

State of New Mexico
Energy, Minerals and Natural Resources Department

Michelle Lujan Grisham
Governor

Sarah Cottrell Propst
Cabinet Secretary

Todd E. Leahy, JD, PhD
Deputy Secretary

Adrienne Sandoval, Division Director
Oil Conservation Division



New Mexico Oil Conservation Division approval and conditions listed below are made in accordance with OCD Rule 19.15.7.11 and are in addition to the actions approved by BLM on the following 3160-5 form.

Operator Signature Date: **Original APD 4/24/2015**
Sundry Date 5/8/2019

WELL INFORMATION:
DJR OPERATING, LLC
30-043-21267 N ALAMITO UNIT #240H

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

- ✓ Notify Aztec OCD 24hrs prior to casing & cement.
- ✓ Hold C-104 for directional survey & "As Drilled" Plat
- ☐ Hold C-104 for NSL, NSP, DHC,
- ☐ 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 fresh water zone or zones and shall immediately set in cement the water protection string
- ✓ Submit Gas Capture Plan form prior to spudding or initiating recompletions operations.
- ✓ Regarding Hydraulic Fracturing, review EPA Underground Injection Control Guidance 84

• June 26, 2019

Page 2

- ✓ 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.
- ✓ Comply with current regulations at time of spud
Prior to production operator needs to be in compliance with RULE 19.15.5.9



NMOCD Approved by Signature

6/3/19
Date

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

RECEIVED

FORM APPROVED
OMB No. 1004-0137
Expires: October 31, 2014

SUNDRY NOTICES AND REPORTS ON WELLS
Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE – Other instructions on page 2.		5. Lease Serial No. NMNM 6681
1. Type of Well ☒ Oil Well ☐ Gas Well ☐ Other		6. If Indian, Allottee or Tribe Name N/A
2. Name of Operator DJR Operating LLC.		7. If Unit of CA/Agreement, Name and/or No. NMNM 135229X
3a. Address 1 Road 3263 Aztec, New Mexico 87410	3b. Phone No. (include area code) 505-632-3476	8. Well Name and No. North Alamito Unit #240H
4. Location of Well (Footage, Sec., T. R. M., or Survey Description) SHL: 429' FSL and 1293' FEL Section 30, T23N, R7W BHL: 334' FNL and 1210' FEL Section 25, T23N, R8W		9. API Well No. 30-043-21267
		10. Field and Pool or Exploratory Area North Alamito Unit Mancos Oil Pool
		11. County or Parish, State Sandoval County, NM

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Fracture Treat	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other SHL Change, BHL Change & New Drilling Plan
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.)

DJR Operating LLC. has an approved APD for the proposed well, North Alamito Unit 240H well (API 30-043-21267) which will be a part of the North Alamito Unit. DJR Operating is submitting this sundry to change the SHL (switched SHL between 238H & 240H), BHL and a New Drilling Plan.

Please find attached an updated C-102 package reflecting the SHL change, BHL change and a new drilling plan.

NMOCB

DISTRICT III

14. I hereby certify that the foregoing is true and correct. Name (Printed/Typed) Steven Merrell		Title Regulatory Specialist
Signature 		Date 05/08/2019

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by 	Petroleum Engineer Title	Date 23 May 2019
Conditions of approval, if any, are attached. Approval of this notice 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.	Office FFO	

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.

NMOCB

DISTRICT I

1885 N. French Dr., Hobbs, N.M. 88240
Phone: (505) 393-8181 Fax: (505) 393-0780

DISTRICT II

811 S. First St., Artesia, N.M. 88210
Phone: (505) 748-1888 Fax: (505) 748-9780

DISTRICT III

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

DISTRICT IV

1880 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 478-8480 Fax: (505) 478-8482

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

*API Number 30-043-21267		*Pool Code 98174	*Pool Name NORTH ALAMITO UNIT OIL POOL
*Property Code 325267	*Property Name NORTH ALAMITO UNIT		*Well Number 240H
*GRID No. 371838	*Operator Name DJR OPERATING, LLC		*Elevation 7029'

10 Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	30	23N	7W		429'	SOUTH	1293'	EAST	SANDOVAL

11 Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	25	23N	8W		334'	NORTH	1210'	EAST	SAN JUAN

*Dedicated Acres PENETRATED SPACING UNIT:
SEC 31: NE/NE & NW/NE (80 AC.); SEC 30: SE/SE
SW/SE, NW/SE, SE/SW, NE/SW, NW/SW, SE/NW,
SW/NW, NW/NW (362.02 AC.); SEC 25: NW/NE,
NE/NE, SE/NE (120 AC.) = 562.02 ACRES TOTAL

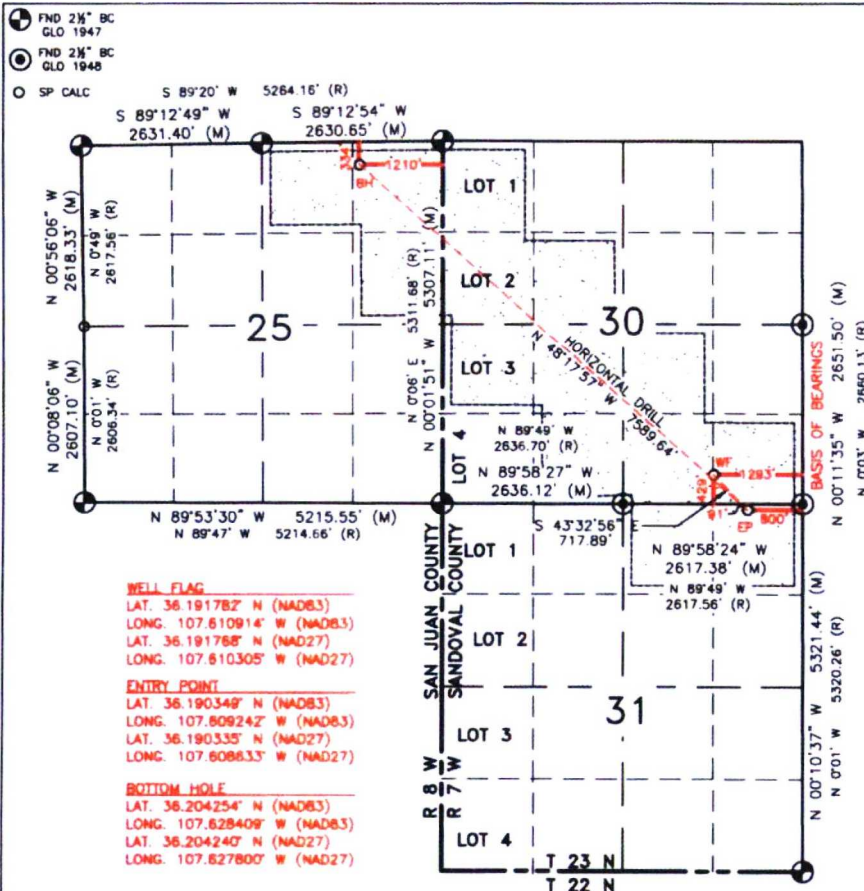
*Joint or Infill

*Consolidation Code

*Order No.

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

18



17 OPERATOR CERTIFICATION

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

Signature: *Steven Merrell* Date: 5/1/19

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

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.

FEBRUARY 14, 2017

Date of Survey
Signature and Seal of Professional Surveyor:



Certificate Number 11393

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State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION

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

Form C-102
Revised August 1, 2011

Submit one copy to appropriate
District Office

☐ AMENDED REPORT

DRJ OPERATING, LLC
NORTH ALAMITO UNIT #240H

N/4 CORNER SEC. 25

LAT. 36.205127° N (NAD83)
LONG. 107.633221° W (NAD83)
LAT. 36.205113° N (NAD27)
LONG. 107.632612° W (NAD27)

SE CORNER SEC. 25

LAT. 36.190632° N (NAD83)
LONG. 107.624334° W (NAD83)
LAT. 36.190618° N (NAD27)
LONG. 107.623725° W (NAD27)

E/4 CORNER SEC. 30

LAT. 36.197877° N (NAD83)
LONG. 107.606539° W (NAD83)
LAT. 36.197863° N (NAD27)
LONG. 107.605931° W (NAD27)

S/4 CORNER SEC. 30

LAT. 36.190612° N (NAD83)
LONG. 107.615400° W (NAD83)
LAT. 36.190598° N (NAD27)
LONG. 107.614791° W (NAD27)

NE CORNER SEC. 25

LAT. 36.205211° N (NAD83)
LONG. 107.624305° W (NAD83)
LAT. 36.205197° N (NAD27)
LONG. 107.623696° W (NAD27)

NW CORNER SEC. 25

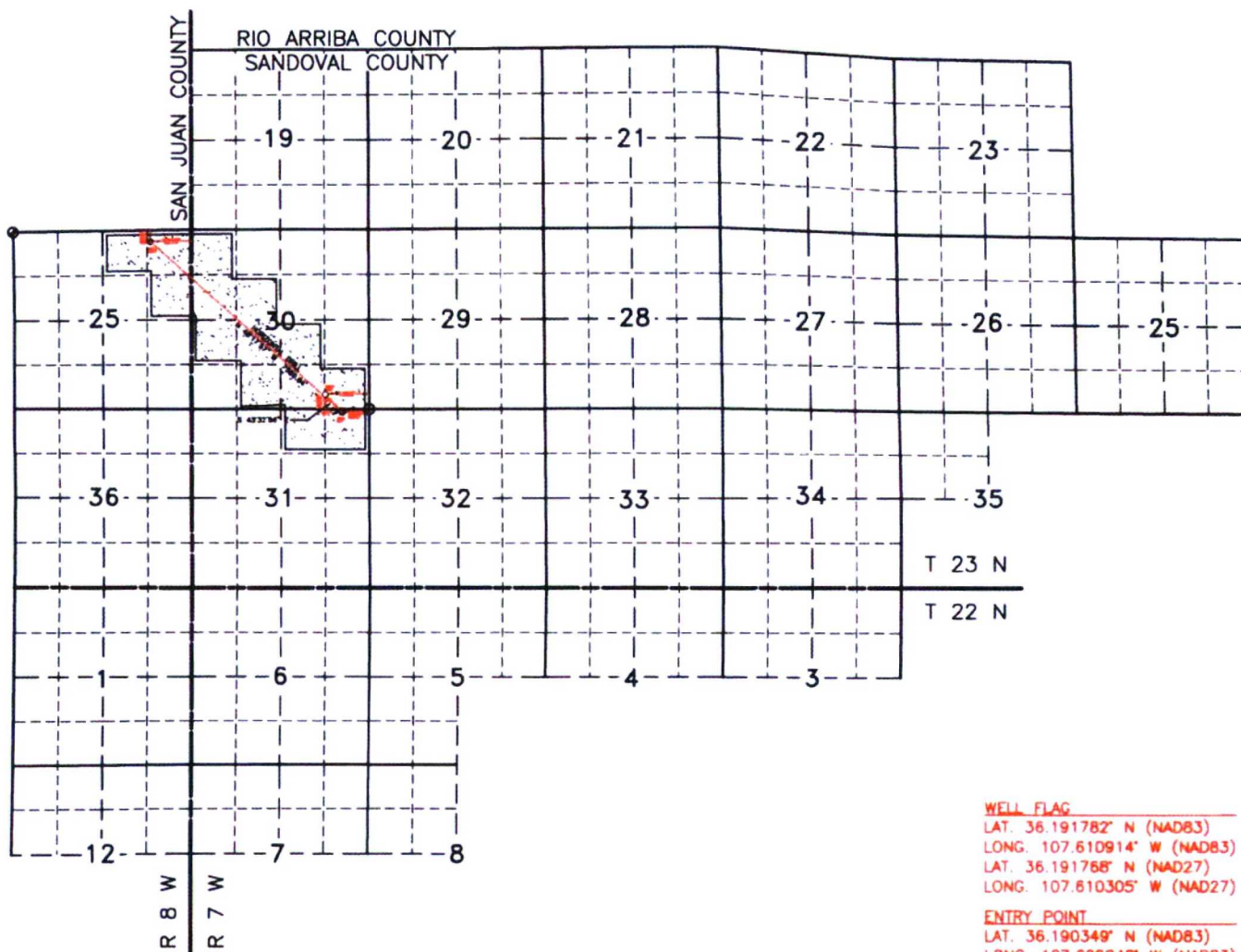
LAT. 36.205042° N (NAD83)
LONG. 107.642140° W (NAD83)
LAT. 36.205028° N (NAD27)
LONG. 107.641530° W (NAD27)

SE CORNER SEC. 30

LAT. 36.190593° N (NAD83)
LONG. 107.606530° W (NAD83)
LAT. 36.190579° N (NAD27)
LONG. 107.605922° W (NAD27)

SW CORNER SEC. 32

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

**WELL FLAG**

LAT. 36.191782° N (NAD83)
LONG. 107.610914° W (NAD83)
LAT. 36.191768° N (NAD27)
LONG. 107.610305° W (NAD27)

ENTRY POINT

LAT. 36.190349° N (NAD83)
LONG. 107.609242° W (NAD83)
LAT. 36.190335° N (NAD27)
LONG. 107.608633° W (NAD27)

BOTTOM HOLE

LAT. 36.204254° N (NAD83)
LONG. 107.628409° W (NAD83)
LAT. 36.204240° N (NAD27)
LONG. 107.627800° W (NAD27)

PENETRATED SPACING UNIT: SEC 31: NE/NE & NW/NE (80 AC.);
SEC 30: SE/SE, SW/SE, NW/SE, SE/SW, NE/SW, NW/SW, SE/NW,
SW/NW, NW/NW (362.02 AC.); SEC 25: NW/NE, NE/NE, SE/NE
(120 AC.) = 562.02 ACRES TOTAL
TOTAL 14,282.78 ACRES: T23N R7W SEC. 19-23, 25, 28-34 (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 240H** **Sandoval County, New Mexico**

Surface Location
1293-ft FEL & 429-ft FSL
Sec 30 T23N R7W
Graded Elevation 7028' MSL
RKB Elevation 7042' (14' KB)

SHL Geographical Coordinates (NAD-83)

Latitude 36.1917820° N
Longitude 107.6109140° W

Kick Off Point for Horizontal Build Curve
4595-ft MD
4362-ft TVD

Local Coordinates (from SHL)

908-ft South
944-ft East

Heel Location (Pay zone entry)
800-ft FEL & 91-ft FNL
Sec 31 T23N R7W

Heel Geographical Coordinates (NAD-83)

Latitude 36.1903494° N
Longitude 107.60924150° W

Bottom Hole Location (TD)
1210-ft FEL & 334-ft FNL
Sec 25 T23N R8W

BHL Geographical Coordinates (NAD-83)

Latitude 36.2042537° N
Longitude 107.6284093° W

Well objectives

This well is planned as a 7590-ft lateral in the Gallup C sand.

Bottom Hole temperature and pressure

The temperature in the Gallup C horizontal objective is 141°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	1050	1046	Sd	W	8.3	8.4 - 8.8
Kirtland	1085	1080	Sh	-	8.3	8.4 - 8.8
Fruitland	1300	1288	C	G	8.3	9.0 - 9.5
Pictured Cliffs	1597	1567	Sd	W	8.3	9.0 - 9.5
Lewis	1756	1715	Sh	-	-	9.0 - 9.5
Chacra	2422	2336	Sd	-	8.3	9.0 - 9.5
Menefee	3199	3061	Sd, C	G	8.3	9.0 - 9.5
Point Lookout	4154	3951	Sd	-	8.3	9.0 - 9.5
Mancos	4347	4131	Sh	-	-	9.0 - 9.5
Mancos Silt	4754	4516	Slt	O/G	6.6	9.0 - 9.5
Gallup A	5208	4948	Slt	O/G	6.6	9.0 - 9.5
Gallup B	5244	4977	Sd	O/G	6.6	8.8 - 9.0
Gallup C	5386	5080	Sd	O/G	6.6	8.8 - 9.0
Target	5831	5229	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	5821	surf	5229	surface
4-1/2"	6-1/8"	11.6	P-110	BTC	5621	13420	5195	5229	5621

Note: all casing will be new

Casing Design Load Cases

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

Note

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

Casing Design Factors

		Design Factors			
Casing string	Casing OD	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

	Lead
Name	Redi-Mix
Type	I-II
Additives	20% Fly Ash
Planned top	Surface
Density (ppg)	14.50
Yield (cf/sx)	1.61
Mix water (gal/sx)	7.41
Volume (sx)	114
Volume (bbls)	33
Volume (cu. ft.)	185
Excess %	50

7" Intermediate Casing

	Lead	Tail
Halliburton Name	HALCEM	VARICEM
Type	Poz/G	Poz/G
Additives	Ex, L, SA	Ex, FI, SA, L, THX
Planned top	Surface	3847-ft
Density (ppg)	12.30	13.50
Yield (cf/sx)	1.95	1.30
Mix water (gal/sx)	10.14	5.64
Volume (sx)	487	394

Volume (bbls)	170	92
Volume (cu.ft.)	952	514
Excess %	70	70

4-1/2" Production Liner	Lead
Halliburton Name	EXTENDACEM
Type	Poz/G
Additives	B, De, Di, FI, Re, V
Planned top	5621-ft
Density (ppg)	13.3
Yield (cf/sx)	1.36
Mix water (gal/sx)	5.94
Volume (sx)	800
Volume (bbls)	194
Volume (cu.ft)	1089
Excess %	30

Wellhead & Pressure Control

The well head will be an 11" 5M multi-bowl system. A 3M 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 – 5821	9.0 – 9.5	38 – 45	8 – 14	<20
Production	Low solids, non-dispersed	5821 – 13420	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.



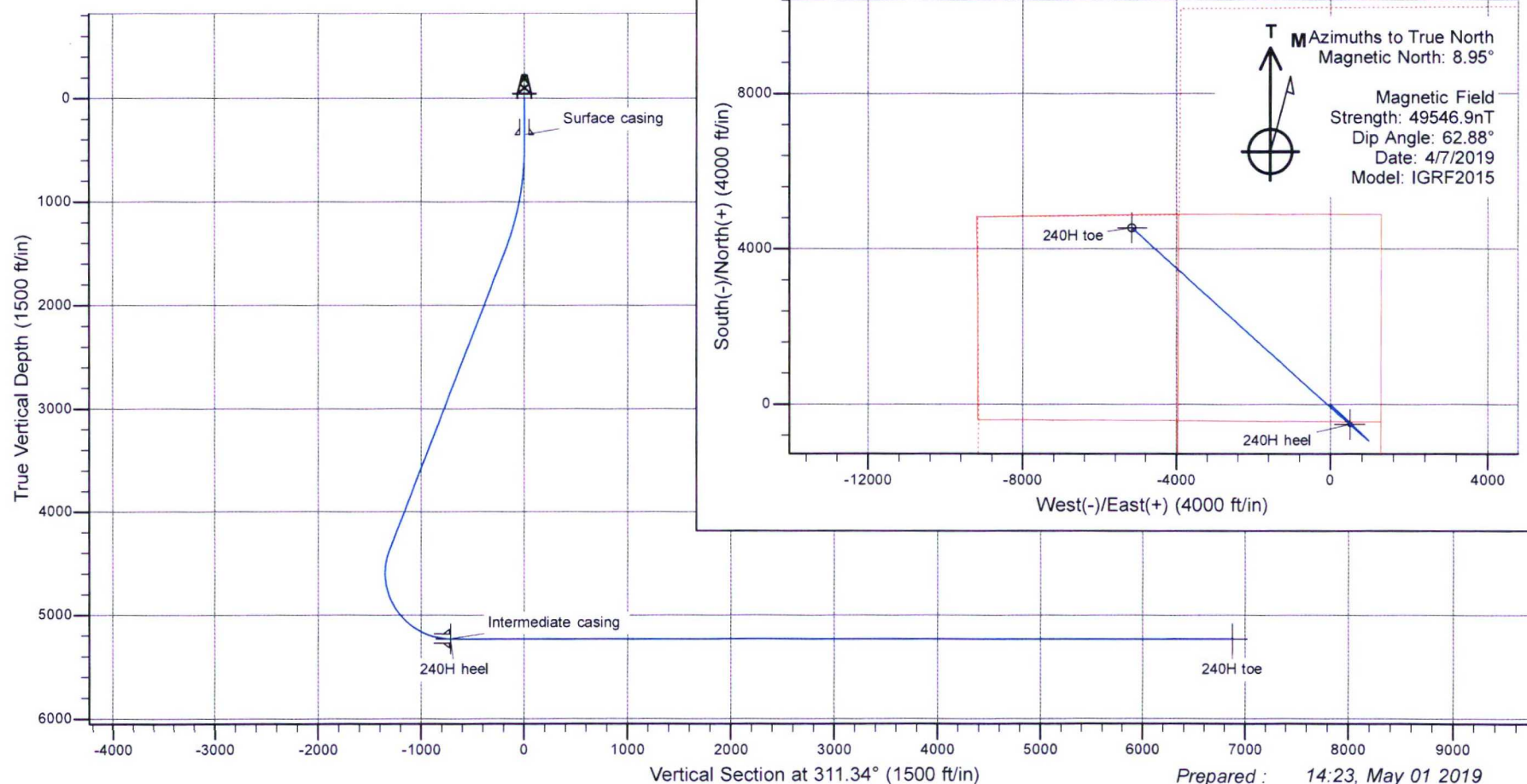
Pad name : O30 2307
Well name : NAU 240H

SHL Latitude : 36.19178200
SHL Longitude : -107.61091400

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

TRAJECTORY DETAILS									
Pad elevation : 7028 RKB @ 7042ft (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	
1510	21.21	133.90	1486	-135	140	2.00	133.90	-194	
4595	21.21	133.90	4362	-908	944	0.00	0.00	-1309	
5831	90.00	311.83	5229	-521	494	9.00	177.78	-715	240H heel
13420	90.00	311.83	5229	4540	-5162	0.00	0.00	6874	240H toe

TARGET DETAILS							
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
240H heel	5229	-521	494	1888661	2789216	36.19034940	-107.60924150
240H toe	5229	4540	-5162	1893710	2783549	36.20425370	-107.62840930



DJR Operating

North Alamito Unit

O30 2307

NAU 240H

Original drilling

Plan: APD

Standard Planning Report

01 May, 2019

Planning Report

Database:	EDM	Local Co-ordinate Reference:	Well NAU 240H
Company:	DJR Operating	TVD Reference:	RKB @ 7042ft (Rig TBD)
Project:	North Alamo Unit	MD Reference:	RKB @ 7042ft (Rig TBD)
Site:	O30 2307	North Reference:	True
Well:	NAU 240H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original drilling		
Design:	APD		

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

Site	O30 2307				
Site Position:		Northing:	1,889,181 usft	Latitude:	36.19178200
From:	Lat/Long	Easting:	2,788,721 usft	Longitude:	-107.61091400
Position Uncertainty:	0 ft	Slot Radius:	72.000 in	Grid Convergence:	0.13 °

Well	NAU 240H					
Well Position	+N/-S	0 ft	Northing:	1,889,181 usft	Latitude:	36.19178200
	+E/-W	0 ft	Easting:	2,788,721 usft	Longitude:	-107.61091400
Position Uncertainty		0 ft	Wellhead Elevation:		Ground Level:	7028 ft

Wellbore	Original drilling				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	4/7/2019	8.95	62.88	49,546.91146009

Design	APD			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0	0	0	311.34

Plan Survey Tool Program	Date 5/1/2019			
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0	13,420 APD (Original drilling)	MWD+IGRF	
			OWSG MWD + IGRF or WMM	

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0	0.00	0.00	0	0	0	0.00	0.00	0.00	0.00	
450	0.00	0.00	450	0	0	0.00	0.00	0.00	0.00	
1510	21.21	133.90	1486	-135	140	2.00	2.00	0.00	133.90	
4595	21.21	133.90	4362	-908	944	0.00	0.00	0.00	0.00	
5831	90.00	311.83	5229	-521	494	9.00	5.57	14.40	177.78	240H heel
13,420	90.00	311.83	5229	4540	-5162	0.00	0.00	0.00	0.00	240H toe

Planning Report

Database: EDM
 Company: DJR Operating
 Project: North Alamo Unit
 Site: O30 2307
 Well: NAU 240H
 Wellbore: Original drilling
 Design: APD

Local Co-ordinate Reference: Well NAU 240H
 TVD Reference: RKB @ 7042ft (Rig TBD)
 MD Reference: RKB @ 7042ft (Rig TBD)
 North Reference: True
 Survey Calculation Method: Minimum Curvature

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	133.90	500	0	0	0	2.00	2.00	0.00
600	3.00	133.90	600	-3	3	-4	2.00	2.00	0.00
700	5.00	133.90	700	-8	8	-11	2.00	2.00	0.00
800	7.00	133.90	799	-15	15	-21	2.00	2.00	0.00
900	9.00	133.90	898	-24	25	-35	2.00	2.00	0.00
1000	11.00	133.90	997	-36	38	-53	2.00	2.00	0.00
1050	12.01	133.90	1046	-43	45	-63	2.00	2.00	0.00
Ojo Alamo									
1085	12.70	133.90	1080	-49	51	-70	2.00	2.00	0.00
Kirtland									
1100	13.00	133.90	1094	-51	53	-73	2.00	2.00	0.00
1200	15.00	133.90	1191	-68	70	-98	2.00	2.00	0.00
1300	17.00	133.90	1288	-87	90	-125	1.99	1.99	0.00
Fruitland									
1400	19.00	133.90	1383	-108	112	-156	2.01	2.01	0.00
1500	21.00	133.90	1477	-132	137	-190	2.00	2.00	0.00
1510	21.21	133.90	1486	-135	140	-194	2.00	2.00	0.00
1597	21.21	133.90	1567	-156	162	-225	0.00	0.00	0.00
Picture Cliffs									
1600	21.21	133.90	1570	-157	163	-226	0.00	0.00	0.00
1700	21.21	133.90	1663	-182	189	-262	0.00	0.00	0.00
1756	21.21	133.90	1715	-196	204	-282	0.00	0.00	0.00
Lewis									
1800	21.21	133.90	1756	-207	215	-298	0.00	0.00	0.00
1900	21.21	133.90	1850	-232	241	-335	0.00	0.00	0.00
2000	21.21	133.90	1943	-257	267	-371	0.00	0.00	0.00
2100	21.21	133.90	2036	-282	293	-407	0.00	0.00	0.00
2200	21.21	133.90	2129	-308	320	-443	0.00	0.00	0.00
2300	21.21	133.90	2222	-333	346	-479	0.00	0.00	0.00
2400	21.21	133.90	2316	-358	372	-515	0.00	0.00	0.00
2422	21.21	133.90	2336	-363	377	-523	0.00	0.00	0.00
Chacra									
2500	21.21	133.90	2409	-383	398	-551	0.00	0.00	0.00
2600	21.21	133.90	2502	-408	424	-588	0.00	0.00	0.00
2700	21.21	133.90	2595	-433	450	-624	0.00	0.00	0.00
2800	21.21	133.90	2689	-458	476	-660	0.00	0.00	0.00
2900	21.21	133.90	2782	-483	502	-696	0.00	0.00	0.00
3000	21.21	133.90	2875	-508	528	-732	0.00	0.00	0.00
3100	21.21	133.90	2968	-533	554	-768	0.00	0.00	0.00
3145	21.21	133.90	3010	-544	566	-784	0.00	0.00	0.00
Cliffhouse									
3199	21.21	133.90	3061	-558	580	-804	0.00	0.00	0.00
Menefee									
3200	21.21	133.90	3062	-558	580	-804	0.00	0.00	0.00
3300	21.21	133.90	3155	-583	606	-841	0.00	0.00	0.00

Planning Report

Database: EDM
Company: DJR Operating
Project: North Alamito Unit
Site: O30 2307
Well: NAU 240H
Wellbore: Original drilling
Design: APD

Local Co-ordinate Reference: Well NAU 240H
TVD Reference: RKB @ 7042ft (Rig TBD)
MD Reference: RKB @ 7042ft (Rig TBD)
North Reference: True
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
3400	21.21	133.90	3248	-609	632	-877	0.00	0.00	0.00
3500	21.21	133.90	3341	-634	658	-913	0.00	0.00	0.00
3600	21.21	133.90	3434	-659	684	-949	0.00	0.00	0.00
3700	21.21	133.90	3528	-684	711	-985	0.00	0.00	0.00
3800	21.21	133.90	3621	-709	737	-1021	0.00	0.00	0.00
3900	21.21	133.90	3714	-734	763	-1057	0.00	0.00	0.00
4000	21.21	133.90	3807	-759	789	-1094	0.00	0.00	0.00
4100	21.21	133.90	3901	-784	815	-1130	0.00	0.00	0.00
4154	21.21	133.90	3951	-798	829	-1149	0.00	0.00	0.00
Point Lookout									
4200	21.21	133.90	3994	-809	841	-1166	0.00	0.00	0.00
4300	21.21	133.90	4087	-834	867	-1202	0.00	0.00	0.00
4347	21.21	133.90	4131	-846	879	-1219	0.00	0.00	0.00
Mancos									
4400	21.21	133.90	4180	-859	893	-1238	0.00	0.00	0.00
4500	21.21	133.90	4273	-884	919	-1274	0.00	0.00	0.00
4595	21.21	133.90	4362	-908	944	-1309	0.00	0.00	0.00
Kick off point									
4600	20.78	133.95	4367	-910	945	-1310	8.49	-8.48	0.93
4650	16.29	134.58	4414	-921	956	-1326	9.00	-8.99	1.27
4700	11.80	135.68	4463	-929	965	-1338	9.00	-8.98	2.20
4750	7.31	138.10	4512	-935	971	-1347	9.00	-8.97	4.84
4754	6.94	138.44	4516	-936	971	-1347	9.00	-8.94	8.19
Mancos Silt									
4800	2.88	147.98	4562	-939	974	-1351	9.00	-8.85	20.81
4850	1.91	286.98	4612	-939	973	-1351	9.00	-1.95	278.00
4900	6.28	304.52	4662	-938	970	-1348	9.00	8.75	35.09
4950	10.76	307.61	4711	-933	964	-1341	9.00	8.96	6.16
5000	15.25	308.89	4760	-926	956	-1329	9.00	8.98	2.56
5050	19.75	309.60	4807	-917	944	-1314	9.00	8.99	1.42
5100	24.24	310.05	4854	-905	930	-1296	9.00	8.99	0.91
5150	28.74	310.37	4898	-890	913	-1273	9.00	9.00	0.64
5200	33.24	310.61	4941	-874	893	-1248	9.00	9.00	0.48
5208	33.96	310.64	4948	-871	890	-1243	9.00	9.00	0.41
Gallup A									
5244	37.17	310.77	4977	-857	874	-1222	9.00	9.00	0.37
Gallup B									
5250	37.74	310.80	4982	-855	871	-1218	9.00	9.00	0.34
5300	42.24	310.95	5020	-834	847	-1186	9.00	9.00	0.31
5350	46.74	311.08	5056	-811	820	-1151	9.00	9.00	0.26
5386	49.99	311.16	5080	-793	800	-1124	9.00	9.00	0.23
Gallup C									
5400	51.24	311.19	5089	-786	792	-1114	9.00	9.00	0.21
5450	55.74	311.29	5118	-759	762	-1073	9.00	9.00	0.20
5500	60.23	311.37	5145	-731	730	-1031	9.00	9.00	0.18
5550	64.73	311.45	5168	-702	697	-987	9.00	9.00	0.16
5600	69.23	311.53	5188	-672	662	-941	9.00	9.00	0.15
5621	71.12	311.56	5195	-659	647	-921	9.00	9.00	0.14
Top of liner									
5650	73.73	311.60	5204	-640	627	-893	9.00	9.00	0.14
5700	78.23	311.66	5216	-608	590	-845	9.00	9.00	0.13
5750	82.73	311.73	5224	-575	554	-796	9.00	9.00	0.13
5800	87.23	311.79	5228	-542	516	-746	9.00	9.00	0.13

Planning Report

Database: EDM
Company: DJR Operating
Project: North Alamo Unit
Site: O30 2307
Well: NAU 240H
Wellbore: Original drilling
Design: APD

Local Co-ordinate Reference: Well NAU 240H
TVD Reference: RKB @ 7042ft (Rig TBD)
MD Reference: RKB @ 7042ft (Rig TBD)
North Reference: True
Survey Calculation Method: Minimum Curvature

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)
5821	89.12	311.82	5229	-528	501	-725	9.00	9.00	0.13
Intermediate casing									
5831	90.00	311.83	5229	-521	494	-715	9.00	9.00	0.13
Target									
5900	90.00	311.83	5229	-475	442	-646	0.00	0.00	0.00
6000	90.00	311.83	5229	-409	367	-546	0.00	0.00	0.00
6100	90.00	311.83	5229	-342	293	-446	0.00	0.00	0.00
6200	90.00	311.83	5229	-275	218	-346	0.00	0.00	0.00
6300	90.00	311.83	5229	-209	144	-246	0.00	0.00	0.00
6400	90.00	311.83	5229	-142	69	-146	0.00	0.00	0.00
6500	90.00	311.83	5229	-75	-5	-46	0.00	0.00	0.00
6600	90.00	311.83	5229	-8	-80	54	0.00	0.00	0.00
6700	90.00	311.83	5229	58	-154	154	0.00	0.00	0.00
6800	90.00	311.83	5229	125	-229	254	0.00	0.00	0.00
6900	90.00	311.83	5229	192	-303	354	0.00	0.00	0.00
7000	90.00	311.83	5229	258	-378	454	0.00	0.00	0.00
7100	90.00	311.83	5229	325	-452	554	0.00	0.00	0.00
7200	90.00	311.83	5229	392	-527	654	0.00	0.00	0.00
7300	90.00	311.83	5229	458	-601	754	0.00	0.00	0.00
7400	90.00	311.83	5229	525	-676	854	0.00	0.00	0.00
7500	90.00	311.83	5229	592	-750	954	0.00	0.00	0.00
7600	90.00	311.83	5229	659	-825	1054	0.00	0.00	0.00
7700	90.00	311.83	5229	725	-899	1154	0.00	0.00	0.00
7800	90.00	311.83	5229	792	-974	1254	0.00	0.00	0.00
7900	90.00	311.83	5229	859	-1048	1354	0.00	0.00	0.00
8000	90.00	311.83	5229	925	-1123	1454	0.00	0.00	0.00
8100	90.00	311.83	5229	992	-1197	1554	0.00	0.00	0.00
8200	90.00	311.83	5229	1059	-1272	1654	0.00	0.00	0.00
8300	90.00	311.83	5229	1125	-1346	1754	0.00	0.00	0.00
8400	90.00	311.83	5229	1192	-1421	1854	0.00	0.00	0.00
8500	90.00	311.83	5229	1259	-1495	1954	0.00	0.00	0.00
8600	90.00	311.83	5229	1325	-1570	2054	0.00	0.00	0.00
8700	90.00	311.83	5229	1392	-1644	2154	0.00	0.00	0.00
8800	90.00	311.83	5229	1459	-1719	2254	0.00	0.00	0.00
8900	90.00	311.83	5229	1526	-1793	2354	0.00	0.00	0.00
9000	90.00	311.83	5229	1592	-1868	2454	0.00	0.00	0.00
9100	90.00	311.83	5229	1659	-1942	2554	0.00	0.00	0.00
9200	90.00	311.83	5229	1726	-2017	2654	0.00	0.00	0.00
9300	90.00	311.83	5229	1792	-2091	2754	0.00	0.00	0.00
9400	90.00	311.83	5229	1859	-2166	2854	0.00	0.00	0.00
9500	90.00	311.83	5229	1926	-2240	2954	0.00	0.00	0.00
9600	90.00	311.83	5229	1992	-2315	3054	0.00	0.00	0.00
9700	90.00	311.83	5229	2059	-2389	3154	0.00	0.00	0.00
9800	90.00	311.83	5229	2126	-2464	3254	0.00	0.00	0.00
9900	90.00	311.83	5229	2192	-2538	3354	0.00	0.00	0.00
10,000	90.00	311.83	5229	2259	-2613	3454	0.00	0.00	0.00
10,100	90.00	311.83	5229	2326	-2688	3554	0.00	0.00	0.00
10,200	90.00	311.83	5229	2393	-2762	3654	0.00	0.00	0.00
10,300	90.00	311.83	5229	2459	-2837	3754	0.00	0.00	0.00
10,400	90.00	311.83	5229	2526	-2911	3854	0.00	0.00	0.00
10,500	90.00	311.83	5229	2593	-2986	3954	0.00	0.00	0.00
10,600	90.00	311.83	5229	2659	-3060	4054	0.00	0.00	0.00
10,700	90.00	311.83	5229	2726	-3135	4154	0.00	0.00	0.00

Planning Report

Database: EDM
Company: DJR Operating
Project: North Alamito Unit
Site: O30 2307
Well: NAU 240H
Wellbore: Original drilling
Design: APD

Local Co-ordinate Reference: Well NAU 240H
TVD Reference: RKB @ 7042ft (Rig TBD)
MD Reference: RKB @ 7042ft (Rig TBD)
North Reference: True
Survey Calculation Method: Minimum Curvature

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)
10,800	90.00	311.83	5229	2793	-3209	4254	0.00	0.00	0.00
10,900	90.00	311.83	5229	2859	-3284	4354	0.00	0.00	0.00
11,000	90.00	311.83	5229	2926	-3358	4454	0.00	0.00	0.00
11,100	90.00	311.83	5229	2993	-3433	4554	0.00	0.00	0.00
11,200	90.00	311.83	5229	3060	-3507	4654	0.00	0.00	0.00
11,300	90.00	311.83	5229	3126	-3582	4754	0.00	0.00	0.00
11,400	90.00	311.83	5229	3193	-3656	4854	0.00	0.00	0.00
11,500	90.00	311.83	5229	3260	-3731	4954	0.00	0.00	0.00
11,600	90.00	311.83	5229	3326	-3805	5054	0.00	0.00	0.00
11,700	90.00	311.83	5229	3393	-3880	5154	0.00	0.00	0.00
11,800	90.00	311.83	5229	3460	-3954	5254	0.00	0.00	0.00
11,900	90.00	311.83	5229	3526	-4029	5354	0.00	0.00	0.00
12,000	90.00	311.83	5229	3593	-4103	5454	0.00	0.00	0.00
12,100	90.00	311.83	5229	3660	-4178	5554	0.00	0.00	0.00
12,200	90.00	311.83	5229	3726	-4252	5654	0.00	0.00	0.00
12,300	90.00	311.83	5229	3793	-4327	5754	0.00	0.00	0.00
12,400	90.00	311.83	5229	3860	-4401	5854	0.00	0.00	0.00
12,500	90.00	311.83	5229	3927	-4476	5954	0.00	0.00	0.00
12,600	90.00	311.83	5229	3993	-4550	6054	0.00	0.00	0.00
12,700	90.00	311.83	5229	4060	-4625	6154	0.00	0.00	0.00
12,800	90.00	311.83	5229	4127	-4699	6254	0.00	0.00	0.00
12,900	90.00	311.83	5229	4193	-4774	6354	0.00	0.00	0.00
13,000	90.00	311.83	5229	4260	-4848	6454	0.00	0.00	0.00
13,100	90.00	311.83	5229	4327	-4923	6554	0.00	0.00	0.00
13,200	90.00	311.83	5229	4393	-4997	6654	0.00	0.00	0.00
13,300	90.00	311.83	5229	4460	-5072	6754	0.00	0.00	0.00
13,400	90.00	311.83	5229	4527	-5146	6854	0.00	0.00	0.00
13,420	90.00	311.83	5229	4540	-5162	6874	0.00	0.00	0.00

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
240H toe - plan hits target center - Circle (radius 100)	0.00	0.00	5229	4540	-5162	1,893,710	2,783,549	36.20425370	-107.62840930
240H heel - plan hits target center - Circle (radius 50)	0.00	0.00	5229	-521	494	1,888,661	2,789,216	36.19034940	-107.60924150

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
350	350	Surface casing	9.625	12.250
5821	5229	Intermediate casing	7.000	8.750

Planning Report

Database: EDM
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Project: North Alamito Unit
Site: O30 2307
Well: NAU 240H
Wellbore: Original drilling
Design: APD

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TVD Reference: RKB @ 7042ft (Rig TBD)
MD Reference: RKB @ 7042ft (Rig TBD)
North Reference: True
Survey Calculation Method: Minimum Curvature

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
1050	1046	Ojo Alamo		0.00	
1085	1080	Kirtland		0.00	
1300	1288	Fruitland		0.00	
1597	1567	Picture Cliffs		0.00	
1756	1715	Lewis		0.00	
2422	2336	Chacra		0.00	
3145	3010	Cliffhouse		0.00	
3199	3061	Menefee		0.00	
4154	3951	Point Lookout		0.00	
4347	4131	Mancos		0.00	
4754	4516	Mancos Silt		0.00	
5208	4948	Gallup A		0.00	
5244	4977	Gallup B		0.00	
5386	5080	Gallup C		0.00	
5831	5229	Target		0.00	

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
4595	4362	-908	944	Kick off point
5621	5195	-659	647	Top of liner

DJR Operating

North Alamito Unit

O30 2307

NAU 240H

Original drilling

APD

Anticollision Report

01 May, 2019

Anticollision Report

Company:	DJR Operating	Local Co-ordinate Reference:	Well NAU 240H
Project:	North Alamito Unit	TVD Reference:	RKB @ 7042ft (Rig TBD)
Reference Site:	O30 2307	MD Reference:	RKB @ 7042ft (Rig TBD)
Site Error:	0 ft	North Reference:	True
Reference Well:	NAU 240H	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	5/1/2019		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0	13,420	APD (Original drilling)	MWD+IGRF	OWSG MWD + IGRF or WMM	

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
O30 2307						
NAU 238H - Original drilling - APD	450	450	60	57	21.330	CC
NAU 238H - Original drilling - APD	500	500	60	57	18.990	ES
NAU 238H - Original drilling - APD	13,420	12,259	1221	846	3.254	SF

Offset Design		O30 2307 - NAU 238H - Original drilling - APD										Offset Site Error:		0 ft
Survey Program:		0-MWD+IGRF										Offset Well Error:		0 ft
Reference		Offset		Semi Major Axis			Distance				Separation Factor	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)	
0	0	0	0	0	0	-126.84	-36	-48	60					
100	100	100	100	0	0	-126.84	-36	-48	60	60	0.31	194.950		
200	200	200	200	1	1	-126.84	-36	-48	60	59	1.03	58.621		
300	300	300	300	1	1	-126.84	-36	-48	60	58	1.74	34.497		
400	400	400	400	1	1	-126.84	-36	-48	60	58	2.46	24.440		
450	450	450	450	1	1	-126.84	-36	-48	60	57	2.82	21.330 CC		
500	500	500	500	2	2	99.66	-36	-48	60	57	3.17	18.990 ES		
600	600	598	598	2	2	102.01	-38	-49	62	58	3.84	16.223		
700	700	696	696	2	2	105.40	-42	-51	68	64	4.52	15.123		
800	799	793	793	3	3	109.07	-50	-55	78	73	5.22	15.024		
900	898	890	889	3	3	112.41	-60	-60	93	87	5.95	15.577		
1000	997	986	983	3	3	115.16	-73	-66	111	104	6.71	16.544		
1100	1094	1080	1076	4	4	117.28	-89	-74	133	126	7.51	17.762		
1200	1191	1173	1167	4	4	118.84	-107	-83	160	151	8.36	19.117		
1300	1288	1265	1256	5	5	119.95	-127	-93	190	181	9.25	20.536		
1400	1383	1357	1344	6	5	120.80	-150	-104	223	213	10.21	21.892		
1500	1477	1450	1434	6	6	121.88	-173	-115	259	248	11.24	23.050		
1510	1486	1460	1443	6	6	122.00	-176	-116	263	252	11.36	23.158		
1600	1570	1543	1523	7	6	123.49	-197	-126	296	284	12.31	24.051		
1700	1663	1635	1611	8	7	124.79	-220	-138	333	320	13.39	24.876		
1800	1756	1728	1700	8	7	125.84	-243	-149	370	356	14.49	25.561		
1900	1850	1820	1789	9	8	126.69	-266	-160	408	392	15.60	26.136		
2000	1943	1913	1878	10	8	127.40	-290	-172	445	428	16.72	26.624		
2100	2036	2006	1967	11	9	128.01	-313	-183	483	465	17.84	27.042		

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

Anticollision Report

Company: DJR Operating
 Project: North Alamito Unit
 Reference Site: O30 2307
 Site Error: 0 ft
 Reference Well: NAU 240H
 Well Error: 0 ft
 Reference Wellbore: Original drilling
 Reference Design: APD

Local Co-ordinate Reference: Well NAU 240H
 TVD Reference: RKB @ 7042ft (Rig TBD)
 MD Reference: RKB @ 7042ft (Rig TBD)
 North Reference: True
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 2.00 sigma
 Database: EDM
 Offset TVD Reference: Offset Datum

Offset Design O30 2307 - NAU 238H - Original drilling - APD													Offset Site Error: 0 ft	
Survey Program: 0-MWD+IGRF													Offset Well Error: 0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Tooface (")	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
2200	2129	2098	2056	12	10	128.52	-336	-194	520	501	18.98	27.404		
2300	2222	2191	2145	12	10	128.97	-360	-206	558	537	20.11	27.720		
2400	2316	2284	2234	13	11	129.36	-383	-217	595	574	21.25	27.997		
2500	2409	2376	2323	14	11	129.70	-406	-229	633	610	22.40	28.243		
2600	2502	2469	2412	15	12	130.01	-429	-240	670	647	23.54	28.462		
2700	2595	2561	2501	15	13	130.28	-453	-251	708	683	24.70	28.658		
2800	2689	2654	2590	16	13	130.53	-476	-263	745	719	25.85	28.834		
2900	2782	2747	2679	17	14	130.75	-499	-274	783	756	27.00	28.994		
3000	2875	2839	2768	18	14	130.95	-522	-285	821	792	28.16	29.139		
3100	2968	2932	2857	19	15	131.13	-546	-297	858	829	29.32	29.271		
3200	3062	3025	2945	19	15	131.30	-569	-308	896	865	30.48	29.392		
3300	3155	3117	3034	20	16	131.46	-592	-319	933	902	31.64	29.503		
3400	3248	3210	3123	21	17	131.60	-615	-331	971	938	32.80	29.606		
3500	3341	3302	3212	22	17	131.73	-639	-342	1009	975	33.96	29.701		
3600	3434	3395	3301	23	18	131.85	-662	-353	1046	1011	35.12	29.788		
3700	3528	3488	3390	23	18	131.97	-685	-365	1084	1048	36.29	29.870		
3800	3621	3580	3479	24	19	132.07	-709	-376	1122	1084	37.45	29.946		
3900	3714	3673	3568	25	20	132.17	-732	-387	1159	1121	38.62	30.017		
4000	3807	3766	3657	26	20	132.27	-755	-399	1197	1157	39.79	30.083		
4100	3901	3858	3746	27	21	132.36	-778	-410	1235	1194	40.95	30.145		
4200	3994	3951	3835	27	21	132.44	-802	-421	1272	1230	42.12	30.204		
4300	4087	4043	3924	28	22	132.52	-825	-433	1310	1267	43.29	30.259		
4400	4180	4136	4013	29	23	132.59	-848	-444	1348	1303	44.46	30.310		
4500	4273	4229	4102	30	23	132.66	-871	-455	1385	1340	45.63	30.359		
4595	4362	4317	4186	31	24	132.72	-894	-466	1421	1374	46.74	30.403		
4600	4367	4321	4191	31	24	132.80	-895	-467	1423	1376	46.80	30.405		
4650	4414	4368	4236	31	24	133.32	-906	-472	1440	1393	47.37	30.404		
4700	4463	4416	4281	31	24	133.05	-918	-478	1455	1407	47.91	30.363		
4750	4512	4464	4328	32	25	131.16	-931	-484	1467	1418	48.43	30.283		
4800	4562	4512	4374	32	25	121.51	-943	-490	1476	1427	48.92	30.167		
4850	4612	4560	4420	32	25	-17.51	-955	-496	1482	1433	49.37	30.020		
4900	4662	4608	4466	32	26	-35.34	-967	-502	1485	1436	49.78	29.842		
4950	4711	4655	4511	32	26	-38.95	-979	-508	1486	1436	50.16	29.631		
5000	4760	4698	4552	32	26	-40.95	-989	-513	1484	1434	50.47	29.414		
5050	4807	4700	4554	32	26	-41.88	-990	-513	1481	1430	50.24	29.473		
5100	4854	4732	4585	32	26	-43.22	-997	-518	1475	1425	50.36	29.291		
5150	4898	4750	4602	32	27	-44.31	-1001	-521	1468	1418	50.27	29.201		
5200	4941	4765	4617	31	27	-45.41	-1004	-524	1459	1409	50.12	29.118		
5250	4982	4781	4633	31	27	-46.60	-1007	-527	1449	1399	49.96	29.008		
5300	5020	4800	4650	31	27	-47.96	-1009	-532	1438	1388	49.83	28.856		
5350	5056	4800	4650	31	27	-48.94	-1009	-532	1425	1376	49.44	28.833		
5400	5089	4828	4677	31	27	-50.80	-1013	-539	1411	1362	49.43	28.553		
5450	5118	4850	4698	31	27	-52.63	-1015	-545	1397	1347	49.36	28.293		
5500	5145	4850	4698	30	27	-53.90	-1015	-545	1381	1332	49.01	28.173		
5550	5168	4871	4718	30	27	-55.97	-1017	-552	1364	1315	48.97	27.850		
5600	5188	4884	4731	30	27	-57.89	-1018	-556	1346	1298	48.87	27.550		
5650	5204	4900	4745	30	27	-60.01	-1018	-562	1329	1280	48.86	27.190		
5700	5216	4900	4745	30	27	-61.58	-1018	-562	1310	1262	48.69	26.913		
5750	5224	4919	4763	30	27	-64.01	-1019	-569	1292	1243	48.84	26.450		
5800	5228	4929	4772	31	27	-66.08	-1019	-572	1273	1224	48.92	26.026		
5831	5229	4934	4777	31	27	-67.34	-1019	-574	1262	1213	49.00	25.753		
5900	5229	4950	4791	31	28	-68.07	-1019	-581	1238	1189	49.28	25.119		

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

Anticollision Report

Company: DJR Operating
 Project: North Alamito Unit
 Reference Site: O30 2307
 Site Error: 0 ft
 Reference Well: NAU 240H
 Well Error: 0 ft
 Reference Wellbore: Original drilling
 Reference Design: APD

Local Co-ordinate Reference: Well NAU 240H
 TVD Reference: RKB @ 7042ft (Rig TBD)
 MD Reference: RKB @ 7042ft (Rig TBD)
 North Reference: True
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 2.00 sigma
 Database: EDM
 Offset TVD Reference: Offset Datum

Offset Design O30 2307 - NAU 238H - 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		
6000	5229	4967	4807	31	28	-68.85	-1018	-588	1209	1159	49.75	24.305		
6100	5229	4992	4829	32	28	-69.99	-1017	-599	1188	1137	50.48	23.523		
6200	5229	5023	4857	33	28	-71.38	-1014	-613	1173	1122	51.44	22.807		
6300	5229	5062	4890	34	28	-73.09	-1010	-633	1166	1113	52.61	22.159		
6358	5229	5090	4913	35	28	-74.27	-1005	-647	1165	1111	53.41	21.807		
6400	5229	5112	4932	35	28	-75.22	-1001	-660	1165	1111	54.01	21.575		
6500	5229	5179	4984	37	28	-77.86	-986	-698	1171	1115	55.64	21.037		
6600	5229	5268	5046	38	29	-81.05	-958	-756	1180	1123	57.54	20.509		
6700	5229	5389	5117	40	29	-84.57	-909	-840	1192	1132	59.81	19.922		
6800	5229	5547	5181	41	29	-87.69	-828	-959	1201	1139	62.64	19.179		
6900	5229	5733	5210	43	30	-89.09	-712	-1101	1206	1140	66.13	18.233		
7000	5229	5839	5210	45	31	-89.10	-642	-1180	1206	1137	69.35	17.388		
7100	5229	5939	5210	47	32	-89.10	-575	-1254	1206	1133	72.76	16.577		
7200	5229	6039	5210	49	33	-89.10	-509	-1329	1206	1130	76.38	15.794		
7300	5229	6139	5210	51	34	-89.10	-442	-1404	1207	1126	80.23	15.040		
7400	5229	6239	5210	53	36	-89.10	-376	-1478	1207	1123	83.90	14.385		
7500	5229	6339	5210	55	37	-89.10	-309	-1553	1207	1119	88.09	13.703		
7600	5229	6439	5210	57	39	-89.10	-243	-1628	1207	1115	92.28	13.084		
7700	5229	6539	5210	59	41	-89.10	-176	-1702	1208	1111	96.54	12.508		
7800	5229	6639	5210	61	43	-89.10	-110	-1777	1208	1107	100.88	11.972		
7900	5229	6739	5210	64	45	-89.10	-43	-1852	1208	1103	105.29	11.473		
8000	5229	6839	5210	66	47	-89.10	23	-1926	1208	1098	109.75	11.009		
8100	5229	6939	5210	68	49	-89.10	90	-2001	1208	1094	114.27	10.576		
8200	5229	7039	5210	70	51	-89.10	156	-2076	1209	1090	118.83	10.172		
8300	5229	7139	5210	73	53	-89.10	223	-2150	1209	1086	123.43	9.794		
8400	5229	7239	5210	75	56	-89.10	289	-2225	1209	1081	128.07	9.442		
8500	5229	7339	5210	77	58	-89.10	356	-2300	1209	1077	132.73	9.111		
8600	5229	7439	5210	80	60	-89.10	422	-2374	1210	1072	137.43	8.802		
8700	5229	7539	5210	82	62	-89.10	489	-2449	1210	1068	142.15	8.511		
8800	5229	7639	5210	84	65	-89.10	555	-2524	1210	1063	146.89	8.238		
8900	5229	7739	5210	87	67	-89.10	622	-2598	1210	1059	151.66	7.981		
9000	5229	7839	5210	89	69	-89.10	688	-2673	1211	1054	156.44	7.738		
9100	5229	7939	5210	91	72	-89.10	755	-2748	1211	1050	161.24	7.509		
9200	5229	8039	5210	94	74	-89.10	822	-2822	1211	1045	166.06	7.293		
9300	5229	8139	5210	96	76	-89.10	888	-2897	1211	1040	170.88	7.088		
9400	5229	8239	5210	99	79	-89.10	955	-2972	1211	1036	175.73	6.894		
9500	5229	8339	5210	101	81	-89.10	1021	-3046	1212	1031	180.58	6.710		
9600	5229	8439	5210	103	84	-89.10	1088	-3121	1212	1027	185.44	6.535		
9700	5229	8539	5210	106	86	-89.10	1154	-3196	1212	1022	190.32	6.369		
9800	5229	8639	5210	108	88	-89.10	1221	-3270	1212	1017	195.20	6.211		
9900	5229	8739	5210	111	91	-89.10	1287	-3345	1213	1013	200.10	6.060		
10,000	5229	8839	5210	113	93	-89.10	1354	-3420	1213	1008	205.00	5.917		
10,100	5229	8939	5210	116	96	-89.10	1420	-3494	1213	1003	209.90	5.779		
10,200	5229	9039	5210	118	98	-89.10	1487	-3569	1213	999	214.82	5.648		
10,300	5229	9139	5210	120	101	-89.10	1553	-3644	1214	994	219.74	5.523		
10,400	5229	9239	5210	123	103	-89.10	1620	-3718	1214	989	224.67	5.403		
10,500	5229	9339	5210	125	106	-89.10	1686	-3793	1214	984	229.60	5.288		
10,600	5229	9439	5210	128	108	-89.10	1753	-3868	1214	980	234.54	5.177		
10,700	5229	9539	5210	130	110	-89.10	1819	-3942	1215	975	239.48	5.071		
10,800	5229	9639	5210	133	113	-89.10	1886	-4017	1215	970	244.43	4.970		
10,900	5229	9739	5210	135	115	-89.10	1952	-4092	1215	966	249.38	4.872		
11,000	5229	9839	5210	138	118	-89.10	2019	-4166	1215	961	254.34	4.778		

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

Anticollision Report

Company: DJR Operating
 Project: North Alamito Unit
 Reference Site: O30 2307
 Site Error: 0 ft
 Reference Well: NAU 240H
 Well Error: 0 ft
 Reference Wellbore: Original drilling
 Reference Design: APD

Local Co-ordinate Reference: Well NAU 240H
 TVD Reference: RKB @ 7042ft (Rig TBD)
 MD Reference: RKB @ 7042ft (Rig TBD)
 North Reference: True
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 2.00 sigma
 Database: EDM
 Offset TVD Reference: Offset Datum

Offset Design O30 2307 - NAU 238H - 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		
11,100	5229	9939	5210	140	120	-89.10	2085	-4241	1215	956	259.30	4.687		
11,200	5229	10,039	5210	143	123	-89.10	2152	-4316	1216	951	264.27	4.600		
11,300	5229	10,139	5210	145	125	-89.10	2218	-4390	1216	947	269.23	4.516		
11,400	5229	10,239	5210	147	128	-89.10	2285	-4465	1216	942	274.20	4.435		
11,500	5229	10,339	5210	150	130	-89.10	2352	-4540	1216	937	279.18	4.357		
11,600	5229	10,439	5210	152	133	-89.11	2418	-4614	1217	932	284.16	4.281		
11,700	5229	10,539	5210	155	135	-89.11	2485	-4689	1217	928	289.14	4.209		
11,800	5229	10,639	5210	157	138	-89.11	2551	-4764	1217	923	294.12	4.138		
11,900	5229	10,739	5210	160	140	-89.11	2618	-4838	1217	918	299.10	4.070		
12,000	5229	10,839	5210	162	143	-89.11	2684	-4913	1218	913	304.09	4.004		
12,100	5229	10,939	5210	165	145	-89.11	2751	-4988	1218	909	309.08	3.940		
12,200	5229	11,039	5210	167	148	-89.11	2817	-5062	1218	904	314.07	3.878		
12,300	5229	11,139	5210	170	150	-89.11	2884	-5137	1218	899	319.07	3.818		
12,400	5229	11,239	5210	172	153	-89.11	2950	-5212	1218	894	324.06	3.760		
12,500	5229	11,339	5210	175	155	-89.11	3017	-5286	1219	890	329.06	3.704		
12,600	5229	11,439	5210	177	158	-89.11	3083	-5361	1219	885	334.06	3.649		
12,700	5229	11,539	5210	180	160	-89.11	3150	-5436	1219	880	339.06	3.596		
12,800	5229	11,639	5210	182	163	-89.11	3216	-5510	1219	875	344.07	3.544		
12,900	5229	11,739	5210	185	165	-89.11	3283	-5585	1220	871	349.07	3.494		
13,000	5229	11,839	5210	187	168	-89.11	3349	-5660	1220	866	354.08	3.445		
13,100	5229	11,939	5210	190	170	-89.11	3416	-5734	1220	861	359.08	3.398		
13,200	5229	12,039	5210	192	173	-89.11	3482	-5809	1220	856	364.09	3.352		
13,300	5229	12,139	5210	195	175	-89.11	3549	-5884	1221	851	369.10	3.307		
13,400	5229	12,239	5210	197	178	-89.11	3615	-5958	1221	847	374.12	3.263		
13,420	5229	12,259	5210	198	178	-89.11	3629	-5974	1221	846	375.14	3.254 SF		

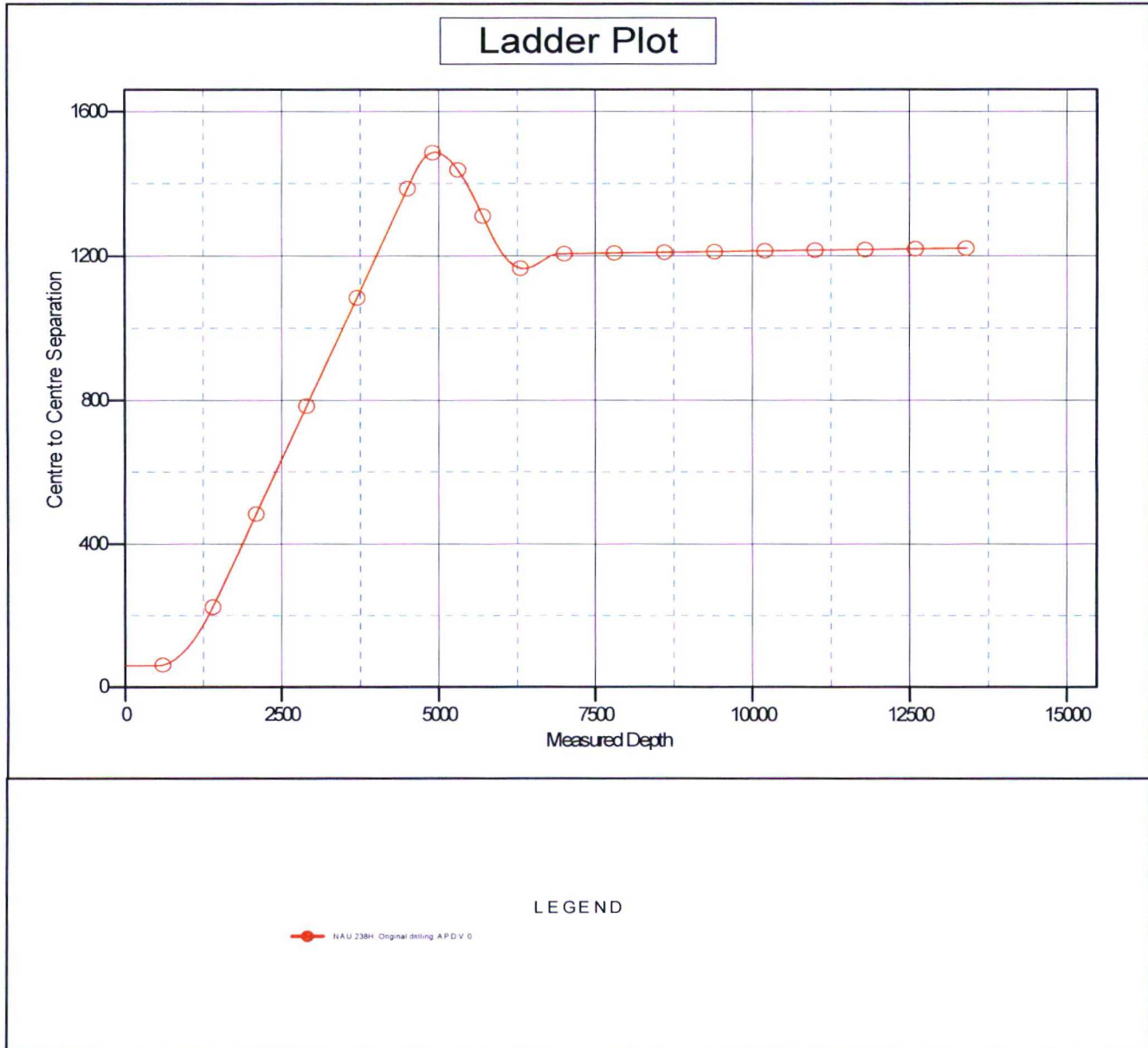
Anticollision Report

Company: DJR Operating
Project: North Alamito Unit
Reference Site: O30 2307
Site Error: 0 ft
Reference Well: NAU 240H
Well Error: 0 ft
Reference Wellbore: Original drilling
Reference Design: APD

Local Co-ordinate Reference: Well NAU 240H
TVD Reference: RKB @ 7042ft (Rig TBD)
MD Reference: RKB @ 7042ft (Rig TBD)
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM
Offset TVD Reference: Offset Datum

Reference Depths are relative to RKB @ 7042ft (Rig TBD)
Offset Depths are relative to Offset Datum
Central Meridian is -107.8333333

Coordinates are relative to: NAU 240H
Coordinate System is US State Plane 1983, New Mexico Western Zone
Grid Convergence at Surface is: 0.13°



Anticollision Report

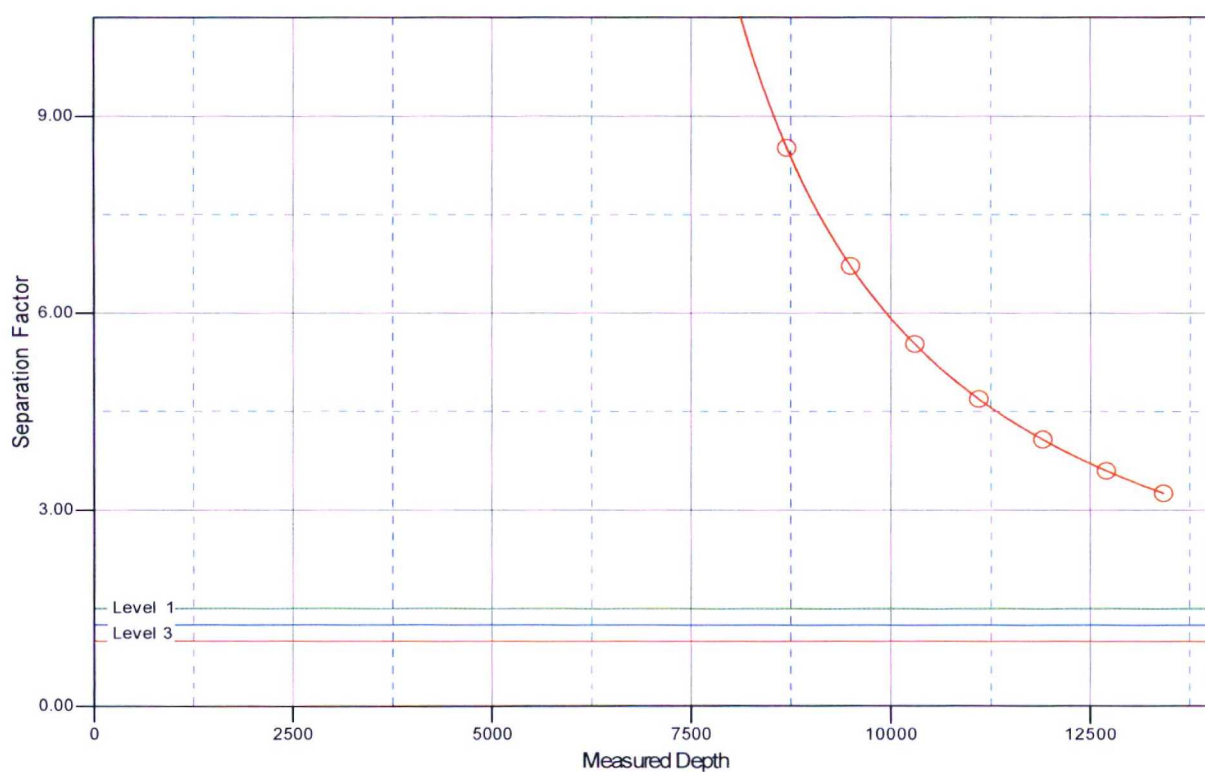
Company: DJR Operating
Project: North Alamo Unit
Reference Site: O30 2307
Site Error: 0 ft
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Local Co-ordinate Reference: Well NAU 240H
TVD Reference: RKB @ 7042ft (Rig TBD)
MD Reference: RKB @ 7042ft (Rig TBD)
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM
Offset TVD Reference: Offset Datum

Reference Depths are relative to RKB @ 7042ft (Rig TBD)
Offset Depths are relative to Offset Datum
Central Meridian is -107.83333333

Coordinates are relative to: NAU 240H
Coordinate System is US State Plane 1983, New Mexico Western Zone
Grid Convergence at Surface is: 0.13°

Separation Factor Plot



LEGEND

NAU 238H: Original drilling APD V 0