

District I1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720**District II**811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720**District III**1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170**District IV**1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462Form C-101
August 1, 2011

Permit 294702

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

APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE

1. Operator Name and Address V-F PETROLEUM INC P.O. Box 1889 Midland, TX 79702		2. OGRID Number 24010
		3. API Number 30-015-48136
4. Property Code 30356	5. Property Name GARVIN 22 STATE COM	6. Well No. 221H

7. Surface Location

UL - Lot M	Section 22	Township 18S	Range 28E	Lot Idn M	Feet From 330	N/S Line S	Feet From 100	E/W Line W	County Eddy
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8. Proposed Bottom Hole Location

UL - Lot P	Section 22	Township 18S	Range 28E	Lot Idn P	Feet From 330	N/S Line S	Feet From 100	E/W Line E	County Eddy
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9. Pool Information

ILLINOIS CAMP;BONE SPRING	33590
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Additional Well Information

11. Work Type New Well	12. Well Type OIL	13. Cable/Rotary	14. Lease Type State	15. Ground Level Elevation 3571
16. Multiple N	17. Proposed Depth 11967	18. Formation Bone Spring	19. Contractor	20. Spud Date 5/1/2021
Depth to Ground water		Distance from nearest fresh water well		Distance to nearest surface water

☒ We will be using a closed-loop system in lieu of lined pits**21. Proposed Casing and Cement Program**

Type	Hole Size	Casing Size	Casing Weight/ft	Setting Depth	Sacks of Cement	Estimated TOC
Surf	17.5	13.375	54.5	450	450	0
Int1	12.25	9.625	40	3500	825	0
Prod	8.75	5.5	17	11967	1330	3000

Casing/Cement Program: Additional Comments

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22. Proposed Blowout Prevention Program

Type	Working Pressure	Test Pressure	Manufacturer
Annular	3000	1500	TBD
Double Ram	3000	3000	TBD

23. I hereby certify that the information given above is true and complete to the best of my knowledge and belief.
 I further certify I have complied with 19.15.14.9 (A) NMAC ☒ and/or 19.15.14.9 (B) NMAC ☒ if applicable.

OIL CONSERVATION DIVISION

Signature:

Printed Name: Electronically filed by Pam O'Neil

Approved By: Kurt Simmons

Title: Regulatory Manager

Title: Petroleum Specialist - A

Email Address: pamo@vfpetroleum.com

Approved Date: 4/20/2021

Expiration Date: 4/20/2023

Date: 4/8/2021

Phone: 432-683-3344

Conditions of Approval Attached

DISTRICT I

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

Form C-102

Revised August 1, 2011

Submit one copy to appropriate
District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code 33590	Pool Name ILLINOIS CAMP; BONE SPRING
Property Code 30356	Property Name GARVIN 22 STATE COM	Well Number 221H
OGRID No.	Operator Name V-F PETROLEUM INC	Elevation 3571'

Surface Location

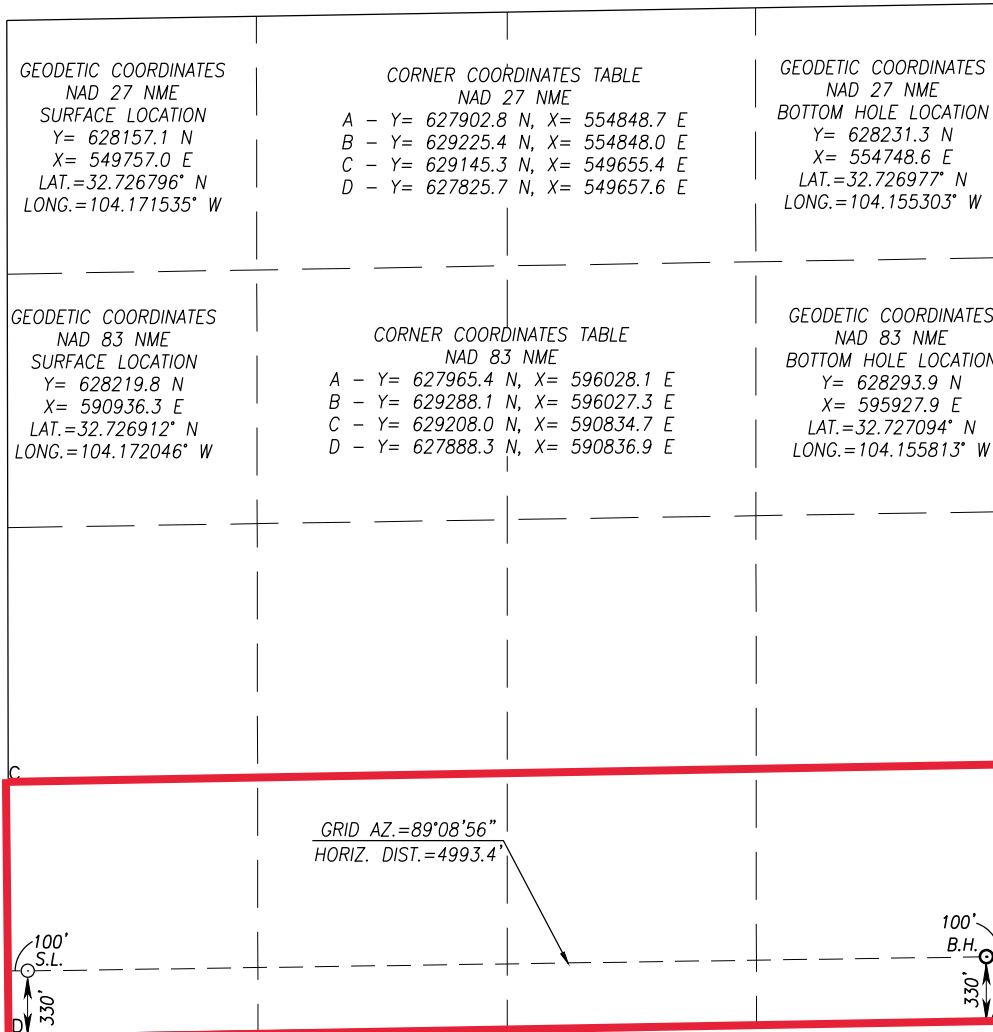
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	22	18-S	28-E		330	SOUTH	100	WEST	EDDY

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
P	22	18-S	28-E		330	SOUTH	100	EAST	EDDY

Dedicated Acres 160	Joint or Infill	Consolidation Code C	Order No.
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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



OPERATOR CERTIFICATION

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

Jason L. Lodge 4/8/21
Signature Date

Jason Lodge

Printed Name

Jason@vfpetroleum.com

E-mail Address

SURVEYOR CERTIFICATION

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

FEBRUARY 13, 2019

Date of Survey
Signature & Seal of Professional Surveyor

Ronald J. Eidson 04/10/2019
Certificate Number Gary G. Eidson 12641
Ronald J. Eidson 3239

LSL JWSC W.O.: 19.11.0133

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Santa Fe, NM 87505

GAS CAPTURE PLAN

Date: 4/20/2021

☒ Original

Operator & OGRID No.: [24010] V-F PETROLEUM INC

☐ Amended - Reason for
Amendment: _____

This Gas Capture Plan outlines actions to be taken by the Operator to reduce well/production facility flaring/venting for new completion (new drill, recomple to new zone, re-frac) activity.

Note: Form C-129 must be submitted and approved prior to exceeding 60 days allowed by Rule (Subsection A of 19.15.18.12 NMAC).

Well(s)/Production Facility – Name of facility

The well(s) that will be located at the production facility are shown in the table below.

Well Name	API	Well Location (ULSTR)	Footages	Expected MCF/D	Flared or Vented	Comments
GARVIN 22 STATE COM #221H	30-015-48136	M-22-18S-28E	0330S 0100W	1500	Flared	

Gathering System and Pipeline Notification

Well(s) will be connected to a production facility after flowback operations are complete, if gas transporter system is in place. The gas produced from production facility is dedicated to DCP OPERATING COMPANY, LP and will be connected to DCP OPERATING COMPANY, LP High/Low Pressure gathering system located in Eddy County, New Mexico. It will require 1750' of pipeline to connect the facility to High/Low Pressure gathering system. V-F PETROLEUM INC provides (periodically) to DCP OPERATING COMPANY, LP a drilling, completion and estimated first production date for wells that are scheduled to be drilled in the foreseeable future. In addition, V-F PETROLEUM INC and DCP OPERATING COMPANY, LP have periodic conference calls to discuss changes to drilling and completion schedules. Gas from these wells will be processed at DCP OPERATING COMPANY, LP Processing Plant located in Sec. 20, Twn. 19S, Rng. 28E, Eddy County, New Mexico. The actual flow of the gas will be based on compression operating parameters and gathering system pressures.

Flowback Strategy

After the fracture treatment/completion operations, well(s) will be produced to temporary production tanks and gas will be flared or vented. During flowback, the fluids and sand content will be monitored. When the produced fluids contain minimal sand, the wells will be turned to production facilities. Gas sales should start as soon as the wells start flowing through the production facilities, unless there are operational issues on DCP OPERATING COMPANY, LP system at that time. Based on current information, it is V-F PETROLEUM INC's belief the system can take this gas upon completion of the well(s).

Safety requirements during cleanout operations from the use of underbalanced air cleanout systems may necessitate that sand and non-pipeline quality gas be vented and/or flared rather than sold on a temporary basis.

Alternatives to Reduce Flaring

Below are alternatives considered from a conceptual standpoint to reduce the amount of gas flared.

- Power Generation – On lease
 - Only a portion of gas is consumed operating the generator, remainder of gas will be flared
- Compressed Natural Gas – On lease
 - Gas flared would be minimal, but might be uneconomical to operate when gas volume declines
- NGL Removal – On lease
 - Plants are expensive, residue gas is still flared, and uneconomical to operate when gas volume declines

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Form APD Conditions

Permit 294702

PERMIT CONDITIONS OF APPROVAL

Operator Name and Address: V-F PETROLEUM INC [24010] P.O. Box 1889 Midland, TX 79702	API Number: 30-015-48136
	Well: GARVIN 22 STATE COM #221H

OCD Reviewer	Condition
ksimmons	Notify OCD 24 hours prior to casing & cement
ksimmons	Will require a File As Drilled C-102 and a Directional Survey with the C-104
ksimmons	The Operator is to notify NMOCDC by sundry (Form C-103) within ten (10) days of the well being spud
kpickford	Surface casing must be set 25' below top of Rustler Anhydrite or salt in order to seal off protectable water
kpickford	Drilling Sundries Form C-103 (Casing and Cement test are to be submitted within 10 days 3)- Completion Reports & Logs are to be submitted within 45 days 4)- Deviation / Directional Drill Survey are to be filed with or prior to C-104
kpickford	Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string
kpickford	Oil base muds are not to be used until fresh water zones are cased and cemented providing isolation from the oil or diesel. This includes synthetic oils. Oil based mud, drilling fluids and solids must be contained in a steel closed loop system

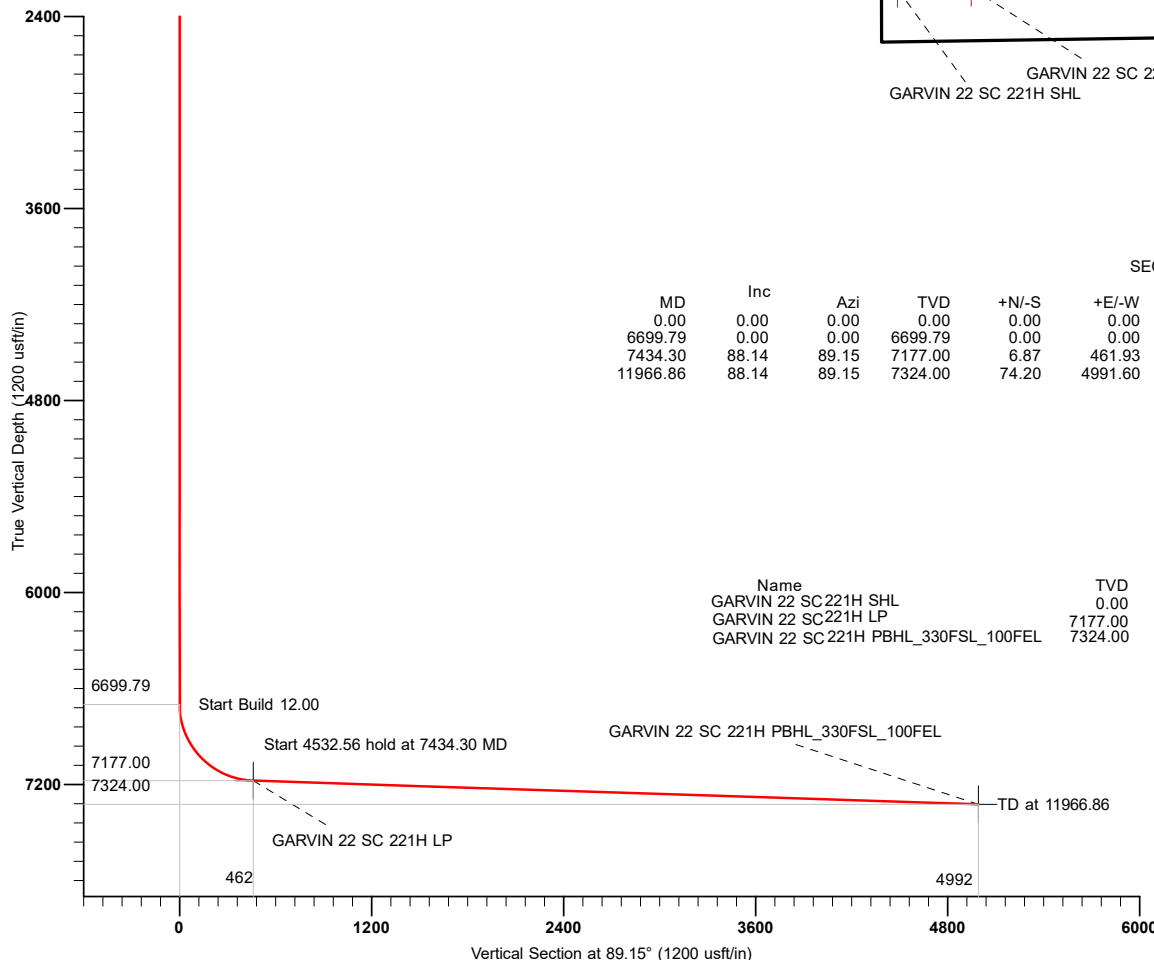
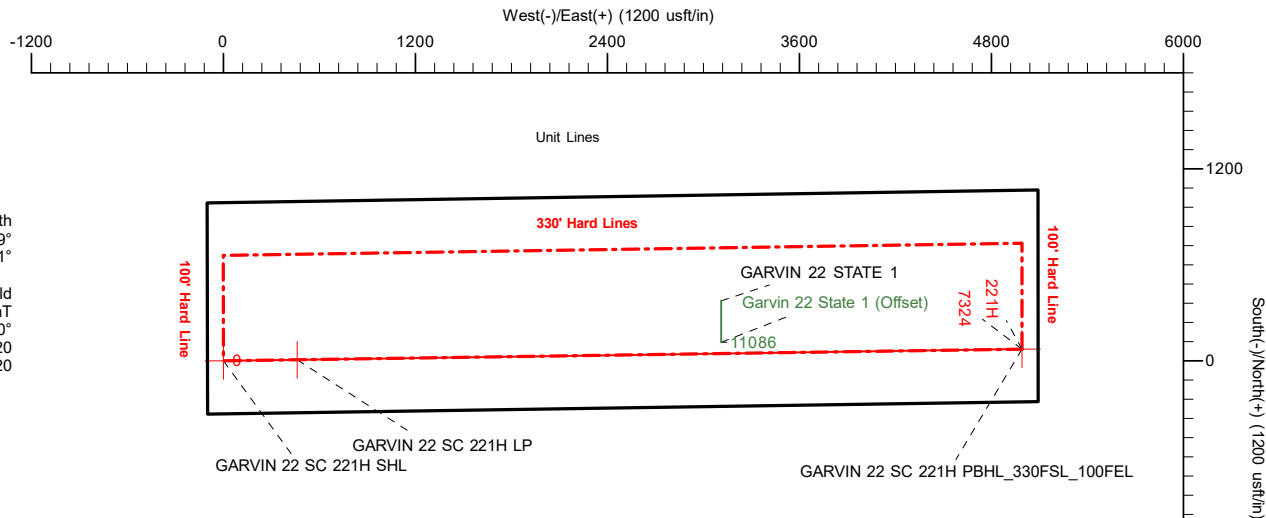
V-F PETROLUEM

Project: Eddy County, NM (NAD27) NMEZ Grid
 Site: Garvin 22 State COM
 Well: 221H
 Wellbore: Lateral
 Design: Plan #1

3571+20 @ 3591.00usft (Plan221)
 NAD 1927 (NADCON CONUS)



Azimuths to Grid North
 True North: -0.09°
 Magnetic North: 6.91°
 Magnetic Field
 Strength: 47845.0nT
 Dip Angle: 60.30°
 Date: 04/28/2020
 Model: IGRF2020



SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6699.79	0.00	0.00	6699.79	0.00	0.00	0.00	0.00	0.00
7434.30	88.14	89.15	7177.00	6.87	461.93	12.00	89.15	461.98
11966.86	88.14	89.15	7324.00	74.20	4991.60	0.00	0.00	4992.15

TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting
GARVIN 22 SC 221H SHL	0.00	0.00	0.00	628157.10	549757.00
GARVIN 22 SC 221H LP	7177.00	6.87	461.93	628163.97	550218.93
GARVIN 22 SC 221H PBHL_330FSL_100FEL	7324.00	74.20	4991.60	628231.30	554748.60

To convert a Magnetic Direction to a Grid Direction, Add 6.91°
 To convert a Magnetic Direction to a True Direction, Add 6.99° East
 Magnetic North is 6.91° East of Grid North (Magnetic Convergence)
 Magnetic North is 6.99° East of True North (Magnetic Declination)

Planning Report

Database:	TP_EDM	Local Co-ordinate Reference:	Well 221H - Slot GARVIN 22 SC 221H SHL
Company:	V-F PETROLUEM	TVD Reference:	3571+20 @ 3591.00usft (Plan221)
Project:	Eddy County, NM (NAD27) NMEZ Grid	MD Reference:	3571+20 @ 3591.00usft (Plan221)
Site:	Garvin 22 State COM	North Reference:	Grid
Well:	221H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral		
Design:	Plan #1		

Project	Eddy County, NM (NAD27) NMEZ Grid		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site	Garvin 22 State COM		
Site Position:		Northing:	628,217.10 usft
From:	Map	Easting:	549,756.90 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13.20 in
		Latitude:	32° 43' 37.057 N
		Longitude:	104° 10' 17.526 W
		Grid Convergence:	0.09 °

Well	221H - Slot GARVIN 22 SC 221H SHL		
Well Position	+N/-S	-60.00 usft	Northing: 628,157.10 usft
	+E/-W	0.10 usft	Easting: 549,757.00 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	Latitude: 32° 43' 36.463 N
			Longitude: 104° 10' 17.526 W
			Ground Level: 3,571.00 usft

Wellbore	Lateral		
Magnetics	Model Name	Sample Date	Declination (°)
	IGRF2020	04/28/20	6.99
			Dip Angle (°) 60.30
			Field Strength (nT) 47,845

Design	Plan #1		
Audit Notes:			
Version:	Phase:	PROTOTYPE	Tie On Depth: 0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)
	0.00	0.00	0.00
			Direction (°) 89.15

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,699.79	0.00	0.00	6,699.79	0.00	0.00	0.00	0.00	0.00	0.00	
7,434.30	88.14	89.15	7,177.00	6.87	461.93	12.00	12.00	0.00	89.15	
11,966.86	88.14	89.15	7,324.00	74.20	4,991.60	0.00	0.00	0.00	0.00	GARVIN 22 SC 221H

Planning Report

Database:	TP_EDM	Local Co-ordinate Reference:	Well 221H - Slot GARVIN 22 SC 221H SHL
Company:	V-F PETROLUEM	TVD Reference:	3571+20 @ 3591.00usft (Plan221)
Project:	Eddy County, NM (NAD27) NMEZ Grid	MD Reference:	3571+20 @ 3591.00usft (Plan221)
Site:	Garvin 22 State COM	North Reference:	Grid
Well:	221H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral		
Design:	Plan #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GARVIN 22 SC 221H SHL									
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	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
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	0.00	0.00
4,700.00	0.00	0.00	4,700.00	0.00	0.00	0.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,800.00	0.00	0.00	0.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,900.00	0.00	0.00	0.00	0.00	0.00	0.00
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,100.00	0.00	0.00	0.00	0.00	0.00	0.00
5,200.00	0.00	0.00	5,200.00	0.00	0.00	0.00	0.00	0.00	0.00

Planning Report

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Well:	221H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral		
Design:	Plan #1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
5,300.00	0.00	0.00	5,300.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,400.00	0.00	0.00	5,400.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,500.00	0.00	0.00	5,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,600.00	0.00	0.00	5,600.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,700.00	0.00	0.00	5,700.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,800.00	0.00	0.00	5,800.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,900.00	0.00	0.00	5,900.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,000.00	0.00	0.00	6,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,100.00	0.00	0.00	6,100.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,200.00	0.00	0.00	6,200.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,300.00	0.00	0.00	6,300.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,400.00	0.00	0.00	6,400.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,500.00	0.00	0.00	6,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,600.00	0.00	0.00	6,600.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,699.79	0.00	0.00	6,699.79	0.00	0.00	0.00	0.00	0.00	0.00	
6,725.00	3.03	89.15	6,724.99	0.01	0.67	0.67	12.00	12.00	0.00	
6,750.00	6.03	89.15	6,749.91	0.04	2.64	2.64	12.00	12.00	0.00	
6,775.00	9.03	89.15	6,774.69	0.09	5.91	5.91	12.00	12.00	0.00	
6,800.00	12.03	89.15	6,799.27	0.16	10.48	10.48	12.00	12.00	0.00	
6,825.00	15.03	89.15	6,823.57	0.24	16.32	16.32	12.00	12.00	0.00	
6,850.00	18.03	89.15	6,847.53	0.35	23.43	23.43	12.00	12.00	0.00	
6,875.00	21.03	89.15	6,871.09	0.47	31.78	31.79	12.00	12.00	0.00	
6,900.00	24.03	89.15	6,894.18	0.61	41.36	41.36	12.00	12.00	0.00	
6,925.00	27.03	89.15	6,916.74	0.77	52.13	52.14	12.00	12.00	0.00	
6,950.00	30.03	89.15	6,938.70	0.95	64.07	64.07	12.00	12.00	0.00	
6,975.00	33.03	89.15	6,960.01	1.15	77.14	77.14	12.00	12.00	0.00	
7,000.00	36.03	89.15	6,980.61	1.36	91.30	91.31	12.00	12.00	0.00	
7,025.00	39.03	89.15	7,000.43	1.58	106.53	106.54	12.00	12.00	0.00	
7,050.00	42.03	89.15	7,019.43	1.82	122.77	122.78	12.00	12.00	0.00	
7,075.00	45.03	89.15	7,037.56	2.08	139.98	139.99	12.00	12.00	0.00	
7,100.00	48.03	89.15	7,054.76	2.35	158.12	158.13	12.00	12.00	0.00	
7,125.00	51.03	89.15	7,070.98	2.63	177.13	177.15	12.00	12.00	0.00	
7,150.00	54.03	89.15	7,086.19	2.93	196.97	196.99	12.00	12.00	0.00	
7,175.00	57.03	89.15	7,100.34	3.23	217.57	217.60	12.00	12.00	0.00	
7,200.00	60.03	89.15	7,113.39	3.55	238.89	238.91	12.00	12.00	0.00	
7,225.00	63.03	89.15	7,125.31	3.88	260.86	260.89	12.00	12.00	0.00	
7,250.00	66.03	89.15	7,136.06	4.21	283.42	283.45	12.00	12.00	0.00	
7,275.00	69.03	89.15	7,145.62	4.56	306.52	306.55	12.00	12.00	0.00	
7,300.00	72.03	89.15	7,153.95	4.91	330.08	330.12	12.00	12.00	0.00	
7,325.00	75.03	89.15	7,161.04	5.26	354.05	354.09	12.00	12.00	0.00	
7,350.00	78.03	89.15	7,166.86	5.62	378.36	378.40	12.00	12.00	0.00	
7,375.00	81.03	89.15	7,171.41	5.99	402.94	402.98	12.00	12.00	0.00	
7,400.00	84.03	89.15	7,174.66	6.36	427.72	427.77	12.00	12.00	0.00	
7,425.00	87.03	89.15	7,176.61	6.73	452.64	452.69	12.00	12.00	0.00	
7,434.30	88.14	89.15	7,177.00	6.87	461.93	461.98	12.00	12.00	0.00	
GARVIN 22 SC 221H LP										
7,500.00	88.14	89.15	7,179.13	7.84	527.59	527.64	0.00	0.00	0.00	
7,600.00	88.14	89.15	7,182.38	9.33	627.52	627.59	0.00	0.00	0.00	
7,700.00	88.14	89.15	7,185.62	10.81	727.46	727.54	0.00	0.00	0.00	
7,800.00	88.14	89.15	7,188.86	12.30	827.39	827.49	0.00	0.00	0.00	
7,900.00	88.14	89.15	7,192.11	13.78	927.33	927.43	0.00	0.00	0.00	
8,000.00	88.14	89.15	7,195.35	15.27	1,027.27	1,027.38	0.00	0.00	0.00	
8,100.00	88.14	89.15	7,198.59	16.76	1,127.20	1,127.33	0.00	0.00	0.00	

Planning Report

Database:	TP_EDM	Local Co-ordinate Reference:	Well 221H - Slot GARVIN 22 SC 221H SHL
Company:	V-F PETROLUEM	TVD Reference:	3571+20 @ 3591.00usft (Plan221)
Project:	Eddy County, NM (NAD27) NMEZ Grid	MD Reference:	3571+20 @ 3591.00usft (Plan221)
Site:	Garvin 22 State COM	North Reference:	Grid
Well:	221H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral		
Design:	Plan #1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
8,200.00	88.14	89.15	7,201.84	18.24	1,227.14	1,227.28	0.00	0.00	0.00	
8,300.00	88.14	89.15	7,205.08	19.73	1,327.08	1,327.22	0.00	0.00	0.00	
8,400.00	88.14	89.15	7,208.32	21.21	1,427.01	1,427.17	0.00	0.00	0.00	
8,500.00	88.14	89.15	7,211.57	22.70	1,526.95	1,527.12	0.00	0.00	0.00	
8,600.00	88.14	89.15	7,214.81	24.18	1,626.89	1,627.06	0.00	0.00	0.00	
8,700.00	88.14	89.15	7,218.05	25.67	1,726.82	1,727.01	0.00	0.00	0.00	
8,800.00	88.14	89.15	7,221.29	27.15	1,826.76	1,826.96	0.00	0.00	0.00	
8,900.00	88.14	89.15	7,224.54	28.64	1,926.69	1,926.91	0.00	0.00	0.00	
9,000.00	88.14	89.15	7,227.78	30.13	2,026.63	2,026.85	0.00	0.00	0.00	
9,100.00	88.14	89.15	7,231.02	31.61	2,126.57	2,126.80	0.00	0.00	0.00	
9,200.00	88.14	89.15	7,234.27	33.10	2,226.50	2,226.75	0.00	0.00	0.00	
9,300.00	88.14	89.15	7,237.51	34.58	2,326.44	2,326.70	0.00	0.00	0.00	
9,400.00	88.14	89.15	7,240.75	36.07	2,426.38	2,426.64	0.00	0.00	0.00	
9,500.00	88.14	89.15	7,244.00	37.55	2,526.31	2,526.59	0.00	0.00	0.00	
9,600.00	88.14	89.15	7,247.24	39.04	2,626.25	2,626.54	0.00	0.00	0.00	
9,700.00	88.14	89.15	7,250.48	40.52	2,726.19	2,726.49	0.00	0.00	0.00	
9,800.00	88.14	89.15	7,253.73	42.01	2,826.12	2,826.43	0.00	0.00	0.00	
9,900.00	88.14	89.15	7,256.97	43.50	2,926.06	2,926.38	0.00	0.00	0.00	
10,000.00	88.14	89.15	7,260.21	44.98	3,025.99	3,026.33	0.00	0.00	0.00	
10,100.00	88.14	89.15	7,263.46	46.47	3,125.93	3,126.28	0.00	0.00	0.00	
10,200.00	88.14	89.15	7,266.70	47.95	3,225.87	3,226.22	0.00	0.00	0.00	
10,300.00	88.14	89.15	7,269.94	49.44	3,325.80	3,326.17	0.00	0.00	0.00	
10,400.00	88.14	89.15	7,273.18	50.92	3,425.74	3,426.12	0.00	0.00	0.00	
10,500.00	88.14	89.15	7,276.43	52.41	3,525.68	3,526.07	0.00	0.00	0.00	
10,600.00	88.14	89.15	7,279.67	53.89	3,625.61	3,626.01	0.00	0.00	0.00	
10,700.00	88.14	89.15	7,282.91	55.38	3,725.55	3,725.96	0.00	0.00	0.00	
10,800.00	88.14	89.15	7,286.16	56.87	3,825.49	3,825.91	0.00	0.00	0.00	
10,900.00	88.14	89.15	7,289.40	58.35	3,925.42	3,925.86	0.00	0.00	0.00	
11,000.00	88.14	89.15	7,292.64	59.84	4,025.36	4,025.80	0.00	0.00	0.00	
11,100.00	88.14	89.15	7,295.89	61.32	4,125.29	4,125.75	0.00	0.00	0.00	
11,200.00	88.14	89.15	7,299.13	62.81	4,225.23	4,225.70	0.00	0.00	0.00	
11,300.00	88.14	89.15	7,302.37	64.29	4,325.17	4,325.64	0.00	0.00	0.00	
11,400.00	88.14	89.15	7,305.62	65.78	4,425.10	4,425.59	0.00	0.00	0.00	
11,500.00	88.14	89.15	7,308.86	67.26	4,525.04	4,525.54	0.00	0.00	0.00	
11,600.00	88.14	89.15	7,312.10	68.75	4,624.98	4,625.49	0.00	0.00	0.00	
11,700.00	88.14	89.15	7,315.35	70.24	4,724.91	4,725.43	0.00	0.00	0.00	
11,800.00	88.14	89.15	7,318.59	71.72	4,824.85	4,825.38	0.00	0.00	0.00	
11,900.00	88.14	89.15	7,321.83	73.21	4,924.78	4,925.33	0.00	0.00	0.00	
11,966.86	88.14	89.15	7,324.00	74.20	4,991.60	4,992.15	0.00	0.00	0.00	
GARVIN 22 SC 221H PBHL_330FSL_100FEL										

Planning Report

Database:	TP_EDM	Local Co-ordinate Reference:	Well 221H - Slot GARVIN 22 SC 221H SHL
Company:	V-F PETROLUEM	TVD Reference:	3571+20 @ 3591.00usft (Plan221)
Project:	Eddy County, NM (NAD27) NMEZ Grid	MD Reference:	3571+20 @ 3591.00usft (Plan221)
Site:	Garvin 22 State COM	North Reference:	Grid
Well:	221H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral		
Design:	Plan #1		

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
GARVIN 22 SC 221H SHL - plan hits target center - Point	0.00	0.00	0.00	0.00	0.00	628,157.10	549,757.00	32° 43' 36.463 N	104° 10' 17.526 W
GARVIN 22 SC 221H LF - plan hits target center - Point	0.00	0.00	7,177.00	6.87	461.93	628,163.97	550,218.93	32° 43' 36.524 N	104° 10' 12.118 W
GARVIN 22 SC 221H PE - plan hits target center - Point	0.00	0.01	7,324.00	74.20	4,991.60	628,231.30	554,748.60	32° 43' 37.118 N	104° 9' 19.091 W

Anticollision Report

Company:	V-F PETROLUEM	Local Co-ordinate Reference:	Well 221H - Slot GARVIN 22 SC 221H SHL
Project:	Eddy County, NM (NAD27) NMEZ Grid	TVD Reference:	3571+20 @ 3591.00usft (Plan221)
Reference Site:	Garvin 22 State COM	MD Reference:	3571+20 @ 3591.00usft (Plan221)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	221H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Lateral	Database:	TP_EDM
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference	Plan #1		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 50.00usft	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum ellipse separation of 300.00 usft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program	Date	04/28/20		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	11,966.86	Plan #1 (Lateral)	MWD	OWSG MWD - Standard

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Garvin 22 State COM						
231H - Lateral - Plan #1	6,727.42	6,728.41	59.99	11.23	1.230	Level 2, CC
231H - Lateral - Plan #1	6,750.00	6,750.91	60.02	11.16	1.229	Level 2, ES, SF
Garvin 22 State 1 (Offset) - OH - OH AsDrilled	10,088.57	7,262.39	204.91	18.46	1.099	Level 2, CC, ES, SF

Offset Design		Garvin 22 State COM - 231H - Lateral - Plan #1											Offset Site Error:		0.00 usft
Survey Program:		0-MWD											Offset Well Error:		0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor			
0.00	0.00	1.00	1.00	0.00	0.00	-0.10	60.00	-0.10	60.00						
50.00	50.00	51.00	51.00	0.12	0.16	-0.10	60.00	-0.10	60.00	59.79	0.21	282.857			
100.00	100.00	101.00	101.00	0.31	0.31	-0.10	60.00	-0.10	60.00	59.52	0.48	123.816			
150.00	150.00	151.00	151.00	0.63	0.64	-0.10	60.00	-0.10	60.00	58.99	1.01	59.592			
200.00	200.00	201.00	201.00	0.95	0.96	-0.10	60.00	-0.10	60.00	58.47	1.53	39.262			
250.00	250.00	251.00	251.00	1.21	1.21	-0.10	60.00	-0.10	60.00	58.04	1.96	30.585			
300.00	300.00	301.00	301.00	1.46	1.46	-0.10	60.00	-0.10	60.00	57.61	2.39	25.054			
350.00	350.00	351.00	351.00	1.68	1.68	-0.10	60.00	-0.10	60.00	57.21	2.79	21.494			
400.00	400.00	401.00	401.00	1.89	1.90	-0.10	60.00	-0.10	60.00	56.81	3.19	18.821			
450.00	450.00	451.00	451.00	2.10	2.10	-0.10	60.00	-0.10	60.00	56.43	3.57	16.807			
500.00	500.00	501.00	501.00	2.31	2.31	-0.10	60.00	-0.10	60.00	56.05	3.95	15.182			
550.00	550.00	551.00	551.00	2.50	2.51	-0.10	60.00	-0.10	60.00	55.67	4.33	13.868			
600.00	600.00	601.00	601.00	2.70	2.71	-0.10	60.00	-0.10	60.00	55.30	4.70	12.763			
650.00	650.00	651.00	651.00	2.89	2.90	-0.10	60.00	-0.10	60.00	54.93	5.07	11.831			
700.00	700.00	701.00	701.00	3.09	3.09	-0.10	60.00	-0.10	60.00	54.56	5.44	11.026			
750.00	750.00	751.00	751.00	3.28	3.28	-0.10	60.00	-0.10	60.00	54.19	5.81	10.328			
800.00	800.00	801.00	801.00	3.47	3.47	-0.10	60.00	-0.10	60.00	53.82	6.18	9.714			
850.00	850.00	851.00	851.00	3.66	3.66	-0.10	60.00	-0.10	60.00	53.46	6.54	9.171			
900.00	900.00	901.00	901.00	3.85	3.85	-0.10	60.00	-0.10	60.00	53.09	6.91	8.686			
950.00	950.00	951.00	951.00	4.03	4.04	-0.10	60.00	-0.10	60.00	52.73	7.27	8.251			
1,000.00	1,000.00	1,001.00	1,001.00	4.22	4.22	-0.10	60.00	-0.10	60.00	52.36	7.64	7.857			
1,050.00	1,050.00	1,051.00	1,051.00	4.40	4.41	-0.10	60.00	-0.10	60.00	52.00	8.00	7.500			
1,100.00	1,100.00	1,101.00	1,101.00	4.59	4.59	-0.10	60.00	-0.10	60.00	51.64	8.36	7.175			
1,150.00	1,150.00	1,151.00	1,151.00	4.77	4.78	-0.10	60.00	-0.10	60.00	51.27	8.73	6.876			

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

Anticollision Report

Company:	V-F PETROLUEM	Local Co-ordinate Reference:	Well 221H - Slot GARVIN 22 SC 221H SHL
Project:	Eddy County, NM (NAD27) NMEZ Grid	TVD Reference:	3571+20 @ 3591.00usft (Plan221)
Reference Site:	Garvin 22 State COM	MD Reference:	3571+20 @ 3591.00usft (Plan221)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	221H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Lateral	Database:	TP_EDM
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design Garvin 22 State COM - 231H - Lateral - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
1,200.00	1,200.00	1,201.00	1,201.00	4.96	4.96	-0.10	60.00	-0.10	60.00	50.91	9.09	6.602		
1,250.00	1,250.00	1,251.00	1,251.00	5.14	5.15	-0.10	60.00	-0.10	60.00	50.55	9.45	6.349		
1,300.00	1,300.00	1,301.00	1,301.00	5.33	5.33	-0.10	60.00	-0.10	60.00	50.19	9.81	6.115		
1,350.00	1,350.00	1,351.00	1,351.00	5.51	5.51	-0.10	60.00	-0.10	60.00	49.83	10.17	5.898		
1,400.00	1,400.00	1,401.00	1,401.00	5.69	5.70	-0.10	60.00	-0.10	60.00	49.47	10.53	5.696		
1,450.00	1,450.00	1,451.00	1,451.00	5.88	5.88	-0.10	60.00	-0.10	60.00	49.10	10.90	5.507		
1,500.00	1,500.00	1,501.00	1,501.00	6.06	6.06	-0.10	60.00	-0.10	60.00	48.74	11.26	5.330		
1,550.00	1,550.00	1,551.00	1,551.00	6.24	6.24	-0.10	60.00	-0.10	60.00	48.38	11.62	5.165		
1,600.00	1,600.00	1,601.00	1,601.00	6.42	6.43	-0.10	60.00	-0.10	60.00	48.02	11.98	5.009		
1,650.00	1,650.00	1,651.00	1,651.00	6.61	6.61	-0.10	60.00	-0.10	60.00	47.66	12.34	4.863		
1,700.00	1,700.00	1,701.00	1,701.00	6.79	6.79	-0.10	60.00	-0.10	60.00	47.30	12.70	4.725		
1,750.00	1,750.00	1,751.00	1,751.00	6.97	6.97	-0.10	60.00	-0.10	60.00	46.94	13.06	4.594		
1,800.00	1,800.00	1,801.00	1,801.00	7.15	7.15	-0.10	60.00	-0.10	60.00	46.58	13.42	4.471		
1,850.00	1,850.00	1,851.00	1,851.00	7.33	7.34	-0.10	60.00	-0.10	60.00	46.22	13.78	4.354		
1,900.00	1,900.00	1,901.00	1,901.00	7.51	7.52	-0.10	60.00	-0.10	60.00	45.86	14.14	4.243		
1,950.00	1,950.00	1,951.00	1,951.00	7.69	7.70	-0.10	60.00	-0.10	60.00	45.50	14.50	4.138		
2,000.00	2,000.00	2,001.00	2,001.00	7.88	7.88	-0.10	60.00	-0.10	60.00	45.14	14.86	4.038		
2,050.00	2,050.00	2,051.00	2,051.00	8.06	8.06	-0.10	60.00	-0.10	60.00	44.78	15.22	3.942		
2,100.00	2,100.00	2,101.00	2,101.00	8.24	8.24	-0.10	60.00	-0.10	60.00	44.42	15.58	3.851		
2,150.00	2,150.00	2,151.00	2,151.00	8.42	8.42	-0.10	60.00	-0.10	60.00	44.06	15.94	3.764		
2,200.00	2,200.00	2,201.00	2,201.00	8.60	8.60	-0.10	60.00	-0.10	60.00	43.70	16.30	3.681		
2,250.00	2,250.00	2,251.00	2,251.00	8.78	8.78	-0.10	60.00	-0.10	60.00	43.34	16.66	3.602		
2,300.00	2,300.00	2,301.00	2,301.00	8.96	8.97	-0.10	60.00	-0.10	60.00	42.98	17.02	3.526		
2,350.00	2,350.00	2,351.00	2,351.00	9.14	9.15	-0.10	60.00	-0.10	60.00	42.62	17.38	3.453		
2,400.00	2,400.00	2,401.00	2,401.00	9.32	9.33	-0.10	60.00	-0.10	60.00	42.26	17.74	3.383		
2,450.00	2,450.00	2,451.00	2,451.00	9.50	9.51	-0.10	60.00	-0.10	60.00	41.90	18.10	3.316		
2,500.00	2,500.00	2,501.00	2,501.00	9.68	9.69	-0.10	60.00	-0.10	60.00	41.54	18.46	3.251		
2,550.00	2,550.00	2,551.00	2,551.00	9.87	9.87	-0.10	60.00	-0.10	60.00	41.19	18.81	3.189		
2,600.00	2,600.00	2,601.00	2,601.00	10.05	10.05	-0.10	60.00	-0.10	60.00	40.83	19.17	3.129		
2,650.00	2,650.00	2,651.00	2,651.00	10.23	10.23	-0.10	60.00	-0.10	60.00	40.47	19.53	3.072		
2,700.00	2,700.00	2,701.00	2,701.00	10.41	10.41	-0.10	60.00	-0.10	60.00	40.11	19.89	3.016		
2,750.00	2,750.00	2,751.00	2,751.00	10.59	10.59	-0.10	60.00	-0.10	60.00	39.75	20.25	2.963		
2,800.00	2,800.00	2,801.00	2,801.00	10.77	10.77	-0.10	60.00	-0.10	60.00	39.39	20.61	2.911		
2,850.00	2,850.00	2,851.00	2,851.00	10.95	10.95	-0.10	60.00	-0.10	60.00	39.03	20.97	2.861		
2,900.00	2,900.00	2,901.00	2,901.00	11.13	11.13	-0.10	60.00	-0.10	60.00	38.67	21.33	2.813		
2,950.00	2,950.00	2,951.00	2,951.00	11.31	11.31	-0.10	60.00	-0.10	60.00	38.31	21.69	2.766		
3,000.00	3,000.00	3,001.00	3,001.00	11.49	11.49	-0.10	60.00	-0.10	60.00	37.95	22.05	2.721		
3,050.00	3,050.00	3,051.00	3,051.00	11.67	11.67	-0.10	60.00	-0.10	60.00	37.59	22.41	2.678		
3,100.00	3,100.00	3,101.00	3,101.00	11.85	11.85	-0.10	60.00	-0.10	60.00	37.23	22.77	2.636		
3,150.00	3,150.00	3,151.00	3,151.00	12.03	12.03	-0.10	60.00	-0.10	60.00	36.88	23.13	2.595		
3,200.00	3,200.00	3,201.00	3,201.00	12.21	12.21	-0.10	60.00	-0.10	60.00	36.52	23.48	2.555		
3,250.00	3,250.00	3,251.00	3,251.00	12.39	12.39	-0.10	60.00	-0.10	60.00	36.16	23.84	2.516		
3,300.00	3,300.00	3,301.00	3,301.00	12.57	12.57	-0.10	60.00	-0.10	60.00	35.80	24.20	2.479		
3,350.00	3,350.00	3,351.00	3,351.00	12.75	12.75	-0.10	60.00	-0.10	60.00	35.44	24.56	2.443		
3,400.00	3,400.00	3,401.00	3,401.00	12.93	12.93	-0.10	60.00	-0.10	60.00	35.08	24.92	2.408		
3,450.00	3,450.00	3,451.00	3,451.00	13.11	13.11	-0.10	60.00	-0.10	60.00	34.72	25.28	2.374		
3,500.00	3,500.00	3,501.00	3,501.00	13.29	13.29	-0.10	60.00	-0.10	60.00	34.36	25.64	2.340		
3,550.00	3,550.00	3,551.00	3,551.00	13.47	13.47	-0.10	60.00	-0.10	60.00	34.00	26.00	2.308		
3,600.00	3,600.00	3,601.00	3,601.00	13.65	13.65	-0.10	60.00	-0.10	60.00	33.64	26.36	2.277		
3,650.00	3,650.00	3,651.00	3,651.00	13.83	13.83	-0.10	60.00	-0.10	60.00	33.29	26.71	2.246		
3,700.00	3,700.00	3,701.00	3,701.00	14.01	14.01	-0.10	60.00	-0.10	60.00	32.93	27.07	2.216		
3,750.00	3,750.00	3,751.00	3,751.00	14.19	14.19	-0.10	60.00	-0.10	60.00	32.57	27.43	2.187		

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

Anticollision Report

Company:	V-F PETROLUEM	Local Co-ordinate Reference:	Well 221H - Slot GARVIN 22 SC 221H SHL
Project:	Eddy County, NM (NAD27) NMEZ Grid	TVD Reference:	3571+20 @ 3591.00usft (Plan221)
Reference Site:	Garvin 22 State COM	MD Reference:	3571+20 @ 3591.00usft (Plan221)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	221H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Lateral	Database:	TP_EDM
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design Garvin 22 State COM - 231H - Lateral - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
3,800.00	3,800.00	3,801.00	3,801.00	14.37	14.37	-0.10	60.00	-0.10	60.00	32.21	27.79	2.159		
3,850.00	3,850.00	3,851.00	3,851.00	14.55	14.55	-0.10	60.00	-0.10	60.00	31.85	28.15	2.131		
3,900.00	3,900.00	3,901.00	3,901.00	14.73	14.73	-0.10	60.00	-0.10	60.00	31.49	28.51	2.105		
3,950.00	3,950.00	3,951.00	3,951.00	14.91	14.91	-0.10	60.00	-0.10	60.00	31.13	28.87	2.078		
4,000.00	4,000.00	4,001.00	4,001.00	15.09	15.09	-0.10	60.00	-0.10	60.00	30.77	29.23	2.053		
4,050.00	4,050.00	4,051.00	4,051.00	15.27	15.27	-0.10	60.00	-0.10	60.00	30.41	29.59	2.028		
4,100.00	4,100.00	4,101.00	4,101.00	15.45	15.45	-0.10	60.00	-0.10	60.00	30.06	29.94	2.004		
4,150.00	4,150.00	4,151.00	4,151.00	15.63	15.63	-0.10	60.00	-0.10	60.00	29.70	30.30	1.980		
4,200.00	4,200.00	4,201.00	4,201.00	15.81	15.81	-0.10	60.00	-0.10	60.00	29.34	30.66	1.957		
4,250.00	4,250.00	4,251.00	4,251.00	15.99	15.99	-0.10	60.00	-0.10	60.00	28.98	31.02	1.934		
4,300.00	4,300.00	4,301.00	4,301.00	16.17	16.17	-0.10	60.00	-0.10	60.00	28.62	31.38	1.912		
4,350.00	4,350.00	4,351.00	4,351.00	16.34	16.35	-0.10	60.00	-0.10	60.00	28.26	31.74	1.890		
4,400.00	4,400.00	4,401.00	4,401.00	16.52	16.53	-0.10	60.00	-0.10	60.00	27.90	32.10	1.869		
4,450.00	4,450.00	4,451.00	4,451.00	16.70	16.71	-0.10	60.00	-0.10	60.00	27.54	32.46	1.849		
4,500.00	4,500.00	4,501.00	4,501.00	16.88	16.89	-0.10	60.00	-0.10	60.00	27.19	32.81	1.828		
4,550.00	4,550.00	4,551.00	4,551.00	17.06	17.07	-0.10	60.00	-0.10	60.00	26.83	33.17	1.809		
4,600.00	4,600.00	4,601.00	4,601.00	17.24	17.25	-0.10	60.00	-0.10	60.00	26.47	33.53	1.789		
4,650.00	4,650.00	4,651.00	4,651.00	17.42	17.43	-0.10	60.00	-0.10	60.00	26.11	33.89	1.770		
4,700.00	4,700.00	4,701.00	4,701.00	17.60	17.61	-0.10	60.00	-0.10	60.00	25.75	34.25	1.752		
4,750.00	4,750.00	4,751.00	4,751.00	17.78	17.79	-0.10	60.00	-0.10	60.00	25.39	34.61	1.734		
4,800.00	4,800.00	4,801.00	4,801.00	17.96	17.97	-0.10	60.00	-0.10	60.00	25.03	34.97	1.716		
4,850.00	4,850.00	4,851.00	4,851.00	18.14	18.14	-0.10	60.00	-0.10	60.00	24.67	35.33	1.698		
4,900.00	4,900.00	4,901.00	4,901.00	18.32	18.32	-0.10	60.00	-0.10	60.00	24.32	35.68	1.681		
4,950.00	4,950.00	4,951.00	4,951.00	18.50	18.50	-0.10	60.00	-0.10	60.00	23.96	36.04	1.665		
5,000.00	5,000.00	5,001.00	5,001.00	18.68	18.68	-0.10	60.00	-0.10	60.00	23.60	36.40	1.648		
5,050.00	5,050.00	5,051.00	5,051.00	18.86	18.86	-0.10	60.00	-0.10	60.00	23.24	36.76	1.632		
5,100.00	5,100.00	5,101.00	5,101.00	19.04	19.04	-0.10	60.00	-0.10	60.00	22.88	37.12	1.616		
5,150.00	5,150.00	5,151.00	5,151.00	19.22	19.22	-0.10	60.00	-0.10	60.00	22.52	37.48	1.601		
5,200.00	5,200.00	5,201.00	5,201.00	19.40	19.40	-0.10	60.00	-0.10	60.00	22.16	37.84	1.586		
5,250.00	5,250.00	5,251.00	5,251.00	19.58	19.58	-0.10	60.00	-0.10	60.00	21.80	38.20	1.571		
5,300.00	5,300.00	5,301.00	5,301.00	19.76	19.76	-0.10	60.00	-0.10	60.00	21.45	38.55	1.556		
5,350.00	5,350.00	5,351.00	5,351.00	19.94	19.94	-0.10	60.00	-0.10	60.00	21.09	38.91	1.542		
5,400.00	5,400.00	5,401.00	5,401.00	20.12	20.12	-0.10	60.00	-0.10	60.00	20.73	39.27	1.528		
5,450.00	5,450.00	5,451.00	5,451.00	20.30	20.30	-0.10	60.00	-0.10	60.00	20.37	39.63	1.514		
5,500.00	5,500.00	5,501.00	5,501.00	20.48	20.48	-0.10	60.00	-0.10	60.00	20.01	39.99	1.500		
5,550.00	5,550.00	5,551.00	5,551.00	20.66	20.66	-0.10	60.00	-0.10	60.00	19.65	40.35	1.487 Level 3		
5,600.00	5,600.00	5,601.00	5,601.00	20.83	20.84	-0.10	60.00	-0.10	60.00	19.29	40.71	1.474 Level 3		
5,650.00	5,650.00	5,651.00	5,651.00	21.01	21.02	-0.10	60.00	-0.10	60.00	18.94	41.06	1.461 Level 3		
5,700.00	5,700.00	5,701.00	5,701.00	21.19	21.20	-0.10	60.00	-0.10	60.00	18.58	41.42	1.448 Level 3		
5,750.00	5,750.00	5,751.00	5,751.00	21.37	21.38	-0.10	60.00	-0.10	60.00	18.22	41.78	1.436 Level 3		
5,800.00	5,800.00	5,801.00	5,801.00	21.55	21.56	-0.10	60.00	-0.10	60.00	17.86	42.14	1.424 Level 3		
5,850.00	5,850.00	5,851.00	5,851.00	21.73	21.74	-0.10	60.00	-0.10	60.00	17.50	42.50	1.412 Level 3		
5,900.00	5,900.00	5,901.00	5,901.00	21.91	21.92	-0.10	60.00	-0.10	60.00	17.14	42.86	1.400 Level 3		
5,950.00	5,950.00	5,951.00	5,951.00	22.09	22.09	-0.10	60.00	-0.10	60.00	16.78	43.22	1.388 Level 3		
6,000.00	6,000.00	6,001.00	6,001.00	22.27	22.27	-0.10	60.00	-0.10	60.00	16.42	43.58	1.377 Level 3		
6,050.00	6,050.00	6,051.00	6,051.00	22.45	22.45	-0.10	60.00	-0.10	60.00	16.07	43.93	1.366 Level 3		
6,100.00	6,100.00	6,101.00	6,101.00	22.63	22.63	-0.10	60.00	-0.10	60.00	15.71	44.29	1.355 Level 3		
6,150.00	6,150.00	6,151.00	6,151.00	22.81	22.81	-0.10	60.00	-0.10	60.00	15.35	44.65	1.344 Level 3		
6,200.00	6,200.00	6,201.00	6,201.00	22.99	22.99	-0.10	60.00	-0.10	60.00	14.99	45.01	1.333 Level 3		
6,250.00	6,250.00	6,251.00	6,251.00	23.17	23.17	-0.10	60.00	-0.10	60.00	14.63	45.37	1.323 Level 3		
6,300.00	6,300.00	6,301.00	6,301.00	23.35	23.35	-0.10	60.00	-0.10	60.00	14.27	45.73	1.312 Level 3		
6,350.00	6,350.00	6,351.00	6,351.00	23.53	23.53	-0.10	60.00	-0.10	60.00	13.91	46.09	1.302 Level 3		

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

Anticollision Report

Company:	V-F PETROLUEM	Local Co-ordinate Reference:	Well 221H - Slot GARVIN 22 SC 221H SHL
Project:	Eddy County, NM (NAD27) NMEZ Grid	TVD Reference:	3571+20 @ 3591.00usft (Plan221)
Reference Site:	Garvin 22 State COM	MD Reference:	3571+20 @ 3591.00usft (Plan221)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	221H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Lateral	Database:	TP_EDM
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design Garvin 22 State COM - 231H - Lateral - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
6,400.00	6,400.00	6,401.00	6,401.00	23.71	23.71	-0.10	60.00	-0.10	60.00	13.56	46.44	1.292	Level 3	
6,450.00	6,450.00	6,451.00	6,451.00	23.89	23.89	-0.10	60.00	-0.10	60.00	13.20	46.80	1.282	Level 3	
6,500.00	6,500.00	6,501.00	6,501.00	24.07	24.07	-0.10	60.00	-0.10	60.00	12.84	47.16	1.272	Level 3	
6,550.00	6,550.00	6,551.00	6,551.00	24.24	24.25	-0.10	60.00	-0.10	60.00	12.48	47.52	1.263	Level 3	
6,600.00	6,600.00	6,601.00	6,601.00	24.42	24.43	-0.10	60.00	-0.10	60.00	12.12	47.88	1.253	Level 3	
6,650.00	6,650.00	6,651.00	6,651.00	24.60	24.61	-0.10	60.00	-0.10	60.00	11.76	48.24	1.244	Level 2	
6,700.00	6,700.00	6,701.00	6,701.00	24.78	24.79	-0.10	60.00	-0.10	60.00	11.40	48.60	1.235	Level 2	
6,727.42	6,727.41	6,728.41	6,728.41	24.88	24.89	-90.00	60.00	-0.10	59.99	11.23	48.76	1.230	Level 2, CC	
6,750.00	6,749.91	6,750.91	6,750.91	24.96	24.97	-91.75	60.00	-0.10	60.02	11.16	48.86	1.229	Level 2, ES, SF	
6,800.00	6,799.27	6,800.27	6,800.27	25.14	25.14	-98.97	60.00	-0.10	60.77	11.81	48.96	1.241	Level 2	
6,850.00	6,847.53	6,848.53	6,848.53	25.31	25.32	-109.74	60.00	-0.10	64.13	15.15	48.98	1.309	Level 3	
6,900.00	6,894.18	6,895.18	6,895.18	25.48	25.48	-121.70	60.00	-0.10	72.43	23.34	49.08	1.476	Level 3	
6,950.00	6,938.70	6,939.70	6,939.70	25.65	25.64	-132.40	60.00	-0.10	87.20	37.82	49.38	1.766		
7,000.00	6,980.61	6,981.61	6,981.61	25.81	25.79	-140.67	60.00	-0.10	108.60	58.81	49.79	2.181		
7,050.00	7,019.43	7,020.43	7,020.43	25.96	25.93	-146.49	60.00	-0.10	135.94	85.73	50.21	2.707		
7,100.00	7,054.76	7,055.76	7,055.76	26.12	26.06	-150.31	60.00	-0.10	168.39	117.80	50.60	3.328		
7,150.00	7,086.19	7,087.19	7,087.19	26.29	26.17	-152.50	60.00	-0.10	205.16	154.24	50.92	4.029		
7,200.00	7,113.39	7,114.39	7,114.39	26.47	26.27	-153.24	60.00	-0.10	245.56	194.38	51.19	4.797		
7,250.00	7,136.06	7,137.06	7,137.06	26.69	26.35	-152.42	60.00	-0.10	288.96	237.56	51.40	5.622		
7,300.00	7,153.95	7,154.95	7,154.95	26.96	26.42	-149.45	60.00	-0.10	334.75	283.19	51.56	6.493		
7,350.00	7,166.86	7,167.86	7,167.86	27.28	26.46	-142.56	60.00	-0.10	382.34	330.67	51.68	7.399		
7,400.00	7,174.66	7,175.66	7,175.66	27.65	26.49	-126.53	60.00	-0.10	431.17	379.41	51.75	8.331		
7,450.00	7,177.51	7,178.51	7,178.51	28.06	26.50	-104.46	60.00	-0.10	480.64	428.84	51.80	9.279		
7,500.00	7,179.13	7,180.13	7,180.13	28.51	26.51	-105.90	60.00	-0.10	530.26	478.43	51.83	10.231		
7,550.00	7,180.76	7,181.76	7,181.76	29.04	26.51	-107.32	60.00	-0.10	579.94	528.08	51.86	11.183		
7,600.00	7,182.38	7,183.38	7,183.38	29.58	26.52	-108.72	60.00	-0.10	629.66	577.78	51.89	12.136		
7,650.00	7,184.00	7,185.00	7,185.00	30.19	26.52	-110.09	60.00	-0.10	679.43	627.52	51.91	13.089		
7,700.00	7,185.62	7,186.62	7,186.62	30.81	26.53	-111.45	60.00	-0.10	729.22	677.29	51.93	14.042		
7,750.00	7,187.24	7,188.24	7,188.24	31.49	26.54	-112.78	60.00	-0.10	779.03	727.08	51.95	14.995		
7,800.00	7,188.86	7,189.86	7,189.86	32.18	26.54	-114.08	60.00	-0.10	828.87	776.89	51.97	15.948		
7,850.00	7,190.48	7,191.48	7,191.48	32.93	26.55	-115.36	60.00	-0.10	878.72	826.72	51.99	16.901		
7,900.00	7,192.11	7,193.11	7,193.11	33.68	26.55	-116.61	60.00	-0.10	928.58	876.57	52.01	17.853		
7,950.00	7,193.73	8,864.82	8,151.87	34.49	36.56	-176.42	73.93	936.73	959.84	930.28	29.56	32.467		
8,000.00	7,195.35	8,914.82	8,153.94	35.29	37.30	-176.42	74.67	986.68	960.29	930.34	29.95	32.058		
8,050.00	7,196.97	8,964.82	8,156.02	36.14	38.06	-176.42	75.41	1,036.63	960.74	930.37	30.37	31.632		
8,100.00	7,198.59	9,014.82	8,158.09	36.99	38.85	-176.42	76.15	1,086.58	961.19	930.40	30.79	31.213		
8,150.00	7,200.21	9,064.82	8,160.16	37.88	39.66	-176.42	76.90	1,136.53	961.64	930.40	31.24	30.781		
8,200.00	7,201.84	9,114.81	8,162.23	38.77	40.49	-176.42	77.64	1,186.48	962.09	930.40	31.69	30.358		
8,250.00	7,203.46	9,164.81	8,164.30	39.69	41.34	-176.43	78.38	1,236.43	962.54	930.37	32.17	29.925		
8,300.00	7,205.08	9,214.81	8,166.37	40.62	42.21	-176.43	79.12	1,286.38	962.99	930.35	32.64	29.502		
8,350.00	7,206.70	9,264.81	8,168.44	41.58	43.10	-176.43	79.87	1,336.33	963.44	930.30	33.14	29.072		
8,400.00	7,208.32	9,314.81	8,170.51	42.53	44.00	-176.43	80.61	1,386.27	963.89	930.25	33.64	28.653		
8,450.00	7,209.94	9,364.80	8,172.58	43.51	44.92	-176.43	81.35	1,436.22	964.34	930.17	34.16	28.230		
8,500.00	7,211.57	9,414.80	8,174.66	44.49	45.85	-176.43	82.09	1,486.17	964.78	930.10	34.68	27.817		
8,550.00	7,213.19	9,464.80	8,176.73	45.50	46.79	-176.44	82.84	1,536.12	965.23	930.01	35.22	27.403		
8,600.00	7,214.81	9,514.80	8,178.80	46.51	47.75	-176.44	83.58	1,586.07	965.68	929.92	35.77	27.000		
8,650.00	7,216.43	9,564.79	8,180.87	47.53	48.72	-176.44	84.32	1,636.02	966.13	929.81	36.32	26.597		
8,700.00	7,218.05	9,614.79	8,182.94	48.56	49.70	-176.44	85.06	1,685.97	966.58	929.69	36.89	26.205		
8,750.00	7,219.67	9,664.79	8,185.01	49.60	50.70	-176.44	85.81	1,735.92	967.03	929.57	37.46	25.814		
8,800.00	7,221.29	9,714.79	8,187.08	50.64	51.70	-176.44	86.55	1,785.87	967.48	929.44	38.04	25.434		
8,850.00	7,222.92	9,764.79	8,189.15	51.70	52.71	-176.45	87.29	1,835.82	967.93	929.30	38.63	25.056		
8,900.00	7,224.54	9,814.78	8,191.22	52.76	53.73	-176.45	88.03	1,885.77	968.38	929.15	39.22	24.689		

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

Anticollision Report

Company:	V-F PETROLUEM	Local Co-ordinate Reference:	Well 221H - Slot GARVIN 22 SC 221H SHL
Project:	Eddy County, NM (NAD27) NMEZ Grid	TVD Reference:	3571+20 @ 3591.00usft (Plan221)
Reference Site:	Garvin 22 State COM	MD Reference:	3571+20 @ 3591.00usft (Plan221)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	221H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Lateral	Database:	TP_EDM
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
8,950.00	7,226.16	9,864.78	8,193.30	53.83	54.76	-176.45	88.78	1,935.72	968.83	929.00	39.83	24.325		
9,000.00	7,227.78	9,914.78	8,195.37	54.90	55.79	-176.45	89.52	1,985.67	969.27	928.84	40.43	23.971		
9,050.00	7,229.40	9,964.78	8,197.44	55.99	56.84	-176.45	90.26	2,035.62	969.72	928.67	41.05	23.622		
9,100.00	7,231.02	10,014.78	8,199.51	57.07	57.89	-176.45	91.00	2,085.57	970.17	928.50	41.67	23.281		
9,150.00	7,232.65	10,064.77	8,201.58	58.17	58.95	-176.46	91.75	2,135.52	970.62	928.32	42.30	22.946		
9,200.00	7,234.27	10,114.77	8,203.65	59.26	60.01	-176.46	92.49	2,185.47	971.07	928.14	42.93	22.619		
9,250.00	7,235.89	10,164.77	8,205.72	60.37	61.08	-176.46	93.23	2,235.42	971.52	927.95	43.57	22.297		
9,300.00	7,237.51	10,214.77	8,207.79	61.47	62.15	-176.46	93.97	2,285.37	971.97	927.76	44.21	21.984		
9,350.00	7,239.13	10,264.77	8,209.86	62.59	63.24	-176.46	94.72	2,335.32	972.42	927.56	44.86	21.675		
9,400.00	7,240.75	10,314.76	8,211.94	63.70	64.32	-176.46	95.46	2,385.27	972.87	927.35	45.51	21.375		
9,450.00	7,242.37	10,364.76	8,214.01	64.82	65.41	-176.47	96.20	2,435.22	973.32	927.14	46.17	21.080		
9,500.00	7,244.00	10,414.76	8,216.08	65.94	66.51	-176.47	96.94	2,485.16	973.77	926.93	46.83	20.792		
9,550.00	7,245.62	10,464.76	8,218.15	67.07	67.61	-176.47	97.69	2,535.11	974.21	926.71	47.50	20.510		
9,600.00	7,247.24	10,514.76	8,220.22	68.20	68.71	-176.47	98.43	2,585.06	974.66	926.50	48.17	20.235		
9,650.00	7,248.86	10,564.75	8,222.29	69.34	69.82	-176.47	99.17	2,635.01	975.11	926.27	48.84	19.964		
9,700.00	7,250.48	10,614.75	8,224.36	70.47	70.93	-176.47	99.91	2,684.96	975.56	926.04	49.52	19.701		
9,750.00	7,252.10	10,664.75	8,226.43	71.61	72.05	-176.48	100.66	2,734.91	976.01	925.81	50.20	19.443		
9,800.00	7,253.73	10,714.75	8,228.50	72.75	73.17	-176.48	101.40	2,784.86	976.46	925.58	50.88	19.191		
9,850.00	7,255.35	10,764.75	8,230.58	73.90	74.29	-176.48	102.14	2,834.81	976.91	925.34	51.57	18.943		
9,900.00	7,256.97	10,814.74	8,232.65	75.05	75.41	-176.48	102.88	2,884.76	977.36	925.10	52.26	18.702		
9,950.00	7,258.59	10,864.74	8,234.72	76.20	76.54	-176.48	103.63	2,934.71	977.81	924.85	52.95	18.466		
10,000.00	7,260.21	10,914.74	8,236.79	77.35	77.67	-176.48	104.37	2,984.66	978.26	924.61	53.65	18.235		
10,050.00	7,261.83	10,964.74	8,238.86	78.50	78.81	-176.49	105.11	3,034.61	978.71	924.36	54.35	18.009		
10,100.00	7,263.46	11,014.74	8,240.93	79.66	79.95	-176.49	105.85	3,084.56	979.15	924.11	55.05	17.788		
10,150.00	7,265.08	11,064.73	8,243.00	80.82	81.08	-176.49	106.60	3,134.51	979.60	923.85	55.75	17.571		
10,200.00	7,266.70	11,114.73	8,245.07	81.98	82.23	-176.49	107.34	3,184.46	980.05	923.60	56.46	17.360		
10,250.00	7,268.32	11,164.73	8,247.14	83.14	83.37	-176.49	108.08	3,234.41	980.50	923.34	57.16	17.152		
10,300.00	7,269.94	11,214.73	8,249.22	84.30	84.52	-176.49	108.82	3,284.36	980.95	923.08	57.87	16.950		
10,350.00	7,271.56	11,264.73	8,251.29	85.47	85.67	-176.50	109.57	3,334.31	981.40	922.81	58.59	16.751		
10,400.00	7,273.18	11,314.72	8,253.36	86.64	86.82	-176.50	110.31	3,384.26	981.85	922.55	59.30	16.557		
10,450.00	7,274.81	11,364.72	8,255.43	87.81	87.97	-176.50	111.05	3,434.21	982.30	922.28	60.02	16.366		
10,500.00	7,276.43	11,414.72	8,257.50	88.97	89.12	-176.50	111.79	3,484.16	982.75	922.01	60.74	16.180		
10,550.00	7,278.05	11,464.72	8,259.57	90.15	90.28	-176.50	112.54	3,534.11	983.20	921.74	61.46	15.998		
10,600.00	7,279.67	11,514.72	8,261.64	91.32	91.44	-176.50	113.28	3,584.05	983.65	921.47	62.18	15.819		
10,650.00	7,281.29	11,564.71	8,263.71	92.49	92.60	-176.50	114.02	3,634.00	984.09	921.19	62.90	15.644		
10,700.00	7,282.91	11,614.71	8,265.78	93.67	93.76	-176.51	114.76	3,683.95	984.54	920.91	63.63	15.473		
10,750.00	7,284.54	11,664.71	8,267.86	94.85	94.92	-176.51	115.51	3,733.90	984.99	920.64	64.36	15.305		
10,800.00	7,286.16	11,714.71	8,269.93	96.02	96.08	-176.51	116.25	3,783.85	985.44	920.36	65.09	15.141		
10,850.00	7,287.78	11,764.71	8,272.00	97.20	97.25	-176.51	116.99	3,833.80	985.89	920.07	65.82	14.979		
10,900.00	7,289.40	11,814.70	8,274.07	98.38	98.42	-176.51	117.73	3,883.75	986.34	919.79	66.55	14.822		
10,950.00	7,291.02	11,864.70	8,276.14	99.57	99.59	-176.51	118.48	3,933.70	986.79	919.51	67.28	14.667		
11,000.00	7,292.64	11,914.70	8,278.21	100.75	100.76	-176.52	119.22	3,983.65	987.24	919.22	68.02	14.515		
11,050.00	7,294.27	11,964.70	8,280.28	101.93	101.93	-176.52	119.96	4,033.60	987.69	918.93	68.75	14.366		
11,100.00	7,295.89	12,014.70	8,282.35	103.11	103.10	-176.52	120.70	4,083.55	988.14	918.65	69.49	14.220		
11,150.00	7,297.51	12,064.69	8,284.42	104.30	104.27	-176.52	121.45	4,133.50	988.58	918.36	70.23	14.077		
11,200.00	7,299.13	12,114.69	8,286.50	105.49	105.45	-176.52	122.19	4,183.45	989.03	918.07	70.97	13.937		
11,250.00	7,300.75	12,164.69	8,288.57	106.67	106.62	-176.52	122.93	4,233.40	989.48	917.77	71.71	13.799		
11,300.00	7,302.37	12,214.69	8,290.64	107.86	107.80	-176.53	123.67	4,283.35	989.93	917.48	72.45	13.664		
11,350.00	7,303.99	12,264.69	8,292.71	109.05	108.98	-176.53	124.42	4,333.30	990.38	917.19	73.19	13.531		
11,400.00	7,305.62	12,314.68	8,294.78	110.24	110.16	-176.53	125.16	4,383.25	990.83	916.89	73.94	13.401		
11,450.00	7,307.24	12,364.68	8,296.85	111.43	111.34	-176.53	125.90	4,433.20	991.28	916.60	74.68	13.273		
11,500.00	7,308.86	12,414.68	8,298.92	112.62	112.52	-176.53	126.64	4,483.15	991.73	916.30	75.43	13.148		

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

Anticollision Report

Company:	V-F PETROLUEM	Local Co-ordinate Reference:	Well 221H - Slot GARVIN 22 SC 221H SHL
Project:	Eddy County, NM (NAD27) NMEZ Grid	TVD Reference:	3571+20 @ 3591.00usft (Plan221)
Reference Site:	Garvin 22 State COM	MD Reference:	3571+20 @ 3591.00usft (Plan221)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	221H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Lateral	Database:	TP_EDM
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design Garvin 22 State COM - 231H - Lateral - Plan #1												Offset Site Error:	0.00 usft
Survey Program: 0-MWD												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
11,550.00	7,310.48	12,464.68	8,300.99	113.81	113.70	-176.53	127.39	4,533.10	992.18	916.00	76.18	13.025	
11,600.00	7,312.10	12,514.68	8,303.06	115.00	114.88	-176.53	128.13	4,583.05	992.63	915.70	76.92	12.904	
11,650.00	7,313.72	12,564.67	8,305.14	116.20	116.06	-176.54	128.87	4,633.00	993.08	915.40	77.67	12.785	
11,700.00	7,315.35	12,614.67	8,307.21	117.39	117.25	-176.54	129.61	4,682.94	993.52	915.10	78.42	12.669	
11,750.00	7,316.97	12,664.67	8,309.28	118.58	118.43	-176.54	130.36	4,732.89	993.97	914.80	79.17	12.554	
11,800.00	7,318.59	12,714.67	8,311.35	119.78	119.62	-176.54	131.10	4,782.84	994.42	914.50	79.92	12.442	
11,850.00	7,320.21	12,764.67	8,313.42	120.97	120.80	-176.54	131.84	4,832.79	994.87	914.19	80.68	12.331	
11,900.00	7,321.83	12,814.66	8,315.49	122.17	121.99	-176.54	132.58	4,882.74	995.32	913.89	81.43	12.223	
11,950.00	7,323.45	12,864.66	8,317.56	123.37	123.18	-176.55	133.33	4,932.69	995.77	913.59	82.18	12.117	
11,966.86	7,324.00	12,881.52	8,318.26	123.77	123.58	-176.55	133.58	4,949.53	995.92	913.49	82.44	12.081	

Anticollision Report

Company:	V-F PETROLUEM	Local Co-ordinate Reference:	Well 221H - Slot GARVIN 22 SC 221H SHL
Project:	Eddy County, NM (NAD27) NMEZ Grid	TVD Reference:	3571+20 @ 3591.00usft (Plan221)
Reference Site:	Garvin 22 State COM	MD Reference:	3571+20 @ 3591.00usft (Plan221)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	221H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Lateral	Database:	TP_EDM
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 445-DIPMETER													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
9,150.00	7,232.65	7,232.22	7,230.98	58.17	119.56	-82.48	251.61	3,111.37	960.21	818.60	141.61	6.781		
9,200.00	7,234.27	7,233.82	7,232.58	59.26	119.58	-82.92	251.59	3,111.37	911.44	769.19	142.26	6.407		
9,250.00	7,235.89	7,235.43	7,234.19	60.37	119.61	-83.37	251.56	3,111.37	862.82	719.83	142.99	6.034		
9,300.00	7,237.51	7,237.04	7,235.80	61.47	119.63	-83.81	251.54	3,111.37	814.37	670.53	143.84	5.662		
9,350.00	7,239.13	7,238.65	7,237.40	62.59	119.65	-84.25	251.52	3,111.37	766.10	621.29	144.81	5.290		
9,400.00	7,240.75	7,240.25	7,239.01	63.70	119.67	-84.69	251.49	3,111.37	718.07	572.14	145.94	4.920		
9,450.00	7,242.37	7,241.86	7,240.62	64.82	119.70	-85.14	251.47	3,111.37	670.33	523.08	147.25	4.552		
9,500.00	7,244.00	7,243.47	7,242.22	65.94	119.72	-85.58	251.44	3,111.37	622.93	474.13	148.80	4.186		
9,550.00	7,245.62	7,245.07	7,243.83	67.07	119.74	-86.03	251.42	3,111.37	575.98	425.34	150.64	3.824		
9,600.00	7,247.24	7,246.68	7,245.44	68.20	119.77	-86.47	251.39	3,111.37	529.57	376.74	152.82	3.465		
9,650.00	7,248.86	7,248.29	7,247.05	69.34	119.79	-86.92	251.37	3,111.37	483.87	328.42	155.45	3.113		
9,700.00	7,250.48	7,249.90	7,248.65	70.47	119.81	-87.37	251.35	3,111.37	439.11	280.50	158.61	2.769		
9,750.00	7,252.10	7,251.50	7,250.26	71.61	119.83	-87.82	251.32	3,111.37	395.60	233.19	162.41	2.436		
9,800.00	7,253.73	7,253.11	7,251.87	72.75	119.86	-88.26	251.30	3,111.37	353.80	186.85	166.95	2.119		
9,850.00	7,255.35	7,254.72	7,253.47	73.90	119.88	-88.71	251.27	3,111.37	314.40	142.15	172.25	1.825		
9,900.00	7,256.97	7,256.33	7,255.08	75.05	119.90	-89.16	251.25	3,111.37	278.41	100.28	178.13	1.563		
9,950.00	7,258.59	7,257.93	7,256.69	76.20	119.93	-89.61	251.23	3,111.37	247.33	63.38	183.95	1.345 Level 3		
10,000.00	7,260.21	7,259.54	7,258.30	77.35	119.95	-90.06	251.20	3,111.37	223.21	34.91	188.30	1.185 Level 2		
10,050.00	7,261.83	7,261.15	7,259.90	78.50	119.97	-90.51	251.18	3,111.37	208.50	19.37	189.14	1.102 Level 2		
10,088.57	7,263.08	7,262.39	7,261.14	79.39	119.99	-90.86	251.16	3,111.37	204.91	18.46	186.45	1.099 Level 2, CC, ES, SF		
10,100.00	7,263.46	7,262.75	7,261.51	79.66	119.99	-90.96	251.15	3,111.37	205.23	20.11	185.11	1.109 Level 2		
10,150.00	7,265.08	7,264.36	7,263.12	80.82	120.02	-91.41	251.13	3,111.37	213.91	36.58	177.33	1.206 Level 2		
10,200.00	7,266.70	7,265.97	7,264.73	81.98	120.04	-91.86	251.11	3,111.37	233.22	64.62	168.60	1.383 Level 3		
10,250.00	7,268.32	7,267.58	7,266.33	83.14	120.06	-92.31	251.08	3,111.37	260.81	99.81	161.00	1.620		
10,300.00	7,269.94	7,269.18	7,267.94	84.30	120.09	-92.75	251.06	3,111.37	294.35	139.27	155.09	1.898		
10,350.00	7,271.56	7,270.79	7,269.55	85.47	120.11	-93.20	251.03	3,111.37	332.06	181.38	150.67	2.204		
10,400.00	7,273.18	7,272.40	7,271.15	86.64	120.13	-93.65	251.01	3,111.37	372.66	225.26	147.39	2.528		
10,450.00	7,274.81	7,274.01	7,272.76	87.81	120.15	-94.10	250.99	3,111.37	415.31	270.38	144.93	2.866		
10,500.00	7,276.43	7,275.62	7,274.37	88.97	120.18	-94.55	250.96	3,111.37	459.44	316.38	143.06	3.212		
10,550.00	7,278.05	7,277.22	7,275.98	90.15	120.20	-94.99	250.94	3,111.37	504.66	363.04	141.62	3.564		
10,600.00	7,279.67	7,278.83	7,277.58	91.32	120.22	-95.44	250.91	3,111.37	550.70	410.21	140.49	3.920		
10,650.00	7,281.29	7,280.44	7,279.19	92.49	120.25	-95.89	250.89	3,111.37	597.38	457.77	139.60	4.279		
10,700.00	7,282.91	7,282.05	7,280.80	93.67	120.27	-96.33	250.87	3,111.37	644.55	505.65	138.90	4.640		
10,750.00	7,284.54	7,283.65	7,282.41	94.85	120.29	-96.78	250.84	3,111.37	692.11	553.78	138.33	5.003		
10,800.00	7,286.16	7,285.26	7,284.01	96.02	120.31	-97.22	250.82	3,111.37	739.99	602.12	137.87	5.367		
10,850.00	7,287.78	7,286.87	7,285.62	97.20	120.34	-97.67	250.80	3,111.37	788.14	650.64	137.50	5.732		
10,900.00	7,289.40	7,288.48	7,287.23	98.38	120.36	-98.11	250.77	3,111.37	836.49	699.29	137.20	6.097		
10,950.00	7,291.02	7,290.08	7,288.84	99.57	120.38	-98.55	250.75	3,111.37	885.03	748.08	136.95	6.462		
11,000.00	7,292.64	7,291.69	7,290.45	100.75	120.41	-98.99	250.72	3,111.37	933.72	796.97	136.75	6.828		
11,050.00	7,294.27	7,293.30	7,292.05	101.93	120.43	-99.43	250.70	3,111.37	982.53	845.95	136.59	7.193		