

State of New Mexico  
Energy, Minerals and Natural Resources Department

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**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:** 4/26/2019

**Operator: DJR Well Name and Number:** N Alamito Unit 332H

**API#:** 30-043-21375 , **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 type="checkbox"/> DRILL <input checked="" 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 checked="" type="checkbox"/> Single Zone <input 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 332H	
3a. Address 1700 LINCOLN STREET, SUITE 2800 DENVER CO 8020		9. API Well No. <b>30-043-21375</b>	
3b. Phone No. (include area code) (505)632-3476		10. Field and Pool, or Exploratory ALAMITO MANCOS N (OIL)	
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface LOT J / 2178 FSL / 2564 FEL / LAT 36.181987 / LONG -107.615209 At proposed prod. zone LOT L / 2486 FSL / 330 FWL / LAT 36.197515 / LONG -107.640894		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) 330 feet	16. No of acres in lease 642.56	17. Spacing Unit dedicated to this well 481.28	
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 20 feet	19. Proposed Depth 5096 feet / 14914 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* 10/30/2019	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 04/26/2019	
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.			

(Continued on page 2)

\*(Instructions on page 2)

**APPROVED WITH CONDITIONS**

Approval Date: 09/29/2020

AV



DISTRICT I  
1625 N. French Dr., Hobbs, N.M. 88240  
Phone: (505) 393-8161 Fax: (505) 393-0720

DISTRICT II  
811 S. First St., Artesia, N.M. 88210  
Phone: (505) 748-1283 Fax: (505) 748-9720

DISTRICT III  
1000 Rio Brazos Rd., Artesia, N.M. 87410  
Phone: (505) 334-8178 Fax: (505) 334-8170

DISTRICT IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505  
Phone: (505) 478-3480 Fax: (505) 478-3482

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

<sup>1</sup> API Number <b>30-043-21375</b>	<sup>2</sup> Pool Code <b>98174</b>	<sup>3</sup> Pool Name <b>Alamito;Mancos N</b>
<sup>4</sup> Property Code <b>325267</b>	<sup>5</sup> Property Name <b>NORTH ALAMITO UNIT</b>	<sup>6</sup> Well Number <b>332H</b>
<sup>7</sup> GRID No. <b>371838</b>	<sup>8</sup> Operator Name <b>DJR OPERATING, LLC</b>	<sup>9</sup> Elevation <b>6979'</b>

<sup>10</sup> Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
J	31	23N	7W		2178'	SOUTH	2564'	EAST	SANDOVAL

<sup>11</sup> Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
L	25	23N	8W		2486'	SOUTH	330'	WEST	SAN JUAN

<sup>12</sup> Dedicated Acres **PENETRATED SPACING UNIT;**  
SEC 31: NE/SW, SE/NW, LOT 2 & LOT 3 (161.28 AC.); SEC 36: NW/NE, NE/NE & SE/NE (120 AC.)  
SEC 25: SW/SE & SW/4 (200 AC.) =  
481.28 ACRES TOTAL

<sup>13</sup> Joint or Infill

<sup>14</sup> Consolidation Code

<sup>15</sup> 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

<sup>17</sup> OPERATOR CERTIFICATION

- ☒ FND 2 1/4" BC  
GLO 1947  
☒ FND 2 1/4" BC  
GLO 1948  
☐ SP CALC

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.

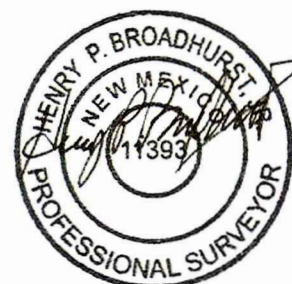
**Shaw-Marie Ford** 10/25/19  
Signature Date  
**Shaw-Marie Ford**  
Printed Name  
**sford@djrlc.com**  
E-mail Address

**SURVEYOR CERTIFICATION**

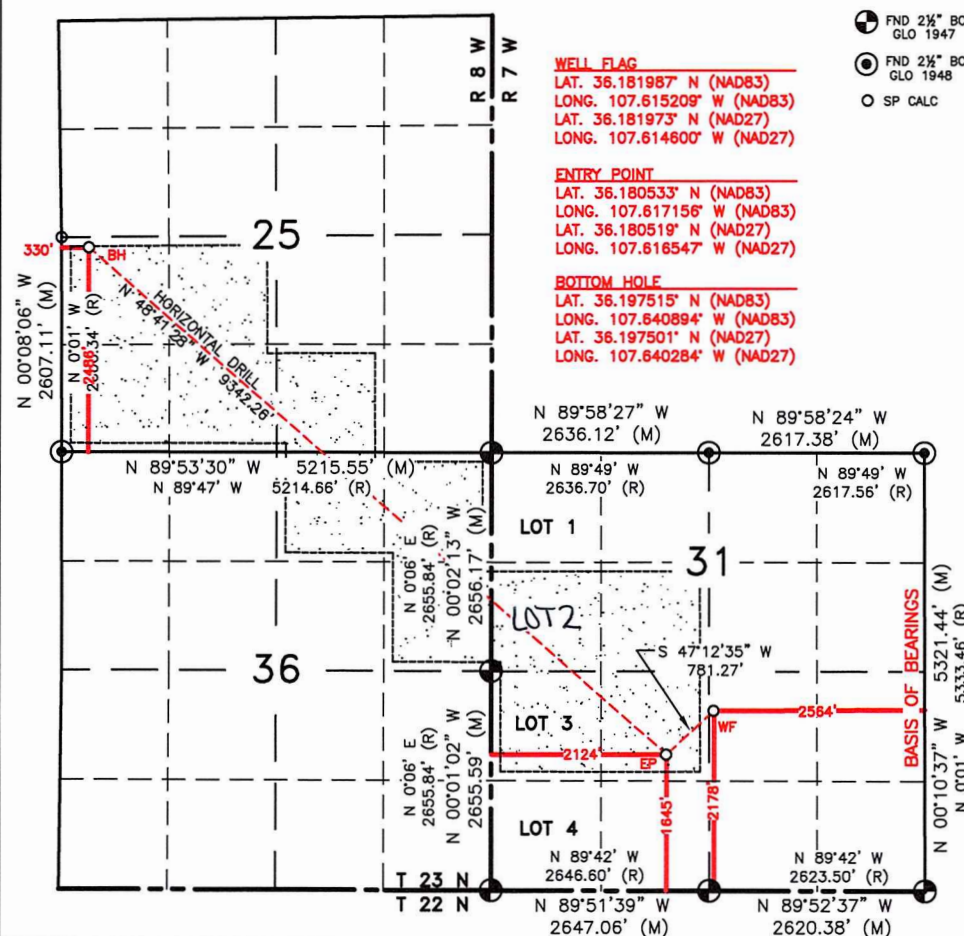
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

**MARCH 15, 2019**

Date of Survey  
Signature and Seal of Professional Surveyor:



Certificate Number **11393**



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Energy, Minerals & Natural Resources Department

**OIL CONSERVATION DIVISION**

1220 South St. Francis Dr.  
Santa Fe, NM 87505

DJR OPERATING, LLC  
NORTH ALAMITO UNIT #332H

Form C-102  
Revised August 1, 2011

Submit one copy to appropriate  
District Office

☐ AMENDED REPORT

**WELL FLAG**

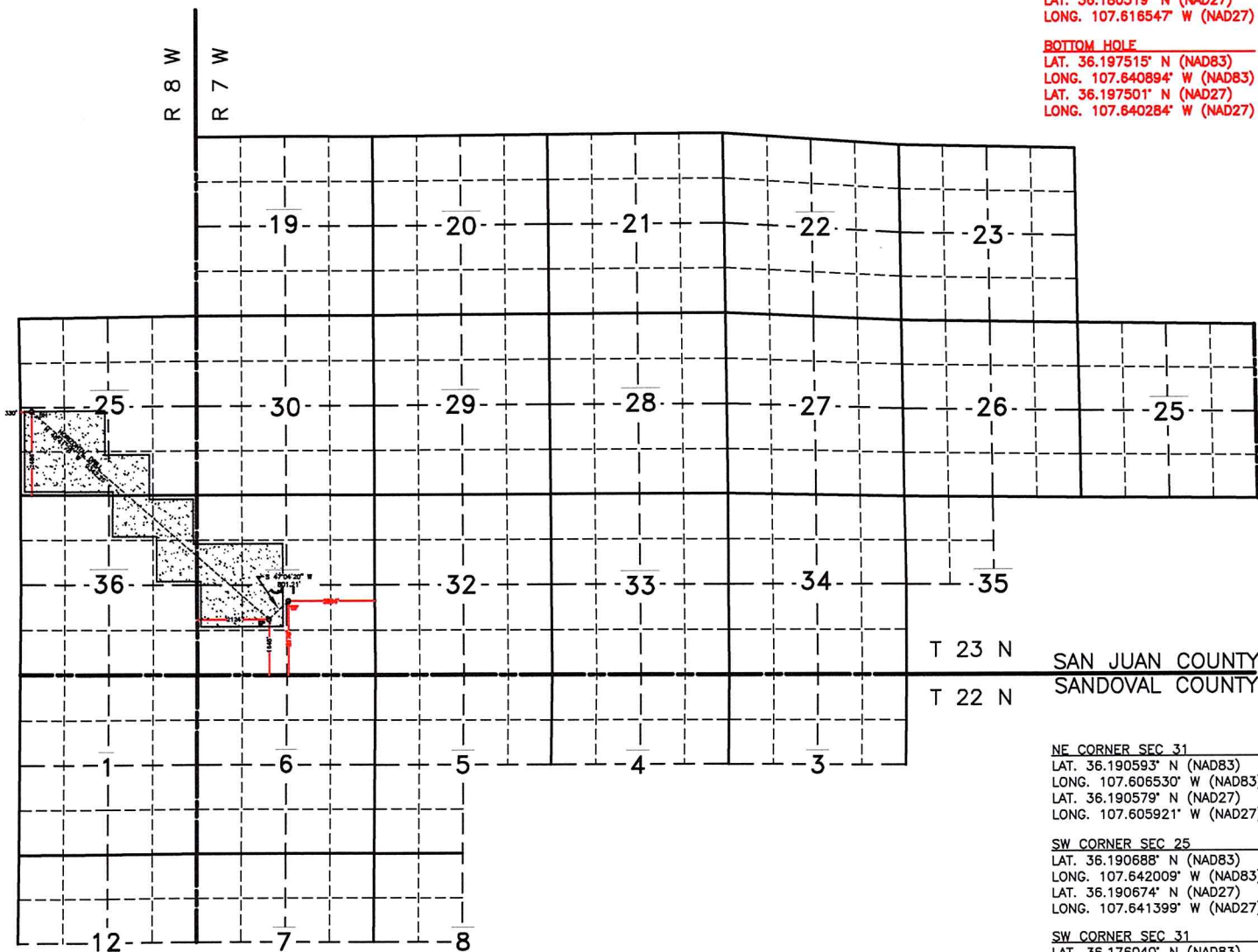
LAT. 36.181987° N (NAD83)  
LONG. 107.615209° W (NAD83)  
LAT. 36.181973° N (NAD27)  
LONG. 107.614600° W (NAD27)

**ENTRY POINT**

LAT. 36.180533° N (NAD83)  
LONG. 107.617156° W (NAD83)  
LAT. 36.180519° N (NAD27)  
LONG. 107.618547° W (NAD27)

**BOTTOM HOLE**

LAT. 36.197515° N (NAD83)  
LONG. 107.640894° W (NAD83)  
LAT. 36.197501° N (NAD27)  
LONG. 107.640284° W (NAD27)



T 23 N  
T 22 N  
SAN JUAN COUNTY  
SANDOVAL COUNTY

**NE CORNER SEC 31**

LAT. 36.190593° N (NAD83)  
LONG. 107.606530° W (NAD83)  
LAT. 36.190579° N (NAD27)  
LONG. 107.605921° W (NAD27)

**SW CORNER SEC 25**

LAT. 36.190688° N (NAD83)  
LONG. 107.642009° W (NAD83)  
LAT. 36.190674° N (NAD27)  
LONG. 107.641399° W (NAD27)

**SW CORNER SEC 31**

LAT. 36.176040° N (NAD83)  
LONG. 107.624364° W (NAD83)  
LAT. 36.176026° N (NAD27)  
LONG. 107.623755° 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)

**S/4 CORNER SEC 31**

LAT. 36.176006° N (NAD83)  
LONG. 107.615395° W (NAD83)  
LAT. 36.175992° N (NAD27)  
LONG. 107.614786° 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)

**SE CORNER SEC 31**

LAT. 36.175974° N (NAD83)  
LONG. 107.606516° W (NAD83)  
LAT. 36.175960° N (NAD27)  
LONG. 107.605908° W (NAD27)

**PENETRATED SPACING UNIT:**

SEC 31: NE/SW, SE/NW, LOT 2 & LOT 3 (161.28 AC.);

SEC 36: NW/NE, NE/NE & SE/NE (120 AC.)

SEC 25: SW/SE & SW/4 (200 AC.) = 481.28 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 R8W SEC. 25, 36 (ALL); T22N R8W SEC. 1 (ALL); SEC. 12 (N/2) - UNDIVIDED UNIT



# DRILLING PLAN

## North Alamito Unit 332H

### Sandoval County, New Mexico

**Surface Location**

2564-ft FEL & 2178-ft FSL  
 Sec 31 T23N R7W  
 Graded Elevation 6979' MSL  
 RKB Elevation 6993' (14' KB)

**SHL Geographical Coordinates (NAD-83)**

Latitude 36.1819870° N  
 Longitude 107.6152090° W

**Kick Off Point for Horizontal Build Curve**

4472-ft MD  
 4376-ft TVD

**Local Coordinates (from SHL)**

849-ft South  
 17-ft West

**Heel Location (Pay zone entry)**

2124-ft FWL & 1645-ft FSL  
 Sec 31 T23N R7W

**Heel Geographical Coordinates (NAD-83)**

Latitude 36.180533° N  
 Longitude 107.61715620° W

**Bottom Hole Location (TD)**

330-ft FWL & 2486-ft FSL  
 Sec 25 T23N R7W

**BHL Geographical Coordinates (NAD-83)**

Latitude 36.1975234° N  
 Longitude 107.6409057° W

**First Take Point (FTP)**

5627-ft MD  
 Gallup C Sand

**FTP Geographical Coordinates (NAD-83)**

Latitude 36.1806422° N  
 Longitude 107.6173088° W

**Last Take Point (LTP)**

14854-ft MD  
 Gallup C Sand

**LTP Geographical Coordinates (NAD-83)**

Latitude 36.1974144° N  
 Longitude 107.6407533° W

**Well objectives**

This well is planned as a 9340-ft lateral in the Gallup C sand.

**Bottom Hole temperature and pressure**

The temperature in the Gallup C horizontal objective is 138°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	931	929	Sh	-	8.3	8.4 – 8.8
Fruitland	1180	1172	C	G	8.3	9.0 - 9.5
Picture Cliffs	1472	1456	Sd	W	8.3	9.0 - 9.5
Lewis	1644	1624	Sh	-	-	9.0 - 9.5
Chacra	2259	2222	Sd	-	8.3	9.0 - 9.5
Menefee	2981	2925	Sd, C	G	8.3	9.0 - 9.5
Point Lookout	3905	3824	Sd	-	8.3	9.0 - 9.5
Mancos	4090	4004	Sh	-	-	9.0 - 9.5
Mancos Silt	4433	4338	Slt	O/G	6.6	9.0 - 9.5
Gallup A	4937	4813	Slt	O/G	6.6	9.0 - 9.5
Gallup B	4979	4847	Sd	O/G	6.6	8.8 - 9.0
Gallup C	5122	4949	Sd	O/G	6.6	8.8 - 9.0
Target	5567	5096	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	5557	surf	5096	surface
4-1/2"	6-1/8"	11.6	P-110	BTC	5347	14914	5062	5096	5347

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 <sup>1</sup>	✓	✓	✓
	Cementing	✓	✓	✓
Burst	Pressure test	✓ <sup>2</sup>	✓ <sup>2</sup>	✓
	Gas kick		✓ <sup>3</sup>	
	Fracture at shoe, 1/3 BHP at surface		✓ <sup>4</sup>	
	Injection down casing			✓ <sup>5</sup>
Axial	Dynamic load on casing coupling <sup>6</sup>	✓	✓	✓
Axial	Overpull <sup>7</sup>	✓	✓	✓

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; FI=Fluid Loss L=Lost Circulation; R=Retarder; SA=Suspending Agent; THX=Thixotropic Additive; V=Viscosifier

#### 9-5/8" Surface Casing

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

#### 7" Intermediate Casing

Halliburton Name	HALCEM
Type	Poz/G
Additives	Ex, L, SA
Planned top	Surface
Density (ppg)	12.30

Tail	VARICEM
	Poz/G
	Ex, FI, SA, L, THX
	3590-ft
	13.50



Yield (cf/sx)	1.95	1.30
Mix water (gal/sx)	10.14	5.64
Volume (sx)	454	393
Volume (bbls)	158	91

<u>4-1/2" Production Liner</u>	<u>Lead</u>
Halliburton Name	EXTENDACEM
Type	Poz/G
Additives	B, De, Di, Fl, Re, V
Planned top	5347-ft
Density (ppg)	13.3
Yield (cf/sx)	1.36
Mix water (gal/sx)	5.94
Volume (sx)	973
Volume (bbls)	236

#### 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 geolograph 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 – 5557	9.0 – 9.5	38 – 45	8 – 14	<20
Production	Low solids, non-dispersed	5557 – 14914	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 332H

SHL Latitude : 36.18198700  
SHL Longitude : -107.61520900

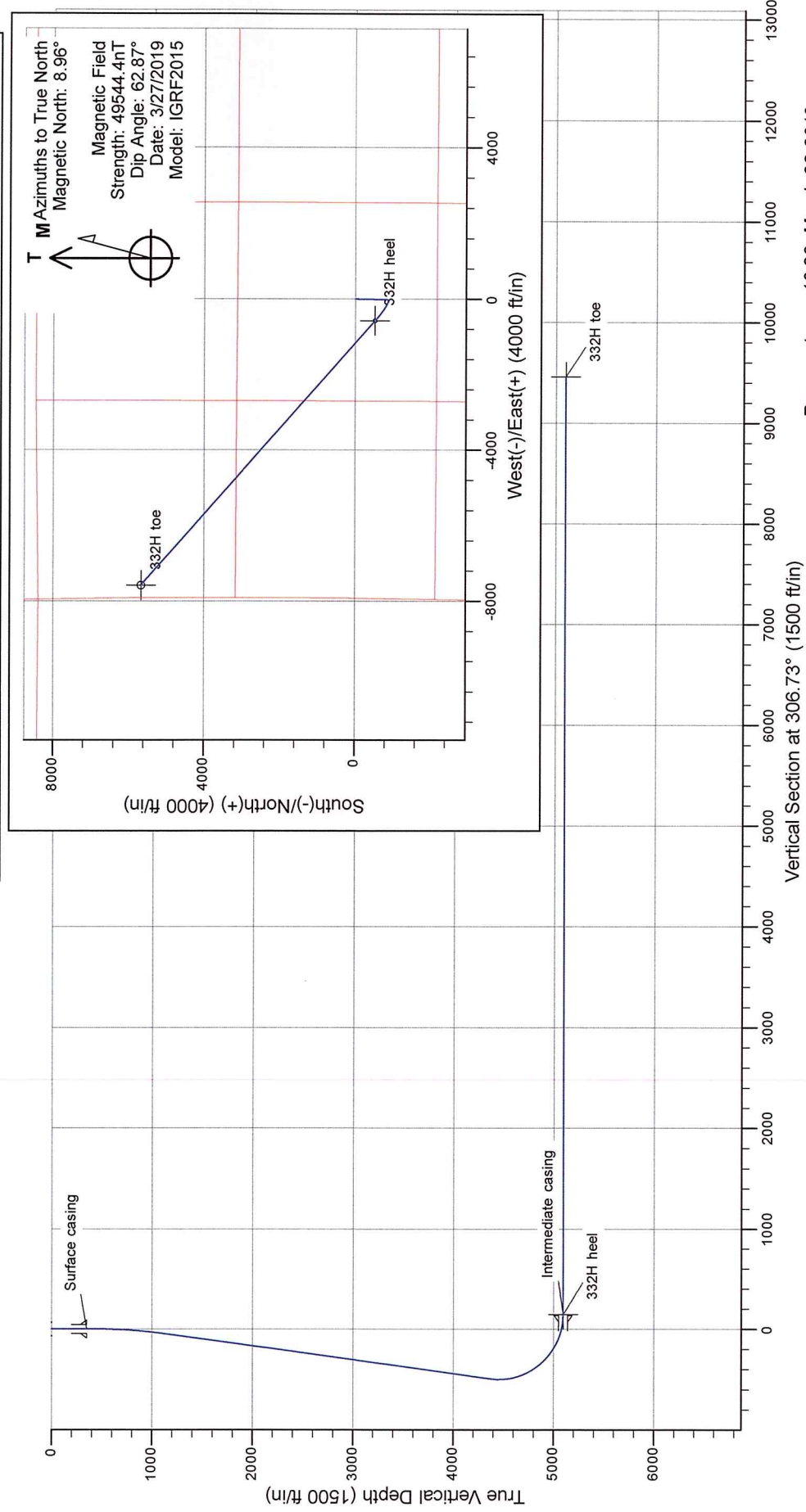
US State Plane 1983  
North American Datum 1983  
New Mexico Western Zone

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	
450	0.00	0.00	450	0	0	0.00	0.00	0	
1115	13.29	181.14	1109	-77	-2	2.00	181.14	-45	
4472	13.29	181.14	4376	-849	-17	0.00	0.00	-494	
5567	90.00	311.44	5096	-529	-575	9.00	129.53	144	332H heel
14914	90.00	311.44	5096	5657	-7582	0.00	0.00	9459	332H toe

TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
332H heel	5096	-529	-575	1885082	2786888	36.18053300	-107.61715620
332H toe	5096	5657	-7582	1891252	2779867	36.19752340	-107.64090570



Prepared : 16:20, March 28 2019

# **DJR Operating**

**North Alamito Unit**

**J31 2307**

**NAU 332H**

**Original drilling**

**Plan: APD**

## **Standard Planning Report**

**28 March, 2019**



# Planning Report

<b>Database:</b>	EDM	<b>Local Co-ordinate Reference:</b>	Well NAU 332H
<b>Company:</b>	DJR Operating	<b>TVD Reference:</b>	RKB @ 6993ft (RIG TBD)
<b>Project:</b>	North Alamito Unit	<b>MD Reference:</b>	RKB @ 6993ft (RIG TBD)
<b>Site:</b>	J31 2307	<b>North Reference:</b>	True
<b>Well:</b>	NAU 332H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original drilling		
<b>Design:</b>	APD		

<b>Project</b>	North Alamito Unit		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	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 332H					
Well Position	+N/-S	-37 ft	Northing:	1,885,613 usft	Latitude:	36.18198700
	+E/-W	-33 ft	Easting:	2,787,462 usft	Longitude:	-107.61520900
Position Uncertainty		0 ft	Wellhead Elevation:		Ground Level:	6979 ft

<b>Wellbore</b>	Original drilling				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2015	3/27/2019	8.96	62.87	49,544.38867767

<b>Design</b>	APD			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0	0	0	306.73

<b>Plan Survey Tool Program</b>	<b>Date</b>	3/28/2019		
<b>Depth From (ft)</b>	<b>Depth To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Remarks</b>
1	0	14,914	APD (Original drilling)	MWD+IGRF
				OWSG MWD + IGRF or WMM

<b>Plan Sections</b>										
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Dogleg Rate (°/100ft)</b>	<b>Build Rate (°/100ft)</b>	<b>Turn Rate (°/100ft)</b>	<b>TFO (°)</b>	<b>Target</b>
0	0.00	0.00	0	0	0	0.00	0.00	0.00	0.00	
450	0.00	0.00	450	0	0	0.00	0.00	0.00	0.00	
1115	13.29	181.14	1109	-77	-2	2.00	2.00	0.00	181.14	
4472	13.29	181.14	4376	-849	-17	0.00	0.00	0.00	0.00	
5567	90.00	311.44	5096	-529	-575	9.00	7.00	11.90	129.53	332H heel
14,914	90.00	311.44	5096	5657	-7582	0.00	0.00	0.00	0.00	332H toe



# Planning Report

<b>Database:</b>	EDM	<b>Local Co-ordinate Reference:</b>	Well NAU 332H
<b>Company:</b>	DJR Operating	<b>TVD Reference:</b>	RKB @ 6993ft (RIG TBD)
<b>Project:</b>	North Alamito Unit	<b>MD Reference:</b>	RKB @ 6993ft (RIG TBD)
<b>Site:</b>	J31 2307	<b>North Reference:</b>	True
<b>Well:</b>	NAU 332H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original drilling		
<b>Design:</b>	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
450	0.00	0.00	450	0	0	0	0.00	0.00	0.00
500	1.00	181.14	500	0	0	0	2.00	2.00	0.00
600	3.00	181.14	600	-4	0	-2	2.00	2.00	0.00
700	5.00	181.14	700	-11	0	-6	2.00	2.00	0.00
800	7.00	181.14	799	-21	0	-12	2.00	2.00	0.00
891	8.81	181.14	889	-34	-1	-20	2.00	2.00	0.00
Ojo Alamo									
900	9.00	181.14	898	-35	-1	-21	2.00	2.00	0.00
931	9.63	181.14	929	-40	-1	-23	2.00	2.00	0.00
Kirtland									
1000	11.00	181.14	997	-53	-1	-31	2.00	2.00	0.00
1100	13.00	181.14	1094	-73	-1	-43	2.00	2.00	0.00
1115	13.29	181.14	1109	-77	-2	-45	2.00	2.00	0.00
1180	13.29	181.14	1172	-92	-2	-53	0.00	0.00	0.00
Fruitland									
1200	13.29	181.14	1192	-96	-2	-56	0.00	0.00	0.00
1300	13.29	181.14	1289	-119	-2	-69	0.00	0.00	0.00
1400	13.29	181.14	1386	-142	-3	-83	0.00	0.00	0.00
1472	13.29	181.14	1456	-159	-3	-92	0.00	0.00	0.00
Picture Cliffs									
1500	13.29	181.14	1484	-165	-3	-96	0.00	0.00	0.00
1600	13.29	181.14	1581	-188	-4	-110	0.00	0.00	0.00
1644	13.29	181.14	1624	-198	-4	-116	0.00	0.00	0.00
Lewis									
1700	13.29	181.14	1678	-211	-4	-123	0.00	0.00	0.00
1800	13.29	181.14	1776	-234	-5	-136	0.00	0.00	0.00
1900	13.29	181.14	1873	-257	-5	-150	0.00	0.00	0.00
2000	13.29	181.14	1970	-280	-6	-163	0.00	0.00	0.00
2100	13.29	181.14	2068	-303	-6	-177	0.00	0.00	0.00
2200	13.29	181.14	2165	-326	-6	-190	0.00	0.00	0.00
2259	13.29	181.14	2222	-340	-7	-198	0.00	0.00	0.00
Chacra									
2300	13.29	181.14	2262	-349	-7	-203	0.00	0.00	0.00
2400	13.29	181.14	2360	-372	-7	-217	0.00	0.00	0.00
2500	13.29	181.14	2457	-395	-8	-230	0.00	0.00	0.00
2600	13.29	181.14	2554	-418	-8	-243	0.00	0.00	0.00
2700	13.29	181.14	2652	-441	-9	-257	0.00	0.00	0.00
2800	13.29	181.14	2749	-464	-9	-270	0.00	0.00	0.00
2900	13.29	181.14	2846	-487	-10	-284	0.00	0.00	0.00
2958	13.29	181.14	2903	-501	-10	-291	0.00	0.00	0.00
Cliffhouse									
2981	13.29	181.14	2925	-506	-10	-294	0.00	0.00	0.00
Menefee									
3000	13.29	181.14	2944	-510	-10	-297	0.00	0.00	0.00
3100	13.29	181.14	3041	-533	-11	-310	0.00	0.00	0.00
3200	13.29	181.14	3138	-556	-11	-324	0.00	0.00	0.00



# Planning Report

Database:	EDM	Local Co-ordinate Reference:	Well NAU 332H
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 332H	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)
3300	13.29	181.14	3235	-579	-12	-337	0.00	0.00	0.00
3400	13.29	181.14	3333	-602	-12	-350	0.00	0.00	0.00
3500	13.29	181.14	3430	-625	-12	-364	0.00	0.00	0.00
3600	13.29	181.14	3527	-648	-13	-377	0.00	0.00	0.00
3700	13.29	181.14	3625	-671	-13	-391	0.00	0.00	0.00
3800	13.29	181.14	3722	-694	-14	-404	0.00	0.00	0.00
3900	13.29	181.14	3819	-717	-14	-417	0.00	0.00	0.00
3905	13.29	181.14	3824	-718	-14	-418	0.00	0.00	0.00
Point Lookout									
4000	13.29	181.14	3917	-740	-15	-431	0.00	0.00	0.00
4090	13.29	181.14	4004	-761	-15	-443	0.00	0.00	0.00
Mancos									
4100	13.29	181.14	4014	-763	-15	-444	0.00	0.00	0.00
4200	13.29	181.14	4111	-786	-16	-458	0.00	0.00	0.00
4300	13.29	181.14	4209	-809	-16	-471	0.00	0.00	0.00
4400	13.29	181.14	4306	-832	-17	-484	0.00	0.00	0.00
4433	13.29	181.14	4338	-840	-17	-489	0.00	0.00	0.00
Mancos Silt									
4472	13.29	181.14	4376	-849	-17	-494	0.00	0.00	0.00
KOP									
4500	11.86	190.56	4403	-855	-17	-497	9.00	-5.17	33.90
4550	10.33	212.74	4452	-864	-21	-500	9.00	-3.05	44.36
4600	10.63	237.62	4502	-870	-27	-498	9.00	0.59	49.76
4650	12.62	257.82	4551	-873	-36	-493	9.00	3.98	40.41
4700	15.67	271.47	4599	-874	-48	-484	9.00	6.10	27.28
4750	19.29	280.44	4647	-873	-63	-471	9.00	7.23	17.95
4800	23.20	286.58	4693	-868	-81	-454	9.00	7.83	12.28
4850	27.29	291.00	4739	-861	-101	-434	9.00	8.18	8.84
4900	31.49	294.33	4782	-852	-124	-410	9.00	8.39	6.66
4937	34.61	296.30	4813	-843	-142	-391	9.00	8.51	5.38
Gallup A									
4950	35.75	296.94	4824	-840	-149	-383	9.00	8.56	4.81
4979	38.24	298.22	4847	-832	-164	-366	9.00	8.60	4.41
Gallup B									
5000	40.06	299.06	4863	-826	-176	-353	9.00	8.64	4.01
5050	44.40	300.83	4900	-809	-205	-319	9.00	8.68	3.54
5100	48.76	302.35	4935	-790	-236	-283	9.00	8.73	3.03
5122	50.70	302.96	4949	-781	-250	-266	9.00	8.75	2.74
Gallup C									
5150	53.14	303.67	4966	-769	-268	-245	9.00	8.77	2.58
5200	57.53	304.85	4995	-745	-302	-203	9.00	8.79	2.36
5250	61.94	305.93	5020	-720	-337	-160	9.00	8.81	2.14
5300	66.35	306.91	5042	-694	-374	-115	9.00	8.82	1.97
5350	70.77	307.83	5060	-665	-411	-69	9.00	8.83	1.84
5357	71.41	307.96	5062	-661	-416	-62	9.00	8.84	1.78
Top of liner									
5400	75.19	308.71	5075	-636	-448	-21	9.00	8.84	1.74
5450	79.61	309.55	5085	-605	-486	28	9.00	8.85	1.68
5500	84.04	310.36	5093	-573	-524	77	9.00	8.85	1.63
5550	88.47	311.16	5096	-541	-562	127	9.00	8.86	1.60
5557	89.12	311.28	5096	-536	-567	134	9.00	8.86	1.60
Intermediate casing									
5559	88.47	311.16	5096	-535	-568	135	50.09	-49.30	-8.89

# Planning Report

<b>Database:</b>	EDM	<b>Local Co-ordinate Reference:</b>	Well NAU 332H
<b>Company:</b>	DJR Operating	<b>TVD Reference:</b>	RKB @ 6993ft (RIG TBD)
<b>Project:</b>	North Alamito Unit	<b>MD Reference:</b>	RKB @ 6993ft (RIG TBD)
<b>Site:</b>	J31 2307	<b>North Reference:</b>	True
<b>Well:</b>	NAU 332H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original drilling		
<b>Design:</b>	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)
<b>Target</b>									
5567	90.00	311.44	5096	-529	-575	144	18.00	17.71	3.19
5600	90.00	311.44	5096	-508	-599	177	0.00	0.00	0.00
5627	90.00	311.44	5096	-490	-620	204	0.00	0.00	0.00
<b>First take point</b>									
5700	90.00	311.44	5096	-441	-674	276	0.00	0.00	0.00
5800	90.00	311.44	5096	-375	-749	376	0.00	0.00	0.00
5900	90.00	311.44	5096	-309	-824	476	0.00	0.00	0.00
6000	90.00	311.44	5096	-243	-899	575	0.00	0.00	0.00
6100	90.00	311.44	5096	-177	-974	675	0.00	0.00	0.00
6200	90.00	311.44	5096	-111	-1049	775	0.00	0.00	0.00
6300	90.00	311.44	5096	-44	-1124	874	0.00	0.00	0.00
6400	90.00	311.44	5096	22	-1199	974	0.00	0.00	0.00
6500	90.00	311.44	5096	88	-1274	1074	0.00	0.00	0.00
6600	90.00	311.44	5096	154	-1349	1173	0.00	0.00	0.00
6700	90.00	311.44	5096	220	-1424	1273	0.00	0.00	0.00
6800	90.00	311.44	5096	287	-1499	1373	0.00	0.00	0.00
6900	90.00	311.44	5096	353	-1574	1472	0.00	0.00	0.00
7000	90.00	311.44	5096	419	-1649	1572	0.00	0.00	0.00
7100	90.00	311.44	5096	485	-1724	1672	0.00	0.00	0.00
7200	90.00	311.44	5096	551	-1799	1771	0.00	0.00	0.00
7300	90.00	311.44	5096	617	-1874	1871	0.00	0.00	0.00
7400	90.00	311.44	5096	684	-1949	1971	0.00	0.00	0.00
7500	90.00	311.44	5096	750	-2024	2070	0.00	0.00	0.00
7600	90.00	311.44	5096	816	-2099	2170	0.00	0.00	0.00
7700	90.00	311.44	5096	882	-2173	2270	0.00	0.00	0.00
7800	90.00	311.44	5096	948	-2248	2369	0.00	0.00	0.00
7900	90.00	311.44	5096	1015	-2323	2469	0.00	0.00	0.00
8000	90.00	311.44	5096	1081	-2398	2569	0.00	0.00	0.00
8100	90.00	311.44	5096	1147	-2473	2668	0.00	0.00	0.00
8200	90.00	311.44	5096	1213	-2548	2768	0.00	0.00	0.00
8300	90.00	311.44	5096	1279	-2623	2868	0.00	0.00	0.00
8400	90.00	311.44	5096	1345	-2698	2967	0.00	0.00	0.00
8500	90.00	311.44	5096	1412	-2773	3067	0.00	0.00	0.00
8600	90.00	311.44	5096	1478	-2848	3167	0.00	0.00	0.00
8700	90.00	311.44	5096	1544	-2923	3266	0.00	0.00	0.00
8800	90.00	311.44	5096	1610	-2998	3366	0.00	0.00	0.00
8900	90.00	311.44	5096	1676	-3073	3466	0.00	0.00	0.00
9000	90.00	311.44	5096	1743	-3148	3565	0.00	0.00	0.00
9100	90.00	311.44	5096	1809	-3223	3665	0.00	0.00	0.00
9200	90.00	311.44	5096	1875	-3298	3765	0.00	0.00	0.00
9300	90.00	311.44	5096	1941	-3373	3864	0.00	0.00	0.00
9400	90.00	311.44	5096	2007	-3448	3964	0.00	0.00	0.00
9500	90.00	311.44	5096	2073	-3523	4064	0.00	0.00	0.00
9600	90.00	311.44	5096	2140	-3598	4163	0.00	0.00	0.00
9700	90.00	311.44	5096	2206	-3673	4263	0.00	0.00	0.00
9800	90.00	311.44	5096	2272	-3748	4363	0.00	0.00	0.00
9900	90.00	311.44	5096	2338	-3823	4462	0.00	0.00	0.00
10,000	90.00	311.44	5096	2404	-3898	4562	0.00	0.00	0.00
10,100	90.00	311.44	5096	2471	-3973	4661	0.00	0.00	0.00
10,200	90.00	311.44	5096	2537	-4048	4761	0.00	0.00	0.00
10,300	90.00	311.44	5096	2603	-4123	4861	0.00	0.00	0.00
10,400	90.00	311.44	5096	2669	-4198	4960	0.00	0.00	0.00
10,500	90.00	311.44	5096	2735	-4273	5060	0.00	0.00	0.00



# Planning Report

<b>Database:</b>	EDM	<b>Local Co-ordinate Reference:</b>	Well NAU 332H
<b>Company:</b>	DJR Operating	<b>TVD Reference:</b>	RKB @ 6993ft (RIG TBD)
<b>Project:</b>	North Alamito Unit	<b>MD Reference:</b>	RKB @ 6993ft (RIG TBD)
<b>Site:</b>	J31 2307	<b>North Reference:</b>	True
<b>Well:</b>	NAU 332H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original drilling		
<b>Design:</b>	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)
10,600	90.00	311.44	5096	2801	-4348	5160	0.00	0.00	0.00
10,700	90.00	311.44	5096	2868	-4423	5259	0.00	0.00	0.00
10,800	90.00	311.44	5096	2934	-4497	5359	0.00	0.00	0.00
10,900	90.00	311.44	5096	3000	-4572	5459	0.00	0.00	0.00
11,000	90.00	311.44	5096	3066	-4647	5558	0.00	0.00	0.00
11,100	90.00	311.44	5096	3132	-4722	5658	0.00	0.00	0.00
11,200	90.00	311.44	5096	3198	-4797	5758	0.00	0.00	0.00
11,300	90.00	311.44	5096	3265	-4872	5857	0.00	0.00	0.00
11,400	90.00	311.44	5096	3331	-4947	5957	0.00	0.00	0.00
11,500	90.00	311.44	5096	3397	-5022	6057	0.00	0.00	0.00
11,600	90.00	311.44	5096	3463	-5097	6156	0.00	0.00	0.00
11,700	90.00	311.44	5096	3529	-5172	6256	0.00	0.00	0.00
11,800	90.00	311.44	5096	3596	-5247	6356	0.00	0.00	0.00
11,900	90.00	311.44	5096	3662	-5322	6455	0.00	0.00	0.00
12,000	90.00	311.44	5096	3728	-5397	6555	0.00	0.00	0.00
12,100	90.00	311.44	5096	3794	-5472	6655	0.00	0.00	0.00
12,200	90.00	311.44	5096	3860	-5547	6754	0.00	0.00	0.00
12,300	90.00	311.44	5096	3926	-5622	6854	0.00	0.00	0.00
12,400	90.00	311.44	5096	3993	-5697	6954	0.00	0.00	0.00
12,500	90.00	311.44	5096	4059	-5772	7053	0.00	0.00	0.00
12,600	90.00	311.44	5096	4125	-5847	7153	0.00	0.00	0.00
12,700	90.00	311.44	5096	4191	-5922	7253	0.00	0.00	0.00
12,800	90.00	311.44	5096	4257	-5997	7352	0.00	0.00	0.00
12,900	90.00	311.44	5096	4324	-6072	7452	0.00	0.00	0.00
13,000	90.00	311.44	5096	4390	-6147	7552	0.00	0.00	0.00
13,100	90.00	311.44	5096	4456	-6222	7651	0.00	0.00	0.00
13,200	90.00	311.44	5096	4522	-6297	7751	0.00	0.00	0.00
13,300	90.00	311.44	5096	4588	-6372	7851	0.00	0.00	0.00
13,400	90.00	311.44	5096	4654	-6447	7950	0.00	0.00	0.00
13,500	90.00	311.44	5096	4721	-6522	8050	0.00	0.00	0.00
13,600	90.00	311.44	5096	4787	-6597	8150	0.00	0.00	0.00
13,700	90.00	311.44	5096	4853	-6672	8249	0.00	0.00	0.00
13,800	90.00	311.44	5096	4919	-6747	8349	0.00	0.00	0.00
13,900	90.00	311.44	5096	4985	-6822	8449	0.00	0.00	0.00
14,000	90.00	311.44	5096	5052	-6896	8548	0.00	0.00	0.00
14,100	90.00	311.44	5096	5118	-6971	8648	0.00	0.00	0.00
14,200	90.00	311.44	5096	5184	-7046	8748	0.00	0.00	0.00
14,300	90.00	311.44	5096	5250	-7121	8847	0.00	0.00	0.00
14,400	90.00	311.44	5096	5316	-7196	8947	0.00	0.00	0.00
14,500	90.00	311.44	5096	5382	-7271	9047	0.00	0.00	0.00
14,600	90.00	311.44	5096	5449	-7346	9146	0.00	0.00	0.00
14,700	90.00	311.44	5096	5515	-7421	9246	0.00	0.00	0.00
14,800	90.00	311.44	5096	5581	-7496	9346	0.00	0.00	0.00
14,854	90.00	311.44	5096	5617	-7537	9400	0.00	0.00	0.00
Last take point									
14,900	90.00	311.44	5096	5647	-7571	9445	0.00	0.00	0.00
14,914	90.00	311.44	5096	5657	-7582	9459	0.00	0.00	0.00



# Planning Report

<b>Database:</b>	EDM	<b>Local Co-ordinate Reference:</b>	Well NAU 332H
<b>Company:</b>	DJR Operating	<b>TVD Reference:</b>	RKB @ 6993ft (RIG TBD)
<b>Project:</b>	North Alamito Unit	<b>MD Reference:</b>	RKB @ 6993ft (RIG TBD)
<b>Site:</b>	J31 2307	<b>North Reference:</b>	True
<b>Well:</b>	NAU 332H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original drilling		
<b>Design:</b>	APD		

Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(usft)	(usft)		
- Shape									
332H toe	0.00	0.00	5096	5657	-7582	1,891,252	2,779,867	36.19752340	-107.64090570
- plan hits target center									
- Circle (radius 100)									
332H heel	0.00	0.00	5096	-529	-575	1,885,082	2,786,888	36.18053300	-107.61715620
- plan hits target center									
- Circle (radius 50)									

Casing Points					
Measured Depth	Vertical Depth	Name	Casing Diameter	Hole Diameter	
(ft)	(ft)		(in)	(in)	
350	350	Surface casing	9.625	12.250	
5557	5096	Intermediate casing	7.000	8.750	

Formations						
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction	
(ft)	(ft)			(°)	(°)	
891	889	Ojo Alamo		0.00		
931	929	Kirtland		0.00		
1180	1172	Fruitland		0.00		
1472	1456	Picture Cliffs		0.00		
1644	1624	Lewis		0.00		
2259	2222	Chacra		0.00		
2958	2903	Cliffhouse		0.00		
2981	2925	Menefee		0.00		
3905	3824	Point Lookout		0.00		
4090	4004	Mancos		0.00		
4433	4338	Mancos Silt		0.00		
4937	4813	Gallup A		0.00		
4979	4847	Gallup B		0.00		
5122	4949	Gallup C		0.00		
5559	5096	Target		0.00		

Plan Annotations					
Measured Depth	Vertical Depth	Local Coordinates		Comment	
(ft)	(ft)	+N/-S	+E/-W		
(ft)	(ft)	(ft)	(ft)		
4472	4376	-849	-17	KOP	
5357	5062	-661	-416	Top of liner	
5627	5096	-490	-620	First take point	
14,854	5096	5617	-7537	Last take point	

# **DJR Operating**

**North Alamito Unit**

**J31 2307**

**NAU 332H**

**Original drilling**

**APD**

## **Anticollision Report**

**28 March, 2019**



# Anticollision Report

Company:	DJR Operating	Local Co-ordinate Reference:	Well NAU 332H
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 332H	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	14,914	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)	Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
J31 2307						
NAU 333H - Original drilling - APD	450	450	50	47	17.643	CC
NAU 333H - Original drilling - APD	500	500	50	47	15.799	ES
NAU 333H - Original drilling - APD	5350	5412	144	103	3.515	SF
NAU 528H - Original drilling - APD	450	450	90	87	31.797	CC, ES
NAU 528H - Original drilling - APD	800	791	120	115	22.843	SF
NAU 529H - Original drilling - APD	450	450	70	67	24.707	CC
NAU 529H - Original drilling - APD	500	500	70	67	22.083	ES
NAU 529H - Original drilling - APD	14,914	14,899	888	395	1.801	SF
NAU 559H - Original drilling - APD	400	400	20	18	8.124	CC
NAU 559H - Original drilling - APD	450	450	20	18	7.222	ES
NAU 559H - Original drilling - APD	14,914	15,247	1904	1408	3.836	SF

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 Measured Depth (ft)	Vertical Depth (ft)	Offset Measured Depth (ft)	Vertical Depth (ft)	Reference	Offset	Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0	0	0	0	0	0	0	41.67	37	33	50				
100	100	100	100	0	0	0	41.67	37	33	50	49	0.31	161.247	
200	200	200	200	1	1	1	41.67	37	33	50	49	1.03	48.487	
300	300	300	300	1	1	1	41.67	37	33	50	48	1.74	28.533	
400	400	400	400	1	1	1	41.67	37	33	50	47	2.46	20.215	
450	450	450	450	1	1	1	41.67	37	33	50	47	2.82	17.643	CC
500	500	500	500	2	2	2	-139.78	37	33	50	47	3.17	15.799	ES
600	600	601	601	2	2	2	-142.51	37	33	52	49	3.85	13.594	
700	700	702	702	2	2	2	-149.14	36	29	55	51	4.54	12.213	
800	799	803	802	3	3	3	-158.93	34	22	60	55	5.24	11.478	
900	898	903	902	3	3	3	-170.28	32	12	68	62	5.97	11.431	
1000	997	1002	1000	3	3	3	178.65	28	-1	81	74	6.72	12.028	
1100	1094	1099	1096	4	4	4	169.12	24	-18	99	91	7.51	13.130	
1115	1109	1114	1110	4	4	4	167.93	23	-20	102	94	7.63	13.318	
1200	1192	1196	1191	4	4	4	162.33	19	-35	120	112	8.33	14.443	
1300	1289	1293	1286	5	5	5	157.65	15	-53	143	134	9.17	15.618	

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



# Anticollision Report

<b>Company:</b>	DJR Operating	<b>Local Co-ordinate Reference:</b>	Well NAU 332H
<b>Project:</b>	North Alamito Unit	<b>TVD Reference:</b>	RKB @ 6993ft (RIG TBD)
<b>Reference Site:</b>	J31 2307	<b>MD Reference:</b>	RKB @ 6993ft (RIG TBD)
<b>Site Error:</b>	0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	NAU 332H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Original drilling	<b>Database:</b>	EDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	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 (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)					
1400	1386	1390	1381	5	5	154.26	10	-70	167	157	10.02	16.630			
1500	1484	1487	1476	6	6	151.72	5	-88	191	180	10.90	17.497			
1600	1581	1583	1572	6	6	149.74	1	-105	215	203	11.78	18.241			
1700	1678	1680	1667	7	7	148.16	-4	-122	239	227	12.67	18.883			
1800	1776	1777	1762	8	7	146.87	-8	-140	264	250	13.57	19.439			
1900	1873	1874	1857	8	7	145.80	-13	-157	289	274	14.48	19.926			
2000	1970	1971	1952	9	8	144.90	-17	-175	313	298	15.39	20.354			
2100	2068	2067	2047	9	8	144.13	-22	-192	338	322	16.31	20.732			
2200	2165	2164	2142	10	9	143.47	-27	-210	363	346	17.22	21.069			
2300	2262	2261	2237	10	9	142.89	-31	-227	388	370	18.15	21.371			
2400	2360	2358	2332	11	10	142.38	-36	-245	413	394	19.07	21.642			
2500	2457	2454	2427	11	10	141.93	-40	-262	438	418	20.00	21.888			
2600	2554	2551	2522	12	11	141.53	-45	-280	463	442	20.92	22.111			
2700	2652	2648	2617	13	11	141.17	-49	-297	488	466	21.85	22.314			
2800	2749	2745	2713	13	12	140.84	-54	-315	513	490	22.78	22.500			
2900	2846	2842	2808	14	12	140.55	-59	-332	538	514	23.72	22.670			
3000	2944	2938	2903	14	13	140.28	-63	-349	563	538	24.65	22.828			
3100	3041	3035	2998	15	13	140.03	-68	-367	588	562	25.58	22.973			
3200	3138	3132	3093	15	14	139.81	-72	-384	613	586	26.52	23.108			
3300	3235	3229	3188	16	14	139.60	-77	-402	638	610	27.46	23.233			
3400	3333	3325	3283	17	15	139.41	-81	-419	663	635	28.39	23.349			
3500	3430	3422	3378	17	15	139.23	-86	-437	688	659	29.33	23.458			
3600	3527	3519	3473	18	16	139.06	-91	-454	713	683	30.27	23.560			
3700	3625	3616	3568	18	16	138.91	-95	-472	738	707	31.21	23.656			
3800	3722	3713	3663	19	17	138.76	-100	-489	763	731	32.15	23.745			
3900	3819	3809	3759	19	17	138.63	-104	-507	788	755	33.08	23.830			
4000	3917	3906	3854	20	18	138.50	-109	-524	814	779	34.02	23.909			
4100	4014	4003	3949	20	18	138.38	-114	-542	839	804	34.96	23.984			
4200	4111	4100	4044	21	19	138.27	-118	-559	864	828	35.91	24.055			
4300	4209	4197	4139	22	19	138.16	-123	-576	889	852	36.85	24.122			
4400	4306	5818	5098	22	26	179.99	-832	-17	792	775	17.15	46.178			
4472	4376	5829	5098	23	27	-177.33	-839	-8	722	704	17.56	41.113			
4500	4403	5832	5098	23	27	-176.70	-842	-6	695	677	17.73	39.183			
4550	4452	5836	5098	23	27	-178.29	-844	-3	646	628	18.07	35.751			
4600	4502	5835	5098	23	27	176.24	-844	-4	597	579	18.45	32.380			
4650	4551	5831	5098	23	27	170.55	-841	-7	549	530	18.88	29.077			
4700	4599	5822	5098	24	27	166.57	-835	-13	502	482	19.41	25.850			
4750	4647	5810	5098	24	26	163.73	-827	-22	455	435	20.05	22.714			
4800	4693	5794	5098	24	26	161.33	-816	-34	411	390	20.85	19.692			
4850	4739	5775	5098	24	26	158.92	-803	-49	368	346	21.87	16.818			
4900	4782	5752	5098	24	25	156.27	-788	-66	327	304	23.16	14.138			
4950	4824	5725	5098	24	25	153.20	-770	-86	290	265	24.77	11.701			
5000	4863	5695	5098	24	25	149.55	-750	-108	256	229	26.76	9.557			
5050	4900	5662	5098	24	24	145.21	-728	-132	226	196	29.12	7.746			
5100	4935	5627	5098	24	24	140.05	-704	-159	200	168	31.78	6.289			
5150	4966	5588	5098	24	23	134.04	-678	-187	179	145	34.51	5.191			
5200	4995	5548	5098	23	23	127.27	-651	-217	164	127	37.09	4.411			
5250	5020	5502	5097	23	22	119.28	-621	-251	153	114	39.07	3.916			
5300	5042	5456	5093	23	22	110.46	-590	-285	146	106	40.47	3.618			
5349	5060	5413	5087	23	22	101.50	-560	-316	144	103	41.04	3.515			
5350	5060	5412	5087	23	22	101.40	-560	-316	144	103	41.04	3.515 SF			
5400	5075	5369	5077	23	22	92.49	-531	-346	146	106	40.70	3.599			

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

# Anticollision Report

<b>Company:</b>	DJR Operating	<b>Local Co-ordinate Reference:</b>	Well NAU 332H
<b>Project:</b>	North Alamito Unit	<b>TVD Reference:</b>	RKB @ 6993ft (RIG TBD)
<b>Reference Site:</b>	J31 2307	<b>MD Reference:</b>	RKB @ 6993ft (RIG TBD)
<b>Site Error:</b>	0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	NAU 332H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Original drilling	<b>Database:</b>	EDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	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
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Semi Major Axis (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	Warning	
5450	5085	5328	5066	23	22	84.08		-503	-374	153	113	39.67	3.847		
5500	5093	5288	5052	23	22	76.44		-476	-401	162	124	38.32	4.225		
5550	5096	5250	5037	23	22	69.93		-451	-425	174	137	37.11	4.679		
5567	5096	5235	5031	23	22	67.62		-441	-434	178	141	36.62	4.863		
5600	5096	5210	5019	23	22	64.47		-425	-449	187	152	35.93	5.217		
5700	5096	5141	4983	24	22	55.92		-382	-489	225	191	34.40	6.542		
5800	5096	5081	4946	25	22	49.25		-346	-520	275	241	33.97	8.093		
5900	5096	5030	4912	27	22	44.24		-316	-545	335	300	34.35	9.746		
6000	5096	4985	4880	29	22	40.50		-292	-564	402	367	35.09	11.463		
6100	5096	4950	4853	31	22	37.88		-274	-577	476	440	36.05	13.194		
6200	5096	4914	4824	33	22	35.50		-257	-590	553	517	36.72	15.071		
6300	5096	4886	4800	35	22	33.80		-244	-599	635	597	37.43	16.958		
6400	5096	4850	4770	37	22	31.90		-228	-609	719	681	37.79	19.027		
6500	5096	4850	4770	39	22	31.90		-228	-609	805	766	38.80	20.755		
6600	5096	4819	4743	41	22	30.43		-216	-617	893	854	39.01	22.894		
6700	5096	4800	4726	43	22	29.59		-208	-621	983	943	39.36	24.965		
6800	5096	4800	4726	45	22	29.59		-208	-621	1074	1034	39.90	26.911		
6900	5096	4773	4701	48	22	28.48		-198	-626	1165	1125	40.00	29.131		
7000	5096	4750	4680	50	21	27.62		-190	-630	1258	1218	40.13	31.348		
7100	5096	4750	4680	52	21	27.62		-190	-630	1351	1311	40.47	33.396		
7200	5096	4750	4680	55	21	27.62		-190	-630	1446	1405	40.74	35.484		
7300	5096	4730	4661	57	21	26.91		-184	-632	1540	1499	40.81	37.738		
7400	5096	4721	4653	59	21	26.62		-181	-633	1635	1594	40.96	39.924		
7500	5096	4700	4633	62	21	25.94		-175	-636	1731	1690	41.00	42.219		
7600	5096	4700	4633	64	21	25.94		-175	-636	1827	1785	41.17	44.369		
7700	5096	4700	4633	66	21	25.94		-175	-636	1923	1881	41.32	46.536		
7800	5096	4700	4633	69	21	25.94		-175	-636	2019	1978	41.45	48.717		
7900	5096	4700	4633	71	21	25.94		-175	-636	2116	2074	41.56	50.909		
8000	5096	4700	4633	74	21	25.94		-175	-636	2213	2171	41.67	53.109		
8100	5096	4677	4611	76	21	25.26		-168	-637	2310	2268	41.66	55.448		
8200	5096	4673	4606	78	21	25.12		-167	-638	2407	2366	41.73	57.684		
8300	5096	4650	4585	81	21	24.50		-162	-639	2505	2463	41.72	60.041		
8400	5096	4650	4585	83	21	24.50		-162	-639	2603	2561	41.81	62.252		
8500	5096	4650	4585	86	21	24.50		-162	-639	2700	2659	41.89	64.467		
8600	5096	4650	4585	88	21	24.50		-162	-639	2798	2756	41.96	66.685		
8700	5096	4650	4585	91	21	24.50		-162	-639	2896	2854	42.03	68.905		
8800	5096	4650	4585	93	21	24.50		-162	-639	2995	2952	42.10	71.127		
8900	5096	4650	4585	96	21	24.50		-162	-639	3093	3051	42.17	73.349		
9000	5096	4650	4585	98	21	24.50		-162	-639	3191	3149	42.23	75.572		
9100	5096	4650	4585	101	21	24.50		-162	-639	3290	3247	42.29	77.794		
9200	5096	4650	4585	103	21	24.50		-162	-639	3388	3346	42.35	80.016		
9300	5096	4650	4585	106	21	24.50		-162	-639	3487	3445	42.40	82.236		
9400	5096	4650	4585	108	21	24.50		-162	-639	3586	3543	42.46	84.455		
9500	5096	4650	4585	111	21	24.50		-162	-639	3684	3642	42.51	86.672		
9600	5096	4650	4585	113	21	24.50		-162	-639	3783	3741	42.56	88.886		
9700	5096	4627	4562	115	21	23.90		-156	-639	3882	3839	42.55	91.237		
9800	5096	4625	4560	118	21	23.85		-156	-639	3981	3938	42.59	93.458		
9900	5096	4623	4558	120	21	23.81		-156	-639	4080	4037	42.64	95.676		
10,000	5096	4600	4536	123	21	23.27		-151	-639	4179	4136	42.63	98.035		
10,100	5096	4600	4536	125	21	23.27		-151	-639	4278	4235	42.68	100.233		
10,200	5096	4600	4536	128	21	23.27		-151	-639	4377	4334	42.73	102.427		
10,300	5096	4600	4536	130	21	23.27		-151	-639	4476	4433	42.78	104.617		

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



# Anticollision Report

<b>Company:</b>	DJR Operating	<b>Local Co-ordinate Reference:</b>	Well NAU 332H
<b>Project:</b>	North Alamito Unit	<b>TVD Reference:</b>	RKB @ 6993ft (RIG TBD)
<b>Reference Site:</b>	J31 2307	<b>MD Reference:</b>	RKB @ 6993ft (RIG TBD)
<b>Site Error:</b>	0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	NAU 332H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Original drilling	<b>Database:</b>	EDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	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 (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)					
10,400	5096	4600	4536	133	21	23.27	-151	-639	4575	4532	42.84	106.804			
10,500	5096	4600	4536	135	21	23.27	-151	-639	4674	4631	42.89	108.986			
10,600	5096	4600	4536	138	21	23.27	-151	-639	4773	4730	42.94	111.164			
10,700	5096	4600	4536	140	21	23.27	-151	-639	4872	4830	42.99	113.337			
10,800	5096	4600	4536	143	21	23.27	-151	-639	4972	4929	43.04	115.506			
10,900	5096	4600	4536	145	21	23.27	-151	-639	5071	5028	43.10	117.669			
11,000	5096	4600	4536	148	21	23.27	-151	-639	5170	5127	43.15	119.828			
11,100	5096	4600	4536	150	21	23.27	-151	-639	5270	5226	43.20	121.981			
11,200	5096	4600	4536	153	21	23.27	-151	-639	5369	5326	43.25	124.129			
11,300	5096	4600	4536	155	21	23.27	-151	-639	5468	5425	43.31	126.271			
11,400	5096	4600	4536	158	21	23.27	-151	-639	5568	5524	43.36	128.408			
11,500	5096	4600	4536	161	21	23.27	-151	-639	5667	5624	43.41	130.539			
11,600	5096	4600	4536	163	21	23.27	-151	-639	5767	5723	43.47	132.664			
11,700	5096	4600	4536	166	21	23.27	-151	-639	5866	5822	43.52	134.783			
11,800	5096	4600	4536	168	21	23.27	-151	-639	5965	5922	43.58	136.896			
11,900	5096	4600	4536	171	21	23.27	-151	-639	6065	6021	43.63	139.002			
12,000	5096	4600	4536	173	21	23.27	-151	-639	6164	6121	43.69	141.103			
12,100	5096	4600	4536	176	21	23.27	-151	-639	6264	6220	43.74	143.197			
12,200	5096	4600	4536	178	21	23.27	-151	-639	6363	6320	43.80	145.285			
12,300	5096	4600	4536	181	21	23.27	-151	-639	6463	6419	43.86	147.366			
12,400	5096	4600	4536	183	21	23.27	-151	-639	6563	6519	43.91	149.440			
12,500	5096	4600	4536	186	21	23.27	-151	-639	6662	6618	43.97	151.508			
12,600	5096	4600	4536	188	21	23.27	-151	-639	6762	6718	44.03	153.568			
12,700	5096	4600	4536	191	21	23.27	-151	-639	6861	6817	44.09	155.622			
12,800	5096	4600	4536	193	21	23.27	-151	-639	6961	6917	44.15	157.669			
12,900	5096	4600	4536	196	21	23.27	-151	-639	7061	7016	44.21	159.709			
13,000	5096	4600	4536	198	21	23.27	-151	-639	7160	7116	44.27	161.742			
13,100	5096	4600	4536	201	21	23.27	-151	-639	7260	7216	44.33	163.768			
13,200	5096	4600	4536	203	21	23.27	-151	-639	7359	7315	44.39	165.787			
13,300	5096	4600	4536	206	21	23.27	-151	-639	7459	7415	44.45	167.798			
13,400	5096	4600	4536	208	21	23.27	-151	-639	7559	7514	44.52	169.802			
13,500	5096	4600	4536	211	21	23.27	-151	-639	7658	7614	44.58	171.799			
13,600	5096	4600	4536	213	21	23.27	-151	-639	7758	7714	44.64	173.788			
13,700	5096	4600	4536	216	21	23.27	-151	-639	7858	7813	44.71	175.770			
13,800	5096	4600	4536	218	21	23.27	-151	-639	7958	7913	44.77	177.744			
13,900	5096	4600	4536	221	21	23.27	-151	-639	8057	8012	44.83	179.711			
14,000	5096	4600	4536	223	21	23.27	-151	-639	8157	8112	44.90	181.670			
14,100	5096	4600	4536	226	21	23.27	-151	-639	8257	8212	44.97	183.622			
14,200	5096	4600	4536	228	21	23.27	-151	-639	8356	8311	45.03	185.566			
14,300	5096	4600	4536	231	21	23.27	-151	-639	8456	8411	45.10	187.502			
14,400	5096	4600	4536	233	21	23.27	-151	-639	8556	8511	45.17	189.431			
14,500	5096	4600	4536	236	21	23.27	-151	-639	8656	8610	45.23	191.352			
14,600	5096	4600	4536	239	21	23.27	-151	-639	8755	8710	45.30	193.265			
14,700	5096	4600	4536	241	21	23.27	-151	-639	8855	8810	45.37	195.171			
14,800	5096	4600	4536	244	21	23.27	-151	-639	8955	8910	45.44	197.068			
14,900	5096	4600	4536	246	21	23.27	-151	-639	9055	9009	45.51	198.958			
14,914	5096	4600	4536	246	21	23.27	-151	-639	9069	9023	45.52	199.226			

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



# Anticollision Report

<b>Company:</b>	DJR Operating	<b>Local Co-ordinate Reference:</b>	Well NAU 332H
<b>Project:</b>	North Alamito Unit	<b>TVD Reference:</b>	RKB @ 6993ft (RIG TBD)
<b>Reference Site:</b>	J31 2307	<b>MD Reference:</b>	RKB @ 6993ft (RIG TBD)
<b>Site Error:</b>	0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	NAU 332H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Original drilling	<b>Database:</b>	EDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	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	41.96	67	60	90						
100	100	100	100	0	0	41.96	67	60	90	89	0.31	290.610			
200	200	200	200	1	1	41.96	67	60	90	89	1.03	87.386			
300	300	300	300	1	1	41.96	67	60	90	88	1.74	51.425			
400	400	400	400	1	1	41.96	67	60	90	87	2.46	36.432			
450	450	450	450	1	1	41.96	67	60	90	87	2.82	31.797 CC, ES			
500	500	499	499	2	2	-139.58	67	60	90	87	3.16	28.481			
600	600	597	597	2	2	-142.65	70	59	95	91	3.85	24.569			
700	700	694	694	2	2	-147.91	76	57	104	100	4.55	22.921			
800	799	791	790	3	3	-154.05	86	53	120	115	5.26	22.843 SF			
900	898	888	886	3	3	-159.56	96	50	141	135	5.97	23.606			
1000	997	984	982	3	3	-163.94	106	46	166	159	6.69	24.852			
1100	1094	1079	1076	4	4	-167.37	116	43	195	188	7.39	26.415			
1115	1109	1093	1090	4	4	-167.81	117	42	200	192	7.50	26.643			
1200	1192	1173	1170	4	4	-170.10	126	39	227	219	8.10	28.049			
1300	1289	1267	1264	5	5	-172.18	136	36	259	250	8.79	29.487			
1400	1386	1362	1357	5	5	-173.81	146	33	292	282	9.49	30.730			
1500	1484	1456	1451	6	5	-175.11	156	29	324	314	10.19	31.810			
1600	1581	1550	1545	6	6	-176.17	165	26	357	346	10.90	32.754			
1700	1678	1645	1638	7	6	-177.05	175	22	390	378	11.60	33.585			
1800	1776	1739	1732	8	6	-177.80	185	19	423	410	12.31	34.320			
1900	1873	1833	1826	8	7	-178.44	195	16	455	442	13.02	34.976			
2000	1970	1927	1920	9	7	-179.00	205	12	488	475	13.73	35.563			
2100	2068	2022	2013	9	8	-179.48	215	9	521	507	14.45	36.091			
2200	2165	2116	2107	10	8	-179.91	225	5	554	539	15.16	36.568			
2300	2262	2210	2201	10	8	179.71	235	2	587	572	15.88	37.002			
2400	2360	2305	2295	11	9	179.38	245	-2	620	604	16.59	37.397			
2500	2457	2399	2388	11	9	179.07	255	-5	654	636	17.31	37.759			
2600	2554	2493	2482	12	10	178.80	265	-8	687	669	18.03	38.092			
2700	2652	2588	2576	13	10	178.55	275	-12	720	701	18.74	38.398			
2800	2749	2682	2670	13	10	178.32	284	-15	753	733	19.46	38.681			
2900	2846	2776	2763	14	11	178.11	294	-19	786	766	20.18	38.943			
3000	2944	2871	2857	14	11	177.92	304	-22	819	798	20.90	39.187			
3100	3041	2965	2951	15	11	177.74	314	-25	852	831	21.62	39.414			
3200	3138	3059	3044	15	12	177.58	324	-29	885	863	22.34	39.626			
3300	3235	3154	3138	16	12	177.43	334	-32	919	895	23.07	39.824			
3400	3333	3248	3232	17	13	177.29	344	-36	952	928	23.79	40.010			
3500	3430	3342	3326	17	13	177.15	354	-39	985	960	24.51	40.184			
3600	3527	3437	3419	18	13	177.03	364	-43	1018	993	25.23	40.349			
3700	3625	3531	3513	18	14	176.92	374	-46	1051	1025	25.95	40.503			
3800	3722	3625	3607	19	14	176.81	384	-49	1084	1058	26.68	40.649			
3900	3819	3720	3701	19	15	176.71	393	-53	1118	1090	27.40	40.787			
4000	3917	3814	3794	20	15	176.61	403	-56	1151	1123	28.12	40.918			
4100	4014	3908	3888	20	15	176.52	413	-60	1184	1155	28.85	41.042			
4200	4111	4002	3982	21	16	176.43	423	-63	1217	1188	29.57	41.159			
4300	4209	4097	4076	22	16	176.35	433	-66	1250	1220	30.30	41.271			
4400	4306	5803	5118	22	26	-144.25	-136	629	1249	1213	36.09	34.607			
4472	4376	5814	5118	23	26	-143.67	-143	637	1214	1177	37.72	32.197			
4500	4403	5818	5118	23	26	-151.41	-146	639	1202	1164	38.33	31.351			
4550	4452	5821	5118	23	26	-170.89	-148	642	1181	1141	39.38	29.976			
4600	4502	5821	5118	23	26	166.52	-148	642	1161	1121	40.33	28.787			
4650	4551	5816	5118	23	26	148.17	-145	638	1144	1102	41.16	27.781			

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

# Anticollision Report

<b>Company:</b>	DJR Operating	<b>Local Co-ordinate Reference:</b>	Well NAU 332H
<b>Project:</b>	North Alamito Unit	<b>TVD Reference:</b>	RKB @ 6993ft (RIG TBD)
<b>Reference Site:</b>	J31 2307	<b>MD Reference:</b>	RKB @ 6993ft (RIG TBD)
<b>Site Error:</b>	0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	NAU 332H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Original drilling	<b>Database:</b>	EDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	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 Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)					
4700	4599	5808	5118	24	26	135.95	-139	632	1128	1086	41.86	26.953			
4750	4647	5796	5118	24	26	127.98	-131	624	1115	1073	42.41	26.292			
4800	4693	5780	5118	24	25	122.46	-121	612	1104	1062	42.82	25.788			
4850	4739	5761	5118	24	25	118.28	-107	598	1096	1053	43.08	25.439			
4900	4782	5738	5118	24	25	114.87	-92	581	1090	1046	43.18	25.233			
4950	4824	5711	5118	24	24	111.89	-74	561	1085	1042	43.14	25.160			
5000	4863	5682	5118	24	24	109.17	-54	540	1083	1040	42.98	25.196			
5050	4900	5649	5118	24	23	106.62	-31	516	1082	1039	42.72	25.328			
5053	4902	5647	5118	24	23	106.49	-30	514	1082	1039	42.71	25.337			
5100	4935	5613	5118	24	23	104.21	-7	490	1083	1040	42.38	25.547			
5150	4966	5575	5118	24	22	101.92	19	461	1084	1042	42.01	25.813			
5200	4995	5534	5118	23	22	99.79	47	432	1087	1045	41.62	26.113			
5250	5020	5487	5118	23	21	97.69	79	397	1090	1049	41.17	26.467			
5300	5042	5431	5114	23	21	95.52	116	356	1093	1052	40.72	26.833			
5350	5060	5379	5105	23	20	93.53	151	318	1095	1055	40.40	27.109			
5400	5075	5329	5094	23	20	91.72	184	282	1098	1057	40.21	27.293			
5450	5085	5281	5079	23	19	90.06	214	248	1100	1060	40.15	27.390			
5500	5093	5234	5061	23	19	88.56	243	216	1102	1061	40.20	27.405			
5550	5096	5190	5041	23	19	87.21	269	186	1103	1063	40.34	27.349			
5567	5096	5175	5034	23	19	86.78	278	176	1104	1063	40.41	27.313			
5600	5096	5148	5020	23	19	86.05	293	158	1105	1064	40.56	27.235			
5700	5096	5072	4976	24	18	83.78	333	112	1110	1068	41.23	26.916			
5800	5096	5009	4934	25	18	81.61	363	75	1119	1077	42.06	26.599			
5900	5096	4950	4891	27	18	79.41	389	45	1133	1090	42.94	26.386			
6000	5096	4912	4861	29	18	77.88	404	26	1153	1109	43.89	26.270			
6100	5096	4874	4830	31	18	76.35	417	9	1179	1134	44.78	26.336			
6200	5096	4850	4809	33	18	75.34	425	-1	1212	1166	45.63	26.551			
6300	5096	4815	4779	35	18	73.86	435	-14	1250	1203	46.31	26.986			
6400	5096	4800	4766	37	18	73.19	440	-20	1294	1247	46.98	27.536			
6500	5096	4772	4740	39	18	71.96	447	-30	1343	1296	47.47	28.293			
6600	5096	4750	4720	41	18	71.00	452	-37	1397	1349	47.88	29.180			
6700	5096	4750	4720	43	18	71.00	452	-37	1456	1407	48.32	30.128			
6800	5096	4725	4696	45	18	69.88	457	-44	1518	1470	48.53	31.283			
6900	5096	4700	4673	48	18	68.79	461	-51	1584	1536	48.68	32.550			
7000	5096	4700	4673	50	18	68.79	461	-51	1654	1605	48.90	33.815			
7100	5096	4700	4673	52	18	68.79	461	-51	1726	1677	49.07	35.171			
7200	5096	4682	4656	55	18	68.00	464	-55	1800	1751	49.10	36.666			
7300	5096	4674	4648	57	18	67.63	465	-57	1877	1828	49.15	38.192			
7400	5096	4650	4625	59	18	66.58	468	-62	1956	1907	49.10	39.845			
7500	5096	4650	4625	62	18	66.58	468	-62	2037	1988	49.14	41.447			
7600	5096	4650	4625	64	18	66.58	468	-62	2119	2070	49.17	43.098			
7700	5096	4650	4625	66	18	66.58	468	-62	2203	2153	49.17	44.792			
7800	5096	4650	4625	69	18	66.58	468	-62	2288	2238	49.17	46.525			
7900	5096	4650	4625	71	18	66.58	468	-62	2374	2324	49.15	48.291			
8000	5096	4650	4625	74	18	66.58	468	-62	2461	2412	49.13	50.088			
8100	5096	4628	4603	76	18	65.61	471	-66	2548	2499	49.02	51.991			
8200	5096	4624	4599	78	18	65.43	471	-67	2637	2588	48.97	53.851			
8300	5096	4620	4596	81	18	65.26	471	-67	2727	2678	48.93	55.731			
8400	5096	4600	4576	83	18	64.39	473	-71	2817	2768	48.82	57.707			
8500	5096	4600	4576	86	18	64.39	473	-71	2908	2859	48.79	59.605			
8600	5096	4600	4576	88	18	64.39	473	-71	2999	2951	48.75	61.518			
8700	5096	4600	4576	91	18	64.39	473	-71	3091	3042	48.72	63.446			

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



# Anticollision Report

<b>Company:</b>	DJR Operating	<b>Local Co-ordinate Reference:</b>	Well NAU 332H
<b>Project:</b>	North Alamito Unit	<b>TVD Reference:</b>	RKB @ 6993ft (RIG TBD)
<b>Reference Site:</b>	J31 2307	<b>MD Reference:</b>	RKB @ 6993ft (RIG TBD)
<b>Site Error:</b>	0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	NAU 332H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Original drilling	<b>Database:</b>	EDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	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		
8800	5096	4600	4576	93	18	64.39	473	-71	3183	3135	48.69	65.387		
8900	5096	4600	4576	96	18	64.39	473	-71	3276	3228	48.65	67.339		
9000	5096	4600	4576	98	18	64.39	473	-71	3369	3321	48.62	69.301		
9100	5096	4600	4576	101	18	64.39	473	-71	3463	3414	48.59	71.272		
9200	5096	4600	4576	103	18	64.39	473	-71	3557	3508	48.56	73.251		
9300	5096	4600	4576	106	18	64.39	473	-71	3651	3603	48.53	75.237		
9400	5096	4600	4576	108	18	64.39	473	-71	3746	3697	48.50	77.229		
9500	5096	4600	4576	111	18	64.39	473	-71	3841	3792	48.48	79.227		
9600	5096	4600	4576	113	18	64.39	473	-71	3936	3887	48.45	81.229		
9700	5096	4600	4576	115	18	64.39	473	-71	4031	3983	48.43	83.236		
9800	5096	4600	4576	118	18	64.39	473	-71	4127	4078	48.41	85.246		
9900	5096	4600	4576	120	18	64.39	473	-71	4222	4174	48.39	87.259		
10,000	5096	4600	4576	123	18	64.39	473	-71	4318	4270	48.37	89.275		
10,100	5096	4578	4554	125	18	63.43	474	-73	4414	4366	48.29	91.401		
10,200	5096	4576	4553	128	18	63.37	474	-74	4510	4462	48.28	93.428		
10,300	5096	4575	4551	130	18	63.31	474	-74	4607	4558	48.26	95.456		
10,400	5096	4574	4550	133	18	63.25	474	-74	4703	4655	48.25	97.484		
10,500	5096	4572	4549	135	18	63.19	474	-74	4800	4752	48.23	99.513		
10,600	5096	4550	4526	138	18	62.24	475	-76	4897	4849	48.16	101.676		
10,700	5096	4550	4526	140	18	62.24	475	-76	4994	4946	48.16	103.698		
10,800	5096	4550	4526	143	18	62.24	475	-76	5091	5043	48.16	105.719		
10,900	5096	4550	4526	145	18	62.24	475	-76	5188	5140	48.15	107.740		
11,000	5096	4550	4526	148	18	62.24	475	-76	5285	5237	48.15	109.760		
11,100	5096	4550	4526	150	18	62.24	475	-76	5383	5335	48.16	111.779		
11,200	5096	4550	4526	153	18	62.24	475	-76	5480	5432	48.16	113.796		
11,300	5096	4550	4526	155	18	62.24	475	-76	5578	5530	48.16	115.812		
11,400	5096	4550	4526	158	18	62.24	475	-76	5675	5627	48.17	117.826		
11,500	5096	4550	4526	161	18	62.24	475	-76	5773	5725	48.17	119.838		
11,600	5096	4550	4526	163	18	62.24	475	-76	5871	5823	48.18	121.848		
11,700	5096	4550	4526	166	18	62.24	475	-76	5969	5920	48.19	123.855		
11,800	5096	4550	4526	168	18	62.24	475	-76	6066	6018	48.20	125.859		
11,900	5096	4550	4526	171	18	62.24	475	-76	6164	6116	48.21	127.861		
12,000	5096	4550	4526	173	18	62.24	475	-76	6263	6214	48.22	129.860		
12,100	5096	4550	4526	176	18	62.24	475	-76	6361	6312	48.24	131.856		
12,200	5096	4550	4526	178	18	62.24	475	-76	6459	6411	48.25	133.849		
12,300	5096	4550	4526	181	18	62.24	475	-76	6557	6509	48.27	135.838		
12,400	5096	4550	4526	183	18	62.24	475	-76	6655	6607	48.29	137.824		
12,500	5096	4550	4526	186	18	62.24	475	-76	6754	6705	48.31	139.806		
12,600	5096	4550	4526	188	18	62.24	475	-76	6852	6804	48.33	141.784		
12,700	5096	4550	4526	191	18	62.24	475	-76	6950	6902	48.35	143.759		
12,800	5096	4550	4526	193	18	62.24	475	-76	7049	7000	48.37	145.729		
12,900	5096	4550	4526	196	18	62.24	475	-76	7147	7099	48.39	147.696		
13,000	5096	4550	4526	198	18	62.24	475	-76	7246	7197	48.42	149.658		
13,100	5096	4550	4526	201	18	62.24	475	-76	7344	7296	48.44	151.616		
13,200	5096	4550	4526	203	18	62.24	475	-76	7443	7395	48.47	153.569		
13,300	5096	4550	4526	206	18	62.24	475	-76	7542	7493	48.49	155.518		
13,400	5096	4550	4526	208	18	62.24	475	-76	7640	7592	48.52	157.462		
13,500	5096	4550	4526	211	18	62.24	475	-76	7739	7691	48.55	159.402		
13,600	5096	4550	4526	213	18	62.24	475	-76	7838	7789	48.58	161.337		
13,700	5096	4550	4526	216	18	62.24	475	-76	7937	7888	48.61	163.267		
13,800	5096	4550	4526	218	18	62.24	475	-76	8036	7987	48.64	165.192		
13,900	5096	4550	4526	221	18	62.24	475	-76	8134	8086	48.68	167.112		

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



# Anticollision Report

<b>Company:</b>	DJR Operating	<b>Local Co-ordinate Reference:</b>	Well NAU 332H
<b>Project:</b>	North Alamito Unit	<b>TVD Reference:</b>	RKB @ 6993ft (RIG TBD)
<b>Reference Site:</b>	J31 2307	<b>MD Reference:</b>	RKB @ 6993ft (RIG TBD)
<b>Site Error:</b>	0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	NAU 332H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Original drilling	<b>Database:</b>	EDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> 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 Toolface (°)	Distance		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	5096	4550	4526	223	18	62.24	475	-76	8233	8185	48.71	169.027		
14,100	5096	4550	4526	226	18	62.24	475	-76	8332	8283	48.74	170.937		
14,200	5096	4550	4526	228	18	62.24	475	-76	8431	8382	48.78	172.841		
14,300	5096	4550	4526	231	18	62.24	475	-76	8530	8481	48.82	174.741		
14,400	5096	4550	4526	233	18	62.24	475	-76	8629	8580	48.85	176.635		
14,500	5096	4550	4526	236	18	62.24	475	-76	8728	8679	48.89	178.523		
14,600	5096	4550	4526	239	18	62.24	475	-76	8827	8778	48.93	180.406		
14,700	5096	4550	4526	241	18	62.24	475	-76	8926	8877	48.97	182.284		
14,800	5096	4550	4526	244	18	62.24	475	-76	9025	8976	49.01	184.156		
14,900	5096	4550	4526	246	18	62.24	475	-76	9124	9075	49.05	186.022		
14,914	5096	4550	4526	246	18	62.24	475	-76	9138	9089	49.06	186.287		

# Anticollision Report

<b>Company:</b>	DJR Operating	<b>Local Co-ordinate Reference:</b>	Well NAU 332H
<b>Project:</b>	North Alamoito Unit	<b>TVD Reference:</b>	RKB @ 6993ft (RIG TBD)
<b>Reference Site:</b>	J31 2307	<b>MD Reference:</b>	RKB @ 6993ft (RIG TBD)
<b>Site Error:</b>	0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	NAU 332H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Original drilling	<b>Database:</b>	EDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	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			
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			
450	450	450	450	1	1	42.05	52	47	70	67	2.82	24.707 CC			
500	500	500	500	2	2	-139.32	52	47	70	67	3.17	22.083 ES			
600	600	600	600	2	2	-141.08	52	47	73	69	3.86	18.823			
700	700	700	700	2	2	-143.91	51	47	78	74	4.55	17.158			
800	799	800	800	3	3	-145.61	49	50	86	81	5.24	16.470			
900	898	899	899	3	3	-146.05	44	55	97	91	5.96	16.309			
1000	997	999	998	3	3	-145.57	38	62	110	104	6.69	16.483			
1100	1094	1098	1096	4	4	-144.47	28	73	126	119	7.47	16.868			
1115	1109	1113	1111	4	4	-144.27	27	75	129	121	7.59	16.932			
1200	1192	1197	1194	4	4	-143.29	18	85	143	135	8.29	17.296			
1300	1289	1295	1291	5	5	-142.37	7	97	161	152	9.13	17.611			
1400	1386	1394	1388	5	5	-141.63	-4	109	178	168	9.98	17.840			
1500	1484	1492	1485	6	5	-141.03	-14	121	196	185	10.86	18.011			
1600	1581	1591	1582	6	6	-140.52	-25	133	213	201	11.74	18.138			
1700	1678	1689	1679	7	6	-140.08	-36	145	230	218	12.64	18.235			
1800	1776	1787	1776	8	7	-139.71	-46	157	248	234	13.54	18.310			
1900	1873	1886	1873	8	7	-139.39	-57	169	265	251	14.45	18.367			
2000	1970	1984	1971	9	8	-139.11	-68	181	283	267	15.36	18.413			
2100	2068	2083	2068	9	8	-138.86	-78	193	300	284	16.28	18.448			
2200	2165	2181	2165	10	9	-138.64	-89	205	318	301	17.20	18.476			
2300	2262	2280	2262	10	9	-138.44	-100	217	335	317	18.12	18.498			
2400	2360	2378	2359	11	9	-138.26	-110	229	353	334	19.05	18.516			
2500	2457	2477	2456	11	10	-138.10	-121	241	370	350	19.98	18.530			
2600	2554	2575	2553	12	10	-137.95	-132	253	388	367	20.91	18.541			
2700	2652	2674	2651	13	11	-137.81	-143	265	405	383	21.85	18.549			
2800	2749	2772	2748	13	11	-137.69	-153	277	423	400	22.78	18.556			
2900	2846	2870	2845	14	12	-137.58	-164	289	440	417	23.72	18.562			
3000	2944	2969	2942	14	12	-137.47	-175	301	458	433	24.66	18.566			
3100	3041	3067	3039	15	13	-137.37	-185	313	475	450	25.60	18.569			
3200	3138	3166	3136	15	13	-137.28	-196	325	493	466	26.54	18.571			
3300	3235	3264	3233	16	14	-137.20	-207	337	510	483	27.48	18.572			
3400	3333	3363	3330	17	14	-137.12	-217	349	528	499	28.42	18.573			
3500	3430	3461	3428	17	15	-137.05	-228	361	545	516	29.36	18.573			
3600	3527	3560	3525	18	15	-136.98	-239	373	563	533	30.30	18.573			
3700	3625	3658	3622	18	15	-136.91	-249	385	580	549	31.25	18.573			
3800	3722	3756	3719	19	16	-136.85	-260	397	598	566	32.19	18.573			
3900	3819	3855	3816	19	16	-136.79	-271	410	615	582	33.14	18.572			
4000	3917	3953	3913	20	17	-136.74	-282	422	633	599	34.08	18.571			
4100	4014	4052	4010	20	17	-136.69	-292	434	650	615	35.03	18.570			
4200	4111	4150	4107	21	18	-136.64	-303	446	668	632	35.97	18.568			
4300	4209	4249	4205	22	18	-136.59	-314	458	685	649	36.92	18.567			
4400	4306	4347	4302	22	19	-136.55	-324	470	703	665	37.87	18.565			
4472	4376	4418	4372	23	19	-136.52	-332	478	716	677	38.55	18.564			
4500	4403	4447	4400	23	19	-146.14	-335	481	721	682	38.81	18.566			
4550	4452	4498	4451	23	19	-168.70	-338	485	729	690	39.21	18.603			
4600	4502	4550	4503	23	20	166.03	-338	485	738	699	39.51	18.685			
4650	4551	4601	4554	23	20	145.43	-335	481	747	707	39.73	18.807			

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



# Anticollision Report

<b>Company:</b>	DJR Operating	<b>Local Co-ordinate Reference:</b>	Well NAU 332H
<b>Project:</b>	North Alamito Unit	<b>TVD Reference:</b>	RKB @ 6993ft (RIG TBD)
<b>Reference Site:</b>	J31 2307	<b>MD Reference:</b>	RKB @ 6993ft (RIG TBD)
<b>Site Error:</b>	0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	NAU 332H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Original drilling	<b>Database:</b>	EDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	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 Toolface (°)	Distance		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)							
4700	4599	4653	4605	24	20	131.40	-329	475	756	716	39.87	18.960			
4750	4647	4704	4655	24	20	122.05	-321	466	765	725	39.95	19.139			
4800	4693	4756	4704	24	20	115.56	-310	454	773	733	39.98	19.339			
4850	4739	4808	4752	24	20	110.80	-297	439	781	741	39.95	19.556			
4900	4782	4860	4797	24	20	107.16	-280	421	789	749	39.90	19.783			
4950	4824	4912	4841	24	20	104.27	-262	400	797	757	39.82	20.012			
5000	4863	4964	4883	24	20	101.91	-241	376	804	764	39.74	20.234			
5050	4900	5016	4921	24	20	99.95	-218	350	811	771	39.68	20.437			
5100	4935	5068	4957	24	20	98.29	-193	322	817	778	39.65	20.610			
5150	4966	5120	4990	24	20	96.88	-166	292	823	783	39.69	20.739			
5200	4995	5172	5019	23	20	95.66	-137	260	828	789	39.80	20.813			
5250	5020	5224	5044	23	20	94.63	-107	226	833	793	40.01	20.820			
5300	5042	5276	5066	23	20	93.74	-75	190	837	797	40.34	20.753			
5350	5060	5328	5084	23	20	93.00	-43	154	841	800	40.79	20.607			
5400	5075	5380	5098	23	21	92.38	-10	117	843	802	41.37	20.385			
5450	5085	5432	5107	23	21	91.88	24	79	846	803	42.08	20.091			
5500	5093	5483	5113	23	22	91.50	58	40	847	804	42.92	19.736			
5550	5096	5535	5114	23	22	91.25	92	2	848	804	43.86	19.330			
5567	5096	5552	5114	23	22	91.22	104	-11	848	804	44.21	19.178			
5600	5096	5585	5114	23	23	91.22	126	-35	848	803	44.90	18.886			
5700	5096	5685	5114	24	24	91.22	192	-110	848	801	47.33	17.926			
5800	5096	5785	5114	25	25	91.22	259	-185	849	799	50.15	16.927			
5900	5096	5885	5114	27	27	91.21	325	-259	849	796	53.30	15.933			
6000	5096	5985	5114	29	29	91.21	392	-334	850	793	56.73	14.977			
6100	5096	6085	5114	31	30	91.21	458	-409	850	790	60.39	14.077			
6200	5096	6185	5114	33	32	91.21	525	-484	851	786	64.24	13.239			
6300	5096	6285	5114	35	34	91.21	591	-558	851	783	68.25	12.468			
6400	5096	6385	5114	37	36	91.21	658	-633	851	779	72.39	11.760			
6500	5096	6485	5114	39	39	91.21	724	-708	852	775	76.65	11.114			
6600	5096	6585	5114	41	41	91.21	791	-782	852	771	80.99	10.523			
6700	5096	6685	5114	43	43	91.21	857	-857	853	767	85.42	9.982			
6800	5096	6785	5114	45	45	91.21	924	-932	853	763	89.91	9.488			
6900	5096	6885	5114	48	47	91.21	990	-1006	854	759	94.46	9.036			
7000	5096	6985	5114	50	50	91.21	1057	-1081	854	755	99.06	8.621			
7100	5096	7085	5114	52	52	91.21	1123	-1156	854	751	103.70	8.239			
7200	5096	7185	5114	55	54	91.21	1190	-1230	855	746	108.38	7.887			
7300	5096	7285	5114	57	57	91.21	1256	-1305	855	742	113.10	7.562			
7400	5096	7385	5114	59	59	91.21	1323	-1380	856	738	117.84	7.261			
7500	5096	7484	5114	62	62	91.20	1389	-1454	856	733	122.61	6.982			
7600	5096	7584	5114	64	64	91.20	1456	-1529	857	729	127.40	6.723			
7700	5096	7684	5114	66	66	91.20	1522	-1604	857	725	132.21	6.482			
7800	5096	7784	5114	69	69	91.20	1589	-1678	857	720	137.04	6.256			
7900	5096	7884	5114	71	71	91.20	1655	-1753	858	716	141.88	6.046			
8000	5096	7984	5114	74	74	91.20	1722	-1828	858	711	146.74	5.848			
8100	5096	8084	5114	76	76	91.20	1788	-1902	859	707	151.62	5.663			
8200	5096	8184	5114	78	79	91.20	1855	-1977	859	703	156.50	5.489			
8300	5096	8284	5114	81	81	91.20	1921	-2052	859	698	161.40	5.325			
8400	5096	8384	5114	83	83	91.20	1988	-2127	860	694	166.30	5.171			
8500	5096	8484	5114	86	86	91.20	2054	-2201	860	689	171.22	5.025			
8600	5096	8584	5114	88	88	91.20	2121	-2276	861	685	176.14	4.887			
8700	5096	8684	5114	91	91	91.20	2187	-2351	861	680	181.07	4.756			
8800	5096	8784	5114	93	93	91.20	2254	-2425	862	676	186.01	4.632			

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

# Anticollision Report

<b>Company:</b>	DJR Operating	<b>Local Co-ordinate Reference:</b>	Well NAU 332H
<b>Project:</b>	North Alamito Unit	<b>TVD Reference:</b>	RKB @ 6993ft (RIG TBD)
<b>Reference Site:</b>	J31 2307	<b>MD Reference:</b>	RKB @ 6993ft (RIG TBD)
<b>Site Error:</b>	0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	NAU 332H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Original drilling	<b>Database:</b>	EDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	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									
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	5096	8884	5114	96	96	91.20	2320	-2500	862	671	190.96	4.514		
9000	5096	8984	5114	98	98	91.20	2387	-2575	862	667	195.91	4.402		
9100	5096	9084	5114	101	101	91.20	2453	-2649	863	662	200.87	4.296		
9200	5096	9184	5114	103	103	91.19	2520	-2724	863	658	205.83	4.194		
9300	5096	9284	5114	106	106	91.19	2586	-2799	864	653	210.79	4.098		
9400	5096	9384	5114	108	108	91.19	2653	-2873	864	648	215.76	4.005		
9500	5096	9484	5114	111	111	91.19	2719	-2948	865	644	220.74	3.917		
9600	5096	9584	5114	113	113	91.19	2786	-3023	865	639	225.72	3.832		
9700	5096	9684	5114	115	116	91.19	2852	-3097	865	635	230.70	3.751		
9800	5096	9784	5114	118	118	91.19	2919	-3172	866	630	235.69	3.674		
9900	5096	9884	5114	120	121	91.19	2985	-3247	866	626	240.68	3.600		
10,000	5096	9984	5114	123	123	91.19	3052	-3321	867	621	245.67	3.528		
10,100	5096	10,084	5114	125	126	91.19	3118	-3396	867	617	250.66	3.459		
10,200	5096	10,184	5114	128	128	91.19	3185	-3471	868	612	255.66	3.394		
10,300	5096	10,284	5114	130	131	91.19	3251	-3546	868	607	260.66	3.330		
10,400	5096	10,384	5114	133	133	91.19	3318	-3620	868	603	265.66	3.269		
10,500	5096	10,484	5114	135	136	91.19	3384	-3695	869	598	270.67	3.210		
10,600	5096	10,584	5114	138	138	91.19	3451	-3770	869	594	275.68	3.153		
10,700	5096	10,684	5114	140	141	91.19	3517	-3844	870	589	280.69	3.099		
10,800	5096	10,784	5114	143	143	91.19	3584	-3919	870	584	285.70	3.046		
10,900	5096	10,884	5114	145	146	91.18	3650	-3994	871	580	290.71	2.995		
11,000	5096	10,984	5114	148	148	91.18	3717	-4068	871	575	295.72	2.945		
11,100	5096	11,084	5114	150	151	91.18	3783	-4143	871	571	300.74	2.898		
11,200	5096	11,184	5114	153	153	91.18	3849	-4218	872	566	305.76	2.851		
11,300	5096	11,284	5114	155	156	91.18	3916	-4292	872	562	310.78	2.807		
11,400	5096	11,384	5114	158	158	91.18	3982	-4367	873	557	315.80	2.764		
11,500	5096	11,484	5114	161	161	91.18	4049	-4442	873	552	320.82	2.722		
11,600	5096	11,584	5114	163	163	91.18	4115	-4516	874	548	325.84	2.681		
11,700	5096	11,684	5114	166	166	91.18	4182	-4591	874	543	330.87	2.642		
11,800	5096	11,784	5114	168	168	91.18	4248	-4666	874	539	335.89	2.603		
11,900	5096	11,884	5114	171	171	91.18	4315	-4740	875	534	340.92	2.566		
12,000	5096	11,984	5114	173	173	91.18	4381	-4815	875	529	345.94	2.530		
12,100	5096	12,084	5114	176	176	91.18	4448	-4890	876	525	350.97	2.495		
12,200	5096	12,184	5114	178	178	91.18	4514	-4965	876	520	356.00	2.461		
12,300	5096	12,284	5114	181	181	91.18	4581	-5039	877	516	361.03	2.428		
12,400	5096	12,384	5114	183	183	91.18	4647	-5114	877	511	366.06	2.396		
12,500	5096	12,484	5114	186	186	91.18	4714	-5189	877	506	371.10	2.364		
12,600	5096	12,584	5114	188	188	91.17	4780	-5263	878	502	376.13	2.334		
12,700	5096	12,684	5114	191	191	91.17	4847	-5338	878	497	381.16	2.304		
12,800	5096	12,784	5114	193	193	91.17	4913	-5413	879	492	386.20	2.275		
12,900	5096	12,884	5114	196	196	91.17	4980	-5487	879	488	391.23	2.247		
13,000	5096	12,984	5114	198	198	91.17	5046	-5562	880	483	396.27	2.220		
13,100	5096	13,084	5114	201	201	91.17	5113	-5637	880	479	401.31	2.193		
13,200	5096	13,184	5114	203	203	91.17	5179	-5711	880	474	406.34	2.167		
13,300	5096	13,284	5114	206	206	91.17	5246	-5786	881	469	411.38	2.141		
13,400	5096	13,384	5114	208	208	91.17	5312	-5861	881	465	416.42	2.116		
13,500	5096	13,484	5114	211	211	91.17	5379	-5935	882	460	421.46	2.092		
13,600	5096	13,584	5114	213	213	91.17	5445	-6010	882	456	426.50	2.068		
13,700	5096	13,684	5114	216	216	91.17	5512	-6085	883	451	431.54	2.045		
13,800	5096	13,784	5114	218	219	91.17	5578	-6159	883	446	436.58	2.022		
13,900	5096	13,884	5114	221	221	91.17	5645	-6234	883	442	441.62	2.000		
14,000	5096	13,984	5114	223	224	91.17	5711	-6309	884	437	446.66	1.979		

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



# Anticollision Report

<b>Company:</b>	DJR Operating	<b>Local Co-ordinate Reference:</b>	Well NAU 332H
<b>Project:</b>	North Alamito Unit	<b>TVD Reference:</b>	RKB @ 6993ft (RIG TBD)
<b>Reference Site:</b>	J31 2307	<b>MD Reference:</b>	RKB @ 6993ft (RIG TBD)
<b>Site Error:</b>	0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	NAU 332H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Original drilling	<b>Database:</b>	EDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> 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	5096	14,084	5114	226	226	91.17	5778	-6384	884	433	451.70	1.958		
14,200	5096	14,184	5114	228	229	91.17	5844	-6458	885	428	456.75	1.937		
14,300	5096	14,284	5114	231	231	91.17	5911	-6533	885	423	461.79	1.917		
14,400	5096	14,384	5114	233	234	91.16	5977	-6608	885	419	466.83	1.897		
14,500	5096	14,484	5114	236	236	91.16	6044	-6682	886	414	471.88	1.877		
14,600	5096	14,584	5114	239	239	91.16	6110	-6757	886	409	476.92	1.858		
14,700	5096	14,684	5114	241	241	91.16	6177	-6832	887	405	481.97	1.840		
14,800	5096	14,784	5114	244	244	91.16	6243	-6906	887	400	487.01	1.822		
14,900	5096	14,884	5114	246	246	91.16	6310	-6981	888	396	492.06	1.804		
14,914	5096	14,899	5114	246	247	91.16	6319	-6992	888	395	492.77	1.801 SF		

# Anticollision Report

<b>Company:</b>	DJR Operating	<b>Local Co-ordinate Reference:</b>	Well NAU 332H
<b>Project:</b>	North Alamito Unit	<b>TVD Reference:</b>	RKB @ 6993ft (RIG TBD)
<b>Reference Site:</b>	J31 2307	<b>MD Reference:</b>	RKB @ 6993ft (RIG TBD)
<b>Site Error:</b>	0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	NAU 332H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Original drilling	<b>Database:</b>	EDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design J31 2307 - NAU 559H - 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 Centre +N/-S (ft)	+E/-W (ft)							
0	0	0	0	0	0	41.66	15	13	20						
100	100	100	100	0	0	41.66	15	13	20	20	0.31	64.802			
200	200	200	200	1	1	41.66	15	13	20	19	1.03	19.486			
300	300	300	300	1	1	41.66	15	13	20	18	1.74	11.467			
400	400	400	400	1	1	41.66	15	13	20	18	2.46	8.124 CC			
450	450	450	450	1	1	42.40	15	14	20	18	2.81	7.222 ES			
500	500	499	499	2	2	-137.44	15	15	22	19	3.16	6.867			
600	600	598	598	2	2	-136.07	16	20	29	25	3.84	7.419			
700	700	697	696	2	2	-135.92	18	28	41	36	4.54	8.954			
800	799	794	793	3	3	-136.22	20	40	58	53	5.26	11.060			
900	898	889	887	3	3	-136.56	23	54	81	75	5.98	13.503			
1000	997	983	979	3	3	-136.82	26	71	108	102	6.72	16.139			
1100	1094	1074	1068	4	4	-136.96	30	91	141	134	7.48	18.873			
1115	1109	1087	1081	4	4	-136.98	31	94	146	139	7.59	19.271			
1200	1192	1163	1154	4	4	-137.18	34	113	178	169	8.24	21.562			
1300	1289	1251	1238	5	5	-136.92	39	136	216	207	9.00	24.043			
1400	1386	1337	1320	5	5	-136.36	44	162	258	248	9.78	26.345			
1500	1484	1427	1406	6	6	-135.79	49	191	300	289	10.63	28.187			
1600	1581	1518	1492	6	7	-135.36	55	219	342	330	11.49	29.725			
1700	1678	1609	1578	7	7	-135.02	60	247	384	371	12.37	31.022			
1800	1776	1699	1664	8	8	-134.75	66	276	426	412	13.25	32.127			
1900	1873	1790	1750	8	8	-134.53	72	304	468	454	14.14	33.078			
2000	1970	1881	1836	9	9	-134.34	77	332	510	495	15.04	33.904			
2100	2068	1972	1922	9	10	-134.19	83	361	552	536	15.94	34.627			
2200	2165	2062	2008	10	10	-134.05	88	389	594	577	16.84	35.265			
2300	2262	2153	2094	10	11	-133.94	94	417	636	618	17.75	35.831			
2400	2360	2244	2180	11	12	-133.83	99	446	678	659	18.66	36.337			
2500	2457	2334	2266	11	12	-133.74	105	474	720	701	19.58	36.791			
2600	2554	2425	2352	12	13	-133.66	110	503	762	742	20.49	37.201			
2700	2652	2516	2438	13	14	-133.59	116	531	804	783	21.41	37.572			
2800	2749	2607	2524	13	14	-133.53	121	559	846	824	22.33	37.910			
2900	2846	2697	2610	14	15	-133.47	127	588	889	865	23.25	38.219			
3000	2944	2788	2696	14	15	-133.42	132	616	931	906	24.17	38.503			
3100	3041	2879	2782	15	16	-133.37	138	644	973	948	25.09	38.763			
3200	3138	2969	2868	15	17	-133.32	143	673	1015	989	26.02	39.004			
3300	3235	3060	2954	16	17	-133.28	149	701	1057	1030	26.94	39.227			
3400	3333	3151	3040	17	18	-133.24	154	729	1099	1071	27.87	39.433			
3500	3430	3242	3126	17	19	-133.21	160	758	1141	1112	28.80	39.626			
3600	3527	3332	3212	18	19	-133.17	165	786	1183	1153	29.72	39.805			
3700	3625	3423	3298	18	20	-133.14	171	815	1225	1195	30.65	39.973			
3800	3722	3514	3384	19	21	-133.12	176	843	1267	1236	31.58	40.129			
3900	3819	3604	3470	19	21	-133.09	182	871	1309	1277	32.51	40.277			
4000	3917	3695	3556	20	22	-133.06	187	900	1352	1318	33.44	40.415			
4100	4014	3786	3642	20	23	-133.04	193	928	1394	1359	34.37	40.545			
4200	4111	3876	3728	21	23	-133.02	198	956	1436	1400	35.30	40.668			
4300	4209	3967	3814	22	24	-133.00	204	985	1478	1442	36.23	40.784			
4400	4306	4058	3900	22	25	-132.98	209	1013	1520	1483	37.17	40.894			
4472	4376	4123	3962	23	25	-132.97	213	1034	1550	1512	37.84	40.970			
4500	4403	4149	3986	23	25	-143.29	215	1041	1562	1524	38.09	41.008			
4550	4452	4194	4028	23	26	-167.03	218	1055	1584	1545	38.50	41.128			
4600	4502	4238	4070	23	26	166.64	220	1069	1605	1566	38.86	41.312			
4650	4551	4281	4111	23	26	145.08	223	1083	1627	1588	39.16	41.558			

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



# Anticollision Report

<b>Company:</b>	DJR Operating	<b>Local Co-ordinate Reference:</b>	Well NAU 332H
<b>Project:</b>	North Alamito Unit	<b>TVD Reference:</b>	RKB @ 6993ft (RIG TBD)
<b>Reference Site:</b>	J31 2307	<b>MD Reference:</b>	RKB @ 6993ft (RIG TBD)
<b>Site Error:</b>	0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	NAU 332H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Original drilling	<b>Database:</b>	EDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design J31 2307 - NAU 559H - 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 (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)					
4700	4599	4323	4151	24	27	130.18	226	1096	1649	1610	39.40	41.860			
4750	4647	4364	4190	24	27	120.03	228	1109	1672	1632	39.60	42.217			
4800	4693	4403	4227	24	27	112.79	230	1121	1694	1654	39.74	42.625			
4850	4739	4440	4262	24	27	107.32	233	1132	1717	1677	39.84	43.084			
4900	4782	4475	4295	24	28	102.96	235	1143	1739	1699	39.90	43.590			
4950	4824	4507	4325	24	28	99.34	237	1153	1762	1722	39.91	44.139			
5000	4863	4537	4354	24	28	96.20	239	1163	1784	1744	39.89	44.727			
5050	4900	4564	4379	24	28	93.40	240	1171	1807	1767	39.85	45.348			
5100	4935	4588	4402	24	28	90.82	242	1179	1830	1790	39.78	45.995			
5150	4966	4649	4461	24	29	89.60	247	1196	1852	1812	40.06	46.242			
5200	4995	4735	4544	23	29	89.25	262	1213	1874	1834	40.47	46.321			
5250	5020	4833	4637	23	30	89.25	288	1221	1895	1854	40.84	46.399			
5300	5042	5084	4861	23	30	92.35	394	1190	1913	1872	41.60	46.000			
5350	5060	5460	5090	23	30	94.19	627	1017	1926	1883	42.72	45.079			
5400	5075	5735	5139	23	29	92.51	814	824	1930	1885	44.98	42.899			
5450	5085	5784	5139	23	29	91.88	846	787	1931	1885	45.77	42.192			
5500	5093	5833	5139	23	29	91.47	879	750	1932	1885	46.70	41.373			
5550	5096	5883	5139	23	29	91.28	911	713	1932	1885	47.70	40.515			
5567	5096	5900	5139	23	29	91.28	923	700	1932	1884	48.04	40.222			
5600	5096	5933	5139	23	28	91.28	944	675	1932	1883	48.84	39.561			
5700	5096	6033	5139	24	28	91.28	1010	600	1932	1881	51.43	37.562			
5800	5096	6133	5139	25	29	91.28	1076	525	1932	1878	54.17	35.662			
5900	5096	6233	5139	27	31	91.28	1142	449	1931	1874	57.39	33.656			
6000	5096	6333	5139	29	33	91.28	1208	374	1931	1870	60.84	31.738			
6100	5096	6433	5139	31	35	91.28	1274	299	1931	1866	64.51	29.928			
6200	5096	6533	5139	33	37	91.28	1340	224	1930	1862	68.36	28.240			
6300	5096	6633	5139	35	39	91.28	1406	149	1930	1858	72.36	26.675			
6400	5096	6733	5139	37	41	91.28	1472	74	1930	1853	76.48	25.232			
6500	5096	6833	5139	39	43	91.28	1538	-2	1930	1849	80.72	23.906			
6600	5096	6933	5139	41	45	91.28	1604	-77	1929	1844	85.04	22.687			
6700	5096	7033	5139	43	48	91.28	1670	-152	1929	1840	89.44	21.567			
6800	5096	7133	5139	45	50	91.28	1736	-227	1929	1835	93.91	20.537			
6900	5096	7233	5139	48	52	91.28	1802	-302	1928	1830	98.44	19.590			
7000	5096	7333	5139	50	54	91.28	1868	-377	1928	1825	103.02	18.716			
7100	5096	7433	5139	52	57	91.28	1934	-453	1928	1820	107.64	17.910			
7200	5096	7533	5139	55	59	91.28	2000	-528	1927	1815	112.30	17.164			
7300	5096	7633	5139	57	61	91.28	2066	-603	1927	1810	116.99	16.473			
7400	5096	7733	5139	59	64	91.28	2132	-678	1927	1805	121.71	15.831			
7500	5096	7833	5139	62	66	91.28	2198	-753	1927	1800	126.46	15.234			
7600	5096	7933	5139	64	68	91.28	2264	-828	1926	1795	131.24	14.678			
7700	5096	8033	5139	66	71	91.28	2329	-904	1926	1790	136.03	14.158			
7800	5096	8133	5139	69	73	91.28	2395	-979	1926	1785	140.85	13.672			
7900	5096	8233	5139	71	76	91.28	2461	-1054	1925	1780	145.68	13.217			
8000	5096	8333	5139	74	78	91.28	2527	-1129	1925	1775	150.52	12.789			
8100	5096	8433	5139	76	80	91.28	2593	-1204	1925	1769	155.38	12.387			
8200	5096	8533	5139	78	83	91.28	2659	-1279	1924	1764	160.26	12.008			
8300	5096	8633	5139	81	85	91.28	2725	-1355	1924	1759	165.14	11.651			
8400	5096	8733	5139	83	88	91.28	2791	-1430	1924	1754	170.04	11.314			
8500	5096	8833	5139	86	90	91.28	2857	-1505	1924	1749	174.94	10.995			
8600	5096	8933	5139	88	93	91.28	2923	-1580	1923	1743	179.86	10.693			
8700	5096	9033	5139	91	95	91.28	2989	-1655	1923	1738	184.78	10.407			
8800	5096	9133	5139	93	97	91.28	3055	-1730	1923	1733	189.71	10.135			

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

# Anticollision Report

<b>Company:</b>	DJR Operating	<b>Local Co-ordinate Reference:</b>	Well NAU 332H
<b>Project:</b>	North Alamito Unit	<b>TVD Reference:</b>	RKB @ 6993ft (RIG TBD)
<b>Reference Site:</b>	J31 2307	<b>MD Reference:</b>	RKB @ 6993ft (RIG TBD)
<b>Site Error:</b>	0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	NAU 332H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Original drilling	<b>Database:</b>	EDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design J31 2307 - NAU 559H - Original drilling - APD														Offset Site Error:	0 ft
Survey Program: O-MWD+IGRF														Offset Well Error:	0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)					
8900	5096	9233	5139	96	100	91.28	3121	-1806	1922	1728	194.65	9.876			
9000	5096	9333	5139	98	102	91.28	3187	-1881	1922	1722	199.59	9.630			
9100	5096	9433	5139	101	105	91.28	3253	-1956	1922	1717	204.54	9.395			
9200	5096	9533	5139	103	107	91.28	3319	-2031	1921	1712	209.50	9.172			
9300	5096	9633	5139	106	110	91.28	3385	-2106	1921	1707	214.46	8.958			
9400	5096	9733	5139	108	112	91.28	3451	-2181	1921	1701	219.42	8.754			
9500	5096	9833	5139	111	115	91.28	3517	-2257	1921	1696	224.39	8.559			
9600	5096	9933	5139	113	117	91.28	3583	-2332	1920	1691	229.37	8.372			
9700	5096	10,033	5139	115	120	91.28	3649	-2407	1920	1686	234.35	8.193			
9800	5096	10,133	5139	118	122	91.28	3715	-2482	1920	1680	239.33	8.021			
9900	5096	10,233	5139	120	125	91.28	3780	-2557	1919	1675	244.31	7.856			
10,000	5096	10,333	5139	123	127	91.28	3846	-2632	1919	1670	249.30	7.698			
10,100	5096	10,433	5139	125	130	91.28	3912	-2708	1919	1664	254.29	7.545			
10,200	5096	10,533	5139	128	132	91.28	3978	-2783	1918	1659	259.29	7.399			
10,300	5096	10,633	5139	130	135	91.28	4044	-2858	1918	1654	264.29	7.258			
10,400	5096	10,733	5139	133	137	91.28	4110	-2933	1918	1649	269.29	7.122			
10,500	5096	10,833	5139	135	140	91.28	4176	-3008	1918	1643	274.29	6.991			
10,600	5096	10,933	5139	138	142	91.29	4242	-3083	1917	1638	279.29	6.865			
10,700	5096	11,033	5139	140	145	91.29	4308	-3159	1917	1633	284.30	6.743			
10,800	5096	11,133	5139	143	147	91.29	4374	-3234	1917	1627	289.31	6.625			
10,900	5096	11,233	5139	145	150	91.29	4440	-3309	1916	1622	294.32	6.511			
11,000	5096	11,333	5139	148	152	91.29	4506	-3384	1916	1617	299.34	6.401			
11,100	5096	11,433	5139	150	155	91.29	4572	-3459	1916	1611	304.35	6.294			
11,200	5096	11,533	5139	153	157	91.29	4638	-3534	1915	1606	309.37	6.191			
11,300	5096	11,633	5139	155	160	91.29	4704	-3610	1915	1601	314.38	6.092			
11,400	5096	11,733	5139	158	162	91.29	4770	-3685	1915	1595	319.40	5.995			
11,500	5096	11,833	5139	161	165	91.29	4836	-3760	1915	1590	324.43	5.901			
11,600	5096	11,933	5139	163	167	91.29	4902	-3835	1914	1585	329.45	5.810			
11,700	5096	12,033	5139	166	170	91.29	4968	-3910	1914	1579	334.47	5.722			
11,800	5096	12,133	5139	168	172	91.29	5034	-3985	1914	1574	339.50	5.637			
11,900	5096	12,233	5139	171	175	91.29	5100	-4061	1913	1569	344.52	5.554			
12,000	5096	12,333	5139	173	177	91.29	5166	-4136	1913	1563	349.55	5.473			
12,100	5096	12,433	5139	176	180	91.29	5231	-4211	1913	1558	354.58	5.394			
12,200	5096	12,533	5139	178	182	91.29	5297	-4286	1912	1553	359.61	5.318			
12,300	5096	12,633	5139	181	185	91.29	5363	-4361	1912	1547	364.64	5.244			
12,400	5096	12,733	5139	183	187	91.29	5429	-4436	1912	1542	369.67	5.172			
12,500	5096	12,833	5139	186	190	91.29	5495	-4512	1912	1537	374.71	5.101			
12,600	5096	12,933	5139	188	192	91.29	5561	-4587	1911	1531	379.74	5.033			
12,700	5096	13,033	5139	191	195	91.29	5627	-4662	1911	1526	384.77	4.966			
12,800	5096	13,133	5139	193	197	91.29	5693	-4737	1911	1521	389.81	4.901			
12,900	5096	13,233	5139	196	200	91.29	5759	-4812	1910	1515	394.85	4.838			
13,000	5096	13,333	5139	198	202	91.29	5825	-4887	1910	1510	399.88	4.776			
13,100	5096	13,433	5139	201	205	91.29	5891	-4963	1910	1505	404.92	4.716			
13,200	5096	13,533	5139	203	207	91.29	5957	-5038	1909	1499	409.96	4.658			
13,300	5096	13,633	5139	206	210	91.29	6023	-5113	1909	1494	415.00	4.600			
13,400	5096	13,733	5139	208	212	91.29	6089	-5188	1909	1489	420.04	4.544			
13,500	5096	13,833	5139	211	215	91.29	6155	-5263	1909	1483	425.08	4.490			
13,600	5096	13,933	5139	213	217	91.29	6221	-5338	1908	1478	430.12	4.436			
13,700	5096	14,033	5139	216	220	91.29	6287	-5414	1908	1473	435.16	4.384			
13,800	5096	14,133	5139	218	222	91.29	6353	-5489	1908	1467	440.20	4.333			
13,900	5096	14,233	5139	221	225	91.29	6419	-5564	1907	1462	445.25	4.284			
14,000	5096	14,333	5139	223	227	91.29	6485	-5639	1907	1457	450.29	4.235			

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



# Anticollision Report

<b>Company:</b>	DJR Operating	<b>Local Co-ordinate Reference:</b>	Well NAU 332H
<b>Project:</b>	North Alamito Unit	<b>TVD Reference:</b>	RKB @ 6993ft (RIG TBD)
<b>Reference Site:</b>	J31 2307	<b>MD Reference:</b>	RKB @ 6993ft (RIG TBD)
<b>Site Error:</b>	0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	NAU 332H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Original drilling	<b>Database:</b>	EDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

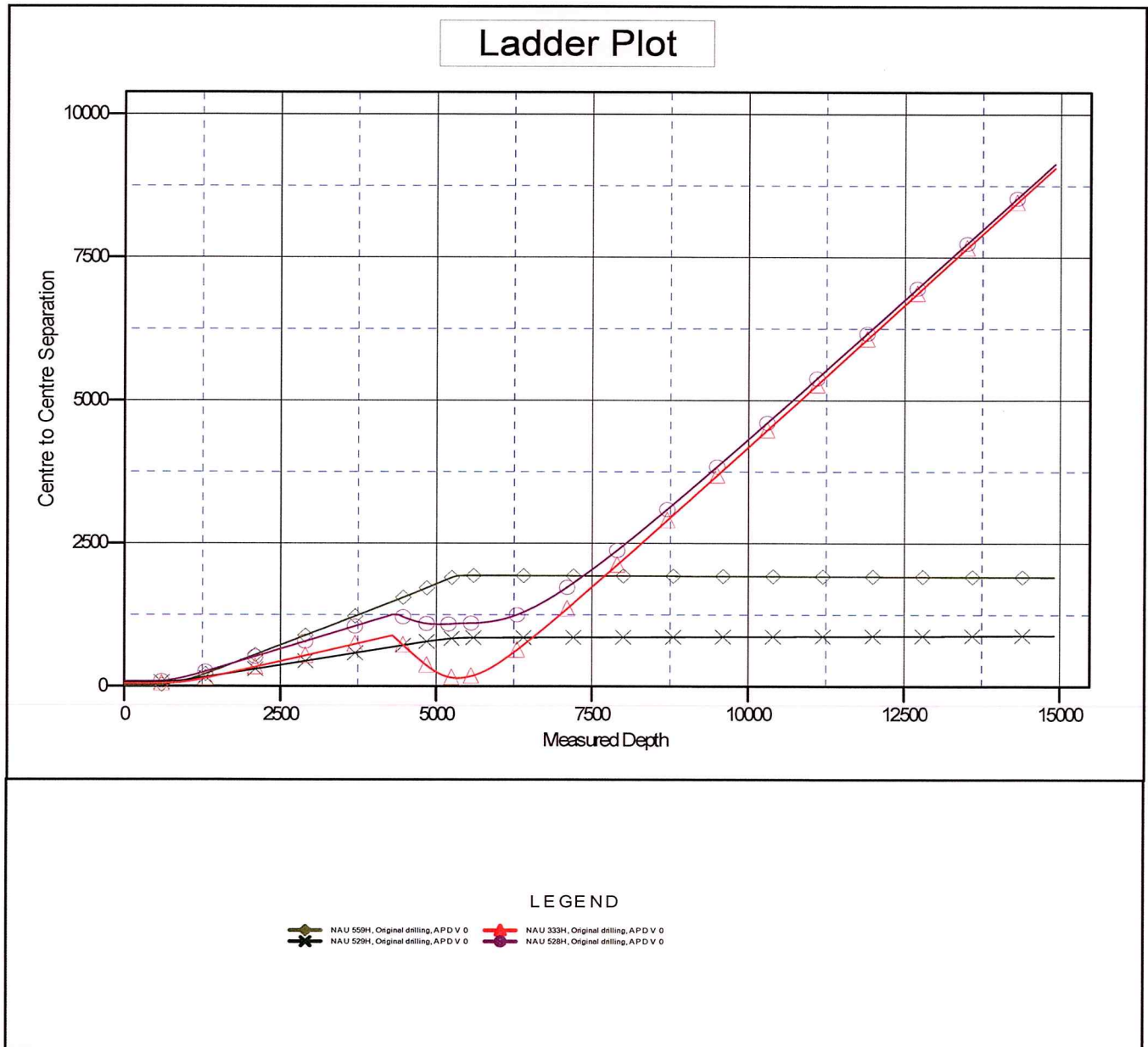
<b>Offset Design</b> J31 2307 - NAU 559H - Original drilling - APD													Offset Site Error:	0 ft
Survey Program: 0-MWD+IGRF													Offset Well Error:	0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Minimum Separation (ft)	Separation Factor	Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)						
14,100	5096	14,433	5139	226	230	91.29	6551	-5714	1907	1451	455.33	4.187		
14,200	5096	14,533	5139	228	232	91.29	6617	-5789	1906	1446	460.38	4.141		
14,300	5096	14,633	5139	231	235	91.29	6682	-5865	1906	1441	465.42	4.095		
14,400	5096	14,733	5139	233	238	91.29	6748	-5940	1906	1435	470.47	4.051		
14,500	5096	14,833	5139	236	240	91.29	6814	-6015	1905	1430	475.51	4.007		
14,600	5096	14,933	5139	239	243	91.29	6880	-6090	1905	1425	480.56	3.965		
14,700	5096	15,033	5139	241	245	91.29	6946	-6165	1905	1419	485.61	3.923		
14,800	5096	15,133	5139	244	248	91.29	7012	-6240	1905	1414	490.65	3.882		
14,900	5096	15,233	5139	246	250	91.29	7078	-6316	1904	1409	495.70	3.842		
14,914	5096	15,247	5139	246	250	91.29	7088	-6326	1904	1408	496.42	3.836 SF		

## Anticollision Report

<b>Company:</b>	DJR Operating	<b>Local Co-ordinate Reference:</b>	Well NAU 332H
<b>Project:</b>	North Alamito Unit	<b>TVD Reference:</b>	RKB @ 6993ft (RIG TBD)
<b>Reference Site:</b>	J31 2307	<b>MD Reference:</b>	RKB @ 6993ft (RIG TBD)
<b>Site Error:</b>	0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	NAU 332H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Original drilling	<b>Database:</b>	EDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	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 332H  
Coordinate System is US State Plane 1983, New Mexico Western Zone  
Grid Convergence at Surface is: 0.13°





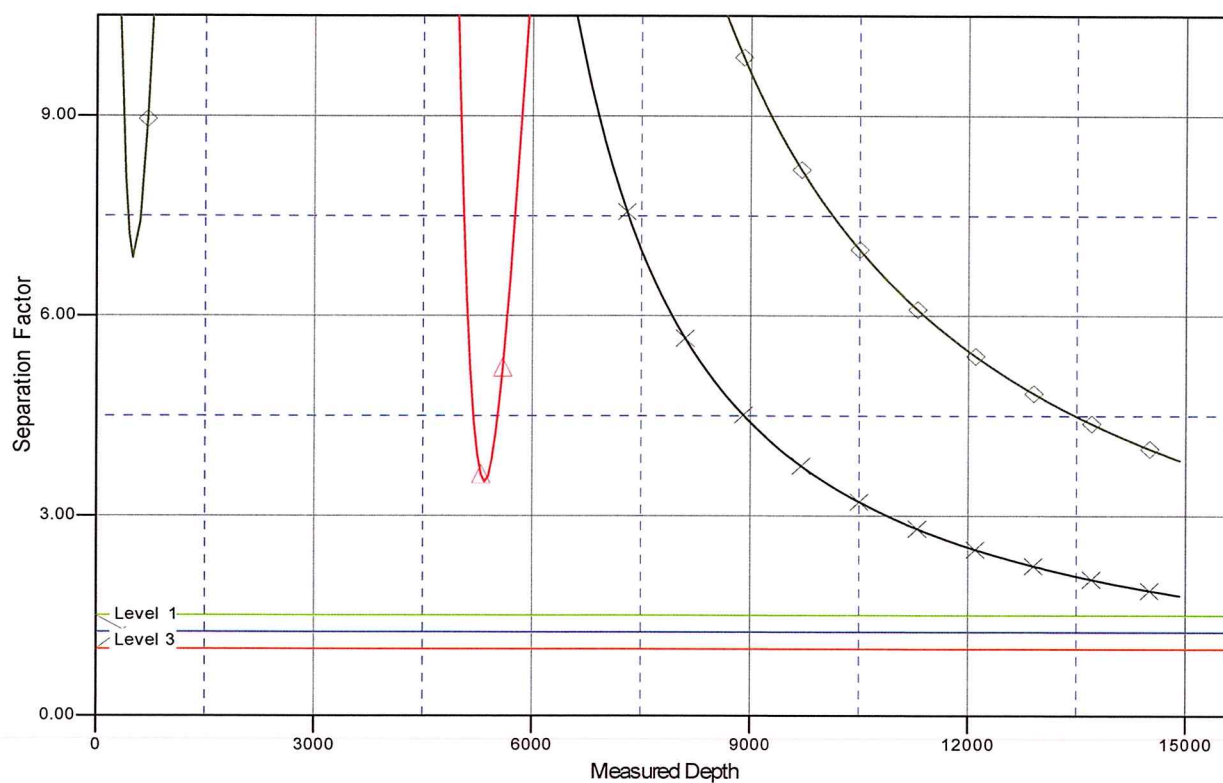
# Anticollision Report

<b>Company:</b>	DJR Operating	<b>Local Co-ordinate Reference:</b>	Well NAU 332H
<b>Project:</b>	North Alamo Unit	<b>TVD Reference:</b>	RKB @ 6993ft (RIG TBD)
<b>Reference Site:</b>	J31 2307	<b>MD Reference:</b>	RKB @ 6993ft (RIG TBD)
<b>Site Error:</b>	0 ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	NAU 332H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Original drilling	<b>Database:</b>	EDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	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 332H  
Coordinate System is US State Plane 1983, New Mexico Western Zone  
Grid Convergence at Surface is: 0.13°

## Separation Factor Plot

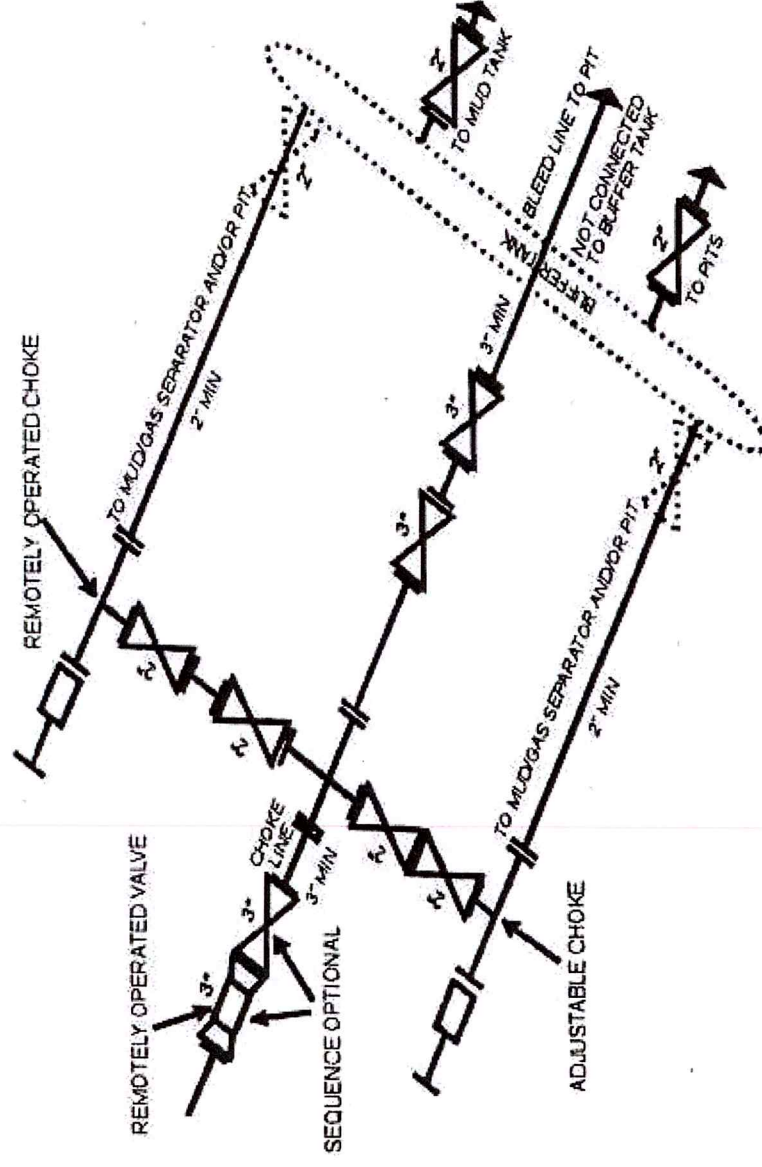


### LEGEND

NAU 559H, Original drilling, APD V 0  
 NAU 529H, Original drilling, APD V 0  
 NAU 333H, Original drilling, APD V 0  
 NAU 528H, Original drilling, APD V 0

# Choke Manifold

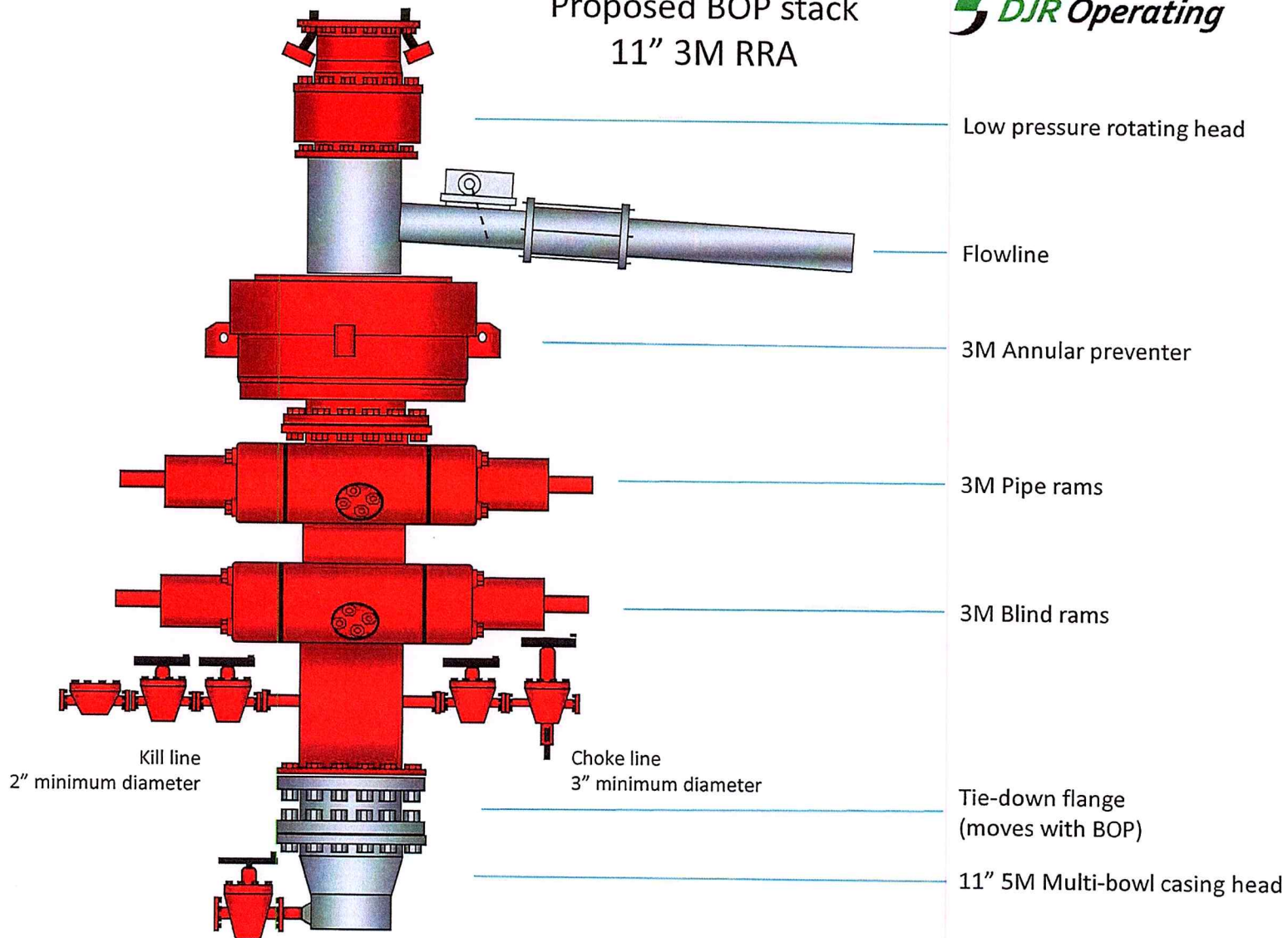
Actual system to conform with Onshore Order 2





# 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