Sundry Print Report

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

Well Name: GOONCH FED COM 04 Well Location: T23S / R28E / SEC 4 / County or Parish/State: EDDY /

SWSW / 32.3302165 / -104.0977864 NM

Well Number: 211H Type of Well: CONVENTIONAL GAS Allottee or Tribe Name:

WELL

Lease Number: NMNM018038, Unit or CA Name: Unit or CA Number:

NMNM18038

US Well Number: 3001547054 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: 03/26/2021 Time Sundry Submitted: 01:11

Date proposed operation will begin: 05/04/2021

Procedure Description: Novo Oil & Gas Northern Delaware, LLC respectfully requests the following changes to the APD: Change SHL to 1,080' FSL & 1,095' FWL, from the previously approved location of 1,120' FSL & 980' FWL, Sec. 4, T23S, R28E. There will be no additional surface distance with the proposed SHL change. Change BHL to 130' FNL & 1,155' FWL, from the previously approved location of 130' FNL & 726' FWL, Sec. 4, T23S, R28E. Change the intermediate casing to 8-5/8" from the previous casing size of 9-5/8". See attachment for technical details.

Surface Disturbance

Is any additional surface disturbance proposed?: No

NOI Attachments

Procedure Description

NOVO_Goonch_Fed_Com_04_211_plot_Plan_2_20210326131102.pdf

NOVO_Goonch_Fed_Com_04_211_Plan_2_20210326131056.xlsx

NOVO_Goonch_Fed_Com_04_211_Plan_2_20210326131051.pdf

NOVO_Goonch_Fed_Com_04_211_AC_Report_Plan_2_20210326131045.pdf

5.500_20_P110EC_DWC_C_IS_PLUS_20210326131035.pdf

8.625_32.00_P110HSCY_TLW_20210326131029.pdf

GOONCH_FED_COM_04_211H_v._2_20210326131022.pdf

 $Goonch_04_211H_Exhibit_Change_to_APD_Request_v._2_20210326131013.pdf$

Goonch_04_211H_Exhibit_Change_to_APD_Request_v._2_20210326131004.pdf

eceived by OCD: 5/13/2021 9:45:54 AM
Well Name: GOONCH FED COM 04 Well Lo

Well Location: T23S / R28E / SEC 4 /

SWSW / 32.3302165 / -104.0977864

County or Parish/State: Page 2 of

NM

Well Number: 211H

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: 3001547054

Well Status: Drilling Well

Operator: NOVO OIL AND GAS

NORTHERN DELA

Conditions of Approval

Additional Reviews

Goonch_FED_COM_04_211H_APD_CHANGE_SUNDRY_Drilling_COAs_20210317161110.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 26, 2021 01:11 PM

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: Justin Carter

Street Address: 1001 West Wilshire Blvd, Ste 206

City: OKLAHOMA CITY State: OK Zip: 73116

Phone: (405)286-3375

Email address: jcarter@novoog.com

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

Page 2 of 2

<u>District I</u> 1625 N. French Dr., Hobbs, NM 88240 Phone: (575) 393-6161 Fax: (575) 393-0720

District III

<u>District II</u> 811 S. First St., Artesia, NM 88210 Phone: (575) 748-1283 Fax: (575) 748-9720

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

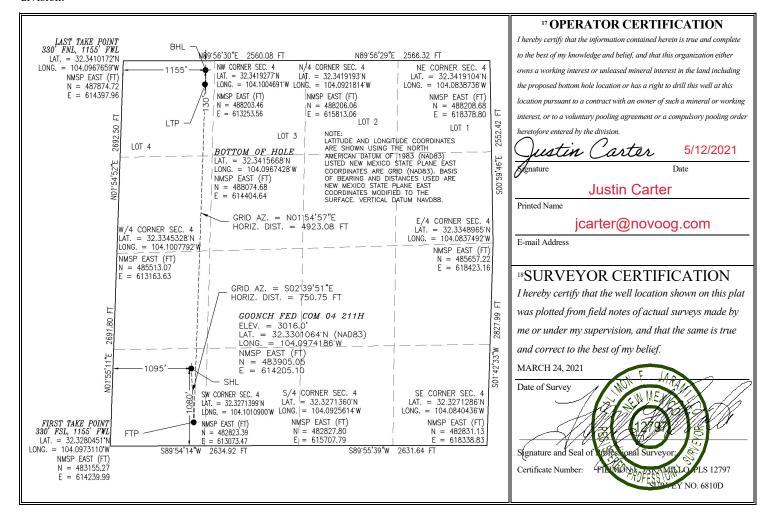
WELL LOCATION AND ACREAGE DEDICATION PLAT

	¹ API Number ² Pool Code 30-015-47054 98220		³ Pool Name Purple Sage; Wolfcamp Gas Pool			
⁴ Property Code		⁶ Well Number				
		GOONCH FED COM 04				
⁷ OGRID No.		⁸ Operator Name				
372920		NOVO OIL & GAS NORTHERN DELAWARE, LLC 3016.				

¹⁰ Surface Location

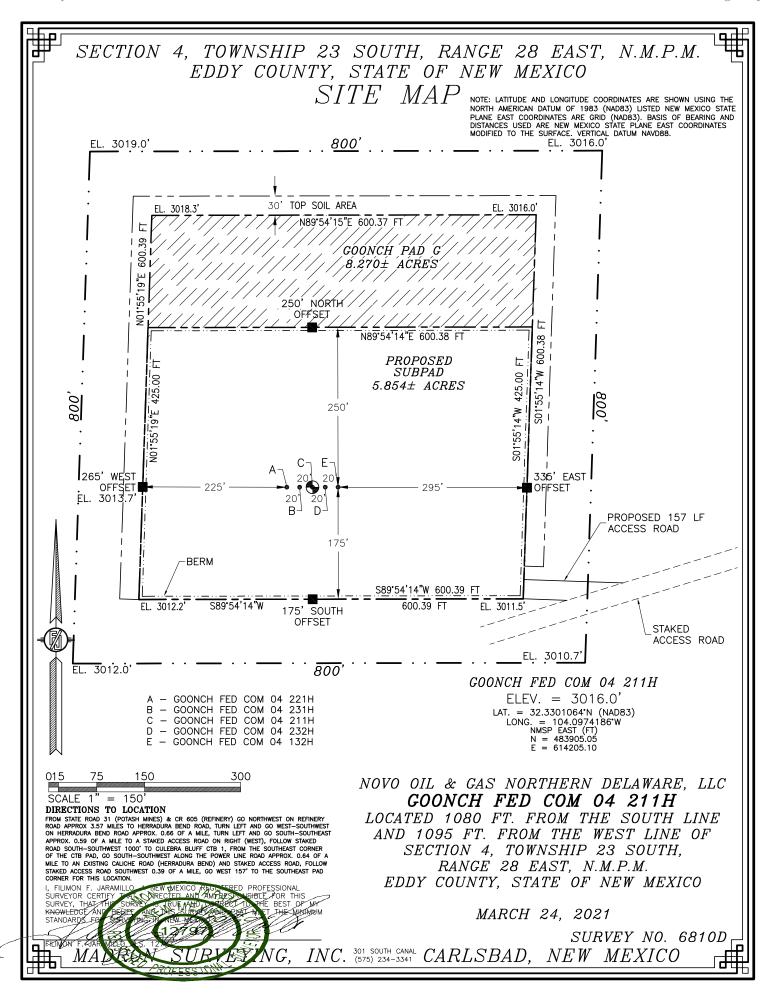
					Surrage	Location			
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	4	23 S	28 E		1080	SOUTH	1095	WEST	EDDY
¹¹ Bottom Hole Location If Different From Surface									
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
4	4	23 S	28 E		130	NORTH	1155	WEST	EDDY
12 Dedicated Acres	s 13 Joint	or Infill	4 Consolidation	n Code	15 Order No.				
320.41									
	1								

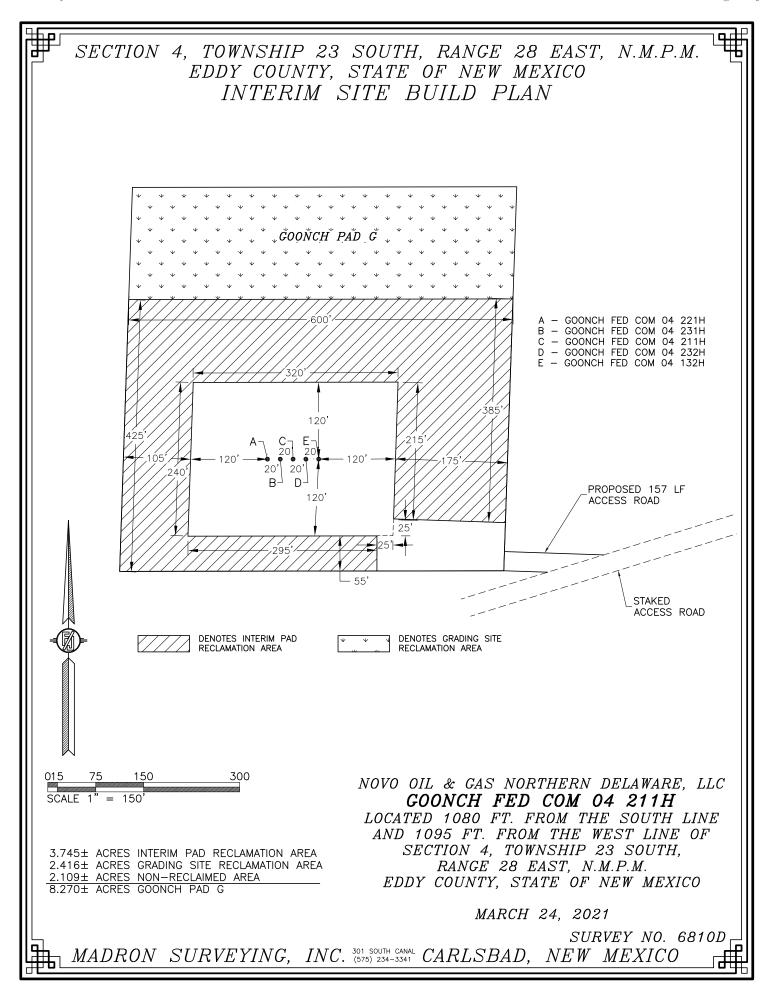
No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.



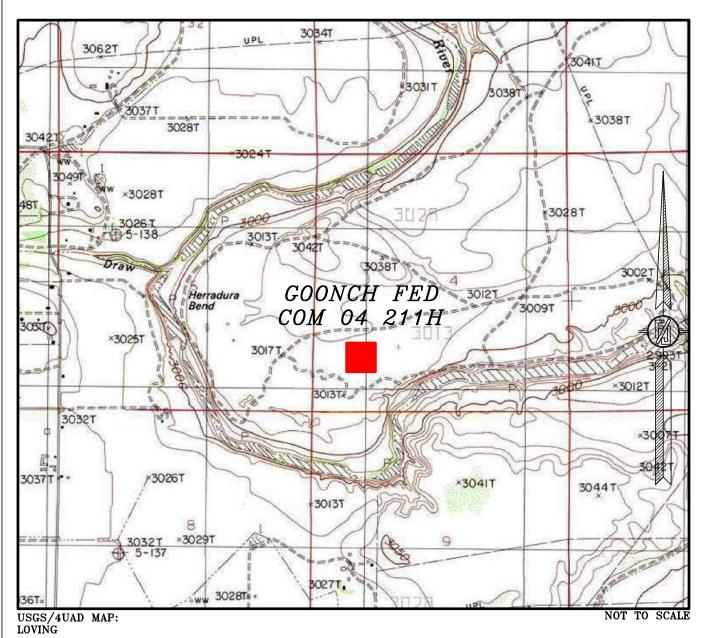
Intent	t	As Drill	ed										
API#]										
Ope	rator Nar	ne:	<u> </u>			Property	Name:	;					Well Number
NOVO OIL & GAS NORTHERN DELAWARE, LLC					RE, LLC	G	OONC	H FEC	СОМ	04			211H
	Off Point (.										
M M	Section 4	Township 23S	Range 28E	Lot	Feet 1080	SO STORE	n N/S UTH	Feet 109		From WE	n E/W ST	County EDDY	
Latitu		01064			Longitu	de 104.0	97418	36				NAD 83	
UL	ake Poin	Township	Range	Lot	Feet	Froi	n N/S	Feet		From	n E/W	County	
M Latitu	de de	235	28Ĕ		330 Longitu		UTH	115	5	WEST		RAD NAD	
Latito	32.328	0451			Longitu	104.09	73110)				83	
UL	Section 4	Township 23S	Range 28E	Lot 4	Feet 330	From N/S	6 Feet 11!		From E	≣/W T	Count EDD		
Latitu		410172			Longitu						83		
		defining w nfill well?	ell for the	e Horiz	ontal Spa	cing Unit	· []				
Spacir	ng Unit.	olease prov	vide API i	f avail	able, Ope	erator Na	me and	l well	numb	er fo	r Defii	ning well	for Horizontal
API#													
Ope	rator Nar	ne:	•			Property	/ Name:						Well Number
													KZ 06/29/2018

Released to Imaging: 5/26/2021 10:47:36 AM





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



NOVO OIL & GAS NORTHERN DELAWARE, LLC

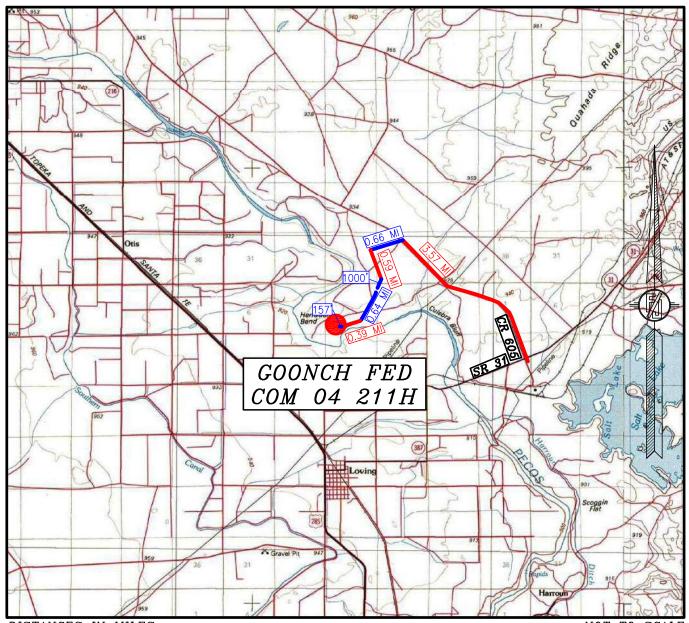
GOONCH FED COM 04 211H

LOCATED 1080 FT. FROM THE SOUTH LINE
AND 1095 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. 6810D

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



DISTANCES IN MILES

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

U.39 OF A MILE TO A STARED 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.

DIRECTIONS TO LOCATION

NOT TO SCALE

NOVO OIL & GAS NORTHERN DELAWARE, LLC

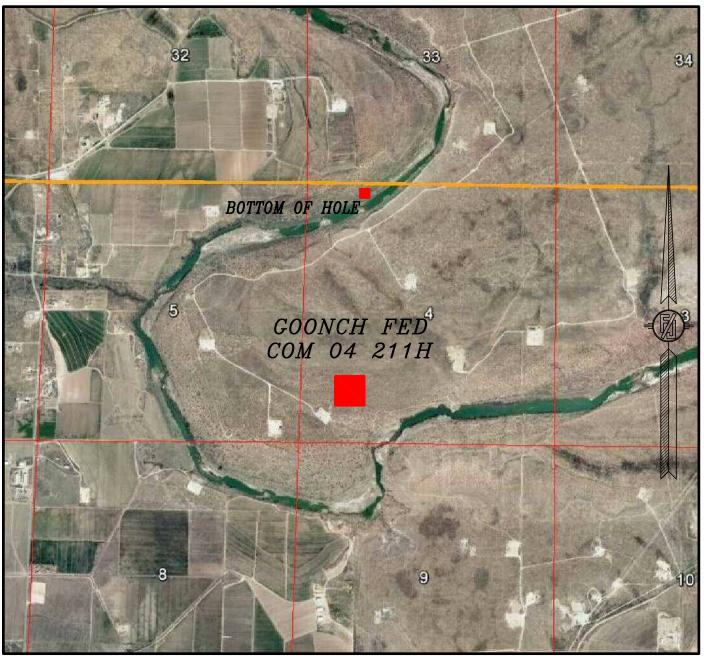
GOONCH FED COM 04 211H

LOCATED 1080 FT. FROM THE SOUTH LINE AND 1095 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. 6810D

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

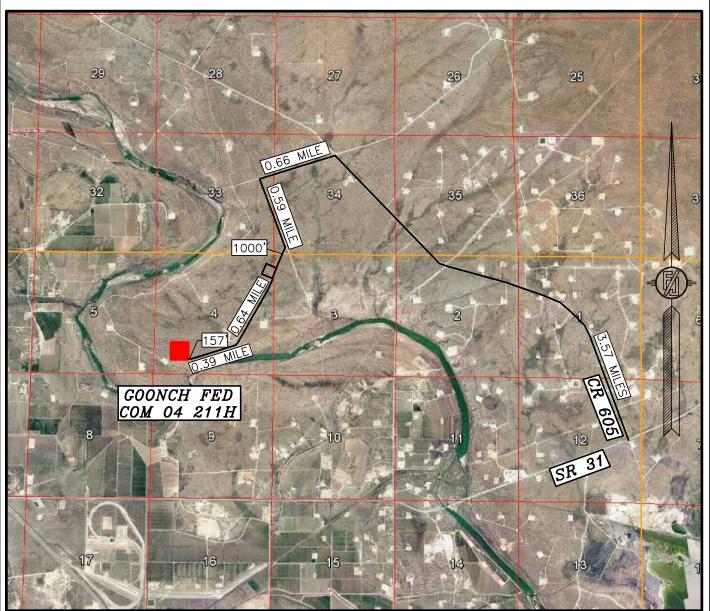
NOVO OIL & GAS NORTHERN DELAWARE, LLC GOONCH FED COM 04 211H

LOCATED 1080 FT. FROM THE SOUTH LINE AND 1095 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. 6810D

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



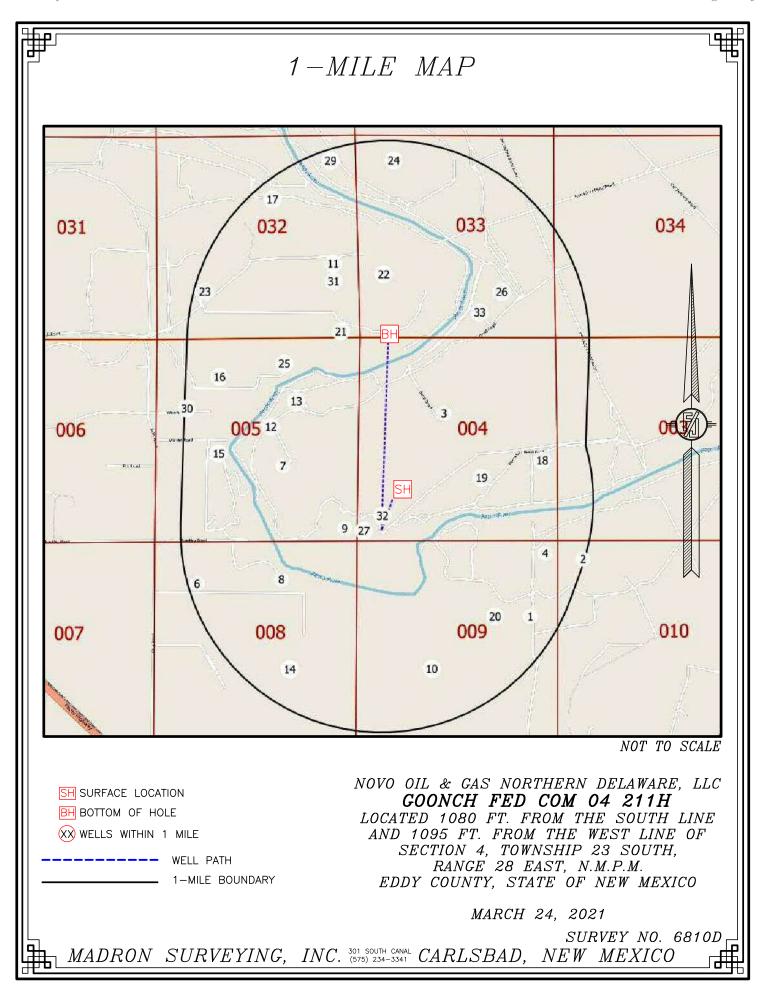
NOT TO SCALE AERIAL PHOTO: GOOGLE EARTH MARCH 2016

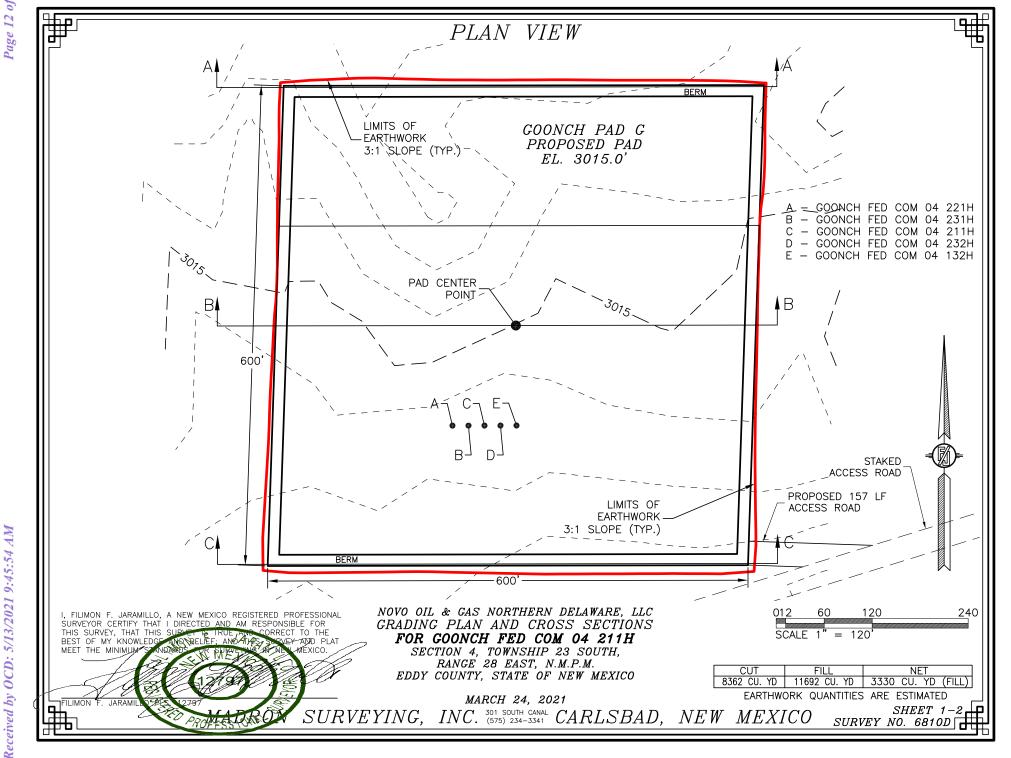
NOVO OIL & GAS NORTHERN DELAWARE, LLC GOONCH FED COM 04 211H

LOCATED 1080 FT. FROM THE SOUTH LINE AND 1095 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. 6810D





Received by OCD: 5/13/2021 9:45:54 AM

SECTION A-A 3:1 SLOPE -EXISTING GRADE 3020 (TYP.) 3020 PAD-3010 3010 1+000+002+00 3+00 4+00 5+00 7+00 6+00SECTION B-B 3020 3020 **BERM** EXISTING GRADE BERM--PAD 3010 3010 0+001+002+00 3+004+00 5+00 6+007 + 00SECTION C-C 3:1 SLOPE 3020 3020 PAD-(TYP.) 3010 3010 EXISTING GRADE

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 SURRECT TO THE BEST OF MY KNOWLEDGE AND BEST OF MY KNOWLEDGE

0+00

1+00

2+00

NOVO OIL & GAS NORTHERN DELAWARE, LLC
GRADING PLAN AND CROSS SECTIONS
FOR GOONCH FED COM 04 211H
SECTION 4, TOWNSHIP 23 SOUTH,
RANGE 28 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO

3+00

CUT	FILL	NET
8362 CU. YD	11692 CU. YD	3330 CU. YD (FILL)
EARTHW		ARE ESTIMATED

120

SCALE 1" = 120' - 1" = 20' VER

60

MARCH 24, 2021

SURVEYING, INC. 301 SOUTH CANAL CARLSBAD, NEW MEXICO

4+00

5+00

6+00

7+00

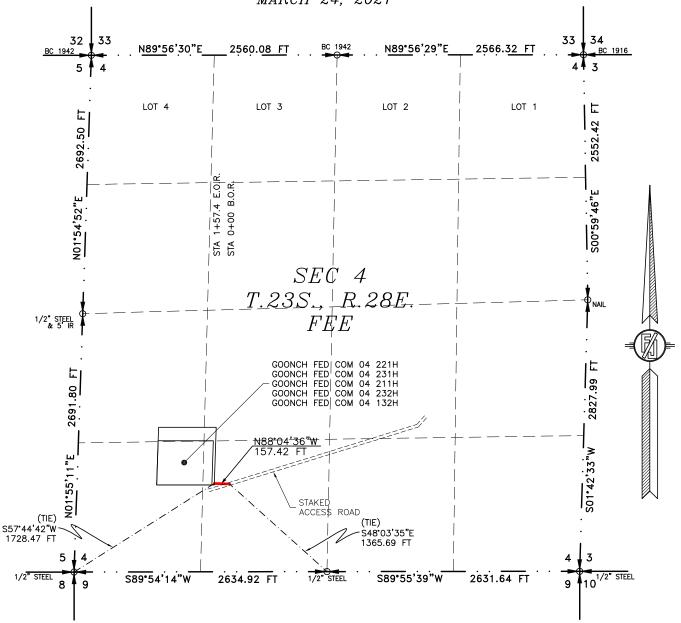
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SHEET 2-2 SURVEY NO. 6810D

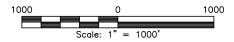
ACCESS ROAD PLAT

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. 301 SOUTH (575) 234-

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,



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

SURVEY NO. 6810D 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

SURVEYOR CERTIFICATE

GENERAL NOTES

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

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

SHEET: 2-2

MADRON SURVEYING, INC. 301 SOUTH 301

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,



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

SURVEY NO. 6810D NEW MEXICO ⊢

Goonch Fed Com 04 211H

CHANGE TO PLANS

Move Surface Hole Location

From: 1,120' FSL & 980' FWL, Section 4, T-23-S, R-28-E, SWSW

To: 1,080' FSL & 1,095' FWL, Section 4, T-23-S, R-28-E, SWSW

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

Move Bottom Hole Location

From: 130' FNL & 726' FWL, Section 4, T-23-S, R-28-E, NWNW

To: 130' FNL & 1,155' FWL, Section 4, T-23-S, R-28-E, NWNW

Casing Substitution

Intermediate Casing:

Hole Size: 9-7/8", Casing: 8-5/8", 32 ppf, P-110, TLW to be set at 8,994' TMD.

Design Safety Factors: Burst 5.95, Collapse 1.47, Tension 3.34 (Casing Specification Sheet is attached)

Production Casing:

Hole Size: 7-7/8", Casing: 5-1/2", 20 ppf, P-110, DWC/C IS+ to be set at 15,844' TMD.

Design Safety Factors: Burst 1.25, Collapse 3.79, Tension 2.76 (Casing Specification Sheet is attached)

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

Lead: 607 Sacks; 2,173.2 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.

<u>Cement Job for 5-1/2" Production Casing String (TOC = Surface)</u>

Lead: 694 Sacks; 1,472.3 cu. ft.; 20% excess; 2.12 cu.ft./sx; 12 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.

<u>District I</u>
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Energy, Minerals & Natural Resources Department OIL CONSERVATION DIVISION 1220 South St. Francis Dr. Form C-102
Revised August 1, 2011
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☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

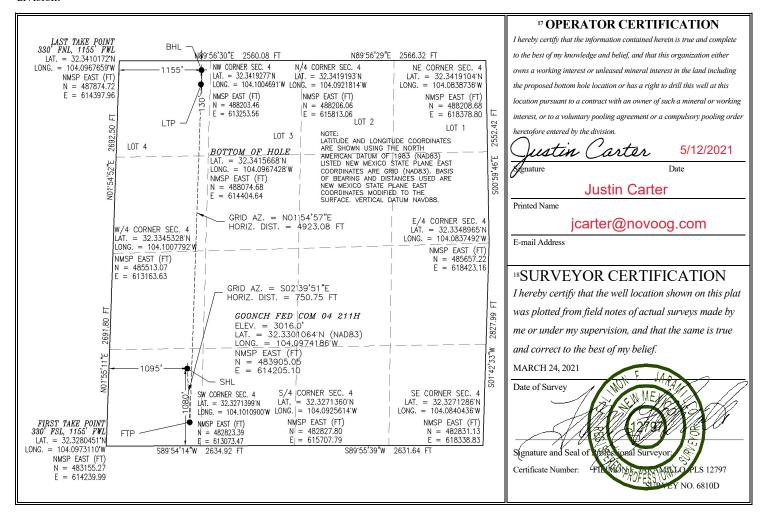
Santa Fe, NM 87505

WEEE ECCHIONAL METALLICE DEDICATION EAT							
¹ API Number ² Pool Code 30-015-47054 98220		³ Pool Name Purple Sage; Wolfcamp Gas Pool					
⁴ Property Code	⁵ Pr	⁶ Well Number					
	GOONCH FED COM 04 21						
⁷ OGRID No.	⁸ Operator Name ⁹ Elevation						
372920	NOVO OIL & GAS NORTHERN DELAWARE, LLC 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	1095	WEST	EDDY
" 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	1155	WEST	EDDY
12 Dedicated Acre	s 13 Joint	or Infill 14	Consolidation	ı 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.



NOVO OIL & GAS NORTHERN DELAWARE, LLC



Goonch Fed Com 04 211H

SHL: 1080' FSL & 1095' FWL Section 4-23S-28E BHL: 130' FNL & 1155' FWL Section 4-23S-28E Eddy County, New Mexico

DRILLING OPERATIONS PLAN

Standard Wolfcamp 3-STRING CASING DESIGN (Not Secretary's Potash or R-111-P)

Estimated Drilling Conditions

Target Formation	Wolfcamp A
Target Depth - TVD (ft)	9694
Planned MD (ft)	15844
Anticipated Bottom-Hole Pressure (psi)	6301.1
Anticipated Maximum Surface Pressure (psi)	4168.42
Abnormal Pressure (Yes/No)	No
Anticipated Bottom-Hole Temperature (deg F)	215 deg F
H2S Contingency Plan Required (Yes/No)	Yes

Geologic Formations

	GR	KB (25')	
Elevation	3,014	3,039	
Formation Tops	TVDss	TVD - KB	Mineral Resources
Rustler	2,639	400	Water
Bell Canyon (base of salt)	500	2,539	Water
Cherry Canyon	-575	3,614	Water
Brushy Canyon	-1,588	4,627	Oil, Gas, Water
Bone Spring Lime	-3,031	6,070	Oil, Gas, Water
Lower Avalon	-3,539	6,578	Oil, Gas, Water
1st Bone Spring Sand	-3,998	7,037	Oil, Gas, Water
2nd Bone Spring Carbonate	-4,211	7,250	Oil, Gas, Water
2nd Bone Spring Sand	-4,746	7,785	Oil, Gas, Water
3rd Bone Spring Carbonate	-5,043	8,082	Oil, Gas, Water
3rd Bone Spring Sand	-6,090	9,129	Oil, Gas, Water
Wolfcamp XY	-6,370	9,409	Oil, Gas, Water
Wolfcamp A	-6,575	9,614	Oil, Gas, Water
Wolfcamp B	-6,780		Oil, Gas, Water
Wolfcamp B Flow Unit	-7,115	10,154	Oil, Gas, Water
Wolfcamp C	-7,233	10,272	Oil, Gas, Water

Pressure Control Equipment and Pressure Testing Procedure

A 13-5/8" 5M Blowout Preventer system will be installed on a multi-bowl wellhead with a 13-5/8 flanged casing spool. The top flange of casing spool will be set in a cellar below ground level. The blowout preventor system will consist of a single pipe ram on bottom, mud cross, double pipe ram with blind rams on bottom and pipe rams on top and annular preventer. The blowout preventer will be installed on top of the 13-3/8" surface casing and will remain installed to total depth of the well. Wellhead, blowout preventer and choke manifold diagrams have been included. A co-flex line will be used between the BOP system and the choke manifold. A pressure test certification form for the co-flex hose will be available on the location at the time of the BOP testing.

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

The Surface Casing will be pressure tested to 250 psi low and 1500 psi high. Intermediate Casing will be pressure tested to 250 psi low and (.22 psi x Shoe TVD, which is equivalent to 1978.68 psi) high for 30 minutes

Drilling Fluid Program

Depth Interval (ft)	Hole Size (in.)	Fluid Type	Mud Weight (ppg)	Funnel Viscosity (sec/qt)	API Fluid Loss (ml/30min)	Total Solids (%)		
0 - 450	17-1/2	Water Based Spud Mud	8.3	30-60	N/C	2.0-8.0		
450 - 8,994	9-7/8"	Brine Diesel Emulsion or Brine	8.8-9.6	35-45	N/C	1.0-4.0		
8,994 - 15,844	7-7/8"	Oil Based Mud	12-13.3	35-65	4-6 cc's	1.0-8.0		
Drilling Fluid System	A closed loo	A closed loop drilling system will be used.						

Casing Program

Ī	Depth	Length	Hole	Casing	Weight			
	Interval	(ft)	Size	Size	(ppf)	Grade	Coupling	Notes
	0' - 450'	450	17-1/2	13-3/8"	54.50	J-55	BTC	
Ī	0' - 8,994'	8,994	9-7/8"	8-5/8"	32.00	P-110	TLW	
ſ	0' - 15,844'	15,844	7-7/8"	5-1/2"	20.00	P-110	DWC/C IS+	

Casing Centralizers

Surface Casing: Centralizers will be run on the bottom 3 joints of casing and then 1 centralizer per joint to surface.

Casing Performance Properties and Design Criteria

			Joint	Actual			
Depth	Collapse	Burst	Strength	Desig	ın Safety Fa	actors	
Interval	(psi)	(psi)	(1000 lbs)	Collapse	Burst	Tension	Notes
0' - 450'	1,130	2,730	853	5.80	1.82	7.03	
0' - 8,994'	4,230	8,930	1144	1.47	5.95	3.34	Collapse: 1/3 fluid filled at all times
0' - 15,844'	12,090	14,360	729	3.79	1.25	2.76	
Design Safety Factors	Design safet	v factors wil	I meet or exc	eed as show	n.		-

Surface Casing

Collapse: $DF_C = 1.125$

- a. Full Internal Evacuation: Collapse force is equal to mud gradient (0.433 psi/ft) in which the casing will be run and internal evacuation of casing.
- b. Cementing: Collapse force is equal net force of the planned cement slurry gradient (0.718 psi/ft) in which the casing will be run and internal force equivalent to fresh water displacement gradient (0.433 psi/ft).

Burst: $DF_B = 1.125$

a. Casing Pressure Test: According to BLM Onshore Order No. 2 with 0.22 psi/ft or 1500 psi, whichever is greater but not to exceed 70 percent of the minimum internal yield.

Tensile: $DF_T = 1.60$

a. Overpull: A tensile force of 100,000 lbs over string weight with a bouyancy factor of 0.8727 in water (8.33 ppg).

Intermediate Casing

Collapse: $DF_C = 1.125$

- a. Partial (2/3rd) Internal Evacuation: Casing will remain greater than 1/3 fluid filled at all times with a mud weight greather than 11 ppg
- b. Collapse force is equal to mud gradient (0.531 psi/ft) in which the casing will be run.
- c. Cementing: Collapse force is equal net force of the planned cement slurry gradient (0.626 psi/ft) in which the casing will be run and internal force equivalent to the displacement fluid gradient.

Burst: $DF_B = 1.125$

- a. Casing Pressure Test: According to BLM Onshore Order No. 2 with 0.22 psi/ft or 1500 psi, whichever is greater but not to exceed 70 percent of the minimum internal yield.
- b. Gas Kick: Internal burst load of a 50 bbl gas kick at the casing with drillpipe in the hole. External force will be 10.2 ppg brine water gradient (0.531 psi/ft) and intrenal force will be with 10.0 ppg brine water gradient (0.521 psi/ft) with gas kick.

Tensile: $DF_T = 1.60$

 a. Overpull: A tensile force of 100,000 lbs over string weight with a bouyancy factor of 0.8441 in brine water (10.2 ppg).

Production Casing

Collapse: $DF_C = 1.125$

 Full Internal Evacuation: Collapse force is equal to mud gradient (0.531 psi/ft) in which the casing will be run and internal evacuation of casing.

b. Cementing: Collapse force is equal net force of the planned cement slurry gradient (0.688 psi/ft) in which the casing will be run and internal force equivalent to fresh water displacement gradient (0.433 psi/ft).

Burst: $DF_B = 1.125$

 a. Pressure Test: Pressure test will be to 80% of Internal Yield Pressure of casing intended for fracture stimulation.

Tensile: $DF_T = 1.60$

 a. Overpull: A tensile force of 100,000 lbs over string weight with a bouyancy factor of 0.8472 in oil-based mud (10.0 ppg).

Surface Shoe Depth

450

Cementing Program

Surface Casing Cement: 0' - 450' Top of Cement: Surface Slurry Slurry Mix 24hr 115deg **Excess** Strength **Amount** Volume Volume Weight Yield Water Cement Cement (psi) (%) (sacks) (cu. ft.) (bbls) (ppg) cu. ft./sx (gal/sx) Lead 386 625.2 7.67 1,200 100.0% Tail 111.3 13.80 1.62

Lead: N/A

Tail: Class C Cement with Gel, Accelerator, LCM

Intermediate Casing Cement:

Top of Lead Top of Tail 7,994 Intermediate Shoe Depth 8,994 Slurry Slurry Mix 24hr 115deg **Excess Amount** Volume Volume Weight Yield Water Strength Cement Cement (sacks) (cu. ft.) (bbls) (ppg) (cu. ft./sx) (gal/sx) (psi) (%) 607 387.0 19.15 900 100.0% Lead 2173.2 10.00 3.58 180.7 50.0% 130.0 32.2 13.80 1,200 1.39 6.57 Tail

Lead: Class C or H Cement with Fluid Loss, Retarder, LCM, Possibly beaded for desired compressive strength

Tail: Class C or H Cement with Fluid Loss, Retarder, LCM

Top of Cement/Lead: 0'

0' - 15,844' **Production Casing Cement:** Top of Tail: 6,994' 24hr 115deg Slurry Slurry Mix **Excess** Yield **Amount** Volume Volume Weight Water Strength Cement Cement (sacks) (cu. ft.) (bbls) (cu. ft./sx (gal/sx) (psi) (%) (ppg) 694 12.00 1,200 20.0% 1472.3 262.2 Lead 2.12 11.91 13.20 1.59 7.98 1,200 20.0% 1378 2191.0 390.2

Lead: Class H Cement with Fluid Loss, Retarder, LCM Tail: Class H Cement with Fluid Loss, Retarder, LCM

Logging, Testing & Coring Program

A gamma ray log will be acquired by directional drilling Measure While Drilling tools from the intermediate casing to Total Depth.

TEC-LOCK WEDGE



8.625" 32.00 LB/FT (.352" Wall) BORUSAN MANNESMANNP110 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 MA	NNESMANN
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

psi

4,230

Connection Data

Collapse:

Standard OD:	9.000	in
Pin Bored ID:	7.921	in
Critical Section Area:	8.61433	in²
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

29,900	ft*lbf
37,375	ft*lbf
80,900	ft*lbf
89,900	ft*lbf
5.97	in

Notes

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



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Please visit http://www.huntingplc.com for the latest technical information.

Technical Specifications

Connection Type: DWC/C-IS PLUS Cas STANDARD	Size(O.D.): ing 5-1/2 in	Weight (Wall): 20.00 lb/ft (0.361	in) Grade: VST P110 EC
VST P110 EC 125,000 135,000	Material Grade Minimum Yield Strength (psi.) Minimum Ultimate Strength (psi.)		VA LISA
5.500 4.778 0.361 20.00 19.83 5.828	Pipe Dimensions Nominal Pipe Body O.D. (in.) Nominal Pipe Body I.D. (in.) Nominal Wall Thickness (in.) Nominal Weight (lbs./ft.) Plain End Weight (lbs./ft.) Nominal Pipe Body Area (sq. in.)	 	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
729,000 12,090 14,360 13,100	Pipe Body Performance Proper Minimum Pipe Body Yield Strengt Minimum Collapse Pressure (psi. Minimum Internal Yield Pressure Hydrostatic Test Pressure (psi.)	th (lbs.))	
6.300 4.778 4.653 4.13 5.828 100.0	Connection Dimensions Connection O.D. (in.) Connection I.D. (in.) Connection Drift Diameter (in.) Make-up Loss (in.) Critical Area (sq. in.) Joint Efficiency (%)		
729,000 26,040 728,000 729,000 12,090 14,360 104.2	Connection Performance Property Joint Strength (lbs.) Reference String Length (ft) 1.4 E API Joint Strength (lbs.) Compression Rating (lbs.) API Collapse Pressure Rating (ps.) API Internal Pressure Resistance Maximum Uniaxial Bend Rating [co.)	Design Factor si.) (psi.)	
16,600 19,100 21,600	Approximated Field End Torque Minimum Final Torque (ftlbs.) Maximum Final Torque (ftlbs.) Connection Yield Torque (ftlbs.)		

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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11/29/2018 6:04 PM



Start Nudge

EOH

Drop to Vertical

KOP @ 9066' TVD

LP @ 9639' TVD

EOB

2000-

2400-

2800-

3200-

3600-

4000-

4800-

5200

5600-

6000-

6400-

6800-

7200-

7600-

8000

8400-

8800-

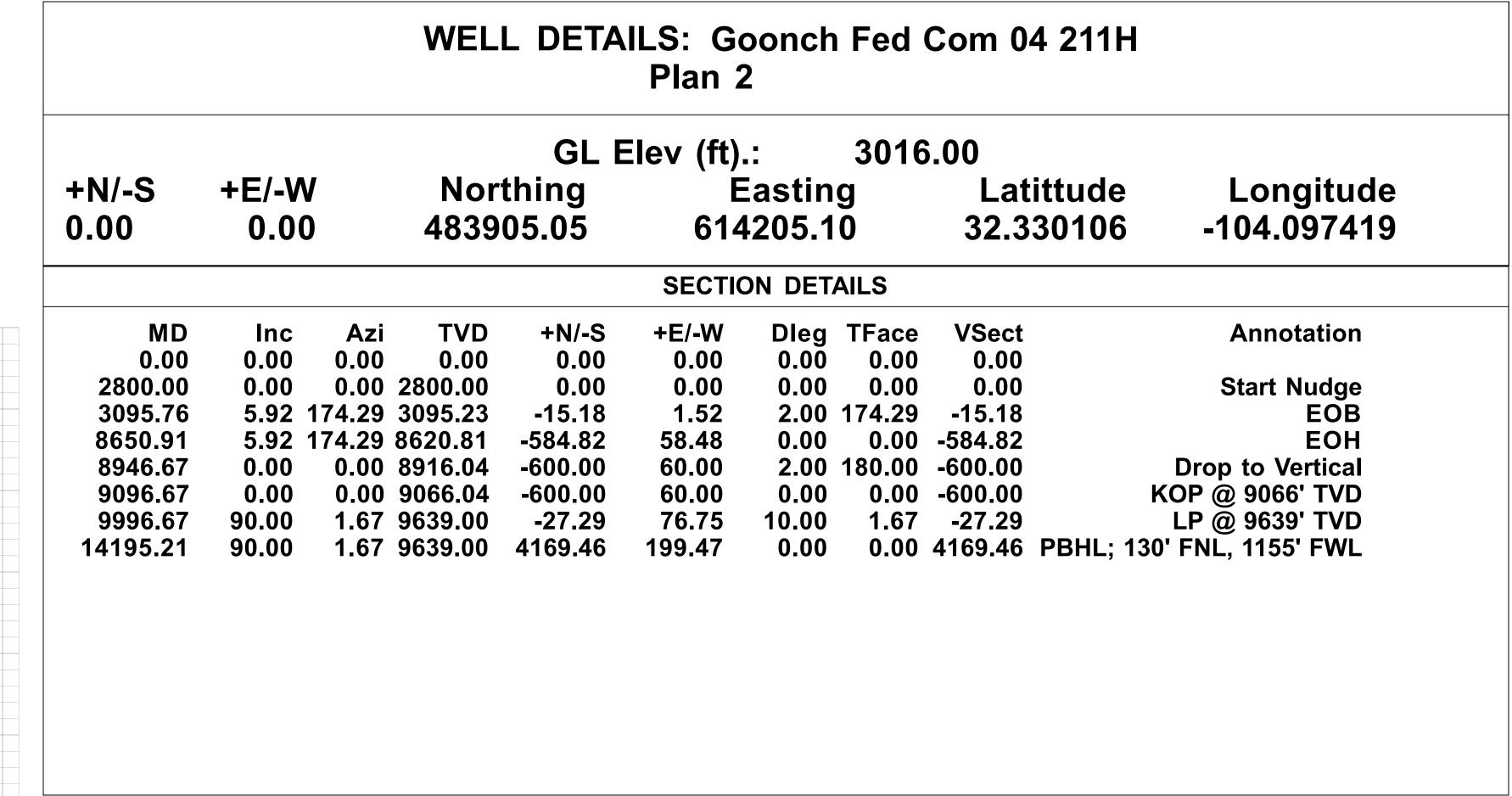
9200-

9600-

10000-

Goonch Fed Com 04 211H FRONTIER RIG #19

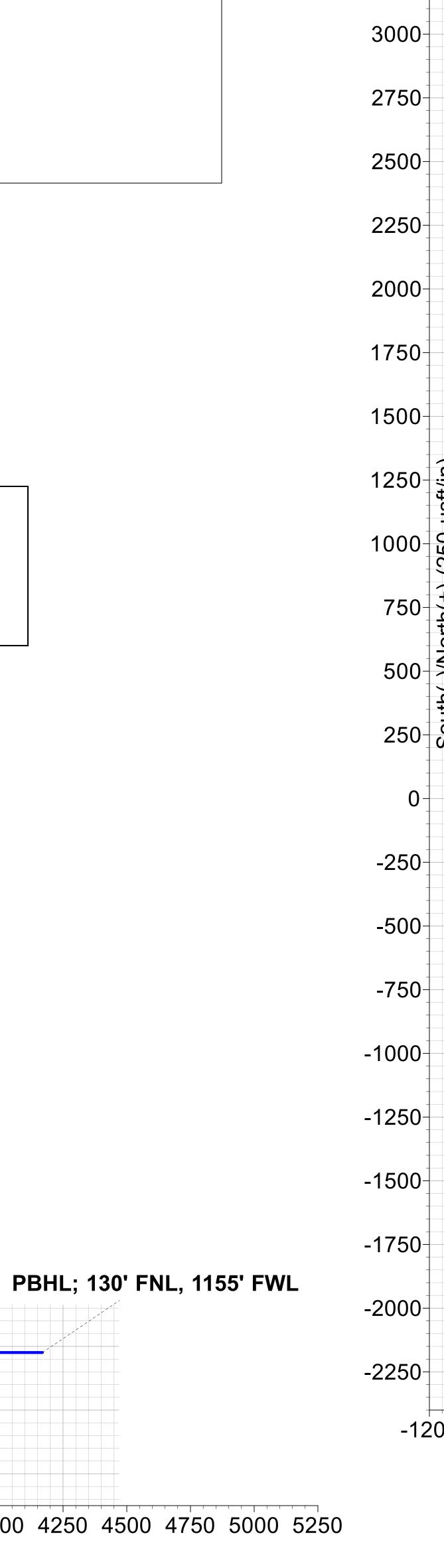




Project: EDDY CO., NM (NAD83) Site: SEC. 04-T23S-R28E Well: Goonch Fed Com 04 211H Wellbore: Wellbore #1

Design: Plan 2

M Azimuths to Grid North True North: -0.13° Magnetic North: 7.87° Magnetic Field Strength: 48800.6nT Dip Angle: 60.25° Date: 2009/12/31 Model: IGRF200510



PBHL; 130' FNL, 1155' FWL 4250 330' FNL PERF. LINE 3750-3500 3250 Loving Federal Com #001 (Active) Sec. 04-T23S-R28E Start Nudge LP @ 9639' TVD EOB EOH 330' FSL Perf. Line KOP @ 9066' TVD Drop to Vertical -1200 -1000 -800 -600 -400 -200 400 600 800 1000 1200 1400 1600 1800 2000 2200 West(-)/East(+) (200 usft/in)



NOVO Oil & Gas

EDDY CO., NM (NAD83) SEC. 04-T23S-R28E Goonch Fed Com 04 211H

Wellbore #1

Plan: Plan 2

Standard Planning Report - Geographic

24 March, 2021



S DIRECTIONAL

Site:

SB Directional

Planning Report - Geographic



Database: EDM 5000.16 Single User Db

SEC. 04-T23S-R28E

Company: NOVO Oil & Gas

Project: EDDY CO., NM (NAD83)

Well: Goonch Fed Com 04 211H

Wellbore: Wellbore #1

Design: Plan 2

Local Co-ordinate Reference:

TVD Reference: MD Reference: North Reference:

Survey Calculation Method:

Well Goonch Fed Com 04 211H

0.00

RKB @ 3041.00usft

RKB @ 3041.00usft Grid

Minimum Curvature

Project EDDY CO., NM (NAD83)

Map System: US State Plane 1983
Geo Datum: North American Datum 1983

Geo Datum: North American Datum 198
Map Zone: New Mexico Eastern Zone

System Datum: Mean Sea Level

0.00

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 211H

 Well Position
 +N/-S
 0.00 usft
 Northing:
 483,905.05 usft
 Latitude:
 32.330106

 +E/-W
 0.00 usft
 Easting:
 614,205.10 usft
 Longitude:
 -104.097419

 Position Uncertainty
 0.50 usft
 Wellhead Elevation:
 usft
 Ground Level:
 3,016.00 usft

Grid Convergence: 0.13 °

Wellbore Wellbore #1 Field Strength Model Name Declination Sample Date Dip Angle Magnetics (°) (°) (nT) IGRF200510 2009/12/31 8.00 60.25 48,800.58772639

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

0.00

Plan Survey Tool Program Date 2021/03/24

Depth From Depth To

0.00

(usft) (usft) Survey (Wellbore) Tool Name Remarks

(Letty Carto) (Hello)

0.00

MMD Stand

14,195.21 Plan 2 (Wellbore #1)

MWD - Standard

MWD

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	
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,095.76	5.92	174.29	3,095.23	-15.18	1.52	2.00	2.00	0.00	174.29	
8,650.91	5.92	174.29	8,620.81	-584.82	58.48	0.00	0.00	0.00	0.00	
8,946.67	0.00	0.00	8,916.04	-600.00	60.00	2.00	-2.00	0.00	180.00	
9,096.67	0.00	0.00	9,066.04	-600.00	60.00	0.00	0.00	0.00	0.00	
9,996.67	90.00	1.67	9,639.00	-27.29	76.75	10.00	10.00	0.00	1.67	PBHL - Goonch Fed (
14,195.21	90.00	1.67	9,639.00	4,169.46	199.47	0.00	0.00	0.00	0.00	PBHL - Goonch Fed (

S DIRECTIONAL

Company:

SB Directional

Planning Report - Geographic



Database: EDM 5000.16 Single User Db

NOVO Oil & Gas

 Project:
 EDDY CO., NM (NAD83)

 Site:
 SEC. 04-T23S-R28E

 Well:
 Goonch Fed Com 04 211H

Wellbore: Wellbore #1

Design: Plan 2

Local Co-ordinate Reference:

TVD Reference:
MD Reference:
North Reference:

Survey Calculation Method:

Well Goonch Fed Com 04 211H

RKB @ 3041.00usft RKB @ 3041.00usft

Grid

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	483,905.05	614,205.10	32.330106	-104.097419
100.00		0.00	100.00	0.00	0.00	483,905.05	614,205.10	32.330106	-104.097419
200.00	0.00	0.00	200.00	0.00	0.00	483,905.05	614,205.10	32.330106	-104.097419
300.00		0.00	300.00	0.00	0.00	483,905.05	614,205.10	32.330106	-104.097419
400.00	0.00	0.00	400.00	0.00	0.00	483,905.05	614,205.10	32.330106	-104.097419
500.00		0.00	500.00	0.00	0.00	483,905.05	614,205.10	32.330106	-104.097419
600.00	0.00	0.00	600.00	0.00	0.00	483,905.05	614,205.10	32.330106	-104.097419
700.00 800.00	0.00	0.00	700.00 800.00	0.00 0.00	0.00 0.00	483,905.05 483.905.05	614,205.10	32.330106 32.330106	-104.097419 -104.097419
900.00	0.00	0.00 0.00	900.00	0.00	0.00	483,905.05	614,205.10 614,205.10	32.330106	-104.097419
1,000.00	0.00	0.00	1,000.00	0.00	0.00	483,905.05	614,205.10	32.330106	-104.097419
1,100.00		0.00	1,100.00	0.00	0.00	483,905.05	614,205.10	32.330106	-104.097419
1,200.00	0.00	0.00	1,200.00	0.00	0.00	483,905.05	614,205.10	32.330106	-104.097419
1,300.00		0.00	1,300.00	0.00	0.00	483,905.05	614,205.10	32.330106	-104.097419
1,400.00	0.00	0.00	1,400.00	0.00	0.00	483,905.05	614,205.10	32.330106	-104.097419
1,500.00	0.00	0.00	1,500.00	0.00	0.00	483,905.05	614,205.10	32.330106	-104.097419
1,600.00		0.00	1,600.00	0.00	0.00	483,905.05	614,205.10	32.330106	-104.097419
1,700.00	0.00	0.00	1,700.00	0.00	0.00	483,905.05	614,205.10	32.330106	-104.097419
1,800.00	0.00	0.00	1,800.00	0.00	0.00	483,905.05	614,205.10	32.330106	-104.097419
1,900.00	0.00	0.00	1,900.00	0.00	0.00	483,905.05	614,205.10	32.330106	-104.097419
2,000.00	0.00	0.00	2,000.00	0.00	0.00	483,905.05	614,205.10	32.330106	-104.097419
2,100.00	0.00	0.00	2,100.00	0.00	0.00	483,905.05	614,205.10	32.330106	-104.097419
2,200.00	0.00	0.00	2,200.00	0.00	0.00	483,905.05	614,205.10	32.330106	-104.097419
2,300.00	0.00	0.00	2,300.00	0.00	0.00	483,905.05	614,205.10	32.330106	-104.097419
2,400.00	0.00	0.00	2,400.00	0.00	0.00	483,905.05	614,205.10	32.330106	-104.097419
2,500.00	0.00	0.00	2,500.00	0.00	0.00	483,905.05	614,205.10	32.330106	-104.097419
2,600.00	0.00	0.00	2,600.00	0.00	0.00	483,905.05	614,205.10	32.330106	-104.097419
2,700.00		0.00	2,700.00	0.00	0.00	483,905.05	614,205.10	32.330106	-104.097419
2,800.00	0.00	0.00	2,800.00	0.00	0.00	483,905.05	614,205.10	32.330106	-104.097419
Start Nu	_								
2,900.00	2.00	174.29	2,899.98	-1.74	0.17	483,903.31	614,205.28	32.330102	-104.097418
3,000.00		174.29	2,999.84	-6.94	0.69	483,898.11	614,205.80	32.330087	-104.097417
3,095.76	5.92	174.29	3,095.23	-15.18	1.52	483,889.87	614,206.62	32.330065	-104.097414
EOB									
3,100.00		174.29	3,099.45	-15.61	1.56	483,889.44	614,206.66	32.330064	-104.097414
3,200.00	5.92	174.29	3,198.92	-25.87	2.59	483,879.18	614,207.69	32.330035	-104.097411
3,300.00		174.29	3,298.39	-36.12	3.61	483,868.93	614,208.72	32.330007	-104.097407
3,400.00	5.92	174.29	3,397.86	-46.38	4.64	483,858.68	614,209.74	32.329979	-104.097404
3,500.00	5.92	174.29	3,497.32	-56.63	5.66	483,848.42	614,210.77	32.329951	-104.097401
3,600.00	5.92	174.29	3,596.79	-66.88	6.69	483,838.17	614,211.79	32.329923	-104.097398
3,700.00		174.29	3,696.26	-77.14	7.71	483,827.91	614,212.82	32.329894	-104.097394
3,800.00		174.29	3,795.73	-87.39	8.74	483,817.66	614,213.84	32.329866	-104.097391
3,900.00		174.29	3,895.19	-97.65	9.76	483,807.40	614,214.87	32.329838	-104.097388
4,000.00		174.29 174.29	3,994.66 4,094.13	-107.90 -118.16	10.79 11.82	483,797.15 483,786.89	614,215.89 614,216.92	32.329810 32.329782	-104.097385 -104.097382
4,100.00 4,200.00		174.29	4,094.13	-118.16	12.84	483,776.64	614,217.94	32.329753	-104.097378
4,300.00		174.29	4,193.00	-128.41	13.87	483,766.39	614,218.97	32.329725	-104.097375
4,400.00		174.29	4,293.00	-138.00	14.89	483,756.13	614,220.00	32.329697	-104.097373
4,500.00		174.29	4,492.00	-159.17	15.92	483,745.88	614,221.02	32.329669	-104.097369
4,600.00		174.29	4,591.47	-169.43	16.94	483,735.62	614,222.05	32.329641	-104.097365
4,700.00		174.29	4,690.93	-179.68	17.97	483,725.37	614,223.07	32.329612	-104.097362
4,800.00		174.29	4,790.40	-189.94	18.99	483,715.11	614,224.10	32.329584	-104.097359
4,900.00		174.29	4,889.87	-200.19	20.02	483,704.86	614,225.12	32.329556	-104.097356
5,000.00		174.29	4,989.34	-210.45	21.04	483,694.61	614,226.15	32.329528	-104.097352

SPORFCTIONAL

SB Directional

Planning Report - Geographic



Database: EDM 5000.16 Single User Db

Company: NOVO Oil & Gas

 Project:
 EDDY CO., NM (NAD83)

 Site:
 SEC. 04-T23S-R28E

 Well:
 Goonch Fed Com 04 211H

Wellbore: Wellbore #1

Design: Plan 2

Local Co-ordinate Reference:

TVD Reference:
MD Reference:
North Reference:

Survey Calculation Method:

Well Goonch Fed Com 04 211H

RKB @ 3041.00usft RKB @ 3041.00usft

Grid

5,200.00										
Depth (usth)	Planned Survey									
5,200.00 5.92 174.29 5,188.27 -230.95 2.910 483,674.10 614,228.20 32.329471 -104.0973.5,000.00 5.92 174.29 5,387.21 2251.46 25.15 483,683.81 614,231.20 25 32.329415 -104.0973.5,000.00 5.92 174.29 5,387.21 251.46 27.17 251.46 2	Depth			Depth			Northing	Easting	Latitude	Longitude
5,200.00	5,100.00	5.92	174.29	5,088.80	-220.70	22.07	483,684.35	614,227.17	32.329500	-104.097349
5,500.00 5,92 174,29 5,387,21 -251,46 2515 48,863,559 614,230.25 32,329415 -104,09735 5,600.00 5,92 174,29 5,586.14 -271,97 27.20 483,633.08 614,232.20 32,329387 -104,09735 5,600.00 5,92 174,29 5,586.14 -271,97 27.20 483,633.08 614,232.30 32,329389 -104,09735 5,600.00 5,92 174,29 5,786.08 -292,48 29.25 483,612.57 614,243.53 32,329302 -104,09735 5,600.00 5,92 174,29 5,786.08 -292,48 29.25 483,612.57 614,243.53 32,329302 -104,09735 5,600.00 5,92 174,29 5,786.08 -292,48 302,73 30.27 483,600.00 5,92 174,29 6,000.00 5,92 174,29 7,000.00 5,92 174,29 7,000.00 5,92 174,29 7,000.00 5,92 174,29 7,000.00 5,92 174,29 7,000.00 5,92 174,29 7,000.00 5,92 174,29 7,000.00 5,92 174,29 7,000.00 5,92 174,29 7,000.00 5,92 174,29 7,000.00 5,92 174,29 7,000.00 5,92 174,29 7,000	5,200.00	5.92	174.29	5,188.27	-230.95	23.10	483,674.10	614,228.20	32.329471	-104.097346
5,500.00 5.92 174.29 5,868.61 -281.72 281.77 483.642.33 614.231.28 23.232359 -104.09735 5,700.00 5.92 174.29 5,885.61 -282.23 28.22 483.622.83 614.233.33 32.32330 -104.09735 5,800.00 5.92 174.29 5,885.61 -282.23 28.22 483.622.83 614.233.33 32.32330 -104.09735 5,800.00 5.92 174.29 5,884.54 -302.73 30.27 485.602.32 614.234.35 32.32392.4 -104.09735 6,000.00 5.92 174.29 5,884.54 -302.73 30.27 485.602.32 614.234.35 32.3239.27 -104.09735 6,000.00 5.92 174.29 6,003.48 -323.24 32.32 483.581.81 614.234.33 32.329302 -104.09735 6,000.00 5.92 174.29 6,182.95 -333.50 33.35 483.591.55 614.234.34 32.32918 -104.09735 6,300.00 5.92 174.29 6,182.95 -333.50 33.35 483.591.55 614.234.34 32.32916 -104.09735 6,000.00 5.92 174.29 6,383.84 3.354.01 354.00 483.551.00 614.2304.83 32.329161 -104.09735 6,000.00 5.92 174.29 6,883.83 3.354.01 354.00 483.551.00 614.2304.83 32.329161 -104.09735 6,000.00 5.92 174.29 6,880.28 384.77 384.84 88.561.07 614.241.53 32.329105 -104.09735 6,000.00 5.92 174.29 6,680.28 384.77 384.84 88.584.07 614.241.53 32.329105 -104.09736 6,000.00 5.92 174.29 6,680.28 384.77 38.48 483.550.54 614.242.56 32.329077 -104.09736 6,000.00 5.92 174.29 6,780.28 374.51 37.45 483.590.54 614.242.56 32.329000 -104.09725 6,000.00 5.92 174.29 6,780.28 34.77 384.84 483.580.54 614.242.56 32.329007 -104.09725 6,000.00 5.92 174.29 6,780.78 34.60 483.60 483.89 374.78 384.89 382.3290.00 -104.09725 7,000.00 5.92 174.29 6,780.78 384.77 384.84 483.580.54 614.242.56 32.329000 -104.09725 7,000.00 5.92 174.29 6,780.78 384.77 384.84 483.580.54 614.242.56 32.329000 -104.09725 7,000.00 5.92 174.29 6,780.78 384.00 483.59 385.00 38	5,300.00	5.92	174.29	5,287.74	-241.21	24.12	483,663.84	614,229.22	32.329443	-104.097343
5,000 00 5.92 174.29 5,586.14 -227.97 27.20 483,633.08 614,232.33 32329330 -104,09733 5,800.00 5.92 174.29 5,785.08 -292.48 29.25 483,812.57 614,234.35 32.329330 -104,09733 5,800.00 5.92 174.29 5,785.08 -292.48 29.25 483,812.57 614,234.35 32.329362 -104,09733 5,900.00 5.92 174.29 5,884.54 -302.73 30.27 483,602.32 614,235.38 32.329266 -104,09733 6,000.00 5.92 174.29 6,093.48 -323.24 432.50 66 614,236.40 32.329266 -104,09733 6,000.00 5.92 174.29 6,093.48 -323.24 32.32 483,581.81 614,237.43 32.329216 -104,09733 6,000.00 5.92 174.29 6,282.41 -343.75 34.38 483,561.30 614,239.48 32.329160 -104,09733 6,000.00 5.92 174.29 6,831.88 -354.01 53.40 483,561.01 614,209.48 32.329161 -104,09733 6,500.00 5.92 174.29 6,881.83 -384.01 53.40 483,561.01 614,209.48 32.329163 -104,09733 6,500.00 5.92 174.29 6,881.88 -384.01 53.40 483,561.01 614,205.00 32.329133 -104,09733 6,500.00 5.92 174.29 6,880.82 -374.51 37.45 483,560.54 614,246.50 32.329105 -104,09733 6,500.00 5.92 174.29 6,680.82 -374.51 37.45 483,560.54 614,246.60 32.329107 -104,09733 6,500.00 5.92 174.29 6,797.97.5 -395.02 39.50 483,510.03 614,244.61 32.329077 -104,09733 6,500.00 5.92 174.29 6,779.75 -395.02 39.50 483,510.03 614,244.61 32.329007 -104,09732 6,500.00 5.92 174.29 6,779.75 -395.02 39.50 483,510.03 614,244.61 32.329907 -104,09732 6,500.00 5.92 174.29 6,779.75 -395.02 39.50 483,510.03 614,244.61 32.329909 -104,09722 7,000.00 5.92 174.29 6,779.76 436.60 438.60 438,469.01 614,245.63 32.329909 -104,09722 7,000.00 5.92 174.29 6,779.76 436.60 438.60 438,469.01 614,246.60 32.329994 -104,09722 7,000.00 5.92 174.29 7,770.16 4.25.79 42.58 483,479 614,245.63 32.329909 -104,09722 7,000.00 5.92 174.29 7,770.16 4.25.79 42.58 483,479 614,245.63 32.328996 -104,09722 7,000.00 5.92 174.29 7,770.16 4.25.79 42.58 483,479 614,245.63 32.328990 -104,09722 7,000.00 5.92 174.29 7,770.16 4.25.79 4.25.89 483,477 614,245.63 32.328990 -104,09722 7,000.00 5.92 174.29 7,770.16 4.25.79 4.25.89 483,477 614,245.63 32.328990 -104,09723 7,000.00 5.92 174.29 7,770.16 4.25.79 4.25.89 483,477 614,245.	5,400.00	5.92	174.29	5,387.21	-251.46	25.15	483,653.59	614,230.25	32.329415	-104.097339
5,700.00 5.92 174.29 5,685.61 -282.23 28.22 483,622.83 614,233.33 32,229330 -104,09733 5,900.00 5.92 174.29 5,785.08 -292.48 29.25 483,612.57 614,234.35 32,329374 -104,09733 5,900.00 5.92 174.29 5,984.01 -312.99 31.30 483,692.06 614,235.38 32,329274 -104,09733 6,000.00 5.92 174.29 6,083.48 -323.24 43,232 483,692.06 614,235.38 32,329274 -104,09733 6,000.00 5.92 174.29 6,082.69 -333.50 33.35 483,571.55 614,235.38 32,329218 -104,09733 6,000.00 5.92 174.29 6,282.41 -34.37.5 43.38 483,651.30 614,235.34 53,2329190 -104,09733 6,400.00 5.92 174.29 6,381.83 -354.01 354.00 483,551.04 614,240.50 32,329190 -104,09733 6,600.00 5.92 174.29 6,381.88 -354.01 354.00 483,551.04 614,240.50 32,329190 -104,09733 6,600.00 5.92 174.29 6,881.35 -364.26 63.43 483,651.00 614,240.50 32,329133 -104,09733 6,600.00 5.92 174.29 6,680.28 -374.51 37.45 483,550.54 614,241.53 32,229105 -104,09733 6,600.00 5.92 174.29 6,680.28 -374.51 37.45 483,550.54 614,241.53 32,229107 -104,09733 6,600.00 5.92 174.29 6,680.28 -384.77 38.48 483,550.28 614,243.58 32,329077 -104,09733 6,600.00 5.92 174.29 6,680.28 -384.77 38.48 483,540.79 614,243.59 32,329949 -104,09725 6,600.00 5.92 174.29 6,690.82 -374.51 37.45 483,540.79 614,243.59 32,329909 -104,09725 6,600.00 5.92 174.29 6,690.68 28 -384.77 38.48 483,499.77 614,245.66 32,329909 -104,09725 6,600.00 5.92 174.29 6,690.68 28 -384.77 38.48 483,499.77 614,245.66 32,329909 -104,09725 7,000.00 5.92 174.29 7,078.16 425.79 445.50 483,489.57 614,245.66 32,329909 -104,09725 7,000.00 5.92 174.29 7,078.16 425.79 425.79 425.80 483,479.26 614,247.79 32,329909 -104,09725 7,000.00 5.92 174,29 7,078.16 425.79 425.80 483,479.26 614,247.79 32,329909 -104,09725 7,000.00 5.92 174,29 7,078.16 425.79 425.80 483,489.50 614,248.71 32,329909 -104,09725 7,000.00 5.92 174,29 7,078.16 425.79 425.80 483,489.50 614,248.70 32,329969 -104,09725 7,000.00 5.92 174,29 7,078.16 425.79 425.80 483,489.50 614,248.70 32,329896 -104,09725 7,000.00 5.92 174,29 7,776.56 485.60 486.80 486.80 486.80 486.80 614,248.70 32,329869 -104,09725 7,000.00 5.92 174	5,500.00	5.92	174.29	5,486.67	-261.72	26.17	483,643.33	614,231.28	32.329387	-104.097336
5,900.00 5,92 174,29 5,785.08 -292.48 29.25 483,812.57 614,234.35 32,329302 -104,09732 6,000.00 5,92 174,29 5,884.54 -30.27 30.27 483,600.32 614,236.36 32,329246 -104,09732 6,000.00 5,92 174,29 6,083.48 -323.24 32.32 483,881.81 614,236.40 32,329246 -104,09733 6,300.00 5,92 174,29 6,083.48 -323.59 33.5 483,571.55 614,238.45 32,329918 -104,09731 6,300.00 5,92 174,29 6,282.41 -343,75 34,38 483,861.30 614,239.48 32,329161 -104,09731 6,300.00 5,92 174,29 6,282.41 -343,75 34,38 483,861.30 614,239.48 32,329161 -104,09731 6,500.00 5,92 174,29 6,282.41 -343,75 34,38 483,861.30 614,239.48 32,329161 -104,09731 6,500.00 5,92 174,29 6,581.88 33.40 483,5861.30 614,240.55 32,329133 -104,09731 6,500.00 5,92 174,29 6,580.82 374.51 374.5 483,580.54 614,245.55 32,32913 -104,09731 6,500.00 5,92 174,29 6,680.28 -384.77 38.48 483,540.79 614,241.55 32,329105 -104,09731 6,500.00 5,92 174,29 6,680.28 -384.77 38.48 483,540.79 614,241.55 32,329105 -104,09732 6,800.00 5,92 174,29 6,879.59 395.02 483,510.03 614,243.58 32,329049 -104,09725 6,800.00 5,92 174,29 6,978.69 415,53 483,499.77 614,246.63 32,328992 -104,09725 6,800.00 5,92 174,29 6,978.69 415,53 483,499.77 614,246.63 32,328992 -104,09725 7,000.00 5,92 174,29 6,978.69 415,53 483,499.77 614,247.68 32,328992 -104,09725 7,000.00 5,92 174,29 7,777.65 4.46 6.4 43,60 483,469.01 614,247.68 32,328998 -104,09725 7,000.00 5,92 174,29 7,177.62 4.45 6.4 43,60 483,445.50 614,249.73 32,328998 -104,09725 7,000.00 5,92 174,29 7,177.65 4.46 6.8 483,485.00 614,249.73 32,328998 -104,09725 7,000.00 5,92 174,29 7,177.65 4.46 6.8 483,485.00 614,249.73 32,328998 -104,09725 7,000.00 5,92 174,29 7,778.65 4.46 6.8 483,485.00 614,249.73 32,328998 -104,09725 7,000.00 5,92 174,29 7,778.65 4.46 6.8 483,485.00 614,249.73 32,328898 -104,09725 7,000.00 5,92 174,29 7,778.65 4.46 6.8 483,485.00 614,249.73 32,328898 -104,09725 7,000.00 5,92 174,29 7,778.59 477.69 477	5,600.00	5.92	174.29	5,586.14	-271.97	27.20	483,633.08	614,232.30	32.329359	-104.097333
\$\begin{array}{c} 5,000.00 5,92 \text{174} 5,884.64 \qquad \qquad \qquad \qquad \qqq \qquad \qqq \qqq \qqq \qqq \qqq \qqq \qqq \q	5,700.00	5.92	174.29	5,685.61	-282.23	28.22	483,622.83	614,233.33	32.329330	-104.097330
6,000,00 5,92 174,29 6,083,48 -323,24 32.32 483,581,81 614,236,40 23,282,246 -104,0973 6,000 5,92 174,29 6,083,48 -323,24 32.32 483,581,81 614,237,43 32,329,18 -104,0973 6,000 5,92 174,29 6,182,95 -333,50 483,571,55 614,239,48 32,329161 -104,0973 6,000 5,92 174,29 6,82,41 -343,75 34,38 483,551,04 614,239,48 32,329161 -104,0973 6,000 5,92 174,29 6,81,25 -346,26 36,43 483,551,04 614,239,48 32,329165 -104,0973 6,000 5,92 174,29 6,680,20 -374,51 37,45 483,501,46 14,241,53 32,329105 -104,0973 6,000 5,92 174,29 6,680,22 -384,77 38,48 483,500,48 614,241,53 32,329105 -104,0973 6,000 5,92 174,29 6,680,22 -384,77 38,48 483,500,48 614,241,53 32,329107 -104,0973 6,000 5,92 174,29 6,680,20 -384,77 38,48 483,500,48 614,241,58 32,329007 -104,0973 6,000 5,92 174,29 6,680,20 -384,77 38,48 483,500,38 614,243,58 32,329049 -104,0972 6,000 5,92 174,29 6,680,20 -384,77 38,48 483,500,38 614,243,58 32,329049 -104,0972 7,000,00 5,92 174,29 6,680,20 -384,77 38,48 483,500,38 614,244,61 32,329020 -104,0972 7,000,00 5,92 174,29 6,978,69 415,53 41,55 483,489,77 614,246,63 32,328902 -104,0972 7,000,00 5,92 174,29 7,078,16 425,79 42,58 483,499,77 614,247,68 32,328964 -104,0972 7,000,00 5,92 174,29 7,777,09 446,30 43,60 433,469,01 614,246,76 32,328908 -104,0972 7,000,00 5,92 174,29 7,376,56 456,55 45,65 483,445,50 614,246,76 32,328908 -104,0972 7,000,00 5,92 174,29 7,376,56 456,55 45,65 483,445,50 614,246,76 32,328903 -104,0972 7,000,00 5,92 174,29 7,376,56 456,55 45,65 456,56 483,445,50 614,246,76 32,328903 -104,0972 7,000,00 5,92 174,29 7,770,00 446,30 448,30 483,459,76 614,250,76 32,32895 -104,0972 7,000,00 5,92 174,29 7,776,46 46,80	5,800.00	5.92	174.29	5,785.08	-292.48	29.25	483,612.57	614,234.35	32.329302	-104.097326
6,100.00 5.92 174.29 6,182.95 -333.50 33.35 483.571.55 614.238.45 32.32918 -104.09731 6,300.00 5.92 174.29 6,182.95 -333.50 33.35 483.571.55 614.238.45 32.329190 -104.09731 6,300.00 5.92 174.29 6,282.41 -343.75 34.38 483.561.30 614.239.48 32.329161 -104.09731 6,600.00 5.92 174.29 6,680.28 -374.51 37.45 483.540.79 614.241.53 32.329105 -104.09731 6,600.00 5.92 174.29 6,680.28 -374.51 37.45 483.540.79 614.241.53 32.329105 -104.09731 6,600.00 5.92 174.29 6,680.28 -374.51 37.45 483.550.54 614.242.56 32.329077 -104.09732 6,800.00 5.92 174.29 6,779.75 -395.02 39.50 483.510.03 614.244.61 32.329020 -104.09732 6,800.00 5.92 174.29 6,779.75 -395.02 39.50 483.510.03 614.244.61 32.329020 -104.09732 6,800.00 5.92 174.29 6,779.75 -395.02 39.50 483.510.03 614.244.61 32.329020 -104.09732 6,800.00 5.92 174.29 6,779.75 -395.02 39.50 483.510.03 614.244.61 32.328902 -104.09732 6,900.00 5.92 174.29 6,779.75 -395.02 39.50 483.510.03 614.244.61 32.328902 -104.09732 6,900.00 5.92 174.29 7,078.16 425.79 42.58 40.53 483.495.77 614.245.63 32.328992 -104.09732 7,700.00 5.92 174.29 7,078.16 425.79 42.58 433.479.26 614.247.68 32.328936 -104.09732 7,700.00 5.92 174.29 7,777.09 446.30 44.63 483.469.01 614.246.66 32.328864 -104.09732 7,700.00 5.92 174.29 7,777.09 446.30 44.63 483.469.01 614.247.68 32.328893 -104.09732 7,700.00 5.92 174.29 7,777.09 446.30 44.63 483.455.76 614.250.76 32.328851 -104.09732 7,700.00 5.92 174.29 7,777.09 446.30 44.63 483.455.76 614.250.76 32.328851 -104.09732 7,700.00 5.92 174.29 7,776.49 447.70 448.34 483.479.90 614.251.78 32.328851 -104.09732 7,700.00 5.92 174.29 7,774.43 483.479.44 614.251.78 32.328851 -104.09732 7,700.00 5.92 174.29 7,7764.99 477.00 477.11 483.427.99 614.251.78 32.328851 -104.09732 7,700.00 5.92 174.29 7,774.43 487.57 49.76 483.407.48 614.251.78 32.328851 -104.09732 7,700.00 5.92 174.29 7,774.43 487.57 49.76 483.407.48 614.250.76 32.328851 -104.09732 7,700.00 5.92 174.29 8,764.39 487.57 49.76 483.407.40 614.250.99 32.328710 -104.09732 7,700.00 5.92 174.29 8,764.39 483.50 50.78 483.305.70 614.256.	5,900.00	5.92	174.29		-302.73	30.27	483,602.32	614,235.38	32.329274	-104.097323
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KOP @ 9066' TVD	· ·									-104.097229
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1010012	_		1.67	9.069.37	-599.99	60.00	483,305.06	614,265.10	32.328457	-104.097229
9,200.00 10.33 1.67 9,168.81 -590.71 60.27 483,314.34 614,265.38 32.328482 -104.09722	· ·									-104.097228
										-104.097225
							,			-104.097221
										-104.097215
	· ·							,		-104.097208
							,			-104.097199
										-104.097190

S DIRECTIONAL

SB Directional

Planning Report - Geographic



Database: EDM 5000.16 Single User Db

Company: NOVO Oil & Gas
Project: EDDY CO., NM (NAD83)

 Site:
 SEC. 04-T23S-R28E

 Well:
 Goonch Fed Com 04 211H

Wellbore: Wellbore #1

Design: Plan 2

Local Co-ordinate Reference:

TVD Reference:
MD Reference:
North Reference:

Survey Calculation Method:

Well Goonch Fed Com 04 211H

RKB @ 3041.00usft RKB @ 3041.00usft

Grid

Design.									
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	80.33	1.67	9,630.86	-123.46	73.94	483,781.60	614,279.04	32.329767	-104.097180
9,996.67	90.00	1.67	9,639.00	-27.28	76.75	483,877.77	614,281.85	32.330031	-104.097171
LP @ 963	39' TVD								
10,000.00	90.00	1.67	9,639.00	-23.96	76.84	483,881.09	614,281.95	32.330040	-104.097170
10,100.00	90.00	1.67	9,639.00	76.00	79.77	483,981.05	614,284.87	32.330315	-104.097160
10,200.00	90.00	1.67	9,639.00	175.96	82.69	484,081.01	614,287.79	32.330590	-104.097150
10,300.00	90.00	1.67	9,639.00	275.92	85.61	484,180.97	614,290.72	32.330864	-104.097140
10,400.00	90.00	1.67	9,639.00	375.87	88.54	484,280.92	614,293.64	32.331139	-104.097130
10,500.00	90.00	1.67	9,639.00	475.83	91.46	484,380.88	614,296.56	32.331414	-104.097119
10,600.00	90.00	1.67	9,639.00	575.79	94.38	484,480.84	614,299.49	32.331689	-104.097109
10,700.00	90.00	1.67	9,639.00	675.74	97.31	484,580.80	614,302.41	32.331963	-104.097099
10,800.00	90.00	1.67	9,639.00	775.70	100.23	484,680.75	614,305.33	32.332238	-104.097089
10,900.00	90.00	1.67	9,639.00	875.66	103.15	484,780.71	614,308.26	32.332513	-104.097079
11,000.00	90.00	1.67	9,639.00	975.62	106.07	484,880.67	614,311.18	32.332788	-104.097069
11,100.00	90.00	1.67	9,639.00	1,075.57	109.00	484,980.62	614,314.10	32.333062	-104.097058
11,200.00	90.00	1.67	9,639.00	1,175.53	111.92	485,080.58	614,317.02	32.333337	-104.097048
11,300.00	90.00	1.67	9,639.00	1,275.49	114.84	485,180.54	614,319.95	32.333612	-104.097038
11,400.00	90.00	1.67	9,639.00	1,375.45	117.77	485,280.50	614,322.87	32.333887	-104.097028
11,500.00	90.00	1.67	9,639.00	1,475.40	120.69	485,380.45	614,325.79	32.334161	-104.097018
11,600.00	90.00	1.67	9,639.00	1,575.36	123.61	485,480.41	614,328.72	32.334436	-104.097007
11,700.00	90.00	1.67	9,639.00	1,675.32	126.54	485,580.37	614,331.64	32.334711	-104.096997
11,800.00	90.00	1.67	9,639.00	1,775.27	129.46	485,680.33	614,334.56	32.334986	-104.096987
11,900.00	90.00	1.67	9,639.00	1,875.23	132.38	485,780.28	614,337.49	32.335260	-104.096977
12,000.00	90.00	1.67	9,639.00	1,975.19	135.30	485,880.24	614,340.41	32.335535	-104.096967
12,100.00	90.00	1.67	9,639.00	2,075.15	138.23	485,980.20	614,343.33	32.335810	-104.096957
12,200.00	90.00	1.67	9,639.00	2,175.10	141.15	486,080.15	614,346.25	32.336085	-104.096946
12,300.00	90.00	1.67	9,639.00	2,275.06	144.07	486,180.11	614,349.18	32.336359	-104.096936
12,400.00	90.00	1.67	9,639.00	2,375.02	147.00	486,280.07	614,352.10	32.336634	-104.096926
12,500.00	90.00	1.67	9,639.00	2,474.98	149.92	486,380.03	614,355.02	32.336909	-104.096916
12,600.00	90.00	1.67	9,639.00	2,574.93	152.84	486,479.98	614,357.95	32.337184	-104.096906
12,700.00	90.00	1.67	9,639.00	2,674.89	155.77	486,579.94	614,360.87	32.337458	-104.096896
12,800.00	90.00	1.67	9,639.00	2,774.85	158.69	486,679.90	614,363.79	32.337733	-104.096885
12,900.00	90.00	1.67	9,639.00	2,874.80	161.61	486,779.86	614,366.72	32.338008	-104.096875
13,000.00	90.00	1.67	9,639.00	2,974.76	164.53	486,879.81	614,369.64	32.338283	-104.096865
13,100.00	90.00	1.67	9,639.00	3,074.72	167.46	486,979.77	614,372.56	32.338557	-104.096855
13,200.00	90.00	1.67	9,639.00	3,174.68	170.38	487,079.73	614,375.48	32.338832	-104.096845
13,300.00	90.00	1.67	9,639.00	3,274.63	173.30	487,179.68	614,378.41	32.339107	-104.096834
13,400.00	90.00	1.67	9,639.00	3,374.59	176.23	487,279.64	614,381.33	32.339382	-104.096824
13,500.00	90.00	1.67	9,639.00	3,474.55	179.15	487,379.60	614,384.25	32.339656	-104.096814
13,600.00	90.00	1.67	9,639.00	3,574.51	182.07	487,479.56	614,387.18	32.339931	-104.096804
13,700.00	90.00	1.67	9,639.00	3,674.46	185.00	487,579.51	614,390.10	32.340206	-104.096794
13,800.00	90.00	1.67	9,639.00	3,774.42	187.92	487,679.47	614,393.02	32.340481	-104.096784
13,900.00	90.00	1.67	9,639.00	3,874.38	190.84	487,779.43	614,395.94	32.340755	-104.096773
14,000.00	90.00	1.67	9,639.00	3,974.33	193.76	487,879.39	614,398.87	32.341030	-104.096763
14,100.00	90.00	1.67	9,639.00	4,074.29	196.69	487,979.34	614,401.79	32.341305	-104.096753
14,195.20	90.00	1.67	9,639.00	4,169.45	199.47	488,074.50	614,404.57	32.341566	-104.096743
PBHL; 13	30' FNL, 1155'	FWL							
14,195.21	90.00	1.67	9,639.00	4,169.46	199.47	488,074.51	614,404.57	32.341566	-104.096743





Well:

SB Directional

Planning Report - Geographic



Database: EDM 5000.16 Single User Db

Goonch Fed Com 04 211H

 Company:
 NOVO Oil & Gas

 Project:
 EDDY CO., NM (NAD83)

 Site:
 SEC. 04-T23S-R28E

Wellbore: Wellbore #1
Design: Plan 2

Local Co-ordinate Reference:

TVD Reference:
MD Reference:
North Reference:

Survey Calculation Method:

Well Goonch Fed Com 04 211H

RKB @ 3041.00usft RKB @ 3041.00usft

Grid

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PBHL - Goonch Fed Cor - plan misses target - Point	0.00 center by 417	0.00 4.23usft at 0	0.00 .00usft MD (4,169.46 0.00 TVD, 0.0	199.47 0 N, 0.00 E)	488,074.51	614,404.57	32.341566	-104.096743

Casing Points							
	Measured Depth	Vertical Depth			Casing Diameter	Hole Diameter	
	(usft)	(usft)		Name	(")	(")	
	14,510.64		20" Casing		20	24	

Plan Annotation	s					
	Measured	Vertical	Local Coord	dinates		
	Depth (usft)	Depth (usft)	+N/-S (usft)	+E/-W (usft)	Comment	
	, ,	, ,	, ,	, ,		
	2,800.00	2,800.00	0.00	0.00	Start Nudge	
	3,095.76	3,095.23	-15.18	1.52	EOB	
	8,650.91	8,620.81	-584.82	58.48	EOH	
	8,946.67	8,916.04	-600.00	60.00	Drop to Vertical	
	9,096.67	9,066.04	-600.00	60.00	KOP @ 9066' TVD	
	9,996.67	9,639.00	-27.28	76.75	LP @ 9639' TVD	
	14,195.20	9,639.00	4,169.45	199.47	PBHL; 130' FNL, 1155' FWL	



NOVO Oil & Gas

EDDY CO., NM (NAD83) SEC. 04-T23S-R28E Goonch Fed Com 04 211H

Wellbore #1

Plan: Plan 2

Standard Planning Report - Geographic

24 March, 2021



S DIRECTIONAL

SB Directional

Planning Report - Geographic



Database: EDM 5000.16 Single User Db

 Company:
 NOVO Oil & Gas

 Project:
 EDDY CO., NM (NAD83)

 Site:
 SEC. 04-T23S-R28E

Well: Goonch Fed Com 04 211H

Wellbore: Wellbore #1

Design: Plan 2

Local Co-ordinate Reference:

TVD Reference:
MD Reference:
North Reference:

Survey Calculation Method:

Well Goonch Fed Com 04 211H

RKB @ 3041.00usft RKB @ 3041.00usft

Grid

Minimum Curvature

Project EDDY CO., NM (NAD83)

Map System: US State Plane 1983

Geo Datum: North American Datum 1983
Map Zone: New Mexico Eastern Zone

System Datum: Mean Sea Level

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 211H

 Well Position
 +N/-S
 0.00 usft
 Northing:
 483,905.05 usft
 Latitude:
 32.330106

 +E/-W
 0.00 usft
 Easting:
 614,205.10 usft
 Longitude:
 -104.097419

 Position Uncertainty
 0.50 usft
 Wellhead Elevation:
 usft
 Ground Level:
 3,016.00 usft

Grid Convergence: 0.13 °

Wellbore Wellbore #1 Field Strength Model Name Declination Sample Date Dip Angle Magnetics (°) (°) (nT) IGRF200510 2009/12/31 8.00 60.25 48,800.58772639

Design Plan 2

Audit Notes:

Version:Phase:PROTOTYPETie On Depth:0.00

Vertical Section: Depth From (TVD) +N/-S +E/-W Direction

(usft) (usft) (usft) (°)

 (usft)
 (usft)
 (usft)
 (°)

 0.00
 0.00
 0.00
 0.00

Plan Survey Tool Program Date 2021/03/24

Depth From Depth To

0.00

(usft) (usft) Survey (Wellbore) Tool Name Remarks

(act) (act) (act) (act)

MIMD Stand

14,195.21 Plan 2 (Wellbore #1)

MWD - Standard

MWD

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	
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,095.76	5.92	174.29	3,095.23	-15.18	1.52	2.00	2.00	0.00	174.29	
8,650.91	5.92	174.29	8,620.81	-584.82	58.48	0.00	0.00	0.00	0.00	
8,946.67	0.00	0.00	8,916.04	-600.00	60.00	2.00	-2.00	0.00	180.00	
9,096.67	0.00	0.00	9,066.04	-600.00	60.00	0.00	0.00	0.00	0.00	
9,996.67	90.00	1.67	9,639.00	-27.29	76.75	10.00	10.00	0.00	1.67	PBHL - Goonch Fed (
14,195.21	90.00	1.67	9,639.00	4,169.46	199.47	0.00	0.00	0.00	0.00	PBHL - Goonch Fed (

SB Directional

Planning Report - Geographic



EDM 5000.16 Single User Db Database: Company:

NOVO Oil & Gas

Project: EDDY CO., NM (NAD83) SEC. 04-T23S-R28E Site:

Well: Goonch Fed Com 04 211H

Wellbore #1 Wellbore: Design: Plan 2

Local Co-ordinate Reference:

TVD Reference: MD Reference: North Reference:

Survey Calculation Method:

Well Goonch Fed Com 04 211H

RKB @ 3041.00usft RKB @ 3041.00usft

Grid

Design:	Plan	_							
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	483,905.05	614,205.10	32.330106	-104.097419
100.00	0.00	0.00	100.00	0.00	0.00	483,905.05	614,205.10	32.330106	-104.097419
200.00	0.00	0.00	200.00	0.00	0.00	483,905.05	614,205.10	32.330106	-104.097419
300.00	0.00	0.00	300.00	0.00	0.00	483,905.05	614,205.10	32.330106	-104.097419
400.00	0.00	0.00	400.00	0.00	0.00	483,905.05	614,205.10	32.330106	-104.097419
500.00	0.00	0.00	500.00	0.00	0.00	483,905.05	614,205.10	32.330106	-104.097419
600.00	0.00	0.00	600.00	0.00	0.00	483,905.05	614,205.10	32.330106	-104.097419
700.00	0.00	0.00	700.00	0.00	0.00	483,905.05	614,205.10	32.330106	-104.097419
800.00	0.00	0.00	800.00	0.00	0.00	483,905.05	614,205.10	32.330106	-104.097419
900.00	0.00	0.00	900.00	0.00	0.00	483,905.05	614,205.10	32.330106	-104.097419
1,000.00	0.00	0.00	1,000.00	0.00	0.00	483,905.05	614,205.10	32.330106	-104.097419
1,100.00	0.00	0.00	1,100.00	0.00	0.00	483,905.05	614,205.10	32.330106	-104.097419
1,200.00	0.00	0.00	1,200.00	0.00	0.00	483,905.05	614,205.10	32.330106	-104.097419
1,300.00	0.00	0.00	1,300.00	0.00	0.00	483,905.05	614,205.10	32.330106	-104.097419
1,400.00	0.00	0.00	1,400.00	0.00	0.00	483,905.05	614,205.10	32.330106	-104.097419
1,500.00	0.00	0.00	1,500.00	0.00	0.00	483,905.05	614,205.10	32.330106	-104.097419
1,600.00	0.00	0.00	1,600.00	0.00	0.00	483,905.05	614,205.10	32.330106	-104.097419
1,700.00	0.00	0.00	1,700.00	0.00	0.00	483,905.05	614,205.10	32.330106	-104.097419
1,800.00	0.00	0.00	1,800.00	0.00	0.00	483,905.05	614,205.10	32.330106	-104.097419
1,900.00	0.00	0.00	1,900.00	0.00	0.00	483,905.05	614,205.10	32.330106	-104.097419
2,000.00	0.00	0.00	2,000.00	0.00	0.00	483,905.05	614,205.10	32.330106	-104.097419
2,100.00	0.00	0.00	2,100.00 2,200.00	0.00 0.00	0.00 0.00	483,905.05	614,205.10	32.330106 32.330106	-104.097419 -104.097419
2,200.00 2,300.00	0.00	0.00 0.00	2,200.00	0.00	0.00	483,905.05 483,905.05	614,205.10 614,205.10	32.330106	-104.097419
2,400.00	0.00	0.00	2,400.00	0.00	0.00	483,905.05	614,205.10	32.330106	-104.097419
2,500.00	0.00	0.00	2,500.00	0.00	0.00	483,905.05	614,205.10	32.330106	-104.097419
2,600.00	0.00	0.00	2,600.00	0.00	0.00	483,905.05	614,205.10	32.330106	-104.097419
2,700.00	0.00	0.00	2,700.00	0.00	0.00	483,905.05	614,205.10	32.330106	-104.097419
2,800.00	0.00	0.00	2,800.00	0.00	0.00	483,905.05	614,205.10	32.330106	-104.097419
Start Nu			,			,	, , , , ,		
2,900.00	2.00	174.29	2,899.98	-1.74	0.17	483,903.31	614,205.28	32.330102	-104.097418
3,000.00	4.00	174.29	2,999.84	-6.94	0.69	483,898.11	614,205.80	32.330087	-104.097417
3,095.76	5.92	174.29	3,095.23	-15.18	1.52	483,889.87	614,206.62	32.330065	-104.097414
EOB									
3,100.00	5.92	174.29	3,099.45	-15.61	1.56	483,889.44	614,206.66	32.330064	-104.097414
3,200.00	5.92	174.29	3,198.92	-25.87	2.59	483,879.18	614,207.69	32.330035	-104.097411
3,300.00	5.92	174.29	3,298.39	-36.12	3.61	483,868.93	614,208.72	32.330007	-104.097407
3,400.00	5.92	174.29	3,397.86	-46.38	4.64	483,858.68	614,209.74	32.329979	-104.097404
3,500.00	5.92	174.29	3,497.32	-56.63	5.66	483,848.42	614,210.77	32.329951	-104.097401
3,600.00	5.92	174.29	3,596.79	-66.88	6.69	483,838.17	614,211.79	32.329923	-104.097398
3,700.00	5.92	174.29	3,696.26	-77.14	7.71	483,827.91	614,212.82	32.329894	-104.097394
3,800.00	5.92	174.29	3,795.73	-87.39	8.74	483,817.66	614,213.84	32.329866	-104.097391
3,900.00	5.92	174.29	3,895.19	-97.65	9.76	483,807.40	614,214.87	32.329838	-104.097388
4,000.00	5.92	174.29	3,994.66	-107.90	10.79	483,797.15	614,215.89	32.329810	-104.097385
4,100.00	5.92	174.29	4,094.13	-118.16	11.82	483,786.89	614,216.92	32.329782	-104.097382
4,200.00	5.92	174.29	4,193.60	-128.41	12.84	483,776.64	614,217.94	32.329753	-104.097378
4,300.00	5.92	174.29	4,293.06	-138.66	13.87	483,766.39	614,218.97	32.329725	-104.097375
4,400.00	5.92	174.29	4,392.53	-148.92	14.89	483,756.13	614,220.00	32.329697	-104.097372
4,500.00	5.92	174.29	4,492.00	-159.17	15.92 16.04	483,745.88	614,221.02	32.329669	-104.097369
4,600.00 4,700.00	5.92 5.92	174.29 174.29	4,591.47 4,690.93	-169.43 -179.68	16.94 17.97	483,735.62 483,725.37	614,222.05 614,223.07	32.329641 32.329612	-104.097365 -104.097362
4,800.00	5.92	174.29	4,690.93	-179.06 -189.94	18.99	483,715.11	614,224.10	32.329584	-104.097359
4,900.00	5.92	174.29	4,790.40	-109.94	20.02	483,704.86	614,225.12	32.329556	-104.097356
5,000.00	5.92	174.29	4,989.34	-210.45	21.04	483,694.61	614,226.15	32.329528	-104.097352
3,000.00	0.02	.,	.,000.0 F	2.0.10		.00,001.01	J,	02.020020	.51.007.002

S DIRECTIONAL

Company:

SB Directional

Planning Report - Geographic



Database: EDM 5000.16 Single User Db

NOVO Oil & Gas

 Project:
 EDDY CO., NM (NAD83)

 Site:
 SEC. 04-T23S-R28E

 Well:
 Goonch Fed Com 04 211H

Wellbore: Wellbore #1

Design: Plan 2

Local Co-ordinate Reference:

TVD Reference:
MD Reference:
North Reference:

Survey Calculation Method:

Well Goonch Fed Com 04 211H

RKB @ 3041.00usft RKB @ 3041.00usft

Grid

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	5.92	174.29	5,088.80	-220.70	22.07	483,684.35	614,227.17	32.329500	-104.097349
5,200.00	5.92	174.29	5,188.27	-230.95	23.10	483,674.10	614,228.20	32.329471	-104.097346
5,300.00	5.92	174.29	5,287.74	-241.21	24.12	483,663.84	614,229.22	32.329443	-104.097343
5,400.00	5.92	174.29	5,387.21	-251.46	25.15	483,653.59	614,230.25	32.329415	-104.097339
5,500.00	5.92	174.29	5,486.67	-261.72	26.17	483,643.33	614,231.28	32.329387	-104.097336
5,600.00	5.92	174.29	5,586.14	-271.97	27.20	483,633.08	614,232.30	32.329359	-104.097333
5,700.00	5.92	174.29 174.29	5,685.61	-282.23 -292.48	28.22 29.25	483,622.83	614,233.33	32.329330 32.329302	-104.097330 -104.097326
5,800.00 5,900.00	5.92 5.92	174.29	5,785.08 5,884.54	-292.46 -302.73	30.27	483,612.57 483,602.32	614,234.35 614,235.38	32.329274	-104.097323
6,000.00	5.92	174.29	5,984.01	-302.73	31.30	483,592.06	614,236.40	32.329246	-104.097323
6,100.00	5.92	174.29	6,083.48	-323.24	32.32	483,581.81	614,237.43	32.329218	-104.097317
6,200.00	5.92	174.29	6,182.95	-333.50	33.35	483,571.55	614,238.45	32.329190	-104.097313
6,300.00	5.92	174.29	6,282.41	-343.75	34.38	483,561.30	614,239.48	32.329161	-104.097310
6,400.00	5.92	174.29	6,381.88	-354.01	35.40	483,551.04	614,240.50	32.329133	-104.097307
6,500.00	5.92	174.29	6,481.35	-364.26	36.43	483,540.79	614,241.53	32.329105	-104.097304
6,600.00	5.92	174.29	6,580.82	-374.51	37.45	483,530.54	614,242.56	32.329077	-104.097300
6,700.00	5.92	174.29	6,680.28	-384.77	38.48	483,520.28	614,243.58	32.329049	-104.097297
6,800.00	5.92	174.29	6,779.75	-395.02	39.50	483,510.03	614,244.61	32.329020	-104.097294
6,900.00	5.92	174.29	6,879.22	-405.28	40.53	483,499.77	614,245.63	32.328992	-104.097291
7,000.00	5.92	174.29	6,978.69	-415.53	41.55	483,489.52	614,246.66	32.328964	-104.097287
7,100.00	5.92	174.29	7,078.16	-425.79	42.58	483,479.26	614,247.68	32.328936	-104.097284
7,200.00	5.92	174.29	7,177.62	-436.04	43.60	483,469.01	614,248.71	32.328908	-104.097281
7,300.00	5.92	174.29	7,277.09	-446.30	44.63	483,458.76	614,249.73	32.328879	-104.097278
7,400.00	5.92	174.29	7,376.56	-456.55	45.65	483,448.50	614,250.76	32.328851	-104.097274
7,500.00	5.92	174.29	7,476.03	-466.80	46.68	483,438.25	614,251.78	32.328823	-104.097271
7,600.00 7,700.00	5.92 5.92	174.29 174.29	7,575.49 7,674.96	-477.06 -487.31	47.71 48.73	483,427.99 483,417.74	614,252.81 614,253.84	32.328795 32.328767	-104.097268 -104.097265
7,800.00	5.92	174.29	7,074.90	-467.51 -497.57	49.76	483,407.48	614,254.86	32.328738	-104.097261
7,900.00	5.92	174.29	7,873.90	-507.82	50.78	483,397.23	614,255.89	32.328710	-104.097258
8,000.00	5.92	174.29	7,973.36	-518.08	51.81	483,386.97	614,256.91	32.328682	-104.097255
8,100.00	5.92	174.29	8,072.83	-528.33	52.83	483,376.72	614,257.94	32.328654	-104.097252
8,200.00	5.92	174.29	8,172.30	-538.58	53.86	483,366.47	614,258.96	32.328626	-104.097248
8,300.00	5.92	174.29	8,271.77	-548.84	54.88	483,356.21	614,259.99	32.328597	-104.097245
8,400.00	5.92	174.29	8,371.23	-559.09	55.91	483,345.96	614,261.01	32.328569	-104.097242
8,500.00	5.92	174.29	8,470.70	-569.35	56.93	483,335.70	614,262.04	32.328541	-104.097239
8,600.00	5.92	174.29	8,570.17	-579.60	57.96	483,325.45	614,263.06	32.328513	-104.097235
8,650.91	5.92	174.29	8,620.81	-584.82	58.48	483,320.23	614,263.59	32.328499	-104.097234
EOH									
8,700.00	4.93	174.29	8,669.68	-589.44	58.94	483,315.61	614,264.05	32.328486	-104.097232
8,800.00	2.93	174.29	8,769.44	-596.27	59.63	483,308.79	614,264.73	32.328467	-104.097230
8,900.00	0.93	174.29	8,869.37	-599.62	59.96	483,305.43	614,265.07	32.328458	-104.097229
8,946.67	0.00	0.00	8,916.04	-600.00	60.00	483,305.05	614,265.10	32.328457	-104.097229
Drop to									
9,000.00	0.00	0.00	8,969.37	-600.00	60.00	483,305.05	614,265.10	32.328457	-104.097229
9,096.67	0.00	0.00	9,066.04	-600.00	60.00	483,305.05	614,265.10	32.328457	-104.097229
_	9066' TVD	4.0=	0.000.0=	F00 00	00.00	400 005 05	044.005.40	00 000 157	404.007055
9,100.00	0.33	1.67	9,069.37	-599.99 500.71	60.00	483,305.06	614,265.10	32.328457	-104.097229
9,200.00	10.33	1.67	9,168.81	-590.71	60.27	483,314.34	614,265.38	32.328482	-104.097228
9,300.00 9,400.00	20.33 30.33	1.67 1.67	9,265.13 9,355.40	-564.31 -521.60	61.04 62.29	483,340.74 483,383.45	614,266.15 614,267.40	32.328555 32.328672	-104.097225 -104.097221
9,500.00	40.33	1.67	9,355.40	-521.60 -463.86	63.98	483,441.19	614,267.40	32.328831	-104.097221
9,600.00	50.33	1.67	9,436.66	-403.60 -392.86	66.06	483,512.19	614,271.16	32.329026	-104.097218
9,700.00	60.33	1.67	9,563.89	-392.00	68.46	483,594.30	614,273.56	32.329252	-104.097208
9,800.00	70.33	1.67	9,605.58	-220.03	71.11	483,685.02	614,276.21	32.329501	-104.097199
5,000.00	70.00	1.07	0,000.00		, , , , , ,	100,000.02	011,210.21	02.02000 i	104.007 100

SPORFCTIONAL

SB Directional

Planning Report - Geographic



Database: EDM 5000.16 Single User Db

Company: NOVO Oil & Gas
Project: EDDY CO., NM (NAD83)

 Project:
 EDDY CO., NM (NAD83)

 Site:
 SEC. 04-T23S-R28E

 Well:
 Goonch Fed Com 04 211H

Wellbore: Wellbore #1
Design: Plan 2

Local Co-ordinate Reference:

TVD Reference:
MD Reference:
North Reference:

Survey Calculation Method:

Well Goonch Fed Com 04 211H

RKB @ 3041.00usft RKB @ 3041.00usft

Grid

Design:	Plan	2							
Planned Survey	,								
Measured Depth	Inclination	Azimuth	Vertical Depth	+N/-S	+E/-W	Map Northing	Map Easting		
(usft)	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)	Latitude	Longitude
9,900.00	80.33	1.67	9,630.86	-123.46	73.94	483,781.60	614,279.04	32.329767	-104.097180
9,996.67	90.00	1.67	9,639.00	-27.28	76.75	483,877.77	614,281.85	32.330031	-104.097171
LP @ 96	39' TVD								
10,000.00		1.67	9,639.00	-23.96	76.84	483,881.09	614,281.95	32.330040	-104.097170
10,100.00	90.00	1.67	9,639.00	76.00	79.77	483,981.05	614,284.87	32.330315	-104.097160
10,200.00	90.00	1.67	9,639.00	175.96	82.69	484,081.01	614,287.79	32.330590	-104.097150
10,300.00		1.67	9,639.00	275.92	85.61	484,180.97	614,290.72	32.330864	-104.097140
10,400.00		1.67	9,639.00	375.87	88.54	484,280.92	614,293.64	32.331139	-104.097130
10,500.00		1.67	9,639.00	475.83	91.46	484,380.88	614,296.56	32.331414	-104.097119
10,600.00	90.00	1.67	9,639.00	575.79	94.38	484,480.84	614,299.49	32.331689	-104.097109
10,700.00	90.00	1.67	9,639.00	675.74	97.31	484,580.80	614,302.41	32.331963	-104.097099
10,800.00		1.67	9,639.00	775.70	100.23	484,680.75	614,305.33	32.332238	-104.097089
10,900.00		1.67	9,639.00	875.66	103.15	484,780.71	614,308.26	32.332513	-104.097079
11,000.00	90.00	1.67	9,639.00	975.62	106.07	484,880.67	614,311.18	32.332788	-104.097069
11,100.00		1.67	9,639.00	1,075.57	109.00	484,980.62	614,314.10	32.333062	-104.097058
11,200.00		1.67	9,639.00	1,175.53	111.92	485,080.58	614,317.02	32.333337	-104.097048
11,300.00		1.67	9,639.00	1,275.49	114.84	485,180.54	614,319.95	32.333612	-104.097038
11,400.00		1.67	9,639.00	1,375.45	117.77	485,280.50	614,322.87	32.333887	-104.097028
11,500.00		1.67	9,639.00	1,475.40	120.69	485,380.45	614,325.79	32.334161	-104.097018
11,600.00		1.67	9,639.00	1,575.36	123.61	485,480.41	614,328.72	32.334436	-104.097007
11,700.00		1.67	9,639.00	1,675.32	126.54	485,580.37	614,331.64	32.334711	-104.096997
11,800.00		1.67	9,639.00	1,775.27	129.46	485,680.33	614,334.56	32.334986	-104.096987
11,900.00		1.67	9,639.00	1,875.23	132.38	485,780.28	614,337.49	32.335260	-104.096977
12,000.00		1.67	9,639.00	1,975.19	135.30	485,880.24	614,340.41	32.335535	-104.096967
12,100.00		1.67	9,639.00	2,075.15	138.23	485,980.20	614,343.33	32.335810	-104.096957
12,200.00		1.67	9,639.00	2,175.10	141.15	486,080.15	614,346.25	32.336085	-104.096946
12,300.00		1.67	9,639.00	2,275.06	144.07	486,180.11	614,349.18	32.336359	-104.096936
12,400.00		1.67	9,639.00	2,375.02	147.00	486,280.07	614,352.10	32.336634	-104.096926
12,500.00		1.67	9,639.00	2,474.98	149.92	486,380.03	614,355.02	32.336909	-104.096916
12,600.00		1.67	9,639.00	2,574.93	152.84	486,479.98	614,357.95	32.337184	-104.096906
12,700.00		1.67	9,639.00	2,674.89	155.77	486,579.94	614,360.87	32.337458	-104.096896
12,800.00		1.67	9,639.00	2,774.85	158.69	486,679.90	614,363.79	32.337733	-104.096885
12,900.00		1.67	9,639.00	2,874.80	161.61	486,779.86	614,366.72	32.338008	-104.096875
13,000.00		1.67	9,639.00	2,974.76	164.53	486,879.81	614,369.64	32.338283	-104.096865
13,100.00		1.67	9,639.00	3,074.72	167.46	486,979.77	614,372.56	32.338557	-104.096855
13,200.00		1.67	9,639.00	3,174.68	170.38	487,079.73	614,375.48	32.338832	-104.096845
13,300.00		1.67	9,639.00	3,274.63	173.30	487,179.68	614,378.41	32.339107	-104.096834
13,400.00		1.67	9,639.00	3,374.59	176.23	487,279.64	614,381.33	32.339382	-104.096824
13,500.00		1.67	9,639.00	3,474.55	179.15	487,379.60	614,384.25	32.339656	-104.096814
13,600.00		1.67	9,639.00	3,574.51	182.07	487,479.56	614,387.18	32.339931	-104.096804
13,700.00		1.67	9,639.00	3,674.46	185.00	487,579.51	614,390.10	32.340206	-104.096794
13,800.00		1.67	9,639.00	3,774.42	187.92	487,679.47	614,393.02	32.340481	-104.096784
13,900.00		1.67	9,639.00	3,874.38	190.84	487,779.43	614,395.94	32.340755	-104.096773
14,000.00		1.67	9,639.00	3,974.33	193.76	487,879.39	614,398.87	32.341030	-104.096763
14,100.00		1.67	9,639.00	4,074.29	196.69	487,979.34	614,401.79	32.341305	-104.096753
14,195.20		1.67	9,639.00	4,169.45	199.47	488,074.50	614,404.57	32.341566	-104.096743
	30' FNL, 1155'								
14,195.21	90.00	1.67	9,639.00	4,169.46	199.47	488,074.51	614,404.57	32.341566	-104.096743





SB Directional

Planning Report - Geographic



Database: EDM 5000.16 Single User Db

 Company:
 NOVO Oil & Gas

 Project:
 EDDY CO., NM (NAD83)

 Site:
 SEC. 04-T23S-R28E

 Well:
 Goonch Fed Com 04 211H

Wellbore: Wellbore #1

Design: Plan 2

Local Co-ordinate Reference:

TVD Reference:
MD Reference:
North Reference:

Survey Calculation Method:

Well Goonch Fed Com 04 211H

RKB @ 3041.00usft RKB @ 3041.00usft

Grid

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PBHL - Goonch Fed Cor - plan misses target - Point		0.00 4.23usft at 0	0.00 .00usft MD (4,169.46 0.00 TVD, 0.0	199.47 0 N, 0.00 E)	488,074.51	614,404.57	32.341566	-104.096743

Casing Points							
	Measured Depth (usft)	Vertical Depth (usft)		Name	Casing Diameter (")	Hole Diameter (")	
	14,510.64		20" Casing		20	24	

Plan Annotations							
Measured	Vertical	Local Coor	dinates				
Depth (usft)	Depth (usft)	+N/-S (usft)	+E/-W (usft)	Comment			
2,800.00	2,800.00	0.00	0.00	Start Nudge			
3,095.76	3,095.23	-15.18	1.52	EOB			
8,650.91	8,620.81	-584.82	58.48	EOH			
8,946.67	8,916.04	-600.00	60.00	Drop to Vertical			
9,096.67	9,066.04	-600.00	60.00	KOP @ 9066' TVD			
9,996.67	9,639.00	-27.28	76.75	LP @ 9639' TVD			
14,195.20	9,639.00	4,169.45	199.47	PBHL; 130' FNL, 1155' FWL			

PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME: | NOVO OIL AND GAS

WELL NAME & NO.: | GOONCH FED COM 04 211H

SURFACE HOLE FOOTAGE: | 1080'/S & 1075'/W BOTTOM HOLE FOOTAGE | 130'/N & 990'/W

LOCATION: Section 4, T.23 S., R.28 E., NMPM

COUNTY: | **EDDY County, New Mexico**

COA

H2S	• Yes	O No	
Potash	None	Secretary	© R-111-P
Cave/Karst Potential	O Low	• Medium	O High
Cave/Karst Potential	Critical		
Variance	O None	Flex Hose	Other
Wellhead	Conventional	• Multibowl	O 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 594 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.

- 2. The **8 5/8** inch intermediate casing shall be set at approximately **7009** feet. The minimum required fill of cement behind the **8 5/8** inch intermediate casing is:
 - Operator has proposed a DV tool, the depth may be adjusted as long as the cement is changed proportionally. The DV tool may be cancelled if cement circulates to surface on the first stage.
 - a. First stage to DV tool: Cement to circulate. If cement does not circulate off the DV tool, contact the appropriate BLM office before proceeding with second stage cement job.
 - b. Second stage above DV tool:
 - 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.

JJP03172021

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

rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).

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

A. CASING

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

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

B. PRESSURE CONTROL

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

- a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
- b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
- c. Manufacturer representative shall install the test plug for the initial BOP test
- d. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.
- e. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
- 5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
 - a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead 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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State of New Mexico Energy, Minerals and Natural Resources Oil Conservation Division 1220 S. St Francis Dr. **Santa Fe, NM 87505**

COMMENTS

Action 28071

COMMENTS

Operator:	OGRID:
NOVO OIL & GAS NORTHERN DELAWARE, LLC	372920
1001 West Wilshire Blvd	Action Number:
Oklahoma City, OK 73116	28071
	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

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CONDITIONS

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