

Well Name: GOONCH FED COM 04	Well Location: T23S / R28E / SEC 4 / SWSW / 32.3301605 / -104.0977911	County or Parish/State: EDDY / NM
Well Number: 231H	Type of Well: CONVENTIONAL GAS WELL	Allottee or Tribe Name:
Lease Number: NMNM018038, NMNM18038	Unit or CA Name:	Unit or CA Number:
US Well Number: 3001546474	Well Status: Drilling Well	Operator: NOVO OIL AND GAS NORTHERN DELA

Notice of Intent

Type of Submission: Notice of Intent	Type of Action Other
Date Sundry Submitted: 03/29/2021	Time Sundry Submitted: 08:26
Date proposed operation will begin: 04/14/2021	

Procedure Description: Novo Oil and Gas Northern Delaware, LLC respectfully request the following APD changes: Change the SHL to 1,080' FSL & 1,075' FWL, from the previously approved location of 1,180' FSL & 980' FWL, Sec. 4-T23S, R28E. There will be no additional surface disturbance with the proposed change to the surface hole location. Change Intermediate Casing size to 8-5/8" from the previously approved 9-5/8" casing size. See attachments for technical details.

Surface Disturbance

Is any additional surface disturbance proposed?: No

NOI Attachments

Procedure Description

- NOVO_Goonch_Fed_Com_04_231_Plan_2_20210329082637.xlsx
- NOVO_Goonch_Fed_Com_04_231_plot_Plan_2_20210329082631.pdf
- NOVO_Goonch_Fed_Com_04_231_Plan_2_20210329082626.pdf
- NOVO_Goonch_Fed_Com_04_231_AC_Report_Plan_2_20210329082621.pdf
- 5.500_20_P110EC_DWC_C_IS_PLUS_20210329082611.pdf
- 8.625_32.00_P110HSCY_TLW_20210329082605.pdf
- GOONCH_FED_COM_04_231H_v._2_20210329082550.pdf
- Drill_Plan_3S_5K_GOONCH_FED_COM_04_231H_032621_20210329082536.pdf
- Goonch_04_231H_Change_to_Sundry_Request_v._2_20210329082526.pdf

Well Name: GOONCH FED COM 04	Well Location: T23S / R28E / SEC 4 / SWSW / 32.3301605 / -104.0977911	County or Parish/State: EDDY / NM
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Lease Number: NMNM018038, NMNM18038	Unit or CA Name:	Unit or CA Number:
US Well Number: 3001546474	Well Status: Drilling Well	Operator: NOVO OIL AND GAS NORTHERN DELA

Conditions of Approval

Additional Reviews

Goonch_FED_COM_04_231H_APD_CHANGE_SUNDRY_Drilling_COAs_20210329111730.pdf

Operator Certification

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 submission of Form 3160-5 or a Sundry Notice.

Operator Electronic Signature: JUSTIN CARTER	Signed on: MAR 29, 2021 08:26 AM
Name: NOVO OIL AND GAS NORTHERN DELA	
Title: Landman	
Street Address: 1001 West Wilshire Boulevard Suite 206	
City: Oklahoma City	State: OK
Phone: (405) 286-3375	
Email address: JCARTER@NOVOOG.COM	

Field Representative

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

BLM Point of Contact

BLM POC Name: CHRISTOPHER WALLS	BLM POC Title: Petroleum Engineer
BLM POC Phone: 5752342234	BLM POC Email Address: cwalls@blm.gov
Disposition: Approved	Disposition Date: 03/31/2021
Signature: Chris Walls	

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 30-015-46474	² Pool Code 98220	³ Pool Name Purple Sage; Wolfcamp Gas Pool
⁴ Property Code	⁵ Property Name GOONCH FED COM 04	
⁷ OGRID No. 372920	⁸ Operator Name NOVO OIL & GAS NORTHERN DELAWARE, LLC	⁶ Well Number 231H

¹⁰ Surface Location

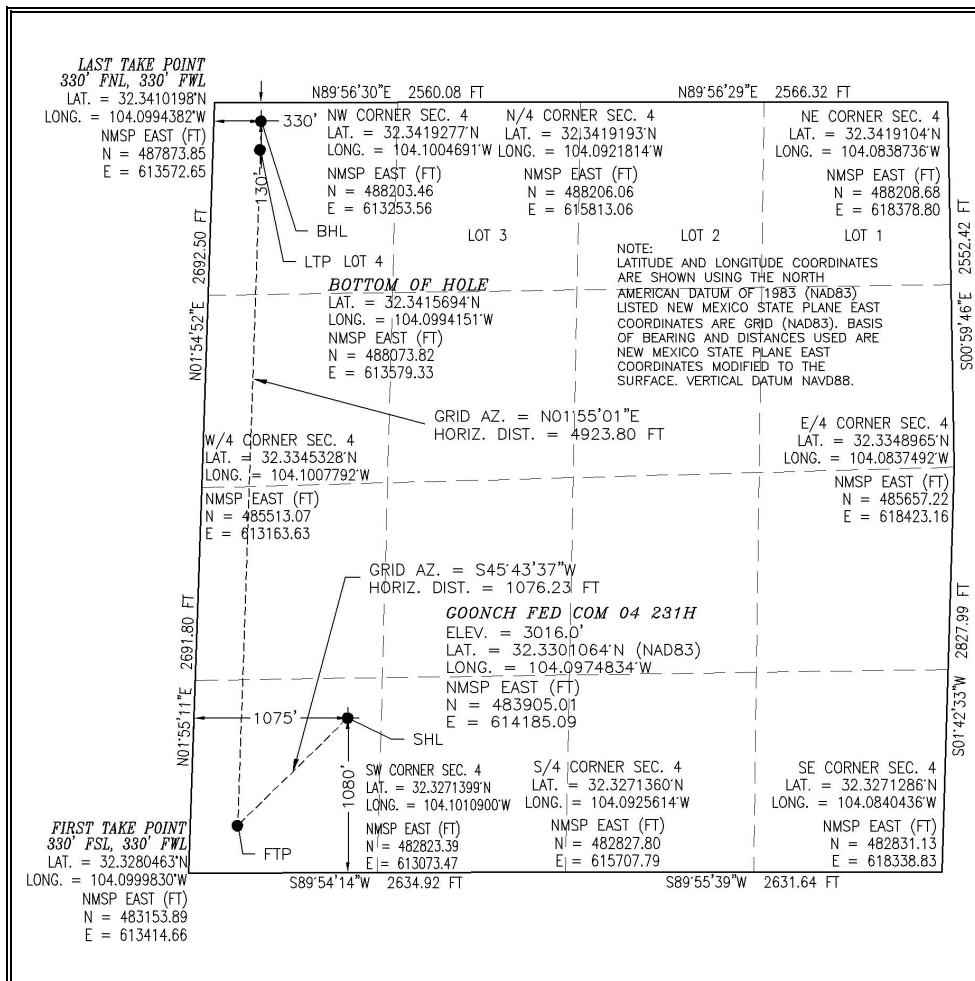
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	4	23 S	28 E		1080	SOUTH	1075	WEST	EDDY

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
4	4	23 S	28 E		130	NORTH	330	WEST	EDDY

¹² Dedicated Acres	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
320.41			

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.

Justin Carter 5/12/2021

Justin Carter

Printed Name _____

1. **Introduction**

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.

MARCH 24, 2021

Date of Survey



12707

RECEIVED

Signature and Seal of Professional Surveyor

(Signature and Seal of Professional Surveyor)

Certificate Number: ✓ **FILIMONT, JAKAMILLO, PLS 12797**

SURVEY NO. 6838B

Intent ☐ As Drilled ☐

API #		
Operator Name: NOVO OIL & GAS NORTHERN DELAWARE, LLC	Property Name: GOONCH FED COM 04	Well Number 231H

Kick Off Point (KOP)

UL M	Section 4	Township 23S	Range 28E	Lot	Feet 1080	From N/S SOUTH	Feet 1075	From E/W WEST	County EDDY
Latitude 32.3301064					Longitude 104.0974834			NAD 83	

First Take Point (FTP)

UL M	Section 4	Township 23S	Range 28E	Lot	Feet 330	From N/S SOUTH	Feet 330	From E/W WEST	County EDDY
Latitude 32.3280463					Longitude 104.0999830			NAD 83	

Last Take Point (LTP)

UL	Section 4	Township 23S	Range 28E	Lot 4	Feet 330	From N/S NORTH	Feet 330	From E/W WEST	County EDDY
Latitude 32.3410198					Longitude 104.0994392			NAD 83	

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

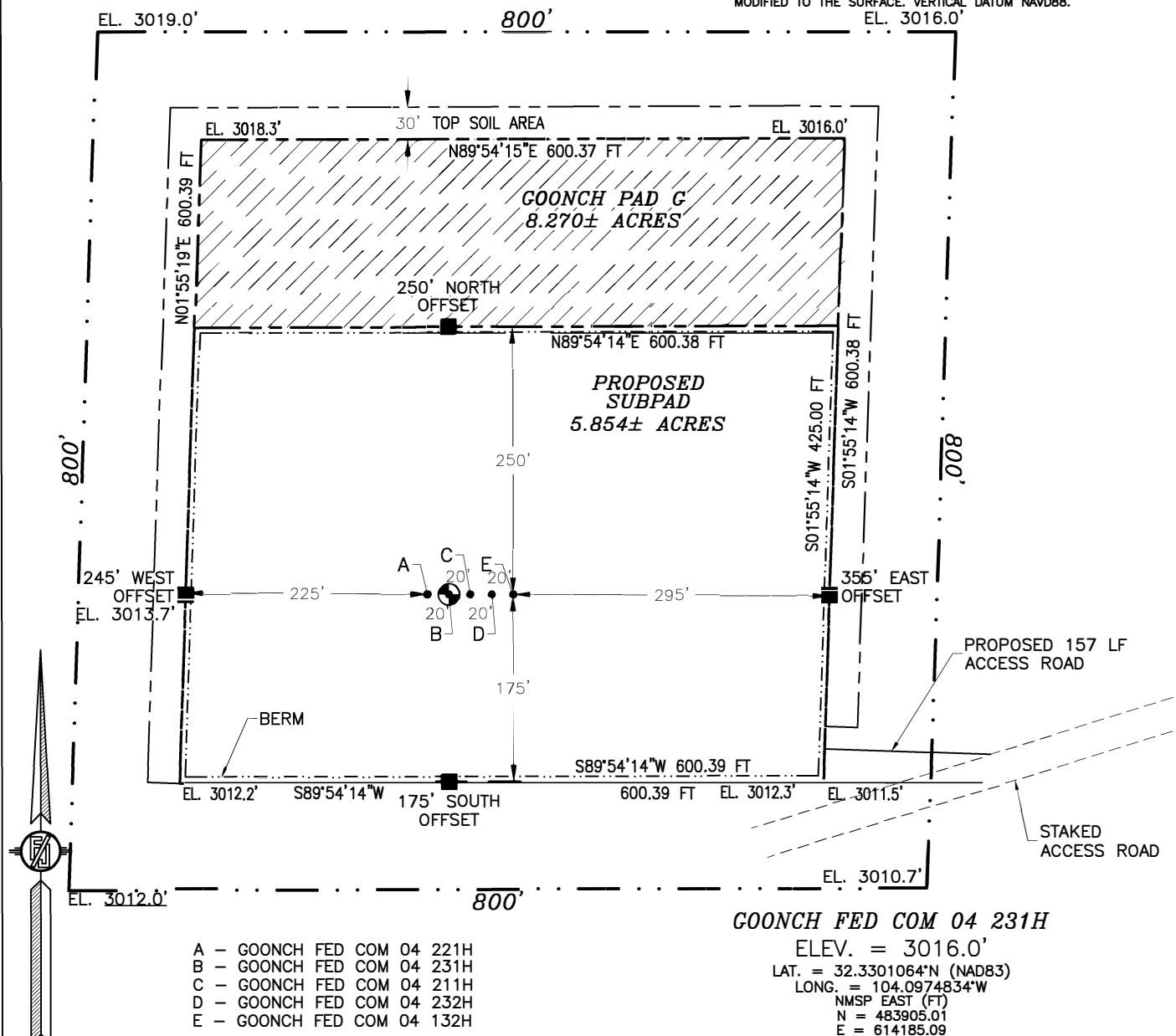
If infill is yes please provide API if available, Operator Name and well number for Defining well for Horizontal Spacing Unit.

API #		
Operator Name:	Property Name:	Well Number

KZ 06/29/2018

SECTION 4, TOWNSHIP 23 SOUTH, RANGE 28 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
SITE MAP

NOTE: LATITUDE AND LONGITUDE COORDINATES ARE SHOWN USING THE NORTH AMERICAN DATUM OF 1983 (NAD83) LISTED NEW MEXICO STATE PLANE EAST COORDINATES ARE GRID (NAD83). BASIS OF BEARING AND DISTANCES USED ARE NEW MEXICO STATE PLANE EAST COORDINATES MODIFIED TO THE SURFACE. VERTICAL DATUM NAVD88.



015 75 150 300

SCALE 1" = 150'

DIRECTIONS TO LOCATION

FROM STATE ROAD 31 (POTASH MINES) & CR 605 (REFINERY) GO NORTHWEST ON REFINERY ROAD APPROX 3.57 MILES TO HERRADURA BEND ROAD, TURN LEFT AND GO WEST-SOUTHWEST ON HERRADURA BEND ROAD APPROX. 0.66 OF A MILE, TURN LEFT AND GO SOUTH-SOUTHWEST APPROX. 0.59 OF A MILE TO A STAKED ACCESS ROAD ON RIGHT (WEST), FOLLOW STAKED ROAD SOUTH-SOUTHWEST 1000' TO CULEBRA BLUFF CTB 1, FROM THE SOUTHEAST CORNER OF THE CTB PAD, GO SOUTH-SOUTHWEST ALONG THE POWER LINE ROAD APPROX. 0.64 OF A MILE TO AN EXISTING CALICHE ROAD (HERRADURA BEND) AND STAKED ACCESS ROAD, FOLLOW STAKED ACCESS ROAD SOUTHWEST 0.39 OF A MILE, GO WEST 157' TO THE SOUTHEAST PAD CORNER FOR THIS LOCATION.

I, FILMON F. JARAMILLO, NEW MEXICO REGISTERED PROFESSIONAL SURVEYOR CERTIFY THAT I HAVE CONDUCTED THIS SURVEY TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT I HAVE COMPLIED WITH THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO.

FILMON F. JARAMILLO, 12797

MADRON SURVEYING, INC.

301 SOUTH CANAL
(575) 234-3341

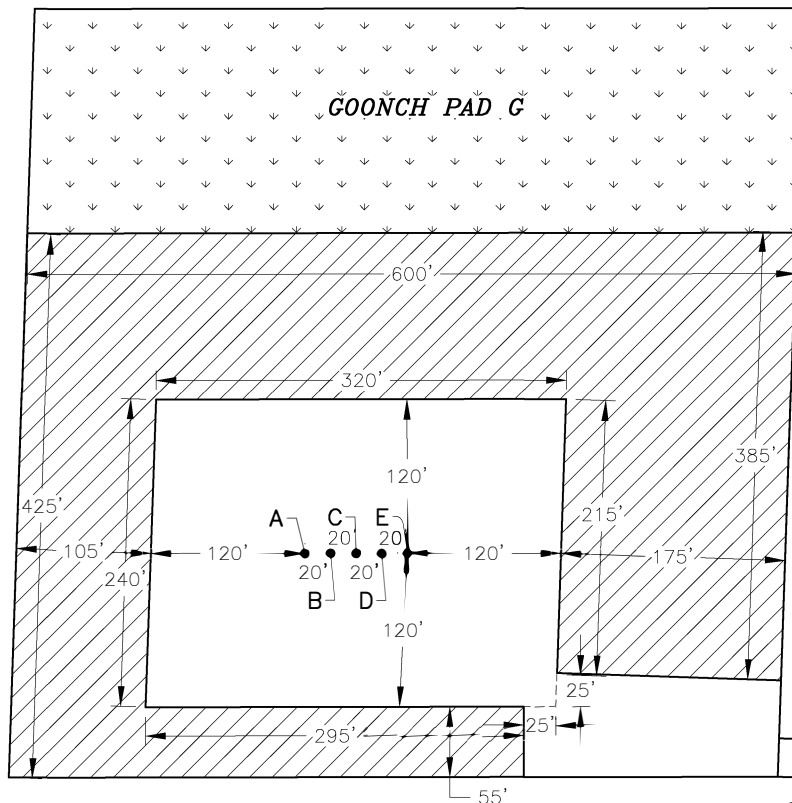
NOVO OIL & GAS NORTHERN DELAWARE, LLC
GOONCH FED COM 04 231H
LOCATED 1080 FT. FROM THE SOUTH LINE
AND 1075 FT. FROM THE WEST LINE OF
SECTION 4, TOWNSHIP 23 SOUTH,
RANGE 28 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

MARCH 24, 2021

SURVEY NO. 6838B

CARLSBAD, NEW MEXICO

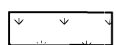
SECTION 4, TOWNSHIP 23 SOUTH, RANGE 28 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO
 INTERIM SITE BUILD PLAN



- A - GOONCH FED COM 04 221H
- B - GOONCH FED COM 04 231H
- C - GOONCH FED COM 04 211H
- D - GOONCH FED COM 04 232H
- E - GOONCH FED COM 04 132H



 DENOTES INTERIM PAD RECLAMATION AREA

 DENOTES GRADING SITE RECLAMATION AREA

015 75 150 300
 SCALE 1" = 150'

3.745± ACRES INTERIM PAD RECLAMATION AREA
 2.416± ACRES GRADING SITE RECLAMATION AREA
 2.109± ACRES NON-RECLAIMED AREA
 8.270± ACRES GOONCH PAD G

NOVO OIL & GAS NORTHERN DELAWARE, LLC
GOONCH FED COM 04 231H
 LOCATED 1080 FT. FROM THE SOUTH LINE
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 SECTION 4, TOWNSHIP 23 SOUTH,
 RANGE 28 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO

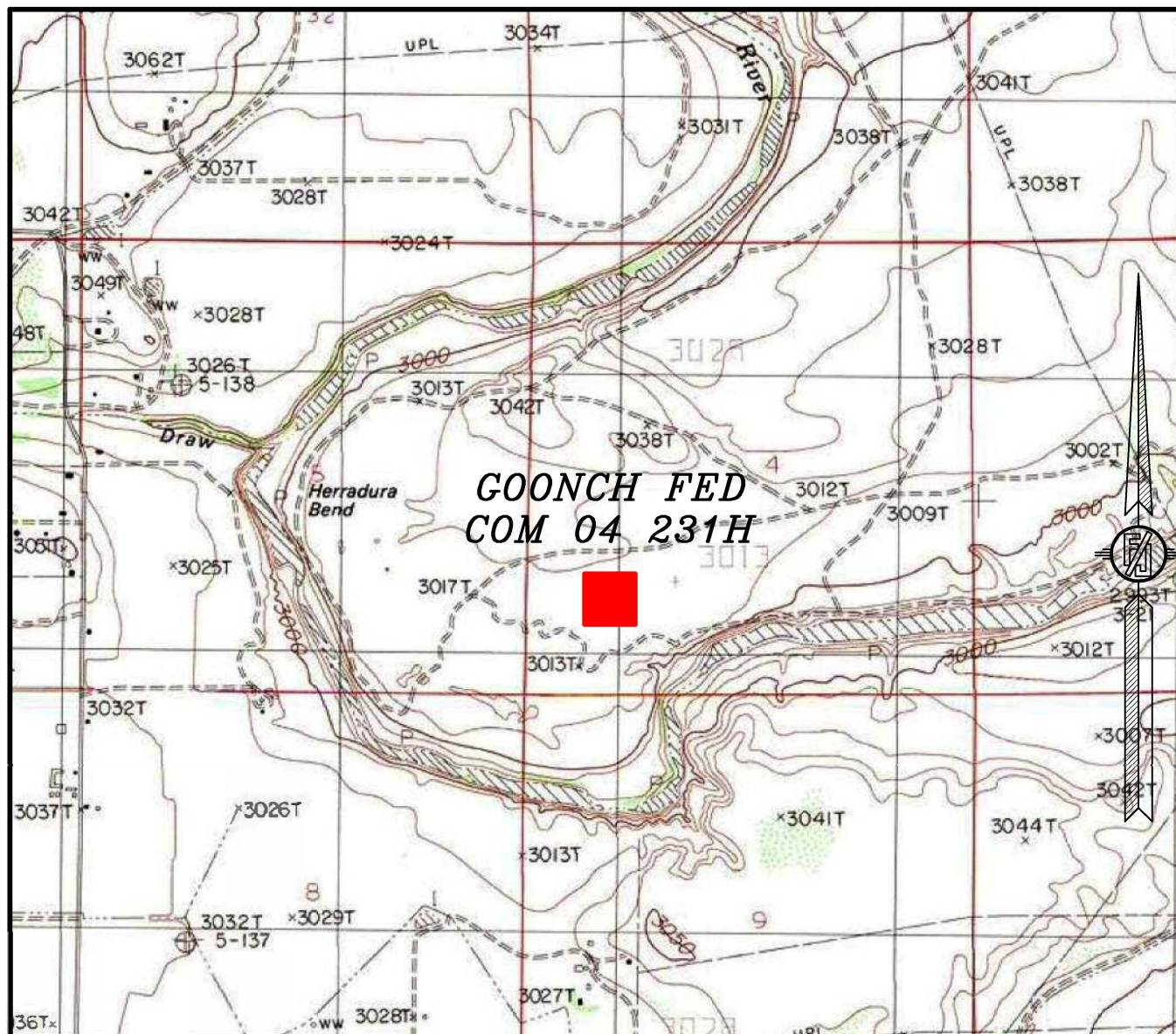
MARCH 24, 2021

SURVEY NO. 6838B

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

CARLSBAD, NEW MEXICO

SECTION 4, TOWNSHIP 23 SOUTH, RANGE 28 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO
 LOCATION VERIFICATION MAP



USGS/4UAD MAP:
 LOVING

NOT TO SCALE

NOVO OIL & GAS NORTHERN DELAWARE, LLC
GOONCH FED COM 04 231H
 LOCATED 1080 FT. FROM THE SOUTH LINE
 AND 1075 FT. FROM THE WEST LINE OF
 SECTION 4, TOWNSHIP 23 SOUTH,
 RANGE 28 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO

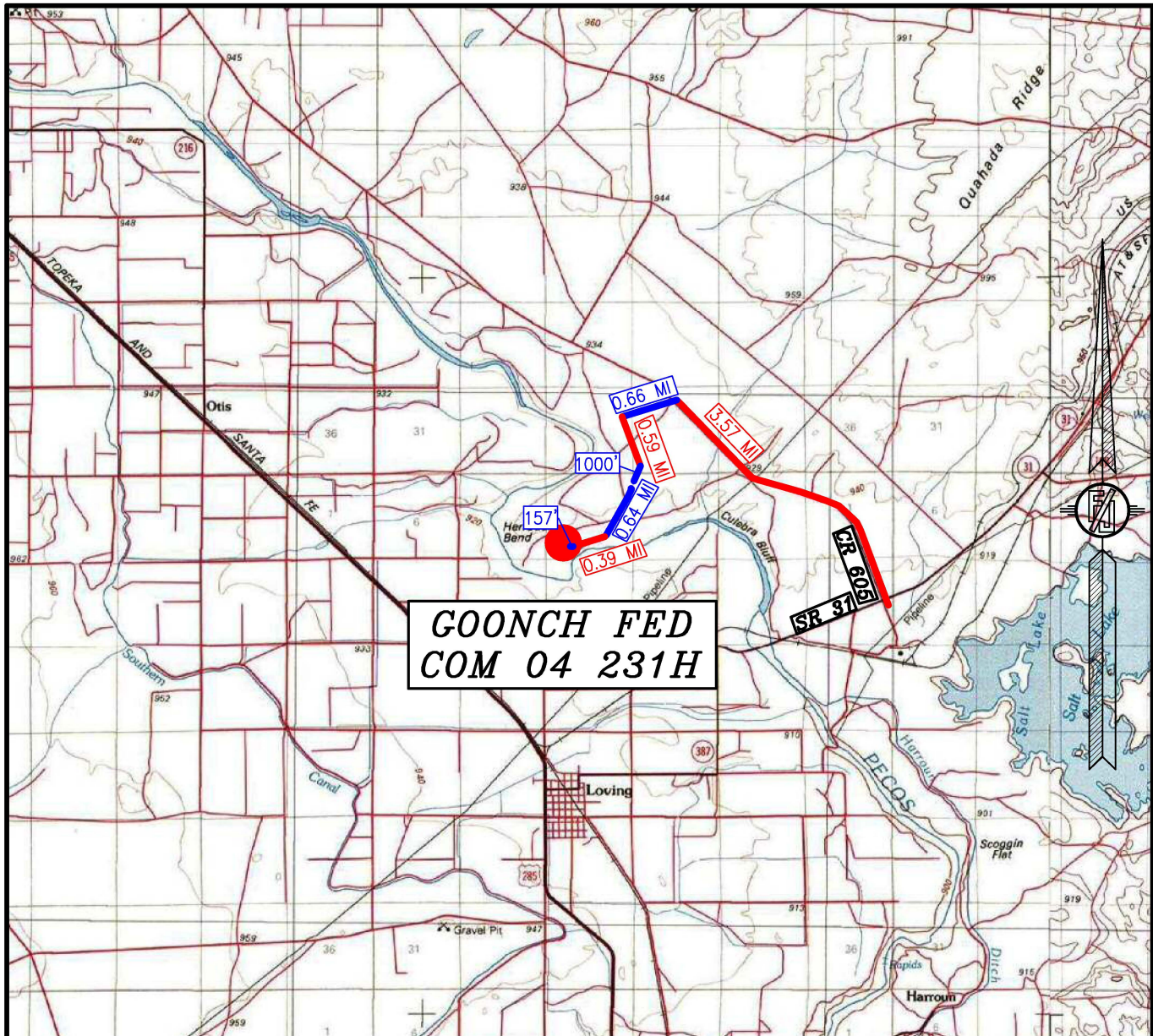
MARCH 24, 2021

MADRON SURVEYING, INC.

301 SOUTH CANAL
 (575) 234-3341

SURVEY NO. 6838B
 CARLSBAD, NEW MEXICO

SECTION 4, TOWNSHIP 23 SOUTH, RANGE 28 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
VICINITY MAP



DISTANCES IN MILES

NOT TO SCALE

NOVO OIL & GAS NORTHERN DELAWARE, LLC
GOONCH FED COM 04 231H

LOCATED 1080 FT. FROM THE SOUTH LINE
AND 1075 FT. FROM THE WEST LINE OF
SECTION 4, TOWNSHIP 23 SOUTH,
RANGE 28 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

MARCH 24, 2021

DIRECTIONS TO LOCATION

FROM STATE ROAD 31 (POTASH MINES) & CR 605 (REFINERY) GO NORTHWEST ON REFINERY ROAD APPROX 3.57 MILES TO HERRADURA BEND ROAD, TURN LEFT AND GO WEST-SOUTHWEST ON HERRADURA BEND ROAD APPROX. 0.66 OF A MILE, TURN LEFT AND GO SOUTH-SOUTHEAST APPROX. 0.59 OF A MILE TO A STAKED ACCESS ROAD ON RIGHT (WEST), FOLLOW STAKED ROAD SOUTH-SOUTHWEST 1000' TO CULEBRA BLUFF CTB 1, FROM THE SOUTHEAST CORNER OF THE CTB PAD, GO SOUTH-SOUTHWEST ALONG THE POWER LINE ROAD APPROX. 0.64 OF A MILE TO AN EXISTING CALICHE ROAD (HERRADURA BEND) AND STAKED ACCESS ROAD, FOLLOW STAKED ACCESS ROAD SOUTHWEST 0.39 OF A MILE, GO WEST 157' TO THE SOUTHEAST PAD CORNER FOR THIS LOCATION.

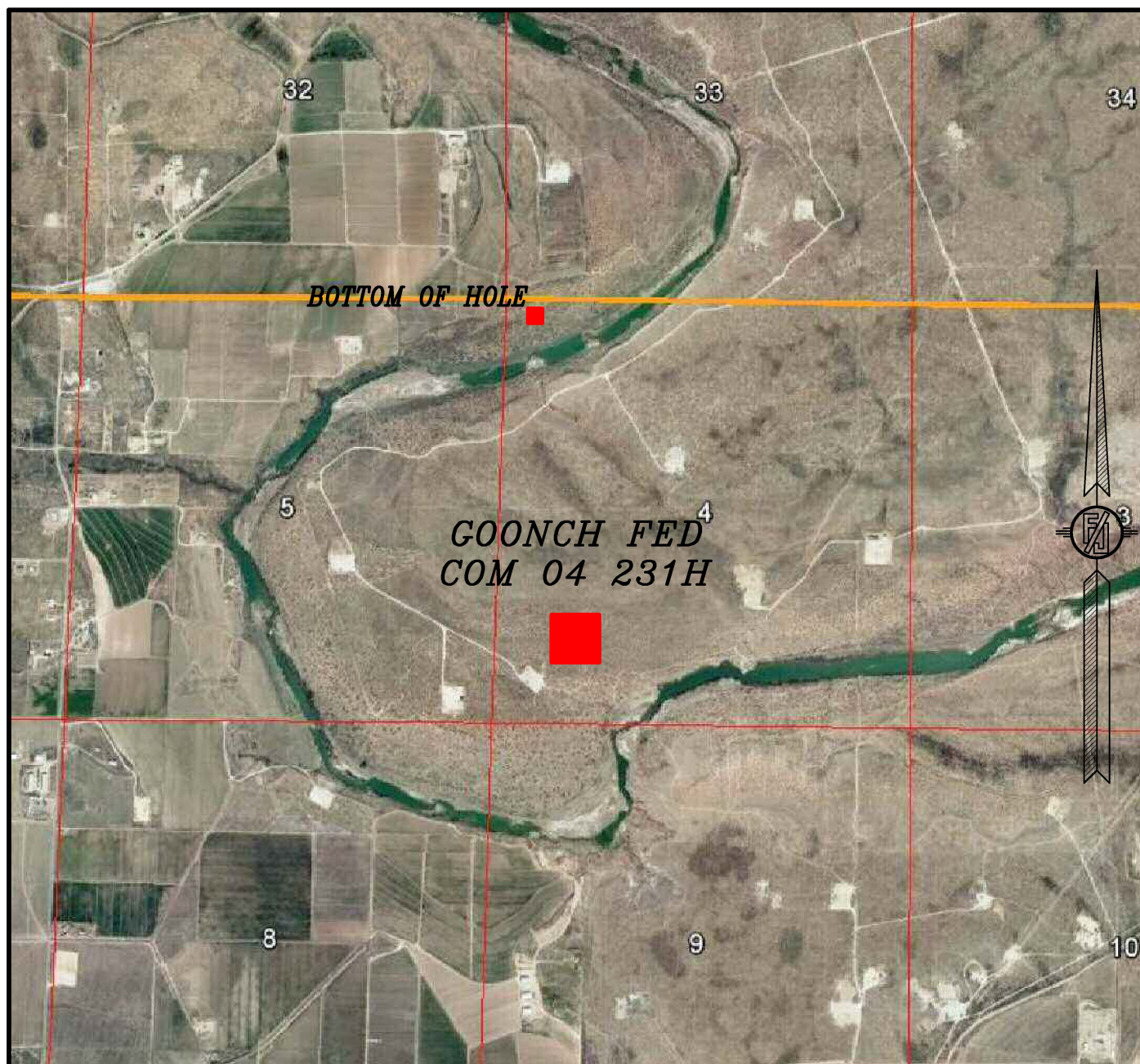
SURVEY NO. 6838B

MADRON SURVEYING, INC. 301 SOUTH CANAL

(575) 234-3341

CARLSBAD, NEW MEXICO

SECTION 4, TOWNSHIP 23 SOUTH, RANGE 28 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO
 AERIAL PHOTO



NOT TO SCALE
 AERIAL PHOTO:
 GOOGLE EARTH
 MARCH 2016

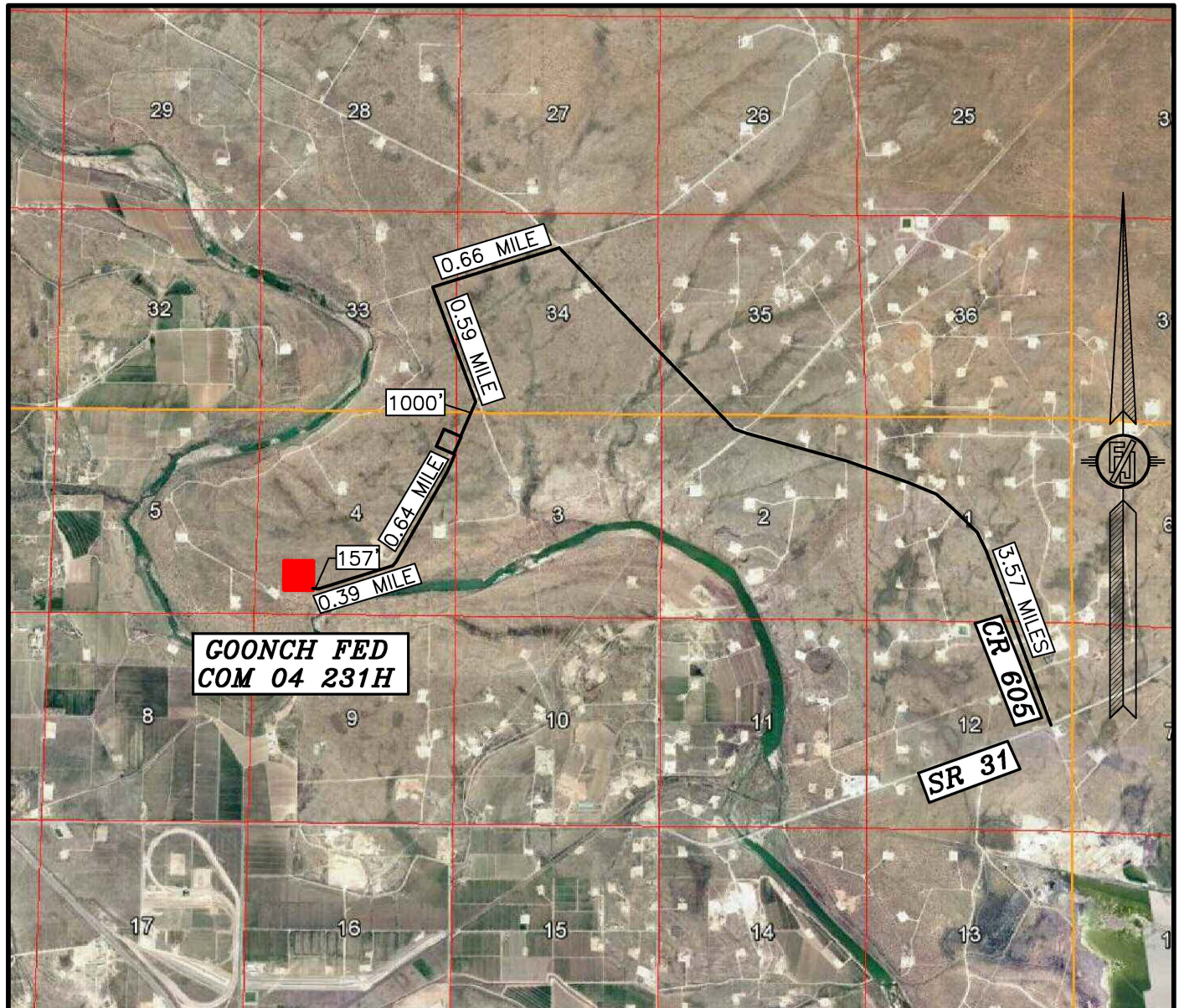
NOVO OIL & GAS NORTHERN DELAWARE, LLC
GOONCH FED COM 04 231H
 LOCATED 1080 FT. FROM THE SOUTH LINE
 AND 1075 FT. FROM THE WEST LINE OF
 SECTION 4, TOWNSHIP 23 SOUTH,
 RANGE 28 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO

MARCH 24, 2021

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

SURVEY NO. 6838B
 CARLSBAD, NEW MEXICO

SECTION 4, TOWNSHIP 23 SOUTH, RANGE 28 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO
 ACCESS AERIAL ROUTE MAP



NOT TO SCALE
 AERIAL PHOTO:
 GOOGLE EARTH
 MARCH 2016

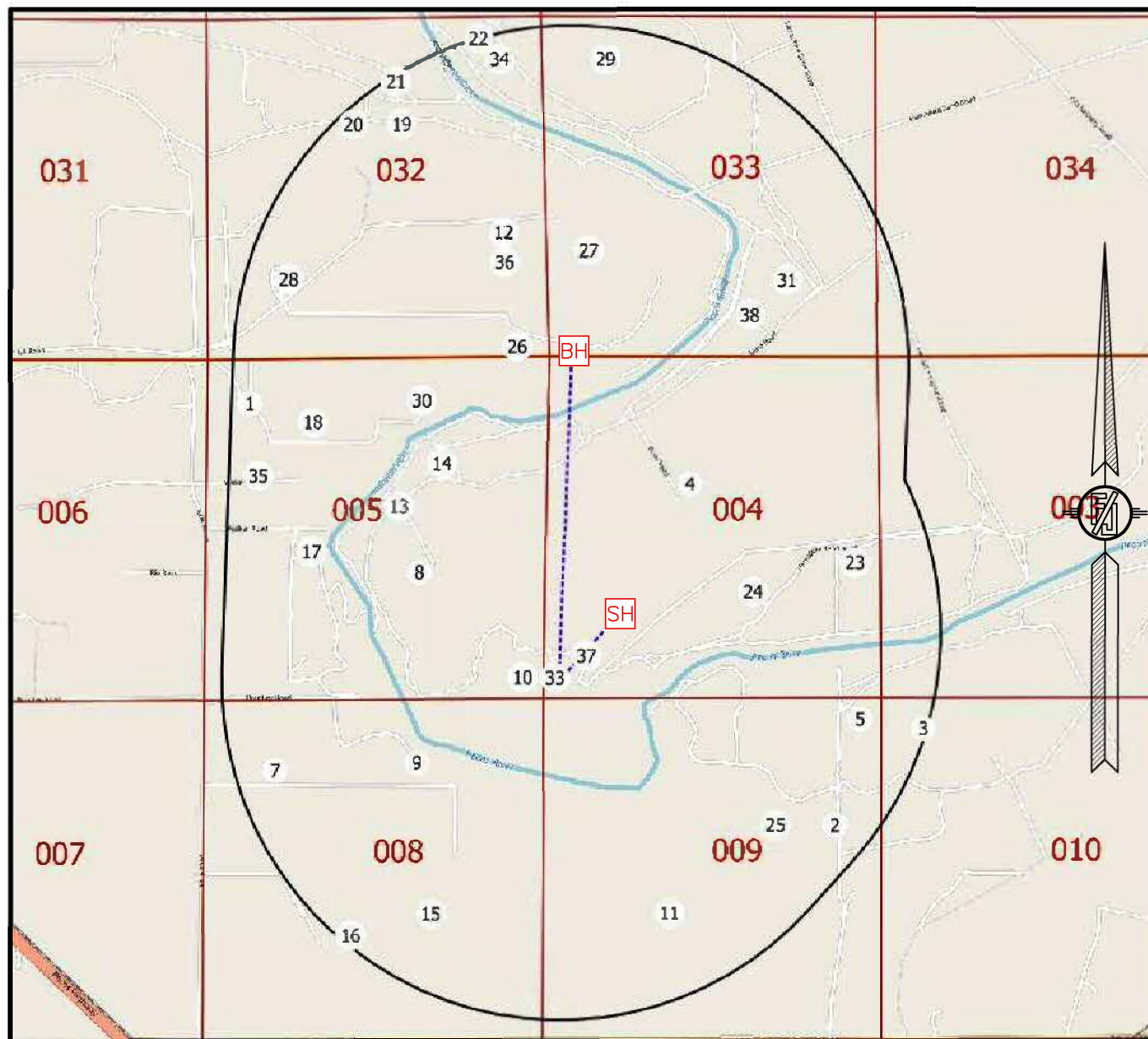
NOVO OIL & GAS NORTHERN DELAWARE, LLC
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 SECTION 4, TOWNSHIP 23 SOUTH,
 RANGE 28 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO

MARCH 24, 2021

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

SURVEY NO. 6838B
 CARLSBAD, NEW MEXICO

1-MILE MAP



NOT TO SCALE

[SH] SURFACE LOCATION

[BH] BOTTOM OF HOLE

[XX] WELLS WITHIN 1 MILE

--- WELL PATH

— 1-MILE BOUNDARY

NOVO OIL & GAS NORTHERN DELAWARE, LLC
GOONCH FED COM 04 231H
 LOCATED 1080 FT. FROM THE SOUTH LINE
 AND 1075 FT. FROM THE WEST LINE OF
 SECTION 4, TOWNSHIP 23 SOUTH,
 RANGE 28 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO

MARCH 24, 2021

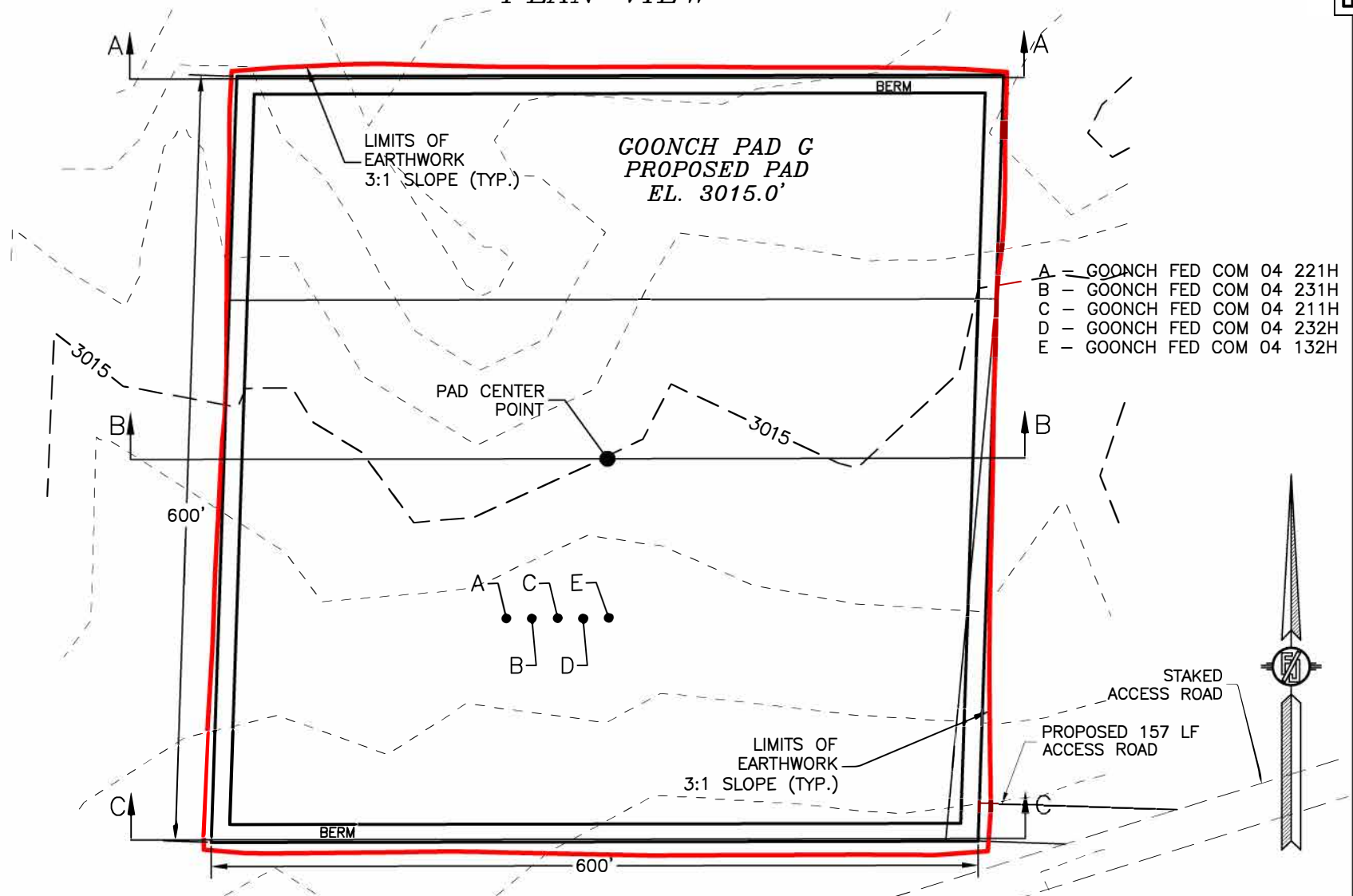
SURVEY NO. 6838B

MADRON SURVEYING, INC. 301 SOUTH CANAL

(575) 234-3341

CARLSBAD, NEW MEXICO

PLAN VIEW



I, FILMON F. JARAMILLO, A NEW MEXICO REGISTERED PROFESSIONAL SURVEYOR CERTIFY THAT I DIRECTED 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 REQUIREMENTS FOR SURVEYING IN NEW MEXICO.

NOVO OIL & GAS NORTHERN DELAWARE, LLC
GRADING PLAN AND CROSS SECTIONS
FOR GOONCH FED COM 04 231H
SECTION 4, TOWNSHIP 23 SOUTH,
RANGE 28 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

MARCH 24, 2021

FILMON F. JARAMILLO, PLS. 0000000000

MADRON SURVEYING, INC.

301 SOUTH CANAL
(575) 234-3341

CARLSBAD, NEW MEXICO

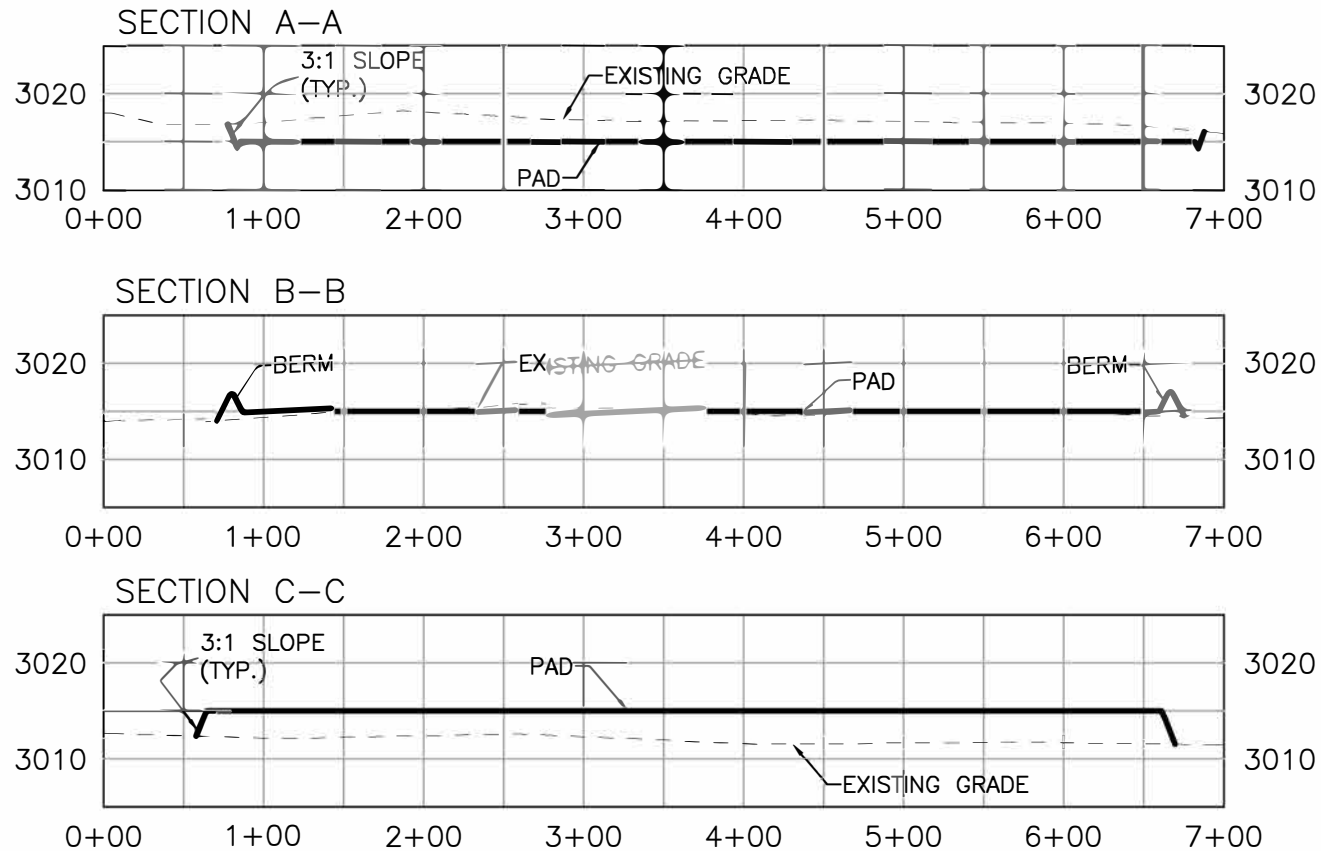
0 12 60 120 240
SCALE 1" = 120'

CUT	FILL	NET
8362 CU. YD	11692 CU. YD	3330 CU. YD (FILL)

EARTHWORK QUANTITIES ARE ESTIMATED

SHEET 1-2
SURVEY NO. 6838B

CROSS SECTIONS



I, FILIMON F. JARAMILLO, A NEW MEXICO REGISTERED PROFESSIONAL SURVEYOR CERTIFY THAT I DIRECTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO.

NOVO OIL & GAS NORTHERN DELAWARE, LLC
GRADING PLAN AND CROSS SECTIONS
FOR GOONCH FED COM 04 231H
SECTION 4, TOWNSHIP 23 SOUTH,
RANGE 28 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

MARCH 24, 2021

FILIMON F. JARAMILLO, P.E., 12797



MADRON SURVEYING, INC.

301 SOUTH CANAL
 (575) 234-3341

CARLSBAD, NEW MEXICO

0 12 60 120 240
 SCALE 1" = 120' - 1" = 20' VER

CUT	FILL	NET
8362 CU. YD	11692 CU. YD	3330 CU. YD (FILL)

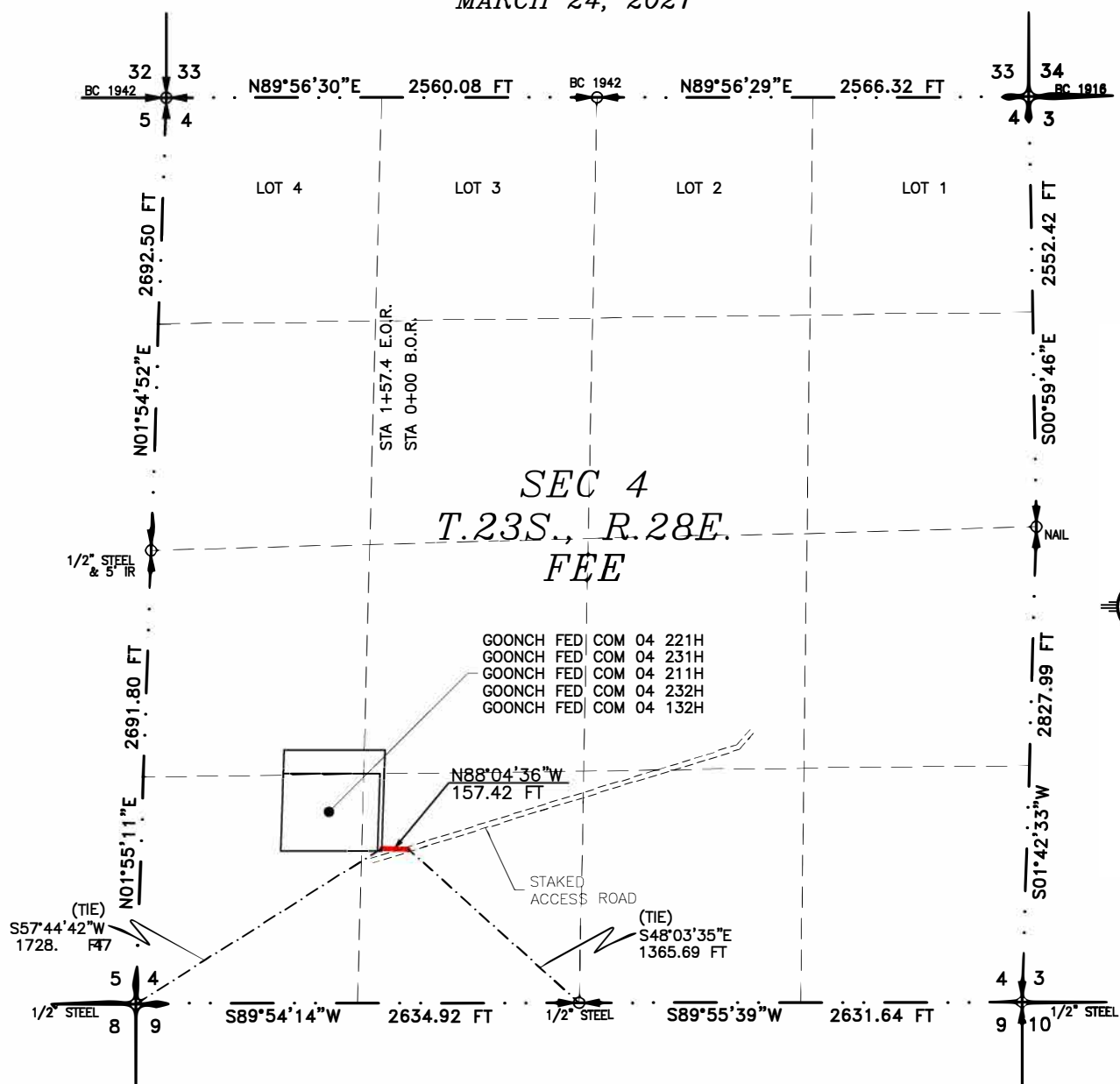
EARTHWORK QUANTITIES ARE ESTIMATED

SHEET 2-2
SURVEY NO. 6838B

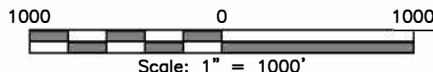
ACCESS ROAD PLAT

ACCESS ROAD TO THE GOONCH FED COM 04 221H, 231H, 211H, 232H, 132H

NOVO OIL & GAS NORTHERN DELAWARE, LLC
CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 4, TOWNSHIP 23 SOUTH, RANGE 28 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
MARCH 24, 2021



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.

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 24TH DAY OF MARCH 2021

FILIMON F. JARAMILLO, PLS. 12797
 NEW MEXICO PROFESSIONAL SURVEYOR

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

SURVEY NO. 6838B

CARLSBAD, NEW MEXICO

ACCESS ROAD PLAT

ACCESS ROAD TO THE GOONCH FED COM 04 221H, 231H, 211H, 232H, 132H

NOVO OIL & GAS NORTHERN DELAWARE, LLC
CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING
SECTION 4, TOWNSHIP 23 SOUTH, RANGE 28 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
MARCH 24, 2021

DESCRIPTION

A STRIP OF LAND 30 FEET WIDE CROSSING FEE LAND IN SECTION 4, 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 THE SE/4 SW/4 OF SAID SECTION 4, TOWNSHIP 23 SOUTH, RANGE 28 EAST, N.M.P.M., WHENCE THE SOUTH QUARTER CORNER OF SAID SECTION 4, TOWNSHIP 23 SOUTH, RANGE 28 EAST, N.M.P.M. BEARS S48°03'35"E, A DISTANCE OF 1365.69 FEET;

THENCE N88°04'36"W A DISTANCE OF 157.42 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE SOUTHWEST CORNER OF SAID SECTION 4, TOWNSHIP 23 SOUTH, RANGE 28 EAST, N.M.P.M. BEARS S57°44'42"W, A DISTANCE OF 1728.47 FEET;

SAID STRIP OF LAND BEING 157.42 FEET OR 9.54 RODS IN LENGTH, CONTAINING 0.108 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

SE/4 SW/4 157.42 L.F. 9.54 RODS 0.108 ACRES

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.

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 24 DAY OF MARCH 2021

(Signature of Filimon F. Jaramillo)
 FILIMON F. JARAMILLO, PLS. 12797

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

SURVEY NO. 6838B

301 SOUTH
 (575) 234

CARLSBAD, NEW MEXICO

Goonch Fed Com 04 231H

CHANGE TO PLANS

Move Surface Hole Location

From: 1,180' FSL & 980' FWL, Section 4, T-23-S, R-28-E, SWSW

To: 1,080' FSL & 1,075' FWL, Section 4, T-23-S, R-28-E, SWSW

Moved on the same pad site and there will be no new surface disturbance.

Casing Substitution

Hole Size: 9-7/8", Casing: 8-5/8", 32 ppf, P-110, TLW to be set at 9,474' TMD.

Design Safety Factors: Burst 5.95, Collapse 1.39, Tension 3.22 (Casing Specification Sheet is attached)

Hole Size: 7-7/8", Casing: 5-1/2", 20 ppf, P-110, DWC/C IS+ to be set at 16,324' TMD.

Design Safety Factors: Burst 1.25, Collapse 3.68, Tension 2.68 (Casing Specification Sheet is attached)

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

Lead: 641 Sacks; 2,294.3 cu. ft.; 100% excess; 3.58 cu.ft./sx; 10 ppg; Class C + retarder + LCM + beads; 900 psi 24-hour compressive strength.

Tail: 130 Sacks; 180.7 cu. ft; 50% excess; 1.39 cu.ft./sx; 13.80 ppg; Class C + retarder + LCM; 1,200 psi 24-hour compressive strength.

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

Lead: 742 Sacks; 1,573.3 cu. ft.; 20% excess; 2.12 cu.ft./sx; 11.91 ppg; Class C + retarder; 1,200 psi 24-hour compressive strength.

Tail: 1,378 Sacks; 2,191 cu. ft; 20% excess; 1.59 cu.ft./sx; 13.20 ppg; Class C + retarder; 1,200 psi 24-hour compressive strength.

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 30-015-46474	² Pool Code 98220	³ Pool Name Purple Sage; Wolfcamp Gas Pool
⁴ Property Code	⁵ Property Name GOONCH FED COM 04	⁶ Well Number 231H
⁷ OGRID No. 372920	⁸ Operator Name NOVO OIL & GAS NORTHERN DELAWARE, LLC	⁹ Elevation 3016.0

¹⁰ Surface Location

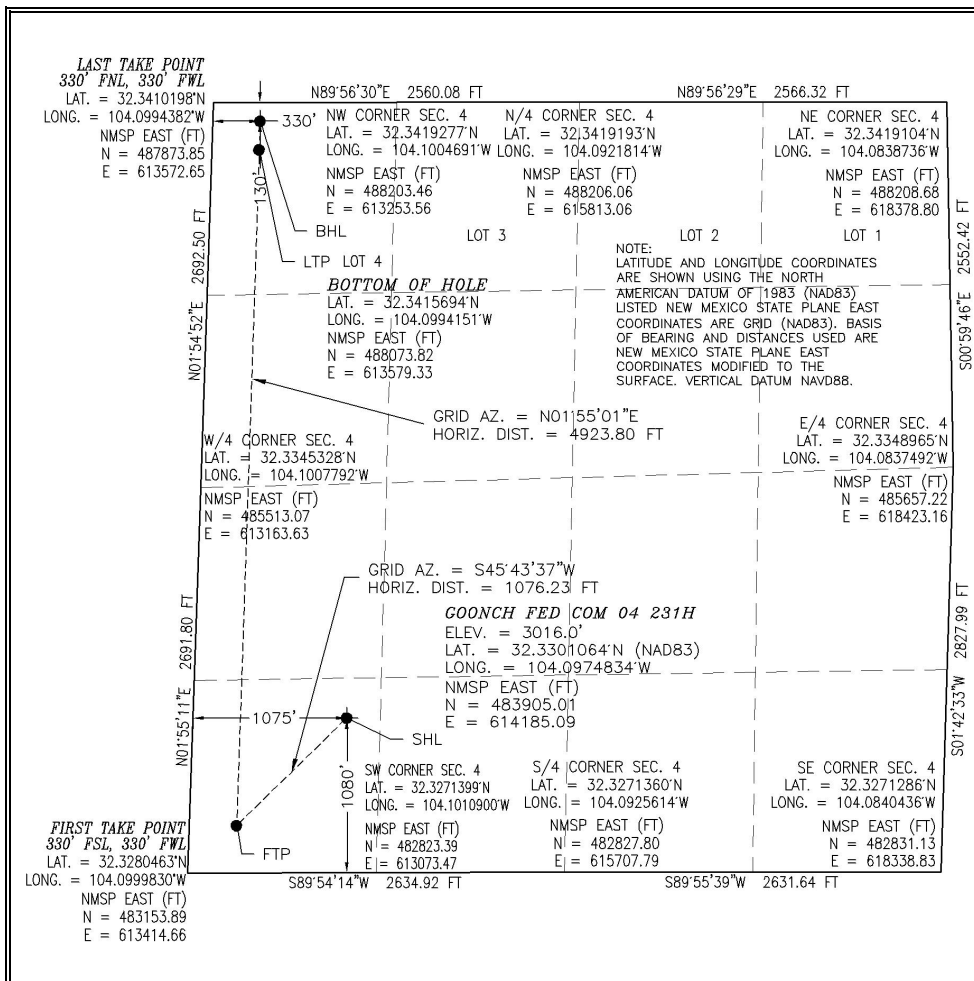
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	4	23 S	28 E		1080	SOUTH	1075	WEST	EDDY

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
4	4	23 S	28 E		130	NORTH	330	WEST	EDDY

¹² Dedicated Acres 320.41	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.

Justin Carter 5/12/2021
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.

MARCH 24, 2021

Date of Survey

[Signature]
Signature and Seal of Professional Surveyor
Certificate Number: **12797**
NEW MEXICO PROFESSIONAL SURVEYOR NO. 6838B



TEC-LOCK WEDGE

8.625" 32.00 LB/FT (.352" Wall)
BORUSAN MANNESMANN P110 HSCY

Pipe Body Data

Nominal OD:	8.625	in
Nominal Wall:	.352	in
Nominal Weight:	32.00	lb/ft
Plain End Weight:	31.13	lb/ft
Material Grade:	P110 HSCY	
Mill/Specification:	BORUSAN MANNESMANN	
Yield Strength:	125,000	psi
Tensile Strength:	125,000	psi
Nominal ID:	7.921	in
API Drift Diameter:	7.796	in
Special Drift Diameter:	7.875	in
RBW:	87.5 %	
Body Yield:	1,144,000	lbf
Burst:	8,930	psi
Collapse:	4,230	psi

Connection Data

Standard OD:	9.000	in
Pin Bored ID:	7.921	in
Critical Section Area:	8.61433	in ²
Tensile Efficiency:	94.2 %	
Compressive Efficiency:	100.0 %	
Longitudinal Yield Strength:	1,077,000	lbf
Compressive Limit:	1,144,000	lbf
Internal Pressure Rating:	8,930	psi
External Pressure Rating:	4,230	psi
Maximum Bend:	62.6	°/100

Operational Data

Minimum Makeup Torque:	29,900	ft*lb
Optimum Makeup Torque:	37,375	ft*lb
Maximum Makeup Torque:	80,900	ft*lb
Minimum Yield:	89,900	ft*lb
Makeup Loss:	5.97	in

Notes

Operational Torque is equivalent to the Maximum Make-Up Torque.



Technical Specifications

Connection Type: DWC/C-IS PLUS Casing STANDARD	Size(O.D.): 5-1/2 in	Weight (Wall): 20.00 lb/ft (0.361 in)	Grade: VST P110 EC
---	--------------------------------	---	------------------------------

Material	
VST P110 EC	Grade
125,000	Minimum Yield Strength (psi.)
135,000	Minimum Ultimate Strength (psi.)

Pipe Dimensions	
5.500	Nominal Pipe Body O.D. (in.)
4.778	Nominal Pipe Body I.D. (in.)
0.361	Nominal Wall Thickness (in.)
20.00	Nominal Weight (lbs./ft.)
19.83	Plain End Weight (lbs./ft.)
5.828	Nominal Pipe Body Area (sq. in.)

Pipe Body Performance Properties	
729,000	Minimum Pipe Body Yield Strength (lbs.)
12,090	Minimum Collapse Pressure (psi.)
14,360	Minimum Internal Yield Pressure (psi.)
13,100	Hydrostatic Test Pressure (psi.)

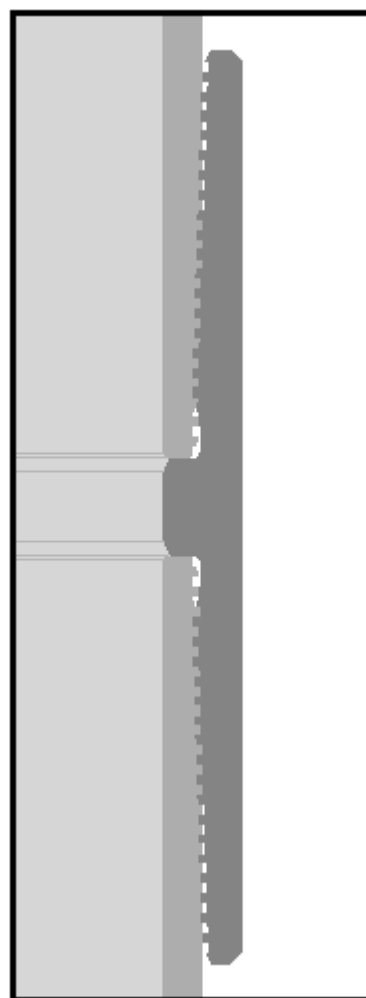
Connection Dimensions	
6.300	Connection O.D. (in.)
4.778	Connection I.D. (in.)
4.653	Connection Drift Diameter (in.)
4.13	Make-up Loss (in.)
5.828	Critical Area (sq. in.)
100.0	Joint Efficiency (%)

Connection Performance Properties	
729,000	Joint Strength (lbs.)
26,040	Reference String Length (ft) 1.4 Design Factor
728,000	API Joint Strength (lbs.)
729,000	Compression Rating (lbs.)
12,090	API Collapse Pressure Rating (psi.)
14,360	API Internal Pressure Resistance (psi.)
104.2	Maximum Uniaxial Bend Rating [degrees/100 ft]

Approximated Field End Torque Values	
16,600	Minimum Final Torque (ft.-lbs.)
19,100	Maximum Final Torque (ft.-lbs.)
21,600	Connection Yield Torque (ft.-lbs.)



VAM USA
4424 W. Sam Houston Pkwy. Suite 150
Houston, TX 77041
Phone: 713-479-3200
Fax: 713-479-3234
E-mail: VAMUSAsales@vam-usa.com



For detailed information on performance properties, refer to DWC Connection Data Notes on following page(s).

Connection specifications within the control of VAM USA were correct as of the date printed. Specifications are subject to change without notice. Certain connection specifications are dependent on the mechanical properties of the pipe. Mechanical properties of mill proprietary pipe grades were obtained from mill publications and are subject to change. Properties of mill proprietary grades should be confirmed with the mill. Users are advised to obtain current connection specifications and verify pipe mechanical properties for each application.

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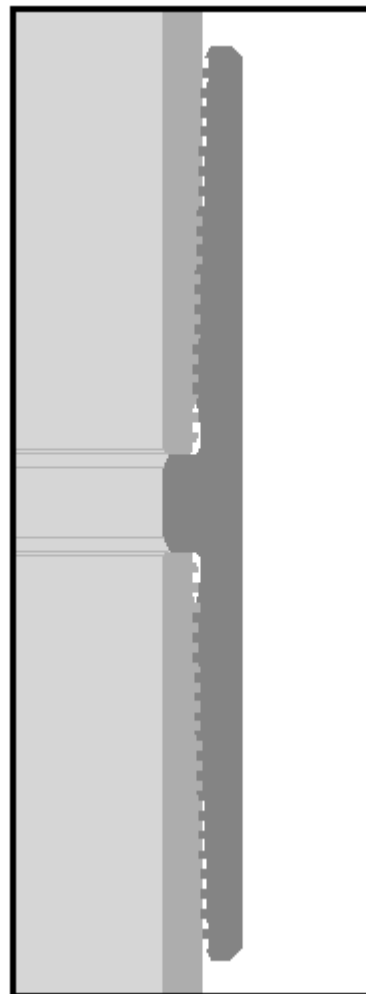
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VAM USA
4424 W. Sam Houston Pkwy. Suite 150
Houston, TX 77041
Phone: 713-479-3200
Fax: 713-479-3234
E-mail: VAMUSAsales@vam-usa.com

DWC Connection Data Notes:

1. DWC connections are available with a seal ring (SR) option.
2. All standard DWC/C connections are interchangeable for a given pipe OD. DWC connections are interchangeable with DWC/C-SR connections of the same OD and wall.
3. Connection performance properties are based on nominal pipe body and connection dimensions.
4. DWC connection internal and external pressure resistance is calculated using the API rating for buttress connections. API Internal pressure resistance is calculated from formulas 31, 32, and 35 in the API Bulletin 5C3.
5. DWC joint strength is the minimum pipe body yield strength multiplied by the connection critical area.
6. API joint strength is for reference only. It is calculated from formulas 42 and 43 in the API Bulletin 5C3.
7. Bending efficiency is equal to the compression efficiency.
8. The torque values listed are recommended. The actual torque required may be affected by field conditions such as temperature, thread compound, speed of make-up, weather conditions, etc.
9. Connection yield torque is not to be exceeded.
10. Reference string length is calculated by dividing the joint strength by both the nominal weight in air and a design factor (DF) of 1.4. These values are offered for reference only and do not include load factors such as bending, buoyancy, temperature, load dynamics, etc.
11. DWC connections will accommodate API standard drift diameters.



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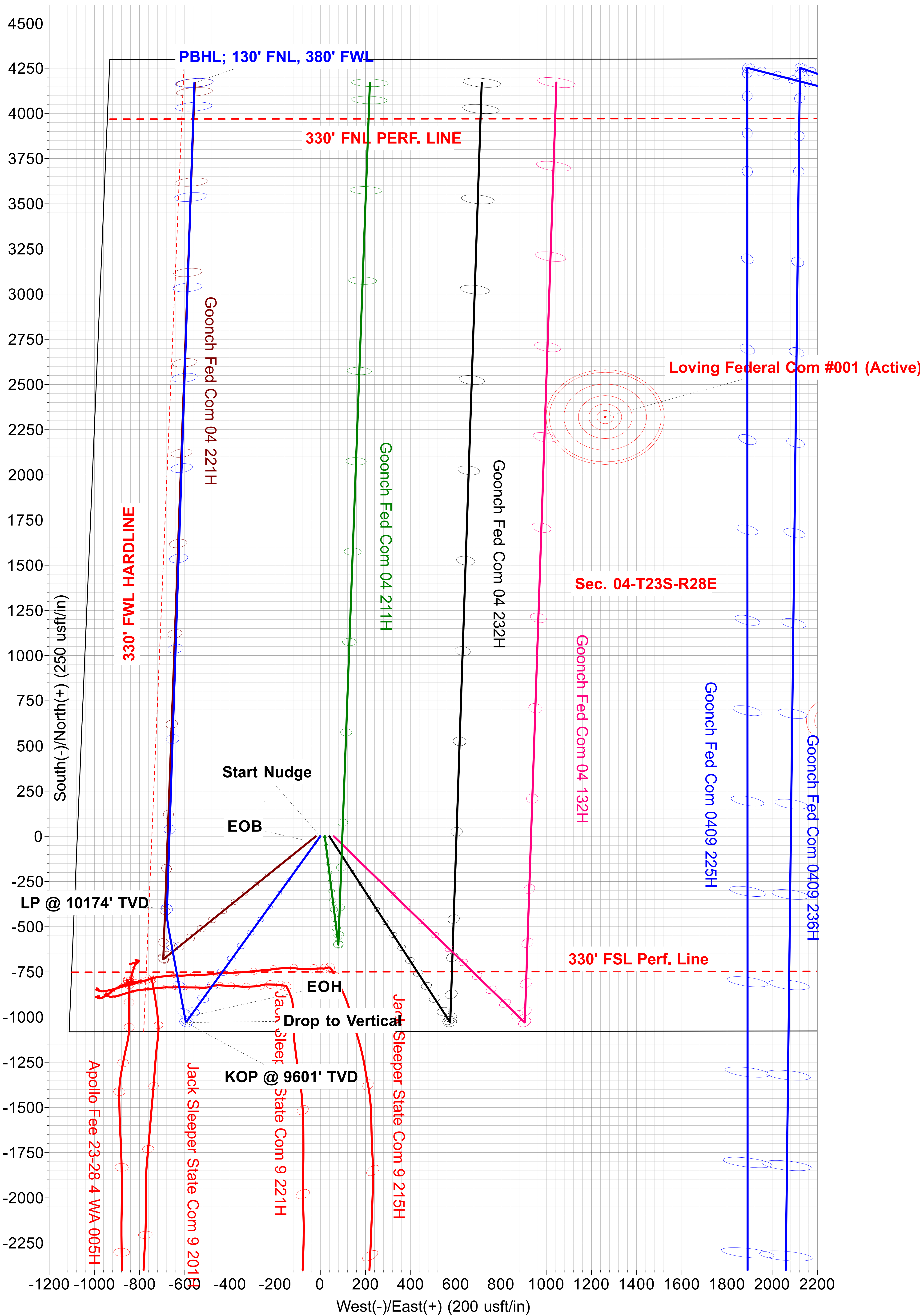
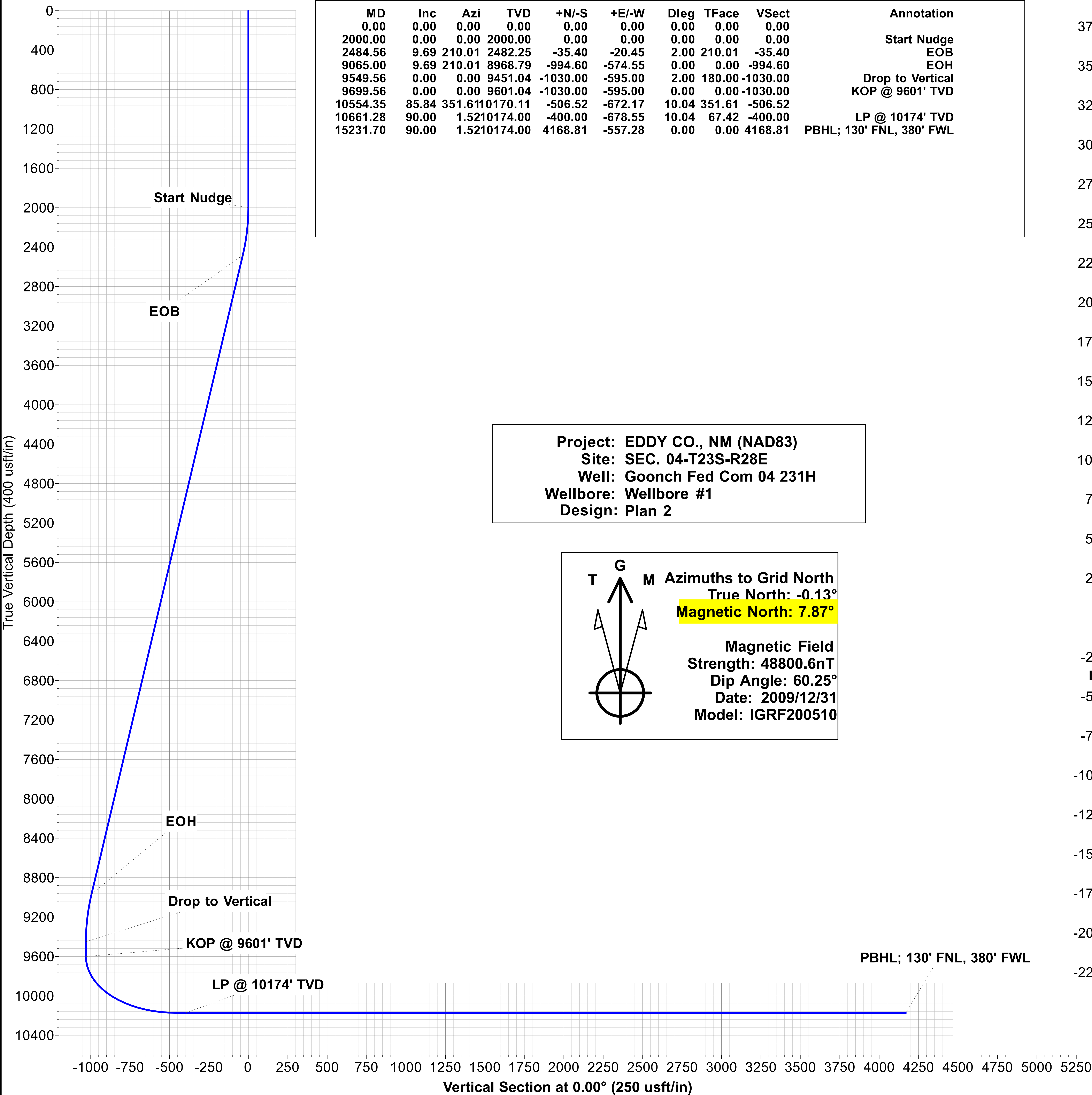
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11/29/2018 6:04 PM



Goonch Fed Com 04 231H

FRONTIER RIG #19





NOVO Oil & Gas

EDDY CO., NM (NAD83)

SEC. 04-T23S-R28E

Goonch Fed Com 04 231H

Wellbore #1

Plan 2

Anticollision Report

24 March, 2021





SB Directional Anticollision Report



Company:	NOVO Oil & Gas	Local Co-ordinate Reference:	Well Goonch Fed Com 04 231H
Project:	EDDY CO., NM (NAD83)	TVD Reference:	RKB @ 3041.00usft
Reference Site:	SEC. 04-T23S-R28E	MD Reference:	RKB @ 3041.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Goonch Fed Com 04 231H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 2	Offset TVD Reference:	Offset Datum

Reference	Plan 2		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum centre distance of 1,500.00usft	Error Surface:	Pedal Curve
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program		Date	2021/03/24	
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	15,231.42	Plan 2 (Wellbore #1)	MWD	MWD - Standard

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. 04-T23S-R28E						
Apollo Fee 23-28 4 WA 005H - Wellbore #1 - Wellbore #1	10,200.00	10,048.77	222.95	174.66	4.617	SF
Apollo Fee 23-28 4 WA 005H - Wellbore #1 - Wellbore #1	10,250.00	10,074.14	217.76	170.75	4.632	ES
Apollo Fee 23-28 4 WA 005H - Wellbore #1 - Wellbore #1	10,254.91	10,076.21	217.72	170.84	4.644	CC
Goonch Fed 0409 214H - Wellbore #1 - Wellbore #1						Out of range
Goonch Fed Com 04 132H - Wellbore #1 - Plan 3	1,500.00	1,499.50	60.02	53.48	9.183	CC, ES
Goonch Fed Com 04 132H - Wellbore #1 - Plan 3	1,600.00	1,598.16	61.11	54.16	8.791	SF
Goonch Fed Com 04 211H - Wellbore #1 - Plan 2	2,000.00	2,000.00	20.01	11.24	2.282	CC, ES
Goonch Fed Com 04 211H - Wellbore #1 - Plan 2	2,100.00	2,099.98	20.94	11.75	2.280	SF
Goonch Fed Com 04 221H - Wellbore #1 - Plan 2	1,500.00	1,500.00	20.00	13.46	3.059	CC, ES
Goonch Fed Com 04 221H - Wellbore #1 - Plan 2	1,600.00	1,599.47	21.26	14.30	3.056	SF
Goonch Fed Com 04 232H - Wellbore #1 - Plan 2	1,800.00	1,800.00	40.02	32.15	5.082	CC, ES
Goonch Fed Com 04 232H - Wellbore #1 - Plan 2	1,900.00	1,899.32	40.85	32.55	4.927	SF
Goonch Fed Com 0409 134H - Wellbore #1 - Plan 0						Out of range
Goonch Fed Com 0409 136H - Wellbore #1 - Plan 1						Out of range
Goonch Fed Com 0409 225H - Wellbore #1 - Plan 0						Out of range
Goonch Fed Com 0409 234H - Wellbore #1 - Plan 0						Out of range
Goonch Fed Com 0409 235H - Wellbore #1 - Plan 1						Out of range
Goonch Fed Com 0409 236H - Wellbore #1 - Plan 0						Out of range
Jack Sleeper State Com 9 201H - Wellbore #1 - Wellbore	9,439.13	9,430.70	123.14	76.02	2.614	CC, ES, SF
Jack Sleeper State Com 9 215H - Wellbore #1 - Wellbore	6,654.46	6,642.50	125.19	88.98	3.457	CC, ES, SF
Jack Sleeper State Com 9 221H - Wellbore #1 - Wellbore	7,469.78	7,421.23	78.72	39.53	2.009	CC, ES
Jack Sleeper State Com 9 221H - Wellbore #1 - Wellbore	7,500.00	7,449.96	79.18	39.67	2.004	SF
Loving Federal Com #001 (Active) - Wellbore #1 - Wellbo						Out of range
Swearingen #001 SWD (Active) - Wellbore #1 - Wellbore						Out of range
SEC. 09-T23S-R28E						
NEL FED #005 (Active) - Wellbore #1 - Wellbore #1						Out of range



SB Directional Anticollision Report



Company:	NOVO Oil & Gas	Local Co-ordinate Reference:	Well Goonch Fed Com 04 231H
Project:	EDDY CO., NM (NAD83)	TVD Reference:	RKB @ 3041.00usft
Reference Site:	SEC. 04-T23S-R28E	MD Reference:	RKB @ 3041.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Goonch Fed Com 04 231H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 2	Offset TVD Reference:	Offset Datum

Offset Design: SEC. 04-T23S-R28E - Apollo Fee 23-28 4 WA 005H - Wellbore #1 - Wellbore #1													Offset Site Error: 0.00 usft
Survey Program: 198-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)			
0.00	0.00	0.00	0.00	0.50	0.50	-130.09	-706.56	-839.43	1,097.21				
100.00	100.00	92.15	92.15	0.51	0.51	-130.07	-706.49	-839.87	1,097.52	1,096.50	1.02	1,080.741	
200.00	200.00	185.22	185.21	0.59	0.53	-130.02	-706.25	-841.21	1,098.46	1,097.34	1.12	979.984	
300.00	300.00	298.56	298.53	0.73	0.64	-129.93	-705.56	-842.91	1,099.23	1,097.86	1.37	800.182	
400.00	400.00	407.37	407.34	0.91	0.80	-129.91	-704.92	-842.89	1,098.84	1,097.13	1.71	643.058	
500.00	500.00	510.60	510.56	1.10	0.98	-129.94	-704.74	-841.80	1,097.92	1,095.83	2.08	526.917	
600.00	600.00	608.84	608.79	1.31	1.17	-129.99	-704.87	-840.32	1,096.84	1,094.37	2.47	443.198	
700.00	700.00	712.54	712.48	1.52	1.37	-130.08	-705.58	-838.61	1,096.03	1,093.14	2.89	379.750	
800.00	800.00	820.56	820.47	1.73	1.58	-130.13	-705.08	-836.55	1,094.26	1,090.95	3.31	330.206	
900.00	900.00	925.19	925.08	1.95	1.80	-130.17	-704.24	-834.37	1,092.16	1,088.42	3.75	291.515	
1,000.00	1,000.00	1,026.74	1,026.59	2.17	2.01	-130.20	-703.15	-831.96	1,089.65	1,085.48	4.17	261.142	
1,100.00	1,100.00	1,123.13	1,122.95	2.38	2.21	-130.25	-702.38	-829.60	1,087.26	1,082.68	4.59	237.080	
1,200.00	1,200.00	1,221.00	1,220.79	2.61	2.41	-130.33	-702.23	-827.04	1,085.18	1,080.17	5.01	216.779	
1,300.00	1,300.00	1,334.90	1,334.63	2.83	2.65	-130.43	-701.59	-823.57	1,082.48	1,077.02	5.46	198.126	
1,400.00	1,400.00	1,441.19	1,440.84	3.05	2.88	-130.48	-699.91	-819.98	1,078.88	1,072.98	5.91	182.646	
1,500.00	1,500.00	1,544.36	1,543.93	3.27	3.10	-130.51	-697.49	-816.51	1,074.80	1,068.46	6.34	169.442	
1,600.00	1,600.00	1,644.76	1,644.25	3.49	3.31	-130.50	-694.72	-813.34	1,070.61	1,063.83	6.77	158.073	
1,700.00	1,700.00	1,739.48	1,738.88	3.71	3.51	-130.47	-691.67	-810.78	1,066.48	1,059.29	7.19	148.325	
1,800.00	1,800.00	1,822.74	1,822.09	3.94	3.68	-130.44	-689.64	-809.10	1,063.38	1,055.80	7.58	140.242	
1,900.00	1,900.00	1,902.55	1,901.89	4.16	3.84	-130.38	-688.26	-809.16	1,062.29	1,054.32	7.97	133.365	
1,942.58	1,942.58	1,942.25	1,941.58	4.26	3.92	-130.35	-687.77	-809.50	1,062.23	1,054.09	8.14	130.495	
2,000.00	2,000.00	1,996.43	1,995.76	4.38	4.03	-130.32	-687.31	-810.02	1,062.33	1,053.95	8.38	126.812	
2,100.00	2,099.98	2,093.94	2,093.27	4.58	4.23	19.78	-686.68	-811.14	1,061.14	1,052.37	8.77	120.974	
2,200.00	2,199.84	2,193.73	2,193.05	4.76	4.43	19.95	-686.34	-812.10	1,056.73	1,047.58	9.15	115.480	
2,300.00	2,299.45	2,293.07	2,292.38	4.94	4.63	20.21	-686.16	-813.06	1,049.17	1,039.63	9.54	110.030	
2,400.00	2,398.70	2,397.53	2,396.84	5.13	4.85	20.57	-685.86	-813.80	1,038.10	1,028.16	9.94	104.448	
2,484.56	2,482.25	2,482.86	2,482.17	5.31	5.02	20.96	-685.17	-814.25	1,025.82	1,015.54	10.28	99.792	
2,500.00	2,497.47	2,497.40	2,496.71	5.34	5.06	21.02	-685.05	-814.33	1,023.38	1,013.04	10.34	98.962	
2,600.00	2,596.05	2,593.54	2,592.84	5.58	5.25	21.41	-684.43	-815.02	1,007.80	997.07	10.73	93.886	
2,700.00	2,694.62	2,692.38	2,691.68	5.83	5.46	21.79	-684.12	-815.55	992.34	981.20	11.14	89.072	
2,800.00	2,793.19	2,790.31	2,789.61	6.09	5.66	22.19	-683.79	-816.06	976.90	965.35	11.55	84.562	
2,900.00	2,891.76	2,892.46	2,891.75	6.36	5.87	22.55	-684.27	-815.92	961.49	949.51	11.98	80.261	
3,000.00	2,990.34	2,999.33	2,998.63	6.65	6.10	22.94	-684.38	-815.13	945.42	932.99	12.42	76.104	
3,100.00	3,088.91	3,095.53	3,094.80	6.94	6.30	23.26	-684.85	-813.61	928.94	916.09	12.85	72.296	
3,200.00	3,187.48	3,201.37	3,200.59	7.25	6.52	23.50	-686.83	-810.75	912.44	899.14	13.30	68.613	
3,300.00	3,286.06	3,305.71	3,304.84	7.56	6.75	23.71	-688.63	-806.90	895.08	881.33	13.75	65.108	
3,400.00	3,384.63	3,396.00	3,395.09	7.87	6.94	23.98	-689.31	-804.35	877.84	863.67	14.17	61.932	
3,500.00	3,483.20	3,489.53	3,488.61	8.20	7.13	24.34	-689.62	-803.09	861.56	846.95	14.61	58.972	
3,600.00	3,581.77	3,574.62	3,573.70	8.52	7.30	24.70	-689.96	-802.59	846.00	830.97	15.03	56.271	
3,700.00	3,680.35	3,648.72	3,647.78	8.86	7.46	25.00	-691.60	-803.33	832.83	817.39	15.44	53.953	
3,800.00	3,778.92	3,719.74	3,718.67	9.19	7.60	25.25	-695.11	-805.78	823.13	807.31	15.82	52.026	
3,900.00	3,877.49	3,811.66	3,810.29	9.53	7.78	25.59	-700.71	-810.53	815.57	799.31	16.26	50.152	
4,000.00	3,976.07	3,914.55	3,912.85	9.87	7.99	26.01	-706.59	-816.24	808.14	791.40	16.74	48.277	
4,100.00	4,074.64	4,008.66	4,006.58	10.22	8.18	26.25	-713.78	-820.59	801.07	783.88	17.19	46.591	
4,200.00	4,173.21	4,109.84	4,107.21	10.57	8.39	26.33	-723.79	-823.98	794.21	776.54	17.67	44.945	
4,300.00	4,271.79	4,210.23	4,206.96	10.92	8.61	26.31	-734.74	-826.40	787.13	768.98	18.15	43.374	
4,400.00	4,370.36	4,310.13	4,306.23	11.27	8.83	26.30	-745.69	-828.98	780.22	761.59	18.62	41.893	
4,500.00	4,468.93	4,414.55	4,410.07	11.62	9.06	26.32	-756.41	-831.50	772.78	753.67	19.12	40.424	
4,600.00	4,567.50	4,519.08	4,514.09	11.98	9.29	26.38	-766.48	-833.87	764.88	745.26	19.61	38.996	
4,700.00	4,666.08	4,620.28	4,614.83	12.34	9.52	26.43	-775.91	-835.64	756.36	736.26	20.10	37.621	
4,800.00	4,764.65	4,738.45	4,732.59	12.70	9.79	26.57	-785.54	-837.35	747.01	726.38	20.64	36.200	
4,900.00	4,863.22	4,859.56	4,853.58	13.06	10.05	26.96	-790.60	-837.47	734.24	713.08	21.17	34.691	

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



SB Directional

Anticollision Report



Company:	NOVO Oil & Gas	Local Co-ordinate Reference:	Well Goonch Fed Com 04 231H
Project:	EDDY CO., NM (NAD83)	TVD Reference:	RKB @ 3041.00usft
Reference Site:	SEC. 04-T23S-R28E	MD Reference:	RKB @ 3041.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Goonch Fed Com 04 231H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 2	Offset TVD Reference:	Offset Datum

Offset Design: SEC. 04-T23S-R28E - Apollo Fee 23-28 4 WA 005H - Wellbore #1 - Wellbore #1													Offset Site Error:	0.00 usft	
Survey Program:		198-MWD						Rule Assigned:						Offset Well Error:	0.50 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance			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)	Ellipses (usft)	Minimum Separation (usft)				
5,000.00	4,961.80	4,959.80	4,953.78	13.42	10.26	27.39	-793.23	-837.16	720.39	698.73	21.66	33.257			
5,100.00	5,060.37	5,063.14	5,057.12	13.78	10.48	27.94	-794.60	-836.97	705.99	683.82	22.17	31.850			
5,200.00	5,158.94	5,162.77	5,156.74	14.15	10.69	28.57	-795.05	-836.96	691.35	668.67	22.67	30.493			
5,300.00	5,257.51	5,261.86	5,255.83	14.51	10.90	29.22	-795.39	-836.90	676.69	653.50	23.18	29.189			
5,400.00	5,356.09	5,359.38	5,353.35	14.88	11.10	29.89	-795.80	-836.82	662.13	638.43	23.70	27.943			
5,500.00	5,454.66	5,457.70	5,451.67	15.24	11.31	30.56	-796.61	-836.74	647.87	623.66	24.21	26.758			
5,600.00	5,553.23	5,554.07	5,548.04	15.61	11.51	31.25	-797.47	-836.69	633.76	609.03	24.73	25.624			
5,700.00	5,651.81	5,651.60	5,645.56	15.98	11.71	31.97	-798.51	-837.04	620.20	594.94	25.26	24.552			
5,800.00	5,750.38	5,747.16	5,741.11	16.35	11.91	32.71	-799.68	-837.52	606.93	581.14	25.79	23.533			
5,900.00	5,848.95	5,845.92	5,839.86	16.72	12.12	33.50	-801.09	-838.43	594.24	567.90	26.33	22.567			
6,000.00	5,947.53	5,943.54	5,937.47	17.09	12.33	34.29	-802.67	-839.17	581.59	554.71	26.88	21.639			
6,100.00	6,046.10	6,046.52	6,040.43	17.46	12.54	35.20	-804.02	-840.00	568.99	541.55	27.44	20.739			
6,200.00	6,144.67	6,145.13	6,139.03	17.83	12.75	36.15	-804.69	-840.54	556.02	528.02	28.00	19.856			
6,300.00	6,243.24	6,243.42	6,237.32	18.20	12.95	37.15	-805.36	-841.18	543.31	514.74	28.57	19.014			
6,400.00	6,341.82	6,347.56	6,341.46	18.57	13.17	38.31	-805.47	-841.52	530.27	501.10	29.16	18.183			
6,500.00	6,440.39	6,445.28	6,439.18	18.94	13.37	39.47	-805.27	-841.55	517.04	487.28	29.76	17.373			
6,600.00	6,538.96	6,542.63	6,536.52	19.32	13.58	40.68	-805.25	-841.76	504.28	473.91	30.37	16.606			
6,700.00	6,637.54	6,641.85	6,635.75	19.69	13.78	41.94	-805.46	-841.91	491.77	460.78	30.98	15.873			
6,800.00	6,736.11	6,740.43	6,734.33	20.06	13.99	43.27	-805.54	-842.05	479.45	447.84	31.61	15.168			
6,900.00	6,834.68	6,837.94	6,831.84	20.44	14.19	44.66	-805.61	-842.23	467.46	435.21	32.25	14.496			
7,000.00	6,933.25	6,933.70	6,927.60	20.81	14.39	46.07	-805.96	-842.86	456.27	423.37	32.90	13.870			
7,100.00	7,031.83	7,030.38	7,024.27	21.19	14.59	47.54	-806.57	-843.97	445.93	412.37	33.55	13.290			
7,200.00	7,130.40	7,127.06	7,120.93	21.56	14.79	49.07	-807.37	-845.45	436.31	402.09	34.22	12.750			
7,300.00	7,228.97	7,228.25	7,222.10	21.94	15.00	50.73	-808.24	-847.35	427.39	392.48	34.91	12.244			
7,400.00	7,327.55	7,331.06	7,324.90	22.31	15.21	52.71	-807.43	-848.12	417.48	381.87	35.62	11.721			
7,500.00	7,426.12	7,428.26	7,422.09	22.69	15.41	54.68	-806.57	-848.71	407.92	371.58	36.34	11.225			
7,600.00	7,524.69	7,523.78	7,517.61	23.06	15.61	56.67	-805.96	-849.80	399.44	362.37	37.07	10.777			
7,700.00	7,623.26	7,624.66	7,618.47	23.44	15.82	58.83	-805.46	-851.34	391.87	354.07	37.80	10.366			
7,800.00	7,721.84	7,720.77	7,714.57	23.82	16.02	61.03	-804.61	-852.32	384.38	345.83	38.55	9.971			
7,900.00	7,820.41	7,817.84	7,811.60	24.19	16.22	63.51	-802.51	-854.16	378.45	339.14	39.31	9.628			
8,000.00	7,918.98	7,922.18	7,915.89	24.57	16.43	66.38	-799.48	-855.50	372.77	332.68	40.09	9.299			
8,100.00	8,017.56	8,021.05	8,014.74	24.95	16.63	69.00	-797.96	-855.71	366.72	325.88	40.84	8.979			
8,200.00	8,116.13	8,116.00	8,109.69	25.32	16.83	71.53	-796.77	-856.42	361.93	320.35	41.57	8.705			
8,300.00	8,214.70	8,222.95	8,216.63	25.70	17.05	74.42	-795.73	-856.72	357.44	315.13	42.31	8.447			
8,400.00	8,313.28	8,322.32	8,316.00	26.08	17.26	77.14	-795.41	-855.67	352.30	309.27	43.03	8.188			
8,500.00	8,411.85	8,418.12	8,411.79	26.45	17.46	79.77	-795.37	-854.99	348.21	304.50	43.72	7.965			
8,600.00	8,510.42	8,514.02	8,507.69	26.83	17.66	82.44	-795.11	-855.00	345.68	301.30	44.38	7.788			
8,700.00	8,608.99	8,610.19	8,603.85	27.21	17.86	85.25	-794.01	-855.50	344.80	299.77	45.02	7.658			
8,800.00	8,707.57	8,713.06	8,706.71	27.59	18.07	88.31	-792.69	-855.57	344.49	298.84	45.65	7.546			
8,900.00	8,806.14	8,816.77	8,810.41	27.97	18.29	91.15	-793.52	-854.89	343.43	297.19	46.24	7.427			
9,000.00	8,904.71	8,917.24	8,910.84	28.34	18.50	93.63	-796.22	-854.60	342.43	295.63	46.80	7.317			
9,065.00	8,968.79	8,983.56	8,977.12	28.59	18.64	95.21	-798.55	-854.19	341.65	294.49	47.15	7.245			
9,100.00	9,003.32	9,016.11	9,009.66	28.71	18.71	95.99	-799.50	-853.89	341.34	294.02	47.32	7.213			
9,126.62	9,029.64	9,040.85	9,034.39	28.77	18.76	96.58	-799.95	-853.63	341.27	293.84	47.43	7.195			
9,200.00	9,102.34	9,110.21	9,103.75	28.97	18.91	98.17	-800.25	-852.89	341.72	294.01	47.72	7.162			
9,300.00	9,201.79	9,208.68	9,202.22	29.20	19.11	99.91	-800.41	-852.55	342.99	294.91	48.08	7.133			
9,400.00	9,301.55	9,308.32	9,301.85	29.39	19.32	101.01	-801.04	-852.33	343.69	295.25	48.44	7.096			
9,500.00	9,401.48	9,409.96	9,403.49	29.55	19.53	101.58	-801.28	-852.12	344.05	295.27	48.78	7.053			
9,549.56	9,451.04	9,462.27	9,455.80	29.62	19.64	-48.34	-801.70	-851.58	343.49	294.54	48.96	7.016			
9,600.00	9,501.48	9,514.59	9,508.10	29.69	19.75	-48.35	-802.44	-850.88	342.51	293.37	49.14	6.970			
9,699.56	9,601.04	9,609.96	9,603.46	29.82	19.95	-48.38	-803.82	-849.57	340.55	291.08	49.47	6.884			
9,750.00	9,651.41	9,658.01	9,651.50	29.87	20.05	-40.29	-803.67	-849.11	338.59	288.96	49.63	6.822			

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



SB Directional Anticollision Report



Company:	NOVO Oil & Gas	Local Co-ordinate Reference:	Well Goonch Fed Com 04 231H
Project:	EDDY CO., NM (NAD83)	TVD Reference:	RKB @ 3041.00usft
Reference Site:	SEC. 04-T23S-R28E	MD Reference:	RKB @ 3041.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Goonch Fed Com 04 231H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 2	Offset TVD Reference:	Offset Datum

Offset Design: SEC. 04-T23S-R28E - Apollo Fee 23-28 4 WA 005H - Wellbore #1 - Wellbore #1													Offset Site Error: 0.00 usft
Survey Program: 198-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	
9,800.00	9,700.96	9,707.99	9,701.48	29.88	20.16	-41.29	-803.44	-848.65	333.38	283.60	49.79	6.696	
9,850.00	9,749.74	9,756.91	9,750.40	29.86	20.26	-43.05	-803.27	-848.18	324.96	275.03	49.93	6.509	
9,900.00	9,797.38	9,804.35	9,797.84	29.80	20.36	-45.66	-803.19	-847.82	313.64	263.60	50.04	6.267	
9,950.00	9,843.51	9,850.28	9,843.77	29.72	20.46	-49.22	-803.19	-847.57	299.84	249.72	50.12	5.982	
10,000.00	9,887.79	9,894.40	9,887.88	29.60	20.55	-53.82	-803.22	-847.37	284.13	233.99	50.13	5.667	
10,050.00	9,929.86	9,936.30	9,929.79	29.45	20.64	-59.47	-803.26	-847.22	267.30	217.26	50.04	5.342	
10,100.00	9,969.41	9,977.04	9,970.52	29.28	20.72	-66.40	-803.85	-847.20	250.36	200.58	49.77	5.030	
10,150.00	10,006.13	10,015.78	10,009.21	29.09	20.81	-74.44	-805.79	-847.29	234.81	185.59	49.22	4.771	
10,200.00	10,039.74	10,048.77	10,042.03	28.89	20.88	-82.35	-809.06	-847.25	222.95	174.66	48.29	4.617 SF	
10,250.00	10,069.98	10,074.14	10,067.13	28.67	20.94	-88.68	-812.76	-847.05	217.76	170.75	47.02	4.632 ES	
10,254.91	10,072.76	10,076.21	10,069.17	28.64	20.94	-89.18	-813.11	-847.02	217.72	170.84	46.88	4.644 CC	
10,300.00	10,096.63	10,092.13	10,084.82	28.44	20.98	-92.66	-816.00	-846.81	221.71	176.04	45.66	4.855	
10,350.00	10,119.48	10,104.24	10,096.68	28.20	21.01	-94.26	-818.45	-846.62	235.54	190.96	44.59	5.283	
10,400.00	10,138.34	10,111.38	10,103.65	27.97	21.03	-93.52	-819.99	-846.50	258.32	214.32	44.00	5.871	
10,450.00	10,153.08	10,114.34	10,106.53	27.73	21.03	-90.55	-820.65	-846.45	288.14	244.29	43.85	6.571	
10,500.00	10,163.59	10,113.76	10,105.97	27.51	21.03	-85.50	-820.52	-846.46	322.98	279.01	43.97	7.345	
10,554.35	10,170.11	10,109.76	10,102.07	27.27	21.02	-78.04	-819.63	-846.53	364.60	320.34	44.26	8.237	
10,600.00	10,172.72	10,104.83	10,097.26	27.06	21.01	-72.88	-818.57	-846.61	402.44	357.91	44.54	9.036	
10,650.00	10,173.96	10,098.90	10,091.46	26.81	21.00	-64.54	-817.34	-846.71	446.92	402.12	44.80	9.976	
10,661.28	10,174.00	10,097.50	10,090.08	26.75	20.99	-62.17	-817.06	-846.73	457.27	412.42	44.85	10.195	
10,700.00	10,174.00	10,092.81	10,085.49	26.57	20.98	-60.89	-816.13	-846.80	493.14	448.13	45.01	10.957	
10,800.00	10,174.00	10,076.00	10,068.96	26.17	20.94	-56.55	-813.07	-847.03	587.26	541.94	45.33	12.956	
10,900.00	10,174.00	10,076.00	10,068.96	25.82	20.94	-56.55	-813.07	-847.03	682.72	637.08	45.64	14.960	
11,000.00	10,174.00	10,076.00	10,068.96	25.55	20.94	-56.55	-813.07	-847.03	779.31	733.44	45.87	16.990	
11,100.00	10,174.00	10,059.20	10,052.36	25.41	20.90	-52.58	-810.45	-847.19	876.29	830.26	46.02	19.040	
11,200.00	10,174.00	10,053.61	10,046.83	25.76	20.89	-51.35	-809.68	-847.23	973.91	927.74	46.17	21.095	
11,300.00	10,174.00	10,048.70	10,041.96	26.41	20.88	-50.29	-809.05	-847.25	1,071.90	1,025.62	46.29	23.157	
11,400.00	10,174.00	10,030.00	10,023.38	27.17	20.84	-46.54	-807.00	-847.30	1,170.44	1,124.06	46.38	25.236	
11,500.00	10,174.00	10,030.00	10,023.38	28.01	20.84	-46.54	-807.00	-847.30	1,268.84	1,222.36	46.47	27.302	
11,600.00	10,174.00	10,030.00	10,023.38	28.93	20.84	-46.54	-807.00	-847.30	1,367.46	1,320.91	46.55	29.374	
11,700.00	10,174.00	10,030.00	10,023.38	29.92	20.84	-46.54	-807.00	-847.30	1,466.28	1,419.65	46.62	31.449	

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



SB Directional Anticollision Report



Company:	NOVO Oil & Gas	Local Co-ordinate Reference:	Well Goonch Fed Com 04 231H
Project:	EDDY CO., NM (NAD83)	TVD Reference:	RKB @ 3041.00usft
Reference Site:	SEC. 04-T23S-R28E	MD Reference:	RKB @ 3041.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Goonch Fed Com 04 231H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 2	Offset TVD Reference:	Offset Datum

Offset Design: SEC. 04-T23S-R28E - Goonch Fed Com 04 132H - Wellbore #1 - Plan 3													Offset Site Error: 0.00 usft
Survey Program: 0-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)			
0.00	0.00	0.00	0.00	0.50	0.50	89.89	0.11	60.02	60.02				
100.00	100.00	99.50	99.50	0.51	0.51	89.89	0.11	60.02	60.02	59.01	1.01	59.205	
200.00	200.00	199.50	199.50	0.59	0.59	89.89	0.11	60.02	60.02	58.85	1.17	51.119	
300.00	300.00	299.50	299.50	0.73	0.73	89.89	0.11	60.02	60.02	58.56	1.46	41.088	
400.00	400.00	399.50	399.50	0.91	0.91	89.89	0.11	60.02	60.02	58.21	1.81	33.074	
500.00	500.00	499.50	499.50	1.10	1.10	89.89	0.11	60.02	60.02	57.82	2.20	27.234	
600.00	600.00	599.50	599.50	1.31	1.30	89.89	0.11	60.02	60.02	57.41	2.61	22.975	
700.00	700.00	699.50	699.50	1.52	1.51	89.89	0.11	60.02	60.02	56.99	3.03	19.792	
800.00	800.00	799.50	799.50	1.73	1.73	89.89	0.11	60.02	60.02	56.56	3.46	17.346	
900.00	900.00	899.50	899.50	1.95	1.94	89.89	0.11	60.02	60.02	56.13	3.89	15.419	
1,000.00	1,000.00	999.50	999.50	2.17	2.16	89.89	0.11	60.02	60.02	55.69	4.33	13.866	
1,100.00	1,100.00	1,099.50	1,099.50	2.38	2.38	89.89	0.11	60.02	60.02	55.25	4.77	12.590	
1,200.00	1,200.00	1,199.50	1,199.50	2.61	2.60	89.89	0.11	60.02	60.02	54.81	5.21	11.526	
1,300.00	1,300.00	1,299.50	1,299.50	2.83	2.82	89.89	0.11	60.02	60.02	54.37	5.65	10.624	
1,400.00	1,400.00	1,399.50	1,399.50	3.05	3.04	89.89	0.11	60.02	60.02	53.93	6.09	9.852	
1,500.00	1,500.00	1,499.50	1,499.50	3.27	3.27	89.89	0.11	60.02	60.02	53.48	6.54	9.183 CC, ES	
1,600.00	1,600.00	1,598.16	1,598.14	3.49	3.46	91.12	-1.19	61.09	61.11	54.16	6.95	8.791 SF	
1,700.00	1,700.00	1,696.58	1,696.43	3.71	3.64	94.54	-5.10	64.30	64.57	57.23	7.34	8.793	
1,800.00	1,800.00	1,794.54	1,794.02	3.94	3.82	99.45	-11.59	69.62	70.78	63.05	7.74	9.150	
1,900.00	1,900.00	1,891.81	1,890.59	4.16	4.02	104.96	-20.57	76.99	80.19	72.06	8.13	9.868	
2,000.00	2,000.00	1,988.18	1,985.82	4.38	4.24	110.32	-31.97	86.34	93.08	84.57	8.51	10.936	
2,100.00	2,099.98	2,084.26	2,080.23	4.58	4.49	-95.48	-45.73	97.63	109.67	100.80	8.87	12.360	
2,200.00	2,199.84	2,182.55	2,176.64	4.76	4.77	-93.58	-60.57	109.80	127.77	118.51	9.26	13.803	
2,300.00	2,299.45	2,280.85	2,273.04	4.94	5.07	-93.45	-75.41	121.98	146.11	136.45	9.66	15.124	
2,400.00	2,398.70	2,379.03	2,369.33	5.13	5.39	-94.49	-90.23	134.14	164.71	154.62	10.09	16.321	
2,484.56	2,482.25	2,461.87	2,450.57	5.31	5.67	-96.00	-102.74	144.40	180.78	170.29	10.49	17.239	
2,500.00	2,497.47	2,476.97	2,465.38	5.34	5.72	-96.38	-105.02	146.27	183.76	173.19	10.56	17.398	
2,600.00	2,596.05	2,574.80	2,561.33	5.58	6.06	-98.53	-119.79	158.38	203.19	192.13	11.06	18.369	
2,700.00	2,694.62	2,672.64	2,657.28	5.83	6.41	-100.30	-134.56	170.50	222.86	211.28	11.59	19.236	
2,800.00	2,793.19	2,770.47	2,753.23	6.09	6.76	-101.79	-149.33	182.62	242.70	230.57	12.13	20.009	
2,900.00	2,891.76	2,868.30	2,849.18	6.36	7.13	-103.05	-164.10	194.74	262.67	249.98	12.69	20.698	
3,000.00	2,990.34	2,966.14	2,945.13	6.65	7.50	-104.13	-178.87	206.85	282.75	269.49	13.27	21.311	
3,100.00	3,088.91	3,063.97	3,041.08	6.94	7.87	-105.07	-193.64	218.97	302.92	289.06	13.86	21.859	
3,200.00	3,187.48	3,161.80	3,137.03	7.25	8.25	-105.89	-208.41	231.09	323.15	308.69	14.46	22.348	
3,300.00	3,286.06	3,259.63	3,232.98	7.56	8.63	-106.62	-223.18	243.20	343.44	328.36	15.07	22.787	
3,400.00	3,384.63	3,357.47	3,328.93	7.87	9.02	-107.26	-237.95	255.32	363.77	348.08	15.69	23.181	
3,500.00	3,483.20	3,455.30	3,424.88	8.20	9.41	-107.84	-252.72	267.44	384.15	367.82	16.32	23.536	
3,600.00	3,581.77	3,553.13	3,520.83	8.52	9.80	-108.36	-267.49	279.55	404.55	387.60	16.96	23.857	
3,700.00	3,680.35	3,650.97	3,616.78	8.86	10.19	-108.83	-282.26	291.67	424.99	407.39	17.60	24.148	
3,800.00	3,778.92	3,748.80	3,712.73	9.19	10.59	-109.25	-297.03	303.79	445.45	427.21	18.25	24.412	
3,900.00	3,877.49	3,846.63	3,808.68	9.53	10.98	-109.64	-311.80	315.91	465.94	447.04	18.90	24.653	
4,000.00	3,976.07	3,944.47	3,904.63	9.87	11.38	-110.00	-326.57	328.02	486.44	466.88	19.56	24.873	
4,100.00	4,074.64	4,042.30	4,000.58	10.22	11.78	-110.33	-341.34	340.14	506.96	486.74	20.22	25.074	
4,200.00	4,173.21	4,140.13	4,096.53	10.57	12.18	-110.63	-356.11	352.26	527.49	506.61	20.88	25.259	
4,300.00	4,271.79	4,237.96	4,192.48	10.92	12.59	-110.91	-370.88	364.37	548.04	526.48	21.55	25.429	
4,400.00	4,370.36	4,335.80	4,288.43	11.27	12.99	-111.16	-385.65	376.49	568.59	546.37	22.22	25.586	
4,500.00	4,468.93	4,433.63	4,384.38	11.62	13.40	-111.40	-400.42	388.61	589.16	566.26	22.90	25.732	
4,600.00	4,567.50	4,531.46	4,480.33	11.98	13.80	-111.63	-415.19	400.73	609.74	586.17	23.57	25.866	
4,700.00	4,666.08	4,629.30	4,576.27	12.34	14.21	-111.84	-429.96	412.84	630.32	606.07	24.25	25.991	
4,800.00	4,764.65	4,727.13	4,672.22	12.70	14.61	-112.04	-444.73	424.96	650.92	625.98	24.93	26.108	
4,900.00	4,863.22	4,824.96	4,768.17	13.06	15.02	-112.22	-459.50	437.08	671.52	645.90	25.61	26.216	
5,000.00	4,961.80	4,922.80	4,864.12	13.42	15.43	-112.39	-474.27	449.19	692.12	665.82	26.30	26.317	

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



SB Directional Anticollision Report



Company:	NOVO Oil & Gas	Local Co-ordinate Reference:	Well Goonch Fed Com 04 231H
Project:	EDDY CO., NM (NAD83)	TVD Reference:	RKB @ 3041.00usft
Reference Site:	SEC. 04-T23S-R28E	MD Reference:	RKB @ 3041.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Goonch Fed Com 04 231H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 2	Offset TVD Reference:	Offset Datum

Offset Design: SEC. 04-T23S-R28E - Goonch Fed Com 04 132H - Wellbore #1 - Plan 3												Offset Site Error:	0.00 usft
Survey Program: 0-MWD												Offset Well Error:	0.50 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	Warning
5,100.00	5,060.37	5,020.63	4,960.07	13.78	15.84	-112.56	-489.04	461.31	712.74	685.75	26.99	26.412	
5,200.00	5,158.94	5,118.46	5,056.02	14.15	16.25	-112.71	-503.81	473.43	733.35	705.68	27.67	26.500	
5,300.00	5,257.51	5,216.29	5,151.97	14.51	16.66	-112.86	-518.58	485.54	753.98	725.61	28.36	26.584	
5,400.00	5,356.09	5,314.13	5,247.92	14.88	17.07	-113.00	-533.35	497.66	774.60	745.55	29.05	26.662	
5,500.00	5,454.66	5,411.96	5,343.87	15.24	17.48	-113.13	-548.12	509.78	795.23	765.49	29.74	26.735	
5,600.00	5,553.23	5,509.79	5,439.82	15.61	17.89	-113.25	-562.89	521.90	815.87	785.43	30.44	26.805	
5,700.00	5,651.81	5,607.63	5,535.77	15.98	18.30	-113.37	-577.66	534.01	836.51	805.37	31.13	26.870	
5,800.00	5,750.38	5,705.46	5,631.72	16.35	18.71	-113.48	-592.43	546.13	857.15	825.32	31.83	26.932	
5,900.00	5,848.95	5,803.29	5,727.67	16.72	19.13	-113.59	-607.20	558.25	877.79	845.27	32.52	26.991	
6,000.00	5,947.53	5,901.13	5,823.62	17.09	19.54	-113.69	-621.97	570.36	898.44	865.22	33.22	27.046	
6,100.00	6,046.10	5,998.96	5,919.57	17.46	19.95	-113.79	-636.74	582.48	919.09	885.17	33.92	27.099	
6,200.00	6,144.67	6,096.79	6,015.52	17.83	20.36	-113.88	-651.51	594.60	939.74	905.12	34.61	27.149	
6,300.00	6,243.24	6,194.62	6,111.47	18.20	20.78	-113.97	-666.28	606.72	960.39	925.08	35.31	27.196	
6,400.00	6,341.82	6,292.46	6,207.42	18.57	21.19	-114.06	-681.05	618.83	981.05	945.04	36.01	27.241	
6,500.00	6,440.39	6,390.29	6,303.37	18.94	21.60	-114.14	-695.82	630.95	1,001.71	964.99	36.71	27.284	
6,600.00	6,538.96	6,488.12	6,399.32	19.32	22.02	-114.22	-710.59	643.07	1,022.37	984.95	37.42	27.325	
6,700.00	6,637.54	6,585.96	6,495.27	19.69	22.43	-114.29	-725.36	655.18	1,043.03	1,004.91	38.12	27.364	
6,800.00	6,736.11	6,683.79	6,591.22	20.06	22.85	-114.37	-740.13	667.30	1,063.70	1,024.88	38.82	27.401	
6,900.00	6,834.68	6,781.62	6,687.17	20.44	23.26	-114.44	-754.90	679.42	1,084.36	1,044.84	39.52	27.437	
7,000.00	6,933.25	6,879.45	6,783.11	20.81	23.67	-114.50	-769.67	691.53	1,105.03	1,064.80	40.23	27.471	
7,100.00	7,031.83	6,977.29	6,879.06	21.19	24.09	-114.57	-784.44	703.65	1,125.70	1,084.77	40.93	27.503	
7,200.00	7,130.40	7,075.12	6,975.01	21.56	24.50	-114.63	-799.20	715.77	1,146.37	1,104.73	41.63	27.535	
7,300.00	7,228.97	7,172.95	7,070.96	21.94	24.92	-114.69	-813.97	727.89	1,167.04	1,124.70	42.34	27.564	
7,400.00	7,327.55	7,270.79	7,166.91	22.31	25.33	-114.75	-828.74	740.00	1,187.71	1,144.67	43.04	27.593	
7,500.00	7,426.12	7,368.62	7,262.86	22.69	25.75	-114.81	-843.51	752.12	1,208.38	1,164.63	43.75	27.621	
7,600.00	7,524.69	7,466.45	7,358.81	23.06	26.17	-114.86	-858.28	764.24	1,229.06	1,184.60	44.46	27.647	
7,700.00	7,623.26	7,564.29	7,454.76	23.44	26.58	-114.91	-873.05	776.35	1,249.73	1,204.57	45.16	27.672	
7,800.00	7,721.84	7,662.12	7,550.71	23.82	27.00	-114.96	-887.82	788.47	1,270.41	1,224.54	45.87	27.697	
7,900.00	7,820.41	7,759.95	7,646.66	24.19	27.41	-115.01	-902.59	800.59	1,291.09	1,244.51	46.58	27.720	
8,000.00	7,918.98	7,857.78	7,742.61	24.57	27.83	-115.06	-917.36	812.71	1,311.76	1,264.48	47.28	27.743	
8,100.00	8,017.56	7,955.62	7,838.56	24.95	28.24	-115.11	-932.13	824.82	1,332.44	1,284.45	47.99	27.765	
8,200.00	8,116.13	8,053.45	7,934.51	25.32	28.66	-115.15	-946.90	836.94	1,353.12	1,304.42	48.70	27.785	
8,300.00	8,214.70	8,151.28	8,030.46	25.70	29.08	-115.19	-961.67	849.06	1,373.80	1,324.40	49.41	27.806	
8,400.00	8,313.28	8,249.12	8,126.41	26.08	29.49	-115.24	-976.44	861.17	1,394.48	1,344.37	50.12	27.825	
8,500.00	8,411.85	8,360.34	8,235.54	26.45	29.94	-115.29	-993.03	874.78	1,415.04	1,364.15	50.89	27.804	
8,600.00	8,510.42	8,509.15	8,382.51	26.83	30.38	-115.53	-1,010.98	889.51	1,433.06	1,381.30	51.77	27.684	
8,700.00	8,608.99	8,659.06	8,531.59	27.21	30.72	-115.98	-1,023.08	899.43	1,447.60	1,395.08	52.53	27.560	
8,800.00	8,707.57	8,809.27	8,681.57	27.59	30.97	-116.65	-1,029.14	904.41	1,458.70	1,405.51	53.19	27.423	
8,900.00	8,806.14	8,933.34	8,805.64	27.97	31.13	-117.36	-1,029.89	905.02	1,466.88	1,413.12	53.76	27.286	
9,000.00	8,904.71	9,031.92	8,904.21	28.34	31.24	-117.93	-1,029.89	905.02	1,474.78	1,420.50	54.28	27.170	
9,065.00	8,968.79	9,095.27	8,967.44	28.59	31.29	-118.42	-1,026.59	905.11	1,480.01	1,425.41	54.59	27.111	
9,100.00	9,003.32	9,128.08	8,999.95	28.71	31.29	-118.82	-1,022.14	905.23	1,482.80	1,428.08	54.72	27.099	
9,200.00	9,102.34	9,215.99	9,085.23	28.97	31.22	-120.16	-1,001.16	905.79	1,490.27	1,435.32	54.95	27.120	
9,300.00	9,201.79	9,294.30	9,157.71	29.20	31.07	-121.67	-971.68	906.59	1,497.59	1,442.53	55.05	27.203	

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



SB Directional Anticollision Report



Company:	NOVO Oil & Gas	Local Co-ordinate Reference:	Well Goonch Fed Com 04 231H
Project:	EDDY CO., NM (NAD83)	TVD Reference:	RKB @ 3041.00usft
Reference Site:	SEC. 04-T23S-R28E	MD Reference:	RKB @ 3041.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Goonch Fed Com 04 231H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 2	Offset TVD Reference:	Offset Datum

Offset Design: SEC. 04-T23S-R28E - Goonch Fed Com 04 211H - Wellbore #1 - Plan 2													Offset Site Error: 0.00 usft
Survey Program: 0-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)			
0.00	0.00	0.00	0.00	0.50	0.50	89.89	0.04	20.01	20.01				
100.00	100.00	100.00	100.00	0.51	0.51	89.89	0.04	20.01	20.01	19.00	1.01	19.732	
200.00	200.00	200.00	200.00	0.59	0.59	89.89	0.04	20.01	20.01	18.83	1.18	17.021	
300.00	300.00	300.00	300.00	0.73	0.73	89.89	0.04	20.01	20.01	18.55	1.46	13.679	
400.00	400.00	400.00	400.00	0.91	0.91	89.89	0.04	20.01	20.01	18.19	1.82	11.012	
500.00	500.00	500.00	500.00	1.10	1.10	89.89	0.04	20.01	20.01	17.80	2.21	9.069	
600.00	600.00	600.00	600.00	1.31	1.31	89.89	0.04	20.01	20.01	17.40	2.61	7.652	
700.00	700.00	700.00	700.00	1.52	1.52	89.89	0.04	20.01	20.01	16.97	3.04	6.593	
800.00	800.00	800.00	800.00	1.73	1.73	89.89	0.04	20.01	20.01	16.55	3.46	5.779	
900.00	900.00	900.00	900.00	1.95	1.95	89.89	0.04	20.01	20.01	16.11	3.90	5.137	
1,000.00	1,000.00	1,000.00	1,000.00	2.17	2.17	89.89	0.04	20.01	20.01	15.68	4.33	4.620	
1,100.00	1,100.00	1,100.00	1,100.00	2.38	2.38	89.89	0.04	20.01	20.01	15.24	4.77	4.195	
1,200.00	1,200.00	1,200.00	1,200.00	2.61	2.61	89.89	0.04	20.01	20.01	14.80	5.21	3.840	
1,300.00	1,300.00	1,300.00	1,300.00	2.83	2.83	89.89	0.04	20.01	20.01	14.36	5.65	3.540	
1,400.00	1,400.00	1,400.00	1,400.00	3.05	3.05	89.89	0.04	20.01	20.01	13.91	6.10	3.283	
1,500.00	1,500.00	1,500.00	1,500.00	3.27	3.27	89.89	0.04	20.01	20.01	13.47	6.54	3.060	
1,600.00	1,600.00	1,600.00	1,600.00	3.49	3.49	89.89	0.04	20.01	20.01	13.03	6.98	2.865	
1,700.00	1,700.00	1,700.00	1,700.00	3.71	3.71	89.89	0.04	20.01	20.01	12.58	7.43	2.694	
1,800.00	1,800.00	1,800.00	1,800.00	3.94	3.94	89.89	0.04	20.01	20.01	12.14	7.87	2.541	
1,900.00	1,900.00	1,900.00	1,900.00	4.16	4.16	89.89	0.04	20.01	20.01	11.69	8.32	2.405	
2,000.00	2,000.00	2,000.00	2,000.00	4.38	4.38	89.89	0.04	20.01	20.01	11.24	8.77	2.282 CC, ES	
2,100.00	2,099.98	2,099.98	2,099.98	4.58	4.61	-124.25	0.04	20.01	20.94	11.75	9.19	2.280 SF	
2,200.00	2,199.84	2,199.84	2,199.84	4.76	4.83	-134.46	0.04	20.01	24.28	14.69	9.58	2.533	
2,300.00	2,299.45	2,299.45	2,299.45	4.94	5.05	-145.94	0.04	20.01	31.02	21.03	9.98	3.106	
2,400.00	2,398.70	2,398.70	2,398.70	5.13	5.27	-155.26	0.04	20.01	41.69	31.29	10.39	4.011	
2,484.56	2,482.25	2,482.25	2,482.25	5.31	5.46	-160.98	0.04	20.01	53.79	43.04	10.74	5.007	
2,500.00	2,497.47	2,497.47	2,497.47	5.34	5.50	-161.84	0.04	20.01	56.25	45.45	10.81	5.205	
2,600.00	2,596.05	2,596.05	2,596.05	5.58	5.72	-165.99	0.04	20.01	72.46	61.24	11.22	6.458	
2,700.00	2,694.62	2,694.62	2,694.62	5.83	5.94	-168.62	0.04	20.01	88.89	77.26	11.64	7.640	
2,800.00	2,793.19	2,793.19	2,793.19	6.09	6.16	-170.42	0.04	20.01	105.46	93.40	12.06	8.748	
2,900.00	2,891.76	2,894.64	2,894.62	6.36	6.36	-171.25	-1.52	20.17	121.01	108.55	12.46	9.714	
3,000.00	2,990.34	2,997.03	2,996.87	6.65	6.53	-170.81	-6.70	20.68	134.05	121.22	12.83	10.446	
3,100.00	3,088.91	3,099.78	3,099.24	6.94	6.71	-169.41	-15.55	21.57	144.62	131.41	13.22	10.944	
3,200.00	3,187.48	3,199.24	3,198.16	7.25	6.89	-167.79	-25.75	22.59	154.15	140.54	13.62	11.321	
3,300.00	3,286.06	3,298.70	3,297.09	7.56	7.07	-166.37	-35.95	23.61	163.79	149.76	14.03	11.674	
3,400.00	3,384.63	3,398.15	3,396.02	7.87	7.27	-165.10	-46.15	24.63	173.51	159.06	14.45	12.006	
3,500.00	3,483.20	3,497.61	3,494.95	8.20	7.47	-163.96	-56.34	25.65	183.31	168.43	14.89	12.315	
3,600.00	3,581.77	3,597.07	3,593.87	8.52	7.68	-162.95	-66.54	26.67	193.18	177.85	15.33	12.603	
3,700.00	3,680.35	3,696.52	3,692.80	8.86	7.89	-162.03	-76.74	27.69	203.10	187.32	15.78	12.872	
3,800.00	3,778.92	3,795.98	3,791.73	9.19	8.11	-161.19	-86.94	28.71	213.07	196.83	16.24	13.121	
3,900.00	3,877.49	3,895.44	3,890.65	9.53	8.33	-160.43	-97.14	29.73	223.07	206.37	16.70	13.354	
4,000.00	3,976.07	3,994.89	3,989.58	9.87	8.55	-159.74	-107.34	30.75	233.12	215.94	17.18	13.570	
4,100.00	4,074.64	4,094.35	4,088.51	10.22	8.78	-159.10	-117.54	31.77	243.19	225.53	17.66	13.771	
4,200.00	4,173.21	4,193.81	4,187.43	10.57	9.02	-158.52	-127.74	32.79	253.29	235.14	18.15	13.959	
4,300.00	4,271.79	4,293.26	4,286.36	10.92	9.25	-157.98	-137.93	33.81	263.42	244.78	18.64	14.133	
4,400.00	4,370.36	4,392.72	4,385.29	11.27	9.50	-157.48	-148.13	34.83	273.56	254.43	19.14	14.296	
4,500.00	4,468.93	4,492.17	4,484.21	11.62	9.74	-157.01	-158.33	35.85	283.73	264.09	19.64	14.448	
4,600.00	4,567.50	4,591.63	4,583.14	11.98	9.98	-156.58	-168.53	36.87	293.91	273.77	20.15	14.590	
4,700.00	4,666.08	4,691.09	4,682.07	12.34	10.23	-156.17	-178.73	37.89	304.11	283.45	20.66	14.722	
4,800.00	4,764.65	4,790.54	4,781.00	12.70	10.48	-155.80	-188.93	38.91	314.32	293.15	21.17	14.846	
4,900.00	4,863.22	4,890.00	4,879.92	13.06	10.74	-155.44	-199.13	39.93	324.55	302.86	21.69	14.962	
5,000.00	4,961.80	4,989.46	4,978.85	13.42	10.99	-155.11	-209.32	40.95	334.79	312.57	22.21	15.071	

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



SB Directional Anticollision Report



Company:	NOVO Oil & Gas	Local Co-ordinate Reference:	Well Goonch Fed Com 04 231H
Project:	EDDY CO., NM (NAD83)	TVD Reference:	RKB @ 3041.00usft
Reference Site:	SEC. 04-T23S-R28E	MD Reference:	RKB @ 3041.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Goonch Fed Com 04 231H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 2	Offset TVD Reference:	Offset Datum

Offset Design: SEC. 04-T23S-R28E - Goonch Fed Com 04 211H - Wellbore #1 - Plan 2													Offset Site Error:	0.00 usft	
Survey Program:		0-MWD		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		
5,100.00	5,060.37	5,088.91	5,077.78	13.78	11.25	-154.80	-219.52	41.97	345.03	322.29	22.74	15.173			
5,200.00	5,158.94	5,188.37	5,176.70	14.15	11.51	-154.50	-229.72	42.99	355.29	332.02	23.27	15.269			
5,300.00	5,257.51	5,287.83	5,275.63	14.51	11.77	-154.23	-239.92	44.01	365.56	341.75	23.80	15.359			
5,400.00	5,356.09	5,387.28	5,374.56	14.88	12.03	-153.96	-250.12	45.03	375.83	351.49	24.34	15.444			
5,500.00	5,454.66	5,486.74	5,473.48	15.24	12.29	-153.71	-260.32	46.05	386.11	361.24	24.87	15.523			
5,600.00	5,553.23	5,586.20	5,572.41	15.61	12.56	-153.48	-270.52	47.07	396.40	370.99	25.41	15.599			
5,700.00	5,651.81	5,685.65	5,671.34	15.98	12.82	-153.25	-280.71	48.09	406.69	380.74	25.95	15.670			
5,800.00	5,750.38	5,785.11	5,770.26	16.35	13.09	-153.04	-290.91	49.11	416.99	390.50	26.50	15.737			
5,900.00	5,848.95	5,884.57	5,869.19	16.72	13.36	-152.84	-301.11	50.13	427.30	400.26	27.04	15.801			
6,000.00	5,947.53	5,984.02	5,968.12	17.09	13.63	-152.65	-311.31	51.15	437.61	410.02	27.59	15.861			
6,100.00	6,046.10	6,083.48	6,067.05	17.46	13.90	-152.46	-321.51	52.16	447.92	419.78	28.14	15.918			
6,200.00	6,144.67	6,182.93	6,165.97	17.83	14.17	-152.29	-331.71	53.18	458.24	429.55	28.69	15.972			
6,300.00	6,243.24	6,282.39	6,264.90	18.20	14.44	-152.12	-341.91	54.20	468.57	439.32	29.24	16.023			
6,400.00	6,341.82	6,381.85	6,363.83	18.57	14.71	-151.96	-352.10	55.22	478.90	449.10	29.80	16.072			
6,500.00	6,440.39	6,481.30	6,462.75	18.94	14.99	-151.80	-362.30	56.24	489.23	458.87	30.35	16.118			
6,600.00	6,538.96	6,580.76	6,561.68	19.32	15.26	-151.65	-372.50	57.26	499.56	468.65	30.91	16.162			
6,700.00	6,637.54	6,680.22	6,660.61	19.69	15.54	-151.51	-382.70	58.28	509.90	478.43	31.47	16.204			
6,800.00	6,736.11	6,779.67	6,759.53	20.06	15.81	-151.38	-392.90	59.30	520.24	488.21	32.03	16.244			
6,900.00	6,834.68	6,879.13	6,858.46	20.44	16.09	-151.25	-403.10	60.32	530.58	498.00	32.59	16.282			
7,000.00	6,933.25	6,978.59	6,957.39	20.81	16.37	-151.12	-413.30	61.34	540.93	507.78	33.15	16.319			
7,100.00	7,031.83	7,078.04	7,056.31	21.19	16.64	-151.00	-423.50	62.36	551.28	517.57	33.71	16.353			
7,200.00	7,130.40	7,177.50	7,155.24	21.56	16.92	-150.88	-433.69	63.38	561.63	527.36	34.27	16.387			
7,300.00	7,228.97	7,276.96	7,254.17	21.94	17.20	-150.77	-443.89	64.40	571.98	537.14	34.84	16.418			
7,400.00	7,327.55	7,376.41	7,353.10	22.31	17.48	-150.66	-454.09	65.42	582.34	546.93	35.40	16.449			
7,500.00	7,426.12	7,475.87	7,452.02	22.69	17.76	-150.56	-464.29	66.44	592.69	556.73	35.97	16.478			
7,600.00	7,524.69	7,575.33	7,550.95	23.06	18.04	-150.46	-474.49	67.46	603.05	566.52	36.54	16.506			
7,700.00	7,623.26	7,674.78	7,649.88	23.44	18.32	-150.36	-484.69	68.48	613.41	576.31	37.10	16.533			
7,800.00	7,721.84	7,774.24	7,748.80	23.82	18.60	-150.26	-494.89	69.50	623.78	586.11	37.67	16.558			
7,900.00	7,820.41	7,873.69	7,847.73	24.19	18.88	-150.17	-505.08	70.52	634.14	595.90	38.24	16.583			
8,000.00	7,918.98	7,973.15	7,946.66	24.57	19.16	-150.08	-515.28	71.54	644.51	605.70	38.81	16.607			
8,100.00	8,017.56	8,072.61	8,045.58	24.95	19.44	-150.00	-525.48	72.56	654.87	615.49	39.38	16.629			
8,200.00	8,116.13	8,172.06	8,144.51	25.32	19.73	-149.92	-535.68	73.58	665.24	625.29	39.95	16.651			
8,300.00	8,214.70	8,271.52	8,243.44	25.70	20.01	-149.84	-545.88	74.60	675.61	635.09	40.52	16.672			
8,400.00	8,313.28	8,370.98	8,342.36	26.08	20.29	-149.76	-556.08	75.62	685.98	644.89	41.09	16.693			
8,500.00	8,411.85	8,470.43	8,441.29	26.45	20.57	-149.68	-566.28	76.64	696.36	654.69	41.67	16.712			
8,600.00	8,510.42	8,569.89	8,540.22	26.83	20.86	-149.61	-576.47	77.66	706.73	664.49	42.24	16.731			
8,700.00	8,608.99	8,667.64	8,637.45	27.21	21.13	-149.54	-586.65	78.66	717.13	674.33	42.80	16.755			
8,800.00	8,707.57	8,757.71	8,727.22	27.59	21.34	-149.62	-593.76	79.39	728.38	685.11	43.26	16.836			
8,900.00	8,806.14	8,847.38	8,816.77	27.97	21.52	-149.90	-598.25	79.84	740.91	697.25	43.67	16.967			
9,000.00	8,904.71	8,936.47	8,905.85	28.34	21.68	-150.35	-599.94	80.01	754.77	710.75	44.02	17.144			
9,065.00	8,968.79	8,999.41	8,968.79	28.59	21.80	-150.75	-599.96	80.01	764.32	720.06	44.26	17.269			
9,100.00	9,003.32	9,033.95	9,003.32	28.71	21.86	-151.00	-599.96	80.01	769.30	724.92	44.38	17.335			
9,200.00	9,102.34	9,117.38	9,086.75	28.97	21.99	-151.57	-599.59	80.02	781.89	737.27	44.62	17.525			
9,300.00	9,201.79	9,173.00	9,142.14	29.20	22.05	-152.19	-594.89	80.16	795.81	751.20	44.61	17.839			
9,400.00	9,301.55	9,226.79	9,195.05	29.39	22.08	-153.04	-585.25	80.44	812.24	767.81	44.43	18.280			
9,500.00	9,401.48	9,278.35	9,244.69	29.55	22.07	-154.07	-571.41	80.84	831.28	787.19	44.09	18.852			
9,549.56	9,451.04	9,300.00	9,265.13	29.62	22.07	55.44	-564.27	81.05	841.73	797.87	43.86	19.192			
9,600.00	9,501.48	9,327.33	9,290.52	29.69	22.05	54.87	-554.17	81.35	853.44	809.82	43.62	19.565			
9,699.56	9,601.04	9,372.86	9,331.66	29.82	22.00	53.81	-534.70	81.92	880.97	837.96	43.01	20.481			
9,750.00	9,651.41	9,400.00	9,355.40	29.87	21.97	60.18	-521.56	82.30	896.15	853.44	42.71	20.981			
9,800.00	9,700.96	9,417.23	9,370.14	29.88	21.94	58.56	-512.64	82.56	910.49	868.16	42.33	21.511			
9,850.00	9,749.74	9,450.00	9,397.40	29.86	21.89	56.87	-494.47	83.09	924.20	882.15	42.05	21.977			

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



SB Directional Anticollision Report



Company:	NOVO Oil & Gas	Local Co-ordinate Reference:	Well Goonch Fed Com 04 231H
Project:	EDDY CO., NM (NAD83)	TVD Reference:	RKB @ 3041.00usft
Reference Site:	SEC. 04-T23S-R28E	MD Reference:	RKB @ 3041.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Goonch Fed Com 04 231H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 2	Offset TVD Reference:	Offset Datum

Offset Design: SEC. 04-T23S-R28E - Goonch Fed Com 04 211H - Wellbore #1 - Plan 2													Offset Site Error: 0.00 usft
Survey Program: 0-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)			
9,900.00	9,797.38	9,450.00	9,397.40	29.80	21.89	55.77	-494.47	83.09	936.90	895.37	41.52	22.563	
9,950.00	9,843.51	9,484.00	9,424.54	29.72	21.83	54.47	-474.00	83.69	948.38	907.13	41.26	22.986	
10,000.00	9,887.79	9,500.00	9,436.88	29.60	21.81	53.49	-463.82	83.99	958.96	918.10	40.86	23.468	
10,050.00	9,929.86	9,528.67	9,458.26	29.45	21.75	52.62	-444.74	84.55	968.25	927.68	40.57	23.865	
10,100.00	9,969.41	9,550.00	9,473.53	29.28	21.71	51.96	-429.85	84.98	976.35	936.10	40.24	24.260	
10,150.00	10,006.13	9,573.34	9,489.60	29.09	21.67	51.46	-412.93	85.48	983.14	943.18	39.96	24.606	
10,200.00	10,039.74	9,600.00	9,507.09	28.89	21.62	51.15	-392.82	86.07	988.63	948.91	39.72	24.892	
10,250.00	10,069.98	9,617.94	9,518.32	28.67	21.59	50.95	-378.84	86.48	992.72	953.26	39.46	25.156	
10,300.00	10,096.63	9,650.00	9,537.28	28.44	21.53	51.03	-353.01	87.23	995.59	956.26	39.33	25.313	
10,350.00	10,119.48	9,650.00	9,537.28	28.20	21.53	50.92	-353.01	87.23	997.07	957.99	39.08	25.512	
10,400.00	10,138.34	9,684.52	9,556.05	27.97	21.48	51.37	-324.05	88.08	996.98	957.91	39.07	25.518	
10,450.00	10,153.08	9,700.00	9,563.89	27.73	21.46	51.69	-310.71	88.47	995.81	956.78	39.03	25.515	
10,500.00	10,163.59	9,728.57	9,577.41	27.51	21.42	52.40	-285.56	89.20	993.29	954.19	39.11	25.399	
10,554.35	10,170.11	9,750.00	9,586.72	27.27	21.39	53.16	-266.26	89.77	989.25	950.02	39.23	25.215	
10,600.00	10,172.72	9,772.55	9,595.72	27.06	21.38	53.26	-245.60	90.37	984.13	944.75	39.38	24.994	
10,650.00	10,173.96	9,800.00	9,605.58	26.81	21.35	53.43	-219.99	91.12	975.88	936.37	39.51	24.700	
10,661.28	10,174.00	9,800.00	9,605.58	26.75	21.35	53.37	-219.99	91.12	973.60	934.07	39.53	24.629	
10,700.00	10,174.00	9,818.29	9,611.45	26.57	21.35	53.66	-202.68	91.63	966.03	926.39	39.64	24.372	
10,800.00	10,174.00	9,866.30	9,624.23	26.17	21.34	54.29	-156.44	92.98	950.18	910.21	39.97	23.773	
10,900.00	10,174.00	9,916.25	9,633.36	25.82	21.36	54.75	-107.37	94.41	939.64	899.28	40.36	23.279	
11,000.00	10,174.00	9,967.46	9,638.25	25.55	21.41	55.00	-56.43	95.90	934.34	893.52	40.82	22.892	
11,054.47	10,174.00	9,996.67	9,639.00	25.43	21.45	55.04	-27.25	96.76	933.63	892.54	41.09	22.721	
11,100.00	10,174.00	10,040.13	9,639.00	25.41	21.56	55.04	16.19	98.03	933.73	892.42	41.31	22.603	
11,200.00	10,174.00	10,140.13	9,639.00	25.76	21.88	55.05	116.15	100.95	933.95	892.01	41.94	22.268	
11,300.00	10,174.00	10,240.13	9,639.00	26.41	22.34	55.06	216.11	103.87	934.17	891.38	42.79	21.831	
11,400.00	10,174.00	10,340.13	9,639.00	27.17	22.93	55.07	316.07	106.80	934.40	890.55	43.84	21.312	
11,500.00	10,174.00	10,440.13	9,639.00	28.01	23.66	55.08	416.02	109.72	934.62	889.53	45.09	20.729	
11,600.00	10,174.00	10,540.13	9,639.00	28.93	24.49	55.09	515.98	112.64	934.84	888.33	46.50	20.102	
11,700.00	10,174.00	10,640.13	9,639.00	29.92	25.43	55.10	615.94	115.57	935.06	886.98	48.08	19.448	
11,800.00	10,174.00	10,740.13	9,639.00	30.98	26.47	55.11	715.89	118.49	935.28	885.48	49.80	18.780	
11,900.00	10,174.00	10,840.13	9,639.00	32.09	27.58	55.12	815.85	121.41	935.50	883.85	51.65	18.111	
12,000.00	10,174.00	10,940.12	9,639.00	33.26	28.77	55.13	915.81	124.33	935.72	882.10	53.62	17.451	
12,100.00	10,174.00	11,040.12	9,639.00	34.48	30.01	55.14	1,015.76	127.26	935.94	880.25	55.69	16.806	
12,200.00	10,174.00	11,140.12	9,639.00	35.75	31.32	55.15	1,115.72	130.18	936.17	878.31	57.86	16.181	
12,300.00	10,174.00	11,240.12	9,639.00	37.06	32.67	55.16	1,215.68	133.10	936.39	876.28	60.10	15.579	
12,400.00	10,174.00	11,340.12	9,639.00	38.41	34.07	55.17	1,315.63	136.03	936.61	874.18	62.43	15.003	
12,500.00	10,174.00	11,440.12	9,639.00	39.79	35.51	55.17	1,415.59	138.95	936.83	872.02	64.81	14.454	
12,600.00	10,174.00	11,540.12	9,639.00	41.20	36.98	55.18	1,515.55	141.87	937.05	869.79	67.26	13.931	
12,700.00	10,174.00	11,640.12	9,639.00	42.65	38.48	55.19	1,615.51	144.80	937.27	867.51	69.76	13.435	
12,800.00	10,174.00	11,740.12	9,639.00	44.12	40.00	55.20	1,715.46	147.72	937.49	865.18	72.31	12.965	
12,900.00	10,174.00	11,840.12	9,639.00	45.61	41.55	55.21	1,815.42	150.64	937.72	862.81	74.90	12.519	
13,000.00	10,174.00	11,940.12	9,639.00	47.12	43.12	55.22	1,915.38	153.56	937.94	860.41	77.53	12.098	
13,100.00	10,174.00	12,040.12	9,639.00	48.66	44.71	55.23	2,015.33	156.49	938.16	857.96	80.19	11.698	
13,200.00	10,174.00	12,140.12	9,639.00	50.21	46.32	55.24	2,115.29	159.41	938.38	855.49	82.89	11.321	
13,300.00	10,174.00	12,240.12	9,639.00	51.78	47.94	55.25	2,215.25	162.33	938.60	852.99	85.62	10.963	
13,400.00	10,174.00	12,340.12	9,639.00	53.37	49.58	55.26	2,315.20	165.26	938.82	850.46	88.37	10.624	
13,500.00	10,174.00	12,440.12	9,639.00	54.97	51.22	55.27	2,415.16	168.18	939.04	847.90	91.14	10.303	
13,600.00	10,174.00	12,540.12	9,639.00	56.58	52.88	55.28	2,515.12	171.10	939.27	845.33	93.94	9.999	
13,700.00	10,174.00	12,640.12	9,639.00	58.20	54.55	55.29	2,615.07	174.03	939.49	842.74	96.75	9.710	
13,800.00	10,174.00	12,740.12	9,639.00	59.84	56.23	55.30	2,715.03	176.95	939.71	840.12	99.59	9.436	
13,900.00	10,174.00	12,840.12	9,639.00	61.48	57.92	55.31	2,814.99	179.87	939.93	837.49	102.44	9.176	
14,000.00	10,174.00	12,940.12	9,639.00	63.13	59.61	55.32	2,914.95	182.79	940.15	834.85	105.31	8.928	

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



SB Directional

Anticollision Report



Company:	NOVO Oil & Gas	Local Co-ordinate Reference:	Well Goonch Fed Com 04 231H
Project:	EDDY CO., NM (NAD83)	TVD Reference:	RKB @ 3041.00usft
Reference Site:	SEC. 04-T23S-R28E	MD Reference:	RKB @ 3041.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Goonch Fed Com 04 231H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 2	Offset TVD Reference:	Offset Datum

Offset Design: SEC. 04-T23S-R28E - Goonch Fed Com 04 211H - Wellbore #1 - Plan 2													Offset Site Error: 0.00 usft
Survey Program: 0-MWD													Offset Well Error: 0.50 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,100.00	10,174.00	13,040.12	9,639.00	64.80	61.32	55.32	3,014.90	185.72	940.38	832.19	108.19	8.692	
14,200.00	10,174.00	13,140.12	9,639.00	66.47	63.03	55.33	3,114.86	188.64	940.60	829.52	111.08	8.468	
14,300.00	10,174.00	13,240.12	9,639.00	68.15	64.74	55.34	3,214.82	191.56	940.82	826.83	113.99	8.254	
14,400.00	10,174.00	13,340.12	9,639.00	69.83	66.46	55.35	3,314.77	194.49	941.04	824.14	116.90	8.050	
14,500.00	10,174.00	13,440.12	9,639.00	71.52	68.19	55.36	3,414.73	197.41	941.26	821.43	119.83	7.855	
14,600.00	10,174.00	13,540.12	9,639.00	73.22	69.92	55.37	3,514.69	200.33	941.48	818.71	122.77	7.669	
14,700.00	10,174.00	13,640.12	9,639.00	74.92	71.65	55.38	3,614.64	203.25	941.71	815.99	125.72	7.491	
14,800.00	10,174.00	13,740.11	9,639.00	76.63	73.39	55.39	3,714.60	206.18	941.93	813.25	128.67	7.320	
14,900.00	10,174.00	13,840.11	9,639.00	78.35	75.13	55.40	3,814.56	209.10	942.15	810.51	131.64	7.157	
15,000.00	10,174.00	13,940.11	9,639.00	80.06	76.88	55.41	3,914.51	212.02	942.37	807.76	134.61	7.001	
15,100.00	10,174.00	14,040.11	9,639.00	81.79	78.63	55.42	4,014.47	214.95	942.59	805.01	137.59	6.851	
15,200.00	10,174.00	14,140.11	9,639.00	83.51	80.38	55.43	4,114.43	217.87	942.82	802.24	140.57	6.707	
15,231.70	10,174.00	14,171.81	9,639.00	84.06	80.94	55.43	4,146.12	218.80	942.89	801.37	141.52	6.662	

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



SB Directional Anticollision Report



Company:	NOVO Oil & Gas	Local Co-ordinate Reference:	Well Goonch Fed Com 04 231H
Project:	EDDY CO., NM (NAD83)	TVD Reference:	RKB @ 3041.00usft
Reference Site:	SEC. 04-T23S-R28E	MD Reference:	RKB @ 3041.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Goonch Fed Com 04 231H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 2	Offset TVD Reference:	Offset Datum

Offset Design: SEC. 04-T23S-R28E - Goonch Fed Com 04 221H - Wellbore #1 - Plan 2													Offset Site Error: 0.00 usft
Survey Program: 0-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)			
0.00	0.00	0.00	0.00	0.50	0.50	-90.09	-0.03	-20.00	20.00				
100.00	100.00	100.00	100.00	0.51	0.51	-90.09	-0.03	-20.00	20.00	18.99	1.01	19.722	
200.00	200.00	200.00	200.00	0.59	0.59	-90.09	-0.03	-20.00	20.00	18.82	1.18	17.012	
300.00	300.00	300.00	300.00	0.73	0.73	-90.09	-0.03	-20.00	20.00	18.54	1.46	13.672	
400.00	400.00	400.00	400.00	0.91	0.91	-90.09	-0.03	-20.00	20.00	18.18	1.82	11.007	
500.00	500.00	500.00	500.00	1.10	1.10	-90.09	-0.03	-20.00	20.00	17.79	2.21	9.065	
600.00	600.00	600.00	600.00	1.31	1.31	-90.09	-0.03	-20.00	20.00	17.39	2.61	7.648	
700.00	700.00	700.00	700.00	1.52	1.52	-90.09	-0.03	-20.00	20.00	16.96	3.04	6.589	
800.00	800.00	800.00	800.00	1.73	1.73	-90.09	-0.03	-20.00	20.00	16.54	3.46	5.776	
900.00	900.00	900.00	900.00	1.95	1.95	-90.09	-0.03	-20.00	20.00	16.10	3.90	5.134	
1,000.00	1,000.00	1,000.00	1,000.00	2.17	2.17	-90.09	-0.03	-20.00	20.00	15.67	4.33	4.617	
1,100.00	1,100.00	1,100.00	1,100.00	2.38	2.38	-90.09	-0.03	-20.00	20.00	15.23	4.77	4.193	
1,200.00	1,200.00	1,200.00	1,200.00	2.61	2.61	-90.09	-0.03	-20.00	20.00	14.79	5.21	3.839	
1,300.00	1,300.00	1,300.00	1,300.00	2.83	2.83	-90.09	-0.03	-20.00	20.00	14.35	5.65	3.538	
1,400.00	1,400.00	1,400.00	1,400.00	3.05	3.05	-90.09	-0.03	-20.00	20.00	13.90	6.10	3.281	
1,500.00	1,500.00	1,500.00	1,500.00	3.27	3.27	-90.09	-0.03	-20.00	20.00	13.46	6.54	3.059 CC, ES	
1,600.00	1,600.00	1,599.47	1,599.45	3.49	3.47	-93.39	-1.26	-21.22	21.26	14.30	6.96	3.056 SF	
1,700.00	1,700.00	1,698.70	1,698.54	3.71	3.65	-101.19	-4.92	-24.85	25.38	18.03	7.35	3.453	
1,800.00	1,800.00	1,797.46	1,796.92	3.94	3.83	-109.58	-10.98	-30.87	32.91	25.17	7.74	4.253	
1,900.00	1,900.00	1,895.51	1,894.25	4.16	4.04	-116.30	-19.38	-39.20	44.11	35.98	8.12	5.431	
2,000.00	2,000.00	1,994.51	1,992.31	4.38	4.26	-120.78	-29.10	-48.85	57.38	48.85	8.53	6.725	
2,100.00	2,099.98	2,093.77	2,090.60	4.58	4.50	26.95	-38.84	-58.53	69.33	60.40	8.92	7.769	
2,200.00	2,199.84	2,193.36	2,189.24	4.76	4.75	26.47	-48.63	-68.24	78.22	68.92	9.30	8.414	
2,300.00	2,299.45	2,293.18	2,288.10	4.94	5.01	27.14	-58.43	-77.97	84.00	74.32	9.68	8.676	
2,400.00	2,398.70	2,393.11	2,387.07	5.13	5.28	28.83	-68.24	-87.71	86.73	76.64	10.08	8.601	
2,484.56	2,482.25	2,477.60	2,470.74	5.31	5.52	31.09	-76.54	-95.95	86.74	76.31	10.44	8.311	
2,500.00	2,497.47	2,493.02	2,486.02	5.34	5.56	31.59	-78.05	-97.45	86.57	76.06	10.50	8.241	
2,600.00	2,596.05	2,592.90	2,584.93	5.58	5.85	34.82	-87.86	-107.19	85.58	74.64	10.95	7.817	
2,700.00	2,694.62	2,692.77	2,683.85	5.83	6.14	38.11	-97.67	-116.92	84.88	73.46	11.42	7.434	
2,800.00	2,793.19	2,792.65	2,782.76	6.09	6.44	41.45	-107.48	-126.66	84.46	72.54	11.92	7.088	
2,894.43	2,886.28	2,886.97	2,876.17	6.35	6.72	44.63	-116.74	-135.85	84.33	71.92	12.41	6.794	
2,900.00	2,891.76	2,892.53	2,881.68	6.36	6.74	44.81	-117.29	-136.39	84.33	71.89	12.44	6.778	
3,000.00	2,990.34	2,992.40	2,980.60	6.65	7.04	48.17	-127.09	-146.13	84.49	71.50	13.00	6.501	
3,100.00	3,088.91	3,092.28	3,079.51	6.94	7.35	51.51	-136.90	-155.87	84.94	71.36	13.58	6.255	
3,200.00	3,187.48	3,192.16	3,178.43	7.25	7.66	54.80	-146.71	-165.60	85.68	71.49	14.19	6.037	
3,300.00	3,286.06	3,292.03	3,277.34	7.56	7.97	58.02	-156.52	-175.34	86.69	71.87	14.83	5.847	
3,400.00	3,384.63	3,391.91	3,376.26	7.87	8.28	61.16	-166.33	-185.08	87.98	72.49	15.49	5.681	
3,500.00	3,483.20	3,491.79	3,475.18	8.20	8.60	64.20	-176.14	-194.81	89.52	73.35	16.16	5.539	
3,600.00	3,581.77	3,591.67	3,574.09	8.52	8.92	67.13	-185.95	-204.55	91.30	74.45	16.85	5.417	
3,700.00	3,680.35	3,691.54	3,673.01	8.86	9.24	69.94	-195.75	-214.28	93.31	75.75	17.56	5.315	
3,800.00	3,778.92	3,791.42	3,771.93	9.19	9.56	72.63	-205.56	-224.02	95.54	77.27	18.27	5.230	
3,900.00	3,877.49	3,891.30	3,870.84	9.53	9.88	75.19	-215.37	-233.76	97.97	78.98	18.99	5.160	
4,000.00	3,976.07	3,991.17	3,969.76	9.87	10.21	77.62	-225.18	-243.49	100.58	80.87	19.71	5.104	
4,100.00	4,074.64	4,091.05	4,068.67	10.22	10.53	79.92	-234.99	-253.23	103.37	82.94	20.43	5.060	
4,200.00	4,173.21	4,190.93	4,167.59	10.57	10.86	82.10	-244.80	-262.97	106.31	85.16	21.15	5.026	
4,300.00	4,271.79	4,290.80	4,266.51	10.92	11.18	84.16	-254.60	-272.70	109.40	87.53	21.87	5.002	
4,400.00	4,370.36	4,390.68	4,365.42	11.27	11.51	86.11	-264.41	-282.44	112.62	90.03	22.59	4.985	
4,500.00	4,468.93	4,490.56	4,464.34	11.62	11.84	87.94	-274.22	-292.17	115.97	92.66	23.31	4.976	
4,600.00	4,567.50	4,590.44	4,563.26	11.98	12.17	89.67	-284.03	-301.91	119.43	95.41	24.02	4.972	
4,700.00	4,666.08	4,690.31	4,662.17	12.34	12.50	91.30	-293.84	-311.65	122.99	98.26	24.73	4.974	
4,800.00	4,764.65	4,790.19	4,761.09	12.70	12.83	92.84	-303.65	-321.38	126.64	101.21	25.43	4.979	
4,900.00	4,863.22	4,890.07	4,860.00	13.06	13.16	94.29	-313.45	-331.12	130.38	104.25	26.14	4.989	

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



SB Directional Anticollision Report



Company:	NOVO Oil & Gas	Local Co-ordinate Reference:	Well Goonch Fed Com 04 231H
Project:	EDDY CO., NM (NAD83)	TVD Reference:	RKB @ 3041.00usft
Reference Site:	SEC. 04-T23S-R28E	MD Reference:	RKB @ 3041.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Goonch Fed Com 04 231H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 2	Offset TVD Reference:	Offset Datum

Offset Design: SEC. 04-T23S-R28E - Goonch Fed Com 04 221H - Wellbore #1 - Plan 2													Offset Site Error: 0.00 usft
Survey Program: 0-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)			
5,000.00	4,961.80	4,989.94	4,958.92	13.42	13.49	95.66	-323.26	-340.86	134.20	107.37	26.83	5.001	
5,100.00	5,060.37	5,089.82	5,057.84	13.78	13.82	96.96	-333.07	-350.59	138.10	110.57	27.53	5.017	
5,200.00	5,158.94	5,189.70	5,156.75	14.15	14.16	98.18	-342.88	-360.33	142.06	113.84	28.22	5.034	
5,300.00	5,257.51	5,289.57	5,255.67	14.51	14.49	99.33	-352.69	-370.06	146.08	117.17	28.91	5.053	
5,400.00	5,356.09	5,389.45	5,354.59	14.88	14.82	100.43	-362.50	-379.80	150.15	120.56	29.59	5.074	
5,500.00	5,454.66	5,489.33	5,453.50	15.24	15.15	101.46	-372.30	-389.54	154.28	124.01	30.27	5.096	
5,600.00	5,553.23	5,589.21	5,552.42	15.61	15.49	102.44	-382.11	-399.27	158.45	127.50	30.95	5.119	
5,700.00	5,651.81	5,689.08	5,651.33	15.98	15.82	103.37	-391.92	-409.01	162.67	131.04	31.63	5.143	
5,800.00	5,750.38	5,788.96	5,750.25	16.35	16.16	104.25	-401.73	-418.75	166.93	134.63	32.30	5.168	
5,900.00	5,848.95	5,888.84	5,849.17	16.72	16.49	105.09	-411.54	-428.48	171.23	138.25	32.98	5.193	
6,000.00	5,947.53	5,988.71	5,948.08	17.09	16.82	105.89	-421.35	-438.22	175.56	141.92	33.65	5.218	
6,100.00	6,046.10	6,088.59	6,047.00	17.46	17.16	106.65	-431.15	-447.95	179.93	145.61	34.31	5.244	
6,200.00	6,144.67	6,188.47	6,145.92	17.83	17.49	107.37	-440.96	-457.69	184.32	149.34	34.98	5.269	
6,300.00	6,243.24	6,288.34	6,244.83	18.20	17.83	108.06	-450.77	-467.43	188.74	153.10	35.65	5.295	
6,400.00	6,341.82	6,388.22	6,343.75	18.57	18.17	108.72	-460.58	-477.16	193.19	156.88	36.31	5.321	
6,500.00	6,440.39	6,488.10	6,442.66	18.94	18.50	109.35	-470.39	-486.90	197.67	160.70	36.97	5.347	
6,600.00	6,538.96	6,587.98	6,541.58	19.32	18.84	109.95	-480.20	-496.64	202.16	164.53	37.63	5.372	
6,700.00	6,637.54	6,687.85	6,640.50	19.69	19.17	110.52	-490.00	-506.37	206.68	168.39	38.29	5.398	
6,800.00	6,736.11	6,787.73	6,739.41	20.06	19.51	111.07	-499.81	-516.11	211.21	172.27	38.95	5.423	
6,900.00	6,834.68	6,887.61	6,838.33	20.44	19.85	111.60	-509.62	-525.84	215.77	176.16	39.61	5.448	
7,000.00	6,933.25	6,987.48	6,937.24	20.81	20.18	112.10	-519.43	-535.58	220.34	180.08	40.26	5.473	
7,100.00	7,031.83	7,087.36	7,036.16	21.19	20.52	112.58	-529.24	-545.32	224.93	184.01	40.92	5.497	
7,200.00	7,130.40	7,187.24	7,135.08	21.56	20.86	113.05	-539.05	-555.05	229.53	187.96	41.57	5.521	
7,300.00	7,228.97	7,287.11	7,233.99	21.94	21.19	113.49	-548.85	-564.79	234.15	191.93	42.23	5.545	
7,400.00	7,327.55	7,386.99	7,332.91	22.31	21.53	113.92	-558.66	-574.53	238.79	195.91	42.88	5.569	
7,500.00	7,426.12	7,486.87	7,431.83	22.69	21.87	114.34	-568.47	-584.26	243.43	199.90	43.53	5.592	
7,600.00	7,524.69	7,586.75	7,530.74	23.06	22.20	114.73	-578.28	-594.00	248.09	203.90	44.18	5.615	
7,700.00	7,623.26	7,686.62	7,629.66	23.44	22.54	115.11	-588.09	-603.73	252.76	207.92	44.83	5.638	
7,800.00	7,721.84	7,786.50	7,728.57	23.82	22.88	115.48	-597.90	-613.47	257.44	211.95	45.48	5.660	
7,900.00	7,820.41	7,886.38	7,827.49	24.19	23.22	115.84	-607.71	-623.21	262.13	215.99	46.13	5.682	
8,000.00	7,918.98	7,986.25	7,926.41	24.57	23.55	116.18	-617.51	-632.94	266.83	220.04	46.78	5.703	
8,100.00	8,017.56	8,086.13	8,025.32	24.95	23.89	116.51	-627.32	-642.68	271.53	224.10	47.43	5.724	
8,200.00	8,116.13	8,186.01	8,124.24	25.32	24.23	116.83	-637.13	-652.42	276.25	228.17	48.08	5.745	
8,300.00	8,214.70	8,285.88	8,223.16	25.70	24.57	117.14	-646.94	-662.15	280.98	232.25	48.73	5.766	
8,400.00	8,313.28	8,385.76	8,322.07	26.08	24.91	117.44	-656.75	-671.89	285.71	236.33	49.38	5.786	
8,500.00	8,411.85	8,484.23	8,419.68	26.45	25.21	117.85	-666.57	-681.04	290.60	240.63	49.97	5.815	
8,600.00	8,510.42	8,581.57	8,516.52	26.83	25.43	118.82	-672.91	-687.93	296.27	245.86	50.40	5.878	
8,700.00	8,608.99	8,678.39	8,613.12	27.21	25.61	120.34	-677.50	-692.49	302.92	252.22	50.70	5.975	
8,800.00	8,707.57	8,774.46	8,709.13	27.59	25.77	122.37	-679.76	-694.73	310.81	259.95	50.86	6.111	
8,900.00	8,806.14	8,871.47	8,806.14	27.97	25.91	124.78	-680.03	-695.00	320.08	269.16	50.92	6.286	
9,000.00	8,904.71	8,970.04	8,904.71	28.34	26.05	127.16	-680.03	-695.00	330.06	279.10	50.96	6.477	
9,065.00	8,968.79	9,011.97	8,946.61	28.59	26.10	128.23	-678.59	-694.96	338.90	288.15	50.75	6.678	
9,100.00	9,003.32	9,033.82	8,968.37	28.71	26.12	128.93	-676.63	-694.90	345.38	294.84	50.53	6.834	
9,200.00	9,102.34	9,100.00	9,033.59	28.97	26.14	131.10	-665.66	-694.59	369.49	319.75	49.74	7.428	
9,300.00	9,201.79	9,150.00	9,081.79	29.20	26.12	132.86	-652.42	-694.21	401.13	352.78	48.34	8.298	
9,400.00	9,301.55	9,200.00	9,128.65	29.39	26.07	134.62	-635.04	-693.71	439.73	392.94	46.80	9.397	
9,500.00	9,401.48	9,250.00	9,173.82	29.55	26.00	136.32	-613.63	-693.09	484.30	439.02	45.28	10.695	
9,549.56	9,451.04	9,277.82	9,198.08	29.62	25.94	-12.80	-600.05	-692.70	508.32	463.64	44.68	11.377	
9,600.00	9,501.48	9,300.00	9,216.95	29.69	25.90	-12.43	-588.38	-692.37	534.29	490.39	43.90	12.171	
9,699.56	9,601.04	9,350.00	9,257.71	29.82	25.78	-11.59	-559.46	-691.54	590.43	547.73	42.70	13.829	
9,750.00	9,651.41	9,350.00	9,257.71	29.87	25.78	-3.02	-559.46	-691.54	619.35	578.05	41.30	14.997	
9,800.00	9,700.96	9,382.37	9,282.69	29.88	25.70	-2.40	-538.89	-690.95	645.45	604.53	40.92	15.774	

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



SB Directional Anticollision Report



Company:	NOVO Oil & Gas	Local Co-ordinate Reference:	Well Goonch Fed Com 04 231H
Project:	EDDY CO., NM (NAD83)	TVD Reference:	RKB @ 3041.00usft
Reference Site:	SEC. 04-T23S-R28E	MD Reference:	RKB @ 3041.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Goonch Fed Com 04 231H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 2	Offset TVD Reference:	Offset Datum

Offset Design: SEC. 04-T23S-R28E - Goonch Fed Com 04 221H - Wellbore #1 - Plan 2													Offset Site Error: 0.00 usft
Survey Program: 0-MWD													Offset Well Error: 0.50 usft
Rule Assigned:													
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
9,850.00	9,749.74	9,400.00	9,295.79	29.86	25.65	-2.05	-527.10	-690.61	669.58	629.54	40.04	16.723	
9,900.00	9,797.38	9,423.22	9,312.49	29.80	25.58	-1.68	-510.97	-690.15	691.39	652.09	39.30	17.592	
9,950.00	9,843.51	9,450.00	9,330.91	29.72	25.50	-1.30	-491.55	-689.59	710.95	672.30	38.65	18.396	
10,000.00	9,887.79	9,464.58	9,340.56	29.60	25.45	-1.09	-480.62	-689.27	728.01	690.39	37.62	19.353	
10,050.00	9,929.86	9,485.40	9,353.83	29.45	25.39	-0.83	-464.60	-688.81	742.73	705.97	36.76	20.203	
10,100.00	9,969.41	9,500.00	9,362.80	29.28	25.34	-0.65	-453.07	-688.48	755.07	719.33	35.74	21.128	
10,150.00	10,006.13	9,527.20	9,378.70	29.09	25.25	-0.34	-431.02	-687.85	764.84	729.77	35.06	21.812	
10,200.00	10,039.74	9,550.00	9,391.21	28.89	25.17	-0.09	-411.97	-687.30	772.19	737.90	34.28	22.523	
10,250.00	10,069.98	9,569.12	9,401.11	28.67	25.11	0.12	-395.62	-686.83	777.03	743.60	33.43	23.242	
10,300.00	10,096.63	9,600.00	9,415.93	28.44	25.00	0.47	-368.54	-686.06	779.54	746.64	32.90	23.695	
10,350.00	10,119.48	9,600.00	9,415.93	28.20	25.00	0.47	-368.54	-686.06	779.42	747.73	31.69	24.593	
10,400.00	10,138.34	9,631.97	9,429.71	27.97	24.89	0.84	-339.71	-685.23	776.59	745.32	31.27	24.837	
10,450.00	10,153.08	9,650.00	9,436.76	27.73	24.83	1.07	-323.12	-684.75	771.46	740.86	30.60	25.208	
10,500.00	10,163.59	9,673.68	9,445.23	27.51	24.74	1.38	-301.02	-684.12	763.83	733.70	30.12	25.356	
10,554.35	10,170.11	9,700.00	9,453.56	27.27	24.66	1.76	-276.07	-683.40	752.78	723.09	29.69	25.354	
10,600.00	10,172.72	9,715.34	9,457.88	27.06	24.60	0.69	-261.35	-682.98	742.27	712.96	29.31	25.321	
10,650.00	10,173.96	9,750.00	9,466.19	26.81	24.49	-0.39	-227.72	-682.01	731.19	701.95	29.24	25.007	
10,661.28	10,174.00	9,750.00	9,466.19	26.75	24.49	-0.65	-227.72	-682.01	728.48	699.33	29.15	24.993	
10,700.00	10,174.00	9,750.00	9,466.19	26.57	24.49	-0.65	-227.72	-682.01	720.32	691.39	28.93	24.902	
10,800.00	10,174.00	9,800.00	9,474.56	26.17	24.32	-0.65	-178.47	-680.60	704.36	675.26	29.10	24.208	
10,900.00	10,174.00	9,850.00	9,478.60	25.82	24.17	-0.64	-128.67	-679.17	696.20	666.57	29.63	23.494	
11,000.00	10,174.00	9,917.52	9,479.00	25.55	23.97	-0.63	-61.18	-677.23	695.04	664.66	30.38	22.878	
11,016.69	10,174.00	9,934.21	9,479.00	25.50	23.93	-0.63	-44.49	-676.75	695.04	664.56	30.48	22.801	
11,100.00	10,174.00	10,017.52	9,479.00	25.41	23.73	-0.61	38.78	-674.36	695.04	664.05	31.00	22.423	
11,200.00	10,174.00	10,117.52	9,479.00	25.76	23.57	-0.60	138.74	-671.49	695.04	663.37	31.67	21.947	
11,300.00	10,174.00	10,217.52	9,479.00	26.41	23.67	-0.58	238.69	-668.62	695.04	662.64	32.40	21.455	
11,400.00	10,174.00	10,317.52	9,479.00	27.17	24.26	-0.56	338.65	-665.75	695.04	661.87	33.17	20.954	
11,500.00	10,174.00	10,417.52	9,479.00	28.01	25.05	-0.54	438.61	-662.88	695.03	661.04	33.99	20.448	
11,600.00	10,174.00	10,517.52	9,479.00	28.93	25.94	-0.52	538.57	-660.01	695.03	660.18	34.85	19.941	
11,700.00	10,174.00	10,617.51	9,479.00	29.92	26.91	-0.51	638.53	-657.14	695.03	659.27	35.76	19.437	
11,800.00	10,174.00	10,717.51	9,479.00	30.98	27.96	-0.49	738.49	-654.27	695.03	658.33	36.70	18.939	
11,900.00	10,174.00	10,817.51	9,479.00	32.09	29.07	-0.47	838.45	-651.40	695.03	657.35	37.67	18.450	
12,000.00	10,174.00	10,917.51	9,479.00	33.26	30.25	-0.45	938.40	-648.52	695.02	656.35	38.68	17.970	
12,100.00	10,174.00	11,017.51	9,479.00	34.48	31.48	-0.44	1,038.36	-645.65	695.02	655.31	39.71	17.502	
12,200.00	10,174.00	11,117.51	9,479.00	35.75	32.77	-0.42	1,138.32	-642.78	695.02	654.25	40.77	17.047	
12,300.00	10,174.00	11,217.51	9,479.00	37.06	34.10	-0.40	1,238.28	-639.91	695.02	653.16	41.86	16.605	
12,400.00	10,174.00	11,317.51	9,479.00	38.41	35.47	-0.38	1,338.24	-637.04	695.02	652.05	42.96	16.177	
12,500.00	10,174.00	11,417.51	9,479.00	39.79	36.88	-0.36	1,438.20	-634.17	695.02	650.92	44.09	15.762	
12,600.00	10,174.00	11,517.51	9,479.00	41.20	38.32	-0.35	1,538.16	-631.30	695.01	649.77	45.24	15.362	
12,700.00	10,174.00	11,617.51	9,479.00	42.65	39.78	-0.33	1,638.11	-628.43	695.01	648.61	46.41	14.976	
12,800.00	10,174.00	11,717.51	9,479.00	44.12	41.28	-0.31	1,738.07	-625.56	695.01	647.42	47.59	14.604	
12,900.00	10,174.00	11,817.51	9,479.00	45.61	42.80	-0.29	1,838.03	-622.69	695.01	646.22	48.79	14.245	
13,000.00	10,174.00	11,917.51	9,479.00	47.12	44.34	-0.27	1,937.99	-619.82	695.01	645.01	50.00	13.900	
13,100.00	10,174.00	12,017.51	9,479.00	48.66	45.90	-0.26	2,037.95	-616.95	695.01	643.78	51.23	13.567	
13,200.00	10,174.00	12,117.51	9,479.00	50.21	47.48	-0.24	2,137.91	-614.08	695.01	642.54	52.46	13.247	
13,300.00	10,174.00	12,217.51	9,479.00	51.78	49.07	-0.22	2,237.87	-611.21	695.01	641.29	53.71	12.939	
13,400.00	10,174.00	12,317.51	9,479.00	53.37	50.68	-0.20	2,337.82	-608.34	695.01	640.03	54.97	12.643	
13,500.00	10,174.00	12,417.51	9,479.00	54.97	52.31	-0.18	2,437.78	-605.47	695.01	638.76	56.24	12.357	
13,600.00	10,174.00	12,517.51	9,479.00	56.58	53.94	-0.17	2,537.74	-602.60	695.01	637.48	57.52	12.082	
13,700.00	10,174.00	12,617.51	9,479.00	58.20	55.59	-0.15	2,637.70	-599.73	695.00	636.19	58.81	11.818	
13,800.00	10,174.00	12,717.51	9,479.00	59.84	57.24	-0.13	2,737.66	-596.86	695.00	634.90	60.11	11.563	
13,900.00	10,174.00	12,817.51	9,479.00	61.48	58.91	-0.11	2,837.62	-593.99	695.00	633.59	61.41	11.318	

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



SB Directional

Anticollision Report



Company:	NOVO Oil & Gas	Local Co-ordinate Reference:	Well Goonch Fed Com 04 231H
Project:	EDDY CO., NM (NAD83)	TVD Reference:	RKB @ 3041.00usft
Reference Site:	SEC. 04-T23S-R28E	MD Reference:	RKB @ 3041.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Goonch Fed Com 04 231H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 2	Offset TVD Reference:	Offset Datum

Offset Design: SEC. 04-T23S-R28E - Goonch Fed Com 04 221H - Wellbore #1 - Plan 2													Offset Site Error: 0.00 usft
Survey Program: 0-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)			
14,000.00	10,174.00	12,917.51	9,479.00	63.13	60.58	-0.10	2,937.58	-591.12	695.00	632.28	62.72	11.081	
14,100.00	10,174.00	13,017.51	9,479.00	64.80	62.26	-0.08	3,037.53	-588.25	695.00	630.97	64.04	10.853	
14,200.00	10,174.00	13,117.51	9,479.00	66.47	63.95	-0.06	3,137.49	-585.38	695.00	629.64	65.36	10.633	
14,300.00	10,174.00	13,217.51	9,479.00	68.15	65.65	-0.04	3,237.45	-582.51	695.00	628.31	66.69	10.421	
14,400.00	10,174.00	13,317.51	9,479.00	69.83	67.35	-0.02	3,337.41	-579.63	695.00	626.98	68.02	10.217	
14,500.00	10,174.00	13,417.51	9,479.00	71.52	69.06	-0.01	3,437.37	-576.76	695.00	625.64	69.36	10.020	
14,532.16	10,174.00	13,449.67	9,479.00	72.07	69.61	0.00	3,469.52	-575.84	695.00	625.21	69.80	9.957	
14,600.00	10,174.00	13,517.51	9,479.00	73.22	70.77	0.01	3,537.33	-573.89	695.00	624.29	70.71	9.829	
14,700.00	10,174.00	13,617.51	9,479.00	74.92	72.49	0.03	3,637.29	-571.02	695.00	622.94	72.06	9.645	
14,800.00	10,174.00	13,717.51	9,479.00	76.63	74.21	0.05	3,737.24	-568.15	695.00	621.59	73.41	9.467	
14,900.00	10,174.00	13,817.51	9,479.00	78.35	75.94	0.07	3,837.20	-565.28	695.00	620.23	74.77	9.295	
15,000.00	10,174.00	13,917.51	9,479.00	80.06	77.67	0.08	3,937.16	-562.41	695.00	618.87	76.13	9.129	
15,100.00	10,174.00	14,017.51	9,479.00	81.79	79.41	0.10	4,037.12	-559.54	695.00	617.50	77.50	8.968	
15,200.00	10,174.00	14,117.51	9,479.00	83.51	81.15	0.12	4,137.08	-556.67	695.00	616.13	78.87	8.812	
15,231.70	10,174.00	14,149.21	9,479.00	84.06	81.70	0.13	4,168.77	-555.76	695.00	615.70	79.30	8.764	

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



SB Directional Anticollision Report



Company:	NOVO Oil & Gas	Local Co-ordinate Reference:	Well Goonch Fed Com 04 231H
Project:	EDDY CO., NM (NAD83)	TVD Reference:	RKB @ 3041.00usft
Reference Site:	SEC. 04-T23S-R28E	MD Reference:	RKB @ 3041.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Goonch Fed Com 04 231H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 2	Offset TVD Reference:	Offset Datum

Offset Design: SEC. 04-T23S-R28E - Goonch Fed Com 04 232H - Wellbore #1 - Plan 2												Offset Site Error:	0.00 usft
Survey Program: 0-MWD												Offset Well Error:	0.50 usft
Reference	Offset	Semi Major Axis	Highside	Offset Wellbore Centre	Distance	Rule Assigned:							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.50	0.50	89.90	0.07	40.02	40.02				
100.00	100.00	100.00	100.00	0.51	0.51	89.90	0.07	40.02	40.02	39.01	1.01	39.463	
200.00	200.00	200.00	200.00	0.59	0.59	89.90	0.07	40.02	40.02	38.84	1.18	34.042	
300.00	300.00	300.00	300.00	0.73	0.73	89.90	0.07	40.02	40.02	38.56	1.46	27.358	
400.00	400.00	400.00	400.00	0.91	0.91	89.90	0.07	40.02	40.02	38.20	1.82	22.024	
500.00	500.00	500.00	500.00	1.10	1.10	89.90	0.07	40.02	40.02	37.81	2.21	18.139	
600.00	600.00	600.00	600.00	1.31	1.31	89.90	0.07	40.02	40.02	37.41	2.61	15.304	
700.00	700.00	700.00	700.00	1.52	1.52	89.90	0.07	40.02	40.02	36.98	3.04	13.185	
800.00	800.00	800.00	800.00	1.73	1.73	89.90	0.07	40.02	40.02	36.56	3.46	11.557	
900.00	900.00	900.00	900.00	1.95	1.95	89.90	0.07	40.02	40.02	36.12	3.90	10.274	
1,000.00	1,000.00	1,000.00	1,000.00	2.17	2.17	89.90	0.07	40.02	40.02	35.69	4.33	9.240	
1,100.00	1,100.00	1,100.00	1,100.00	2.38	2.38	89.90	0.07	40.02	40.02	35.25	4.77	8.390	
1,200.00	1,200.00	1,200.00	1,200.00	2.61	2.61	89.90	0.07	40.02	40.02	34.81	5.21	7.681	
1,300.00	1,300.00	1,300.00	1,300.00	2.83	2.83	89.90	0.07	40.02	40.02	34.37	5.65	7.081	
1,400.00	1,400.00	1,400.00	1,400.00	3.05	3.05	89.90	0.07	40.02	40.02	33.92	6.10	6.566	
1,500.00	1,500.00	1,500.00	1,500.00	3.27	3.27	89.90	0.07	40.02	40.02	33.48	6.54	6.120	
1,600.00	1,600.00	1,600.00	1,600.00	3.49	3.49	89.90	0.07	40.02	40.02	33.04	6.98	5.731	
1,700.00	1,700.00	1,700.00	1,700.00	3.71	3.71	89.90	0.07	40.02	40.02	32.59	7.43	5.387	
1,800.00	1,800.00	1,800.00	1,800.00	3.94	3.94	89.90	0.07	40.02	40.02	32.15	7.87	5.082 CC, ES	
1,900.00	1,900.00	1,899.32	1,899.30	4.16	4.13	92.05	-1.46	40.81	40.85	32.55	8.29	4.927 SF	
2,000.00	2,000.00	1,998.41	1,998.25	4.38	4.31	97.94	-6.02	43.19	43.64	34.96	8.68	5.027	
2,100.00	2,099.98	2,097.09	2,096.56	4.58	4.49	-105.74	-13.59	47.11	49.60	40.56	9.04	5.485	
2,200.00	2,199.84	2,195.28	2,194.03	4.76	4.68	-101.75	-24.09	52.57	59.18	49.80	9.38	6.308	
2,300.00	2,299.45	2,293.47	2,291.07	4.94	4.89	-99.82	-37.35	59.46	71.87	62.12	9.74	7.376	
2,400.00	2,398.70	2,392.50	2,388.85	5.13	5.12	-100.39	-51.30	66.70	85.67	75.52	10.15	8.442	
2,484.56	2,482.25	2,476.11	2,471.39	5.31	5.33	-102.25	-63.08	72.82	97.89	87.38	10.52	9.307	
2,500.00	2,497.47	2,491.35	2,486.45	5.34	5.37	-102.70	-65.23	73.94	100.19	89.60	10.59	9.463	
2,600.00	2,596.05	2,590.11	2,583.95	5.58	5.63	-105.22	-79.14	81.16	115.18	104.12	11.06	10.417	
2,700.00	2,694.62	2,688.87	2,681.46	5.83	5.90	-107.15	-93.05	88.39	130.33	118.78	11.55	11.284	
2,800.00	2,793.19	2,787.63	2,778.97	6.09	6.18	-108.68	-106.97	95.62	145.60	133.54	12.06	12.070	
2,900.00	2,891.76	2,886.39	2,876.48	6.36	6.47	-109.92	-120.88	102.84	160.95	148.36	12.59	12.780	
3,000.00	2,990.34	2,985.16	2,973.98	6.65	6.77	-110.95	-134.79	110.07	176.37	163.23	13.14	13.421	
3,100.00	3,088.91	3,083.92	3,071.49	6.94	7.07	-111.81	-148.71	117.30	191.83	178.12	13.70	14.000	
3,200.00	3,187.48	3,182.68	3,169.00	7.25	7.38	-112.54	-162.62	124.52	207.32	193.05	14.27	14.524	
3,300.00	3,286.06	3,281.44	3,266.51	7.56	7.69	-113.17	-176.53	131.75	222.84	207.99	14.86	14.998	
3,400.00	3,384.63	3,380.20	3,364.02	7.87	8.01	-113.71	-190.45	138.98	238.39	222.94	15.45	15.428	
3,500.00	3,483.20	3,478.96	3,461.52	8.20	8.33	-114.19	-204.36	146.21	253.95	237.90	16.05	15.820	
3,600.00	3,581.77	3,577.72	3,559.03	8.52	8.66	-114.62	-218.27	153.43	269.53	252.87	16.66	16.176	
3,700.00	3,680.35	3,676.48	3,656.54	8.86	8.99	-115.00	-232.19	160.66	285.13	267.85	17.28	16.502	
3,800.00	3,778.92	3,775.24	3,754.05	9.19	9.32	-115.34	-246.10	167.89	300.73	282.83	17.90	16.800	
3,900.00	3,877.49	3,874.00	3,851.56	9.53	9.65	-115.64	-260.02	175.11	316.35	297.82	18.53	17.074	
4,000.00	3,976.07	3,972.76	3,949.06	9.87	9.99	-115.92	-273.93	182.34	331.97	312.81	19.16	17.326	
4,100.00	4,074.64	4,071.52	4,046.57	10.22	10.33	-116.17	-287.84	189.57	347.59	327.80	19.80	17.558	
4,200.00	4,173.21	4,170.28	4,144.08	10.57	10.67	-116.40	-301.76	196.79	363.23	342.79	20.44	17.772	
4,300.00	4,271.79	4,269.04	4,241.59	10.92	11.01	-116.61	-315.67	204.02	378.87	357.79	21.08	17.971	
4,400.00	4,370.36	4,367.80	4,339.09	11.27	11.35	-116.81	-329.58	211.25	394.51	372.78	21.73	18.155	
4,500.00	4,468.93	4,466.56	4,436.60	11.62	11.69	-116.99	-343.50	218.47	410.16	387.78	22.38	18.326	
4,600.00	4,567.50	4,565.32	4,534.11	11.98	12.04	-117.15	-357.41	225.70	425.81	402.78	23.03	18.486	
4,700.00	4,666.08	4,664.08	4,631.62	12.34	12.39	-117.31	-371.32	232.93	441.47	417.78	23.69	18.635	
4,800.00	4,764.65	4,762.84	4,729.13	12.70	12.73	-117.45	-385.24	240.16	457.12	432.78	24.35	18.774	
4,900.00	4,863.22	4,861.60	4,826.63	13.06	13.08	-117.59	-399.15	247.38	472.78	447.78	25.01	18.904	
5,000.00	4,961.80	4,960.36	4,924.14	13.42	13.43	-117.71	-413.07	254.61	488.45	462.78	25.67	19.026	

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



SB Directional Anticollision Report



Company:	NOVO Oil & Gas	Local Co-ordinate Reference:	Well Goonch Fed Com 04 231H
Project:	EDDY CO., NM (NAD83)	TVD Reference:	RKB @ 3041.00usft
Reference Site:	SEC. 04-T23S-R28E	MD Reference:	RKB @ 3041.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Goonch Fed Com 04 231H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 2	Offset TVD Reference:	Offset Datum

Offset Design: SEC. 04-T23S-R28E - Goonch Fed Com 04 232H - Wellbore #1 - Plan 2												Offset Site Error:	0.00 usft
Survey Program: 0-MWD												Offset Well Error:	0.50 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	Warning
5,100.00	5,060.37	5,059.12	5,021.65	13.78	13.78	-117.83	-426.98	261.84	504.11	477.78	26.34	19.141	
5,200.00	5,158.94	5,157.88	5,119.16	14.15	14.13	-117.94	-440.89	269.06	519.78	492.78	27.00	19.249	
5,300.00	5,257.51	5,256.64	5,216.66	14.51	14.49	-118.04	-454.81	276.29	535.45	507.78	27.67	19.351	
5,400.00	5,356.09	5,355.40	5,314.17	14.88	14.84	-118.14	-468.72	283.52	551.12	522.78	28.34	19.447	
5,500.00	5,454.66	5,454.16	5,411.68	15.24	15.19	-118.24	-482.63	290.74	566.79	537.78	29.01	19.537	
5,600.00	5,553.23	5,552.92	5,509.19	15.61	15.55	-118.32	-496.55	297.97	582.46	552.78	29.68	19.623	
5,700.00	5,651.81	5,651.68	5,606.70	15.98	15.90	-118.41	-510.46	305.20	598.14	567.78	30.36	19.704	
5,800.00	5,750.38	5,750.44	5,704.20	16.35	16.25	-118.49	-524.37	312.43	613.81	582.78	31.03	19.781	
5,900.00	5,848.95	5,849.20	5,801.71	16.72	16.61	-118.56	-538.29	319.65	629.49	597.79	31.71	19.854	
6,000.00	5,947.53	5,947.96	5,899.22	17.09	16.97	-118.63	-552.20	326.88	645.17	612.79	32.38	19.924	
6,100.00	6,046.10	6,046.72	5,996.73	17.46	17.32	-118.70	-566.11	334.11	660.85	627.79	33.06	19.990	
6,200.00	6,144.67	6,145.48	6,094.23	17.83	17.68	-118.77	-580.03	341.33	676.53	642.79	33.74	20.053	
6,300.00	6,243.24	6,244.24	6,191.74	18.20	18.03	-118.83	-593.94	348.56	692.21	657.79	34.42	20.113	
6,400.00	6,341.82	6,343.00	6,289.25	18.57	18.39	-118.89	-607.86	355.79	707.89	672.79	35.10	20.170	
6,500.00	6,440.39	6,441.76	6,386.76	18.94	18.75	-118.95	-621.77	363.01	723.57	687.80	35.78	20.225	
6,600.00	6,538.96	6,540.52	6,484.27	19.32	19.11	-119.00	-635.68	370.24	739.25	702.80	36.46	20.277	
6,700.00	6,637.54	6,639.28	6,581.77	19.69	19.47	-119.05	-649.60	377.47	754.94	717.80	37.14	20.327	
6,800.00	6,736.11	6,738.04	6,679.28	20.06	19.82	-119.10	-663.51	384.69	770.62	732.80	37.82	20.375	
6,900.00	6,834.68	6,836.80	6,776.79	20.44	20.18	-119.15	-677.42	391.92	786.31	747.80	38.50	20.421	
7,000.00	6,933.25	6,935.56	6,874.30	20.81	20.54	-119.20	-691.34	399.15	801.99	762.80	39.19	20.465	
7,100.00	7,031.83	7,034.33	6,917.80	21.19	20.90	-119.24	-705.25	406.38	817.68	777.80	39.87	20.507	
7,200.00	7,130.40	7,133.09	7,069.31	21.56	21.26	-119.28	-719.16	413.60	833.36	792.80	40.56	20.548	
7,300.00	7,228.97	7,231.85	7,166.82	21.94	21.62	-119.32	-733.08	420.83	849.05	807.81	41.24	20.587	
7,400.00	7,327.55	7,330.61	7,264.33	22.31	21.98	-119.36	-746.99	428.06	864.73	822.81	41.93	20.624	
7,500.00	7,426.12	7,429.37	7,361.84	22.69	22.34	-119.40	-760.90	435.28	880.42	837.81	42.61	20.660	
7,600.00	7,524.69	7,528.13	7,459.34	23.06	22.70	-119.44	-774.82	442.51	896.11	852.81	43.30	20.695	
7,700.00	7,623.26	7,626.89	7,556.85	23.44	23.06	-119.47	-788.73	449.74	911.80	867.81	43.99	20.729	
7,800.00	7,721.84	7,725.65	7,654.36	23.82	23.42	-119.51	-802.65	456.96	927.49	882.81	44.67	20.761	
7,900.00	7,820.41	7,824.41	7,751.87	24.19	23.78	-119.54	-816.56	464.19	943.17	897.81	45.36	20.792	
8,000.00	7,918.98	7,923.17	7,849.37	24.57	24.14	-119.57	-830.47	471.42	958.86	912.81	46.05	20.822	
8,100.00	8,017.56	8,021.93	7,946.88	24.95	24.50	-119.61	-844.39	478.65	974.55	927.81	46.74	20.851	
8,200.00	8,116.13	8,120.69	8,044.39	25.32	24.86	-119.64	-858.30	485.87	990.24	942.81	47.43	20.879	
8,300.00	8,214.70	8,219.45	8,141.90	25.70	25.22	-119.66	-872.21	493.10	1,005.93	957.81	48.12	20.906	
8,400.00	8,313.28	8,318.21	8,239.41	26.08	25.58	-119.69	-886.13	500.33	1,021.62	972.81	48.81	20.932	
8,500.00	8,411.85	8,416.97	8,336.91	26.45	25.95	-119.72	-900.04	507.55	1,037.31	987.81	49.50	20.958	
8,600.00	8,510.42	8,515.73	8,434.42	26.83	26.31	-119.75	-913.95	514.78	1,053.00	1,002.81	50.19	20.982	
8,700.00	8,608.99	8,614.49	8,531.93	27.21	26.67	-119.77	-927.87	522.01	1,068.69	1,017.81	50.88	21.006	
8,800.00	8,707.57	8,713.25	8,629.44	27.59	27.03	-119.80	-941.78	529.23	1,084.38	1,032.82	51.57	21.029	
8,900.00	8,806.14	8,812.01	8,726.94	27.97	27.39	-119.82	-955.69	536.46	1,100.07	1,047.82	52.26	21.051	
9,000.00	8,904.71	8,910.77	8,824.45	28.34	27.75	-119.85	-969.61	543.69	1,115.76	1,062.82	52.95	21.073	
9,065.00	8,968.79	8,974.96	8,887.83	28.59	27.99	-119.86	-978.65	548.39	1,125.96	1,072.57	53.40	21.086	
9,100.00	9,003.32	9,009.55	8,921.98	28.71	28.12	-119.95	-983.52	550.92	1,131.35	1,077.73	53.62	21.098	
9,200.00	9,102.34	9,108.50	9,019.68	28.97	28.48	-120.10	-997.47	558.16	1,145.58	1,091.36	54.22	21.130	
9,300.00	9,201.79	9,229.69	9,139.69	29.20	28.83	-120.10	-1,012.35	565.89	1,157.15	1,102.32	54.83	21.104	
9,400.00	9,301.55	9,352.07	9,261.49	29.39	29.10	-120.08	-1,022.79	571.31	1,165.05	1,109.73	55.32	21.059	
9,500.00	9,401.48	9,474.99	9,384.23	29.55	29.32	-120.05	-1,028.62	574.34	1,169.25	1,113.53	55.73	20.982	
9,549.56	9,451.04	9,536.02	9,445.24	29.62	29.41	89.99	-1,029.78	574.94	1,169.96	1,114.05	55.91	20.927	
9,600.00	9,501.48	9,592.26	9,501.48	29.69	29.50	90.00	-1,029.93	575.02	1,170.02	1,113.95	56.07	20.869	
9,699.56	9,601.04	9,691.82	9,601.04	29.82	29.63	90.00	-1,029.93	575.02	1,170.02	1,113.68	56.34	20.769	
9,750.00	9,651.41	9,740.94	9,650.16	29.87	29.68	98.43	-1,029.42	575.03	1,170.36	1,113.92	56.45	20.734	
9,800.00	9,700.96	9,788.50	9,697.53	29.88	29.71	98.43	-1,025.45	575.14	1,171.44	1,114.96	56.48	20.741	
9,850.00	9,749.74	9,836.21	9,744.57	29.86	29.70	98.37	-1,017.54	575.35	1,173.26	1,116.82	56.44	20.787	

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



SB Directional Anticollision Report



Company:	NOVO Oil & Gas	Local Co-ordinate Reference:	Well Goonch Fed Com 04 231H
Project:	EDDY CO., NM (NAD83)	TVD Reference:	RKB @ 3041.00usft
Reference Site:	SEC. 04-T23S-R28E	MD Reference:	RKB @ 3041.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Goonch Fed Com 04 231H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 2	Offset TVD Reference:	Offset Datum

Offset Design: SEC. 04-T23S-R28E - Goonch Fed Com 04 232H - Wellbore #1 - Plan 2												Offset Site Error:	0.00 usft
Survey Program: 0-MWD												Offset Well Error:	0.50 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	
9,900.00	9,797.38	9,884.10	9,790.95	29.80	29.66	98.24	-1,005.69	575.67	1,175.81	1,119.49	56.33	20.874	
9,950.00	9,843.51	9,932.15	9,836.34	29.72	29.59	98.05	-989.95	576.09	1,179.08	1,122.93	56.15	21.000	
10,000.00	9,887.79	9,980.38	9,880.41	29.60	29.49	97.79	-970.39	576.62	1,183.03	1,127.13	55.90	21.164	
10,050.00	9,929.86	10,028.80	9,922.83	29.45	29.36	97.48	-947.10	577.24	1,187.65	1,132.05	55.59	21.363	
10,100.00	9,969.41	10,077.40	9,963.29	29.28	29.20	97.11	-920.20	577.97	1,192.88	1,137.64	55.24	21.596	
10,150.00	10,006.13	10,126.20	10,001.47	29.09	29.02	96.68	-889.84	578.78	1,198.70	1,143.86	54.84	21.860	
10,200.00	10,039.74	10,175.21	10,037.07	28.89	28.82	96.21	-856.20	579.68	1,205.06	1,150.66	54.40	22.151	
10,250.00	10,069.98	10,224.45	10,069.82	28.67	28.61	95.68	-819.46	580.67	1,211.91	1,157.97	53.95	22.465	
10,300.00	10,096.63	10,273.92	10,099.42	28.44	28.38	95.11	-779.86	581.73	1,219.21	1,165.73	53.48	22.799	
10,350.00	10,119.48	10,323.64	10,125.61	28.20	28.14	94.51	-737.63	582.87	1,226.88	1,173.88	53.00	23.147	
10,400.00	10,138.34	10,373.64	10,148.16	27.97	27.90	93.87	-693.04	584.06	1,234.89	1,182.35	52.54	23.504	
10,450.00	10,153.08	10,423.92	10,166.83	27.73	27.65	93.21	-646.38	585.32	1,243.16	1,191.06	52.10	23.863	
10,500.00	10,163.59	10,474.51	10,181.42	27.51	27.41	92.53	-597.98	586.61	1,251.63	1,199.95	51.68	24.219	
10,554.35	10,170.11	10,529.88	10,192.41	27.27	27.15	91.77	-543.76	588.07	1,260.99	1,209.72	51.27	24.595	
10,600.00	10,172.72	10,577.00	10,197.61	27.06	26.94	91.37	-496.95	589.33	1,267.22	1,216.27	50.95	24.871	
10,650.00	10,173.96	10,628.65	10,199.00	26.81	26.72	91.14	-445.36	590.71	1,270.16	1,219.52	50.64	25.083	
10,661.28	10,174.00	10,639.93	10,199.00	26.75	26.67	91.13	-434.08	591.01	1,270.27	1,219.69	50.58	25.114	
10,700.00	10,174.00	10,678.64	10,199.00	26.57	26.52	91.13	-395.37	592.05	1,270.28	1,219.88	50.40	25.204	
10,800.00	10,174.00	10,778.64	10,199.00	26.17	26.19	91.13	-295.41	594.74	1,270.31	1,220.17	50.14	25.334	
10,900.00	10,174.00	10,878.64	10,199.00	25.82	25.94	91.13	-195.45	597.42	1,270.34	1,220.19	50.14	25.333	
11,000.00	10,174.00	10,978.64	10,199.00	25.55	25.79	91.13	-95.48	600.10	1,270.37	1,219.96	50.41	25.200	
11,100.00	10,174.00	11,078.64	10,199.00	25.41	25.80	91.13	4.48	602.79	1,270.40	1,219.46	50.94	24.940	
11,200.00	10,174.00	11,178.64	10,199.00	25.76	26.03	91.13	104.45	605.47	1,270.43	1,218.71	51.71	24.566	
11,300.00	10,174.00	11,278.64	10,199.00	26.41	26.50	91.13	204.41	608.15	1,270.46	1,217.73	52.73	24.093	
11,400.00	10,174.00	11,378.64	10,199.00	27.17	27.14	91.13	304.37	610.84	1,270.49	1,216.51	53.98	23.538	
11,500.00	10,174.00	11,478.64	10,199.00	28.01	27.92	91.13	404.34	613.52	1,270.52	1,215.09	55.43	22.920	
11,600.00	10,174.00	11,578.64	10,199.00	28.93	28.80	91.13	504.30	616.20	1,270.55	1,213.46	57.08	22.258	
11,700.00	10,174.00	11,678.64	10,199.00	29.92	29.76	91.13	604.27	618.89	1,270.58	1,211.66	58.91	21.567	
11,800.00	10,174.00	11,778.64	10,199.00	30.98	30.80	91.13	704.23	621.57	1,270.61	1,209.70	60.91	20.862	
11,900.00	10,174.00	11,878.64	10,199.00	32.09	31.91	91.13	804.19	624.25	1,270.64	1,207.59	63.05	20.154	
12,000.00	10,174.00	11,978.64	10,199.00	33.26	33.07	91.13	904.16	626.93	1,270.67	1,205.35	65.32	19.453	
12,100.00	10,174.00	12,078.64	10,199.00	34.48	34.29	91.13	1,004.12	629.62	1,270.70	1,202.98	67.71	18.766	
12,200.00	10,174.00	12,178.64	10,199.00	35.75	35.56	91.13	1,104.09	632.30	1,270.73	1,200.51	70.21	18.098	
12,300.00	10,174.00	12,278.64	10,199.00	37.06	36.87	91.13	1,204.05	634.98	1,270.76	1,197.95	72.81	17.453	
12,400.00	10,174.00	12,378.64	10,199.00	38.41	38.22	91.13	1,304.01	637.67	1,270.79	1,195.29	75.49	16.833	
12,500.00	10,174.00	12,478.64	10,199.00	39.79	39.60	91.13	1,403.98	640.35	1,270.82	1,192.56	78.25	16.240	
12,600.00	10,174.00	12,578.64	10,199.00	41.20	41.02	91.13	1,503.94	643.03	1,270.85	1,189.76	81.08	15.674	
12,700.00	10,174.00	12,678.64	10,199.00	42.65	42.47	91.13	1,603.91	645.72	1,270.88	1,186.90	83.97	15.134	
12,800.00	10,174.00	12,778.64	10,199.00	44.12	43.94	91.13	1,703.87	648.40	1,270.91	1,183.98	86.92	14.621	
12,900.00	10,174.00	12,878.64	10,199.00	45.61	45.44	91.13	1,803.83	651.08	1,270.94	1,181.01	89.92	14.134	
13,000.00	10,174.00	12,978.64	10,199.00	47.12	46.96	91.13	1,903.80	653.77	1,270.97	1,178.00	92.97	13.671	
13,100.00	10,174.00	13,078.64	10,199.00	48.66	48.50	91.13	2,003.76	656.45	1,271.00	1,174.94	96.05	13.232	
13,200.00	10,174.00	13,178.64	10,199.00	50.21	50.06	91.13	2,103.73	659.13	1,271.03	1,171.85	99.18	12.816	
13,300.00	10,174.00	13,278.64	10,199.00	51.78	51.63	91.13	2,203.69	661.82	1,271.06	1,168.72	102.34	12.420	
13,400.00	10,174.00	13,378.64	10,199.00	53.37	53.22	91.13	2,303.65	664.50	1,271.09	1,165.56	105.53	12.045	
13,500.00	10,174.00	13,478.64	10,199.00	54.97	54.82	91.13	2,403.62	667.18	1,271.11	1,162.37	108.74	11.689	
13,600.00	10,174.00	13,578.64	10,199.00	56.58	56.44	91.13	2,503.58	669.87	1,271.14	1,159.16	111.99	11.351	
13,700.00	10,174.00	13,678.64	10,199.00	58.20	58.07	91.13	2,603.55	672.55	1,271.17	1,155.92	115.25	11.029	
13,800.00	10,174.00	13,778.64	10,199.00	59.84	59.70	91.13	2,703.51	675.23	1,271.20	1,152.66	118.54	10.724	
13,900.00	10,174.00	13,878.64	10,199.00	61.48	61.35	91.13	2,803.47	677.92	1,271.23	1,149.38	121.85	10.433	
14,000.00	10,174.00	13,978.64	10,199.00	63.13	63.01	91.13	2,903.44	680.60	1,271.26	1,146.08	125.18	10.156	
14,100.00	10,174.00	14,078.64	10,199.00	64.80	64.68	91.13	3,003.40	683.28	1,271.29	1,142.77	128.52	9.891	

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



SB Directional

Anticollision Report



Company:	NOVO Oil & Gas	Local Co-ordinate Reference:	Well Goonch Fed Com 04 231H
Project:	EDDY CO., NM (NAD83)	TVD Reference:	RKB @ 3041.00usft
Reference Site:	SEC. 04-T23S-R28E	MD Reference:	RKB @ 3041.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Goonch Fed Com 04 231H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 2	Offset TVD Reference:	Offset Datum

Offset Design: SEC. 04-T23S-R28E - Goonch Fed Com 04 232H - Wellbore #1 - Plan 2													Offset Site Error: 0.00 usft
Survey Program: 0-MWD													Offset Well Error: 0.50 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,200.00	10,174.00	14,178.64	10,199.00	66.47	66.35	91.13	3,103.37	685.97	1,271.32	1,139.44	131.88	9.640	
14,300.00	10,174.00	14,278.64	10,199.00	68.15	68.03	91.13	3,203.33	688.65	1,271.35	1,136.10	135.26	9.399	
14,400.00	10,174.00	14,378.64	10,199.00	69.83	69.72	91.13	3,303.29	691.33	1,271.38	1,132.74	138.65	9.170	
14,500.00	10,174.00	14,478.64	10,199.00	71.52	71.42	91.13	3,403.26	694.02	1,271.41	1,129.37	142.05	8.951	
14,600.00	10,174.00	14,578.64	10,199.00	73.22	73.12	91.13	3,503.22	696.70	1,271.44	1,125.98	145.46	8.741	
14,700.00	10,174.00	14,678.64	10,199.00	74.92	74.82	91.13	3,603.19	699.38	1,271.47	1,122.59	148.88	8.540	
14,800.00	10,174.00	14,778.64	10,199.00	76.63	76.53	91.13	3,703.15	702.07	1,271.50	1,119.19	152.32	8.348	
14,900.00	10,174.00	14,878.64	10,199.00	78.35	78.25	91.13	3,803.11	704.75	1,271.53	1,115.78	155.76	8.164	
15,000.00	10,174.00	14,978.64	10,199.00	80.06	79.97	91.13	3,903.08	707.43	1,271.56	1,112.35	159.21	7.987	
15,100.00	10,174.00	15,078.64	10,199.00	81.79	81.69	91.13	4,003.04	710.12	1,271.59	1,108.92	162.67	7.817	
15,200.00	10,174.00	15,178.64	10,199.00	83.51	83.42	91.13	4,103.01	712.80	1,271.62	1,105.49	166.14	7.654	
15,231.70	10,174.00	15,210.35	10,199.00	84.06	83.97	91.13	4,134.70	713.65	1,271.63	1,104.40	167.24	7.604	



SB Directional Anticollision Report



Company:	NOVO Oil & Gas	Local Co-ordinate Reference:	Well Goonch Fed Com 04 231H
Project:	EDDY CO., NM (NAD83)	TVD Reference:	RKB @ 3041.00usft
Reference Site:	SEC. 04-T23S-R28E	MD Reference:	RKB @ 3041.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Goonch Fed Com 04 231H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 2	Offset TVD Reference:	Offset Datum

Offset Design: SEC. 04-T23S-R28E - Jack Sleeper State Com 9 201H - Wellbore #1 - Wellbore #1													Offset Site Error: 0.00 usft
Survey Program: 171-MWD													Offset Well Error: 0.50 usft
Rule Assigned:													
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
0.00	0.00	0.00	0.00	0.50	0.50	-132.09	-884.07	-978.87	1,319.00				
100.00	100.00	95.43	95.43	0.51	0.51	-132.09	-884.13	-978.94	1,319.10	1,318.08	1.02	1,299.100	
200.00	200.00	191.30	191.30	0.59	0.54	-132.09	-884.34	-979.14	1,319.40	1,318.27	1.13	1,167.591	
300.00	300.00	285.57	285.57	0.73	0.65	-132.10	-885.00	-979.55	1,320.19	1,318.81	1.38	953.568	
400.00	400.00	391.73	391.72	0.91	0.81	-132.11	-885.71	-979.99	1,320.94	1,319.23	1.71	770.251	
500.00	500.00	492.12	492.11	1.10	0.97	-132.11	-885.97	-980.30	1,321.34	1,319.27	2.07	637.238	
600.00	600.00	589.55	589.54	1.31	1.15	-132.08	-885.94	-981.03	1,321.88	1,319.42	2.46	537.092	
700.00	700.00	692.14	692.13	1.52	1.35	-132.05	-885.77	-982.01	1,322.48	1,319.61	2.87	460.763	
800.00	800.00	787.68	787.66	1.73	1.54	-132.02	-885.55	-982.92	1,323.04	1,319.77	3.27	404.455	
900.00	900.00	891.21	891.18	1.95	1.75	-131.98	-885.42	-984.03	1,323.76	1,320.06	3.69	358.500	
1,000.00	1,000.00	986.08	986.05	2.17	1.94	-131.95	-885.32	-984.98	1,324.43	1,320.33	4.10	322.997	
1,100.00	1,100.00	1,093.94	1,093.90	2.38	2.16	-131.92	-885.24	-986.01	1,325.09	1,320.55	4.54	292.012	
1,200.00	1,200.00	1,186.00	1,185.96	2.61	2.34	-131.91	-885.57	-986.67	1,325.86	1,320.92	4.94	268.209	
1,300.00	1,300.00	1,281.90	1,281.86	2.83	2.54	-131.91	-886.45	-987.45	1,327.07	1,321.71	5.36	247.474	
1,400.00	1,400.00	1,381.81	1,381.76	3.05	2.75	-131.91	-887.21	-988.40	1,328.28	1,322.49	5.79	229.261	
1,500.00	1,500.00	1,477.74	1,477.67	3.27	2.96	-131.88	-887.56	-989.87	1,329.67	1,323.45	6.22	213.794	
1,600.00	1,600.00	1,581.27	1,581.18	3.49	3.18	-131.82	-887.53	-991.93	1,331.14	1,324.48	6.66	199.814	
1,700.00	1,700.00	1,697.51	1,697.42	3.71	3.41	-131.81	-887.85	-992.54	1,331.69	1,324.57	7.12	187.022	
1,800.00	1,800.00	1,808.84	1,808.71	3.94	3.63	-131.92	-889.42	-990.65	1,331.38	1,323.81	7.56	175.996	
1,900.00	1,900.00	1,907.65	1,907.47	4.16	3.83	-132.06	-891.13	-987.79	1,330.39	1,322.41	7.99	166.536	
2,000.00	2,000.00	2,005.06	2,004.82	4.38	4.03	-132.21	-893.41	-985.11	1,329.91	1,321.50	8.41	158.085	
2,100.00	2,099.98	2,119.19	2,118.87	4.58	4.27	17.65	-895.69	-981.61	1,327.35	1,318.50	8.85	150.058	
2,200.00	2,199.84	2,223.38	2,223.02	4.76	4.49	17.67	-895.90	-978.86	1,320.54	1,311.30	9.24	142.928	
2,300.00	2,299.45	2,326.98	2,326.58	4.94	4.70	17.78	-895.79	-976.07	1,310.18	1,300.55	9.64	135.978	
2,400.00	2,398.70	2,421.00	2,420.58	5.13	4.90	17.96	-895.63	-973.88	1,296.74	1,286.72	10.02	129.453	
2,484.56	2,482.25	2,499.41	2,498.98	5.31	5.06	18.19	-895.31	-972.65	1,283.15	1,272.81	10.34	124.048	
2,500.00	2,497.47	2,514.84	2,514.41	5.34	5.10	18.22	-895.25	-972.40	1,280.46	1,270.05	10.41	123.028	
2,600.00	2,596.05	2,615.61	2,615.16	5.58	5.31	18.43	-894.77	-970.73	1,262.92	1,252.11	10.81	116.816	
2,700.00	2,694.62	2,718.09	2,717.62	5.83	5.52	18.65	-894.12	-968.76	1,245.11	1,233.88	11.22	110.931	
2,800.00	2,793.19	2,815.44	2,814.95	6.09	5.73	18.86	-893.32	-966.78	1,227.10	1,215.47	11.63	105.482	
2,900.00	2,891.76	2,932.56	2,932.04	6.36	5.97	19.13	-892.26	-964.36	1,209.15	1,197.06	12.08	100.076	
3,000.00	2,990.34	3,056.06	3,055.39	6.65	6.24	19.44	-888.78	-959.45	1,188.39	1,175.84	12.54	94.733	
3,100.00	3,088.91	3,152.92	3,152.09	6.94	6.44	19.69	-885.47	-955.06	1,166.92	1,153.96	12.97	90.002	
3,200.00	3,187.48	3,250.36	3,249.37	7.25	6.65	19.96	-882.15	-950.75	1,145.57	1,132.18	13.39	85.542	
3,300.00	3,286.06	3,340.76	3,339.65	7.56	6.84	20.22	-879.24	-946.96	1,124.54	1,110.73	13.81	81.418	
3,400.00	3,384.63	3,439.54	3,438.31	7.87	7.06	20.51	-876.17	-943.15	1,103.85	1,089.60	14.25	77.472	
3,500.00	3,483.20	3,535.55	3,534.20	8.20	7.26	20.83	-872.99	-939.57	1,083.16	1,068.48	14.68	73.762	
3,600.00	3,581.77	3,633.12	3,631.66	8.52	7.47	21.16	-869.85	-935.98	1,062.61	1,047.48	15.12	70.266	
3,700.00	3,680.35	3,731.00	3,729.41	8.86	7.68	21.50	-866.68	-932.30	1,042.00	1,026.43	15.57	66.941	
3,800.00	3,778.92	3,826.00	3,824.30	9.19	7.88	21.85	-863.64	-928.80	1,021.52	1,005.51	16.01	63.800	
3,900.00	3,877.49	3,922.00	3,920.20	9.53	8.09	22.21	-860.71	-925.57	1,001.42	984.96	16.46	60.836	
4,000.00	3,976.07	4,018.67	4,016.78	9.87	8.30	22.60	-857.88	-922.45	981.53	964.62	16.91	58.031	
4,100.00	4,074.64	4,116.36	4,114.37	10.22	8.51	23.01	-854.97	-919.34	961.70	944.32	17.37	55.356	
4,200.00	4,173.21	4,216.13	4,214.04	10.57	8.73	23.43	-852.02	-916.01	941.81	923.97	17.84	52.799	
4,300.00	4,271.79	4,315.01	4,312.82	10.92	8.94	23.87	-849.01	-912.54	921.79	903.48	18.30	50.359	
4,400.00	4,370.36	4,414.21	4,411.92	11.27	9.16	24.33	-846.08	-909.02	901.83	883.06	18.77	48.035	
4,500.00	4,468.93	4,525.23	4,522.75	11.62	9.40	24.84	-842.33	-903.82	880.77	861.51	19.25	45.745	
4,600.00	4,567.50	4,623.04	4,620.36	11.98	9.62	25.32	-838.63	-898.76	859.17	839.44	19.73	43.544	
4,700.00	4,666.08	4,717.87	4,715.00	12.34	9.83	25.81	-834.97	-894.07	837.76	817.55	20.21	41.451	
4,800.00	4,764.65	4,813.05	4,810.01	12.70	10.05	26.34	-831.53	-889.67	816.81	796.12	20.69	39.470	
4,900.00	4,863.22	4,908.99	4,905.80	13.06	10.26	26.90	-827.99	-885.33	795.99	774.81	21.18	37.577	
5,000.00	4,961.80	5,002.90	4,999.57	13.42	10.47	27.39	-825.77	-880.86	775.75	754.08	21.67	35.797	

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



SB Directional Anticollision Report



Company:	NOVO Oil & Gas	Local Co-ordinate Reference:	Well Goonch Fed Com 04 231H
Project:	EDDY CO., NM (NAD83)	TVD Reference:	RKB @ 3041.00usft
Reference Site:	SEC. 04-T23S-R28E	MD Reference:	RKB @ 3041.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Goonch Fed Com 04 231H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 2	Offset TVD Reference:	Offset Datum

Offset Design: SEC. 04-T23S-R28E - Jack Sleeper State Com 9 201H - Wellbore #1 - Wellbore #1													Offset Site Error:	0.00 usft	
Survey Program:		171-MWD		Offset		Semi Major Axis		Offset Wellbore Centre		Rule Assigned:			Warning	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			
5,100.00	5,060.37	5,098.96	5,095.50	13.78	10.68	27.89	-824.03	-876.18	755.78	733.62	22.16	34.104			
5,200.00	5,158.94	5,194.72	5,191.15	14.15	10.89	28.40	-822.47	-871.83	736.24	713.58	22.66	32.495			
5,300.00	5,257.51	5,292.29	5,288.61	14.51	11.10	28.94	-821.07	-867.32	716.79	693.63	23.16	30.954			
5,400.00	5,356.09	5,389.30	5,385.50	14.88	11.32	29.48	-820.03	-862.83	697.58	673.92	23.66	29.484			
5,500.00	5,454.66	5,486.24	5,482.33	15.24	11.53	30.03	-819.19	-858.25	678.46	654.29	24.17	28.073			
5,600.00	5,553.23	5,580.79	5,576.79	15.61	11.74	30.62	-818.38	-854.18	659.77	635.09	24.68	26.731			
5,700.00	5,651.81	5,675.62	5,671.55	15.98	11.94	31.23	-817.89	-850.54	641.71	616.51	25.20	25.462			
5,800.00	5,750.38	5,772.23	5,768.10	16.35	12.15	31.88	-817.58	-847.13	624.10	598.37	25.73	24.258			
5,900.00	5,848.95	5,871.79	5,867.59	16.72	12.37	32.61	-817.24	-843.70	606.63	580.37	26.26	23.102			
6,000.00	5,947.53	5,970.69	5,966.43	17.09	12.58	33.49	-815.63	-840.56	588.92	562.11	26.80	21.971			
6,100.00	6,046.10	6,065.38	6,061.07	17.46	12.79	34.42	-813.83	-837.92	571.58	544.22	27.36	20.888			
6,200.00	6,144.67	6,163.83	6,159.48	17.83	13.00	35.46	-812.14	-835.68	554.94	527.01	27.93	19.868			
6,300.00	6,243.24	6,260.98	6,256.57	18.20	13.21	36.59	-809.96	-833.32	538.15	509.64	28.51	18.875			
6,400.00	6,341.82	6,361.57	6,357.11	18.57	13.43	37.87	-807.55	-831.27	521.86	492.76	29.11	17.930			
6,500.00	6,440.39	6,466.75	6,462.21	18.94	13.66	39.18	-805.45	-827.58	504.64	474.95	29.70	16.994			
6,600.00	6,538.96	6,559.28	6,554.64	19.32	13.86	40.27	-804.60	-823.50	487.22	456.91	30.30	16.078			
6,700.00	6,637.54	6,657.41	6,652.71	19.69	14.07	41.43	-804.62	-819.95	471.02	440.11	30.91	15.239			
6,800.00	6,736.11	6,754.48	6,749.69	20.06	14.28	42.57	-805.32	-815.99	454.82	423.30	31.52	14.429			
6,900.00	6,834.68	6,851.31	6,846.46	20.44	14.49	43.78	-806.10	-812.43	439.19	407.05	32.15	13.662			
7,000.00	6,933.25	6,947.55	6,942.65	20.81	14.70	45.24	-805.80	-809.58	424.18	391.38	32.80	12.931			
7,100.00	7,031.83	7,052.76	7,047.79	21.19	14.93	47.12	-804.19	-806.33	409.07	375.59	33.48	12.219			
7,200.00	7,130.40	7,150.75	7,145.66	21.56	15.15	49.24	-800.95	-802.58	393.31	359.10	34.21	11.498			
7,300.00	7,228.97	7,242.59	7,237.43	21.94	15.35	51.27	-798.68	-799.64	378.86	343.90	34.96	10.838			
7,400.00	7,327.55	7,342.15	7,336.94	22.31	15.56	53.43	-797.65	-796.92	365.62	329.93	35.69	10.243			
7,500.00	7,426.12	7,440.00	7,434.74	22.69	15.77	55.62	-797.15	-793.89	352.62	316.17	36.44	9.676			
7,600.00	7,524.69	7,536.97	7,531.67	23.06	15.98	57.74	-797.90	-791.07	340.41	303.22	37.19	9.153			
7,700.00	7,623.26	7,642.93	7,637.51	23.44	16.21	60.03	-799.79	-786.76	327.58	289.67	37.91	8.641			
7,800.00	7,721.84	7,738.24	7,732.73	23.82	16.41	62.36	-801.00	-782.59	314.96	276.27	38.69	8.141			
7,900.00	7,820.41	7,840.66	7,835.01	24.19	16.64	65.45	-800.22	-777.53	302.54	263.05	39.49	7.662			
8,000.00	7,918.98	7,939.11	7,933.26	24.57	16.86	69.04	-797.70	-771.59	290.18	249.85	40.34	7.194			
8,100.00	8,017.56	8,034.86	8,028.82	24.95	17.08	72.80	-795.25	-766.24	279.50	238.30	41.20	6.784			
8,200.00	8,116.13	8,132.37	8,126.11	25.32	17.31	77.07	-791.90	-760.63	270.28	228.23	42.05	6.428			
8,300.00	8,214.70	8,227.85	8,221.41	25.70	17.52	81.43	-788.82	-755.71	263.19	220.33	42.86	6.141			
8,400.00	8,313.28	8,324.13	8,317.58	26.08	17.74	85.78	-786.44	-751.75	258.43	214.84	43.59	5.928			
8,500.00	8,411.85	8,422.10	8,415.49	26.45	17.95	90.04	-785.16	-748.55	255.50	211.25	44.25	5.774			
8,600.00	8,510.42	8,520.93	8,514.28	26.83	18.17	94.22	-784.64	-745.66	253.89	209.05	44.84	5.663			
8,682.52	8,591.76	8,601.94	8,595.26	27.14	18.34	97.41	-785.32	-743.73	253.29	208.02	45.27	5.595			
8,700.00	8,608.99	8,618.32	8,611.64	27.21	18.37	98.02	-785.54	-743.48	253.34	207.98	45.35	5.586			
8,800.00	8,707.57	8,713.52	8,706.82	27.59	18.57	101.36	-786.93	-743.42	255.21	209.39	45.81	5.571			
8,900.00	8,806.14	8,811.06	8,804.35	27.97	18.76	104.56	-788.33	-744.37	258.75	212.52	46.23	5.597			
9,000.00	8,904.71	8,915.80	8,909.05	28.34	18.97	107.73	-790.41	-745.88	263.08	216.45	46.63	5.642			
9,065.00	8,968.79	9,019.94	9,012.62	28.59	19.17	110.23	-799.88	-744.50	262.49	215.95	46.54	5.640			
9,100.00	9,003.32	9,094.29	9,083.54	28.71	19.31	110.11	-821.51	-740.72	255.20	209.58	45.62	5.594			
9,200.00	9,102.34	9,237.27	9,206.24	28.97	19.57	102.60	-893.36	-731.07	216.13	172.26	43.88	4.926			
9,300.00	9,201.79	9,340.99	9,281.54	29.20	19.80	85.86	-964.00	-722.69	166.15	122.08	44.07	3.770			
9,400.00	9,301.55	9,408.92	9,323.73	29.39	19.99	64.97	-1,016.96	-717.77	127.41	80.35	47.06	2.707			
9,439.13	9,340.63	9,430.70	9,336.04	29.45	20.07	56.83	-1,034.90	-716.86	123.14	76.02	47.12	2.614 CC, ES, SF			
9,500.00	9,401.48	9,459.94	9,351.69	29.55	20.17	45.87	-1,059.58	-716.25	133.92	89.65	44.27	3.025			
9,549.56	9,451.04	9,481.38	9,362.79	29.62	20.25	-111.53	-1,077.92	-716.47	156.50	115.62	40.87	3.829			
9,600.00	9,501.48	9,501.80	9,373.08	29.69	20.33	-118.21	-1,095.55	-717.22	187.64	149.64	38.00	4.938			
9,699.56	9,601.04	9,537.00	9,390.15	29.82	20.47	-127.65	-1,126.22	-719.74	261.64	227.08	34.55	7.572			
9,750.00	9,651.41	9,553.87	9,397.90	29.87	20.55	-116.76	-1,141.12	-721.29	303.26	269.64	33.63	9.019			

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



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Project:	EDDY CO., NM (NAD83)	TVD Reference:	RKB @ 3041.00usft
Reference Site:	SEC. 04-T23S-R28E	MD Reference:	RKB @ 3041.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Goonch Fed Com 04 231H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 2	Offset TVD Reference:	Offset Datum

Offset Design: SEC. 04-T23S-R28E - Jack Sleeper State Com 9 201H - Wellbore #1 - Wellbore #1												Offset Site Error:	0.00 usft
Survey Program: 171-MWD												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	
9,800.00	9,700.96	9,564.50	9,402.55	29.88	20.60	-111.32	-1,150.64	-722.23	347.06	314.18	32.88	10.554	
9,850.00	9,749.74	9,571.49	9,405.52	29.86	20.63	-102.86	-1,156.94	-722.83	392.66	360.29	32.36	12.133	
9,900.00	9,797.38	9,575.32	9,407.11	29.80	20.65	-91.06	-1,160.41	-723.16	439.42	407.40	32.03	13.721	
9,950.00	9,843.51	9,576.41	9,407.56	29.72	20.66	-76.63	-1,161.40	-723.25	486.82	454.98	31.84	15.290	
10,000.00	9,887.79	9,575.15	9,407.04	29.60	20.65	-61.69	-1,160.25	-723.14	534.41	502.63	31.78	16.818	
10,050.00	9,929.86	9,571.85	9,405.67	29.45	20.63	-48.56	-1,157.26	-722.86	581.78	549.96	31.82	18.285	
10,100.00	9,969.41	9,566.80	9,403.54	29.28	20.61	-38.26	-1,152.70	-722.43	628.61	596.66	31.95	19.677	
10,150.00	10,006.13	9,537.00	9,390.15	29.09	20.47	-27.61	-1,126.22	-719.74	675.46	643.87	31.59	21.379	
10,200.00	10,039.74	9,537.00	9,390.15	28.89	20.47	-23.43	-1,126.22	-719.74	719.87	687.80	32.06	22.453	
10,250.00	10,069.98	9,537.00	9,390.15	28.67	20.47	-20.21	-1,126.22	-719.74	763.14	730.54	32.60	23.412	
10,300.00	10,096.63	9,537.00	9,390.15	28.44	20.47	-17.68	-1,126.22	-719.74	805.16	771.97	33.19	24.261	
10,350.00	10,119.48	9,516.21	9,380.18	28.20	20.39	-14.73	-1,108.06	-718.06	845.38	811.99	33.39	25.317	
10,400.00	10,138.34	9,498.88	9,371.63	27.97	20.32	-12.68	-1,093.02	-717.08	883.58	849.84	33.73	26.194	
10,450.00	10,153.08	9,480.02	9,362.09	27.73	20.24	-11.08	-1,076.76	-716.44	919.53	885.44	34.09	26.971	
10,500.00	10,163.59	9,442.00	9,342.18	27.51	20.11	-9.52	-1,044.38	-716.52	953.36	919.23	34.14	27.928	
10,554.35	10,170.11	9,442.00	9,342.18	27.27	20.11	-8.85	-1,044.38	-716.52	986.62	951.61	35.01	28.177	
10,600.00	10,172.72	9,442.00	9,342.18	27.06	20.11	-5.79	-1,044.38	-716.52	1,013.95	978.20	35.75	28.359	
10,650.00	10,173.96	9,409.00	9,323.78	26.81	19.99	-2.31	-1,017.02	-717.76	1,043.00	1,007.04	35.96	29.006	
10,661.28	10,174.00	9,405.61	9,321.81	26.75	19.98	-1.55	-1,014.26	-717.94	1,049.62	1,013.55	36.07	29.097	
10,700.00	10,174.00	9,394.17	9,315.05	26.57	19.94	-1.60	-1,005.05	-718.57	1,072.60	1,036.13	36.47	29.410	
10,800.00	10,174.00	9,347.00	9,285.50	26.17	19.81	-1.84	-968.48	-722.14	1,134.98	1,097.83	37.15	30.550	
10,900.00	10,174.00	9,347.00	9,285.50	25.82	19.81	-1.84	-968.48	-722.14	1,199.93	1,161.46	38.46	31.197	
11,000.00	10,174.00	9,347.00	9,285.50	25.55	19.81	-1.84	-968.48	-722.14	1,269.43	1,229.83	39.60	32.053	
11,100.00	10,174.00	9,295.16	9,249.85	25.41	19.69	-2.11	-931.14	-726.65	1,339.50	1,299.52	39.98	33.502	
11,200.00	10,174.00	9,253.00	9,218.47	25.76	19.60	-2.28	-903.19	-729.92	1,413.76	1,373.31	40.45	34.955	
11,300.00	10,174.00	9,253.00	9,218.47	26.41	19.60	-2.28	-903.19	-729.92	1,489.07	1,447.78	41.29	36.063	



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Reference Site:	SEC. 04-T23S-R28E	MD Reference:	RKB @ 3041.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Goonch Fed Com 04 231H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 2	Offset TVD Reference:	Offset Datum

Offset Design: SEC. 04-T23S-R28E - Jack Sleeper State Com 9 215H - Wellbore #1 - Wellbore #1													Offset Site Error: 0.00 usft
Survey Program: 170-MWD													Offset Well Error: 0.50 usft
Rule Assigned:													
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
0.00	0.00	0.00	0.00	0.50	0.50	-131.10	-854.01	-979.09	1,299.21				
100.00	100.00	104.75	104.74	0.51	0.51	-131.06	-853.21	-979.37	1,298.92	1,297.90	1.02	1,276.529	
200.00	200.00	204.84	204.81	0.59	0.56	-130.97	-851.05	-980.21	1,298.14	1,297.00	1.14	1,134.819	
300.00	300.00	302.97	302.90	0.73	0.67	-130.85	-848.85	-981.58	1,297.73	1,296.32	1.40	925.351	
400.00	400.00	400.94	400.86	0.91	0.82	-130.77	-847.25	-982.41	1,297.30	1,295.57	1.73	749.798	
469.75	469.75	466.84	466.75	1.04	0.94	-130.73	-846.44	-982.96	1,297.18	1,295.20	1.98	655.568	
500.00	500.00	495.07	494.98	1.10	0.99	-130.71	-846.10	-983.28	1,297.20	1,295.11	2.09	620.708	
600.00	600.00	592.60	592.49	1.31	1.17	-130.63	-844.88	-984.72	1,297.51	1,295.03	2.48	522.779	
700.00	700.00	697.73	697.59	1.52	1.39	-130.53	-843.23	-986.42	1,297.71	1,294.81	2.90	446.861	
755.38	755.38	752.54	752.38	1.64	1.50	-130.46	-842.14	-987.31	1,297.68	1,294.55	3.13	414.334	
800.00	800.00	795.77	795.60	1.73	1.58	-130.42	-841.33	-988.03	1,297.71	1,294.39	3.31	391.522	
900.00	900.00	889.11	888.92	1.95	1.76	-130.36	-840.54	-989.13	1,298.06	1,294.34	3.71	349.634	
1,000.00	1,000.00	981.82	981.63	2.17	1.94	-130.39	-841.57	-989.36	1,298.96	1,294.85	4.11	316.070	
1,100.00	1,100.00	1,082.38	1,082.17	2.38	2.14	-130.45	-843.45	-989.35	1,300.17	1,295.64	4.53	287.162	
1,200.00	1,200.00	1,181.44	1,181.22	2.61	2.34	-130.50	-845.07	-989.48	1,301.33	1,296.39	4.95	263.064	
1,300.00	1,300.00	1,282.18	1,281.94	2.83	2.55	-130.55	-846.74	-989.63	1,302.52	1,297.15	5.37	242.477	
1,400.00	1,400.00	1,385.85	1,385.61	3.05	2.76	-130.59	-848.03	-989.92	1,303.54	1,297.73	5.81	224.467	
1,500.00	1,500.00	1,486.97	1,486.72	3.27	2.97	-130.59	-848.65	-990.40	1,304.31	1,298.07	6.24	209.022	
1,600.00	1,600.00	1,590.78	1,590.53	3.49	3.19	-130.56	-848.66	-991.51	1,305.13	1,298.45	6.68	195.380	
1,700.00	1,700.00	1,705.64	1,705.38	3.71	3.42	-130.58	-848.92	-991.13	1,305.02	1,297.88	7.13	182.910	
1,800.00	1,800.00	1,814.88	1,814.58	3.94	3.64	-130.70	-850.22	-988.52	1,303.98	1,296.40	7.58	172.125	
1,900.00	1,900.00	1,908.94	1,908.61	4.16	3.83	-130.81	-851.32	-986.06	1,302.76	1,294.77	7.99	163.008	
2,000.00	2,000.00	2,011.72	2,011.36	4.38	4.05	-130.90	-852.27	-984.02	1,301.87	1,293.44	8.43	154.479	
2,100.00	2,099.98	2,117.67	2,117.26	4.58	4.26	19.00	-853.63	-980.97	1,298.89	1,290.05	8.84	146.907	
2,200.00	2,199.84	2,224.05	2,223.55	4.76	4.48	18.96	-855.20	-977.00	1,292.09	1,282.85	9.24	139.875	
2,300.00	2,299.45	2,320.17	2,319.60	4.94	4.69	19.01	-856.21	-973.60	1,281.91	1,272.29	9.62	133.266	
2,400.00	2,398.70	2,414.54	2,413.94	5.13	4.88	19.18	-856.79	-971.08	1,268.75	1,258.75	10.00	126.841	
2,484.56	2,482.25	2,490.26	2,489.64	5.31	5.04	19.38	-857.27	-969.52	1,255.51	1,245.19	10.32	121.619	
2,500.00	2,497.47	2,505.79	2,505.17	5.34	5.08	19.40	-857.40	-969.25	1,252.94	1,242.55	10.39	120.622	
2,600.00	2,596.05	2,644.21	2,643.53	5.58	5.37	19.63	-858.06	-965.44	1,235.58	1,224.71	10.87	113.715	
2,700.00	2,694.62	2,766.18	2,765.21	5.83	5.63	19.76	-856.54	-957.30	1,213.72	1,202.41	11.31	107.297	
2,800.00	2,793.19	2,860.80	2,859.61	6.09	5.83	19.86	-855.48	-950.83	1,192.03	1,180.32	11.71	101.753	
2,900.00	2,891.76	3,003.50	3,001.75	6.36	6.15	19.98	-852.66	-938.68	1,168.54	1,156.35	12.20	95.807	
3,000.00	2,990.34	3,103.32	3,100.97	6.65	6.38	20.05	-849.67	-928.18	1,142.93	1,130.31	12.62	90.561	
3,100.00	3,088.91	3,217.37	3,214.32	6.94	6.64	20.13	-846.01	-916.18	1,117.30	1,104.24	13.06	85.526	
3,200.00	3,187.48	3,325.95	3,321.92	7.25	6.91	20.21	-840.80	-902.58	1,089.01	1,075.51	13.50	80.650	
3,300.00	3,286.06	3,438.91	3,433.77	7.56	7.19	20.27	-835.43	-887.76	1,060.44	1,046.49	13.95	76.037	
3,400.00	3,384.63	3,541.59	3,535.14	7.87	7.47	20.25	-830.61	-872.12	1,030.29	1,015.90	14.39	71.603	
3,500.00	3,483.20	3,632.83	3,625.21	8.20	7.72	20.23	-826.18	-858.27	1,000.08	985.25	14.83	67.439	
3,600.00	3,581.77	3,756.48	3,746.97	8.52	8.07	20.15	-819.87	-837.70	968.62	953.34	15.28	63.388	
3,700.00	3,680.35	3,851.25	3,840.03	8.86	8.36	20.07	-814.25	-820.71	935.72	919.99	15.73	59.477	
3,800.00	3,778.92	3,938.17	3,925.53	9.19	8.62	20.03	-809.05	-805.92	903.45	887.26	16.19	55.810	
3,900.00	3,877.49	4,047.80	4,033.22	9.53	8.96	19.98	-801.95	-786.72	870.50	853.86	16.64	52.320	
4,000.00	3,976.07	4,143.97	4,127.53	9.87	9.28	19.91	-795.29	-769.08	836.68	819.58	17.10	48.935	
4,100.00	4,074.64	4,235.03	4,216.86	10.22	9.57	19.86	-788.98	-752.59	803.04	785.48	17.56	45.723	
4,200.00	4,173.21	4,327.30	4,307.45	10.57	9.88	19.82	-782.50	-736.29	769.66	751.63	18.03	42.686	
4,300.00	4,271.79	4,417.75	4,396.11	10.92	10.18	19.58	-778.26	-718.97	736.66	718.15	18.51	39.800	
4,400.00	4,370.36	4,507.87	4,484.38	11.27	10.49	19.17	-775.73	-700.98	704.23	685.23	19.00	37.070	
4,500.00	4,468.93	4,599.56	4,574.28	11.62	10.80	18.72	-773.37	-683.06	672.30	652.81	19.49	34.495	
4,600.00	4,567.50	4,689.00	4,662.15	11.98	11.11	18.32	-770.80	-666.62	641.06	621.07	19.99	32.072	
4,700.00	4,666.08	4,774.75	4,746.47	12.34	11.39	17.83	-769.55	-651.09	610.96	590.46	20.50	29.804	
4,800.00	4,764.65	4,864.68	4,834.89	12.70	11.69	17.13	-770.04	-634.65	582.09	561.08	21.01	27.701	

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



SB Directional Anticollision Report



Company:	NOVO Oil & Gas	Local Co-ordinate Reference:	Well Goonch Fed Com 04 231H
Project:	EDDY CO., NM (NAD83)	TVD Reference:	RKB @ 3041.00usft
Reference Site:	SEC. 04-T23S-R28E	MD Reference:	RKB @ 3041.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Goonch Fed Com 04 231H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 2	Offset TVD Reference:	Offset Datum

Offset Design: SEC. 04-T23S-R28E - Jack Sleeper State Com 9 215H - Wellbore #1 - Wellbore #1													Offset Site Error: 0.00 usft
Survey Program: 170-MWD													Offset Well Error: 0.50 usft
Rule Assigned:													
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
4,900.00	4,863.22	4,952.76	4,921.71	13.06	11.98	16.47	-770.50	-619.83	554.33	532.80	21.53	25.746	
5,000.00	4,961.80	5,067.38	5,034.70	13.42	12.36	15.60	-770.12	-600.63	526.23	504.23	22.00	23.917	
5,100.00	5,060.37	5,166.14	5,131.71	13.78	12.71	14.76	-767.91	-582.27	495.58	473.07	22.50	22.021	
5,200.00	5,158.94	5,261.77	5,225.46	14.15	13.05	13.71	-766.19	-563.51	464.64	441.61	23.03	20.177	
5,300.00	5,257.51	5,359.50	5,320.86	14.51	13.43	12.14	-765.75	-542.29	433.44	409.86	23.57	18.388	
5,400.00	5,356.09	5,453.42	5,412.35	14.88	13.80	10.27	-765.71	-521.08	402.29	378.14	24.16	16.653	
5,500.00	5,454.66	5,551.41	5,507.92	15.24	14.18	8.18	-764.48	-499.50	371.05	346.32	24.74	15.001	
5,600.00	5,553.23	5,642.80	5,597.37	15.61	14.53	6.24	-762.05	-480.92	340.22	314.87	25.35	13.420	
5,700.00	5,651.81	5,734.65	5,687.57	15.98	14.87	4.19	-759.45	-463.78	310.62	284.65	25.98	11.957	
5,800.00	5,750.38	5,829.33	5,780.51	16.35	15.22	1.52	-757.48	-445.83	281.96	255.32	26.64	10.586	
5,900.00	5,848.95	5,924.00	5,873.19	16.72	15.58	-2.10	-756.35	-426.58	254.10	226.71	27.39	9.278	
6,000.00	5,947.53	6,016.79	5,964.16	17.09	15.93	-6.33	-755.40	-408.31	227.84	199.60	28.24	8.068	
6,100.00	6,046.10	6,110.72	6,056.56	17.46	16.26	-11.17	-754.47	-391.49	203.73	174.57	29.16	6.986	
6,200.00	6,144.67	6,207.06	6,151.23	17.83	16.62	-17.54	-753.66	-373.65	181.48	151.22	30.26	5.997	
6,300.00	6,243.24	6,302.02	6,244.41	18.20	16.97	-25.62	-752.85	-355.34	161.92	130.32	31.60	5.124	
6,400.00	6,341.82	6,398.37	6,339.43	18.57	17.30	-34.60	-751.67	-339.50	145.93	112.92	33.00	4.421	
6,500.00	6,440.39	6,494.23	6,434.04	18.94	17.63	-45.13	-749.96	-324.23	133.77	99.32	34.45	3.883	
6,600.00	6,538.96	6,592.23	6,530.76	19.32	17.96	-57.54	-747.47	-308.62	126.57	90.83	35.74	3.542	
6,654.46	6,592.64	6,642.50	6,580.44	19.52	18.13	-64.10	-746.23	-301.02	125.19	88.98	36.21	3.457	CC, ES, SF
6,700.00	6,637.54	6,685.00	6,622.35	19.69	18.28	-69.79	-745.51	-294.00	126.19	89.71	36.47	3.460	
6,800.00	6,736.11	6,779.00	6,714.77	20.06	18.62	-82.18	-743.86	-276.96	134.40	97.77	36.64	3.668	
6,900.00	6,834.68	6,875.81	6,809.93	20.44	18.98	-93.33	-741.55	-259.31	148.52	112.00	36.51	4.068	
7,000.00	6,933.25	6,965.46	6,897.92	20.81	19.31	-101.80	-739.52	-242.31	168.02	131.89	36.13	4.650	
7,100.00	7,031.83	7,068.58	6,999.23	21.19	19.70	-109.43	-737.18	-223.22	190.44	154.24	36.20	5.261	
7,200.00	7,130.40	7,157.37	7,086.55	21.56	20.02	-114.74	-734.65	-207.38	214.39	178.35	36.04	5.949	
7,300.00	7,228.97	7,255.32	7,182.74	21.94	20.39	-119.41	-731.96	-189.11	240.79	204.58	36.21	6.651	
7,400.00	7,327.55	7,348.12	7,273.95	22.31	20.74	-122.79	-730.23	-172.08	267.99	231.61	36.37	7.367	
7,500.00	7,426.12	7,447.68	7,371.86	22.69	21.10	-125.66	-728.83	-154.06	295.64	258.88	36.75	8.044	
7,600.00	7,524.69	7,533.53	7,456.14	23.06	21.43	-127.60	-728.19	-137.83	324.48	287.54	36.94	8.784	
7,700.00	7,623.26	7,629.77	7,550.32	23.44	21.81	-129.12	-729.07	-118.01	354.99	317.60	37.39	9.494	
7,800.00	7,721.84	7,735.83	7,654.38	23.82	22.20	-130.25	-732.17	-97.80	383.82	345.78	38.04	10.091	
7,900.00	7,820.41	7,826.56	7,743.55	24.19	22.53	-131.12	-734.61	-81.20	412.08	373.64	38.44	10.719	
8,000.00	7,918.98	7,916.00	7,831.28	24.57	22.88	-132.14	-734.80	-63.84	442.01	403.19	38.82	11.385	
8,100.00	8,017.56	8,016.13	7,929.55	24.95	23.26	-133.33	-733.54	-44.64	472.24	432.88	39.36	11.999	
8,200.00	8,116.13	8,117.60	8,029.39	25.32	23.63	-134.41	-732.46	-26.62	501.23	461.33	39.90	12.561	
8,300.00	8,214.70	8,228.52	8,138.91	25.70	24.01	-135.50	-731.36	-9.09	528.55	488.01	40.54	13.038	
8,400.00	8,313.28	8,355.74	8,265.29	26.08	24.37	-136.76	-730.50	5.33	551.75	510.51	41.24	13.378	
8,500.00	8,411.85	8,474.84	8,384.12	26.45	24.65	-137.82	-731.51	13.16	570.10	528.29	41.81	13.635	
8,600.00	8,510.42	8,559.82	8,468.98	26.83	24.83	-138.65	-731.32	17.69	587.88	545.68	42.20	13.932	
8,700.00	8,608.99	8,653.38	8,562.29	27.21	25.04	-139.68	-728.84	23.93	607.80	565.19	42.61	14.265	
8,800.00	8,707.57	8,758.05	8,666.73	27.59	25.28	-140.73	-726.56	30.59	627.49	584.41	43.08	14.565	
8,900.00	8,806.14	8,866.58	8,775.10	27.97	25.51	-141.65	-725.70	36.33	645.85	602.27	43.58	14.821	
9,000.00	8,904.71	8,974.76	8,883.20	28.34	25.73	-142.50	-725.73	40.48	662.72	618.65	44.07	15.039	
9,065.00	8,968.79	9,042.61	8,951.03	28.59	25.85	-143.02	-725.92	42.40	673.08	628.71	44.37	15.170	
9,100.00	9,003.32	9,080.70	8,989.11	28.71	25.92	-143.36	-726.10	43.31	678.35	633.82	44.53	15.234	
9,200.00	9,102.34	9,181.57	9,089.56	28.97	26.12	-143.53	-733.00	47.78	690.85	645.86	44.99	15.356	
9,300.00	9,201.79	9,288.75	9,193.33	29.20	26.38	-142.03	-756.72	58.84	700.06	654.44	45.63	15.343	
9,400.00	9,301.55	9,385.08	9,280.50	29.39	26.66	-139.11	-794.52	74.00	706.50	660.12	46.39	15.231	
9,500.00	9,401.48	9,461.54	9,343.81	29.55	26.93	-135.89	-834.11	90.06	714.30	667.23	47.07	15.174	
9,549.56	9,451.04	9,504.98	9,376.36	29.62	27.10	76.34	-861.04	100.10	718.93	671.50	47.42	15.160	
9,600.00	9,501.48	9,543.03	9,402.45	29.69	27.26	78.54	-887.23	109.05	724.77	677.01	47.76	15.175	
9,699.56	9,601.04	9,612.83	9,444.11	29.82	27.55	82.94	-940.88	124.81	741.46	693.28	48.19	15.387	

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



SB Directional

Anticollision Report



Company:	NOVO Oil & Gas	Local Co-ordinate Reference:	Well Goonch Fed Com 04 231H
Project:	EDDY CO., NM (NAD83)	TVD Reference:	RKB @ 3041.00usft
Reference Site:	SEC. 04-T23S-R28E	MD Reference:	RKB @ 3041.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Goonch Fed Com 04 231H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 2	Offset TVD Reference:	Offset Datum

Offset Design: SEC. 04-T23S-R28E - Jack Sleeper State Com 9 215H - Wellbore #1 - Wellbore #1													Offset Site Error:	0.00 usft
Survey Program: 170-MWD													Offset Well Error:	0.50 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Rule Assigned: Distance			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)	Minimum Separation (usft)			
9,750.00	9,651.41	9,633.00	9,454.57	29.87	27.65	91.49	-957.59	129.10	753.19	705.10	48.08	15.664		
9,800.00	9,700.96	9,649.75	9,462.67	29.88	27.72	91.20	-971.82	132.60	767.52	719.66	47.86	16.037		
9,850.00	9,749.74	9,658.53	9,466.71	29.86	27.76	90.03	-979.40	134.44	784.65	737.21	47.44	16.542		
9,900.00	9,797.38	9,663.50	9,468.92	29.80	27.79	88.25	-983.73	135.48	804.43	757.53	46.90	17.152		
9,950.00	9,843.51	9,665.33	9,469.73	29.72	27.80	85.91	-985.32	135.86	826.63	780.33	46.30	17.855		
10,000.00	9,887.79	9,664.56	9,469.39	29.60	27.79	83.08	-984.65	135.70	850.91	805.25	45.66	18.637		
10,050.00	9,929.86	9,661.64	9,468.10	29.45	27.78	79.83	-982.10	135.09	876.92	831.90	45.02	19.479		
10,100.00	9,969.41	9,656.92	9,465.98	29.28	27.76	76.26	-978.00	134.10	904.27	859.87	44.41	20.363		
10,150.00	10,006.13	9,650.70	9,463.12	29.09	27.73	72.49	-972.64	132.80	932.60	888.75	43.85	21.268		
10,200.00	10,039.74	9,633.00	9,454.57	28.89	27.65	67.96	-957.59	129.10	961.66	918.49	43.17	22.276		
10,250.00	10,069.98	9,633.00	9,454.57	28.67	27.65	64.67	-957.59	129.10	990.75	947.84	42.92	23.086		
10,300.00	10,096.63	9,633.00	9,454.57	28.44	27.65	61.44	-957.59	129.10	1,019.98	977.22	42.77	23.851		
10,350.00	10,119.48	9,633.00	9,454.57	28.20	27.65	58.33	-957.59	129.10	1,049.13	1,006.42	42.71	24.562		
10,400.00	10,138.34	9,600.46	9,437.34	27.97	27.50	53.91	-930.89	122.12	1,076.83	1,034.63	42.21	25.514		
10,450.00	10,153.08	9,587.73	9,430.08	27.73	27.44	50.78	-920.82	119.30	1,104.10	1,061.97	42.13	26.205		
10,500.00	10,163.59	9,574.52	9,422.26	27.51	27.38	47.93	-910.59	116.33	1,130.27	1,088.13	42.14	26.820		
10,554.35	10,170.11	9,538.00	9,399.14	27.27	27.24	44.45	-883.64	107.86	1,157.78	1,115.93	41.85	27.667		
10,600.00	10,172.72	9,538.00	9,399.14	27.06	27.24	45.09	-883.64	107.86	1,178.33	1,136.15	42.19	27.930		
10,650.00	10,173.96	9,538.00	9,399.14	26.81	27.24	45.82	-883.64	107.86	1,198.99	1,156.44	42.56	28.175		
10,661.28	10,174.00	9,538.00	9,399.14	26.75	27.24	45.99	-883.64	107.86	1,203.38	1,160.75	42.64	28.225		
10,700.00	10,174.00	9,538.00	9,399.14	26.57	27.24	45.99	-883.64	107.86	1,218.79	1,175.86	42.93	28.387		
10,800.00	10,174.00	9,503.14	9,375.04	26.17	27.09	44.79	-859.84	99.67	1,261.62	1,218.37	43.24	29.174		
10,900.00	10,174.00	9,484.59	9,361.43	25.82	27.02	44.14	-847.99	95.36	1,309.97	1,266.18	43.79	29.916		
11,000.00	10,174.00	9,443.00	9,329.10	25.55	26.86	42.64	-823.64	85.85	1,363.98	1,319.92	44.06	30.959		
11,100.00	10,174.00	9,443.00	9,329.10	25.41	26.86	42.64	-823.64	85.85	1,420.86	1,375.95	44.90	31.643		
11,200.00	10,174.00	9,443.00	9,329.10	25.76	26.86	42.64	-823.64	85.85	1,482.30	1,436.61	45.69	32.445		



SB Directional Anticollision Report



Company:	NOVO Oil & Gas	Local Co-ordinate Reference:	Well Goonch Fed Com 04 231H
Project:	EDDY CO., NM (NAD83)	TVD Reference:	RKB @ 3041.00usft
Reference Site:	SEC. 04-T23S-R28E	MD Reference:	RKB @ 3041.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Goonch Fed Com 04 231H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 2	Offset TVD Reference:	Offset Datum

Offset Design: SEC. 04-T23S-R28E - Jack Sleeper State Com 9 221H - Wellbore #1 - Wellbore #1													Offset Site Error: 0.00 usft
Survey Program: 94-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)			
0.00	0.00	0.00	0.00	0.50	0.50	-132.97	-884.01	-949.09	1,297.02				
100.00	100.00	115.27	115.26	0.51	0.52	-132.93	-882.89	-948.98	1,296.28	1,295.26	1.02	1,266.366	
200.00	200.00	219.63	219.59	0.59	0.62	-132.86	-880.50	-948.97	1,294.72	1,293.51	1.20	1,074.475	
300.00	300.00	318.93	318.86	0.73	0.77	-132.77	-877.92	-949.15	1,293.08	1,291.58	1.50	863.113	
400.00	400.00	426.79	426.68	0.91	0.96	-132.66	-874.79	-949.38	1,291.28	1,289.42	1.87	691.780	
500.00	500.00	525.00	524.83	1.10	1.14	-132.56	-871.62	-949.21	1,288.97	1,286.73	2.24	574.898	
600.00	600.00	617.00	616.81	1.31	1.31	-132.50	-869.63	-948.87	1,287.23	1,284.62	2.61	493.336	
700.00	700.00	709.00	708.80	1.52	1.48	-132.49	-868.59	-948.27	1,285.99	1,283.00	2.99	430.092	
762.20	762.20	760.40	760.20	1.65	1.58	-132.48	-868.30	-948.13	1,285.65	1,282.43	3.22	398.970	
800.00	800.00	789.77	789.57	1.73	1.64	-132.48	-868.39	-948.19	1,285.78	1,282.42	3.36	382.573	
900.00	900.00	873.34	873.13	1.95	1.80	-132.50	-869.43	-948.75	1,287.12	1,283.38	3.74	343.983	
1,000.00	1,000.00	971.45	971.22	2.17	1.99	-132.54	-871.50	-949.74	1,289.28	1,285.13	4.15	310.476	
1,100.00	1,100.00	1,073.12	1,072.86	2.38	2.19	-132.58	-873.60	-950.56	1,291.27	1,286.70	4.57	282.280	
1,200.00	1,200.00	1,171.28	1,171.00	2.61	2.39	-132.62	-875.52	-951.47	1,293.27	1,288.28	5.00	258.905	
1,300.00	1,300.00	1,278.79	1,278.49	2.83	2.61	-132.65	-877.41	-952.43	1,295.13	1,289.69	5.44	238.221	
1,400.00	1,400.00	1,382.89	1,382.57	3.05	2.83	-132.67	-878.64	-953.18	1,296.46	1,290.58	5.87	220.766	
1,500.00	1,500.00	1,486.04	1,485.72	3.27	3.04	-132.66	-879.30	-954.26	1,297.66	1,291.35	6.31	205.624	
1,600.00	1,600.00	1,624.31	1,623.97	3.49	3.32	-132.72	-879.93	-952.78	1,297.20	1,290.39	6.82	190.328	
1,700.00	1,700.00	1,753.23	1,752.62	3.71	3.59	-133.03	-882.19	-945.03	1,293.95	1,286.66	7.30	177.318	
1,800.00	1,800.00	1,851.00	1,850.01	3.94	3.79	-133.37	-885.03	-936.92	1,289.88	1,282.15	7.72	166.977	
1,900.00	1,900.00	1,934.12	1,932.91	4.16	3.97	-133.61	-887.03	-931.25	1,286.58	1,278.45	8.13	158.323	
2,000.00	2,000.00	2,032.68	2,031.38	4.38	4.18	-133.77	-887.88	-926.92	1,283.99	1,275.43	8.56	150.011	
2,100.00	2,099.98	2,154.91	2,153.48	4.58	4.45	16.14	-886.86	-921.66	1,278.58	1,269.56	9.01	141.854	
2,200.00	2,199.84	2,237.63	2,236.12	4.76	4.62	16.17	-886.05	-918.23	1,269.89	1,260.53	9.37	135.593	
2,300.00	2,299.45	2,326.00	2,324.45	4.94	4.81	16.24	-885.85	-915.34	1,259.01	1,249.28	9.73	129.379	
2,400.00	2,398.70	2,416.18	2,414.60	5.13	5.00	16.39	-885.84	-913.20	1,245.59	1,235.49	10.11	123.239	
2,484.56	2,482.25	2,495.59	2,494.00	5.31	5.17	16.58	-885.91	-911.75	1,232.06	1,221.63	10.44	118.058	
2,500.00	2,497.47	2,510.56	2,508.97	5.34	5.20	16.61	-885.94	-911.49	1,229.40	1,218.90	10.50	117.098	
2,600.00	2,596.05	2,608.38	2,606.78	5.58	5.41	16.77	-886.21	-909.82	1,212.22	1,201.33	10.90	111.257	
2,700.00	2,694.62	2,709.23	2,707.61	5.83	5.62	16.96	-886.09	-908.34	1,194.96	1,183.65	11.31	105.699	
2,800.00	2,793.19	2,808.03	2,806.40	6.09	5.83	17.17	-885.70	-906.89	1,177.52	1,165.81	11.71	100.516	
2,900.00	2,891.76	2,946.32	2,944.63	6.36	6.12	17.43	-885.01	-903.62	1,159.75	1,147.55	12.20	95.051	
3,000.00	2,990.34	3,078.67	3,076.66	6.65	6.41	17.58	-881.96	-894.92	1,137.35	1,124.68	12.67	89.751	
3,100.00	3,088.91	3,224.70	3,221.72	6.94	6.76	17.64	-876.02	-879.32	1,110.57	1,097.41	13.15	84.431	
3,200.00	3,187.48	3,319.01	3,315.21	7.25	6.99	17.65	-871.59	-867.70	1,082.54	1,068.96	13.58	79.727	
3,300.00	3,286.06	3,412.02	3,407.46	7.56	7.22	17.67	-867.40	-856.65	1,054.94	1,040.94	14.01	75.321	
3,400.00	3,384.63	3,509.25	3,503.92	7.87	7.46	17.70	-862.95	-845.26	1,027.42	1,012.98	14.44	71.142	
3,500.00	3,483.20	3,606.28	3,600.17	8.20	7.71	17.74	-858.35	-833.83	999.74	984.86	14.88	67.177	
3,600.00	3,581.77	3,707.80	3,700.79	8.52	7.98	17.72	-854.06	-821.07	971.85	956.52	15.33	63.396	
3,700.00	3,680.35	3,803.18	3,795.11	8.86	8.24	17.55	-851.56	-807.15	943.55	927.77	15.78	59.799	
3,800.00	3,778.92	3,897.03	3,887.94	9.19	8.49	17.36	-849.40	-793.49	915.50	899.26	16.23	56.401	
3,900.00	3,877.49	3,991.96	3,981.85	9.53	8.76	17.15	-847.34	-779.77	887.61	870.92	16.69	53.182	
4,000.00	3,976.07	4,087.38	4,076.25	9.87	9.02	16.92	-845.41	-765.96	859.83	842.67	17.15	50.128	
4,100.00	4,074.64	4,183.78	4,171.60	10.22	9.30	16.66	-843.54	-751.96	832.07	814.45	17.62	47.225	
4,200.00	4,173.21	4,279.63	4,266.40	10.57	9.58	16.38	-841.77	-737.91	804.29	786.20	18.09	44.460	
4,300.00	4,271.79	4,377.07	4,362.76	10.92	9.86	16.07	-839.96	-723.57	776.49	757.93	18.56	41.830	
4,400.00	4,370.36	4,472.74	4,457.36	11.27	10.14	15.74	-838.10	-709.38	748.59	729.55	19.04	39.319	
4,500.00	4,468.93	4,567.22	4,550.79	11.62	10.42	15.39	-836.37	-695.47	720.84	701.32	19.52	36.933	
4,600.00	4,567.50	4,644.84	4,627.67	11.98	10.64	15.11	-835.32	-684.88	694.26	674.25	20.00	34.708	
4,700.00	4,666.08	4,728.90	4,711.23	12.34	10.87	14.85	-835.45	-675.72	670.50	650.02	20.48	32.738	
4,800.00	4,764.65	4,822.98	4,804.84	12.70	11.12	14.59	-835.77	-666.26	647.52	626.56	20.96	30.898	
4,900.00	4,863.22	4,917.18	4,898.64	13.06	11.36	14.37	-835.97	-657.66	625.09	603.66	21.43	29.167	

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



SB Directional Anticollision Report



Company:	NOVO Oil & Gas	Local Co-ordinate Reference:	Well Goonch Fed Com 04 231H
Project:	EDDY CO., NM (NAD83)	TVD Reference:	RKB @ 3041.00usft
Reference Site:	SEC. 04-T23S-R28E	MD Reference:	RKB @ 3041.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Goonch Fed Com 04 231H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 2	Offset TVD Reference:	Offset Datum

Offset Design: SEC. 04-T23S-R28E - Jack Sleeper State Com 9 221H - Wellbore #1 - Wellbore #1													Offset Site Error: 0.00 usft
Survey Program: 94-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)			
5,000.00	4,961.80	5,020.23	5,001.29	13.42	11.62	14.17	-835.93	-648.65	602.78	580.87	21.90	27.519	
5,100.00	5,060.37	5,121.04	5,101.57	13.78	11.89	13.88	-835.31	-638.39	579.07	556.69	22.38	25.878	
5,200.00	5,158.94	5,216.91	5,196.95	14.15	12.14	13.57	-834.89	-628.69	555.56	532.70	22.86	24.306	
5,300.00	5,257.51	5,312.57	5,292.13	14.51	12.40	13.23	-834.68	-619.02	532.22	508.88	23.34	22.803	
5,400.00	5,356.09	5,407.25	5,386.33	14.88	12.65	12.83	-834.94	-609.53	509.31	485.48	23.83	21.376	
5,500.00	5,454.66	5,502.59	5,481.23	15.24	12.90	12.40	-835.47	-600.38	486.91	462.59	24.31	20.027	
5,600.00	5,553.23	5,597.97	5,576.24	15.61	13.14	12.03	-835.78	-591.99	464.90	440.10	24.79	18.750	
5,700.00	5,651.81	5,700.17	5,678.05	15.98	13.40	11.60	-836.01	-583.11	442.91	417.64	25.27	17.530	
5,800.00	5,750.38	5,802.35	5,779.66	16.35	13.68	10.97	-835.87	-572.39	419.51	393.78	25.74	16.300	
5,900.00	5,848.95	5,906.09	5,882.55	16.72	13.97	9.95	-836.00	-559.16	394.95	368.74	26.21	15.069	
6,000.00	5,947.53	6,001.82	5,977.26	17.09	14.26	8.64	-836.39	-545.23	369.61	342.88	26.73	13.829	
6,100.00	6,046.10	6,095.36	6,069.92	17.46	14.54	7.28	-836.82	-532.45	345.04	317.78	27.26	12.658	
6,200.00	6,144.67	6,188.89	6,162.77	17.83	14.80	5.97	-837.17	-521.21	321.58	293.79	27.79	11.572	
6,300.00	6,243.24	6,282.59	6,256.01	18.20	15.05	4.80	-837.33	-511.95	299.33	271.02	28.31	10.573	
6,400.00	6,341.82	6,381.97	6,355.05	18.57	15.30	3.73	-836.84	-503.74	277.57	248.77	28.80	9.638	
6,500.00	6,440.39	6,487.47	6,460.06	18.94	15.58	2.38	-834.56	-493.90	254.00	224.75	29.24	8.686	
6,600.00	6,538.96	6,583.00	6,555.05	19.32	15.83	0.97	-831.04	-484.39	228.97	199.21	29.77	7.692	
6,700.00	6,637.54	6,678.00	6,649.59	19.69	16.09	-0.65	-827.86	-475.61	204.75	174.44	30.31	6.755	
6,800.00	6,736.11	6,773.92	6,745.09	20.06	16.34	-2.77	-825.50	-466.99	181.60	150.71	30.88	5.880	
6,900.00	6,834.68	6,871.35	6,841.95	20.44	16.60	-6.22	-823.99	-456.63	158.89	127.36	31.53	5.039	
7,000.00	6,933.25	6,965.91	6,935.73	20.81	16.88	-11.66	-824.08	-444.54	137.74	105.33	32.41	4.250	
7,100.00	7,031.83	7,061.90	7,031.07	21.19	17.15	-18.51	-825.07	-433.48	119.42	85.95	33.47	3.568	
7,200.00	7,130.40	7,159.60	7,128.17	21.56	17.42	-27.45	-825.96	-422.73	103.35	68.54	34.80	2.969	
7,300.00	7,228.97	7,256.82	7,224.87	21.94	17.68	-38.67	-826.92	-412.70	90.59	54.16	36.43	2.487	
7,400.00	7,327.55	7,355.25	7,322.85	22.31	17.94	-52.62	-826.89	-403.34	81.19	43.02	38.17	2.127	
7,469.78	7,396.33	7,421.23	7,388.45	22.57	18.12	-63.69	-827.15	-396.33	78.72	39.53	39.19	2.009 CC, ES	
7,500.00	7,426.12	7,449.96	7,416.99	22.69	18.20	-68.62	-827.64	-392.98	79.18	39.67	39.51	2.004 SF	
7,600.00	7,524.69	7,545.09	7,511.17	23.06	18.48	-85.11	-828.67	-379.71	66.66	46.71	39.95	2.169	
7,700.00	7,623.26	7,641.04	7,605.94	23.44	18.78	-98.63	-829.77	-364.73	102.00	62.18	39.81	2.562	
7,800.00	7,721.84	7,740.65	7,704.59	23.82	19.09	-108.27	-831.46	-351.09	119.83	80.06	39.78	3.013	
7,900.00	7,820.41	7,835.97	7,799.04	24.19	19.37	-115.50	-831.92	-338.25	139.74	100.09	39.64	3.525	
8,000.00	7,918.98	7,934.47	7,896.66	24.57	19.66	-121.42	-831.47	-325.19	161.17	121.47	39.70	4.060	
8,100.00	8,017.56	8,033.42	7,994.92	24.95	19.95	-125.90	-831.28	-313.40	182.48	142.61	39.87	4.577	
8,200.00	8,116.13	8,131.18	8,092.06	25.32	20.23	-129.45	-831.03	-302.49	203.91	163.83	40.08	5.087	
8,300.00	8,214.70	8,227.89	8,188.21	25.70	20.50	-132.40	-830.40	-292.08	225.66	185.33	40.33	5.596	
8,400.00	8,313.28	8,323.73	8,283.42	26.08	20.76	-135.04	-828.67	-281.27	248.68	208.10	40.58	6.128	
8,500.00	8,411.85	8,422.74	8,381.89	26.45	21.04	-137.28	-827.31	-271.00	271.15	230.22	40.93	6.625	
8,600.00	8,510.42	8,516.93	8,475.48	26.83	21.29	-139.39	-824.24	-260.98	294.81	253.60	41.20	7.155	
8,700.00	8,608.99	8,615.29	8,573.30	27.21	21.56	-141.41	-820.60	-251.27	318.29	276.74	41.56	7.659	
8,800.00	8,707.57	8,706.00	8,663.36	27.59	21.82	-142.55	-819.36	-240.55	342.92	301.04	41.88	8.188	
8,900.00	8,806.14	8,811.26	8,767.83	27.97	22.13	-143.45	-819.50	-227.76	367.36	324.92	42.45	8.654	
9,000.00	8,904.71	8,909.20	8,865.21	28.34	22.40	-144.26	-819.74	-217.30	390.52	347.60	42.91	9.101	
9,065.00	8,968.79	8,971.55	8,927.20	28.59	22.57	-144.72	-819.86	-210.54	405.71	362.51	43.20	9.392	
9,100.00	9,003.32	9,006.61	8,962.04	28.71	22.67	-145.04	-819.97	-206.75	413.71	370.35	43.36	9.541	
9,200.00	9,102.34	9,108.44	9,063.32	28.97	22.94	-145.68	-820.57	-196.20	434.17	390.35	43.83	9.907	
9,300.00	9,201.79	9,211.31	9,165.74	29.20	23.22	-145.99	-821.54	-186.55	450.78	406.48	44.30	10.176	
9,400.00	9,301.55	9,315.33	9,269.36	29.39	23.49	-145.99	-822.94	-177.67	463.61	418.83	44.77	10.355	
9,500.00	9,401.48	9,418.55	9,372.29	29.55	23.74	-145.78	-824.31	-170.04	472.55	427.33	45.23	10.448	
9,549.56	9,451.04	9,469.99	9,423.62	29.62	23.86	64.42	-824.91	-166.57	475.67	430.21	45.46	10.464	
9,600.00	9,501.48	9,522.71	9,476.23	29.69	23.99	64.63	-825.35	-163.38	478.24	432.55	45.69	10.467	
9,699.56	9,601.04	9,625.68	9,579.07	29.82	24.22	64.97	-825.97	-157.99	482.71	436.60	46.11	10.468	
9,750.00	9,651.41	9,677.07	9,630.39	29.87	24.33	73.64	-826.28	-155.56	484.11	437.78	46.33	10.450	

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



SB Directional Anticollision Report



Company:	NOVO Oil & Gas	Local Co-ordinate Reference:	Well Goonch Fed Com 04 231H
Project:	EDDY CO., NM (NAD83)	TVD Reference:	RKB @ 3041.00usft
Reference Site:	SEC. 04-T23S-R28E	MD Reference:	RKB @ 3041.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Goonch Fed Com 04 231H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 2	Offset TVD Reference:	Offset Datum

Offset Design: SEC. 04-T23S-R28E - Jack Sleeper State Com 9 221H - Wellbore #1 - Wellbore #1													Offset Site Error:	0.00 usft		
Survey Program:		94-MWD				Offset		Semi Major Axis		Offset Wellbore Centre		Rule Assigned:		Distance	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			
9,800.00	9,700.96	9,727.55	9,680.83	29.88	24.44	74.52	-826.57	-153.31	484.22	437.67	46.55	10.402				
9,850.00	9,749.74	9,791.32	9,744.40	29.86	24.58	76.78	-830.02	-150.35	482.56	435.67	46.89	10.292				
9,900.00	9,797.38	9,836.89	9,789.29	29.80	24.69	79.51	-837.13	-147.31	479.72	432.50	47.22	10.160				
9,950.00	9,843.51	9,873.01	9,824.12	29.72	24.79	82.34	-845.96	-143.67	477.73	430.18	47.55	10.047				
9,973.31	9,864.41	9,887.43	9,837.78	29.66	24.82	83.58	-850.23	-141.91	477.46	429.77	47.69	10.013				
10,000.00	9,887.79	9,902.10	9,851.50	29.60	24.86	84.87	-855.01	-139.94	477.86	430.03	47.84	9.990				
10,050.00	9,929.86	9,928.15	9,875.42	29.45	24.93	87.12	-864.55	-136.05	481.10	433.00	48.10	10.002				
10,100.00	9,969.41	9,956.82	9,901.18	29.28	25.01	89.50	-876.41	-131.86	487.74	439.33	48.41	10.076				
10,150.00	10,006.13	9,975.98	9,918.06	29.09	25.07	90.55	-885.10	-129.25	498.34	449.77	48.57	10.260				
10,200.00	10,039.74	9,987.65	9,928.19	28.89	25.10	90.33	-890.68	-127.74	513.23	464.63	48.60	10.561				
10,250.00	10,069.98	9,993.43	9,933.17	28.67	25.12	88.94	-893.53	-127.01	532.28	483.76	48.52	10.970				
10,300.00	10,096.63	9,994.57	9,934.15	28.44	25.12	86.50	-894.10	-126.87	555.09	506.71	48.38	11.474				
10,350.00	10,119.48	9,992.04	9,931.98	28.20	25.12	83.16	-892.84	-127.18	581.08	532.87	48.21	12.053				
10,400.00	10,138.34	9,986.57	9,927.26	27.97	25.10	79.08	-890.15	-127.88	609.61	561.56	48.05	12.688				
10,450.00	10,153.08	9,978.71	9,920.44	27.73	25.08	74.45	-886.39	-128.89	640.04	592.13	47.91	13.359				
10,500.00	10,163.59	9,968.92	9,911.87	27.51	25.05	69.51	-881.83	-130.20	671.78	623.97	47.81	14.051				
10,554.35	10,170.11	9,956.48	9,900.88	27.27	25.01	64.01	-876.26	-131.91	707.11	659.36	47.75	14.809				
10,600.00	10,172.72	9,945.54	9,891.12	27.06	24.98	63.05	-871.58	-133.47	736.31	688.58	47.73	15.427				
10,650.00	10,173.96	9,920.00	9,868.00	26.81	24.91	61.14	-861.42	-137.30	766.93	719.42	47.51	16.142				
10,661.28	10,174.00	9,920.00	9,868.00	26.75	24.91	61.21	-861.42	-137.30	773.49	725.93	47.55	16.265				
10,700.00	10,174.00	9,920.00	9,868.00	26.57	24.91	61.21	-861.42	-137.30	796.49	748.77	47.72	16.692				
10,800.00	10,174.00	9,920.00	9,868.00	26.17	24.91	61.21	-861.42	-137.30	861.11	813.02	48.09	17.907				
10,900.00	10,174.00	9,920.00	9,868.00	25.82	24.91	61.21	-861.42	-137.30	932.01	883.63	48.37	19.266				
11,000.00	10,174.00	9,920.00	9,868.00	25.55	24.91	61.21	-861.42	-137.30	1,007.85	959.26	48.59	20.742				
11,100.00	10,174.00	9,879.15	9,829.95	25.41	24.80	58.00	-847.72	-142.94	1,084.92	1,036.50	48.42	22.406				
11,200.00	10,174.00	9,871.30	9,822.48	25.76	24.78	57.39	-845.48	-143.87	1,166.72	1,118.18	48.54	24.038				
11,300.00	10,174.00	9,864.26	9,815.76	26.41	24.76	56.85	-843.57	-144.65	1,251.00	1,202.37	48.64	25.722				
11,400.00	10,174.00	9,824.00	9,776.68	27.17	24.66	53.87	-834.64	-148.34	1,339.09	1,290.56	48.53	27.591				
11,500.00	10,174.00	9,824.00	9,776.68	28.01	24.66	53.87	-834.64	-148.34	1,426.53	1,377.87	48.66	29.317				



SB Directional Anticollision Report



Company:	NOVO Oil & Gas	Local Co-ordinate Reference:	Well Goonch Fed Com 04 231H
Project:	EDDY CO., NM (NAD83)	TVD Reference:	RKB @ 3041.00usft
Reference Site:	SEC. 04-T23S-R28E	MD Reference:	RKB @ 3041.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Goonch Fed Com 04 231H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 2	Offset TVD Reference:	Offset Datum

Reference Depths are relative to RKB @ 3041.00usft

Offset Depths are relative to Offset Datum

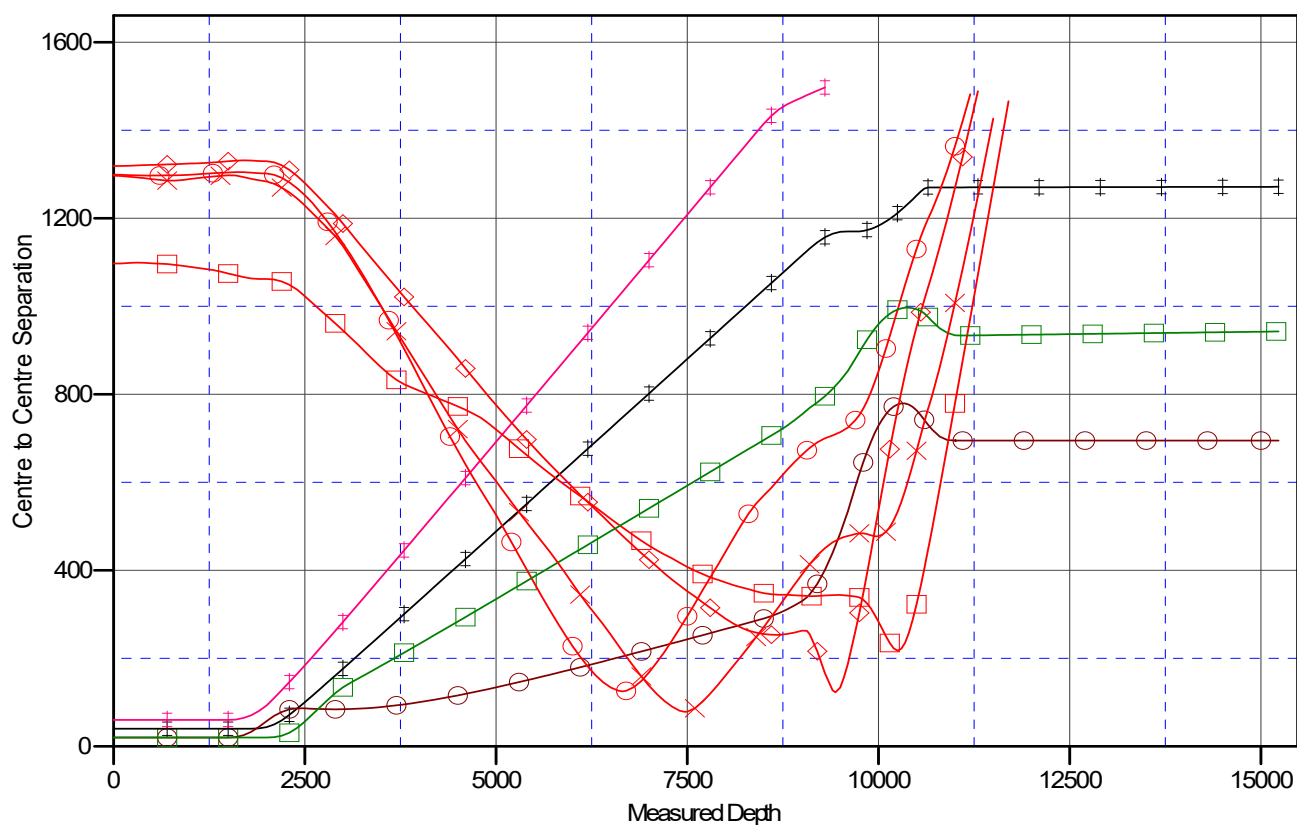
Central Meridian is -104.333334

Coordinates are relative to: Goonch Fed Com 04 231H

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

Grid Convergence at Surface is: 0.13°

Ladder Plot



LEGEND

Goonch Fed Com 04 232H, Wellbore #1, Plan 2 V0	Apollo Fee 2328 4 WA 005H, Wellbore #1, Wellbore #1 V0	Goonch Fed Com 04 211H, Wellbore #1, Plan 2 V0
Goonch Fed Com 04 132H, Wellbore #1, Plan 3 V0	Jack SleeperState Com 9 215H, Wellbore #1, Wellbore #1 V0	Jack SleeperState Com 9 221H, Wellbore #1, Wellbore #1 V0

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



SB Directional Anticollision Report



Company:	NOVO Oil & Gas	Local Co-ordinate Reference:	Well Goonch Fed Com 04 231H
Project:	EDDY CO., NM (NAD83)	TVD Reference:	RKB @ 3041.00usft
Reference Site:	SEC. 04-T23S-R28E	MD Reference:	RKB @ 3041.00usft
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	Goonch Fed Com 04 231H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.50 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.16 Single User Db
Reference Design:	Plan 2	Offset TVD Reference:	Offset Datum

Reference Depths are relative to RKB @ 3041.00usft

Offset Depths are relative to Offset Datum

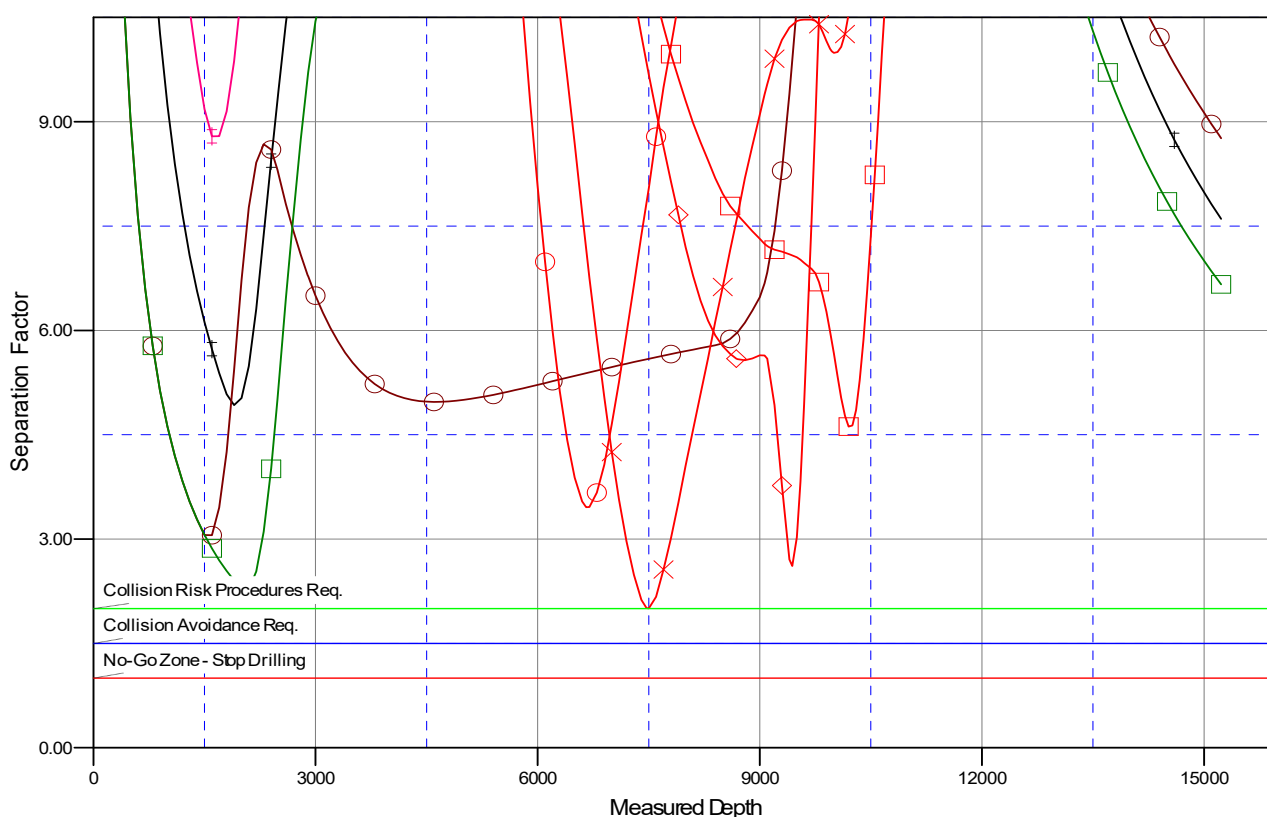
Central Meridian is -104.333334

Coordinates are relative to: Goonch Fed Com 04 231H

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

Grid Convergence at Surface is: 0.13°

Separation Factor Plot



LEGEND

Goonch Fed Com 04 232H, Wellbore #1, Plan 2 V0
 Goonch Fed Com 04 221H, Wellbore #1, Plan 2 V0
 Goonch Fed Com 04 132H, Wellbore #1, Plan 3 V0

Apollo Fee 2328 4 WA 009H, Wellbore #1, Wellbore #1 V0
 Jack SleeperState Com 9 215H, Wellbore #1, Wellbore #1 V0
 Jack SleeperState Com 9 201H, Wellbore #1, Wellbore #1 V0

Goonch Fed Com 04 211H, Wellbore #1, Plan 2 V0
 Jack SleeperState Com 9 221H, Wellbore #1, Wellbore #1 V0

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



NOVO Oil & Gas

EDDY CO., NM (NAD83)

SEC. 04-T23S-R28E

Goonch Fed Com 04 231H

Wellbore #1

Plan: Plan 2

Standard Planning Report - Geographic

24 March, 2021





SB Directional

Planning Report - Geographic



Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well Goonch Fed Com 04 231H
Company:	NOVO Oil & Gas	TVD Reference:	RKB @ 3041.00usft
Project:	EDDY CO., NM (NAD83)	MD Reference:	RKB @ 3041.00usft
Site:	SEC. 04-T23S-R28E	North Reference:	Grid
Well:	Goonch Fed Com 04 231H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan 2		

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. 04-T23S-R28E			
Site Position:		Northing:	487,875.76 usft	Latitude:	32.341014
From:	Map	Easting:	615,421.32 usft	Longitude:	-104.093453
Position Uncertainty:		0.00 usft	Slot Radius:	13-3/16 "	

Well	Goonch Fed Com 04 231H					
Well Position	+N/-S	0.00 usft	Northing:	483,905.01 usft	Latitude:	32.330106
	+E/-W	0.00 usft	Easting:	614,185.09 usft	Longitude:	-104.097484
Position Uncertainty		0.50 usft	Wellhead Elevation:	usft	Ground Level:	3,016.00 usft
Grid Convergence:		0.13 °				

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	2009/12/31	8.00	60.25	48,800.58028031

Design	Plan 2			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	0.00

Plan Survey Tool Program	Date	2021/03/24		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	15,231.42 Plan 2 (Wellbore #1)	MWD	
			MWD - Standard	



SB Directional

Planning Report - Geographic



Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well Goonch Fed Com 04 231H
Company:	NOVO Oil & Gas	TVD Reference:	RKB @ 3041.00usft
Project:	EDDY CO., NM (NAD83)	MD Reference:	RKB @ 3041.00usft
Site:	SEC. 04-T23S-R28E	North Reference:	Grid
Well:	Goonch Fed Com 04 231H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan 2		

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	
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,484.56	9.69	210.01	2,482.25	-35.40	-20.45	2.00	2.00	0.00	210.01	
9,065.00	9.69	210.01	8,968.79	-994.60	-574.55	0.00	0.00	0.00	0.00	
9,549.56	0.00	0.00	9,451.04	-1,030.00	-595.00	2.00	-2.00	0.00	180.00	
9,699.56	0.00	0.00	9,601.04	-1,030.00	-595.00	0.00	0.00	0.00	0.00	
10,554.35	85.84	351.61	10,170.11	-506.52	-672.17	10.04	10.04	0.00	351.61	
10,661.28	90.00	1.52	10,174.00	-400.00	-678.55	10.04	3.89	9.26	67.42	
15,231.70	90.00	1.52	10,174.00	4,168.81	-557.28	0.00	0.00	0.00	0.00	PBHL - Goonch Fed C



SB Directional

Planning Report - Geographic



Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well Goonch Fed Com 04 231H
Company:	NOVO Oil & Gas	TVD Reference:	RKB @ 3041.00usft
Project:	EDDY CO., NM (NAD83)	MD Reference:	RKB @ 3041.00usft
Site:	SEC. 04-T23S-R28E	North Reference:	Grid
Well:	Goonch Fed Com 04 231H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan 2		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.00	0.00	0.00	0.00	0.00	0.00	483,905.01	614,185.09	32.330106	-104.097484
100.00	0.00	0.00	100.00	0.00	0.00	483,905.01	614,185.09	32.330106	-104.097484
200.00	0.00	0.00	200.00	0.00	0.00	483,905.01	614,185.09	32.330106	-104.097484
300.00	0.00	0.00	300.00	0.00	0.00	483,905.01	614,185.09	32.330106	-104.097484
400.00	0.00	0.00	400.00	0.00	0.00	483,905.01	614,185.09	32.330106	-104.097484
500.00	0.00	0.00	500.00	0.00	0.00	483,905.01	614,185.09	32.330106	-104.097484
600.00	0.00	0.00	600.00	0.00	0.00	483,905.01	614,185.09	32.330106	-104.097484
700.00	0.00	0.00	700.00	0.00	0.00	483,905.01	614,185.09	32.330106	-104.097484
800.00	0.00	0.00	800.00	0.00	0.00	483,905.01	614,185.09	32.330106	-104.097484
900.00	0.00	0.00	900.00	0.00	0.00	483,905.01	614,185.09	32.330106	-104.097484
1,000.00	0.00	0.00	1,000.00	0.00	0.00	483,905.01	614,185.09	32.330106	-104.097484
1,100.00	0.00	0.00	1,100.00	0.00	0.00	483,905.01	614,185.09	32.330106	-104.097484
1,200.00	0.00	0.00	1,200.00	0.00	0.00	483,905.01	614,185.09	32.330106	-104.097484
1,300.00	0.00	0.00	1,300.00	0.00	0.00	483,905.01	614,185.09	32.330106	-104.097484
1,400.00	0.00	0.00	1,400.00	0.00	0.00	483,905.01	614,185.09	32.330106	-104.097484
1,500.00	0.00	0.00	1,500.00	0.00	0.00	483,905.01	614,185.09	32.330106	-104.097484
1,600.00	0.00	0.00	1,600.00	0.00	0.00	483,905.01	614,185.09	32.330106	-104.097484
1,700.00	0.00	0.00	1,700.00	0.00	0.00	483,905.01	614,185.09	32.330106	-104.097484
1,800.00	0.00	0.00	1,800.00	0.00	0.00	483,905.01	614,185.09	32.330106	-104.097484
1,900.00	0.00	0.00	1,900.00	0.00	0.00	483,905.01	614,185.09	32.330106	-104.097484
2,000.00	0.00	0.00	2,000.00	0.00	0.00	483,905.01	614,185.09	32.330106	-104.097484
Start Nudge									
2,100.00	2.00	210.01	2,099.98	-1.51	-0.87	483,903.50	614,184.22	32.330102	-104.097487
2,200.00	4.00	210.01	2,199.84	-6.04	-3.49	483,898.97	614,181.60	32.330090	-104.097495
2,300.00	6.00	210.01	2,299.45	-13.59	-7.85	483,891.42	614,177.24	32.330069	-104.097509
2,400.00	8.00	210.01	2,398.70	-24.14	-13.95	483,880.87	614,171.15	32.330040	-104.097529
2,484.56	9.69	210.01	2,482.25	-35.40	-20.45	483,869.61	614,164.64	32.330009	-104.097550
EOB									
2,500.00	9.69	210.01	2,497.47	-37.65	-21.75	483,867.36	614,163.34	32.330003	-104.097554
2,600.00	9.69	210.01	2,596.05	-52.23	-30.17	483,852.78	614,154.92	32.329963	-104.097582
2,700.00	9.69	210.01	2,694.62	-66.80	-38.59	483,838.21	614,146.50	32.329923	-104.097609
2,800.00	9.69	210.01	2,793.19	-81.38	-47.01	483,823.63	614,138.08	32.329883	-104.097636
2,900.00	9.69	210.01	2,891.76	-95.96	-55.43	483,809.05	614,129.66	32.329843	-104.097664
3,000.00	9.69	210.01	2,990.34	-110.53	-63.85	483,794.48	614,121.24	32.329803	-104.097691
3,100.00	9.69	210.01	3,088.91	-125.11	-72.27	483,779.90	614,112.82	32.329763	-104.097719
3,200.00	9.69	210.01	3,187.48	-139.69	-80.69	483,765.32	614,104.40	32.329723	-104.097746
3,300.00	9.69	210.01	3,286.06	-154.26	-89.11	483,750.75	614,095.98	32.329683	-104.097773
3,400.00	9.69	210.01	3,384.63	-168.84	-97.53	483,736.17	614,087.56	32.329643	-104.097801
3,500.00	9.69	210.01	3,483.20	-183.42	-105.95	483,721.59	614,079.14	32.329603	-104.097828
3,600.00	9.69	210.01	3,581.77	-197.99	-114.37	483,707.02	614,070.72	32.329563	-104.097855
3,700.00	9.69	210.01	3,680.35	-212.57	-122.79	483,692.44	614,062.30	32.329523	-104.097883
3,800.00	9.69	210.01	3,778.92	-227.15	-131.22	483,677.87	614,053.88	32.329483	-104.097910
3,900.00	9.69	210.01	3,877.49	-241.72	-139.64	483,663.29	614,045.46	32.329443	-104.097937
4,000.00	9.69	210.01	3,976.07	-256.30	-148.06	483,648.71	614,037.04	32.329403	-104.097965
4,100.00	9.69	210.01	4,074.64	-270.88	-156.48	483,634.14	614,028.62	32.329363	-104.097992
4,200.00	9.69	210.01	4,173.21	-285.45	-164.90	483,619.56	614,020.20	32.329323	-104.098020
4,300.00	9.69	210.01	4,271.79	-300.03	-173.32	483,604.98	614,011.78	32.329283	-104.098047
4,400.00	9.69	210.01	4,370.36	-314.60	-181.74	483,590.41	614,003.36	32.329243	-104.098074
4,500.00	9.69	210.01	4,468.93	-329.18	-190.16	483,575.83	613,994.94	32.329203	-104.098102
4,600.00	9.69	210.01	4,567.50	-343.76	-198.58	483,561.25	613,986.52	32.329163	-104.098129
4,700.00	9.69	210.01	4,666.08	-358.33	-207.00	483,546.68	613,978.09	32.329123	-104.098156
4,800.00	9.69	210.01	4,764.65	-372.91	-215.42	483,532.10	613,969.67	32.329083	-104.098184
4,900.00	9.69	210.01	4,863.22	-387.49	-223.84	483,517.52	613,961.25	32.329043	-104.098211
5,000.00	9.69	210.01	4,961.80	-402.06	-232.26	483,502.95	613,952.83	32.329003	-104.098239



SB Directional

Planning Report - Geographic



Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well Goonch Fed Com 04 231H
Company:	NOVO Oil & Gas	TVD Reference:	RKB @ 3041.00usft
Project:	EDDY CO., NM (NAD83)	MD Reference:	RKB @ 3041.00usft
Site:	SEC. 04-T23S-R28E	North Reference:	Grid
Well:	Goonch Fed Com 04 231H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan 2		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
5,100.00	9.69	210.01	5,060.37	-416.64	-240.68	483,488.37	613,944.41	32.328963	-104.098266
5,200.00	9.69	210.01	5,158.94	-431.22	-249.10	483,473.79	613,935.99	32.328923	-104.098293
5,300.00	9.69	210.01	5,257.51	-445.79	-257.52	483,459.22	613,927.57	32.328883	-104.098321
5,400.00	9.69	210.01	5,356.09	-460.37	-265.94	483,444.64	613,919.15	32.328843	-104.098348
5,500.00	9.69	210.01	5,454.66	-474.95	-274.36	483,430.06	613,910.73	32.328803	-104.098375
5,600.00	9.69	210.01	5,553.23	-489.52	-282.78	483,415.49	613,902.31	32.328763	-104.098403
5,700.00	9.69	210.01	5,651.81	-504.10	-291.20	483,400.91	613,893.89	32.328723	-104.098430
5,800.00	9.69	210.01	5,750.38	-518.68	-299.62	483,386.33	613,885.47	32.328683	-104.098457
5,900.00	9.69	210.01	5,848.95	-533.25	-308.04	483,371.76	613,877.05	32.328642	-104.098485
6,000.00	9.69	210.01	5,947.53	-547.83	-316.46	483,357.18	613,868.63	32.328602	-104.098512
6,100.00	9.69	210.01	6,046.10	-562.41	-324.88	483,342.61	613,860.21	32.328562	-104.098540
6,200.00	9.69	210.01	6,144.67	-576.98	-333.31	483,328.03	613,851.79	32.328522	-104.098567
6,300.00	9.69	210.01	6,243.24	-591.56	-341.73	483,313.45	613,843.37	32.328482	-104.098594
6,400.00	9.69	210.01	6,341.82	-606.14	-350.15	483,298.88	613,834.95	32.328442	-104.098622
6,500.00	9.69	210.01	6,440.39	-620.71	-358.57	483,284.30	613,826.53	32.328402	-104.098649
6,600.00	9.69	210.01	6,538.96	-635.29	-366.99	483,269.72	613,818.11	32.328362	-104.098676
6,700.00	9.69	210.01	6,637.54	-649.86	-375.41	483,255.15	613,809.69	32.328322	-104.098704
6,800.00	9.69	210.01	6,736.11	-664.44	-383.83	483,240.57	613,801.27	32.328282	-104.098731
6,900.00	9.69	210.01	6,834.68	-679.02	-392.25	483,225.99	613,792.85	32.328242	-104.098758
7,000.00	9.69	210.01	6,933.25	-693.59	-400.67	483,211.42	613,784.43	32.328202	-104.098786
7,100.00	9.69	210.01	7,031.83	-708.17	-409.09	483,196.84	613,776.00	32.328162	-104.098813
7,200.00	9.69	210.01	7,130.40	-722.75	-417.51	483,182.26	613,767.58	32.328122	-104.098841
7,300.00	9.69	210.01	7,228.97	-737.32	-425.93	483,167.69	613,759.16	32.328082	-104.098868
7,400.00	9.69	210.01	7,327.55	-751.90	-434.35	483,153.11	613,750.74	32.328042	-104.098895
7,500.00	9.69	210.01	7,426.12	-766.48	-442.77	483,138.53	613,742.32	32.328002	-104.098923
7,600.00	9.69	210.01	7,524.69	-781.05	-451.19	483,123.96	613,733.90	32.327962	-104.098950
7,700.00	9.69	210.01	7,623.26	-795.63	-459.61	483,109.38	613,725.48	32.327922	-104.098977
7,800.00	9.69	210.01	7,721.84	-810.21	-468.03	483,094.80	613,717.06	32.327882	-104.099005
7,900.00	9.69	210.01	7,820.41	-824.78	-476.45	483,080.23	613,708.64	32.327842	-104.099032
8,000.00	9.69	210.01	7,918.98	-839.36	-484.87	483,065.65	613,700.22	32.327802	-104.099059
8,100.00	9.69	210.01	8,017.56	-853.94	-493.29	483,051.07	613,691.80	32.327762	-104.099087
8,200.00	9.69	210.01	8,116.13	-868.51	-501.71	483,036.50	613,683.38	32.327722	-104.099114
8,300.00	9.69	210.01	8,214.70	-883.09	-510.13	483,021.92	613,674.96	32.327682	-104.099142
8,400.00	9.69	210.01	8,313.28	-897.67	-518.55	483,007.35	613,666.54	32.327642	-104.099169
8,500.00	9.69	210.01	8,411.85	-912.24	-526.97	482,992.77	613,658.12	32.327602	-104.099196
8,600.00	9.69	210.01	8,510.42	-926.82	-535.40	482,978.19	613,649.70	32.327562	-104.099224
8,700.00	9.69	210.01	8,608.99	-941.40	-543.82	482,963.62	613,641.28	32.327522	-104.099251
8,800.00	9.69	210.01	8,707.57	-955.97	-552.24	482,949.04	613,632.86	32.327482	-104.099278
8,900.00	9.69	210.01	8,806.14	-970.55	-560.66	482,934.46	613,624.44	32.327442	-104.099306
9,000.00	9.69	210.01	8,904.71	-985.12	-569.08	482,919.89	613,616.02	32.327402	-104.099333
9,065.00	9.69	210.01	8,968.79	-994.60	-574.55	482,910.41	613,610.54	32.327376	-104.099351
EOH									
9,100.00	8.99	210.01	9,003.32	-999.52	-577.39	482,905.49	613,607.70	32.327362	-104.099360
9,200.00	6.99	210.01	9,102.34	-1,011.56	-584.35	482,893.45	613,600.75	32.327329	-104.099383
9,300.00	4.99	210.01	9,201.79	-1,020.59	-589.57	482,884.42	613,595.53	32.327305	-104.099400
9,400.00	2.99	210.01	9,301.55	-1,026.62	-593.05	482,878.39	613,592.05	32.327288	-104.099411
9,500.00	0.99	210.01	9,401.48	-1,029.63	-594.79	482,875.38	613,590.31	32.327280	-104.099417
9,549.56	0.00	0.00	9,451.04	-1,030.00	-595.00	482,875.01	613,590.09	32.327279	-104.099417
Drop to Vertical									
9,600.00	0.00	0.00	9,501.48	-1,030.00	-595.00	482,875.01	613,590.09	32.327279	-104.099417
9,699.56	0.00	0.00	9,601.04	-1,030.00	-595.00	482,875.01	613,590.09	32.327279	-104.099417
KOP @ 9601' TVD									
9,700.00	0.04	351.61	9,601.48	-1,030.00	-595.00	482,875.01	613,590.09	32.327279	-104.099417
9,800.00	10.09	351.61	9,700.96	-1,021.28	-596.29	482,883.73	613,588.81	32.327303	-104.099421



SB Directional

Planning Report - Geographic



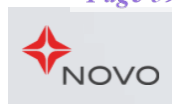
Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well Goonch Fed Com 04 231H
Company:	NOVO Oil & Gas	TVD Reference:	RKB @ 3041.00usft
Project:	EDDY CO., NM (NAD83)	MD Reference:	RKB @ 3041.00usft
Site:	SEC. 04-T23S-R28E	North Reference:	Grid
Well:	Goonch Fed Com 04 231H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan 2		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
9,900.00	20.13	351.61	9,797.38	-995.53	-600.08	482,909.48	613,585.01	32.327374	-104.099434	
10,000.00	30.17	351.61	9,887.79	-953.54	-606.27	482,951.47	613,578.82	32.327489	-104.099453	
10,100.00	40.21	351.61	9,969.41	-896.60	-614.67	483,008.41	613,570.43	32.327646	-104.099480	
10,200.00	50.25	351.61	10,039.74	-826.45	-625.01	483,078.56	613,560.09	32.327838	-104.099513	
10,300.00	60.29	351.61	10,096.63	-745.25	-636.98	483,159.77	613,548.11	32.328062	-104.099551	
10,400.00	70.34	351.61	10,138.34	-655.47	-650.21	483,249.54	613,534.88	32.328309	-104.099593	
10,500.00	80.38	351.61	10,163.59	-559.87	-664.31	483,345.14	613,520.79	32.328571	-104.099638	
10,554.35	85.84	351.61	10,170.11	-506.52	-672.17	483,398.49	613,512.92	32.328718	-104.099663	
10,600.00	87.61	355.85	10,172.72	-461.22	-677.15	483,443.79	613,507.95	32.328843	-104.099679	
10,661.28	90.00	1.52	10,174.00	-400.00	-678.55	483,505.01	613,506.54	32.329011	-104.099683	
LP @ 10174' TVD										
10,700.00	90.00	1.52	10,174.00	-361.30	-677.52	483,543.71	613,507.57	32.329117	-104.099680	
10,800.00	90.00	1.52	10,174.00	-261.33	-674.87	483,643.68	613,510.22	32.329392	-104.099670	
10,900.00	90.00	1.52	10,174.00	-161.37	-672.22	483,743.64	613,512.88	32.329667	-104.099661	
11,000.00	90.00	1.52	10,174.00	-61.40	-669.56	483,843.61	613,515.53	32.329942	-104.099652	
11,100.00	90.00	1.52	10,174.00	38.56	-666.91	483,943.57	613,518.18	32.330216	-104.099643	
11,200.00	90.00	1.52	10,174.00	138.53	-664.26	484,043.54	613,520.84	32.330491	-104.099633	
11,300.00	90.00	1.52	10,174.00	238.49	-661.60	484,143.50	613,523.49	32.330766	-104.099624	
11,400.00	90.00	1.52	10,174.00	338.46	-658.95	484,243.47	613,526.14	32.331041	-104.099615	
11,500.00	90.00	1.52	10,174.00	438.42	-656.30	484,343.43	613,528.80	32.331316	-104.099605	
11,600.00	90.00	1.52	10,174.00	538.39	-653.64	484,443.40	613,531.45	32.331590	-104.099596	
11,700.00	90.00	1.52	10,174.00	638.35	-650.99	484,543.36	613,534.10	32.331865	-104.099587	
11,800.00	90.00	1.52	10,174.00	738.32	-648.34	484,643.33	613,536.76	32.332140	-104.099578	
11,900.00	90.00	1.52	10,174.00	838.28	-645.68	484,743.29	613,539.41	32.332415	-104.099568	
12,000.00	90.00	1.52	10,174.00	938.25	-643.03	484,843.26	613,542.06	32.332689	-104.099559	
12,100.00	90.00	1.52	10,174.00	1,038.21	-640.38	484,943.22	613,544.72	32.332964	-104.099550	
12,200.00	90.00	1.52	10,174.00	1,138.18	-637.72	485,043.19	613,547.37	32.333239	-104.099540	
12,300.00	90.00	1.52	10,174.00	1,238.14	-635.07	485,143.15	613,550.03	32.333514	-104.099531	
12,400.00	90.00	1.52	10,174.00	1,338.11	-632.42	485,243.12	613,552.68	32.333789	-104.099522	
12,500.00	90.00	1.52	10,174.00	1,438.07	-629.76	485,343.08	613,555.33	32.334063	-104.099512	
12,600.00	90.00	1.52	10,174.00	1,538.04	-627.11	485,443.05	613,557.99	32.334338	-104.099503	
12,700.00	90.00	1.52	10,174.00	1,638.00	-624.46	485,543.01	613,560.64	32.334613	-104.099494	
12,800.00	90.00	1.52	10,174.00	1,737.96	-621.80	485,642.98	613,563.29	32.334888	-104.099485	
12,900.00	90.00	1.52	10,174.00	1,837.93	-619.15	485,742.94	613,565.95	32.335162	-104.099475	
13,000.00	90.00	1.52	10,174.00	1,937.89	-616.50	485,842.91	613,568.60	32.335437	-104.099466	
13,100.00	90.00	1.52	10,174.00	2,037.86	-613.84	485,942.87	613,571.25	32.335712	-104.099457	
13,200.00	90.00	1.52	10,174.00	2,137.82	-611.19	486,042.83	613,573.91	32.335987	-104.099447	
13,300.00	90.00	1.52	10,174.00	2,237.79	-608.53	486,142.80	613,576.56	32.336261	-104.099438	
13,400.00	90.00	1.52	10,174.00	2,337.75	-605.88	486,242.76	613,579.21	32.336536	-104.099429	
13,500.00	90.00	1.52	10,174.00	2,437.72	-603.23	486,342.73	613,581.87	32.336811	-104.099419	
13,600.00	90.00	1.52	10,174.00	2,537.68	-600.57	486,442.69	613,584.52	32.337086	-104.099410	
13,700.00	90.00	1.52	10,174.00	2,637.65	-597.92	486,542.66	613,587.17	32.337361	-104.099401	
13,800.00	90.00	1.52	10,174.00	2,737.61	-595.27	486,642.62	613,589.83	32.337635	-104.099392	
13,900.00	90.00	1.52	10,174.00	2,837.58	-592.61	486,742.59	613,592.48	32.337910	-104.099382	
14,000.00	90.00	1.52	10,174.00	2,937.54	-589.96	486,842.55	613,595.13	32.338185	-104.099373	
14,100.00	90.00	1.52	10,174.00	3,037.51	-587.31	486,942.52	613,597.79	32.338460	-104.099364	
14,200.00	90.00	1.52	10,174.00	3,137.47	-584.65	487,042.48	613,600.44	32.338734	-104.099354	
14,300.00	90.00	1.52	10,174.00	3,237.44	-582.00	487,142.45	613,603.09	32.339009	-104.099345	
14,400.00	90.00	1.52	10,174.00	3,337.40	-579.35	487,242.41	613,605.75	32.339284	-104.099336	
14,500.00	90.00	1.52	10,174.00	3,437.37	-576.69	487,342.38	613,608.40	32.339559	-104.099326	
14,600.00	90.00	1.52	10,174.00	3,537.33	-574.04	487,442.34	613,611.05	32.339833	-104.099317	
14,700.00	90.00	1.52	10,174.00	3,637.30	-571.39	487,542.31	613,613.71	32.340108	-104.099308	
14,800.00	90.00	1.52	10,174.00	3,737.26	-568.73	487,642.27	613,616.36	32.340383	-104.099299	
14,900.00	90.00	1.52	10,174.00	3,837.23	-566.08	487,742.24	613,619.01	32.340658	-104.099289	



SB Directional

Planning Report - Geographic



Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well Goonch Fed Com 04 231H
Company:	NOVO Oil & Gas	TVD Reference:	RKB @ 3041.00usft
Project:	EDDY CO., NM (NAD83)	MD Reference:	RKB @ 3041.00usft
Site:	SEC. 04-T23S-R28E	North Reference:	Grid
Well:	Goonch Fed Com 04 231H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan 2		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
15,000.00	90.00	1.52	10,174.00	3,937.19	-563.43	487,842.20	613,621.67	32.340933	-104.099280	
15,100.00	90.00	1.52	10,174.00	4,037.15	-560.77	487,942.17	613,624.32	32.341207	-104.099271	
15,200.00	90.00	1.52	10,174.00	4,137.12	-558.12	488,042.13	613,626.97	32.341482	-104.099261	
15,231.69	90.00	1.52	10,174.00	4,168.80	-557.28	488,073.81	613,627.81	32.341569	-104.099258	
PBHL; 130' FNL, 380' FWL										
15,231.70	90.00	1.52	10,174.00	4,168.81	-557.28	488,073.82	613,627.81	32.341569	-104.099258	

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude		Longitude
- hit/miss target										
- Shape										
PBHL - Goonch Fed Cor	0.00	0.00	0.00	4,168.81	-555.76	488,073.82	613,629.33	32.341569		-104.099254
- plan misses target center by 4205.69usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)										
- Point										

Casing Points										
Measured Depth (usft)	Vertical Depth (usft)	Name				Casing Diameter (")	Hole Diameter (")			
15,230.79	10,174.00	20" Casing				20	24			

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
2,000.00	2,000.00	0.00	0.00	Start Nudge	
2,484.56	2,482.25	-35.40	-20.45	EOB	
9,065.00	8,968.79	-994.60	-574.55	EOH	
9,549.56	9,451.04	-1,030.00	-595.00	Drop to Vertical	
9,699.56	9,601.04	-1,030.00	-595.00	KOP @ 9601' TVD	
10,661.28	10,174.00	-400.00	-678.55	LP @ 10174' TVD	
15,231.69	10,174.00	4,168.80	-557.28	PBHL; 130' FNL, 380' FWL	

PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	NOVO OIL AND GAS
WELL NAME & NO.:	GOONCH FED COM 04 231H
SURFACE HOLE FOOTAGE:	1080'/S & 1075'/W
BOTTOM HOLE FOOTAGE:	130'/N & 330'/W
LOCATION:	Section 4, T.23 S., R.28 E., NMPM
COUNTY:	EDDY County, New Mexico

COA

H2S	☒ Yes	☐ No	
Potash	☒ None	☐ Secretary	☐ R-111-P
Cave/Karst Potential	☐ Low	☒ Medium	☐ High
Cave/Karst Potential	☐ Critical		
Variance	☐ None	☒ Flex Hose	☐ Other
Wellhead	☐ Conventional	☒ Multibowl	☐ Both
Other	☐ 4 String Area	☐ Capitan Reef	☐ WIPP
Other	☐ Fluid Filled	☐ Cement Squeeze	☐ Pilot Hole
Special Requirements	☐ Water Disposal	☒ COM	☐ Unit

All previous COAs still apply, except for the following:

A. CASING

1. The 13-3/8 inch surface casing shall be set at approximately **589** feet (a minimum of **70 feet (Eddy County)** into the Rustler Anhydrite and above the salt) and cemented to the surface.
 - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
 - b. Wait on cement (WOC) time for a primary cement job will be a minimum of **8 hours** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)
 - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
 - d. If cement falls back, remedial cementing will be done prior to drilling out that string.

Intermediate casing must be kept at least 1/3 fluid filled to meet the OO#2 collapse requirement.

2. The minimum required fill of cement behind the **9-5/8** inch intermediate casing, which shall be set at **8,774** ft, is:
 - Cement to surface. If cement does not circulate, contact the appropriate BLM office. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.**
 - ❖ In Medium Cave/Karst Areas if cement does not circulate to surface on the first two casing strings, the cement on the 3rd casing string must come to surface.
3. The minimum required fill of cement behind the **5-1/2** inch production casing is:
 - Cement should tie-back at least **200 feet** into previous casing string. Operator shall provide method of verification.

B. PRESSURE CONTROL

1. Variance approved to use flex line from BOP to choke manifold. Manufacturer's specification to be readily available. No external damage to flex line. Flex line to be installed as straight as possible (no hard bends).'
2. Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **5000 (5M)** psi.
 - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
 - b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
 - c. Manufacturer representative shall install the test plug for the initial BOP test.
 - d. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
 - e. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.

C. SPECIAL REQUIREMENT (S)

Communitization Agreement

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

JJP03292021

GENERAL REQUIREMENTS

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

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

☒ Eddy County

Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220,
(575) 361-2822

☒ Lea County

Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240, (575)
393-3612

1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
 - a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).

- b. When the operator proposes to set surface casing with Spudder Rig
 - Notify the BLM when moving in and removing the Spudder Rig.
 - Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
 - BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.
2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.
3. The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

A. CASING

1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.
2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
3. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.

4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.
5. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.
6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.
7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.
8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

B. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.
2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: The flex line must meet the requirements of API 16C. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.
3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.
4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:
 - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.

- b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
 - c. Manufacturer representative shall install the test plug for the initial BOP test.
 - d. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.
 - e. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
- a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).
 - b. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time, except the casing pressure test can be initiated immediately after bumping the plug (only applies to single stage cement jobs).
 - c. The tests shall be done by an independent service company utilizing a test plug not a cup or J-packer. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (8 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).
 - d. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall

have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.

- e. The results of the test shall be reported to the appropriate BLM office.
- f. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.
- g. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.
- h. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

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1625 N. French Dr., Hobbs, NM 88240
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District II
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District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
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State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

COMMENTS

Action 28059

COMMENTS

Operator: NOVO OIL & GAS NORTHERN DELAWARE, LLC 1001 West Wilshire Blvd Oklahoma City, OK 73116	OGRID: 372920
	Action Number: 28059
	Action Type: [C-103] NOI Change of Plans (C-103A)

COMMENTS

Created By	Comment	Comment Date
kpickford	KP GEO Review 5/14/2021	5/14/2021

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CONDITIONS

Action 28059

CONDITIONS

Operator: NOVO OIL & GAS NORTHERN DELAWARE, LLC 1001 West Wilshire Blvd Oklahoma City, OK 73116	OGRID: 372920
	Action Number: 28059
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CONDITIONS

Created By	Condition	Condition Date
kpickford	Adhere to previous NMOCD Conditions of Approval	5/14/2021