

State of New Mexico
Energy, Minerals and Natural Resources Department

Michelle Lujan Grisham
Governor

Sarah Cottrell Propst
Cabinet Secretary

Todd E. Leahy, JD, PhD
Deputy Secretary

Adrienne Sandoval, Division Director
Oil Conservation Division



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

Operator Signature Date: 10/17/2019

Well information;

Operator OUR, Well Name and Number North Alamo Unit 334H

API# 30-443-21338, Section 31, Township 23N/S, Range 7 E/W

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

- ☒ Notify Aztec OCD 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 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 recompletion operations
- ☒ 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

2/21/20
Date

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
APPLICATION FOR PERMIT TO DRILL OR REENTER

FORM APPROVED
OMB No. 1004-0137
Expires: January 31, 2018

1a. Type of work: ☒ DRILL ☐ REENTER		5. Lease Serial No. NMNM006681
1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other		6. If Indian, Allottee or Tribe Name
1c. Type of Completion: ☐ Hydraulic Fracturing ☐ Single Zone ☒ 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 334H
3a. Address 1600 Broadway #1960 Denver CO 80202	3b. Phone No. (include area code) (505)632-3476	9. API Well No. 30-043-21338
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface NWSW / 1989 FSL / 675 FWL / LAT 36.181496 / LONG -107.622065 At proposed prod. zone NESW / 1362 FSL / 2287 FWL / LAT 36.165147 / LONG -107.598994		10. Field and Pool, or Exploratory Wildcat Alamito N. j Mancos
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) 675 feet	16. No of acres in lease 642.56	17. Spacing Unit dedicated to this well 14262.78
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 2030 feet	19. Proposed Depth 5073 feet / 14193 feet	20. BLM/BIA Bond No. in file FED: NMB001464
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 6964 feet	22. Approximate date work will start* 03/03/2020	23. Estimated duration 20 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 10/17/2019
Title Regulatory Specialist		
Approved by (Signature) (Electronic Submission)	Name (Printed/Typed) Dave Mankiewicz / Ph: (505)564-7761	Date 02/10/2020
Title AFM-Minerals		

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Conditions of approval, if any, are attached.

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

APPROVED WITH CONDITIONS
Approval Date: 02/10/2020

NMOC

FEB 11 2020

DISTRICT III

*(Instructions on page 2)

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

DISTRICT II
811 S. First St., Artesia, N.M. 88210
Phone: (575) 748-1883 Fax: (575) 748-0720

DISTRICT III
1000 Rio Bravos Rd., Artesia, N.M. 87410
Phone: (505) 334-6176 Fax: (505) 334-6170

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

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

Submit one copy to appropriate
District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

*API Number 30-043-21338		*Pool Code 98174	*Pool Name Alamito Nj Mancos
*Property Code 325207	*Property Name NORTH ALAMITO UNIT		*Well Number 334H
*GRID No. 371838	*Operator Name DJR OPERATING, LLC		*Elevation 6964'

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
L	31	23N	7W	3	1989'	SOUTH	675'	WEST	SANDOVAL

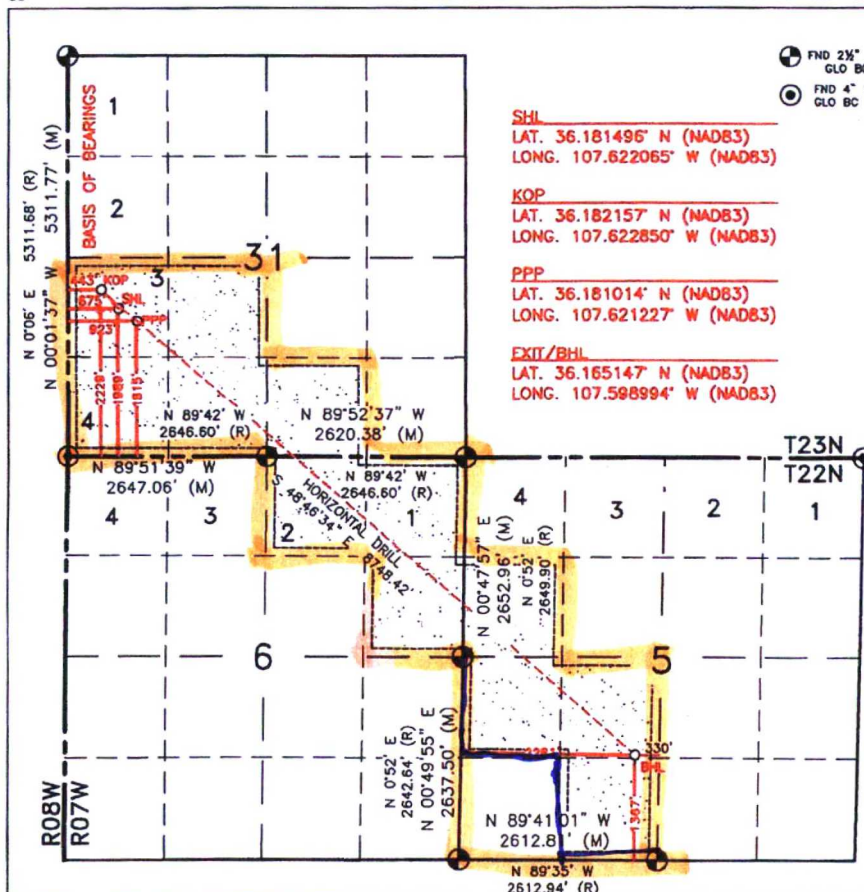
¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
K	5	22N	7W		1362'	SOUTH	2287'	WEST	SANDOVAL

¹² Dedicated Acres SEC. 31: SW/4 & SW/SE (201.32 AC.); SEC. 6: LOT 1, LOT 2 & SE/NE (120.38 AC.); SEC. 5: SW/NW, NW/SW, NE/SW, SE/SW (160 AC.) = 481.68 ACRES TOTAL		¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No. R-14081, R-14081A
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NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

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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: *Shaw-Marie Ford* Date: 10/17/19

Printed Name: Shaw-Marie Ford

E-mail Address: sford@djrlc.com

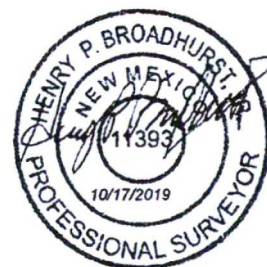
SURVEYOR CERTIFICATION

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.

MARCH 15, 2019

Date of Survey

Signature and Seal of Professional Surveyor:



Certificate Number: 11393

Surf = Indian

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Phone: (505) 334-8178 Fax: (505) 334-8170

DISTRICT IV

1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3482

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION

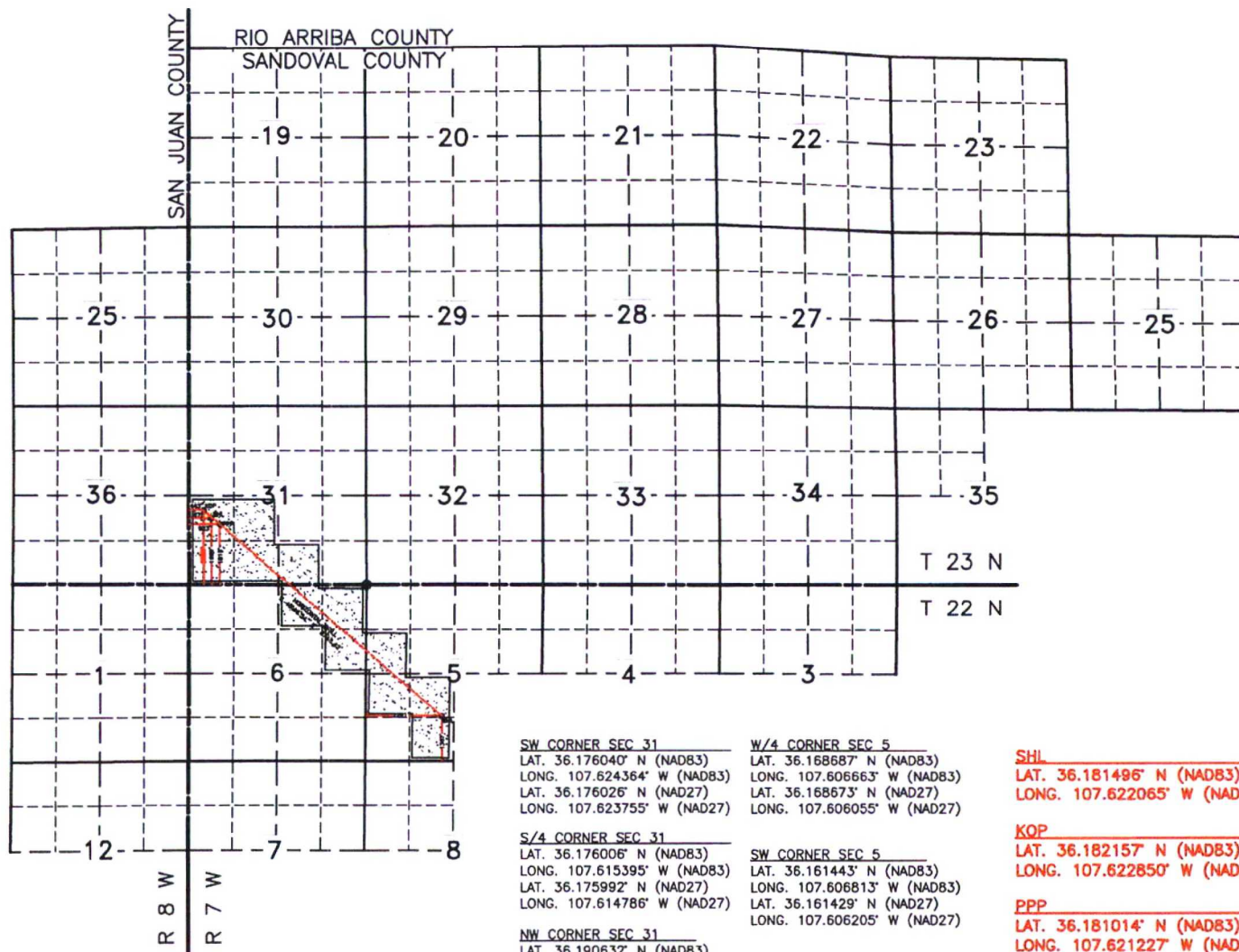
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-102
Revised August 1, 2011

Submit one copy to appropriate
District Office

☐ AMENDED REPORT

DJR OPERATING, LLC
NORTH ALAMITO UNIT #334H

**SW CORNER SEC 31**

LAT. 36.176040° N (NAD83)
LONG. 107.624364° W (NAD83)
LAT. 36.176026° N (NAD27)
LONG. 107.623755° 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. 36.175944° N (NAD83)
LONG. 107.606516° W (NAD83)
LAT. 36.1759307° N (NAD27)
LONG. 107.605908° W (NAD27)

W/4 CORNER SEC 5

LAT. 36.168687° N (NAD83)
LONG. 107.606663° W (NAD83)
LAT. 36.168673° N (NAD27)
LONG. 107.606055° W (NAD27)

SW CORNER SEC 5

LAT. 36.161443° N (NAD83)
LONG. 107.606813° W (NAD83)
LAT. 36.161429° N (NAD27)
LONG. 107.606205° W (NAD27)

S/4 CORNER SEC 5

LAT. 36.161386° N (NAD83)
LONG. 107.597962° W (NAD83)
LAT. 36.161372° N (NAD27)
LONG. 107.597354° W (NAD27)

SHL

LAT. 36.181496° N (NAD83)
LONG. 107.622065° W (NAD83)

KOP

LAT. 36.182157° N (NAD83)
LONG. 107.622850° W (NAD83)

PPP

LAT. 36.181014° N (NAD83)
LONG. 107.621227° W (NAD83)

EXIT/BHL

LAT. 36.165147° N (NAD83)
LONG. 107.598994° W (NAD83)

PENETRATED SPACING UNIT:

SEC. 31: SW/4 & SW/SE (201.32 AC.);
SEC. 6: LOT 1, LOT 2 & SE/NE (120.36 AC.);
SEC. 5: SW/NW, NW/SW, NE/SW, SE/SW (160 AC.) =
481.68 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 NAU 334H Sandoval County, New Mexico

Surface Location

675-ft FWL & 1989-ft FSL
 Sec 31 T23N R7W
 Graded Elevation 6964' MSL
 RKB Elevation 6978' (14' KB)

SHL Geographical Coordinates (NAD-83)

Latitude 36.1814960° N
 Longitude 107.6220650° W

Kick Off Point for Horizontal Build Curve

4408-ft MD
 4344-ft TVD

Local Coordinates (from SHL)

656-ft North
 228-ft West

Heel Location (Pay zone entry)

964-ft FWL & 2282-ft FSL
 Sec 31 T23N R7W

Heel Geographical Coordinates (NAD-83)

Latitude 36.1822968° N
 Longitude 107.62108170° W

Bottom Hole Location (TD)

2264-ft FWL & 1863-ft FSL
 Sec 5 T22N R7W

BHL Geographical Coordinates (NAD-83)

Latitude 36.1665116° N
 Longitude 107.5990225° W

Well objectives

This well is planned as a 8680-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	1047	1043	Sd	W	8.3	8.4 – 8.8
Kirtland	910	908	Sh	-	8.3	8.4 – 8.8
Fruitland	1168	1161	C	G	8.3	9.0 - 9.5
Pictured Cliffs	1427	1416	Sd	W	8.3	9.0 - 9.5
Lewis	1602	1588	Sh	-		9.0 - 9.5
Chacra	2196	2171	Sd	-	8.3	9.0 - 9.5
Menefee	2934	2896	Sd, C	G	8.3	9.0 - 9.5
Point Lookout	3860	3806	Sd	-	8.3	9.0 - 9.5
Mancos	4029	3972	Sh	-		9.0 - 9.5
Mancos Silt	4363	4300	Slt	O/G	6.6	9.0 - 9.5
Gallup A	4869	4784	Slt	O/G	6.6	9.0 - 9.5
Gallup B	4910	4818	Sd	O/G	6.6	8.8 - 9.0
Gallup C	5035	4911	Sd	O/G	6.6	8.8 - 9.0
Total Depth	14197	5063	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	5456	surf	5079	surface
4-1/2"	6-1/8"	11.6	P-110	BTC	5177	14197	4995	5063	5177

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
Name	BJ Services
Type	III
Additives	FI, De, R
Planned top	Surface
Density (ppg)	12.30
Yield (cf/sx)	2.34
Mix water (gal/sx)	13.26
Volume (sx)	391

Tail

BJ Services
Poz/G
De, FI, Ex
3908-ft
13.50
7.20
5.64
255

Volume (bbls)	163	68
Volume (cu.ft.)	914	381
Excess %	60	60
4-1/2" Production Liner		
Name	BJ Services	
Type	Poz/G	
Additives	De, R, FI, Ex	
Planned top	5177-ft	
Density (ppg)	13.3	
Yield (cf/sx)	1.56	
Mix water (gal/sx)	7.71	
Volume (sx)	758	
Volume (bbls)	211	
Volume (cu.ft)	1185	
Excess %	40	

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 – 5456	9.0 – 9.5	38 – 45	8 – 14	<20
Production	Low solids, non-dispersed	5456 – 14197	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.

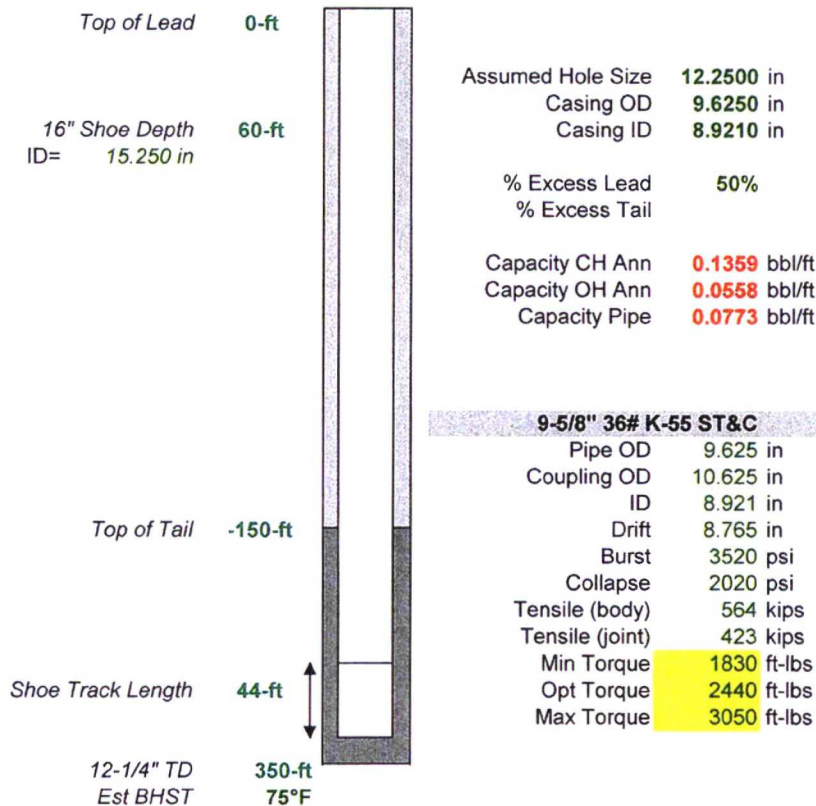
Cuttings and drilling fluids management

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 (N2 foam), 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.

9-5/8" Surface Casing & Cementing



Lead Slurry		Properties	
Redi Mix Type I/ii		Density	14.50 ppg
20% Fly Ash		Yield	1.61 cf/sk
		Total Mix Fluid	7.41 gal/sk
		Est pump time (70Bc)	NA
		8-hr compressive	475 psi
		24-hr compressive	1375 psi
Tail Slurry		Properties	
		Density	ppg
		Yield	cf/sk
		Total Mix Fluid	gal/sk
		Est pump time (70Bc)	
		50 psi strength in	
		24/72 hr strength	psi
Volumes			
Lead Volume	33 bbls	114 sx	
Tail Volume	bbls	sx	
Displacement	24 bbls		
Total Volume	56 bbls		

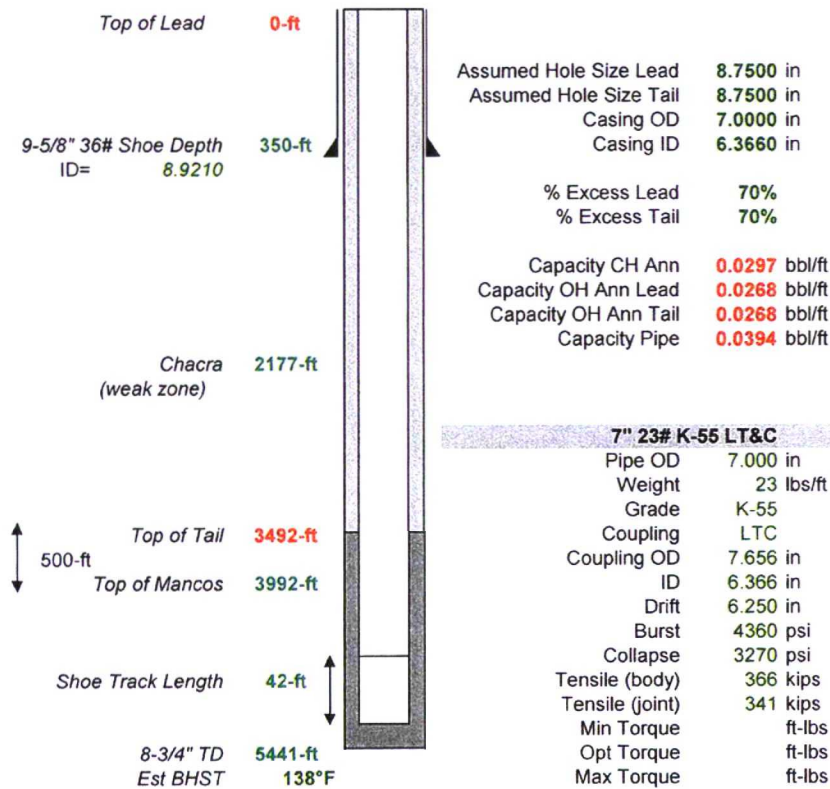
Casing Jewelry and Pump Schedule

Run guide shoe, 1 joint, then float collar. Centralize with 1 one bow spring per joint for the first 500-ft, then 1 every third joint to surface. Bottom centralizer to be 10-ft above guide shoe with stop collar above, thereafter around the coupling. Thread lock guide shoe, shoe track and float collar.

Pump schedule: 40 bbls fresh water, drop bottom plug, lead, tail, top plug, displace with water. Land wellhead housing on u-plate.

334H

7" Intermediate Casing & Cementing
NAU 334H

**7" 23# K-55 LT&C**

Pipe OD	7.000 in
Weight	23 lbs/ft
Grade	K-55
Coupling	LTC
Coupling OD	7.656 in
ID	6.366 in
Drift	6.250 in
Burst	4360 psi
Collapse	3270 psi
Tensile (body)	366 kips
Tensile (joint)	341 kips
Min Torque	ft-lbs
Opt Torque	ft-lbs
Max Torque	ft-lbs

7" 26# K-55 LT&C

Pipe OD	7.000
Weight	26
Grade	K-55
Coupling	LTC
Coupling OD	7.656
ID	6.276
Drift	6.151
Burst	4980
Collapse	4330
Tensile (body)	415
Tensile (joint)	367
Min Torque	ft-lbs
Opt Torque	ft-lbs
Max Torque	ft-lbs

TD (TVD) for temp
5073

Halliburton Lead Slurry

HALCEM
0.125 #/sx Poly-E-Flake

Properties

Density	12.30 ppg
Yield	1.95 cf/sk
Total Mix Fluid	10.14 gal/sk
Thickening Time	4:38 hr:min
Time to 50 psi (70°F)	15:01 hr:min
24-hr UCA (70°F)	134 psi

Halliburton Tail Slurry

VARICEM
0.125 #/sx Poly-E-Flake

Properties

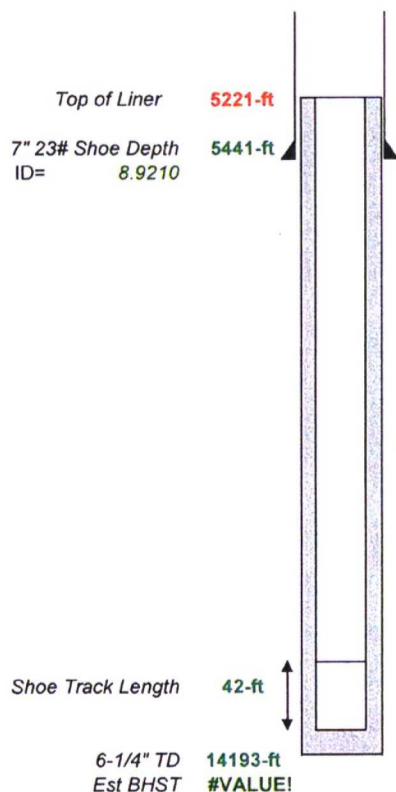
Density	13.50 ppg
Yield	1.30 cf/sk
Total Mix Fluid	5.64 gal/sk
Thickening Time	5:33 hr:min
Time to 50 psi (150°F)	3:15 hr:min
Time to 500 psi (150°F)	6:54 hr:min

Volumes

Lead Volume	153 bbls	441 sx
Tail Volume	90 bbls	389 sx
Approx Displacement	213 bbls	
Total Volume	456 bbls	

334H

4-1/2" Liner Cementing NAU 334H



Assumed Hole Size 6.2500 in

Casing OD 4.5000 in

Casing ID 4.0000 in

% Excess Open Hole 30%

Capacity CH Ann 0.0576 bbl/ft

Capacity OH Ann 0.0183 bbl/ft

Capacity Pipe 0.0155 bbl/ft

4-1/2" 11.6# P-110 LT&C

Pipe OD 4.500 in

Weight 11.6 lbs/ft

Grade P-110

Coupling LTC

Coupling OD 5.000 in

ID 4.000 in

Drift 3.875 in

Burst 10690 psi

Collapse 7580 psi

Tensile (body) 367 kips

Tensile (joint) 279 kips

Min Torque ft-lbs

Opt Torque ft-lbs

Max Torque ft-lbs

TD (TVD) for temp
Not penetrated

Halliburton Lead Slurry

EXTENDACEM

Properties

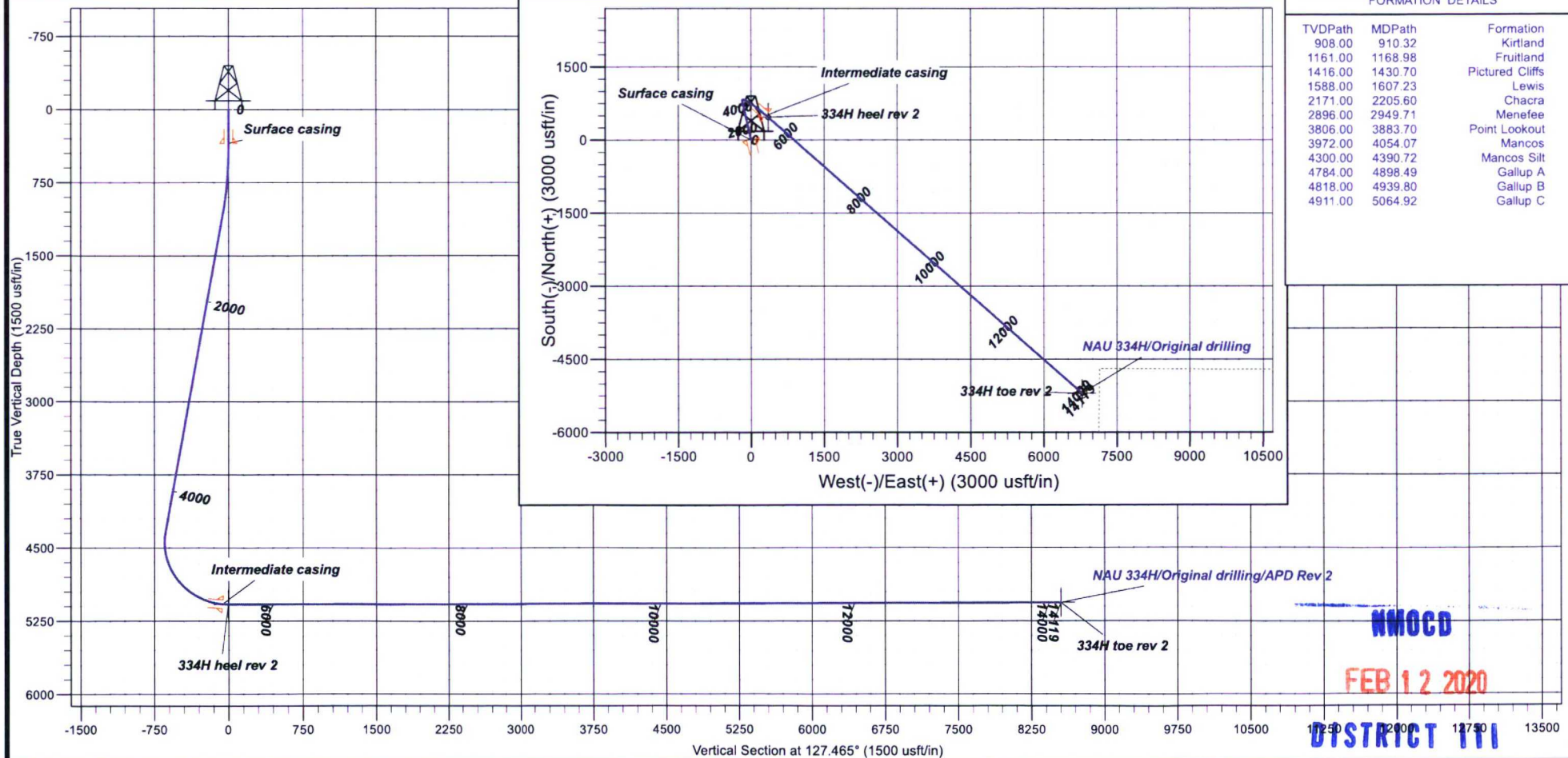
Density	13.30 ppg
Yield	1.36 cf/sk
Total Mix Fluid	5.94 gal/sk
Thickening Time	3:36 hr:min
Time to 50 psi (147°F)	5:57 hr:min
24-hr UCA (147°F)	1439 psi

Volumes

Lead Volume 221 bbls 914 sx

Approx Displacement 153 bbls

Total Volume 375 bbls





DJR Operating

North Alamito Unit

L31 2307

NAU 334H

Original drilling

Plan: APD Rev 2

Standard Planning Report

16 December, 2019



www.scientificdrilling.com

Database: Grand Junction
Company: DJR Operating

Project: North Alamito Unit

Site: L31 2307
Well: NAU 334H
Wellbore: Original drilling
Design: APD Rev 2

Local Co-ordinate Reference: Well NAU 334H
TVD Reference: GL 6964' & RKB 14' @ 6978.00usft (Aztec 920)
MD Reference: GL 6964' & RKB 14' @ 6978.00usft (Aztec 920)
North Reference: True
Survey Calculation Method: Minimum Curvature

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

Site	L31 2307				
Site Position:		Northing:	1,885,429.49 usft	Latitude:	36.1814960
From:	Lat/Long	Easting:	2,785,438.72 usft	Longitude:	-107.6220650
Position Uncertainty:	0.00 usft	Slot Radius:	13.20 in	Grid Convergence:	0.12 °

Well	NAU 334H					
Well Position	+N/-S	0.00 usft	Northing:	1,885,429.49 usft	Latitude:	36.1814960
	+E/-W	0.00 usft	Easting:	2,785,438.72 usft	Longitude:	-107.6220650
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	6,964.00 usft

Wellbore	Original drilling				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	5/7/2019	8.95	62.86	49,531.44722555

Design	APD Rev 2				
Audit Notes:					
Version:	Phase:	PLAN	Tie On Depth:	0.00	
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	127.465	

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
425.00	0.00	0.000	425.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,075.66	13.01	347.128	1,070.08	71.72	-16.39	2.00	2.00	0.00	347.13	
4,426.45	13.01	347.128	4,334.81	807.28	-184.47	0.00	0.00	0.00	0.00	
5,544.78	90.12	131.386	5,080.98	468.35	352.86	9.00	6.89	12.90	143.53	334H heel rev 2
14,118.77	90.12	131.386	5,062.98	-5,200.17	6,785.65	0.00	0.00	0.00	0.00	334H toe rev 2

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Site: L31 2307
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Wellbore: Original drilling
Design: APD Rev 2

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MD Reference: GL 6964' & RKB 14' @ 6978.00usft (Aztec 920)
North Reference: True
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.000	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.000	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.000	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.000	400.00	0.00	0.00	0.00	0.00	0.00	0.00
425.00	0.00	0.000	425.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	1.50	347.128	499.99	0.96	-0.22	-0.76	2.00	2.00	0.00
600.00	3.50	347.128	599.89	5.21	-1.19	-4.11	2.00	2.00	0.00
700.00	5.50	347.128	699.58	12.86	-2.94	-10.15	2.00	2.00	0.00
800.00	7.50	347.128	798.93	23.89	-5.46	-18.87	2.00	2.00	0.00
900.00	9.50	347.128	897.83	38.30	-8.75	-30.24	2.00	2.00	0.00
1,000.00	11.50	347.128	996.15	56.07	-12.81	-44.27	2.00	2.00	0.00
1,075.66	13.01	347.128	1,070.08	71.72	-16.39	-56.64	2.00	2.00	0.00
1,100.00	13.01	347.128	1,093.80	77.07	-17.61	-60.86	0.00	0.00	0.00
1,200.00	13.01	347.128	1,191.23	99.02	-22.63	-78.19	0.00	0.00	0.00
1,300.00	13.01	347.128	1,288.66	120.97	-27.64	-95.52	0.00	0.00	0.00
1,400.00	13.01	347.128	1,386.09	142.92	-32.66	-112.86	0.00	0.00	0.00
1,500.00	13.01	347.128	1,483.52	164.88	-37.68	-130.19	0.00	0.00	0.00
1,600.00	13.01	347.128	1,580.95	186.83	-42.69	-147.53	0.00	0.00	0.00
1,700.00	13.01	347.128	1,678.39	208.78	-47.71	-164.86	0.00	0.00	0.00
1,800.00	13.01	347.128	1,775.82	230.73	-52.72	-182.20	0.00	0.00	0.00
1,900.00	13.01	347.128	1,873.25	252.68	-57.74	-199.53	0.00	0.00	0.00
2,000.00	13.01	347.128	1,970.68	274.63	-62.76	-216.86	0.00	0.00	0.00
2,100.00	13.01	347.128	2,068.11	296.59	-67.77	-234.20	0.00	0.00	0.00
2,200.00	13.01	347.128	2,165.54	318.54	-72.79	-251.53	0.00	0.00	0.00
2,300.00	13.01	347.128	2,262.98	340.49	-77.80	-268.87	0.00	0.00	0.00
2,400.00	13.01	347.128	2,360.41	362.44	-82.82	-286.20	0.00	0.00	0.00
2,500.00	13.01	347.128	2,457.84	384.39	-87.84	-303.53	0.00	0.00	0.00
2,600.00	13.01	347.128	2,555.27	406.35	-92.85	-320.87	0.00	0.00	0.00
2,700.00	13.01	347.128	2,652.70	428.30	-97.87	-338.20	0.00	0.00	0.00
2,800.00	13.01	347.128	2,750.14	450.25	-102.89	-355.54	0.00	0.00	0.00
2,900.00	13.01	347.128	2,847.57	472.20	-107.90	-372.87	0.00	0.00	0.00
3,000.00	13.01	347.128	2,945.00	494.15	-112.92	-390.21	0.00	0.00	0.00
3,100.00	13.01	347.128	3,042.43	516.11	-117.93	-407.54	0.00	0.00	0.00
3,200.00	13.01	347.128	3,139.86	538.06	-122.95	-424.87	0.00	0.00	0.00
3,300.00	13.01	347.128	3,237.29	560.01	-127.97	-442.21	0.00	0.00	0.00
3,400.00	13.01	347.128	3,334.73	581.96	-132.98	-459.54	0.00	0.00	0.00
3,500.00	13.01	347.128	3,432.16	603.91	-138.00	-476.88	0.00	0.00	0.00
3,600.00	13.01	347.128	3,529.59	625.86	-143.01	-494.21	0.00	0.00	0.00
3,700.00	13.01	347.128	3,627.02	647.82	-148.03	-511.54	0.00	0.00	0.00
3,800.00	13.01	347.128	3,724.45	669.77	-153.05	-528.88	0.00	0.00	0.00
3,900.00	13.01	347.128	3,821.89	691.72	-158.06	-546.21	0.00	0.00	0.00
4,000.00	13.01	347.128	3,919.32	713.67	-163.08	-563.55	0.00	0.00	0.00
4,100.00	13.01	347.128	4,016.75	735.62	-168.10	-580.88	0.00	0.00	0.00
4,200.00	13.01	347.128	4,114.18	757.58	-173.11	-598.22	0.00	0.00	0.00
4,300.00	13.01	347.128	4,211.61	779.53	-178.13	-615.55	0.00	0.00	0.00
4,400.00	13.01	347.128	4,309.04	801.48	-183.14	-632.88	0.00	0.00	0.00
4,426.45	13.01	347.128	4,334.81	807.28	-184.47	-637.47	0.00	0.00	0.00
4,500.00	8.62	14.325	4,407.09	820.72	-184.95	-646.02	9.00	-5.97	36.97
4,600.00	9.22	75.021	4,506.08	830.07	-175.34	-644.08	9.00	0.59	60.70
4,700.00	16.02	103.304	4,603.69	828.96	-154.14	-626.58	9.00	6.80	28.28
4,800.00	24.27	113.942	4,697.53	817.42	-121.86	-593.94	9.00	8.26	10.64

Database: Grand Junction
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Project: North Alamito Unit

Site: L31 2307

Well: NAU 334H

Wellbore: Original drilling

Design: APD Rev 2

Local Co-ordinate Reference:

TVD Reference:

MD Reference:

North Reference:

Survey Calculation Method:

Well NAU 334H

GL 6964' & RKB 14' @ 6978.00usft (Aztec 920)

GL 6964' & RKB 14' @ 6978.00usft (Aztec 920)

True

Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,900.00	32.90	119.322	4,785.27	795.73	-79.31	-546.97	9.00	8.63	5.38
5,000.00	41.68	122.645	4,864.75	764.43	-27.52	-486.83	9.00	8.77	3.32
5,100.00	50.52	124.983	4,934.03	724.29	32.22	-414.99	9.00	8.84	2.34
5,200.00	59.40	126.789	4,991.39	676.29	98.44	-333.23	9.00	8.88	1.81
5,300.00	68.30	128.289	5,035.42	621.62	169.51	-243.57	9.00	8.90	1.50
5,400.00	77.21	129.613	5,065.04	561.62	243.69	-148.19	9.00	8.91	1.32
5,500.00	86.13	130.846	5,079.52	497.77	319.15	-49.47	9.00	8.92	1.23
5,544.78	90.12	131.386	5,080.98	468.35	352.86	-4.81	9.00	8.92	1.21
5,600.00	90.12	131.386	5,080.87	431.84	394.29	50.28	0.00	0.00	0.00
5,700.00	90.12	131.386	5,080.66	365.73	469.32	150.05	0.00	0.00	0.00
5,800.00	90.12	131.386	5,080.45	299.62	544.34	249.81	0.00	0.00	0.00
5,900.00	90.12	131.386	5,080.24	233.50	619.37	349.58	0.00	0.00	0.00
6,000.00	90.12	131.386	5,080.03	167.39	694.40	449.34	0.00	0.00	0.00
6,100.00	90.12	131.386	5,079.82	101.28	769.42	549.11	0.00	0.00	0.00
6,200.00	90.12	131.386	5,079.61	35.16	844.45	648.87	0.00	0.00	0.00
6,300.00	90.12	131.386	5,079.40	-30.95	919.48	748.64	0.00	0.00	0.00
6,400.00	90.12	131.386	5,079.19	-97.06	994.50	848.41	0.00	0.00	0.00
6,500.00	90.12	131.386	5,078.98	-163.18	1,069.53	948.17	0.00	0.00	0.00
6,600.00	90.12	131.386	5,078.77	-229.29	1,144.56	1,047.94	0.00	0.00	0.00
6,700.00	90.12	131.386	5,078.56	-295.40	1,219.58	1,147.70	0.00	0.00	0.00
6,800.00	90.12	131.386	5,078.35	-361.51	1,294.61	1,247.47	0.00	0.00	0.00
6,900.00	90.12	131.386	5,078.14	-427.63	1,369.64	1,347.23	0.00	0.00	0.00
7,000.00	90.12	131.386	5,077.93	-493.74	1,444.66	1,447.00	0.00	0.00	0.00
7,100.00	90.12	131.386	5,077.72	-559.85	1,519.69	1,546.77	0.00	0.00	0.00
7,200.00	90.12	131.386	5,077.51	-625.97	1,594.72	1,646.53	0.00	0.00	0.00
7,300.00	90.12	131.386	5,077.30	-692.08	1,669.74	1,746.30	0.00	0.00	0.00
7,400.00	90.12	131.386	5,077.09	-758.19	1,744.77	1,846.06	0.00	0.00	0.00
7,500.00	90.12	131.386	5,076.88	-824.31	1,819.80	1,945.83	0.00	0.00	0.00
7,600.00	90.12	131.386	5,076.67	-890.42	1,894.83	2,045.59	0.00	0.00	0.00
7,700.00	90.12	131.386	5,076.46	-956.53	1,969.89	2,145.36	0.00	0.00	0.00
7,800.00	90.12	131.386	5,076.25	-1,022.65	2,044.88	2,245.13	0.00	0.00	0.00
7,900.00	90.12	131.386	5,076.04	-1,088.76	2,119.91	2,344.89	0.00	0.00	0.00
8,000.00	90.12	131.386	5,075.83	-1,154.87	2,194.93	2,444.66	0.00	0.00	0.00
8,100.00	90.12	131.386	5,075.62	-1,220.98	2,269.96	2,544.42	0.00	0.00	0.00
8,200.00	90.12	131.386	5,075.41	-1,287.10	2,344.99	2,644.19	0.00	0.00	0.00
8,300.00	90.12	131.386	5,075.20	-1,353.21	2,420.01	2,743.95	0.00	0.00	0.00
8,400.00	90.12	131.386	5,074.99	-1,419.32	2,495.04	2,843.72	0.00	0.00	0.00
8,500.00	90.12	131.386	5,074.78	-1,485.44	2,570.07	2,943.48	0.00	0.00	0.00
8,600.00	90.12	131.386	5,074.57	-1,551.55	2,645.09	3,043.25	0.00	0.00	0.00
8,700.00	90.12	131.386	5,074.36	-1,617.66	2,720.12	3,143.02	0.00	0.00	0.00
8,800.00	90.12	131.386	5,074.15	-1,683.78	2,795.15	3,242.78	0.00	0.00	0.00
8,900.00	90.12	131.386	5,073.94	-1,749.89	2,870.17	3,342.55	0.00	0.00	0.00
9,000.00	90.12	131.386	5,073.73	-1,816.00	2,945.20	3,442.31	0.00	0.00	0.00
9,100.00	90.12	131.386	5,073.52	-1,882.11	3,020.23	3,542.08	0.00	0.00	0.00
9,200.00	90.12	131.386	5,073.31	-1,948.23	3,095.25	3,641.84	0.00	0.00	0.00
9,300.00	90.12	131.386	5,073.10	-2,014.34	3,170.28	3,741.61	0.00	0.00	0.00
9,400.00	90.12	131.386	5,072.89	-2,080.45	3,245.31	3,841.38	0.00	0.00	0.00
9,500.00	90.12	131.386	5,072.68	-2,146.57	3,320.34	3,941.14	0.00	0.00	0.00
9,600.00	90.12	131.386	5,072.47	-2,212.68	3,395.36	4,040.91	0.00	0.00	0.00
9,700.00	90.12	131.386	5,072.26	-2,278.79	3,470.39	4,140.67	0.00	0.00	0.00
9,800.00	90.12	131.386	5,072.05	-2,344.91	3,545.42	4,240.44	0.00	0.00	0.00
9,900.00	90.12	131.386	5,071.84	-2,411.02	3,620.44	4,340.20	0.00	0.00	0.00

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MD Reference: GL 6964' & RKB 14' @ 6978.00usft (Aztec 920)
North Reference: True
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
10,000.00	90.12	131.386	5,071.63	-2,477.13	3,695.47	4,439.97	0.00	0.00	0.00
10,100.00	90.12	131.386	5,071.42	-2,543.24	3,770.50	4,539.74	0.00	0.00	0.00
10,200.00	90.12	131.386	5,071.21	-2,609.36	3,845.52	4,639.50	0.00	0.00	0.00
10,300.00	90.12	131.386	5,071.00	-2,675.47	3,920.55	4,739.27	0.00	0.00	0.00
10,400.00	90.12	131.386	5,070.79	-2,741.58	3,995.58	4,839.03	0.00	0.00	0.00
10,500.00	90.12	131.386	5,070.58	-2,807.70	4,070.60	4,938.80	0.00	0.00	0.00
10,600.00	90.12	131.386	5,070.37	-2,873.81	4,145.63	5,038.56	0.00	0.00	0.00
10,700.00	90.12	131.386	5,070.16	-2,939.92	4,220.66	5,138.33	0.00	0.00	0.00
10,800.00	90.12	131.386	5,069.95	-3,006.04	4,295.68	5,238.09	0.00	0.00	0.00
10,900.00	90.12	131.386	5,069.74	-3,072.15	4,370.71	5,337.86	0.00	0.00	0.00
11,000.00	90.12	131.386	5,069.53	-3,138.26	4,445.74	5,437.63	0.00	0.00	0.00
11,100.00	90.12	131.386	5,069.32	-3,204.37	4,520.76	5,537.39	0.00	0.00	0.00
11,200.00	90.12	131.386	5,069.11	-3,270.49	4,595.79	5,637.16	0.00	0.00	0.00
11,300.00	90.12	131.386	5,068.90	-3,336.60	4,670.82	5,736.92	0.00	0.00	0.00
11,400.00	90.12	131.386	5,068.69	-3,402.71	4,745.85	5,836.69	0.00	0.00	0.00
11,500.00	90.12	131.386	5,068.48	-3,468.83	4,820.87	5,936.45	0.00	0.00	0.00
11,600.00	90.12	131.386	5,068.27	-3,534.94	4,895.90	6,036.22	0.00	0.00	0.00
11,700.00	90.12	131.386	5,068.06	-3,601.05	4,970.93	6,135.99	0.00	0.00	0.00
11,800.00	90.12	131.386	5,067.85	-3,667.17	5,045.95	6,235.75	0.00	0.00	0.00
11,900.00	90.12	131.386	5,067.64	-3,733.28	5,120.98	6,335.52	0.00	0.00	0.00
12,000.00	90.12	131.386	5,067.43	-3,799.39	5,196.01	6,435.28	0.00	0.00	0.00
12,100.00	90.12	131.386	5,067.22	-3,865.50	5,271.03	6,535.05	0.00	0.00	0.00
12,200.00	90.12	131.386	5,067.01	-3,931.62	5,346.06	6,634.81	0.00	0.00	0.00
12,300.00	90.12	131.386	5,066.80	-3,997.73	5,421.09	6,734.58	0.00	0.00	0.00
12,400.00	90.12	131.386	5,066.59	-4,063.84	5,496.11	6,834.34	0.00	0.00	0.00
12,500.00	90.12	131.386	5,066.38	-4,129.96	5,571.14	6,934.11	0.00	0.00	0.00
12,600.00	90.12	131.386	5,066.17	-4,196.07	5,646.17	7,033.88	0.00	0.00	0.00
12,700.00	90.12	131.386	5,065.96	-4,262.18	5,721.19	7,133.64	0.00	0.00	0.00
12,800.00	90.12	131.386	5,065.75	-4,328.30	5,796.22	7,233.41	0.00	0.00	0.00
12,900.00	90.12	131.386	5,065.54	-4,394.41	5,871.25	7,333.17	0.00	0.00	0.00
13,000.00	90.12	131.386	5,065.33	-4,460.52	5,946.27	7,432.94	0.00	0.00	0.00
13,100.00	90.12	131.386	5,065.12	-4,526.63	6,021.30	7,532.70	0.00	0.00	0.00
13,200.00	90.12	131.386	5,064.91	-4,592.75	6,096.33	7,632.47	0.00	0.00	0.00
13,300.00	90.12	131.386	5,064.70	-4,658.86	6,171.36	7,732.24	0.00	0.00	0.00
13,400.00	90.12	131.386	5,064.49	-4,724.97	6,246.38	7,832.00	0.00	0.00	0.00
13,500.00	90.12	131.386	5,064.28	-4,791.09	6,321.41	7,931.77	0.00	0.00	0.00
13,600.00	90.12	131.386	5,064.07	-4,857.20	6,396.44	8,031.53	0.00	0.00	0.00
13,700.00	90.12	131.386	5,063.86	-4,923.31	6,471.46	8,131.30	0.00	0.00	0.00
13,800.00	90.12	131.386	5,063.65	-4,989.43	6,546.49	8,231.06	0.00	0.00	0.00
13,900.00	90.12	131.386	5,063.44	-5,055.54	6,621.52	8,330.83	0.00	0.00	0.00
14,000.00	90.12	131.386	5,063.23	-5,121.65	6,696.54	8,430.60	0.00	0.00	0.00
14,100.00	90.12	131.386	5,063.02	-5,187.76	6,771.57	8,530.36	0.00	0.00	0.00
14,118.77	90.12	131.386	5,062.98	-5,200.17	6,785.65	8,549.09	0.00	0.00	0.00

Database: Grand Junction
Company: DJR Operating

Project: North Alamito Unit

Site: L31 2307
Well: NAU 334H
Wellbore: Original drilling
Design: APD Rev 2

Local Co-ordinate Reference: Well NAU 334H
TVD Reference: GL 6964' & RKB 14' @ 6978.00usft (Aztec 920)
MD Reference: GL 6964' & RKB 14' @ 6978.00usft (Aztec 920)
North Reference: True
Survey Calculation Method: Minimum Curvature

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
334H toe rev 2 - plan hits target center - Circle (radius 100.00)	0.00	0.000	5,062.98	-5,200.17	6,785.65	1,880,244.10	2,792,235.67	36.1672084	-107.5990755
334H heel rev 2 - plan hits target center - Circle (radius 50.00)	0.00	0.000	5,080.98	468.35	352.86	1,885,898.61	2,785,790.55	36.1827826	-107.6208693

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)
350.00	350.00	Surface casing	9.63	12.25
5,486.98	5,078.50	Intermediate casing	7.00	8.75

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
910.32	908.00	Kirtland		0.00	0.000
1,168.98	1,161.00	Fruitland		0.00	0.000
1,430.70	1,416.00	Pictured Cliffs		0.00	0.000
1,607.23	1,588.00	Lewis		0.00	0.000
2,205.60	2,171.00	Chacra		0.00	0.000
2,949.71	2,896.00	Menefee		0.00	0.000
3,883.70	3,806.00	Point Lookout		0.00	0.000
4,054.07	3,972.00	Mancos		0.00	0.000
4,390.72	4,300.00	Mancos Silt		0.00	0.000
4,898.49	4,784.00	Gallup A		0.00	0.000
4,939.80	4,818.00	Gallup B		0.00	0.000
5,064.92	4,911.00	Gallup C		0.00	0.000

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
425.00	425.00	0.00	0.00	Start Build 2.00
963.81	960.64	49.25	-11.25	Start 3444.07 hold at 963.81 MD
4,407.87	4,316.72	803.21	-183.54	Start DLS 9.00 TFO 150.10
5,513.30	5,080.28	489.08	329.18	Start 8683.58 hold at 5513.30 MD
14,196.88				TD at 14196.88



DJR Operating

North Alamito Unit

L31 2307

NAU 334H

Original drilling

APD

Anticollision Report

07 May, 2019

Anticollision Report

Company:	DJR Operating	Local Co-ordinate Reference:	Well NAU 334H
Project:	North Alamito Unit	TVD Reference:	RKB @ 6978ft (RIG TBD)
Reference Site:	L31 2307	MD Reference:	RKB @ 6978ft (RIG TBD)
Site Error:	0 ft	North Reference:	True
Reference Well:	NAU 334H	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	5/7/2019		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0	14,193	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						
L31 2307						
NAU 335H - Original drilling - APD	425	425	40	37	15.110	CC
NAU 335H - Original drilling - APD	500	500	40	37	12.695	ES
NAU 335H - Original drilling - APD	5250	5246	235	196	6.088	SF
NAU 523H - Original drilling - APD	626	627	16	12	4.074	CC, ES
NAU 523H - Original drilling - APD	14,193	14,108	882	419	1.905	SF
NAU 524H - Original drilling - APD	425	425	60	57	22.687	CC
NAU 524H - Original drilling - APD	500	500	60	57	18.966	ES
NAU 524H - Original drilling - APD	800	798	75	69	14.139	SF

Offset Design L31 2307 - NAU 335H - 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		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)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0	0	0	0	0	0	71.36	13	38	40					
100	100	100	100	0	0	71.36	13	38	40	40	0.31	129.312		
200	200	200	200	1	1	71.36	13	38	40	39	1.03	38.884		
300	300	300	300	1	1	71.36	13	38	40	38	1.74	22.882		
400	400	400	400	1	1	71.36	13	38	40	37	2.46	16.211		
425	425	425	425	1	1	71.36	13	38	40	37	2.64	15.110	CC	
500	500	500	500	2	2	116.66	13	38	40	37	3.17	12.695	ES	
600	600	600	600	2	2	121.89	13	38	42	39	3.89	10.911		
674	674	674	674	2	2	127.67	13	38	46	41	4.42	10.305		
700	700	700	700	2	2	129.85	13	38	47	42	4.61	10.191		
800	799	799	799	3	3	137.06	13	38	53	48	5.33	9.939		
900	899	898	898	3	3	143.98	11	39	61	55	6.03	10.056		
1000	998	995	995	3	3	151.28	7	41	71	65	6.71	10.625		
1100	1098	1092	1091	4	4	158.07	-1	44	85	78	7.38	11.565		
1200	1198	1187	1186	4	4	163.91	-11	49	103	95	8.04	12.810		
1300	1297	1282	1280	5	4	168.74	-23	56	124	115	8.70	14.263		
1400	1397	1380	1376	5	5	172.37	-37	62	147	137	9.39	15.602		
1500	1497	1477	1472	5	5	175.03	-51	69	169	159	10.09	16.794		
1600	1596	1574	1568	6	6	177.06	-65	76	193	182	10.79	17.848		
1700	1696	1671	1664	6	6	178.65	-78	83	216	204	11.49	18.785		

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



Pad name : L31 2307

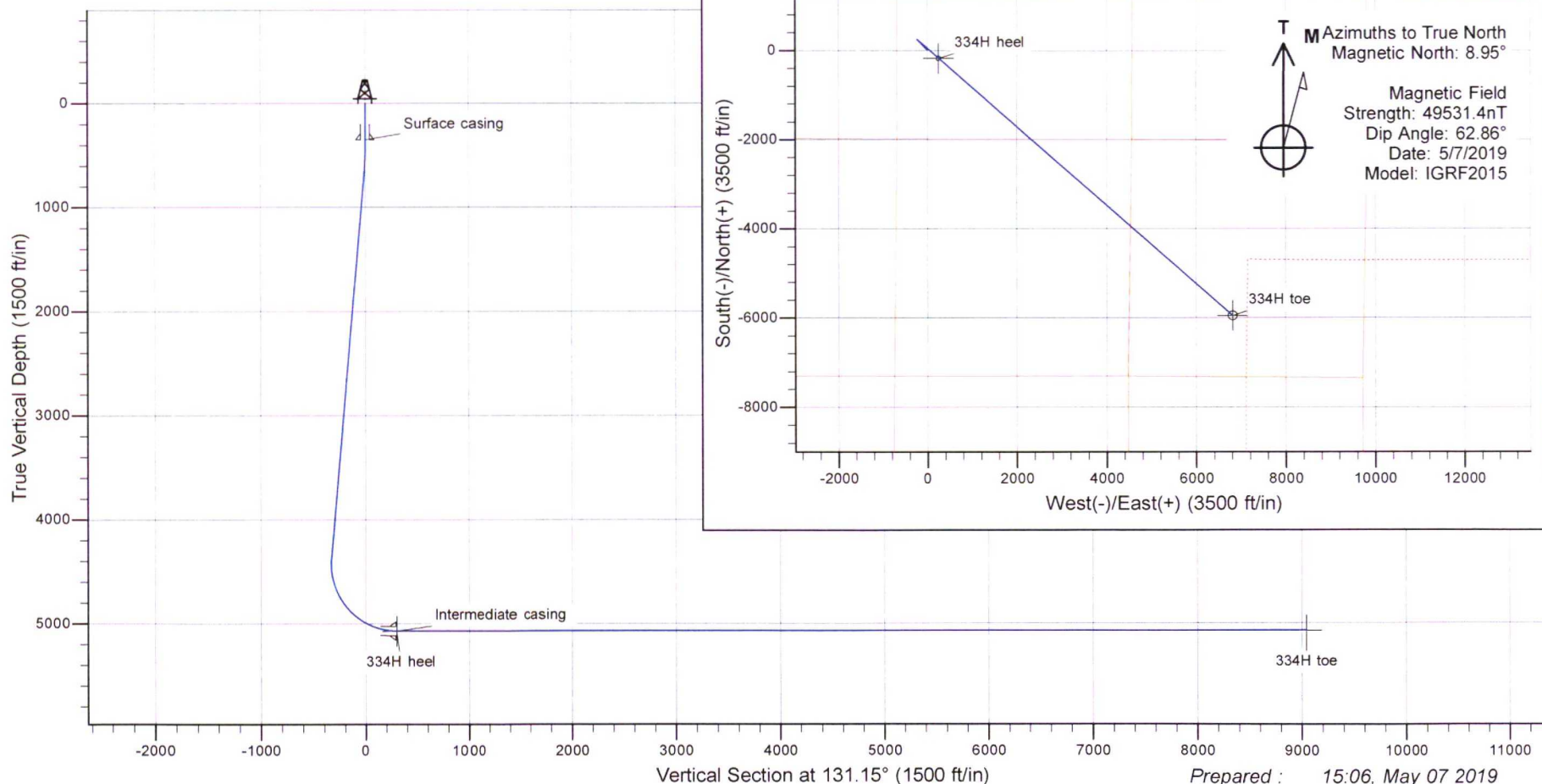
Well name : North Alamito Unit #334H

SHL Latitude : 36.18149600
SHL Longitude : -107.62206500

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

TRAJECTORY DETAILS									
Pad elevation : 6964 RKB @ 6978ft (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	
425	0.00	0.00	425	0	0	0.00	0.00	0	
674	4.98	315.96	674	8	-8	2.00	315.96	-11	
4396	4.98	315.96	4381	240	-232	0.00	0.00	-333	
5451	90.00	131.35	5073	-175	247	9.00	175.37	302	334H heel
14193	90.00	131.35	5073	-5951	6810	0.00	0.00	9043	334H toe

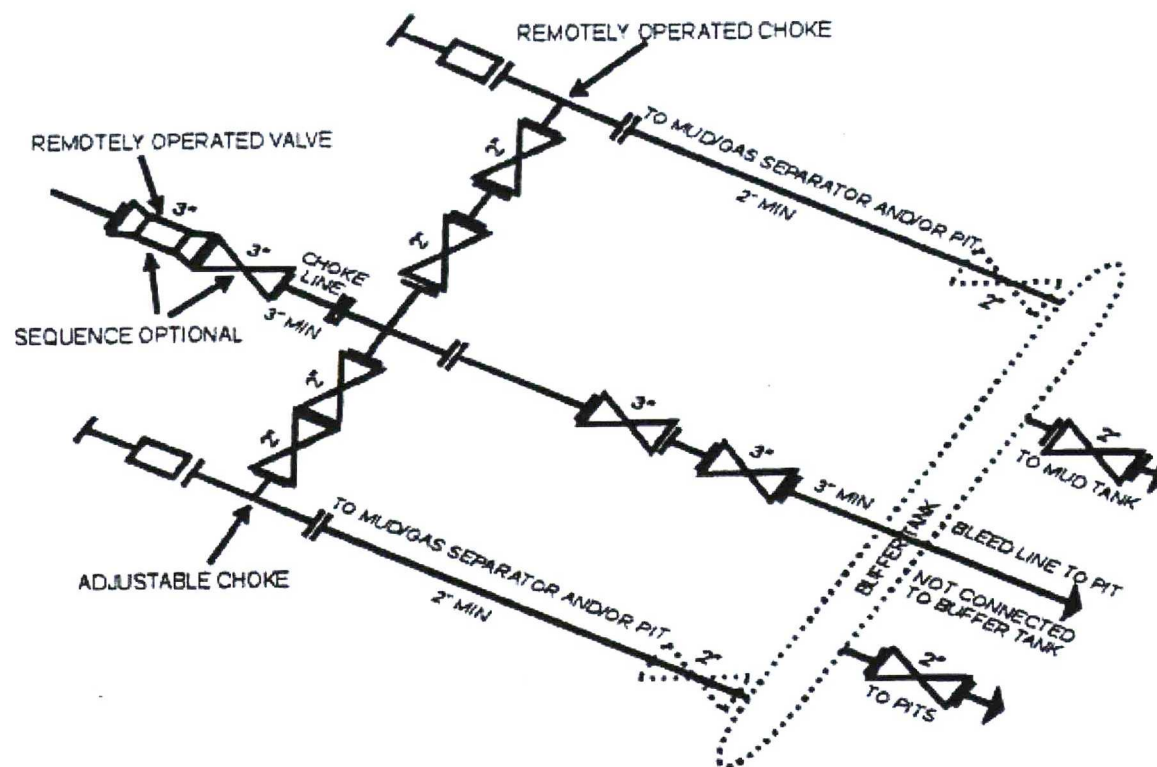
TARGET DETAILS							
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
334H heel	5073	-175	247	1885255	2785686	36.18101400	-107.62122700
334H toe	5073	-5951	6810	1879494	2792262	36.16514700	-107.59899400



Prepared : 15:06, May 07 2019

Choke Manifold

Actual system to conform with Onshore Order 2



Proposed BOP stack 11" 3M RRA



Double gate with integral choke/kill outlets

Kill line
2" minimum diameter

Choke line
3" minimum diameter

Low pressure rotating head

Flowline

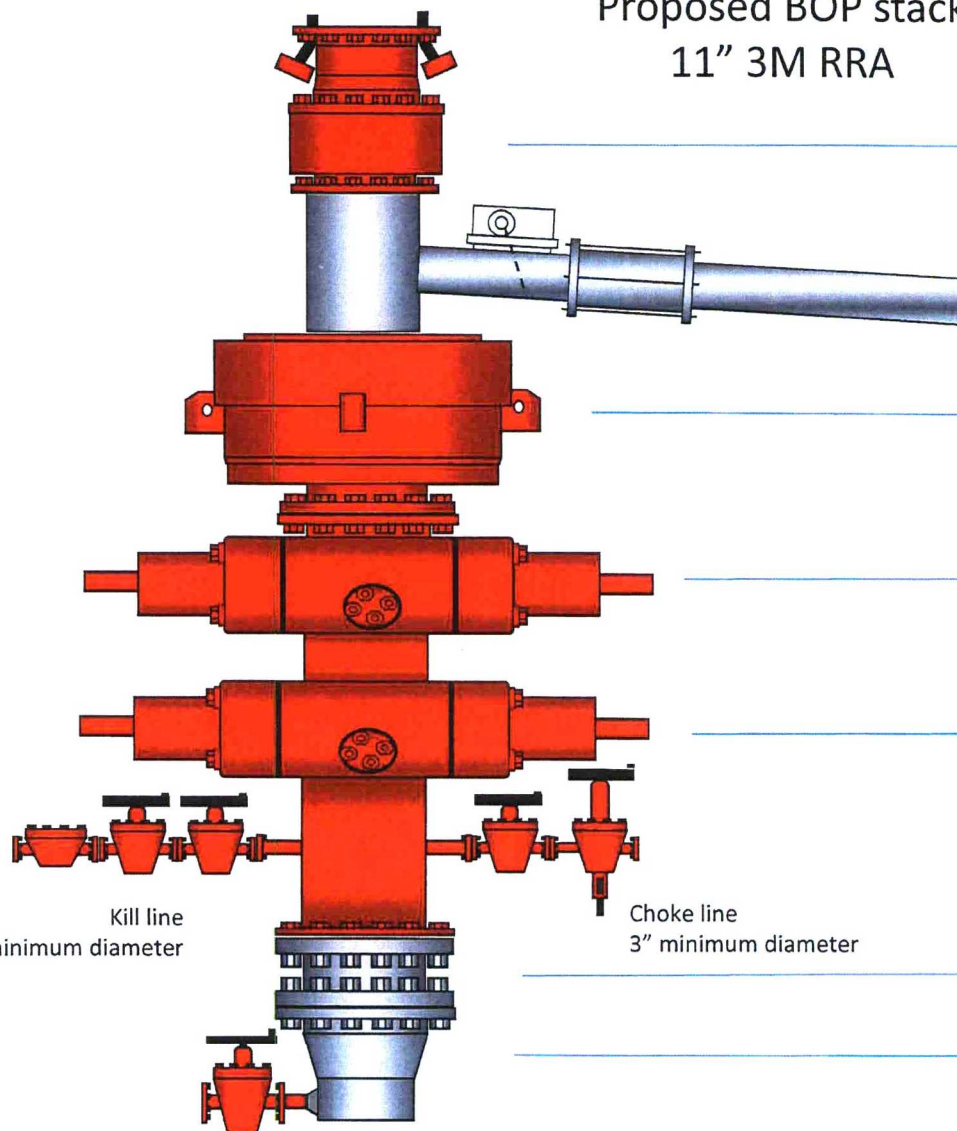
3M Annular preventer

3M Pipe rams

3M Blind rams

Tie-down flange
(moves with BOP)

11" 5M Multi-bowl casing head



DJR OPERATING, LLC
NORTH ALAMITO UNIT #334H

1989' FSL & 675' FWL
LOCATED IN THE NW/4 SW/4 OF SECTION 31,
T23N, R7W, N.M.P.M.,
SANDOVAL COUNTY, NEW MEXICO

DIRECTIONS

- 1) FROM THE INTERSECTION OF HWY 64 & HWY 550 IN BLOOMFIELD, GO SOUTH ON HWY 550, 39.0 MILES TO INDIAN ROUTE 7061; AKA COUNTY ROAD 7900 (M.P. 112.7).
- 2) TURN RIGHT ONTO 7061 AND GO 4.5 MILES TO A DIRT ROAD ON LEFT.
- 3) TURN LEFT AND GO 2.8 MILES TO A DIRT ROAD ON THE LEFT ON LEFT.
- 4) FOLLOW ROAD FOR 0.5 MILES WHERE ACCESS IS STAKED ON LEFT SIDE OF ROAD.

WELL FLAG LOCATED AT LAT. 36.181496° N, LONG. 107.622065° W (NAD 83).