

State of New Mexico
Energy, Minerals and Natural Resources Department

Michelle Lujan Grisham
Governor

Sarah Cottrell Propst
Cabinet Secretary

Todd E. Leahy, JD, PhD
Deputy Secretary

Adrienne Sandoval, Division Director
Oil Conservation Division



New Mexico Oil Conservation Division approval and conditions listed below are made in accordance with OCD Rule 19.15.7.11 and are in addition to the actions approved by BLM on the following 3160-3 APD form.

Operator Signature Date: 5/2/2019

Operator: DJR Well Name and Number: North Alamito Unit 559H

API#: 30-043-21336 **., Section:** 31, **Township:** 23N, **Range:** 7 W

Conditions of Approval: (See the below checked and handwritten conditions)

☒ Notify appropriate OCD district office 24hrs prior to casing & cement.

☒ If cement doesn't circulate on any casing string or stage tool a CBL will be required. Contact the regulatory agencies prior to proceeding.

☒ Hold C-104 for directional survey & "As Drilled" Plat

☐ Hold C-104 for: ☐ NSL, ☐ NSP, ☐ DHC, ☐ 5.9 Compliance

☐ Spacing rule violation. Operator must follow up with change of status notification on other well to be shut in or abandoned

☒ Regarding the use of a pit, closed loop system or below grade tank, the operator must comply with the following as applicable:


- A pit requires a complete C-144 be submitted and approved prior to the construction or use of the pit, pursuant to 19.15.17.8.A
- A closed loop system requires notification prior to use, pursuant to 19.15.17.9.A
- A below grade tank requires a registration be filed prior to the construction or use of the below grade tank, pursuant to 19.15.17.8.C

☒ 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 freshwater zone or zones and shall immediately set in cement the water protection string

☒ Regarding Hydraulic Fracturing, review EPA Underground Injection Control Guidance 84

☒ 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.

☒ Well-bore communication is regulated under 19.15.29 NMAC. This requires well-bore Communication to be reported in accordance with 19.15.29.8.



NMOCD Approved by Signature

10/29/2020

Date

Form 3160-3
(June 2015)FORM APPROVED
OMB No. 1004-0137
Expires: January 31, 2018UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. NMNM006681
1b. Type of Well: <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other		6. If Indian, Allottee or Tribe Name
1c. Type of Completion: <input type="checkbox"/> Hydraulic Fracturing <input type="checkbox"/> Single Zone <input checked="" type="checkbox"/> Multiple Zone		7. If Unit or CA Agreement, Name and No. /1/NORTH ALAMITO UNIT / NMNM13522
2. Name of Operator DJR OPERATING LLC		8. Lease Name and Well No. NORTH ALAMITO UNIT 559H
3a. Address 1700 LINCOLN STREET, SUITE 2800 DENVER CO 8020	3b. Phone No. (include area code) (505)632-3476	9. API Well No. 30-043-21336
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface NWSE / 2193 FSL / 2550 FEL / LAT 36.182028 / LONG -107.615164 At proposed prod. zone NVNW / 342 FNL / 508 FWL / LAT 36.20412 / LONG -107.6404		10. Field and Pool, or Exploratory ALAMITO MANCOS N (OIL)
11. Sec., T. R. M. or Blk. and Survey or Area SEC 31 / T23N / R7W / NMP		
14. Distance in miles and direction from nearest town or post office* 47 miles		12. County or Parish SANDOVAL
13. State NM		
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)	342 feet	16. No of acres in lease 642.56
17. Spacing Unit dedicated to this well	641.23	
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.	20 feet	19. Proposed Depth 5139 feet / 16718 feet
20. BLM/BIA Bond No. in file	FED: NMB001464	
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 6979 feet	22. Approximate date work will start* 09/10/2019	23. Estimated duration 10 days
24. Attachments		

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, and the Hydraulic Fracturing rule per 43 CFR 3162.3-3 (as applicable)

- | | |
|--|---|
| 1. Well plat certified by a registered surveyor. | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). |
| 2. A Drilling Plan. | 5. Operator certification. |
| 3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office). | 6. Such other site specific information and/or plans as may be requested by the BLM. |

25. Signature (Electronic Submission)	Name (Printed/Typed) Shaw-Marie N. Ford / Ph: (505)632-3476	Date 05/02/2019
Title Regulatory Specialist		
Approved by (Signature) (Electronic Submission)	Name (Printed/Typed) Dave Mankiewicz / Ph: (505)564-7761	Date 09/29/2020
Title AFM-Minerals		
Office FARMINGTON		

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

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.

APPROVED WITH CONDITIONS

Approval Date: 09/29/2020

(Continued on page 2)

*(Instructions on page 2)

AV

DISTRICT I
1625 N. French Dr., Hobbs, N.M. 86240
Phone: (575) 393-6161 Fu: (575) 393-0720

DISTRICT II
611 S. Flint St., Artesia, N.M. 86210
Phone: (575) 748-1263 Fu: (575) 748-9720

DISTRICT III
1000 Rio Brazos Rd., Aztec, N.M. 87410
Phone: (505) 334-6178 Fu: (505) 334-6170

DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, N.M. 87505
Phone: (505) 476-3480 Fu: (505) 476-3482

State of New Mexico
Energy, Minerals & Natural Resources Department

Form C-102
Revised August 1, 2011

Submit one copy to appropriate
District Office

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-043-21336	¹ Pool Code 98174	¹ Pool Name NORTH ALAMITO UNIT MANCOS OIL POOL
• Property Code 325267	• Property Name NORTH ALAMITO UNIT	• Well Number 559H
⁷ GRID No. 371838	• Operator Name DJR OPERATING, LLC	• Elevation 6979'

¹⁰ Surface Location

UL or lot no.	Section	Tol/ship	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
J	31	23N	7W		2193'	SOUTH	2550'	EAST	SANDOVAL

¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Tol/ship	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	25	23N	8W		342'	NORTH	508'	WEST	SAN JUAN

¹¹ Dedicated Acres PENETRATED SPACING UNIT:
SEC 31: SW/NE, NW/NE, SE/NW, NE/NW & LOT 1
(200.61 AC.); SEC 30: SE/SW & LOT 4 (80.62 AC.)
SEC 25: SE/SE NE/SE, NW/SE, NE/SW, SW/NE, &
NW/4 (360 AC.) = 641.23 ACRES TOTAL

¹³ Joint or Infill

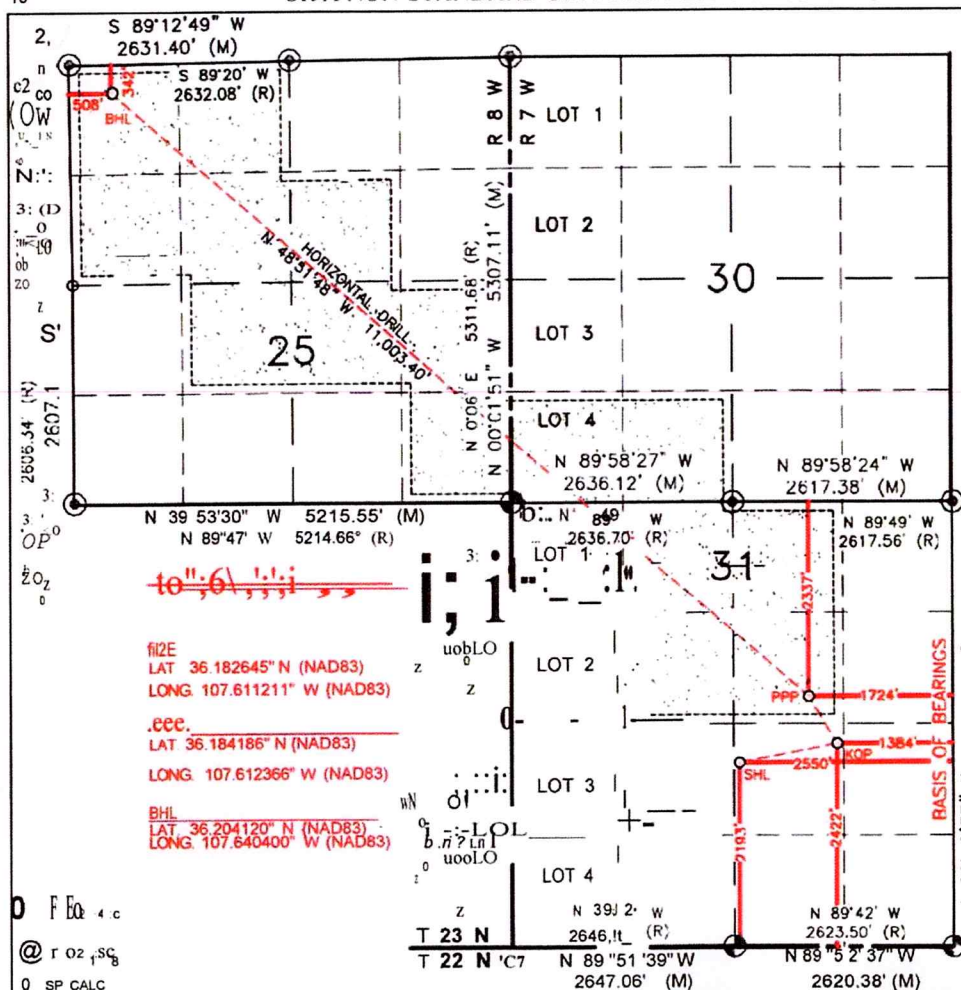
"Consolidation Code

••order No.

R-14081, R-14081A

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

16



¹⁸ OPERATOR CERTIFICATION

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

Steven Merrell 5/29/19
Signature Date

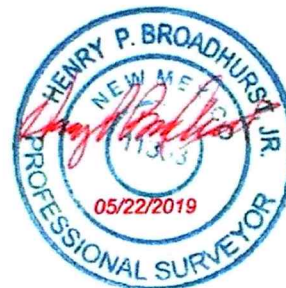
Steven Merrell
Printed Name
Smerrell@djrlc.com
E-mail Address

SURVEYOR CERTIFICATION

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

14 MARCH 15, 2019

Date of Survey
Signature and Seal of Professional Surveyor:



Certificate Number 11393

DISTRICT I

1625 N. French Dr., Hobbs, N.M. 88240
Phone: (575) 393-6161 Fu: (575) 393-0720

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OIL CONSERVATION DIVISION

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Revised August 1, 2011

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☐ AMENDED REPORT

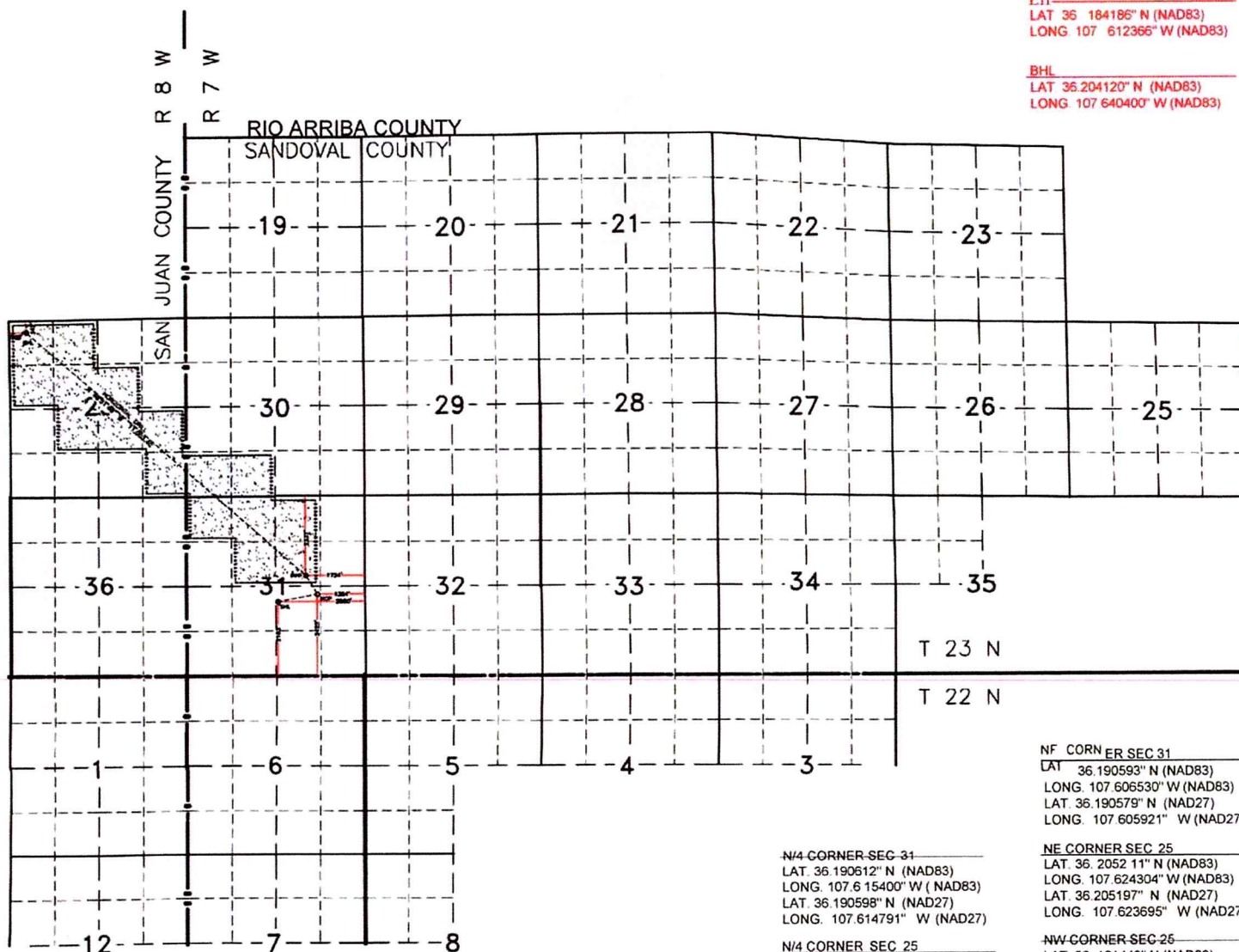
DJR OPERATING, LLC
NORTH ALAMITO UNIT #559H

SHL
LAT 36 182028" N (NAD83)
LONG 107 615164" W (NAD83)

me
LAT 36 182645" N (NAD83)
LONG 107 611211" W (NAD83)

Eff
LAT 36 184186" N (NAD83)
LONG 107 612366" W (NAD83)

BHL
LAT 36 204120" N (NAD83)
LONG 107 640400" W (NAD83)



NF CORNER SEC 31
LAT 36 190593" N (NAD83)
LONG 107 606530" W (NAD83)
LAT 36 190579" N (NAD27)
LONG 107 605921" W (NAD27)

NE CORNER SEC 25
LAT 36 205211" N (NAD83)
LONG 107 624304" W (NAD83)
LAT 36 205197" N (NAD27)
LONG 107 623695" W (NAD27)

NW CORNER SEC 26
LAT 36 161443" N (NAD83)
LONG 107 606813" W (NAD83)
LAT 36 161428" N (NAD27)
LONG 107 606205" W (NAD27)

S4 CORNER SEC 31
LAT 36 176006" N (NAD83)
LONG 107 615395" W (NAD83)
LAT 36 175992" N (NAD27)
LONG 107 614786" W (NAD27)

SE CORNER SEC 31
LAT 36 175974" N (NAD83)
LONG 107 606516" W (NAD83)
LAT 36 175960" N (NAD27)
LONG 107 605908" W (NAD27)

N/4 CORNER SEC 31
LAT 36 190612" N (NAD83)
LONG 107 615400" W (NAD83)
LAT 36 190598" N (NAD27)
LONG 107 614791" W (NAD27)

N/4 CORNER SEC 25
LAT 36 205127" N (NAD83)
LONG 107 633221" W (NAD83)
LAT 36 205113" N (NAD27)
LONG 107 632612" W (NAD27)

W/4 CORNER SEC 25
LAT 36 197850" N (NAD83)
LONG 107 642012" W (NAD83)
LAT 36 197836" N (NAD27)
LONG 107 641402" W (NAD27)

NW CORNER SEC 31
LAT 36 190632" N (NAD83)
LONG 107 624334" W (NAD83)
LAT 36 190618" N (NAD27)
LONG 107 623725" W (NAD27)

PENETRATED SPACING UNIT;

SEC 31: SW/NE, NW/NE, SE/NW, NE/NW & LOT 1 (200.61 AC.);
SEC 30: SE/SW & LOT 4 (80.62 AC.); SEC 25: SE/SE NE/SE, NW/SE,
NE/SW, SW/NE, & NW/4 (360 AC.) = 641.23 ACRES TOTAL

TOTAL 14,262.78 ACRES: T23N R7W SEC. 19-23, 25, 26-34 (ALL); 35 (NW/4);
T22N R7W SEC. 3 & 4 (N/2); 5 (N/2, SW/4); 6 (ALL); 7 (N/2); 8 (NW/4);
T23N RBW SEC. 25, 36 (ALL); T22N R8W SEC. 1 (ALL); SEC. 12 (N/2) -
UNDIVIDED UNIT

DRILLING PLAN **North Alamito Unit 559H** **Sandoval County, New Mexico**

Surface Location

2550-ft FEL & 2193-ft FSL
 Sec 31 T23N R7W
 Graded Elevation 6979' MSL
 RKB Elevation 6993' (14' KB)

SHL Geographical Coordinates (NAD-83)

Latitude 36.1820280° N
 Longitude 107.6151640° W

Kick Off Point for Horizontal Build Curve

4590-ft MD
 4404-ft TVD

Local Coordinates (from SHL)

227-ft North
 1166-ft East

Heel Location (Pay zone entry)

1724-ft FEL & 2337-ft FNL
 Sec 31 T23N R7W

Heel Geographical Coordinates (NAD-83)

Latitude 36.1841862° N
 Longitude 107.61236630° W

Bottom Hole Location (TD)

508-ft FWL & 342-ft FNL
 Sec 25 T23N R8W

BHL Geographical Coordinates (NAD-83)

Latitude 36.20412° N
 Longitude 107.6404000° W

First Take Point (FTP)

5775-ft MD
 Gallup C Sand

FTP Geographical Coordinates (NAD-83)

Latitude 36.1842949° N
 Longitude 107.6125191° W

Last Take Point (LTP)

16658-ft MD
 Gallup C Sand

LTP Geographical Coordinates (NAD-83)

Latitude 36.2040113° N
 Longitude 107.6402470° W

Well objectives

This well is planned as a 11000-ft lateral in the Gallup C sand.

Bottom Hole temperature and pressure

The temperature in the Gallup C horizontal objective is 139°F. Bottom hole pressure in the Gallup C is forecast to be 1985 psi.

Formation Tops (Sd = Sand; Sh = Shale; Siltstone = Slt, Coal = C; W = water; O = oil; G = gas; NP = no penetration)

Name	MD (ft)	TVD (ft)	Lithology	Pore fluid	Expected Pore Pressure (ppg)	Planned Mud Weight (ppg)
Ojo Alamo	877	875	Sd	W	8.3	8.4 – 8.8
Kirtland	932	929	Sh	-	8.3	8.4 – 8.8
Fruitland	1182	1172	C	G	8.3	9.0 - 9.5
Picture Cliffs	1480	1456	Sd	W	8.3	9.0 - 9.5
Lewis	1657	1624	Sh	-		9.0 - 9.5
Chacra	2288	2222	Sd	-	8.3	9.0 - 9.5
Menefee	3075	2968	Sd, C	G	8.3	9.0 - 9.5
Point Lookout	4024	3867	Sd	-	8.3	9.0 - 9.5
Mancos	4213	4047	Sh	-		9.0 - 9.5
Mancos Silt	4566	4381	Slt	O/G	6.6	9.0 - 9.5
Gallup A	5078	4856	Slt	O/G	6.6	9.0 - 9.5
Gallup B	5121	4890	Sd	O/G	6.6	8.8 - 9.0
Gallup C	5265	4992	Sd	O/G	6.6	8.8 - 9.0
Target	5715	5139	Sd	O/G	6.6	8.8 - 9.0

Casing Program

Casing OD	Hole Size	Weight (#/ft)	Grade	Coupling	MD Top	MD Bottom	TVD Top	TVD Bottom	Top of Cement
9-5/8"	12-1/4"	36	K-55	STC	surf	350	surf	350	surface
7"	8-3/4"	26	K-55	LTC	surf	5705	surf	5139	surface
4-1/2"	6-1/8"	11.6	P-110	BTC	5495	16718	5106	5139	5495

Note: all casing will be new

Casing Design Load Cases

Description	Casing String		
	9-5/8" Surface	7" Intermediate	4-1/2" Production Liner
Collapse	Full internal evacuation ¹	✓	✓
	Cementing	✓	✓
Burst	Pressure test	✓ ²	✓
	Gas kick	✓ ³	
	Fracture at shoe, 1/3 BHP at surface	✓ ⁴	
	Injection down casing		✓ ⁵
Axial	Dynamic load on casing coupling ⁶	✓	✓
Axial	Overpull ⁷	✓	✓

Note

- 1 Fluid level at shoe, air column to surface, pore pressure outside
- 2 Tested to 80% of minimum internal yield with freshwater inside, pore pressure outside
- 3 50 bbl kick at TD, 0.50 ppg intensity, 4" drill pipe, 9.0 ppg mud, fracture gradient at shoe
- 4 2060 psi BHP, 687 psi surface pressure, 12.5 ppg EMW shoe integrity
- 5 Surface stimulation pressure of 8000 psi on 8.3 ppg fluid column. Stimulation will be down frac string, so load does not apply to 7" intermediate casing.
- 6 Shock load from abrupt pipe deceleration, evaluated against coupling rating
- 7 Overpull values as follows: Surface casing 20,000 lbs, Intermediate & Production 100,000 lbs

Casing Design Factors

Casing string	Casing OD	Design Factors			
		Burst	Collapse	Axial	Triaxial
Surface	9-5/8"	1.25	13.38	8.16	1.56
Intermediate	7"	1.25	1.50	1.68	1.34
Production liner	4-1/2"	1.37	3.68	1.88	1.69

Cement Design

Additives: A=Accelerator; B=Bond Enhancer; De=Defoamer; Di=Dispersant; Ex=Extender; Fl=Fluid Loss L=Lost Circulation; R=Retarder; SA=Suspending Agent; THX=Thixotropic Additive; V=Viscosifier

9-5/8" Surface Casing	Lead
Name	Redi-Mix
Type	I-II
Additives	20% Fly Ash
Planned top	Surface
Density (ppg)	14.50
Yield (cf/sx)	1.61
Mix water (gal/sx)	7.41
Volume (sx)	114
Volume (bbls)	33

<u>7" Intermediate Casing</u>	<u>Lead</u>	<u>Tail</u>
Halliburton Name	HALCEM	VARICEM
Type	Poz/G	Poz/G
Additives	Ex, L, SA	Ex, FI, SA, L, THX
Planned top	Surface	3713-ft
Density (ppg)	12.30	13.50
Yield (cf/sx)	1.95	1.30
Mix water (gal/sx)	10.14	5.64
Volume (sx)	470	398
Volume (bbls)	163	92

<u>4-1/2" Production Liner</u>	<u>Lead</u>
Halliburton Name	EXTENDACEM
Type	Poz/G
Additives	B, De, Di, FI, Re, V
Planned top	5495-ft
Density (ppg)	13.3
Yield (cf/sx)	1.36
Mix water (gal/sx)	5.94
Volume (sx)	1135
Volume (bbls)	275

Wellhead & Pressure Control

The well head will be an 11" 5M multi-bowl system. A 2M BOPE conforming to Onshore Order #2 will be installed on the surface casing. The BOP and accumulator will meet API 16D and 16E respectively.

A PVT mud monitoring system and a trip tank will be rigged up and operational for all hole intervals. An electronic geograph will be employed to monitor and record drilling data (ROP, WOB, SPM, Pressure, RPM and torque).

Mud Program

Surface hole will be drilled with a fresh water, native mud system. In intermediate hole, a low weight 7% KCl LSND drilling fluid will be used, with KCl providing chemical stability for the young shales and clays present in the interval. In production hole a LSND system with polymer and lubricant additives is programmed. Sufficient drill water and mud additives will be on hand to maintain adequate pit volumes and maintain well control.

Hole Section	Fluid type	Interval (MD)	Density (ppg)	Funnel Viscosity	Yield Point	Fluid Loss (cc/30 min)
Surface	Fresh water spud mud	0 – 350	8.4 – 8.8	32 – 44	2 – 12	NC
Intermediate	7% KCl Low solids, non-dispersed	350 – 5705	9.0 – 9.5	38 – 45	8 – 14	<20
Production	Low solids, non-dispersed	5705 – 16718	8.8 – 9.2	34 – 38	6 – 8	6 – 8

Cores, tests and logs

Wellbore surveying: Drift (inclination only) surveys will be obtained in surface hole. MWD directional surveys will be taken in intermediate and production hole.

Logging while drilling: None in surface hole. MWD GR in intermediate and production hole.

Mud logging: a two-person mud logging unit with C1 – C4 gas analysis will be operational in intermediate and production hole.

Electric logging: No open hole electric logs are programmed. A cased hole GR/CCL will be run during completions for perforating depth control.

Cuttings and drilling fluids management

A closed loop, steel tank-based circulating system will be used. In addition to the rig solids control equipment, a dewatering centrifuge and chemical flocculation system will be operational to strip solids from the whole mud. All solids will be collected in 3-sided bins and will then be put into transports with a bucket loader. Drying agents will be used if

necessary. The solids will be taken to a licensed commercial disposal facility. Whole mud will be dewatered back to drill water and used as make up for subsequent wells or hauled off for disposal. A diagram of the closed loop system is included.

Completion

It is envisioned that this well will be completed with a multi-stage sand frac, using the plug and perf technique. After drilling out the plugs, the current plan is to install a 2-7/8" plunger-assisted gas lift tubing string. The stimulation and completion plan will be sundried at a later date.



Pad name : J31 2307
Well name : NAU 559H

SHL Latitude : 36.18202800
SHL Longitude : -107.61516400

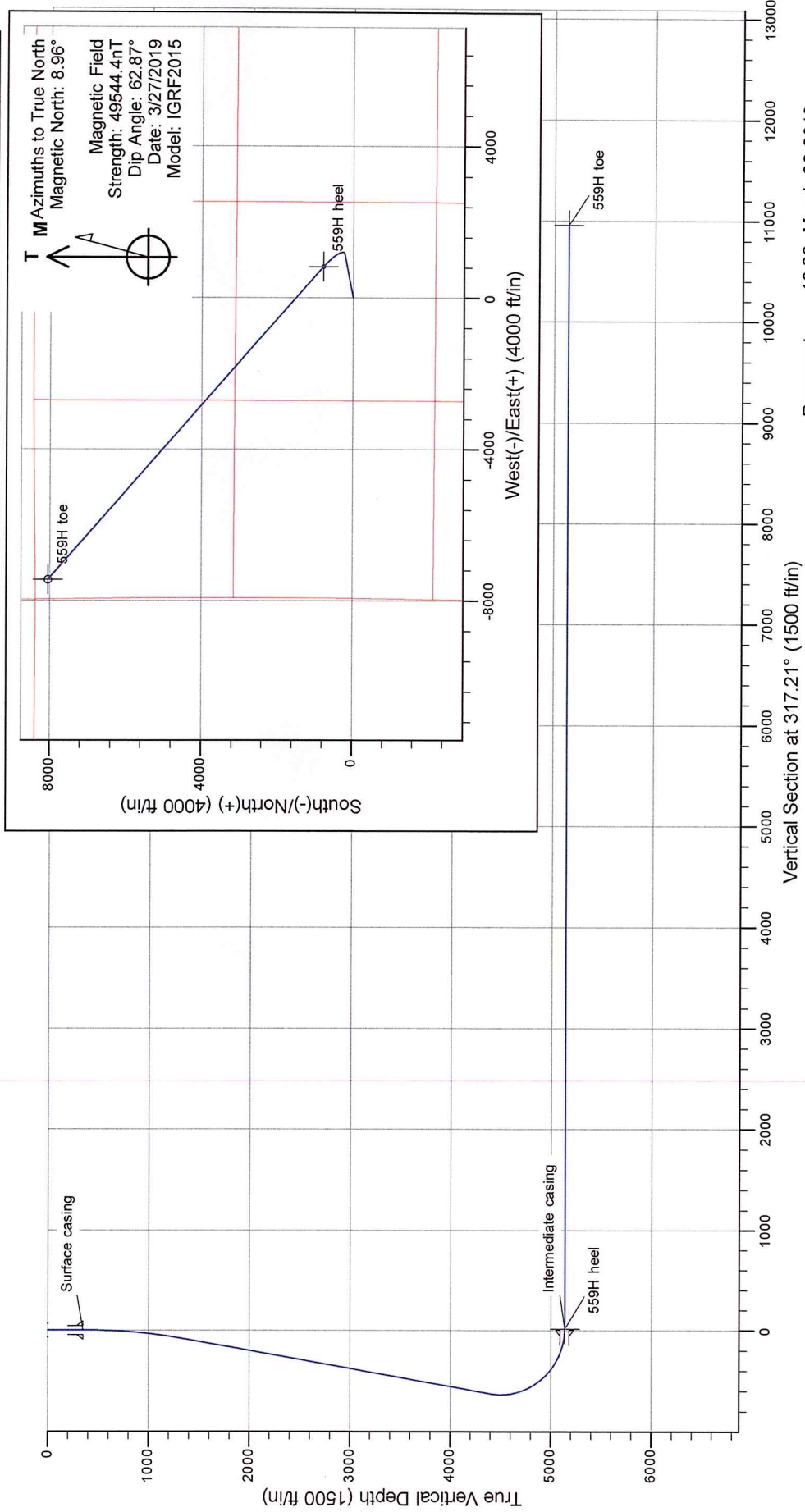
US State Plane 1983
North American Datum 1983
New Mexico Western Zone

TRAJECTORY DETAILS
Pad elevation : 6979 RKB @ 6993ft (RIG TBD)

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
0	0.00	0.00	0	0	0	0.00	0.00	0	
400	0.00	0.00	400	0	0	0.00	0.00	0	
1329	18.57	78.99	1312	29	146	2.00	78.99	-79	
4590	18.57	78.99	4404	227	1166	0.00	0.00	-626	
5715	90.00	311.27	5139	786	826	9.00	-126.25	16	559H heel
16718	90.00	311.27	5139	8043	-7445	0.00	0.00	10960	559H toe

TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
559H heel	5139	786	826	1886415	2788299	36.18418620	-107.61236630
559H toe	5139	8043	-7445	1893654	2780012	36.20412000	-107.64040000



Prepared : 16:23, March 28 2019

DJR Operating

North Alamito Unit

J31 2307

NAU 559H

Original drilling

Plan: APD

Standard Planning Report

28 March, 2019

Planning Report

Database:	EDM	Local Co-ordinate Reference:	Well NAU 559H
Company:	DJR Operating	TVD Reference:	RKB @ 6993ft (RIG TBD)
Project:	North Alamito Unit	MD Reference:	RKB @ 6993ft (RIG TBD)
Site:	J31 2307	North Reference:	True
Well:	NAU 559H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original drilling		
Design:	APD		

Project	North Alamito Unit		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Western Zone		

Site		J31 2307			
Site Position:		Northing:	1,885,650 usft	Latitude:	36.18208900
From:	Lat/Long	Easting:	2,787,495 usft	Longitude:	-107.61509700
Position Uncertainty:	0 ft	Slot Radius:	13.200 in	Grid Convergence:	0.13 °

Well	NAU 559H					
Well Position	+N/-S	-22 ft	Northing:	1,885,628 usft	Latitude:	36.18202800
	+E/-W	-20 ft	Easting:	2,787,475 usft	Longitude:	-107.61516400
Position Uncertainty		0 ft	Wellhead Elevation:		Ground Level:	6979 ft

Wellbore	Original drilling				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	3/27/2019	8.96	62.87	49,544.41770325

Design	APD			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0	0	0	317.21

Plan Survey Tool Program	Date	3/28/2019		
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0	16,718	APD (Original drilling)	MWD+IGRF
				OWSG MWD + IGRF or WMM

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0	0.00	0.00	0	0	0	0.00	0.00	0.00	0.00	
400	0.00	0.00	400	0	0	0.00	0.00	0.00	0.00	
1329	18.57	78.99	1312	29	146	2.00	2.00	0.00	78.99	
4590	18.57	78.99	4404	227	1166	0.00	0.00	0.00	0.00	
5715	90.00	311.27	5139	786	826	9.00	6.35	-11.35	-126.25	559H heel
16,718	90.00	311.27	5139	8043	-7445	0.00	0.00	0.00	0.00	559H toe

Planning Report

Database:	EDM	Local Co-ordinate Reference:	Well NAU 559H
Company:	DJR Operating	TVD Reference:	RKB @ 6993ft (RIG TBD)
Project:	North Alamito Unit	MD Reference:	RKB @ 6993ft (RIG TBD)
Site:	J31 2307	North Reference:	True
Well:	NAU 559H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original drilling		
Design:	APD		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0	0.00	0.00	0	0	0	0	0.00	0.00	0.00
100	0.00	0.00	100	0	0	0	0.00	0.00	0.00
200	0.00	0.00	200	0	0	0	0.00	0.00	0.00
300	0.00	0.00	300	0	0	0	0.00	0.00	0.00
350	0.00	0.00	350	0	0	0	0.00	0.00	0.00
Surface casing									
400	0.00	0.00	400	0	0	0	0.00	0.00	0.00
500	2.00	78.99	500	0	2	-1	2.00	2.00	0.00
600	4.00	78.99	600	1	7	-4	2.00	2.00	0.00
700	6.00	78.99	699	3	15	-8	2.00	2.00	0.00
800	8.00	78.99	799	5	27	-15	2.00	2.00	0.00
891	9.83	78.99	889	8	41	-22	2.00	2.00	0.00
Ojo Alamo									
900	10.00	78.99	897	8	43	-23	2.00	2.00	0.00
932	10.64	78.99	929	9	48	-26	2.00	2.00	0.00
Kirtland									
1000	12.00	78.99	996	12	61	-33	2.00	2.00	0.00
1100	14.00	78.99	1093	16	84	-45	2.00	2.00	0.00
1182	15.63	78.99	1172	20	104	-56	2.00	2.00	0.00
Fruitland									
1200	16.00	78.99	1190	21	109	-58	2.00	2.00	0.00
1300	18.00	78.99	1285	27	138	-74	2.00	2.00	0.00
1329	18.57	78.99	1312	29	146	-79	2.00	2.00	0.00
1400	18.57	78.99	1380	33	169	-91	0.00	0.00	0.00
1480	18.57	78.99	1456	38	194	-104	0.00	0.00	0.00
Picture Cliffs									
1500	18.57	78.99	1475	39	200	-107	0.00	0.00	0.00
1600	18.57	78.99	1570	45	231	-124	0.00	0.00	0.00
1657	18.57	78.99	1624	49	249	-134	0.00	0.00	0.00
Lewis									
1700	18.57	78.99	1664	51	263	-141	0.00	0.00	0.00
1800	18.57	78.99	1759	57	294	-158	0.00	0.00	0.00
1900	18.57	78.99	1854	63	325	-174	0.00	0.00	0.00
2000	18.57	78.99	1949	69	356	-191	0.00	0.00	0.00
2100	18.57	78.99	2044	75	388	-208	0.00	0.00	0.00
2200	18.57	78.99	2138	82	419	-225	0.00	0.00	0.00
2288	18.57	78.99	2222	87	446	-240	0.00	0.00	0.00
Chacra									
2300	18.57	78.99	2233	88	450	-242	0.00	0.00	0.00
2400	18.57	78.99	2328	94	481	-258	0.00	0.00	0.00
2500	18.57	78.99	2423	100	513	-275	0.00	0.00	0.00
2600	18.57	78.99	2518	106	544	-292	0.00	0.00	0.00
2700	18.57	78.99	2612	112	575	-309	0.00	0.00	0.00
2800	18.57	78.99	2707	118	606	-325	0.00	0.00	0.00
2900	18.57	78.99	2802	124	638	-342	0.00	0.00	0.00
3000	18.57	78.99	2897	130	669	-359	0.00	0.00	0.00
3007	18.57	78.99	2903	131	671	-360	0.00	0.00	0.00
Cliffhouse									
3075	18.57	78.99	2968	135	692	-372	0.00	0.00	0.00
Menefee									
3100	18.57	78.99	2992	136	700	-376	0.00	0.00	0.00
3200	18.57	78.99	3086	142	732	-392	0.00	0.00	0.00
3300	18.57	78.99	3181	148	763	-409	0.00	0.00	0.00

Planning Report

Database:	EDM	Local Co-ordinate Reference:	Well NAU 559H
Company:	DJR Operating	TVD Reference:	RKB @ 6993ft (RIG TBD)
Project:	North Alamito Unit	MD Reference:	RKB @ 6993ft (RIG TBD)
Site:	J31 2307	North Reference:	True
Well:	NAU 559H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original drilling		
Design:	APD		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
3400	18.57	78.99	3276	155	794	-426	0.00	0.00	0.00
3500	18.57	78.99	3371	161	825	-443	0.00	0.00	0.00
3600	18.57	78.99	3466	167	857	-460	0.00	0.00	0.00
3700	18.57	78.99	3560	173	888	-476	0.00	0.00	0.00
3800	18.57	78.99	3655	179	919	-493	0.00	0.00	0.00
3900	18.57	78.99	3750	185	950	-510	0.00	0.00	0.00
4000	18.57	78.99	3845	191	982	-527	0.00	0.00	0.00
4024	18.57	78.99	3867	192	989	-531	0.00	0.00	0.00
Point Lookout									
4100	18.57	78.99	3939	197	1013	-543	0.00	0.00	0.00
4200	18.57	78.99	4034	203	1044	-560	0.00	0.00	0.00
4213	18.57	78.99	4047	204	1048	-562	0.00	0.00	0.00
Mancos									
4300	18.57	78.99	4129	209	1075	-577	0.00	0.00	0.00
4400	18.57	78.99	4224	215	1107	-594	0.00	0.00	0.00
4500	18.57	78.99	4319	221	1138	-611	0.00	0.00	0.00
4566	18.57	78.99	4381	225	1159	-622	0.00	0.00	0.00
Mancos Silt									
4590	18.57	78.99	4404	227	1166	-626	0.00	0.00	0.00
KOP									
4600	18.05	76.62	4413	228	1169	-627	9.02	-5.19	-23.49
4650	15.96	62.94	4461	233	1183	-633	9.00	-4.18	-27.37
4700	14.94	46.42	4510	240	1194	-635	9.00	-2.04	-33.03
4750	15.21	29.09	4558	250	1202	-633	9.00	0.54	-34.66
4800	16.71	13.59	4606	263	1206	-627	9.00	2.99	-31.00
4850	19.14	1.24	4653	278	1208	-617	9.00	4.87	-24.69
4900	22.21	351.89	4700	296	1207	-603	9.00	6.14	-18.72
4950	25.68	344.82	4746	316	1203	-586	9.00	6.95	-14.13
5000	29.42	339.39	4790	338	1196	-565	9.00	7.47	-10.86
5050	33.33	335.10	4833	362	1186	-540	9.00	7.82	-8.56
5078	35.57	333.08	4856	376	1179	-525	9.00	8.02	-7.23
Gallup A									
5100	37.36	331.64	4874	387	1173	-512	9.00	8.12	-6.55
5121	39.05	330.39	4890	399	1166	-500	9.00	8.19	-6.05
Gallup B									
5150	41.48	328.76	4912	415	1157	-481	9.00	8.26	-5.54
5200	45.65	326.32	4949	444	1138	-448	9.00	8.35	-4.88
5250	49.87	324.21	4982	474	1117	-411	9.00	8.44	-4.22
5265	51.18	323.61	4992	484	1110	-399	9.00	8.49	-3.88
Gallup C									
5300	54.12	322.35	5013	506	1094	-372	9.00	8.52	-3.66
5350	58.40	320.67	5041	538	1068	-330	9.00	8.56	-3.35
5400	62.70	319.15	5065	572	1040	-287	9.00	8.60	-3.05
5450	67.02	317.74	5087	606	1010	-242	9.00	8.63	-2.82
5500	71.35	316.41	5104	640	978	-195	9.00	8.65	-2.65
5505	71.75	316.29	5106	643	975	-190	9.00	8.66	-2.57
Top of liner									
5550	75.68	315.16	5119	674	944	-147	9.00	8.67	-2.51
5600	80.02	313.95	5129	708	910	-98	9.00	8.68	-2.42
5650	84.37	312.77	5136	742	874	-49	9.00	8.69	-2.36
5700	88.72	311.61	5139	776	837	1	9.00	8.70	-2.32
5705	89.13	311.50	5139	779	833	6	9.00	8.70	-2.31
Intermediate casing									

Planning Report

Database:	EDM	Local Co-ordinate Reference:	Well NAU 559H
Company:	DJR Operating	TVD Reference:	RKB @ 6993ft (RIG TBD)
Project:	North Alamito Unit	MD Reference:	RKB @ 6993ft (RIG TBD)
Site:	J31 2307	North Reference:	True
Well:	NAU 559H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original drilling		
Design:	APD		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
5707	88.72	311.61	5139	781	831	8	16.00	-15.46	4.11	
Target										
5715	90.00	311.27	5139	786	826	16	18.00	17.40	-4.62	
5775	90.00	311.27	5139	825	781	75	0.00	0.00	0.00	
First take point										
5800	90.00	311.27	5139	842	762	100	0.00	0.00	0.00	
5900	90.00	311.27	5139	908	686	200	0.00	0.00	0.00	
6000	90.00	311.27	5139	974	611	299	0.00	0.00	0.00	
6100	90.00	311.27	5139	1040	536	399	0.00	0.00	0.00	
6200	90.00	311.27	5139	1106	461	498	0.00	0.00	0.00	
6300	90.00	311.27	5139	1172	386	598	0.00	0.00	0.00	
6400	90.00	311.27	5139	1238	311	697	0.00	0.00	0.00	
6500	90.00	311.27	5139	1304	235	797	0.00	0.00	0.00	
6600	90.00	311.27	5139	1370	160	896	0.00	0.00	0.00	
6700	90.00	311.27	5139	1435	85	996	0.00	0.00	0.00	
6800	90.00	311.27	5139	1501	10	1095	0.00	0.00	0.00	
6900	90.00	311.27	5139	1567	-65	1195	0.00	0.00	0.00	
7000	90.00	311.27	5139	1633	-140	1294	0.00	0.00	0.00	
7100	90.00	311.27	5139	1699	-216	1393	0.00	0.00	0.00	
7200	90.00	311.27	5139	1765	-291	1493	0.00	0.00	0.00	
7300	90.00	311.27	5139	1831	-366	1592	0.00	0.00	0.00	
7400	90.00	311.27	5139	1897	-441	1692	0.00	0.00	0.00	
7500	90.00	311.27	5139	1963	-516	1791	0.00	0.00	0.00	
7600	90.00	311.27	5139	2029	-591	1891	0.00	0.00	0.00	
7700	90.00	311.27	5139	2095	-667	1990	0.00	0.00	0.00	
7800	90.00	311.27	5139	2161	-742	2090	0.00	0.00	0.00	
7900	90.00	311.27	5139	2227	-817	2189	0.00	0.00	0.00	
8000	90.00	311.27	5139	2293	-892	2289	0.00	0.00	0.00	
8100	90.00	311.27	5139	2359	-967	2388	0.00	0.00	0.00	
8200	90.00	311.27	5139	2425	-1042	2488	0.00	0.00	0.00	
8300	90.00	311.27	5139	2491	-1118	2587	0.00	0.00	0.00	
8400	90.00	311.27	5139	2557	-1193	2687	0.00	0.00	0.00	
8500	90.00	311.27	5139	2623	-1268	2786	0.00	0.00	0.00	
8600	90.00	311.27	5139	2689	-1343	2885	0.00	0.00	0.00	
8700	90.00	311.27	5139	2755	-1418	2985	0.00	0.00	0.00	
8800	90.00	311.27	5139	2821	-1493	3084	0.00	0.00	0.00	
8900	90.00	311.27	5139	2886	-1569	3184	0.00	0.00	0.00	
9000	90.00	311.27	5139	2952	-1644	3283	0.00	0.00	0.00	
9100	90.00	311.27	5139	3018	-1719	3383	0.00	0.00	0.00	
9200	90.00	311.27	5139	3084	-1794	3482	0.00	0.00	0.00	
9300	90.00	311.27	5139	3150	-1869	3582	0.00	0.00	0.00	
9400	90.00	311.27	5139	3216	-1944	3681	0.00	0.00	0.00	
9500	90.00	311.27	5139	3282	-2020	3781	0.00	0.00	0.00	
9600	90.00	311.27	5139	3348	-2095	3880	0.00	0.00	0.00	
9700	90.00	311.27	5139	3414	-2170	3980	0.00	0.00	0.00	
9800	90.00	311.27	5139	3480	-2245	4079	0.00	0.00	0.00	
9900	90.00	311.27	5139	3546	-2320	4178	0.00	0.00	0.00	
10,000	90.00	311.27	5139	3612	-2395	4278	0.00	0.00	0.00	
10,100	90.00	311.27	5139	3678	-2471	4377	0.00	0.00	0.00	
10,200	90.00	311.27	5139	3744	-2546	4477	0.00	0.00	0.00	
10,300	90.00	311.27	5139	3810	-2621	4576	0.00	0.00	0.00	
10,400	90.00	311.27	5139	3876	-2696	4676	0.00	0.00	0.00	
10,500	90.00	311.27	5139	3942	-2771	4775	0.00	0.00	0.00	
10,600	90.00	311.27	5139	4008	-2846	4875	0.00	0.00	0.00	

Planning Report

Database:	EDM	Local Co-ordinate Reference:	Well NAU 559H
Company:	DJR Operating	TVD Reference:	RKB @ 6993ft (RIG TBD)
Project:	North Alamito Unit	MD Reference:	RKB @ 6993ft (RIG TBD)
Site:	J31 2307	North Reference:	True
Well:	NAU 559H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original drilling		
Design:	APD		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
10,700	90.00	311.27	5139	4074	-2922	4974	0.00	0.00	0.00
10,800	90.00	311.27	5139	4140	-2997	5074	0.00	0.00	0.00
10,900	90.00	311.27	5139	4206	-3072	5173	0.00	0.00	0.00
11,000	90.00	311.27	5139	4272	-3147	5273	0.00	0.00	0.00
11,100	90.00	311.27	5139	4337	-3222	5372	0.00	0.00	0.00
11,200	90.00	311.27	5139	4403	-3297	5471	0.00	0.00	0.00
11,300	90.00	311.27	5139	4469	-3373	5571	0.00	0.00	0.00
11,400	90.00	311.27	5139	4535	-3448	5670	0.00	0.00	0.00
11,500	90.00	311.27	5139	4601	-3523	5770	0.00	0.00	0.00
11,600	90.00	311.27	5139	4667	-3598	5869	0.00	0.00	0.00
11,700	90.00	311.27	5139	4733	-3673	5969	0.00	0.00	0.00
11,800	90.00	311.27	5139	4799	-3748	6068	0.00	0.00	0.00
11,900	90.00	311.27	5139	4865	-3824	6168	0.00	0.00	0.00
12,000	90.00	311.27	5139	4931	-3899	6267	0.00	0.00	0.00
12,100	90.00	311.27	5139	4997	-3974	6367	0.00	0.00	0.00
12,200	90.00	311.27	5139	5063	-4049	6466	0.00	0.00	0.00
12,300	90.00	311.27	5139	5129	-4124	6566	0.00	0.00	0.00
12,400	90.00	311.27	5139	5195	-4199	6665	0.00	0.00	0.00
12,500	90.00	311.27	5139	5261	-4275	6764	0.00	0.00	0.00
12,600	90.00	311.27	5139	5327	-4350	6864	0.00	0.00	0.00
12,700	90.00	311.27	5139	5393	-4425	6963	0.00	0.00	0.00
12,800	90.00	311.27	5139	5459	-4500	7063	0.00	0.00	0.00
12,900	90.00	311.27	5139	5525	-4575	7162	0.00	0.00	0.00
13,000	90.00	311.27	5139	5591	-4650	7262	0.00	0.00	0.00
13,100	90.00	311.27	5139	5657	-4726	7361	0.00	0.00	0.00
13,200	90.00	311.27	5139	5723	-4801	7461	0.00	0.00	0.00
13,300	90.00	311.27	5139	5788	-4876	7560	0.00	0.00	0.00
13,400	90.00	311.27	5139	5854	-4951	7660	0.00	0.00	0.00
13,500	90.00	311.27	5139	5920	-5026	7759	0.00	0.00	0.00
13,600	90.00	311.27	5139	5986	-5101	7859	0.00	0.00	0.00
13,700	90.00	311.27	5139	6052	-5177	7958	0.00	0.00	0.00
13,800	90.00	311.27	5139	6118	-5252	8057	0.00	0.00	0.00
13,900	90.00	311.27	5139	6184	-5327	8157	0.00	0.00	0.00
14,000	90.00	311.27	5139	6250	-5402	8256	0.00	0.00	0.00
14,100	90.00	311.27	5139	6316	-5477	8356	0.00	0.00	0.00
14,200	90.00	311.27	5139	6382	-5552	8455	0.00	0.00	0.00
14,300	90.00	311.27	5139	6448	-5628	8555	0.00	0.00	0.00
14,400	90.00	311.27	5139	6514	-5703	8654	0.00	0.00	0.00
14,500	90.00	311.27	5139	6580	-5778	8754	0.00	0.00	0.00
14,600	90.00	311.27	5139	6646	-5853	8853	0.00	0.00	0.00
14,700	90.00	311.27	5139	6712	-5928	8953	0.00	0.00	0.00
14,800	90.00	311.27	5139	6778	-6003	9052	0.00	0.00	0.00
14,900	90.00	311.27	5139	6844	-6079	9152	0.00	0.00	0.00
15,000	90.00	311.27	5139	6910	-6154	9251	0.00	0.00	0.00
15,100	90.00	311.27	5139	6976	-6229	9350	0.00	0.00	0.00
15,200	90.00	311.27	5139	7042	-6304	9450	0.00	0.00	0.00
15,300	90.00	311.27	5139	7108	-6379	9549	0.00	0.00	0.00
15,400	90.00	311.27	5139	7174	-6454	9649	0.00	0.00	0.00
15,500	90.00	311.27	5139	7239	-6530	9748	0.00	0.00	0.00
15,600	90.00	311.27	5139	7305	-6605	9848	0.00	0.00	0.00
15,700	90.00	311.27	5139	7371	-6680	9947	0.00	0.00	0.00
15,800	90.00	311.27	5139	7437	-6755	10,047	0.00	0.00	0.00
15,900	90.00	311.27	5139	7503	-6830	10,146	0.00	0.00	0.00
16,000	90.00	311.27	5139	7569	-6905	10,246	0.00	0.00	0.00

Planning Report

Database:	EDM	Local Co-ordinate Reference:	Well NAU 559H
Company:	DJR Operating	TVD Reference:	RKB @ 6993ft (RIG TBD)
Project:	North Alamito Unit	MD Reference:	RKB @ 6993ft (RIG TBD)
Site:	J31 2307	North Reference:	True
Well:	NAU 559H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original drilling		
Design:	APD		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
16,100	90.00	311.27	5139	7635	-6981	10,345	0.00	0.00	0.00	
16,200	90.00	311.27	5139	7701	-7056	10,445	0.00	0.00	0.00	
16,300	90.00	311.27	5139	7767	-7131	10,544	0.00	0.00	0.00	
16,400	90.00	311.27	5139	7833	-7206	10,643	0.00	0.00	0.00	
16,500	90.00	311.27	5139	7899	-7281	10,743	0.00	0.00	0.00	
16,600	90.00	311.27	5139	7965	-7356	10,842	0.00	0.00	0.00	
16,658	90.00	311.27	5139	8003	-7400	10,900	0.00	0.00	0.00	
Last take point										
16,700	90.00	311.27	5139	8031	-7432	10,942	0.00	0.00	0.00	
16,718	90.00	311.27	5139	8043	-7445	10,960	0.00	0.00	0.00	

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
- hit/miss target										
- Shape										
559H toe	0.00	0.00	5139	8043	-7445	1,893,654	2,780,012	36.20412000	-107.64040000	
- plan hits target center										
- Circle (radius 100)										
559H heel	0.00	0.00	5139	786	826	1,886,415	2,788,299	36.18418620	-107.61236630	
- plan hits target center										
- Circle (radius 50)										

Casing Points										
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)						
350	350	Surface casing	9.625	12.250						
5705	5139	Intermediate casing	7.000	8.750						

Planning Report

Database:	EDM	Local Co-ordinate Reference:	Well NAU 559H
Company:	DJR Operating	TVD Reference:	RKB @ 6993ft (RIG TBD)
Project:	North Alamito Unit	MD Reference:	RKB @ 6993ft (RIG TBD)
Site:	J31 2307	North Reference:	True
Well:	NAU 559H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original drilling		
Design:	APD		

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
891	889	Ojo Alamo		0.00	
932	929	Kirtland		0.00	
1182	1172	Fruitland		0.00	
1480	1456	Picture Cliffs		0.00	
1657	1624	Lewis		0.00	
2288	2222	Chacra		0.00	
3007	2903	Cliffhouse		0.00	
3075	2968	Menefee		0.00	
4024	3867	Point Lookout		0.00	
4213	4047	Mancos		0.00	
4566	4381	Mancos Silt		0.00	
5078	4856	Gallup A		0.00	
5121	4890	Gallup B		0.00	
5265	4992	Gallup C		0.00	
5707	5139	Target		0.00	

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
4590	4404	227	1166	KOP
5505	5106	643	975	Top of liner
5775	5139	825	781	First take point
16,658	5139	8003	-7400	Last take point

DJR Operating

North Alamito Unit

J31 2307

NAU 559H

Original drilling

APD

Anticollision Report

28 March, 2019

Anticollision Report

Company:	DJR Operating	Local Co-ordinate Reference:	Well NAU 559H
Project:	North Alamo Unit	TVD Reference:	RKB @ 6993ft (RIG TBD)
Reference Site:	J31 2307	MD Reference:	RKB @ 6993ft (RIG TBD)
Site Error:	0 ft	North Reference:	True
Reference Well:	NAU 559H	Survey Calculation Method:	Minimum Curvature
Well Error:	0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Original drilling	Database:	EDM
Reference Design:	APD	Offset TVD Reference:	Offset Datum

Reference	APD		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 10,000 ft	Error Surface:	Pedal Curve
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program	Date 3/28/2019			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0	16,718	APD (Original drilling)	MWD+IGRF	OWSG MWD + IGRF or WMM

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
J31 2307						
NAU 332H - Original drilling - APD	400	400	20	18	8.124	CC, ES
NAU 332H - Original drilling - APD	15,300	14,914	1905	1407	3.829	SF
NAU 333H - Original drilling - APD	726	726	18	13	3.698	CC, ES, SF
NAU 528H - Original drilling - APD	702	698	65	60	14.133	CC, ES
NAU 528H - Original drilling - APD	900	891	74	68	12.104	SF
NAU 529H - Original drilling - APD	995	993	16	10	2.440	CC
NAU 529H - Original drilling - APD	1000	998	16	10	2.432	ES
NAU 529H - Original drilling - APD	16,047	15,705	1011	474	1.882	SF

Offset Design J31 2307 - NAU 332H - Original drilling - APD												Offset Site Error: 0 ft		
Survey Program: 0-MWD+IGRF												Offset Well Error: 0 ft		
Reference		Offset		Semi Major Axis		Distance						Warning		
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation		Separation Factor	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
0	0	0	0	0	0	-138.34	-15	-13	20					
100	100	100	100	0	0	-138.34	-15	-13	20	20	0.31	64.802		
200	200	200	200	1	1	-138.34	-15	-13	20	19	1.03	19.486		
300	300	300	300	1	1	-138.34	-15	-13	20	18	1.74	11.467		
400	400	400	400	1	1	-138.34	-15	-13	20	18	2.46	8.124	CC, ES	
500	500	500	500	2	2	144.70	-15	-13	22	19	3.16	6.867		
600	600	599	599	2	2	145.98	-19	-13	29	25	3.85	7.417		
700	699	697	697	2	2	145.97	-26	-13	41	36	4.55	8.952		
800	799	794	794	3	3	145.44	-36	-14	58	53	5.26	11.056		
900	897	890	888	3	3	144.80	-49	-14	81	75	5.99	13.497		
1000	996	984	981	4	3	144.16	-65	-14	109	102	6.73	16.131		
1100	1093	1076	1071	4	4	143.55	-83	-15	141	134	7.49	18.865		
1200	1190	1167	1160	5	4	143.08	-104	-15	179	170	8.29	21.544		
1300	1285	1259	1249	5	5	143.10	-125	-15	218	209	9.12	23.966		
1329	1312	1285	1274	5	5	143.17	-131	-16	230	221	9.36	24.609		
1400	1380	1349	1337	6	5	143.69	-146	-16	260	250	9.97	26.125		
1500	1475	1440	1425	6	6	144.25	-166	-16	302	292	10.82	27.941		
1600	1570	1531	1514	7	6	144.68	-187	-17	344	333	11.69	29.462		
1700	1664	1621	1602	8	7	145.01	-208	-17	386	374	12.57	30.750		
1800	1759	1712	1690	9	7	145.27	-229	-18	429	415	13.45	31.853		

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

Anticollision Report

Company:	DJR Operating	Local Co-ordinate Reference:	Well NAU 559H
Project:	North Alamito Unit	TVD Reference:	RKB @ 6993ft (RIG TBD)
Reference Site:	J31 2307	MD Reference:	RKB @ 6993ft (RIG TBD)
Site Error:	0 ft	North Reference:	True
Reference Well:	NAU 559H	Survey Calculation Method:	Minimum Curvature
Well Error:	0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Original drilling	Database:	EDM
Reference Design:	APD	Offset TVD Reference:	Offset Datum

Offset Design J31 2307 - NAU 332H - Original drilling - APD													Offset Site Error:	0 ft
Survey Program: 0-MWD+IGRF													Offset Well Error:	0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Tooface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor		
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
1900	1854	1803	1778	9	8	145.49	-250	-18	471	456	14.35	32.804		
2000	1949	1894	1867	10	8	145.68	-271	-18	513	497	15.24	33.633		
2100	2044	1984	1955	11	9	145.83	-292	-19	555	539	16.14	34.360		
2200	2138	2075	2043	11	9	145.96	-312	-19	597	580	17.05	35.003		
2300	2233	2166	2132	12	10	146.08	-333	-20	639	621	17.96	35.575		
2400	2328	2256	2220	13	10	146.18	-354	-20	681	662	18.87	36.087		
2500	2423	2347	2308	13	11	146.27	-375	-20	723	703	19.78	36.547		
2600	2518	2438	2396	14	11	146.35	-396	-21	765	744	20.70	36.963		
2700	2612	2529	2485	15	12	146.42	-417	-21	807	786	21.62	37.341		
2800	2707	2619	2573	16	12	146.49	-438	-22	849	827	22.54	37.685		
2900	2802	2710	2661	16	13	146.54	-458	-22	891	868	23.46	38.000		
3000	2897	2801	2750	17	13	146.60	-479	-23	933	909	24.38	38.290		
3100	2992	2891	2838	18	14	146.64	-500	-23	976	950	25.30	38.556		
3200	3086	2982	2926	18	14	146.69	-521	-23	1018	991	26.23	38.802		
3300	3181	3073	3014	19	15	146.73	-542	-24	1060	1033	27.15	39.031		
3400	3276	3164	3103	20	15	146.77	-563	-24	1102	1074	28.08	39.242		
3500	3371	3254	3191	21	16	146.80	-584	-25	1144	1115	29.00	39.440		
3600	3466	3345	3279	21	16	146.84	-604	-25	1186	1156	29.93	39.624		
3700	3560	3436	3367	22	17	146.87	-625	-25	1228	1197	30.86	39.796		
3800	3655	3526	3456	23	17	146.89	-646	-26	1270	1238	31.79	39.958		
3900	3750	3617	3544	23	18	146.92	-667	-26	1312	1280	32.72	40.109		
4000	3845	3708	3632	24	18	146.95	-688	-27	1354	1321	33.65	40.252		
4100	3939	3798	3721	25	19	146.97	-709	-27	1396	1362	34.58	40.386		
4200	4034	3889	3809	26	19	146.99	-730	-27	1439	1403	35.51	40.513		
4300	4129	3980	3897	26	20	147.01	-750	-28	1481	1444	36.44	40.633		
4400	4224	4071	3985	27	20	147.03	-771	-28	1523	1485	37.37	40.746		
4500	4319	4161	4074	28	21	147.05	-792	-29	1565	1526	38.30	40.853		
4590	4404	4243	4153	28	21	147.07	-811	-29	1603	1563	39.14	40.945		
4600	4413	4252	4162	29	21	149.73	-813	-29	1607	1568	39.23	40.956		
4650	4461	4297	4206	29	22	164.79	-823	-29	1628	1588	39.68	41.025		
4700	4510	4343	4250	29	22	-177.52	-834	-30	1648	1608	40.08	41.121		
4750	4558	4387	4294	29	22	-159.19	-844	-30	1668	1628	40.45	41.241		
4800	4606	4431	4336	30	22	-142.88	-854	-30	1688	1647	40.79	41.381		
4850	4653	4472	4376	30	23	-129.86	-864	-30	1707	1666	41.08	41.556		
4900	4700	4507	4410	30	23	-119.85	-871	-31	1726	1685	41.27	41.819		
4950	4746	4541	4443	30	23	-112.20	-877	-33	1744	1703	41.41	42.115		
5000	4790	4575	4477	30	23	-106.28	-882	-37	1762	1720	41.53	42.429		
5050	4833	4610	4512	30	23	-101.61	-886	-42	1779	1738	41.62	42.750		
5100	4874	4646	4547	30	23	-97.87	-888	-49	1796	1754	41.70	43.074		
5150	4912	4683	4583	30	23	-94.84	-889	-57	1812	1770	41.76	43.396		
5200	4949	4721	4619	30	24	-92.38	-889	-68	1827	1786	41.81	43.701		
5250	4982	4760	4657	30	24	-90.37	-887	-80	1842	1800	41.88	43.982		
5300	5013	4801	4695	30	24	-88.76	-883	-95	1856	1814	41.95	44.231		
5350	5041	4844	4734	30	24	-87.48	-877	-112	1868	1826	42.04	44.440		
5400	5065	4889	4773	30	24	-86.52	-869	-132	1880	1838	42.15	44.597		
5450	5087	4937	4813	30	24	-85.84	-858	-155	1891	1848	42.30	44.693		
5500	5104	4988	4854	30	24	-85.42	-844	-182	1900	1858	42.49	44.716		
5550	5119	5043	4895	29	24	-85.27	-826	-214	1909	1866	42.74	44.656		
5600	5129	5101	4935	29	24	-85.37	-804	-250	1916	1873	43.05	44.496		
5650	5136	5165	4975	29	24	-85.71	-777	-291	1921	1878	43.46	44.209		
5700	5139	5233	5012	29	23	-86.30	-744	-339	1925	1882	43.99	43.776		
5715	5139	5255	5022	29	23	-86.52	-733	-354	1926	1882	44.16	43.625		

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

Anticollision Report

Company:	DJR Operating	Local Co-ordinate Reference:	Well NAU 559H
Project:	North Alamito Unit	TVD Reference:	RKB @ 6993ft (RIG TBD)
Reference Site:	J31 2307	MD Reference:	RKB @ 6993ft (RIG TBD)
Site Error:	0 ft	North Reference:	True
Reference Well:	NAU 559H	Survey Calculation Method:	Minimum Curvature
Well Error:	0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Original drilling	Database:	EDM
Reference Design:	APD	Offset TVD Reference:	Offset Datum

Offset Design J31 2307 - NAU 332H - Original drilling - APD													Offset Site Error:	0 ft
Survey Program: 0-MWD+IGRF													Offset Well Error:	0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)						
5800	5139	5393	5073	29	23	-88.03	-655	-456	1931	1885	45.58	42.360		
5900	5139	5573	5096	29	23	-88.72	-540	-592	1932	1884	48.09	40.179		
6000	5139	5673	5096	28	24	-88.72	-474	-667	1932	1882	50.52	38.246		
6100	5139	5773	5096	29	25	-88.72	-408	-742	1932	1878	53.27	36.265		
6200	5139	5873	5096	31	27	-88.72	-342	-817	1931	1875	56.40	34.247		
6300	5139	5973	5096	32	28	-88.72	-276	-892	1931	1871	59.78	32.303		
6400	5139	6073	5096	34	30	-88.72	-210	-967	1931	1867	63.39	30.460		
6500	5139	6173	5096	36	32	-88.72	-143	-1042	1931	1863	67.19	28.734		
6600	5139	6273	5096	38	34	-88.72	-77	-1117	1930	1859	71.14	27.132		
6700	5139	6373	5096	40	36	-88.72	-11	-1192	1930	1855	75.23	25.653		
6800	5139	6473	5096	42	38	-88.72	55	-1267	1930	1850	79.43	24.292		
6900	5139	6573	5096	45	40	-88.72	121	-1342	1929	1846	83.73	23.042		
7000	5139	6673	5096	47	43	-88.72	188	-1417	1929	1841	88.11	21.893		
7100	5139	6773	5096	49	45	-88.72	254	-1492	1929	1836	92.56	20.837		
7200	5139	6873	5096	51	47	-88.72	320	-1567	1928	1831	97.07	19.866		
7300	5139	6973	5096	54	49	-88.72	386	-1642	1928	1827	101.64	18.971		
7400	5139	7073	5096	56	52	-88.72	452	-1717	1928	1822	106.25	18.145		
7500	5139	7173	5096	58	54	-88.72	518	-1792	1928	1817	110.90	17.382		
7600	5139	7273	5096	61	56	-88.72	585	-1867	1927	1812	115.58	16.675		
7700	5139	7373	5096	63	59	-88.72	651	-1942	1927	1807	120.29	16.019		
7800	5139	7473	5096	65	61	-88.72	717	-2017	1927	1802	125.04	15.409		
7900	5139	7573	5096	68	63	-88.72	783	-2092	1926	1797	129.80	14.840		
8000	5139	7673	5096	70	66	-88.72	849	-2166	1926	1791	134.59	14.310		
8100	5139	7773	5096	72	68	-88.72	916	-2241	1926	1786	139.40	13.814		
8200	5139	7873	5096	75	71	-88.72	982	-2316	1925	1781	144.23	13.350		
8300	5139	7973	5096	77	73	-88.72	1048	-2391	1925	1776	149.07	12.914		
8400	5139	8073	5096	80	75	-88.72	1114	-2466	1925	1771	153.93	12.505		
8500	5139	8173	5096	82	78	-88.72	1180	-2541	1925	1766	158.80	12.119		
8600	5139	8273	5096	84	80	-88.72	1246	-2616	1924	1761	163.68	11.756		
8700	5139	8373	5096	87	83	-88.72	1313	-2691	1924	1755	168.57	11.413		
8800	5139	8473	5096	89	85	-88.72	1379	-2766	1924	1750	173.47	11.089		
8900	5139	8573	5096	92	88	-88.72	1445	-2841	1923	1745	178.39	10.782		
9000	5139	8673	5096	94	90	-88.72	1511	-2916	1923	1740	183.31	10.491		
9100	5139	8773	5096	97	93	-88.72	1577	-2991	1923	1734	188.24	10.215		
9200	5139	8873	5096	99	95	-88.72	1643	-3066	1922	1729	193.17	9.952		
9300	5139	8973	5096	102	97	-88.72	1710	-3141	1922	1724	198.11	9.702		
9400	5139	9073	5096	104	100	-88.72	1776	-3216	1922	1719	203.06	9.464		
9500	5139	9173	5096	106	102	-88.72	1842	-3291	1922	1714	208.01	9.237		
9600	5139	9273	5096	109	105	-88.72	1908	-3366	1921	1708	212.97	9.021		
9700	5139	9373	5096	111	107	-88.72	1974	-3441	1921	1703	217.94	8.814		
9800	5139	9473	5096	114	110	-88.72	2041	-3516	1921	1698	222.91	8.616		
9900	5139	9573	5096	116	112	-88.72	2107	-3591	1920	1692	227.88	8.427		
10,000	5139	9673	5096	119	115	-88.72	2173	-3666	1920	1687	232.86	8.246		
10,100	5139	9773	5096	121	117	-88.72	2239	-3741	1920	1682	237.84	8.072		
10,200	5139	9873	5096	124	120	-88.72	2305	-3816	1919	1677	242.82	7.905		
10,300	5139	9973	5096	126	122	-88.72	2371	-3891	1919	1671	247.81	7.744		
10,400	5139	10,073	5096	129	125	-88.72	2438	-3966	1919	1666	252.80	7.590		
10,500	5139	10,173	5096	131	127	-88.72	2504	-4041	1919	1661	257.80	7.442		
10,600	5139	10,273	5096	134	130	-88.72	2570	-4116	1918	1655	262.79	7.299		
10,700	5139	10,373	5096	136	132	-88.72	2636	-4191	1918	1650	267.79	7.162		
10,800	5139	10,473	5096	139	135	-88.72	2702	-4266	1918	1645	272.79	7.030		
10,900	5139	10,573	5096	141	137	-88.71	2769	-4341	1917	1640	277.80	6.902		

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

Anticollision Report

Company:	DJR Operating	Local Co-ordinate Reference:	Well NAU 559H
Project:	North Alamito Unit	TVD Reference:	RKB @ 6993ft (RIG TBD)
Reference Site:	J31 2307	MD Reference:	RKB @ 6993ft (RIG TBD)
Site Error:	0 ft	North Reference:	True
Reference Well:	NAU 559H	Survey Calculation Method:	Minimum Curvature
Well Error:	0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Original drilling	Database:	EDM
Reference Design:	APD	Offset TVD Reference:	Offset Datum

Offset Design J31 2307 - NAU 332H - Original drilling - APD													Offset Site Error:	0 ft
Survey Program: 0-MWD+IGRF													Offset Well Error:	0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)						
11,000	5139	10,673	5096	144	140	-88.71	2835	-4415	1917	1634	282.80	6.779		
11,100	5139	10,773	5096	146	142	-88.71	2901	-4490	1917	1629	287.81	6.660		
11,200	5139	10,873	5096	149	145	-88.71	2967	-4565	1916	1624	292.82	6.545		
11,300	5139	10,973	5096	151	147	-88.71	3033	-4640	1916	1618	297.84	6.433		
11,400	5139	11,073	5096	154	150	-88.71	3099	-4715	1916	1613	302.85	6.326		
11,500	5139	11,173	5096	156	152	-88.71	3166	-4790	1916	1608	307.87	6.222		
11,600	5139	11,273	5096	159	155	-88.71	3232	-4865	1915	1602	312.88	6.121		
11,700	5139	11,373	5096	161	157	-88.71	3298	-4940	1915	1597	317.90	6.024		
11,800	5139	11,473	5096	164	160	-88.71	3364	-5015	1915	1592	322.92	5.929		
11,900	5139	11,573	5096	166	162	-88.71	3430	-5090	1914	1586	327.95	5.837		
12,000	5139	11,673	5096	169	165	-88.71	3497	-5165	1914	1581	332.97	5.748		
12,100	5139	11,773	5096	171	167	-88.71	3563	-5240	1914	1576	337.99	5.662		
12,200	5139	11,873	5096	174	170	-88.71	3629	-5315	1913	1570	343.02	5.578		
12,300	5139	11,973	5096	176	172	-88.71	3695	-5390	1913	1565	348.05	5.497		
12,400	5139	12,073	5096	179	175	-88.71	3761	-5465	1913	1560	353.08	5.418		
12,500	5139	12,173	5096	181	177	-88.71	3827	-5540	1913	1554	358.11	5.341		
12,600	5139	12,273	5096	184	180	-88.71	3894	-5615	1912	1549	363.14	5.266		
12,700	5139	12,373	5096	186	182	-88.71	3960	-5690	1912	1544	368.17	5.193		
12,800	5139	12,473	5096	189	185	-88.71	4026	-5765	1912	1538	373.20	5.122		
12,900	5139	12,573	5096	191	187	-88.71	4092	-5840	1911	1533	378.23	5.053		
13,000	5139	12,673	5096	194	190	-88.71	4158	-5915	1911	1528	383.27	4.986		
13,100	5139	12,773	5096	196	192	-88.71	4225	-5990	1911	1522	388.30	4.921		
13,200	5139	12,873	5096	199	195	-88.71	4291	-6065	1910	1517	393.34	4.857		
13,300	5139	12,973	5096	201	198	-88.71	4357	-6140	1910	1512	398.38	4.795		
13,400	5139	13,073	5096	204	200	-88.71	4423	-6215	1910	1506	403.41	4.734		
13,500	5139	13,173	5096	206	203	-88.71	4489	-6290	1909	1501	408.45	4.675		
13,600	5139	13,273	5096	209	205	-88.71	4555	-6365	1909	1496	413.49	4.617		
13,700	5139	13,373	5096	212	208	-88.71	4622	-6440	1909	1490	418.53	4.561		
13,800	5139	13,473	5096	214	210	-88.71	4688	-6515	1909	1485	423.57	4.506		
13,900	5139	13,573	5096	217	213	-88.71	4754	-6590	1908	1480	428.61	4.452		
14,000	5139	13,673	5096	219	215	-88.71	4820	-6665	1908	1474	433.65	4.400		
14,100	5139	13,773	5096	222	218	-88.71	4886	-6739	1908	1469	438.70	4.349		
14,200	5139	13,873	5096	224	220	-88.71	4953	-6814	1907	1464	443.74	4.298		
14,300	5139	13,973	5096	227	223	-88.71	5019	-6889	1907	1458	448.78	4.249		
14,400	5139	14,073	5096	229	225	-88.71	5085	-6964	1907	1453	453.83	4.202		
14,500	5139	14,173	5096	232	228	-88.71	5151	-7039	1906	1448	458.87	4.155		
14,600	5139	14,273	5096	234	230	-88.71	5217	-7114	1906	1442	463.91	4.109		
14,700	5139	14,373	5096	237	233	-88.71	5283	-7189	1906	1437	468.96	4.064		
14,800	5139	14,473	5096	239	235	-88.71	5350	-7264	1906	1432	474.01	4.020		
14,900	5139	14,573	5096	242	238	-88.71	5416	-7339	1905	1426	479.05	3.977		
15,000	5139	14,673	5096	244	240	-88.71	5482	-7414	1905	1421	484.10	3.935		
15,100	5139	14,773	5096	247	243	-88.71	5548	-7489	1905	1416	489.14	3.894		
15,200	5139	14,873	5096	249	245	-88.71	5614	-7564	1904	1410	494.19	3.854		
15,247	5139	14,914	5096	250	246	-88.71	5642	-7595	1904	1408	496.42	3.836		
15,300	5139	14,914	5096	252	246	-88.71	5642	-7595	1905	1407	497.51	3.829 SF		
15,400	5139	14,914	5096	254	246	-88.71	5642	-7595	1910	1412	498.52	3.832		
15,500	5139	14,914	5096	257	246	-88.71	5642	-7595	1921	1423	498.20	3.856		
15,600	5139	14,914	5096	259	246	-88.71	5642	-7595	1937	1440	496.58	3.900		
15,700	5139	14,914	5096	262	246	-88.71	5642	-7595	1957	1464	493.74	3.964		
15,800	5139	14,914	5096	264	246	-88.71	5642	-7595	1983	1493	489.77	4.049		
15,900	5139	14,914	5096	267	246	-88.71	5642	-7595	2013	1528	484.80	4.152		
16,000	5139	14,914	5096	269	246	-88.71	5642	-7595	2048	1569	478.95	4.275		

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

Anticollision Report

Company:	DJR Operating	Local Co-ordinate Reference:	Well NAU 559H
Project:	North Alamito Unit	TVD Reference:	RKB @ 6993ft (RIG TBD)
Reference Site:	J31 2307	MD Reference:	RKB @ 6993ft (RIG TBD)
Site Error:	0 ft	North Reference:	True
Reference Well:	NAU 559H	Survey Calculation Method:	Minimum Curvature
Well Error:	0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Original drilling	Database:	EDM
Reference Design:	APD	Offset TVD Reference:	Offset Datum

Offset Design J31 2307 - NAU 332H - Original drilling - APD													Offset Site Error:	0 ft
Survey Program: 0-MWD+IGRF													Offset Well Error:	0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
16,100	5139	14,914	5096	272	246	-88.71	5642	-7595	2087	1614	472.34	4.417		
16,200	5139	14,914	5096	275	246	-88.71	5642	-7595	2129	1664	465.12	4.578		
16,300	5139	14,914	5096	277	246	-88.71	5642	-7595	2176	1719	457.41	4.757		
16,400	5139	14,914	5096	280	246	-88.71	5642	-7595	2226	1777	449.31	4.954		
16,500	5139	14,914	5096	282	246	-88.71	5642	-7595	2279	1839	440.95	5.169		
16,600	5139	14,914	5096	285	246	-88.71	5642	-7595	2336	1904	432.42	5.402		
16,700	5139	14,914	5096	287	246	-88.71	5642	-7595	2395	1971	423.80	5.652		
16,718	5139	14,914	5096	288	246	-88.71	5642	-7595	2406	1984	422.22	5.699		

Anticollision Report

Company:	DJR Operating	Local Co-ordinate Reference:	Well NAU 559H
Project:	North Alamito Unit	TVD Reference:	RKB @ 6993ft (RIG TBD)
Reference Site:	J31 2307	MD Reference:	RKB @ 6993ft (RIG TBD)
Site Error:	0 ft	North Reference:	True
Reference Well:	NAU 559H	Survey Calculation Method:	Minimum Curvature
Well Error:	0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Original drilling	Database:	EDM
Reference Design:	APD	Offset TVD Reference:	Offset Datum

Offset Design J31 2307 - NAU 333H - Original drilling - APD													Offset Site Error:	0 ft
Survey Program: 0-MWD+IGRF													Offset Well Error:	0 ft
Reference	Offset		Semi Major Axis		Distance		Minimum		Separation		Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0	0	0	0	0	0	41.68	22	20	30					
100	100	100	100	0	0	41.68	22	20	30	29	0.31	96.445		
200	200	200	200	1	1	41.68	22	20	30	29	1.03	29.001		
300	300	300	300	1	1	41.68	22	20	30	28	1.74	17.066		
400	400	400	400	1	1	41.68	22	20	30	27	2.46	12.091		
500	500	500	500	2	2	-39.46	22	20	28	25	3.17	8.947		
600	600	600	600	2	2	-48.05	22	19	24	20	3.88	6.248		
700	699	700	700	2	2	-77.32	21	16	18	14	4.59	3.974		
726	726	726	726	2	2	-91.07	21	15	18	13	4.78	3.698	CC, ES, SF	
800	799	798	798	3	3	-130.13	19	9	23	18	5.30	4.321		
900	897	894	893	3	3	-166.81	17	0	44	38	5.98	7.348		
1000	996	986	985	4	3	-166.89	14	-12	75	68	6.66	11.207		
1100	1093	1076	1073	4	4	-171.62	10	-27	112	105	7.31	15.368		
1200	1190	1166	1161	5	4	-174.28	6	-43	155	147	7.98	19.462		
1300	1285	1254	1248	5	5	-175.85	2	-59	202	193	8.65	23.317		
1329	1312	1279	1273	5	5	-176.19	0	-63	215	207	8.85	24.357		
1400	1380	1341	1334	6	5	-176.92	-3	-75	250	241	9.32	26.858		
1500	1475	1429	1419	6	5	-177.65	-7	-90	299	289	9.98	29.970		
1600	1570	1516	1505	7	6	-178.18	-11	-106	348	337	10.65	32.680		
1700	1664	1603	1591	8	6	-178.57	-15	-122	397	386	11.32	35.055		
1800	1759	1690	1676	9	7	-178.88	-19	-138	446	434	12.00	37.152		
1900	1854	1777	1762	9	7	-179.13	-23	-153	495	482	12.68	39.015		
2000	1949	1865	1848	10	7	-179.34	-27	-169	544	530	13.36	40.679		
2100	2044	1952	1933	11	8	-179.51	-31	-185	593	579	14.05	42.174		
2200	2138	2039	2019	11	8	-179.65	-36	-200	642	627	14.74	43.524		
2300	2233	2126	2105	12	9	-179.78	-40	-216	690	675	15.43	44.748		
2400	2328	2213	2190	13	9	-179.88	-44	-232	739	723	16.12	45.862		
2500	2423	2301	2276	13	10	-179.98	-48	-248	788	772	16.82	46.880		
2600	2518	2388	2362	14	10	-179.94	-52	-263	837	820	17.51	47.814		
2700	2612	2475	2447	15	10	-179.87	-56	-279	886	868	18.21	48.673		
2800	2707	2562	2533	16	11	-179.80	-60	-295	935	916	18.90	49.467		
2900	2802	2649	2619	16	11	-179.74	-64	-311	984	964	19.60	50.201		
3000	2897	2737	2704	17	12	-179.69	-69	-326	1033	1013	20.30	50.883		
3100	2992	2824	2790	18	12	-179.64	-73	-342	1082	1061	21.00	51.518		
3200	3086	2911	2876	18	13	-179.59	-77	-358	1131	1109	21.70	52.109		
3300	3181	2998	2961	19	13	-179.55	-81	-374	1180	1157	22.40	52.662		
3400	3276	3085	3047	20	14	-179.51	-85	-389	1229	1206	23.11	53.180		
3500	3371	3173	3133	21	14	-179.48	-89	-405	1278	1254	23.81	53.666		
3600	3466	3260	3218	21	14	-179.44	-93	-421	1327	1302	24.51	54.123		
3700	3560	3347	3304	22	15	-179.41	-97	-436	1376	1350	25.22	54.554		
3800	3655	3434	3390	23	15	-179.39	-102	-452	1425	1399	25.92	54.960		
3900	3750	3521	3475	23	16	-179.36	-106	-468	1474	1447	26.63	55.343		
4000	3845	3609	3561	24	16	-179.34	-110	-484	1522	1495	27.33	55.706		
4100	3939	3696	3647	25	17	-179.31	-114	-499	1571	1543	28.04	56.049		
4200	4034	3783	3733	26	17	-179.29	-118	-515	1620	1592	28.74	56.375		
4300	4129	3870	3818	26	17	-179.27	-122	-531	1669	1640	29.45	56.684		
4400	4224	3957	3904	27	18	-179.25	-126	-547	1718	1688	30.16	56.978		
4500	4319	4044	4000	28	19	-179.23	-130	-563	1767	1736	30.87	57.269		
4590	4404	4131	4096	28	19	-179.21	-134	-579	1816	1784	31.58	57.559		
4600	4413	4140	4105	29	19	-179.20	-135	-580	1825	1793	31.68	57.648		
4650	4461	4188	4153	29	20	-179.18	-139	-596	1874	1842	32.39	57.939		
4700	4510	4237	4202	29	20	-179.16	-143	-612	1923	1891	33.10	58.230		

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

Anticollision Report

Company:	DJR Operating	Local Co-ordinate Reference:	Well NAU 559H
Project:	North Alamito Unit	TVD Reference:	RKB @ 6993ft (RIG TBD)
Reference Site:	J31 2307	MD Reference:	RKB @ 6993ft (RIG TBD)
Site Error:	0 ft	North Reference:	True
Reference Well:	NAU 559H	Survey Calculation Method:	Minimum Curvature
Well Error:	0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Original drilling	Database:	EDM
Reference Design:	APD	Offset TVD Reference:	Offset Datum

Offset Design J31 2307 - NAU 333H - Original drilling - APD													Offset Site Error:	0 ft
Survey Program: 0-MWD+IGRF													Offset Well Error:	0 ft
Reference		Offset		Semi Major Axis		Highside Tooface (°)	Distance		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore +N/-S (ft)	Centre +E/-W (ft)						
4750	4558	5998	5098	29	30	-167.70	-968	104	1726	1677	49.59	34.809		
4800	4606	5993	5098	30	30	-152.83	-964	100	1724	1674	49.99	34.488		
4850	4653	5984	5098	30	29	-140.87	-958	94	1723	1673	50.24	34.299		
4857	4660	5983	5098	30	29	-139.38	-957	93	1723	1673	50.26	34.284		
4900	4700	5972	5098	30	29	-131.66	-950	84	1724	1673	50.34	34.237		
4950	4746	5955	5098	30	29	-124.53	-939	72	1725	1675	50.31	34.295		
5000	4790	5935	5098	30	29	-118.85	-926	57	1728	1678	50.14	34.466		
5050	4833	5912	5098	30	28	-114.16	-910	40	1732	1682	49.85	34.741		
5100	4874	5885	5098	30	28	-110.16	-892	20	1737	1687	49.46	35.109		
5150	4912	5855	5098	30	27	-106.67	-872	-3	1742	1693	48.99	35.557		
5200	4949	5821	5098	30	27	-103.58	-849	-27	1747	1699	48.44	36.075		
5250	4982	5785	5098	30	26	-100.81	-825	-54	1753	1705	47.84	36.647		
5300	5013	5747	5098	30	25	-98.34	-799	-83	1759	1712	47.23	37.251		
5350	5041	5706	5098	30	25	-96.15	-772	-113	1765	1718	46.61	37.866		
5400	5065	5663	5098	30	24	-94.22	-743	-145	1770	1724	46.00	38.486		
5450	5087	5618	5098	30	23	-92.58	-713	-179	1775	1730	45.46	39.051		
5500	5104	5571	5098	30	23	-91.21	-682	-213	1779	1734	44.87	39.647		
5550	5119	5517	5098	29	22	-90.08	-646	-253	1782	1738	44.52	40.038		
5600	5129	5438	5091	29	22	-88.93	-592	-311	1784	1740	43.82	40.715		
5650	5136	5363	5076	29	22	-87.96	-541	-364	1784	1741	43.36	41.144		
5700	5139	5292	5054	29	22	-87.19	-494	-411	1782	1739	43.12	41.333		
5715	5139	5272	5046	29	22	-87.01	-480	-424	1782	1738	43.09	41.341		
5800	5139	5167	4997	29	22	-85.40	-412	-488	1776	1733	43.23	41.089		
5900	5139	5066	4937	29	22	-83.43	-352	-541	1770	1726	43.91	40.317		
6000	5139	4988	4882	28	22	-81.63	-309	-576	1766	1721	44.95	39.300		
6076	5139	4941	4845	28	22	-80.43	-285	-594	1765	1720	45.81	38.534		
6100	5139	4927	4835	29	22	-80.07	-278	-599	1766	1719	46.20	38.211		
6200	5139	4879	4795	31	22	-78.77	-256	-614	1768	1721	47.60	37.152		
6300	5139	4841	4762	32	22	-77.68	-239	-625	1776	1727	49.08	36.183		
6400	5139	4810	4734	34	22	-76.78	-227	-632	1788	1737	50.59	35.338		
6500	5139	4784	4711	36	22	-76.02	-217	-637	1805	1753	52.10	34.637		
6600	5139	4762	4691	38	21	-75.37	-209	-641	1826	1773	53.58	34.086		
6700	5139	4750	4680	40	21	-75.00	-205	-643	1853	1798	55.05	33.658		
6800	5139	4728	4660	42	21	-74.34	-198	-646	1884	1827	56.34	33.435		
6900	5139	4715	4647	45	21	-73.93	-194	-647	1919	1862	57.60	33.324		
7000	5139	4700	4633	47	21	-73.47	-190	-649	1959	1900	58.73	33.358		
7100	5139	4700	4633	49	21	-73.47	-190	-649	2003	1943	59.87	33.455		
7200	5139	4684	4617	51	21	-72.96	-185	-650	2051	1990	60.77	33.745		
7300	5139	4675	4609	54	21	-72.70	-183	-651	2102	2040	61.63	34.106		
7400	5139	4668	4602	56	21	-72.47	-181	-651	2157	2094	62.40	34.561		
7500	5139	4650	4585	58	21	-71.91	-177	-652	2215	2152	63.00	35.154		
7600	5139	4650	4585	61	21	-71.91	-177	-652	2275	2211	63.65	35.745		
7700	5139	4650	4585	63	21	-71.91	-177	-652	2338	2274	64.22	36.413		
7800	5139	4650	4585	65	21	-71.91	-177	-652	2404	2339	64.72	37.148		
7900	5139	4650	4585	68	21	-71.91	-177	-652	2472	2407	65.15	37.946		
8000	5139	4650	4585	70	21	-71.91	-177	-652	2542	2477	65.52	38.799		
8100	5139	4650	4585	72	21	-71.91	-177	-652	2614	2549	65.85	39.704		
8200	5139	4628	4563	75	21	-71.24	-172	-653	2688	2622	65.96	40.750		
8300	5139	4625	4560	77	21	-71.13	-171	-653	2763	2697	66.18	41.758		
8400	5139	4622	4557	80	21	-71.03	-170	-653	2840	2774	66.36	42.803		
8500	5139	4600	4536	82	21	-70.35	-166	-652	2919	2852	66.36	43.983		
8600	5139	4600	4536	84	21	-70.35	-166	-652	2998	2932	66.51	45.080		

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

Anticollision Report

Company:	DJR Operating	Local Co-ordinate Reference:	Well NAU 559H
Project:	North Alamo Unit	TVD Reference:	RKB @ 6993ft (RIG TBD)
Reference Site:	J31 2307	MD Reference:	RKB @ 6993ft (RIG TBD)
Site Error:	0 ft	North Reference:	True
Reference Well:	NAU 559H	Survey Calculation Method:	Minimum Curvature
Well Error:	0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Original drilling	Database:	EDM
Reference Design:	APD	Offset TVD Reference:	Offset Datum

Offset Design J31 2307 - NAU 333H - Original drilling - APD													Offset Site Error:	0 ft
Survey Program: 0-MWD+IGRF													Offset Well Error:	0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore +N/-S (ft)	Centre +E/-W (ft)						
8700	5139	4600	4536	87	21	-70.35	-166	-652	3079	3012	66.64	46.207		
8800	5139	4600	4536	89	21	-70.35	-166	-652	3161	3094	66.74	47.361		
8900	5139	4600	4536	92	21	-70.35	-166	-652	3244	3177	66.82	48.541		
9000	5139	4600	4536	94	21	-70.35	-166	-652	3327	3261	66.89	49.743		
9100	5139	4600	4536	97	21	-70.35	-166	-652	3412	3345	66.95	50.967		
9200	5139	4600	4536	99	21	-70.35	-166	-652	3497	3430	66.99	52.211		
9300	5139	4600	4536	102	21	-70.35	-166	-652	3584	3517	67.02	53.473		
9400	5139	4600	4536	104	21	-70.35	-166	-652	3671	3604	67.04	54.752		
9500	5139	4600	4536	106	21	-70.35	-166	-652	3758	3691	67.05	56.046		
9600	5139	4600	4536	109	21	-70.35	-166	-652	3846	3779	67.06	57.355		
9700	5139	4600	4536	111	21	-70.35	-166	-652	3935	3868	67.06	58.677		
9800	5139	4600	4536	114	21	-70.35	-166	-652	4024	3957	67.06	60.011		
9900	5139	4600	4536	116	21	-70.35	-166	-652	4114	4047	67.05	61.356		
10,000	5139	4600	4536	119	21	-70.35	-166	-652	4204	4137	67.04	62.713		
10,100	5139	4600	4536	121	21	-70.35	-166	-652	4295	4228	67.03	64.079		
10,200	5139	4600	4536	124	21	-70.35	-166	-652	4386	4319	67.01	65.454		
10,300	5139	4600	4536	126	21	-70.35	-166	-652	4477	4410	66.99	66.837		
10,400	5139	4600	4536	129	21	-70.35	-166	-652	4569	4502	66.97	68.229		
10,500	5139	4600	4536	131	21	-70.35	-166	-652	4661	4594	66.95	69.627		
10,600	5139	4600	4536	134	21	-70.35	-166	-652	4754	4687	66.92	71.033		
10,700	5139	4600	4536	136	21	-70.35	-166	-652	4846	4780	66.90	72.445		
10,800	5139	4600	4536	139	21	-70.35	-166	-652	4940	4873	66.87	73.862		
10,900	5139	4600	4536	141	21	-70.35	-166	-652	5033	4966	66.85	75.285		
11,000	5139	4600	4536	144	21	-70.35	-166	-652	5126	5060	66.83	76.713		
11,100	5139	4600	4536	146	21	-70.35	-166	-652	5220	5153	66.80	78.146		
11,200	5139	4600	4536	149	21	-70.35	-166	-652	5314	5247	66.78	79.582		
11,300	5139	4600	4536	151	21	-70.35	-166	-652	5408	5342	66.75	81.023		
11,400	5139	4577	4513	154	21	-69.64	-162	-651	5502	5436	66.57	82.650		
11,500	5139	4576	4512	156	21	-69.61	-162	-651	5597	5530	66.55	84.106		
11,600	5139	4576	4512	159	21	-69.59	-162	-651	5692	5625	66.52	85.565		
11,700	5139	4575	4511	161	21	-69.57	-162	-651	5787	5720	66.49	87.027		
11,800	5139	4574	4510	164	21	-69.55	-162	-651	5882	5815	66.47	88.491		
11,900	5139	4574	4510	166	21	-69.53	-161	-651	5977	5911	66.44	89.958		
12,000	5139	4573	4509	169	21	-69.51	-161	-651	6073	6006	66.42	91.427		
12,100	5139	4550	4486	171	21	-68.80	-158	-650	6169	6102	66.25	93.114		
12,200	5139	4550	4486	174	21	-68.80	-158	-650	6264	6198	66.23	94.583		
12,300	5139	4550	4486	176	21	-68.80	-158	-650	6360	6294	66.21	96.054		
12,400	5139	4550	4486	179	21	-68.80	-158	-650	6456	6390	66.20	97.526		
12,500	5139	4550	4486	181	21	-68.80	-158	-650	6552	6486	66.18	99.000		
12,600	5139	4550	4486	184	21	-68.80	-158	-650	6648	6582	66.17	100.474		
12,700	5139	4550	4486	186	21	-68.80	-158	-650	6745	6678	66.16	101.949		
12,800	5139	4550	4486	189	21	-68.80	-158	-650	6841	6775	66.14	103.425		
12,900	5139	4550	4486	191	21	-68.80	-158	-650	6938	6871	66.13	104.902		
13,000	5139	4550	4486	194	21	-68.80	-158	-650	7034	6968	66.12	106.379		
13,100	5139	4550	4486	196	21	-68.80	-158	-650	7131	7065	66.11	107.857		
13,200	5139	4550	4486	199	21	-68.80	-158	-650	7228	7162	66.11	109.335		
13,300	5139	4550	4486	201	21	-68.80	-158	-650	7325	7258	66.10	110.812		
13,400	5139	4550	4486	204	21	-68.80	-158	-650	7421	7355	66.09	112.290		
13,500	5139	4550	4486	206	21	-68.80	-158	-650	7519	7452	66.09	113.768		
13,600	5139	4550	4486	209	21	-68.80	-158	-650	7616	7550	66.08	115.245		
13,700	5139	4550	4486	212	21	-68.80	-158	-650	7713	7647	66.08	116.722		
13,800	5139	4550	4486	214	21	-68.80	-158	-650	7810	7744	66.08	118.199		

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

Anticollision Report

Company:	DJR Operating	Local Co-ordinate Reference:	Well NAU 559H
Project:	North Alamito Unit	TVD Reference:	RKB @ 6993ft (RIG TBD)
Reference Site:	J31 2307	MD Reference:	RKB @ 6993ft (RIG TBD)
Site Error:	0 ft	North Reference:	True
Reference Well:	NAU 559H	Survey Calculation Method:	Minimum Curvature
Well Error:	0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Original drilling	Database:	EDM
Reference Design:	APD	Offset TVD Reference:	Offset Datum

Offset Design J31 2307 - NAU 333H - Original drilling - APD													Offset Site Error:	0 ft
Survey Program: 0-MWD+IGRF													Offset Well Error:	0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
13,900	5139	4550	4486	217	21	-68.80	-158	-650	7907	7841	66.07	119.675		
14,000	5139	4550	4486	219	21	-68.80	-158	-650	8005	7939	66.07	121.150		
14,100	5139	4550	4486	222	21	-68.80	-158	-650	8102	8036	66.07	122.625		
14,200	5139	4550	4486	224	21	-68.80	-158	-650	8200	8134	66.07	124.099		
14,300	5139	4550	4486	227	21	-68.80	-158	-650	8297	8231	66.08	125.572		
14,400	5139	4550	4486	229	21	-68.80	-158	-650	8395	8329	66.08	127.044		
14,500	5139	4550	4486	232	21	-68.80	-158	-650	8493	8427	66.08	128.515		
14,600	5139	4550	4486	234	21	-68.80	-158	-650	8590	8524	66.09	129.985		
14,700	5139	4550	4486	237	21	-68.80	-158	-650	8688	8622	66.09	131.454		
14,800	5139	4550	4486	239	21	-68.80	-158	-650	8786	8720	66.10	132.922		
14,900	5139	4550	4486	242	21	-68.80	-158	-650	8884	8818	66.11	134.388		
15,000	5139	4550	4486	244	21	-68.80	-158	-650	8982	8916	66.11	135.853		
15,100	5139	4550	4486	247	21	-68.80	-158	-650	9080	9014	66.12	137.316		
15,200	5139	4550	4486	249	21	-68.80	-158	-650	9178	9112	66.13	138.778		
15,300	5139	4550	4486	252	21	-68.80	-158	-650	9276	9210	66.14	140.238		
15,400	5139	4550	4486	254	21	-68.80	-158	-650	9374	9308	66.16	141.697		
15,500	5139	4550	4486	257	21	-68.80	-158	-650	9472	9406	66.17	143.154		
15,600	5139	4550	4486	259	21	-68.80	-158	-650	9570	9504	66.18	144.610		
15,700	5139	4550	4486	262	21	-68.80	-158	-650	9669	9602	66.19	146.063		
15,800	5139	4550	4486	264	21	-68.80	-158	-650	9767	9701	66.21	147.515		
15,900	5139	4550	4486	267	21	-68.80	-158	-650	9865	9799	66.23	148.965		
16,000	5139	4550	4486	269	21	-68.80	-158	-650	9964	9897	66.24	150.413		

Anticollision Report

Company:	DJR Operating	Local Co-ordinate Reference:	Well NAU 559H
Project:	North Alamito Unit	TVD Reference:	RKB @ 6993ft (RIG TBD)
Reference Site:	J31 2307	MD Reference:	RKB @ 6993ft (RIG TBD)
Site Error:	0 ft	North Reference:	True
Reference Well:	NAU 559H	Survey Calculation Method:	Minimum Curvature
Well Error:	0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Original drilling	Database:	EDM
Reference Design:	APD	Offset TVD Reference:	Offset Datum

Offset Design J31 2307 - NAU 528H - Original drilling - APD													Offset Site Error:	0 ft
Survey Program: 0-MWD+IGRF													Offset Well Error:	0 ft
Reference	Offset		Semi Major Axis		Distance		Minimum		Separation		Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0	0	0	0	0	0	42.05	52	47	70					
100	100	100	100	0	0	42.05	52	47	70	69	0.31	225.809		
200	200	200	200	1	1	42.05	52	47	70	69	1.03	67.901		
300	300	300	300	1	1	42.05	52	47	70	68	1.74	39.958		
400	400	400	400	1	1	42.05	52	47	70	67	2.46	28.308		
500	500	499	499	2	2	-38.13	52	46	68	65	3.17	21.607		
600	600	598	598	2	2	-43.45	55	45	66	62	3.87	17.130		
700	699	696	695	2	2	-53.49	62	43	65	60	4.59	14.175		
702	701	698	697	2	2	-53.72	62	43	65	60	4.60	14.133 CC, ES		
800	799	793	792	3	3	-67.60	71	40	67	62	5.32	12.627		
900	897	891	890	3	3	-82.94	81	36	74	68	6.09	12.104 SF		
1000	996	988	986	4	3	-97.22	91	33	85	78	6.87	12.370		
1100	1093	1085	1082	4	4	-109.35	102	29	102	94	7.68	13.249		
1200	1190	1180	1177	5	4	-119.08	112	26	123	115	8.48	14.550		
1300	1285	1275	1271	5	5	-126.72	122	23	150	141	9.29	16.126		
1329	1312	1302	1298	5	5	-128.58	124	22	158	149	9.52	16.610		
1400	1380	1369	1364	6	5	-132.85	131	19	180	170	10.09	17.825		
1500	1475	1462	1457	6	5	-137.35	141	16	212	201	10.89	19.432		
1600	1570	1556	1550	7	6	-140.70	151	12	244	232	11.68	20.900		
1700	1664	1650	1644	8	6	-143.26	161	9	277	265	12.47	22.228		
1800	1759	1743	1737	9	6	-145.28	171	6	311	297	13.26	23.426		
1900	1854	1837	1830	9	7	-146.90	181	2	344	330	14.06	24.506		
2000	1949	1931	1923	10	7	-148.24	191	-1	378	364	14.85	25.483		
2100	2044	2025	2016	11	8	-149.36	200	-5	413	397	15.65	26.367		
2200	2138	2118	2109	11	8	-150.31	210	-8	447	430	16.45	27.172		
2300	2233	2212	2202	12	8	-151.12	220	-11	481	464	17.24	27.906		
2400	2328	2306	2296	13	9	-151.83	230	-15	516	498	18.04	28.577		
2500	2423	2399	2389	13	9	-152.44	240	-18	550	531	18.84	29.193		
2600	2518	2493	2482	14	10	-152.99	250	-22	585	565	19.65	29.760		
2700	2612	2587	2575	15	10	-153.47	259	-25	619	599	20.45	30.283		
2800	2707	2681	2668	16	10	-153.91	269	-28	654	633	21.25	30.768		
2900	2802	2774	2761	16	11	-154.29	279	-32	688	666	22.05	31.218		
3000	2897	2868	2854	17	11	-154.65	289	-35	723	700	22.86	31.637		
3100	2992	2962	2947	18	11	-154.97	299	-39	758	734	23.66	32.027		
3200	3086	3055	3041	18	12	-155.26	309	-42	793	768	24.47	32.392		
3300	3181	3149	3134	19	12	-155.53	319	-45	827	802	25.27	32.733		
3400	3276	3243	3227	20	13	-155.77	328	-49	862	836	26.08	33.054		
3500	3371	3337	3320	21	13	-156.00	338	-52	897	870	26.89	33.355		
3600	3466	3430	3413	21	13	-156.21	348	-56	932	904	27.69	33.639		
3700	3560	3524	3506	22	14	-156.40	358	-59	966	938	28.50	33.906		
3800	3655	3618	3599	23	14	-156.59	368	-62	1001	972	29.31	34.159		
3900	3750	3711	3692	23	15	-156.75	378	-66	1036	1006	30.11	34.398		
4000	3845	3805	3786	24	15	-156.91	388	-69	1071	1040	30.92	34.625		
4100	3939	3899	3879	25	15	-157.06	397	-73	1105	1074	31.73	34.840		
4200	4034	3993	3972	26	16	-157.20	407	-76	1140	1108	32.54	35.044		
4300	4129	5896	5118	26	27	155.77	-214	683	1145	1114	31.00	36.932		
4400	4224	5914	5118	27	28	154.51	-227	697	1078	1045	33.57	32.117		
4500	4319	5933	5118	28	28	153.24	-239	711	1017	980	36.41	27.927		
4590	4404	5950	5118	28	29	152.10	-251	723	967	927	39.15	24.689		
4600	4413	5952	5118	29	29	153.67	-252	725	961	922	39.47	24.357		
4650	4461	5959	5118	29	29	163.67	-257	730	936	895	41.01	22.821		
4700	4510	5961	5118	29	29	176.99	-259	732	912	870	42.50	21.468		

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

Anticollision Report

Company:	DJR Operating	Local Co-ordinate Reference:	Well NAU 559H
Project:	North Alamo Unit	TVD Reference:	RKB @ 6993ft (RIG TBD)
Reference Site:	J31 2307	MD Reference:	RKB @ 6993ft (RIG TBD)
Site Error:	0 ft	North Reference:	True
Reference Well:	NAU 559H	Survey Calculation Method:	Minimum Curvature
Well Error:	0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Original drilling	Database:	EDM
Reference Design:	APD	Offset TVD Reference:	Offset Datum

Offset Design J31 2307 - NAU 528H - Original drilling - APD													Offset Site Error:	0 ft
Survey Program: 0-MWD+IGRF													Offset Well Error:	0 ft
Reference	Offset	Semi Major Axis		Distance		Minimum		Separation		Warning				
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
4750	4558	5960	5118	29	29	-168.34	-258	731	891	847	43.89	20.297		
4800	4606	5955	5118	30	29	-154.95	-254	727	872	826	45.15	19.303		
4850	4653	5946	5118	30	28	-144.17	-248	720	855	809	46.26	18.483		
4900	4700	5933	5118	30	28	-135.85	-240	711	841	794	47.17	17.828		
4950	4746	5917	5118	30	28	-129.34	-228	699	830	782	47.87	17.332		
5000	4790	5897	5118	30	28	-124.01	-215	684	821	773	48.34	16.985		
5050	4833	5873	5118	30	27	-119.43	-198	667	815	766	48.59	16.771		
5100	4874	5846	5118	30	27	-115.33	-180	647	811	763	48.62	16.683		
5150	4912	5816	5118	30	26	-111.55	-159	625	810	761	48.45	16.709		
5171	4928	5802	5118	30	26	-110.01	-150	614	809	761	48.32	16.751		
5200	4949	5782	5118	30	25	-108.02	-137	600	810	762	48.11	16.828		
5250	4982	5746	5118	30	25	-104.70	-112	574	811	764	47.65	17.024		
5300	5013	5707	5118	30	24	-101.60	-86	545	814	767	47.07	17.286		
5350	5041	5666	5118	30	24	-98.75	-58	515	817	770	46.46	17.581		
5400	5065	5623	5118	30	23	-96.19	-29	483	820	774	45.82	17.899		
5450	5087	5578	5118	30	22	-93.94	2	450	823	778	45.22	18.212		
5500	5104	5531	5118	30	22	-92.05	34	416	826	782	44.67	18.501		
5550	5119	5485	5118	29	21	-90.55	65	382	829	785	44.23	18.738		
5600	5129	5441	5115	29	21	-89.29	95	350	831	787	43.94	18.903		
5650	5136	5397	5109	29	20	-88.22	124	318	832	788	43.75	19.012		
5700	5139	5354	5100	29	20	-87.33	153	286	832	789	43.66	19.064		
5715	5139	5341	5097	29	20	-87.10	161	277	832	789	43.65	19.068		
5800	5139	5272	5075	29	19	-85.62	205	228	833	790	43.75	19.048		
5900	5139	5200	5046	29	19	-83.61	248	179	837	793	44.14	18.970		
6000	5139	5130	5010	28	19	-81.18	288	133	846	801	44.62	18.954		
6100	5139	5071	4975	29	18	-78.86	319	98	860	814	45.22	19.010		
6200	5139	5020	4942	31	18	-76.65	343	68	880	834	45.83	19.199		
6300	5139	4976	4910	32	18	-74.62	363	45	907	861	46.40	19.546		
6400	5139	4937	4881	34	18	-72.79	379	25	941	894	46.91	20.060		
6500	5139	4900	4851	36	18	-70.97	393	8	982	934	47.29	20.758		
6600	5139	4875	4830	38	18	-69.72	402	-4	1029	981	47.69	21.572		
6700	5139	4850	4809	40	18	-68.48	410	-14	1082	1034	47.97	22.546		
6800	5139	4826	4789	42	18	-67.31	417	-23	1140	1092	48.18	23.657		
6900	5139	4800	4766	45	18	-65.98	425	-33	1203	1154	48.27	24.911		
7000	5139	4800	4766	47	18	-65.98	425	-33	1270	1221	48.54	26.152		
7100	5139	4773	4741	49	18	-64.61	432	-43	1340	1291	48.52	27.613		
7200	5139	4750	4720	51	18	-63.48	437	-50	1414	1365	48.51	29.142		
7300	5139	4750	4720	54	18	-63.48	437	-50	1490	1441	48.62	30.639		
7400	5139	4750	4720	56	18	-63.48	437	-50	1569	1520	48.70	32.212		
7500	5139	4723	4695	58	18	-62.15	442	-58	1649	1601	48.59	33.941		
7600	5139	4700	4673	61	18	-61.03	447	-64	1732	1683	48.50	35.712		
7700	5139	4700	4673	63	18	-61.03	447	-64	1816	1767	48.53	37.423		
7800	5139	4700	4673	65	18	-61.03	447	-64	1902	1853	48.54	39.178		
7900	5139	4700	4673	68	18	-61.03	447	-64	1988	1940	48.53	40.971		
8000	5139	4700	4673	70	18	-61.03	447	-64	2077	2028	48.52	42.798		
8100	5139	4675	4649	72	18	-59.82	450	-70	2165	2117	48.41	44.725		
8200	5139	4650	4625	75	18	-58.65	454	-75	2255	2207	48.30	46.687		
8300	5139	4650	4625	77	18	-58.65	454	-75	2345	2297	48.29	48.571		
8400	5139	4650	4625	80	18	-58.65	454	-75	2436	2388	48.27	50.475		
8500	5139	4650	4625	82	18	-58.65	454	-75	2528	2480	48.25	52.399		
8600	5139	4650	4625	84	18	-58.65	454	-75	2621	2572	48.23	54.338		
8700	5139	4650	4625	87	18	-58.65	454	-75	2713	2665	48.20	56.291		

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

Anticollision Report

Company:	DJR Operating	Local Co-ordinate Reference:	Well NAU 559H
Project:	North Alamito Unit	TVD Reference:	RKB @ 6993ft (RIG TBD)
Reference Site:	J31 2307	MD Reference:	RKB @ 6993ft (RIG TBD)
Site Error:	0 ft	North Reference:	True
Reference Well:	NAU 559H	Survey Calculation Method:	Minimum Curvature
Well Error:	0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Original drilling	Database:	EDM
Reference Design:	APD	Offset TVD Reference:	Offset Datum

Offset Design J31 2307 - NAU 528H - Original drilling - APD													Offset Site Error:	0 ft
Survey Program: 0-MWD+IGRF													Offset Well Error:	0 ft
Reference		Offset		Semi Major Axis		Highside Tooface (°)	Distance		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore +N/-S (ft)	Centre +E/-W (ft)						
8800	5139	4650	4625	89	18	-58.65	454	-75	2807	2759	48.18	58.258		
8900	5139	4650	4625	92	18	-58.65	454	-75	2901	2852	48.15	60.235		
9000	5139	4650	4625	94	18	-58.65	454	-75	2995	2947	48.13	62.222		
9100	5139	4629	4604	97	18	-57.65	456	-79	3089	3041	48.07	64.265		
9200	5139	4625	4601	99	18	-57.50	456	-80	3184	3136	48.04	66.272		
9300	5139	4622	4598	102	18	-57.36	456	-80	3279	3231	48.02	68.284		
9400	5139	4600	4576	104	18	-56.36	458	-84	3374	3326	47.96	70.359		
9500	5139	4600	4576	106	18	-56.36	458	-84	3470	3422	47.95	72.370		
9600	5139	4600	4576	109	18	-56.36	458	-84	3566	3518	47.93	74.386		
9700	5139	4600	4576	111	18	-56.36	458	-84	3662	3614	47.92	76.406		
9800	5139	4600	4576	114	18	-56.36	458	-84	3758	3710	47.91	78.430		
9900	5139	4600	4576	116	18	-56.36	458	-84	3854	3806	47.90	80.456		
10,000	5139	4600	4576	119	18	-56.36	458	-84	3951	3903	47.90	82.485		
10,100	5139	4600	4576	121	18	-56.36	458	-84	4047	4000	47.89	84.515		
10,200	5139	4600	4576	124	18	-56.36	458	-84	4144	4096	47.89	86.547		
10,300	5139	4600	4576	126	18	-56.36	458	-84	4241	4193	47.88	88.580		
10,400	5139	4600	4576	129	18	-56.36	458	-84	4338	4291	47.88	90.613		
10,500	5139	4600	4576	131	18	-56.36	458	-84	4436	4388	47.88	92.647		
10,600	5139	4600	4576	134	18	-56.36	458	-84	4533	4485	47.88	94.681		
10,700	5139	4600	4576	136	18	-56.36	458	-84	4631	4583	47.88	96.714		
10,800	5139	4600	4576	139	18	-56.36	458	-84	4728	4680	47.88	98.747		
10,900	5139	4600	4576	141	18	-56.36	458	-84	4826	4778	47.89	100.779		
11,000	5139	4600	4576	144	18	-56.36	458	-84	4924	4876	47.89	102.810		
11,100	5139	4600	4576	146	18	-56.36	458	-84	5022	4974	47.90	104.839		
11,200	5139	4600	4576	149	18	-56.36	458	-84	5120	5072	47.91	106.867		
11,300	5139	4600	4576	151	18	-56.36	458	-84	5218	5170	47.92	108.893		
11,400	5139	4600	4576	154	18	-56.36	458	-84	5316	5268	47.93	110.916		
11,500	5139	4600	4576	156	18	-56.36	458	-84	5414	5366	47.94	112.938		
11,600	5139	4600	4576	159	18	-56.36	458	-84	5512	5464	47.95	114.957		
11,700	5139	4577	4553	161	18	-55.34	459	-87	5610	5562	47.95	117.011		
11,800	5139	4576	4552	164	18	-55.29	459	-87	5708	5660	47.96	119.026		
11,900	5139	4575	4551	166	18	-55.24	459	-87	5807	5759	47.98	121.039		
12,000	5139	4574	4550	169	18	-55.19	459	-87	5905	5857	47.99	123.047		
12,100	5139	4573	4549	171	18	-55.15	459	-87	6004	5956	48.01	125.053		
12,200	5139	4550	4526	174	18	-54.17	460	-90	6103	6055	48.01	127.110		
12,300	5139	4550	4526	176	18	-54.17	460	-90	6201	6153	48.03	129.106		
12,400	5139	4550	4526	179	18	-54.17	460	-90	6300	6252	48.05	131.098		
12,500	5139	4550	4526	181	18	-54.17	460	-90	6398	6350	48.08	133.087		
12,600	5139	4550	4526	184	18	-54.17	460	-90	6497	6449	48.10	135.072		
12,700	5139	4550	4526	186	18	-54.17	460	-90	6596	6548	48.13	137.054		
12,800	5139	4550	4526	189	18	-54.17	460	-90	6695	6646	48.15	139.031		
12,900	5139	4550	4526	191	18	-54.17	460	-90	6793	6745	48.18	141.004		
13,000	5139	4550	4526	194	18	-54.17	460	-90	6892	6844	48.21	142.973		
13,100	5139	4550	4526	196	18	-54.17	460	-90	6991	6943	48.23	144.938		
13,200	5139	4550	4526	199	18	-54.17	460	-90	7090	7042	48.26	146.899		
13,300	5139	4550	4526	201	18	-54.17	460	-90	7189	7141	48.29	148.855		
13,400	5139	4550	4526	204	18	-54.17	460	-90	7288	7239	48.33	150.806		
13,500	5139	4550	4526	206	18	-54.17	460	-90	7387	7338	48.36	152.753		
13,600	5139	4550	4526	209	18	-54.17	460	-90	7486	7437	48.39	154.696		
13,700	5139	4550	4526	212	18	-54.17	460	-90	7585	7536	48.42	156.633		
13,800	5139	4550	4526	214	18	-54.17	460	-90	7684	7635	48.46	158.566		
13,900	5139	4550	4526	217	18	-54.17	460	-90	7783	7734	48.49	160.493		

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

Anticollision Report

Company:	DJR Operating	Local Co-ordinate Reference:	Well NAU 559H
Project:	North Alamito Unit	TVD Reference:	RKB @ 6993ft (RIG TBD)
Reference Site:	J31 2307	MD Reference:	RKB @ 6993ft (RIG TBD)
Site Error:	0 ft	North Reference:	True
Reference Well:	NAU 559H	Survey Calculation Method:	Minimum Curvature
Well Error:	0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Original drilling	Database:	EDM
Reference Design:	APD	Offset TVD Reference:	Offset Datum

Offset Design J31 2307 - NAU 528H - Original drilling - APD													Offset Site Error:	0 ft
Survey Program: 0-MWD+IGRF													Offset Well Error:	0 ft
Reference		Offset		Semi Major Axis		Highside Tooface (°)	Distance		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore +N/-S (ft)	Centre +E/-W (ft)						
14,000	5139	4550	4526	219	18	-54.17	460	-90	7882	7834	48.53	162.416		
14,100	5139	4550	4526	222	18	-54.17	460	-90	7981	7933	48.57	164.334		
14,200	5139	4550	4526	224	18	-54.17	460	-90	8080	8032	48.60	166.246		
14,300	5139	4550	4526	227	18	-54.17	460	-90	8180	8131	48.64	168.154		
14,400	5139	4550	4526	229	18	-54.17	460	-90	8279	8230	48.68	170.056		
14,500	5139	4550	4526	232	18	-54.17	460	-90	8378	8329	48.72	171.952		
14,600	5139	4550	4526	234	18	-54.17	460	-90	8477	8428	48.76	173.844		
14,700	5139	4550	4526	237	18	-54.17	460	-90	8576	8528	48.80	175.730		
14,800	5139	4550	4526	239	18	-54.17	460	-90	8676	8627	48.85	177.610		
14,900	5139	4550	4526	242	18	-54.17	460	-90	8775	8726	48.89	179.485		
15,000	5139	4550	4526	244	18	-54.17	460	-90	8874	8825	48.93	181.354		
15,100	5139	4550	4526	247	18	-54.17	460	-90	8974	8925	48.98	183.218		
15,200	5139	4550	4526	249	18	-54.17	460	-90	9073	9024	49.02	185.076		
15,300	5139	4550	4526	252	18	-54.17	460	-90	9172	9123	49.07	186.928		
15,400	5139	4550	4526	254	18	-54.17	460	-90	9272	9222	49.11	188.775		
15,500	5139	4550	4526	257	18	-54.17	460	-90	9371	9322	49.16	190.615		
15,600	5139	4550	4526	259	18	-54.17	460	-90	9470	9421	49.21	192.450		
15,700	5139	4550	4526	262	18	-54.17	460	-90	9570	9520	49.26	194.279		
15,800	5139	4550	4526	264	18	-54.17	460	-90	9669	9620	49.31	196.102		
15,900	5139	4550	4526	267	18	-54.17	460	-90	9769	9719	49.36	197.919		
16,000	5139	4550	4526	269	18	-54.17	460	-90	9868	9819	49.41	199.731		
16,100	5139	4550	4526	272	18	-54.17	460	-90	9967	9918	49.46	201.536		

Anticollision Report

Company:	DJR Operating	Local Co-ordinate Reference:	Well NAU 559H
Project:	North Alamito Unit	TVD Reference:	RKB @ 6993ft (RIG TBD)
Reference Site:	J31 2307	MD Reference:	RKB @ 6993ft (RIG TBD)
Site Error:	0 ft	North Reference:	True
Reference Well:	NAU 559H	Survey Calculation Method:	Minimum Curvature
Well Error:	0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Original drilling	Database:	EDM
Reference Design:	APD	Offset TVD Reference:	Offset Datum

Offset Design J31 2307 - NAU 529H - Original drilling - APD													Offset Site Error: 0 ft	
Survey Program: 0-MWD+IGRF													Offset Well Error: 0 ft	
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Tooface (")	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0	0	0	0	0	0	42.21	37	33	50					
100	100	100	100	0	0	42.21	37	33	50	49	0.31	161.008		
200	200	200	200	1	1	42.21	37	33	50	49	1.03	48.415		
300	300	300	300	1	1	42.21	37	33	50	48	1.74	28.491		
400	400	400	400	1	1	42.21	37	33	50	47	2.46	20.185		
500	500	500	500	2	2	-38.04	37	33	48	45	3.17	15.219		
600	600	600	600	2	2	-42.27	37	33	44	40	3.88	11.397		
700	699	700	700	2	2	-50.55	36	34	38	34	4.60	8.296		
800	799	799	799	3	3	-62.24	34	36	30	25	5.32	5.680		
900	897	899	899	3	3	-83.17	30	41	21	15	6.07	3.515		
995	991	993	993	4	3	-125.41	23	49	16	10	6.73	2.440 CC		
1000	996	998	998	4	3	-128.34	23	49	16	10	6.76	2.432 ES		
1100	1093	1097	1096	4	4	-175.25	14	59	24	17	7.42	3.290		
1200	1190	1195	1192	5	4	164.92	3	71	42	34	8.25	5.072		
1300	1285	1293	1288	5	5	158.11	-8	83	64	55	9.12	7.066		
1329	1312	1320	1316	5	5	157.13	-11	87	72	62	9.37	7.637		
1400	1380	1389	1384	6	5	155.58	-18	95	90	80	9.99	8.979		
1500	1475	1486	1479	6	5	154.22	-29	107	115	104	10.87	10.597		
1600	1570	1583	1574	7	6	153.36	-39	119	141	129	11.76	11.962		
1700	1664	1679	1670	8	6	152.76	-50	130	166	154	12.66	13.126		
1800	1759	1776	1765	9	7	152.32	-60	142	192	178	13.57	14.126		
1900	1854	1873	1861	9	7	151.98	-71	154	217	203	14.49	14.993		
2000	1949	1969	1956	10	8	151.72	-81	166	243	227	15.41	15.752		
2100	2044	2066	2051	11	8	151.50	-92	178	268	252	16.34	16.420		
2200	2138	2163	2147	11	8	151.32	-102	189	294	277	17.28	17.012		
2300	2233	2259	2242	12	9	151.17	-113	201	319	301	18.21	17.540		
2400	2328	2356	2337	13	9	151.05	-123	213	345	326	19.15	18.014		
2500	2423	2453	2433	13	10	150.94	-134	225	371	350	20.09	18.441		
2600	2518	2549	2528	14	10	150.84	-144	237	396	375	21.04	18.828		
2700	2612	2646	2624	15	11	150.76	-155	249	422	400	21.99	19.180		
2800	2707	2743	2719	16	11	150.68	-165	260	447	424	22.93	19.502		
2900	2802	2840	2814	16	12	150.62	-176	272	473	449	23.88	19.796		
3000	2897	2936	2910	17	12	150.56	-186	284	498	474	24.84	20.067		
3100	2992	3033	3005	18	13	150.51	-197	296	524	498	25.79	20.318		
3200	3086	3130	3100	18	13	150.46	-207	308	550	523	26.74	20.549		
3300	3181	3226	3196	19	13	150.41	-218	319	575	547	27.70	20.764		
3400	3276	3323	3291	20	14	150.37	-228	331	601	572	28.65	20.964		
3500	3371	3420	3387	21	14	150.33	-238	343	626	597	29.61	21.150		
3600	3466	3516	3482	21	15	150.30	-249	355	652	621	30.56	21.325		
3700	3560	3613	3577	22	15	150.27	-259	367	677	646	31.52	21.488		
3800	3655	3710	3673	23	16	150.24	-270	378	703	670	32.48	21.641		
3900	3750	3806	3768	23	16	150.21	-280	390	728	695	33.44	21.785		
4000	3845	3903	3863	24	17	150.19	-291	402	754	720	34.40	21.921		
4100	3939	4000	3959	25	17	150.16	-301	414	780	744	35.36	22.049		
4200	4034	4096	4054	26	18	150.14	-312	426	805	769	36.32	22.170		
4300	4129	4193	4150	26	18	150.12	-322	438	831	793	37.28	22.285		
4400	4224	4290	4245	27	18	150.10	-333	449	856	818	38.24	22.393		
4500	4319	4386	4340	28	19	150.08	-343	461	882	843	39.20	22.496		
4590	4404	4464	4417	28	19	150.17	-351	469	905	865	39.93	22.666		
4600	4413	4472	4425	29	19	152.70	-351	470	908	868	40.00	22.696		
4650	4461	4511	4464	29	19	167.15	-353	472	921	881	40.29	22.863		
4700	4510	4550	4503	29	20	-175.63	-352	471	934	894	40.52	23.061		

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

Anticollision Report

Company:	DJR Operating	Local Co-ordinate Reference:	Well NAU 559H
Project:	North Alamo Unit	TVD Reference:	RKB @ 6993ft (RIG TBD)
Reference Site:	J31 2307	MD Reference:	RKB @ 6993ft (RIG TBD)
Site Error:	0 ft	North Reference:	True
Reference Well:	NAU 559H	Survey Calculation Method:	Minimum Curvature
Well Error:	0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Original drilling	Database:	EDM
Reference Design:	APD	Offset TVD Reference:	Offset Datum

Offset Design J31 2307 - NAU 529H - Original drilling - APD													Offset Site Error:	0 ft
Survey Program: 0-MWD+IGRF													Offset Well Error:	0 ft
Reference		Offset		Semi Major Axis		Highside Tooface (")	Distance		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore +N/-S (ft)	Centre +E/-W (ft)						
4750	4558	4590	4543	29	20	-157.66	-351	469	947	907	40.69	23.282		
4800	4606	4629	4582	30	20	-141.59	-347	465	960	919	40.83	23.521		
4850	4653	4668	4620	30	20	-128.76	-342	460	973	932	40.92	23.770		
4900	4700	4707	4658	30	20	-119.01	-335	452	985	944	40.99	24.026		
4950	4746	4750	4698	30	20	-111.65	-326	442	997	956	41.05	24.282		
5000	4790	4786	4732	30	20	-106.00	-318	432	1008	967	41.06	24.544		
5050	4833	4826	4768	30	20	-101.61	-306	419	1018	977	41.08	24.794		
5100	4874	4865	4802	30	20	-98.15	-293	405	1028	987	41.09	25.030		
5150	4912	4905	4836	30	20	-95.38	-279	389	1038	997	41.10	25.248		
5200	4949	4950	4872	30	20	-93.20	-262	369	1046	1005	41.13	25.442		
5250	4982	4987	4900	30	20	-91.39	-246	352	1054	1013	41.19	25.596		
5300	5013	5028	4930	30	20	-89.98	-227	331	1061	1020	41.28	25.710		
5350	5041	5069	4958	30	20	-88.89	-207	308	1068	1026	41.42	25.774		
5400	5065	5111	4985	30	20	-88.07	-185	284	1073	1031	41.62	25.781		
5450	5087	5154	5009	30	20	-87.49	-162	258	1077	1036	41.88	25.726		
5500	5104	5197	5032	30	20	-87.15	-138	230	1081	1039	42.23	25.600		
5550	5119	5240	5052	29	20	-87.01	-112	201	1084	1041	42.67	25.400		
5600	5129	5284	5069	29	20	-87.07	-85	171	1086	1042	43.20	25.130		
5650	5136	5329	5084	29	20	-87.32	-57	140	1087	1043	43.83	24.790		
5700	5139	5375	5096	29	21	-87.75	-28	107	1086	1042	44.55	24.388		
5715	5139	5388	5099	29	21	-87.91	-19	97	1086	1042	44.78	24.259		
5800	5139	5468	5112	29	21	-88.55	33	38	1085	1039	46.27	23.457		
5900	5139	5566	5114	29	22	-88.68	98	-35	1084	1036	48.34	22.433		
6000	5139	5666	5114	28	24	-88.68	165	-109	1084	1033	50.83	21.320		
6100	5139	5766	5114	29	25	-88.68	231	-184	1083	1029	53.68	20.176		
6200	5139	5866	5114	31	27	-88.68	298	-259	1082	1025	56.84	19.042		
6300	5139	5966	5114	32	28	-88.68	364	-333	1082	1021	60.26	17.948		
6400	5139	6066	5114	34	30	-88.67	431	-408	1081	1017	63.90	16.914		
6500	5139	6166	5114	36	32	-88.67	497	-483	1080	1012	67.72	15.949		
6600	5139	6266	5114	38	34	-88.67	564	-557	1079	1008	71.70	15.053		
6700	5139	6366	5114	40	36	-88.67	630	-632	1079	1003	75.81	14.228		
6800	5139	6466	5114	42	38	-88.67	697	-707	1078	998	80.03	13.469		
6900	5139	6566	5114	45	40	-88.67	763	-781	1077	993	84.34	12.772		
7000	5139	6666	5114	47	43	-88.67	830	-856	1076	988	88.73	12.132		
7100	5139	6766	5114	49	45	-88.67	896	-931	1076	983	93.19	11.543		
7200	5139	6866	5114	51	47	-88.67	963	-1005	1075	977	97.71	11.002		
7300	5139	6966	5114	54	49	-88.67	1029	-1080	1074	972	102.28	10.503		
7400	5139	7066	5114	56	52	-88.67	1096	-1155	1074	967	106.89	10.043		
7500	5139	7166	5114	58	54	-88.66	1162	-1230	1073	961	111.55	9.618		
7600	5139	7266	5114	61	56	-88.66	1229	-1304	1072	956	116.24	9.224		
7700	5139	7366	5114	63	59	-88.66	1295	-1379	1071	950	120.95	8.858		
7800	5139	7466	5114	65	61	-88.66	1362	-1454	1071	945	125.70	8.518		
7900	5139	7566	5114	68	64	-88.66	1428	-1528	1070	939	130.47	8.201		
8000	5139	7666	5114	70	66	-88.66	1495	-1603	1069	934	135.26	7.905		
8100	5139	7766	5114	72	68	-88.66	1561	-1678	1068	928	140.07	7.628		
8200	5139	7866	5114	75	71	-88.66	1628	-1752	1068	923	144.89	7.369		
8300	5139	7966	5114	77	73	-88.66	1694	-1827	1067	917	149.74	7.126		
8400	5139	8066	5114	80	76	-88.66	1761	-1902	1066	912	154.59	6.897		
8500	5139	8166	5114	82	78	-88.66	1827	-1976	1066	906	159.46	6.682		
8600	5139	8266	5114	84	80	-88.65	1894	-2051	1065	900	164.34	6.479		
8700	5139	8366	5114	87	83	-88.65	1960	-2126	1064	895	169.23	6.288		
8800	5139	8466	5114	89	85	-88.65	2027	-2200	1063	889	174.14	6.107		

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

Anticollision Report

Company:	DJR Operating	Local Co-ordinate Reference:	Well NAU 559H
Project:	North Alamo Unit	TVD Reference:	RKB @ 6993ft (RIG TBD)
Reference Site:	J31 2307	MD Reference:	RKB @ 6993ft (RIG TBD)
Site Error:	0 ft	North Reference:	True
Reference Well:	NAU 559H	Survey Calculation Method:	Minimum Curvature
Well Error:	0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Original drilling	Database:	EDM
Reference Design:	APD	Offset TVD Reference:	Offset Datum

Offset Design J31 2307 - NAU 529H - Original drilling - APD													Offset Site Error:	0 ft
Survey Program: 0-MWD+IGRF													Offset Well Error:	0 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
8900	5139	8566	5114	92	88	-88.65	2093	-2275	1063	884	179.05	5.935		
9000	5139	8666	5114	94	90	-88.65	2160	-2350	1062	878	183.97	5.772		
9100	5139	8766	5114	97	93	-88.65	2226	-2424	1061	872	188.89	5.618		
9200	5139	8866	5114	99	95	-88.65	2293	-2499	1060	867	193.83	5.471		
9300	5139	8966	5114	102	98	-88.65	2359	-2574	1060	861	198.77	5.332		
9400	5139	9066	5114	104	100	-88.65	2426	-2649	1059	855	203.71	5.199		
9500	5139	9166	5114	106	103	-88.65	2492	-2723	1058	850	208.67	5.072		
9600	5139	9266	5114	109	105	-88.65	2559	-2798	1058	844	213.62	4.951		
9700	5139	9366	5114	111	108	-88.64	2625	-2873	1057	838	218.59	4.835		
9800	5139	9466	5114	114	110	-88.64	2692	-2947	1056	833	223.55	4.724		
9900	5139	9566	5114	116	113	-88.64	2758	-3022	1055	827	228.52	4.618		
10,000	5139	9666	5114	119	115	-88.64	2825	-3097	1055	821	233.50	4.517		
10,100	5139	9766	5114	121	118	-88.64	2891	-3171	1054	815	238.48	4.419		
10,200	5139	9866	5114	124	120	-88.64	2958	-3246	1053	810	243.46	4.326		
10,300	5139	9966	5114	126	123	-88.64	3024	-3321	1052	804	248.44	4.236		
10,400	5139	10,066	5114	129	125	-88.64	3091	-3395	1052	798	253.43	4.150		
10,500	5139	10,166	5114	131	128	-88.64	3157	-3470	1051	793	258.42	4.067		
10,600	5139	10,266	5114	134	130	-88.64	3224	-3545	1050	787	263.42	3.987		
10,700	5139	10,366	5114	136	133	-88.64	3290	-3619	1050	781	268.42	3.910		
10,800	5139	10,466	5114	139	135	-88.63	3357	-3694	1049	775	273.42	3.836		
10,900	5139	10,566	5114	141	138	-88.63	3423	-3769	1048	770	278.42	3.765		
11,000	5139	10,666	5114	144	140	-88.63	3490	-3843	1047	764	283.42	3.696		
11,100	5139	10,766	5114	146	143	-88.63	3556	-3918	1047	758	288.43	3.629		
11,200	5139	10,866	5114	149	145	-88.63	3622	-3993	1046	753	293.43	3.564		
11,300	5139	10,966	5114	151	148	-88.63	3689	-4067	1045	747	298.44	3.502		
11,400	5139	11,066	5114	154	150	-88.63	3755	-4142	1044	741	303.46	3.442		
11,500	5139	11,166	5114	156	153	-88.63	3822	-4217	1044	735	308.47	3.384		
11,600	5139	11,266	5114	159	155	-88.63	3888	-4292	1043	730	313.48	3.327		
11,700	5139	11,366	5114	161	158	-88.63	3955	-4366	1042	724	318.50	3.273		
11,800	5139	11,466	5114	164	160	-88.62	4021	-4441	1042	718	323.52	3.220		
11,900	5139	11,566	5114	166	163	-88.62	4088	-4516	1041	712	328.54	3.168		
12,000	5139	11,666	5114	169	165	-88.62	4154	-4590	1040	707	333.56	3.118		
12,100	5139	11,766	5114	171	168	-88.62	4221	-4665	1039	701	338.58	3.070		
12,200	5139	11,866	5114	174	170	-88.62	4287	-4740	1039	695	343.60	3.023		
12,300	5139	11,966	5114	176	173	-88.62	4354	-4814	1038	689	348.63	2.977		
12,400	5139	12,066	5114	179	175	-88.62	4420	-4889	1037	684	353.65	2.933		
12,500	5139	12,166	5114	181	178	-88.62	4487	-4964	1036	678	358.68	2.890		
12,600	5139	12,266	5114	184	180	-88.62	4553	-5038	1036	672	363.71	2.848		
12,700	5139	12,366	5114	186	183	-88.62	4620	-5113	1035	666	368.74	2.807		
12,800	5139	12,466	5114	189	185	-88.61	4686	-5188	1034	661	373.77	2.767		
12,900	5139	12,566	5114	191	188	-88.61	4753	-5262	1034	655	378.80	2.729		
13,000	5139	12,665	5114	194	190	-88.61	4819	-5337	1033	649	383.83	2.691		
13,100	5139	12,765	5114	196	193	-88.61	4886	-5412	1032	643	388.86	2.654		
13,200	5139	12,865	5114	199	195	-88.61	4952	-5486	1031	638	393.89	2.618		
13,300	5139	12,965	5114	201	198	-88.61	5019	-5561	1031	632	398.93	2.584		
13,400	5139	13,065	5114	204	200	-88.61	5085	-5636	1030	626	403.96	2.550		
13,500	5139	13,165	5114	206	203	-88.61	5152	-5710	1029	620	409.00	2.516		
13,600	5139	13,265	5114	209	205	-88.61	5218	-5785	1028	614	414.03	2.484		
13,700	5139	13,365	5114	212	208	-88.61	5285	-5860	1028	609	419.07	2.452		
13,800	5139	13,465	5114	214	210	-88.61	5351	-5935	1027	603	424.11	2.422		
13,900	5139	13,565	5114	217	213	-88.60	5418	-6009	1026	597	429.15	2.392		
14,000	5139	13,665	5114	219	216	-88.60	5484	-6084	1026	591	434.18	2.362		

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

Anticollision Report

Company:	DJR Operating	Local Co-ordinate Reference:	Well NAU 559H
Project:	North Alamo Unit	TVD Reference:	RKB @ 6993ft (RIG TBD)
Reference Site:	J31 2307	MD Reference:	RKB @ 6993ft (RIG TBD)
Site Error:	0 ft	North Reference:	True
Reference Well:	NAU 559H	Survey Calculation Method:	Minimum Curvature
Well Error:	0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Original drilling	Database:	EDM
Reference Design:	APD	Offset TVD Reference:	Offset Datum

Offset Design J31 2307 - NAU 529H - Original drilling - APD													Offset Site Error:	0 ft
Survey Program: 0-MWD+IGRF													Offset Well Error:	0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
14,100	5139	13,765	5114	222	218	-88.60	5551	-6159	1025	586	439.22	2.333		
14,200	5139	13,865	5114	224	221	-88.60	5617	-6233	1024	580	444.26	2.305		
14,300	5139	13,965	5114	227	223	-88.60	5684	-6308	1023	574	449.30	2.278		
14,400	5139	14,065	5114	229	226	-88.60	5750	-6383	1023	568	454.34	2.251		
14,500	5139	14,165	5114	232	228	-88.60	5817	-6457	1022	563	459.38	2.225		
14,600	5139	14,265	5114	234	231	-88.60	5883	-6532	1021	557	464.43	2.199		
14,700	5139	14,365	5114	237	233	-88.60	5950	-6607	1020	551	469.47	2.174		
14,800	5139	14,465	5114	239	236	-88.60	6016	-6681	1020	545	474.51	2.149		
14,900	5139	14,565	5114	242	238	-88.59	6083	-6756	1019	539	479.55	2.125		
15,000	5139	14,665	5114	244	241	-88.59	6149	-6831	1018	534	484.60	2.101		
15,100	5139	14,765	5114	247	243	-88.59	6216	-6905	1018	528	489.64	2.078		
15,200	5139	14,865	5114	249	246	-88.59	6282	-6980	1017	522	494.69	2.056		
15,300	5139	14,965	5114	252	248	-88.59	6349	-7055	1016	516	499.73	2.033		
15,400	5139	15,065	5114	254	251	-88.59	6415	-7129	1015	511	504.78	2.012		
15,500	5139	15,165	5114	257	253	-88.59	6482	-7204	1015	505	509.82	1.990		
15,600	5139	15,265	5114	259	256	-88.59	6548	-7279	1014	499	514.87	1.969		
15,700	5139	15,365	5114	262	258	-88.59	6615	-7354	1013	493	519.91	1.949		
15,800	5139	15,465	5114	264	261	-88.59	6681	-7428	1012	488	524.96	1.929		
15,900	5139	15,565	5114	267	263	-88.58	6748	-7503	1012	482	530.01	1.909		
16,000	5139	15,665	5114	269	266	-88.58	6814	-7578	1011	476	535.05	1.890		
16,047	5139	15,705	5114	271	267	-88.58	6840	-7607	1011	474	537.14	1.882 SF		
16,100	5139	15,705	5114	272	267	-88.58	6840	-7607	1012	475	537.08	1.885		
16,200	5139	15,705	5114	275	267	-88.58	6840	-7607	1022	489	533.04	1.918		
16,300	5139	15,705	5114	277	267	-88.58	6840	-7607	1042	518	524.29	1.987		
16,400	5139	15,705	5114	280	267	-88.58	6840	-7607	1071	559	511.56	2.093		
16,500	5139	15,705	5114	282	267	-88.58	6840	-7607	1108	612	495.80	2.234		
16,600	5139	15,705	5114	285	267	-88.58	6840	-7607	1152	674	477.96	2.411		
16,700	5139	15,705	5114	287	267	-88.58	6840	-7607	1204	745	458.93	2.623		
16,718	5139	15,705	5114	288	267	-88.58	6840	-7607	1214	758	455.40	2.665		

Anticollision Report

Company:	DJR Operating	Local Co-ordinate Reference:	Well NAU 559H
Project:	North Alamo Unit	TVD Reference:	RKB @ 6993ft (RIG TBD)
Reference Site:	J31 2307	MD Reference:	RKB @ 6993ft (RIG TBD)
Site Error:	0 ft	North Reference:	True
Reference Well:	NAU 559H	Survey Calculation Method:	Minimum Curvature
Well Error:	0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Original drilling	Database:	EDM
Reference Design:	APD	Offset TVD Reference:	Offset Datum

Reference Depths are relative to RKB @ 6993ft (RIG TBD)

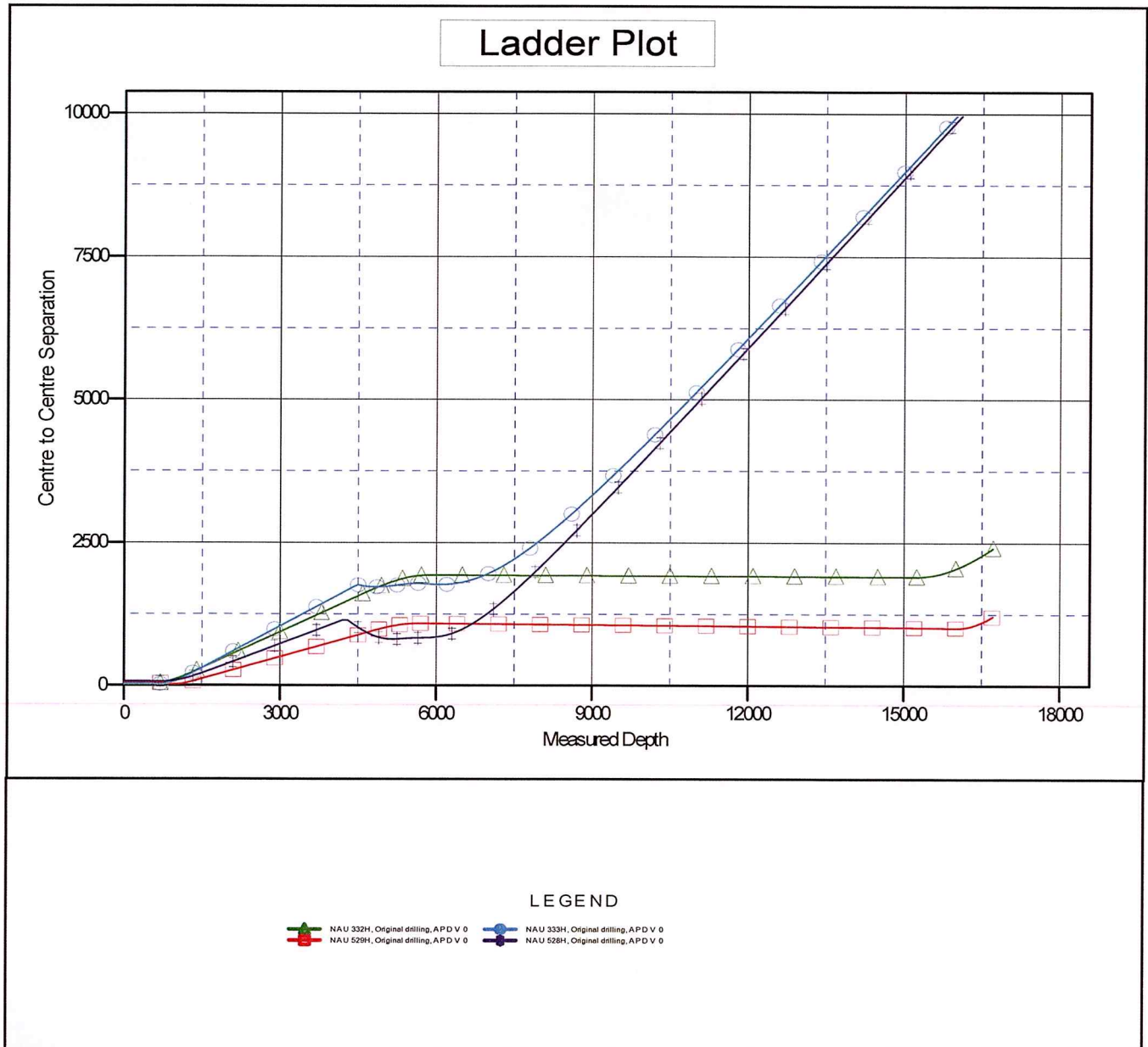
Offset Depths are relative to Offset Datum

Central Meridian is -107.83333333

Coordinates are relative to: NAU 559H

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

Grid Convergence at Surface is: 0.13°



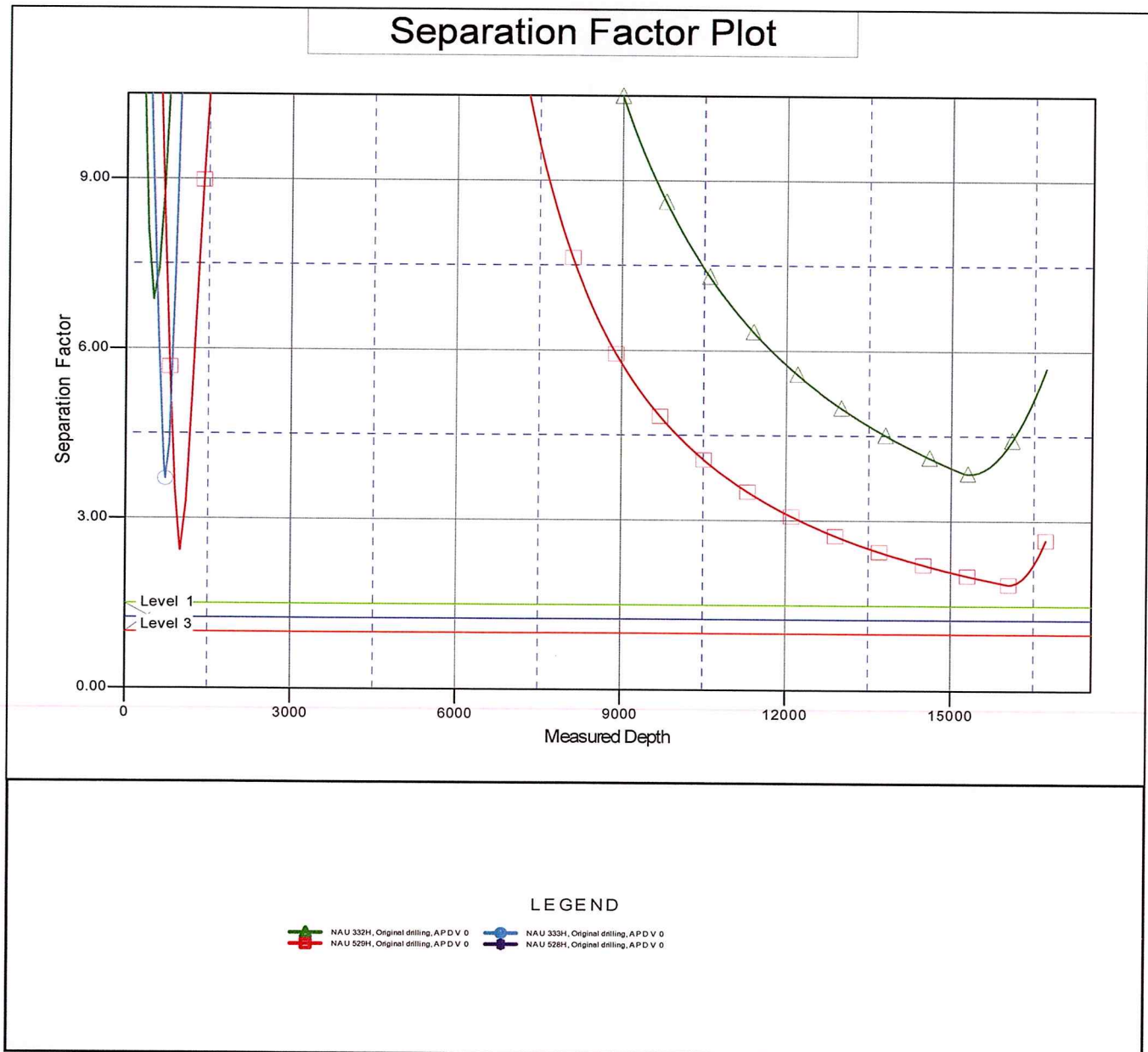
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Report

Company:	DJR Operating	Local Co-ordinate Reference:	Well NAU 559H
Project:	North Alamito Unit	TVD Reference:	RKB @ 6993ft (RIG TBD)
Reference Site:	J31 2307	MD Reference:	RKB @ 6993ft (RIG TBD)
Site Error:	0 ft	North Reference:	True
Reference Well:	NAU 559H	Survey Calculation Method:	Minimum Curvature
Well Error:	0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Original drilling	Database:	EDM
Reference Design:	APD	Offset TVD Reference:	Offset Datum

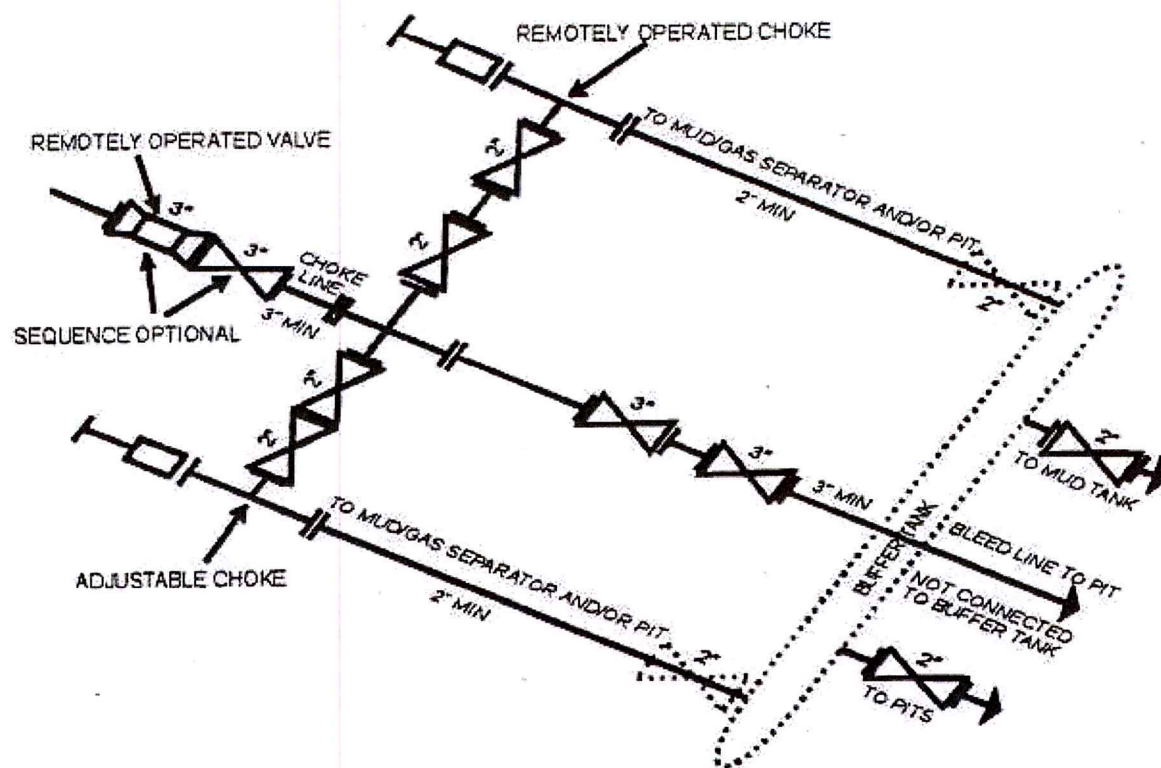
Reference Depths are relative to RKB @ 6993ft (RIG TBD)
 Offset Depths are relative to Offset Datum
 Central Meridian is -107.8333333

Coordinates are relative to: NAU 559H
 Coordinate System is US State Plane 1983, New Mexico Western Zone
 Grid Convergence at Surface is: 0.13°



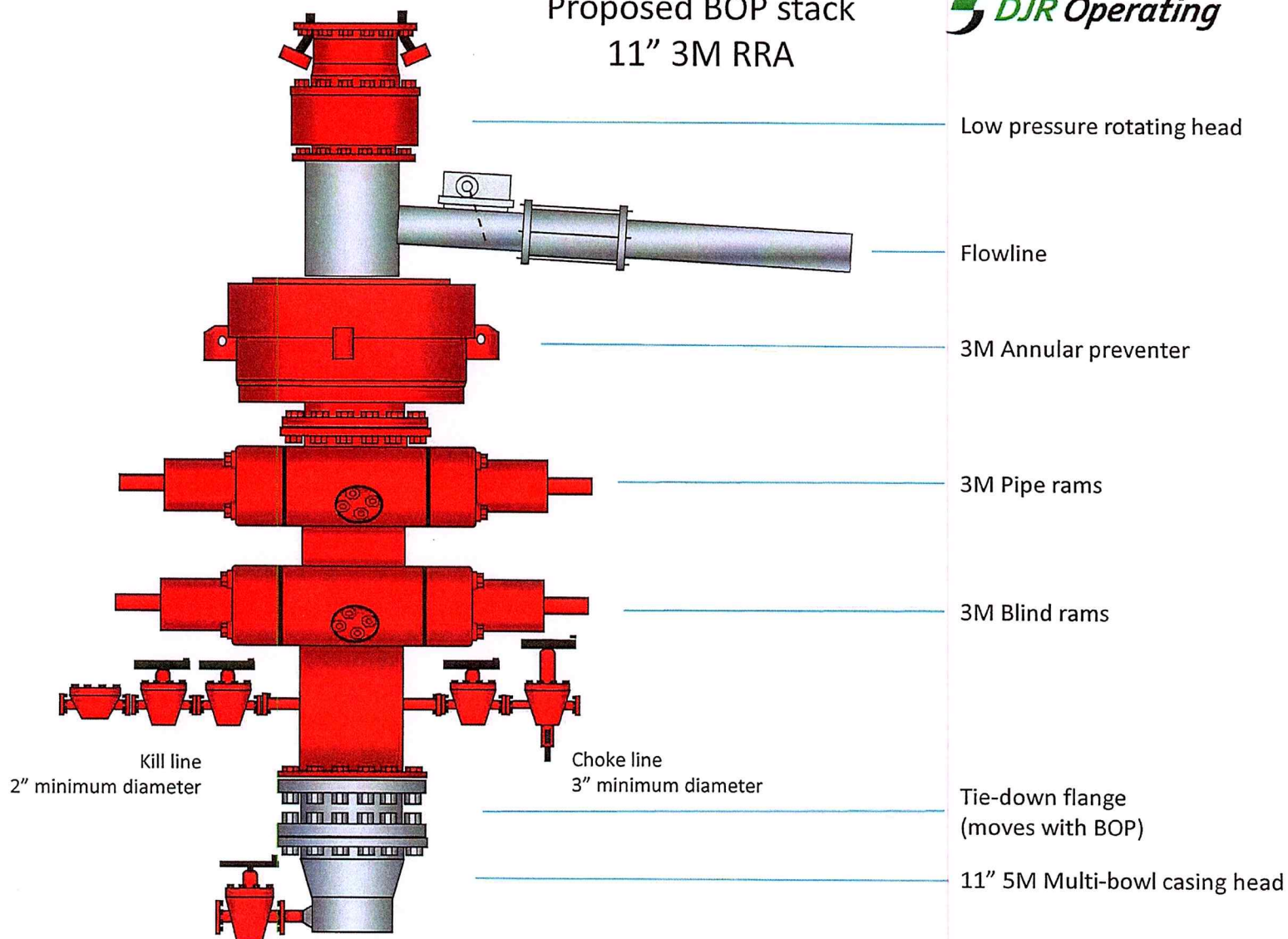
Choke Manifold

Actual system to conform with Onshore Order 2



Proposed BOP stack
11" 3M RRA

Double gate with integral choke/kill outlets



District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

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

Submit Original
to Appropriate
District Office

GAS CAPTURE PLAN

Date: 4/18/2019

☒ Original

Operator & OGRID No.: DJR Operating LLC. ; 371838

☐ 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
North Alamito Unit 332H		NWSE, Section 31, T23N, R7W	2178' FSL, 2564' FEL	1100	Flared	
North Alamito Unit 333H		NWSE, Section 31, T23N, R7W	2215' FSL, 2531' FEL	1450	Flared	
North Alamito Unit 559H		NWSE, Section 31, T23N, R7W	2193' FSL, 2550' FEL	1450	Flared	
North Alamito Unit 528H		NWSE, Section 31, T23N, R7W	2229' FSL, 2517' FEL	1100	Flared	
North Alamito Unit 529H		NWSE, Section 31, T23N, R7W	2244' FSL, 2504' FEL	1450	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 Enterprise Field Services, LLC (Enterprise) and will be connected to Enterprise's low/high pressure gathering system located in Sandoval County, New Mexico. It will require approximately 934' of pipeline to connect the facility to DJR Operating LLC. low/high pressure Existing Pipeline in Sec. 31, T23N, R7W which ties into Enterprise's existing pipeline in Section 25, T23N, R7W. DJR Operating LLC. provides (periodically) to Enterprise a drilling, completion and estimated first production date for wells that are scheduled to be drilled in the foreseeable future. In addition, DJR Operating LLC. and Enterprise have periodic conference calls to discuss changes to drilling and completion schedules. Gas from these wells will be processed at the Chaco Processing Plant located in Sec. 16, Twn 26N, Rng 12W, San Juan 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 Enterprise system at that time. Based on current information, it is DJR Operating LLC.'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