48.52	27.148	
8,900.00	8,881.32	9,031.49	8,881.32	23.19	38.98	89.56	397.82	1,142.52	1,317.16	1,268.23	48.93	26.921	
9,000.00	8,981.32	9,131.49	8,981.32	23.25	39.27	89.56	397.82	1,142.52	1,317.16	1,267.82	49.34	26.697	
9,100.00	9,081.32	9,231.49	9,081.32	23.30	39.56	89.56	397.82	1,142.52	1,317.16	1,267.41	49.75	26.476	
9,200.00	9,181.32	9,331.49	9,181.32	23.36	39.85	89.56	397.82	1,142.52	1,317.16	1,267.00	50.16	26.259	
9,300.00	9,281.24	9,432.76	9,282.54	23.31	40.13	-90.73	396.01	1,142.52	1,317.17	1,266.69	50.48	26.093	
9,400.00	9,379.46	9,535.82	9,384.00	23.27	40.35	-90.79	378.66	1,142.44	1,317.20	1,266.55	50.65	26.006	
9,500.00	9,473.05	9,639.08	9,480.88	23.18	40.51	-90.82	343.35	1,142.29	1,317.22	1,266.50	50.72	25.972	
9,600.00	9,559.17	9,742.42	9,569.93	23.06	40.60	-90.82	291.20	1,142.07	1,317.24	1,266.52	50.72	25.972	
9,700.00	9,635.20	9,845.72	9,648.16	22.93	40.63	-90.80	223.95	1,141.79	1,317.25	1,266.55	50.70	25.980	
9,800.00	9,698.82	9,948.89	9,712.98	22.80	40.62	-90.75	143.87	1,141.45	1,317.26	1,266.53	50.73	25.964	
9,900.00	9,748.12	10,051.81	9,762.32	22.71	40.58	-90.68	53.71	1,141.07	1,317.27	1,266.41	50.87	25.895	
10,000.00	9,781.57	10,154.39	9,794.68	22.65	40.56	-90.59	-43.49	1,140.66	1,317.28	1,266.13	51.15	25.751	
10,100.00	9,798.18	10,256.54	9,809.19	22.66	40.57	-90.48	-144.47	1,140.23	1,317.29	1,265.68	51.61	25.524	
10,200.00	9,799.73	10,357.15	9,809.65	22.75	40.65	-90.43	-245.06	1,139.80	1,317.32	1,265.07	52.25	25.210	
10,300.00	9,799.22	10,457.15	9,809.13	22.87	40.83	-90.43	-345.06	1,139.38	1,317.35	1,264.25	53.10	24.809	

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



Anticollision Report



Company:	NOVO Oil & Gas	Local Co-ordinate Reference:	Well RANA-SALADA-FED-01-231H
Project:	EDDY CO., NM (NAD83)	TVD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Reference Site:	SEC 02-T23S-R28E	MD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	RANA-SALADA-FED-01-231H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	1 - EDM Production
Reference Design:	Plan 1	Offset TVD Reference:	Offset Datum

Offset Design: SEC 02-T23S-R28E - RANA-SALADA-FED-01-211H - Wellbore #1 - Plan 1													Offset Site Error:	0.00 usft	
Survey Program:		0-MWD+IGRF		Offset			Semi Major Axis		Offset Wellbore Centre		Rule Assigned:			Offset Well Error:	0.50 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning		
10,400.00	9,798.70	10,557.15	9,808.61	23.02	41.09	-90.43	-445.06	1,138.96	1,317.39	1,263.24	54.15	24.328			
10,500.00	9,798.18	10,657.15	9,808.10	23.21	41.45	-90.43	-545.06	1,138.53	1,317.42	1,262.03	55.39	23.785			
10,600.00	9,797.66	10,757.15	9,807.58	23.45	41.91	-90.43	-645.05	1,138.11	1,317.46	1,260.65	56.80	23.194			
10,700.00	9,797.14	10,857.15	9,807.06	23.75	42.46	-90.43	-745.05	1,137.69	1,317.49	1,259.12	58.37	22.571			
10,800.00	9,796.62	10,957.15	9,806.54	24.13	43.11	-90.43	-845.05	1,137.26	1,317.52	1,257.43	60.09	21.927			
10,900.00	9,796.11	11,057.15	9,806.02	24.60	43.85	-90.43	-945.05	1,136.84	1,317.56	1,255.62	61.94	21.273			
11,000.00	9,795.59	11,157.15	9,805.50	25.18	44.67	-90.43	-1,045.04	1,136.42	1,317.59	1,253.69	63.90	20.618			
11,100.00	9,795.07	11,257.15	9,804.98	25.87	45.57	-90.43	-1,145.04	1,136.00	1,317.62	1,251.64	65.98	19.969			
11,200.00	9,794.55	11,357.15	9,804.46	26.65	46.53	-90.43	-1,245.04	1,135.57	1,317.66	1,249.50	68.16	19.332			
11,300.00	9,794.03	11,457.15	9,803.94	27.54	47.56	-90.43	-1,345.04	1,135.15	1,317.69	1,247.27	70.43	18.710			
11,400.00	9,793.51	11,557.15	9,803.42	28.50	48.65	-90.43	-1,445.04	1,134.73	1,317.73	1,244.95	72.77	18.107			
11,500.00	9,792.99	11,657.15	9,802.90	29.52	49.79	-90.43	-1,545.03	1,134.30	1,317.76	1,242.56	75.20	17.524			
11,600.00	9,792.48	11,757.15	9,802.38	30.61	50.98	-90.43	-1,645.03	1,133.88	1,317.79	1,240.11	77.69	16.963			
11,700.00	9,791.96	11,857.15	9,801.87	31.73	52.22	-90.43	-1,745.03	1,133.46	1,317.83	1,237.59	80.24	16.424			
11,800.00	9,791.44	11,957.15	9,801.35	32.90	53.50	-90.43	-1,845.03	1,133.03	1,317.86	1,235.02	82.84	15.908			
11,900.00	9,790.92	12,057.15	9,800.83	34.09	54.81	-90.43	-1,945.02	1,132.61	1,317.90	1,232.39	85.50	15.414			
12,000.00	9,790.40	12,157.15	9,800.31	35.31	56.16	-90.43	-2,045.02	1,132.19	1,317.93	1,229.72	88.20	14.942			
12,100.00	9,789.88	12,257.15	9,799.79	36.56	57.55	-90.43	-2,145.02	1,131.76	1,317.96	1,227.01	90.95	14.491			
12,200.00	9,789.37	12,357.15	9,799.27	37.82	58.96	-90.43	-2,245.02	1,131.34	1,318.00	1,224.26	93.74	14.061			
12,300.00	9,788.85	12,457.15	9,798.75	39.09	60.41	-90.43	-2,345.02	1,130.92	1,318.03	1,221.47	96.56	13.650			
12,400.00	9,788.33	12,557.15	9,798.23	40.38	61.88	-90.43	-2,445.01	1,130.49	1,318.06	1,218.66	99.41	13.259			
12,500.00	9,787.81	12,657.15	9,797.71	41.69	63.37	-90.43	-2,545.01	1,130.07	1,318.10	1,215.81	102.29	12.886			
12,600.00	9,787.29	12,757.15	9,797.19	43.00	64.89	-90.43	-2,645.01	1,129.65	1,318.13	1,212.93	105.20	12.529			
12,700.00	9,786.77	12,857.15	9,796.67	44.32	66.42	-90.43	-2,745.01	1,129.22	1,318.17	1,210.03	108.14	12.190			
12,800.00	9,786.25	12,957.15	9,796.15	45.65	67.98	-90.43	-2,845.00	1,128.80	1,318.20	1,207.10	111.10	11.865			
12,900.00	9,785.74	13,057.15	9,795.63	46.99	69.56	-90.43	-2,945.00	1,128.38	1,318.23	1,204.15	114.08	11.555			
13,000.00	9,785.22	13,157.15	9,795.12	48.34	71.15	-90.43	-3,045.00	1,127.96	1,318.27	1,201.19	117.08	11.260			
13,100.00	9,784.70	13,257.15	9,794.60	49.69	72.76	-90.43	-3,145.00	1,127.53	1,318.30	1,198.20	120.10	10.977			
13,200.00	9,784.18	13,357.15	9,794.08	51.04	74.38	-90.43	-3,245.00	1,127.11	1,318.34	1,195.20	123.14	10.706			
13,300.00	9,783.66	13,457.15	9,793.56	52.41	76.02	-90.43	-3,344.99	1,126.69	1,318.37	1,192.18	126.19	10.448			
13,400.00	9,783.14	13,557.15	9,793.04	53.77	77.66	-90.43	-3,444.99	1,126.26	1,318.40	1,189.15	129.26	10.200			
13,500.00	9,782.63	13,657.15	9,792.52	55.14	79.33	-90.43	-3,544.99	1,125.84	1,318.44	1,186.10	132.34	9.963			
13,600.00	9,782.11	13,757.15	9,792.00	56.52	81.00	-90.43	-3,644.99	1,125.42	1,318.47	1,183.04	135.43	9.735			
13,700.00	9,781.59	13,857.15	9,791.48	57.89	82.68	-90.43	-3,744.98	1,124.99	1,318.50	1,179.96	138.54	9.517			
13,800.00	9,781.07	13,957.15	9,790.96	59.28	84.38	-90.43	-3,844.98	1,124.57	1,318.54	1,176.88	141.66	9.308			
13,900.00	9,780.55	14,057.15	9,790.44	60.66	86.08	-90.43	-3,944.98	1,124.15	1,318.57	1,173.78	144.79	9.107			
14,000.00	9,780.03	14,157.15	9,789.92	62.05	87.79	-90.43	-4,044.98	1,123.72	1,318.61	1,170.68	147.93	8.914			
14,100.00	9,779.51	14,257.15	9,789.40	63.44	89.51	-90.43	-4,144.98	1,123.30	1,318.64	1,167.56	151.08	8.728			
14,200.00	9,779.00	14,357.15	9,788.89	64.83	91.24	-90.43	-4,244.97	1,122.88	1,318.67	1,164.44	154.23	8.550			
14,300.00	9,778.48	14,457.15	9,788.37	66.22	92.97	-90.43	-4,344.97	1,122.45	1,318.71	1,161.31	157.40	8.378			
14,400.00	9,777.96	14,557.15	9,787.85	67.62	94.72	-90.43	-4,444.97	1,122.03	1,318.74	1,158.17	160.57	8.213			
14,500.00	9,777.44	14,657.15	9,787.33	69.02	96.47	-90.43	-4,544.97	1,121.61	1,318.78	1,155.02	163.75	8.053			
14,600.00	9,776.92	14,757.15	9,786.81	70.42	98.22	-90.43	-4,644.96	1,121.19	1,318.81	1,151.87	166.94	7.900			
14,700.00	9,776.40	14,857.15	9,786.29	71.82	99.98	-90.43	-4,744.96	1,120.76	1,318.84	1,148.71	170.14	7.752			
14,800.00	9,775.89	14,957.15	9,785.77	73.22	101.75	-90.43	-4,844.96	1,120.34	1,318.88	1,145.54	173.34	7.609			
14,900.00	9,775.37	15,057.15	9,785.25	74.63	103.52	-90.43	-4,944.96	1,119.92	1,318.91	1,142.37	176.54	7.471			
15,000.00	9,774.85	15,157.15	9,784.73	76.03	105.30	-90.43	-5,044.96	1,119.49	1,318.94	1,139.19	179.76	7.337			
15,100.00	9,774.33	15,257.15	9,784.21	77.44	107.08	-90.43	-5,144.95	1,119.07	1,318.98	1,136.01	182.97	7.209			
15,200.00	9,773.81	15,357.15	9,783.69	78.85	108.87	-90.43	-5,244.95	1,118.65	1,319.01	1,132.82	186.19	7.084			
15,300.00	9,773.29	15,457.15	9,783.17	80.26	110.66	-90.43	-5,344.95	1,118.22	1,319.05	1,129.62	189.42	6.964			
15,400.00	9,772.77	15,557.15	9,782.66	81.67	112.46	-90.43	-5,444.95	1,117.80	1,319.08	1,126.43	192.65	6.847			
15,500.00	9,772.26	15,657.15	9,782.14	83.08	114.26	-90.43	-5,544.94	1,117.38	1,319.11	1,123.22	195.89	6.734			

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



Anticollision Report



Company:	NOVO Oil & Gas	Local Co-ordinate Reference:	Well RANA-SALADA-FED-01-231H
Project:	EDDY CO., NM (NAD83)	TVD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Reference Site:	SEC 02-T23S-R28E	MD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	RANA-SALADA-FED-01-231H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	1 - EDM Production
Reference Design:	Plan 1	Offset TVD Reference:	Offset Datum

Offset Design: SEC 02-T23S-R28E - RANA-SALADA-FED-01-211H - Wellbore #1 - Plan 1												Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IGRF												Offset Well Error:	0.50 usft
Reference	Offset	Semi Major Axis		Distance		Rule Assigned:		Warning					
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
15,600.00	9,771.74	15,757.15	9,781.62	84.50	116.06	-90.43	-5,644.94	1,116.95	1,319.15	1,120.02	199.13	6.625	
15,700.00	9,771.22	15,857.15	9,781.10	85.91	117.87	-90.43	-5,744.94	1,116.53	1,319.18	1,116.81	202.37	6.519	
15,800.00	9,770.70	15,957.15	9,780.58	87.32	119.68	-90.43	-5,844.94	1,116.11	1,319.22	1,113.60	205.62	6.416	
15,900.00	9,770.18	16,057.15	9,780.06	88.74	121.50	-90.43	-5,944.93	1,115.68	1,319.25	1,110.38	208.87	6.316	
16,000.00	9,769.66	16,157.15	9,779.54	90.16	123.31	-90.43	-6,044.93	1,115.26	1,319.28	1,107.16	212.13	6.219	
16,100.00	9,769.15	16,257.15	9,779.02	91.57	125.13	-90.43	-6,144.93	1,114.84	1,319.32	1,103.93	215.38	6.125	
16,200.00	9,768.63	16,357.15	9,778.50	92.99	126.96	-90.43	-6,244.93	1,114.41	1,319.35	1,100.71	218.64	6.034	
16,300.00	9,768.11	16,457.15	9,777.98	94.41	128.78	-90.43	-6,344.93	1,113.99	1,319.38	1,097.48	221.91	5.946	
16,400.00	9,767.59	16,557.15	9,777.46	95.83	130.61	-90.43	-6,444.92	1,113.57	1,319.42	1,094.24	225.17	5.860	
16,500.00	9,767.07	16,657.15	9,776.94	97.25	132.44	-90.43	-6,544.92	1,113.15	1,319.45	1,091.01	228.44	5.776	
16,600.00	9,766.55	16,757.15	9,776.43	98.67	134.28	-90.43	-6,644.92	1,112.72	1,319.49	1,087.77	231.71	5.694	
16,700.00	9,766.03	16,857.15	9,775.91	100.09	136.11	-90.43	-6,744.92	1,112.30	1,319.52	1,084.53	234.99	5.615	
16,800.00	9,765.52	16,957.15	9,775.39	101.52	137.95	-90.43	-6,844.91	1,111.88	1,319.55	1,081.29	238.27	5.538	
16,900.00	9,765.00	17,057.15	9,774.87	102.94	139.79	-90.43	-6,944.91	1,111.45	1,319.59	1,078.04	241.54	5.463	
17,000.00	9,764.48	17,157.15	9,774.35	104.36	141.64	-90.43	-7,044.91	1,111.03	1,319.62	1,074.80	244.83	5.390	
17,100.00	9,763.96	17,257.15	9,773.83	105.78	143.48	-90.43	-7,144.91	1,110.61	1,319.66	1,071.55	248.11	5.319	
17,200.00	9,763.44	17,357.15	9,773.31	107.21	145.33	-90.43	-7,244.91	1,110.18	1,319.69	1,068.30	251.39	5.249	
17,300.00	9,762.92	17,457.15	9,772.79	108.63	147.18	-90.43	-7,344.90	1,109.76	1,319.72	1,065.04	254.68	5.182	
17,400.00	9,762.41	17,557.15	9,772.27	110.06	149.03	-90.43	-7,444.90	1,109.34	1,319.76	1,061.79	257.97	5.116	
17,500.00	9,761.89	17,657.15	9,771.75	111.48	150.88	-90.43	-7,544.90	1,108.91	1,319.79	1,058.53	261.26	5.052	
17,600.00	9,761.37	17,757.15	9,771.23	112.91	152.73	-90.43	-7,644.90	1,108.49	1,319.82	1,055.27	264.55	4.989	
17,600.64	9,761.37	17,757.79	9,771.23	112.92	152.74	-90.43	-7,645.54	1,108.49	1,319.83	1,055.25	264.57	4.988	
17,671.01	9,761.00	17,803.00	9,771.00	113.92	153.62	-90.43	-7,690.75	1,108.30	1,320.09	1,053.43	266.66	4.951	



Anticollision Report



Company:	NOVO Oil & Gas	Local Co-ordinate Reference:	Well RANA-SALADA-FED-01-231H
Project:	EDDY CO., NM (NAD83)	TVD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Reference Site:	SEC 02-T23S-R28E	MD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	RANA-SALADA-FED-01-231H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	1 - EDM Production
Reference Design:	Plan 1	Offset TVD Reference:	Offset Datum

Offset Design: Sec 14-T23S-28E - CB Boba Fett 14 11 Fed 09 403H Package 9 - Wellbore #1 - Design #1												Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HRGM												Offset Well Error:	0.50 usft
Rule Assigned:												Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
7,800.00	7,781.32	23,214.85	9,716.92	22.59	211.49	-114.11	100.05	-817.38	2,117.26	1,970.52	146.74	14.429	
7,900.00	7,881.32	23,214.85	9,716.92	22.65	211.49	-114.11	100.05	-817.38	2,023.22	1,875.05	148.17	13.655	
8,000.00	7,981.32	23,214.85	9,716.92	22.70	211.49	-114.11	100.05	-817.38	1,929.79	1,780.05	149.74	12.888	
8,100.00	8,081.32	23,214.85	9,716.92	22.75	211.49	-114.11	100.05	-817.38	1,837.05	1,685.59	151.46	12.129	
8,200.00	8,181.32	23,214.85	9,716.92	22.81	211.49	-114.11	100.05	-817.38	1,745.11	1,591.76	153.35	11.380	
8,300.00	8,281.32	23,214.85	9,716.92	22.86	211.49	-114.11	100.05	-817.38	1,654.11	1,498.66	155.44	10.641	
8,400.00	8,381.32	23,214.85	9,716.92	22.92	211.49	-114.11	100.05	-817.38	1,564.20	1,406.44	157.77	9.915	
8,500.00	8,481.32	23,214.85	9,716.92	22.97	211.49	-114.11	100.05	-817.38	1,475.60	1,315.25	160.35	9.202	
8,600.00	8,581.32	23,214.85	9,716.92	23.03	211.49	-114.11	100.05	-817.38	1,388.54	1,225.31	163.23	8.507	
8,700.00	8,681.32	23,214.85	9,716.92	23.08	211.49	-114.11	100.05	-817.38	1,303.35	1,136.91	166.44	7.831	
8,800.00	8,781.32	23,214.85	9,716.92	23.14	211.49	-114.11	100.05	-817.38	1,220.40	1,050.38	170.02	7.178	
8,900.00	8,881.32	23,214.85	9,716.92	23.19	211.49	-114.11	100.05	-817.38	1,140.19	966.20	173.99	6.553	
9,000.00	8,981.32	23,214.85	9,716.92	23.25	211.49	-114.11	100.05	-817.38	1,063.34	884.97	178.37	5.961	
9,100.00	9,081.32	23,214.85	9,716.92	23.30	211.49	-114.11	100.05	-817.38	990.63	807.51	183.12	5.410	
9,200.00	9,181.32	23,214.85	9,716.92	23.36	211.49	-114.11	100.05	-817.38	923.04	734.89	188.16	4.906	
9,300.00	9,281.24	23,214.85	9,716.92	23.31	211.49	69.50	100.05	-817.38	860.97	667.56	193.40	4.452	
9,400.00	9,379.46	23,214.85	9,716.92	23.27	211.49	76.48	100.05	-817.38	802.02	602.50	199.52	4.020	
9,500.00	9,473.05	23,214.85	9,716.92	23.18	211.49	82.76	100.05	-817.38	748.18	541.69	206.49	3.623	
9,600.00	9,559.17	23,214.85	9,716.92	23.06	211.49	87.90	100.05	-817.38	702.45	488.57	213.89	3.284	
9,700.00	9,635.20	23,214.85	9,716.92	22.93	211.49	91.58	100.05	-817.38	668.00	447.19	220.81	3.025	
9,800.00	9,698.82	23,214.85	9,716.92	22.80	211.49	93.65	100.05	-817.38	647.75	421.80	225.95	2.867	
9,900.00	9,748.12	23,167.72	9,716.64	22.71	210.82	92.29	52.92	-817.38	641.94	415.27	226.66	2.832 SF	
10,000.00	9,781.57	23,073.82	9,716.08	22.65	209.47	89.55	-40.98	-817.38	640.84	415.76	225.08	2.847	
10,100.00	9,798.18	22,975.43	9,715.50	22.66	208.07	88.06	-139.36	-817.38	640.74	417.12	223.62	2.865	
10,200.00	9,799.73	22,875.50	9,714.90	22.75	206.64	87.88	-239.30	-817.38	640.36	417.83	222.53	2.878	
10,300.00	9,799.22	22,775.50	9,714.31	22.87	205.21	87.87	-339.29	-817.38	639.90	418.29	221.61	2.888	
10,400.00	9,798.70	22,675.50	9,713.72	23.02	203.79	87.86	-439.29	-817.38	639.45	418.65	220.80	2.896	
10,500.00	9,798.18	22,575.50	9,713.12	23.21	202.36	87.85	-539.29	-817.38	639.00	418.92	220.08	2.903	
10,600.00	9,797.66	22,475.50	9,712.53	23.45	200.93	87.84	-639.29	-817.38	638.54	419.10	219.44	2.910	
10,700.00	9,797.14	22,375.50	9,711.94	23.75	199.50	87.84	-739.28	-817.38	638.09	419.21	218.87	2.915	
10,800.00	9,796.62	22,275.50	9,711.34	24.13	198.08	87.83	-839.28	-817.38	637.63	419.26	218.37	2.920	
10,900.00	9,796.11	22,175.50	9,710.75	24.60	196.65	87.82	-939.28	-817.38	637.18	419.26	217.92	2.924	
11,000.00	9,795.59	22,075.50	9,710.16	25.18	195.22	87.81	-1,039.27	-817.38	636.73	419.20	217.52	2.927	
11,100.00	9,795.07	21,975.51	9,709.56	25.87	193.80	87.80	-1,139.27	-817.38	636.27	419.10	217.17	2.930	
11,200.00	9,794.55	21,875.51	9,708.97	26.65	192.37	87.79	-1,239.27	-817.38	635.82	418.97	216.85	2.932	
11,300.00	9,794.03	21,775.51	9,708.38	27.54	190.94	87.79	-1,339.27	-817.38	635.36	418.80	216.56	2.934	
11,400.00	9,793.51	21,675.51	9,707.78	28.50	189.52	87.78	-1,439.26	-817.38	634.91	418.61	216.30	2.935	
11,500.00	9,792.99	21,575.51	9,707.19	29.52	188.09	87.77	-1,539.26	-817.38	634.46	418.39	216.07	2.936	
11,600.00	9,792.48	21,475.51	9,706.60	30.61	186.67	87.76	-1,639.26	-817.38	634.00	418.15	215.86	2.937	
11,700.00	9,791.96	21,375.51	9,706.00	31.73	185.24	87.75	-1,739.25	-817.38	633.55	417.89	215.66	2.938	
11,800.00	9,791.44	21,275.51	9,705.41	32.90	183.82	87.74	-1,839.25	-817.38	633.10	417.61	215.49	2.938	
11,900.00	9,790.92	21,175.51	9,704.82	34.09	182.39	87.74	-1,939.25	-817.38	632.64	417.32	215.33	2.938	
12,000.00	9,790.40	21,075.51	9,704.22	35.31	180.97	87.73	-2,039.25	-817.38	632.19	417.01	215.18	2.938	
12,100.00	9,789.88	20,975.52	9,703.63	36.56	179.54	87.72	-2,139.24	-817.38	631.74	416.69	215.04	2.938	
12,200.00	9,789.37	20,875.52	9,703.04	37.82	178.12	87.71	-2,239.24	-817.38	631.28	416.36	214.92	2.937	
12,300.00	9,788.85	20,775.52	9,702.44	39.09	176.69	87.70	-2,339.24	-817.38	630.83	416.02	214.81	2.937	
12,400.00	9,788.33	20,675.52	9,701.85	40.38	175.27	87.69	-2,439.23	-817.38	630.37	415.67	214.70	2.936	
12,500.00	9,787.81	20,575.52	9,701.26	41.69	173.85	87.69	-2,539.23	-817.38	629.92	415.31	214.61	2.935	
12,600.00	9,787.29	20,475.52	9,700.66	43.00	172.42	87.68	-2,639.23	-817.38	629.47	414.95	214.52	2.934	
12,700.00	9,786.77	20,375.52	9,700.07	44.32	171.00	87.67	-2,739.23	-817.38	629.01	414.58	214.44	2.933	
12,800.00	9,786.25	20,275.52	9,699.47	45.65	169.58	87.66	-2,839.22	-817.38	628.56	414.20	214.36	2.932	
12,900.00	9,785.74	20,175.52	9,698.88	46.99	168.16	87.65	-2,939.22	-817.38	628.11	413.82	214.29	2.931	

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



Anticollision Report



Company:	NOVO Oil & Gas	Local Co-ordinate Reference:	Well RANA-SALADA-FED-01-231H
Project:	EDDY CO., NM (NAD83)	TVD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Reference Site:	SEC 02-T23S-R28E	MD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	RANA-SALADA-FED-01-231H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	1 - EDM Production
Reference Design:	Plan 1	Offset TVD Reference:	Offset Datum

Offset Design: Sec 14-T23S-28E - CB Boba Fett 14 11 Fed 09 403H Package 9 - Wellbore #1 - Design #1												Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HRGM												Offset Well Error:	0.50 usft
Rule Assigned:												Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
13,000.00	9,785.22	20,075.53	9,698.29	48.34	166.73	87.64	-3,039.22	-817.38	627.65	413.43	214.23	2.930	
13,100.00	9,784.70	19,975.53	9,697.69	49.69	165.31	87.63	-3,139.21	-817.38	627.20	413.03	214.17	2.929	
13,200.00	9,784.18	19,875.53	9,697.10	51.04	163.89	87.63	-3,239.21	-817.38	626.75	412.63	214.11	2.927	
13,300.00	9,783.66	19,775.53	9,696.51	52.41	162.47	87.62	-3,339.21	-817.38	626.29	412.23	214.06	2.926	
13,400.00	9,783.14	19,675.53	9,695.91	53.77	161.05	87.61	-3,439.21	-817.38	625.84	411.83	214.01	2.924	
13,500.00	9,782.63	19,575.53	9,695.32	55.14	159.63	87.60	-3,539.20	-817.38	625.39	411.41	213.97	2.923	
13,600.00	9,782.11	19,475.53	9,694.73	56.52	158.21	87.59	-3,639.20	-817.38	624.93	411.00	213.93	2.921	
13,700.00	9,781.59	19,375.53	9,694.13	57.89	156.79	87.58	-3,739.20	-817.38	624.48	410.58	213.89	2.920	
13,800.00	9,781.07	19,275.53	9,693.54	59.28	155.37	87.57	-3,839.19	-817.38	624.02	410.16	213.86	2.918	
13,900.00	9,780.55	19,175.54	9,692.95	60.66	153.95	87.57	-3,939.19	-817.38	623.57	409.74	213.83	2.916	
14,000.00	9,780.03	19,075.54	9,692.35	62.05	152.53	87.56	-4,039.19	-817.38	623.12	409.32	213.80	2.914	
14,100.00	9,779.51	18,975.54	9,691.76	63.44	151.12	87.55	-4,139.19	-817.38	622.66	408.89	213.78	2.913	
14,200.00	9,779.00	18,875.54	9,691.17	64.83	149.70	87.54	-4,239.18	-817.38	622.21	408.46	213.75	2.911	
14,300.00	9,778.48	18,775.54	9,690.57	66.22	148.28	87.53	-4,339.18	-817.38	621.76	408.03	213.73	2.909	
14,400.00	9,777.96	18,675.54	9,689.98	67.62	146.87	87.52	-4,439.18	-817.38	621.30	407.59	213.71	2.907	
14,500.00	9,777.44	18,575.54	9,689.39	69.02	145.45	87.51	-4,539.17	-817.38	620.85	407.15	213.70	2.905	
14,600.00	9,776.92	18,475.54	9,688.79	70.42	144.03	87.50	-4,639.17	-817.38	620.40	406.71	213.68	2.903	
14,700.00	9,776.40	18,375.54	9,688.20	71.82	142.62	87.50	-4,739.17	-817.38	619.94	406.27	213.67	2.901	
14,800.00	9,775.89	18,275.54	9,687.61	73.22	141.20	87.49	-4,839.17	-817.38	619.49	405.83	213.66	2.899	
14,900.00	9,775.37	18,175.55	9,687.01	74.63	139.79	87.48	-4,939.16	-817.38	619.04	405.39	213.65	2.897	
15,000.00	9,774.85	18,075.55	9,686.42	76.03	138.38	87.47	-5,039.16	-817.38	618.58	404.94	213.65	2.895	
15,100.00	9,774.33	17,975.55	9,685.83	77.44	136.96	87.46	-5,139.16	-817.38	618.13	404.49	213.64	2.893	
15,200.00	9,773.81	17,875.55	9,685.23	78.85	135.55	87.45	-5,239.15	-817.38	617.68	404.04	213.64	2.891	
15,300.00	9,773.29	17,775.55	9,684.64	80.26	134.14	87.44	-5,339.15	-817.38	617.23	403.59	213.64	2.889	
15,400.00	9,772.77	17,675.55	9,684.05	81.67	132.73	87.43	-5,439.15	-817.38	616.77	403.14	213.64	2.887	
15,500.00	9,772.26	17,575.55	9,683.45	83.08	131.32	87.43	-5,539.15	-817.38	616.32	402.68	213.64	2.885	
15,600.00	9,771.74	17,475.55	9,682.86	84.50	129.91	87.42	-5,639.14	-817.38	615.87	402.22	213.64	2.883	
15,700.00	9,771.22	17,375.55	9,682.27	85.91	128.50	87.41	-5,739.14	-817.38	615.41	401.77	213.65	2.881	
15,800.00	9,770.70	17,275.56	9,681.67	87.32	127.09	87.40	-5,839.14	-817.38	614.96	401.31	213.65	2.878	
15,900.00	9,770.18	17,175.56	9,681.08	88.74	125.68	87.39	-5,939.13	-817.38	614.51	400.85	213.66	2.876	
16,000.00	9,769.66	17,075.56	9,680.49	90.16	124.27	87.38	-6,039.13	-817.38	614.05	400.38	213.67	2.874	
16,100.00	9,769.15	16,975.56	9,679.89	91.57	122.86	87.37	-6,139.13	-817.38	613.60	399.92	213.68	2.872	
16,200.00	9,768.63	16,875.56	9,679.30	92.99	121.46	87.36	-6,239.13	-817.38	613.15	399.45	213.69	2.869	
16,300.00	9,768.11	16,775.56	9,678.71	94.41	120.05	87.35	-6,339.12	-817.38	612.69	398.99	213.71	2.867	
16,400.00	9,767.59	16,675.56	9,678.11	95.83	118.65	87.34	-6,439.12	-817.38	612.24	398.52	213.72	2.865	
16,500.00	9,767.07	16,575.56	9,677.52	97.25	117.25	87.34	-6,539.12	-817.38	611.79	398.05	213.74	2.862	
16,600.00	9,766.55	16,475.56	9,676.93	98.67	115.84	87.33	-6,639.12	-817.38	611.33	397.58	213.76	2.860	
16,700.00	9,766.03	16,375.57	9,676.33	100.09	114.44	87.32	-6,739.11	-817.38	610.88	397.10	213.78	2.858	
16,800.00	9,765.52	16,275.57	9,675.74	101.52	113.04	87.31	-6,839.11	-817.38	610.43	396.63	213.80	2.855	
16,900.00	9,765.00	16,175.57	9,675.15	102.94	111.64	87.30	-6,939.11	-817.38	609.98	396.15	213.82	2.853	
17,000.00	9,764.48	16,075.57	9,674.55	104.36	110.24	87.29	-7,039.10	-817.38	609.52	395.68	213.85	2.850	
17,100.00	9,763.96	15,975.57	9,673.96	105.78	108.84	87.28	-7,139.10	-817.38	609.07	395.20	213.87	2.848	
17,200.00	9,763.44	15,875.57	9,673.37	107.21	107.45	87.27	-7,239.10	-817.38	608.62	394.72	213.90	2.845	
17,300.00	9,762.92	15,775.57	9,672.77	108.63	106.05	87.26	-7,339.10	-817.38	608.16	394.23	213.93	2.843	
17,400.00	9,762.41	15,675.57	9,672.18	110.06	104.66	87.25	-7,439.09	-817.38	607.71	393.75	213.96	2.840	
17,500.00	9,761.89	15,575.57	9,671.58	111.48	103.26	87.24	-7,539.09	-817.38	607.26	393.26	213.99	2.838	
17,600.00	9,761.37	15,475.57	9,670.99	112.91	101.87	87.24	-7,639.09	-817.38	606.81	392.78	214.03	2.835	
17,671.01	9,761.00	15,404.56	9,670.57	113.92	100.88	87.23	-7,710.10	-817.38	606.48	392.43	214.06	2.833 CC, ES	

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



Anticollision Report



Company:	NOVO Oil & Gas	Local Co-ordinate Reference:	Well RANA-SALADA-FED-01-231H
Project:	EDDY CO., NM (NAD83)	TVD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Reference Site:	SEC 02-T23S-R28E	MD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	RANA-SALADA-FED-01-231H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	1 - EDM Production
Reference Design:	Plan 1	Offset TVD Reference:	Offset Datum

Offset Design: Valkyrie Pad (Grid) - Valkyrie 12 WXY Federal Com 11H - Wellbore #1 - Final Surveys													Offset Site Error: 0.00 usft
Survey Program: 237-													Offset Well Error: 0.50 usft
Reference	Offset	Semi Major Axis		Offset Wellbore Centre		Distance		Rule Assigned:		Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
17,300.00	9,762.92	9,706.00	9,570.60	108.63	29.84	-31.26	-9,486.50	-150.77	2,151.66	2,101.06	50.60	42.521	
17,400.00	9,762.41	9,706.00	9,570.60	110.06	29.84	-31.26	-9,486.50	-150.77	2,051.86	2,001.22	50.65	40.514	
17,500.00	9,761.89	9,706.00	9,570.60	111.48	29.84	-31.26	-9,486.50	-150.77	1,952.08	1,901.40	50.69	38.513	
17,600.00	9,761.37	9,706.00	9,570.60	112.91	29.84	-31.26	-9,486.50	-150.77	1,852.33	1,801.60	50.73	36.516	
17,671.01	9,761.00	9,706.00	9,570.60	113.92	29.84	-31.26	-9,486.50	-150.77	1,781.51	1,730.75	50.75	35.101	CC, ES, SF

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



Anticollision Report



Company:	NOVO Oil & Gas	Local Co-ordinate Reference:	Well RANA-SALADA-FED-01-231H
Project:	EDDY CO., NM (NAD83)	TVD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Reference Site:	SEC 02-T23S-R28E	MD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	RANA-SALADA-FED-01-231H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	1 - EDM Production
Reference Design:	Plan 1	Offset TVD Reference:	Offset Datum

Offset Design: Valkyrie Pad (Grid) - Valkyrie 12 WXY Federal Com 7H - Wellbore #1 - Final Surveys												Offset Site Error:	0.00 usft
Survey Program: 237-												Offset Well Error:	0.50 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
16,000.00	9,769.66	9,665.03	9,520.76	90.16	32.99	-26.08	-8,173.52	-130.41	2,143.17	2,093.41	49.76	43.070	
16,100.00	9,769.15	9,665.98	9,521.32	91.57	32.99	-26.36	-8,173.54	-129.65	2,043.58	1,993.79	49.80	41.038	
16,200.00	9,768.63	9,666.95	9,521.90	92.99	32.99	-26.65	-8,173.57	-128.87	1,944.04	1,894.20	49.84	39.008	
16,300.00	9,768.11	9,667.95	9,522.49	94.41	32.99	-26.95	-8,173.59	-128.06	1,844.54	1,794.65	49.88	36.978	
16,400.00	9,767.59	9,668.98	9,523.10	95.83	32.99	-27.26	-8,173.61	-127.23	1,745.09	1,695.16	49.93	34.950	
16,500.00	9,767.07	9,670.04	9,523.72	97.25	32.99	-27.57	-8,173.64	-126.37	1,645.71	1,595.73	49.99	32.921	
16,600.00	9,766.55	9,671.13	9,524.36	98.67	32.99	-27.90	-8,173.66	-125.49	1,546.42	1,496.36	50.06	30.891	
16,700.00	9,766.03	9,672.26	9,525.02	100.09	32.99	-28.24	-8,173.69	-124.58	1,447.21	1,397.06	50.15	28.859	
16,800.00	9,765.52	9,673.41	9,525.70	101.52	32.99	-28.59	-8,173.72	-123.65	1,348.13	1,297.86	50.26	26.822	
16,900.00	9,765.00	9,674.61	9,526.40	102.94	32.98	-28.95	-8,173.75	-122.68	1,249.18	1,198.77	50.42	24.778	
17,000.00	9,764.48	9,675.84	9,527.12	104.36	32.98	-29.32	-8,173.78	-121.68	1,150.42	1,099.80	50.62	22.725	
17,100.00	9,763.96	9,677.11	9,527.86	105.78	32.98	-29.71	-8,173.81	-120.65	1,051.89	1,000.97	50.92	20.658	
17,200.00	9,763.44	9,678.42	9,528.62	107.21	32.98	-30.11	-8,173.85	-119.58	953.66	902.32	51.34	18.575	
17,300.00	9,762.92	9,679.78	9,529.41	108.63	32.98	-30.52	-8,173.88	-118.48	855.84	803.88	51.97	16.469	
17,400.00	9,762.41	9,681.18	9,530.22	110.06	32.98	-30.95	-8,173.92	-117.33	758.59	705.68	52.91	14.338	
17,500.00	9,761.89	9,682.63	9,531.06	111.48	32.98	-31.39	-8,173.96	-116.15	662.15	607.80	54.36	12.182	
17,600.00	9,761.37	9,684.13	9,531.93	112.91	32.97	-31.85	-8,174.00	-114.93	566.94	510.30	56.64	10.010	
17,671.01	9,761.00	9,685.23	9,532.56	113.92	32.97	-32.18	-8,174.03	-114.03	500.46	441.40	59.06	8.474 CC, ES, SF	

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



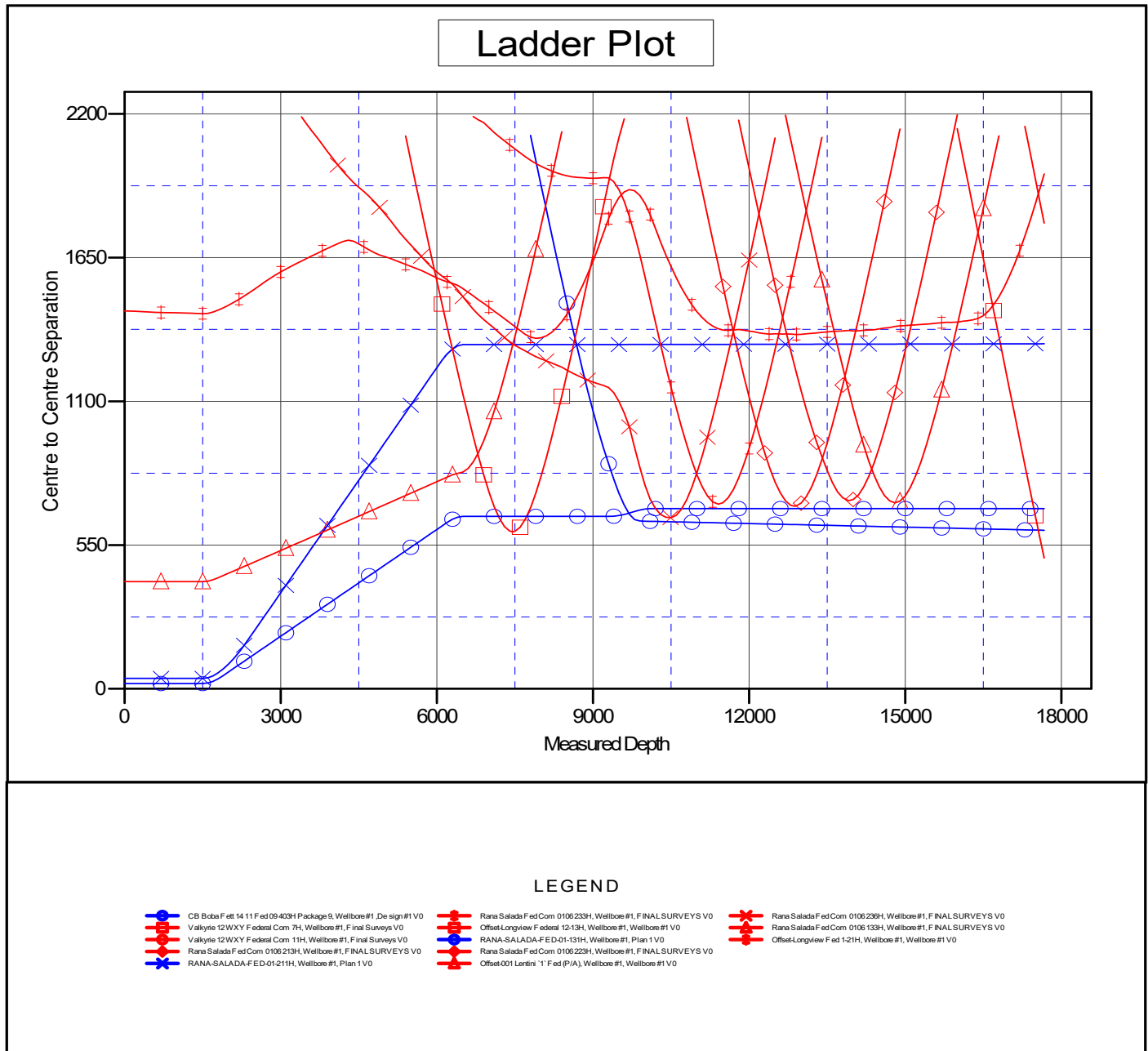
Anticollision Report



Company:	NOVO Oil & Gas	Local Co-ordinate Reference:	Well RANA-SALADA-FED-01-231H
Project:	EDDY CO., NM (NAD83)	TVD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Reference Site:	SEC 02-T23S-R28E	MD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	RANA-SALADA-FED-01-231H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	1 - EDM Production
Reference Design:	Plan 1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to RKB 25' + GL 3067.10 @ 3092.10usft
 Offset Depths are relative to Offset Datum
 Central Meridian is -104.3333334

Coordinates are relative to: RANA-SALADA-FED-01-231H
 Coordinate System is US State Plane 1983, New Mexico Eastern Zone
 Grid Convergence at Surface is: 0.15°



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



Anticollision Report



Company:	NOVO Oil & Gas	Local Co-ordinate Reference:	Well RANA-SALADA-FED-01-231H
Project:	EDDY CO., NM (NAD83)	TVD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Reference Site:	SEC 02-T23S-R28E	MD Reference:	RKB 25' + GL 3067.10 @ 3092.10usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	RANA-SALADA-FED-01-231H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	1 - EDM Production
Reference Design:	Plan 1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to RKB 25' + GL 3067.10 @ 3092.10usft

Offset Depths are relative to Offset Datum

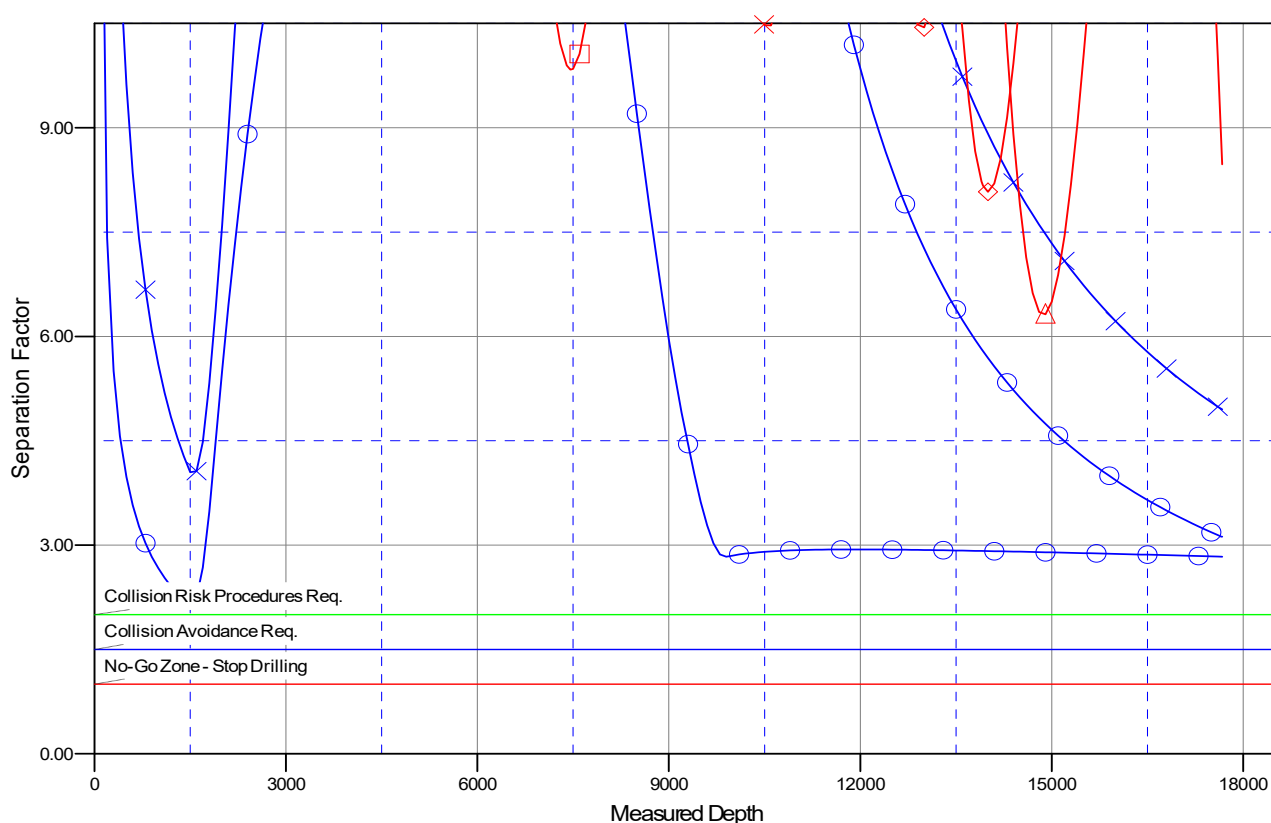
Central Meridian is -104.33333334

Coordinates are relative to: RANA-SALADA-FED-01-231H

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

Grid Convergence at Surface is: 0.15°

Separation Factor Plot



LEGEND

- CB Boba Fed 14 11 Fed 09 403H Package 9, Wellbore #1, Design #1 V0
- Valley 12 WXY Fed 07 7H, Wellbore #1, Final Surveys V0
- Valley 12 WXY Fed 07 11H, Wellbore #1, Final Surveys V0
- Rana Salada Fed Com 0106 213H, Wellbore #1, FINAL SURVEYS V0
- RANA-SALADA-FED-01-211H, Wellbore #1, Plan 1 V0
- Rana Salada Fed Com 0106 233H, Wellbore #1, FINAL SURVEYS V0
- Offset-Longview Fed 12-13H, Wellbore #1, Wellbore #1 V0
- RANA-SALADA-FED-01-131H, Wellbore #1, Plan 1 V0
- Rana Salada Fed Com 0106 223H, Wellbore #1, FINAL SURVEYS V0
- Offset-001 Lentrini 1 Fed (P/A), Wellbore #1, Wellbore #1 V0
- Rana Salada Fed Com 0106 236H, Wellbore #1, FINAL SURVEYS V0
- Rana Salada Fed Com 0106 133H, Wellbore #1, FINAL SURVEYS V0
- Offset-Longview Fed 1-21H, Wellbore #1, Wellbore #1 V0

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

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 LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-015-48579	² Pool Code 98220	³ Pool Name Purple Sage; Wolfcamp Gas Pool
⁴ Property Code 330695	⁵ Property Name RANA SALADA FED 01	⁶ Well Number 231H
⁷ OGRID No. 372920	⁸ Operator Name NOVO OIL & GAS NORTHERN DELAWARE, LLC	⁹ Elevation 3067.1

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
4	1	23S	28E		144	NORTH	507	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
E	12	23S	28E		2510	NORTH	330	WEST	EDDY

¹² Dedicated Acres 479.16	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
--	-------------------------------	----------------------------------	-------------------------

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.

	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. <i>Justin Carter</i> 11.1.2022 Signature Date Justin Carter Printed Name jcarter@novoog.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. OCTOBER 12, 2022 Date of Survey <i>[Signature]</i> Signature and Seal of Professional Surveyor: 12797 Certificate Number: 12797 Survey No. 7989B
--	---

Intent ☐ As Drilled ☐

API #		
Operator Name: NOVO OIL & GAS NORTHERN DELAWARE, LLC	Property Name: RANA SALADA FED 01	Well Number 231H

Kick Off Point (KOP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
Latitude					Longitude				NAD

First Take Point (FTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
	1	23S	28E	4	330	NORTH	330	WEST	EDDY
Latitude 32.3411038					Longitude 104.0481763				NAD 83

Last Take Point (LTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
E	12	23S	28E	1	2310	NORTH	330	WEST	EDDY
Latitude 32.3209756					Longitude 104.0483456				NAD 83

Is this well the defining well for the Horizontal Spacing Unit? ☐Is this well an infill well? ☐

If infill is yes please provide API if available, Operator Name and well number for Defining well for Horizontal Spacing Unit.

API #		
Operator Name:	Property Name:	Well Number

KZ 06/29/2018

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Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS

Action 219700

CONDITIONS

Operator: NOVO OIL & GAS NORTHERN DELAWARE, LLC 1001 West Wilshire Blvd Oklahoma City, OK 73116	OGRID: 372920
	Action Number: 219700
	Action Type: [C-103] NOI Change of Plans (C-103A)

CONDITIONS

Created By	Condition	Condition Date
ward.rikala	Original COA's still apply.	10/18/2023