

Form 3160-3
(June 2015)FORM APPROVED
OMB No. 1004-0137
Expires: January 31, 2018

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

1a. Type of work: ☐ DRILL ☐ REENTER 1b. Type of Well: ☐ Oil Well ☐ Gas Well ☐ Other 1c. Type of Completion: ☐ Hydraulic Fracturing ☐ Single Zone ☐ Multiple Zone		5. Lease Serial No. 6. If Indian, Allottee or Tribe Name 7. If Unit or CA Agreement, Name and No. 8. Lease Name and Well No.
2. Name of Operator		9. API Well No. <u>30 045 38234</u>
3a. Address	3b. Phone No. (include area code)	10. Field and Pool, or Exploratory
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface At proposed prod. zone		11. Sec., T. R. M. or Blk. and Survey or Area
14. Distance in miles and direction from nearest town or post office*		12. County or Parish
13. State		
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)	16. No of acres in lease	17. Spacing Unit dedicated to this well
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.	19. Proposed Depth	20. BLM/BIA Bond No. in file
21. Elevations (Show whether DF, KDB, RT, GL, etc.)	22. Approximate date work will start*	23. Estimated duration
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.
2. A Drilling Plan.
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). | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
5. Operator certification.
6. Such other site specific information and/or plans as may be requested by the BLM. |
|---|---|

25. Signature	Name (Printed/Typed)	Date
Title		
Approved by (Signature)	Name (Printed/Typed)	Date
Title		
Office		

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

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

(Continued on page 2)

*(Instructions on page 2)



Approval Date: 04/22/2021

DISTRICT I1625 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) 748-1283 Fax: (575) 748-9720**DISTRICT III**1000 Rio Brazos Rd., Aztec, N.M. 87410
Phone: (505) 334-6178 Fax: (505) 334-6170**DISTRICT IV**1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462State of New Mexico
Energy, Minerals & Natural Resources DepartmentForm C-102
Revised August 1, 2011Submit one copy to appropriate
District OfficeOIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30 045 38234	² Pool Code 98175	³ Pool Name BETONNIE TSOSIE WASH UNIT MANCOS OIL POOL
⁴ Property Code 325179	⁵ Property Name BETONNIE TSOSIE WASH UNIT	⁶ Well Number 506H
⁷ OGRID No. 371838	⁸ Operator Name DJR OPERATING, LLC	⁹ Elevation 6834'

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
G	34	23N	8W		1474'	NORTH	2329'	EAST	SAN JUAN

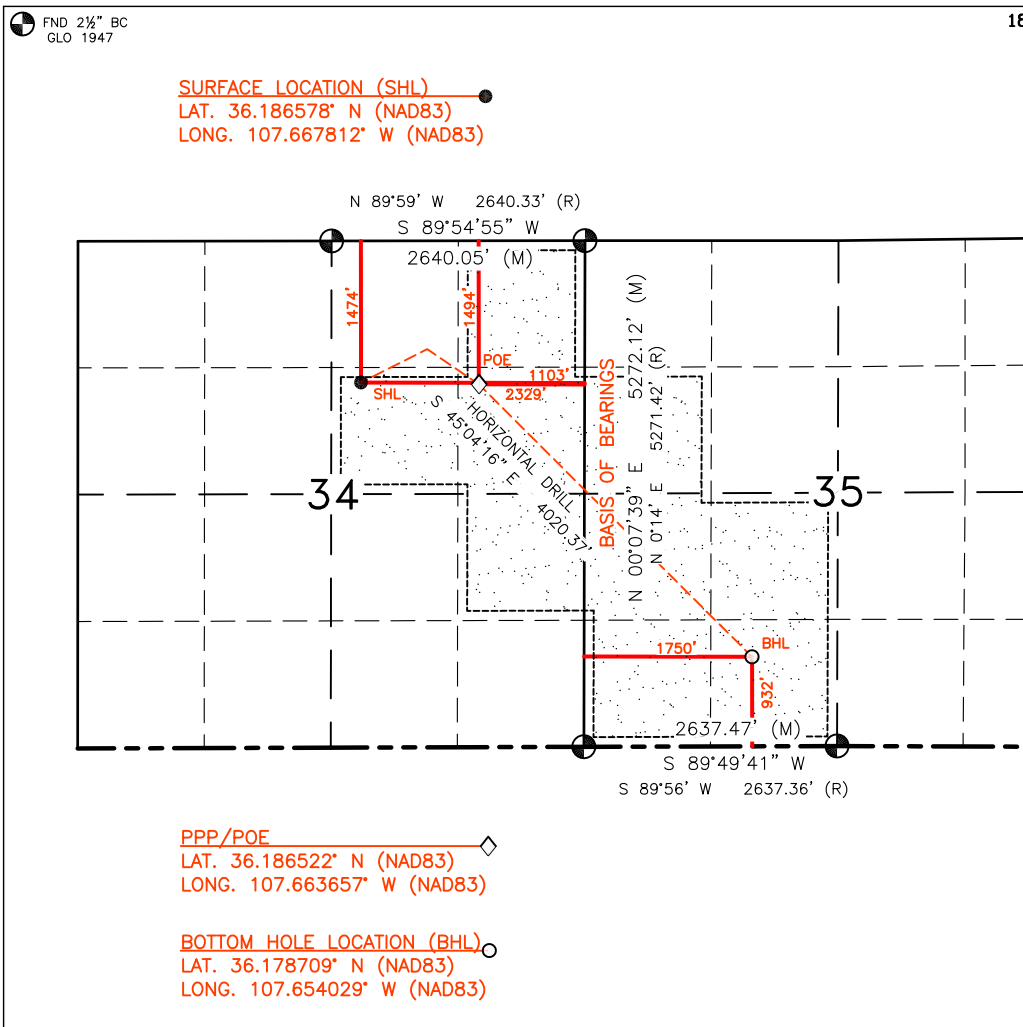
¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
N	35	23N	8W		932'	SOUTH	1750'	WEST	SAN JUAN

¹² Dedicated Acres PENETRATED SPACING UNIT; SEC 34: SW/NE, NE/NE, SE/NE & NE/SE (160 AC.); SEC 35: SW/4 & SW/NW (200 AC.) = 360 ACRES	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No. R-13930 R-13930A
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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

16



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.

Shaw-Marie Ford 09/14/20
Signature Date

Shaw-Marie Ford
Printed Name

sford@djrlc.com
E-mail Address

SURVEYOR CERTIFICATION

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

APRIL 3, 2020

Date of Survey
Signature and Seal of Professional Surveyor:



Certificate Number 11393

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Energy, Minerals & Natural Resources Department

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District Office

☐ AMENDED REPORT

DJR OPERATING, LLC
BETONNIE TSOSIE WASH UNIT #506H

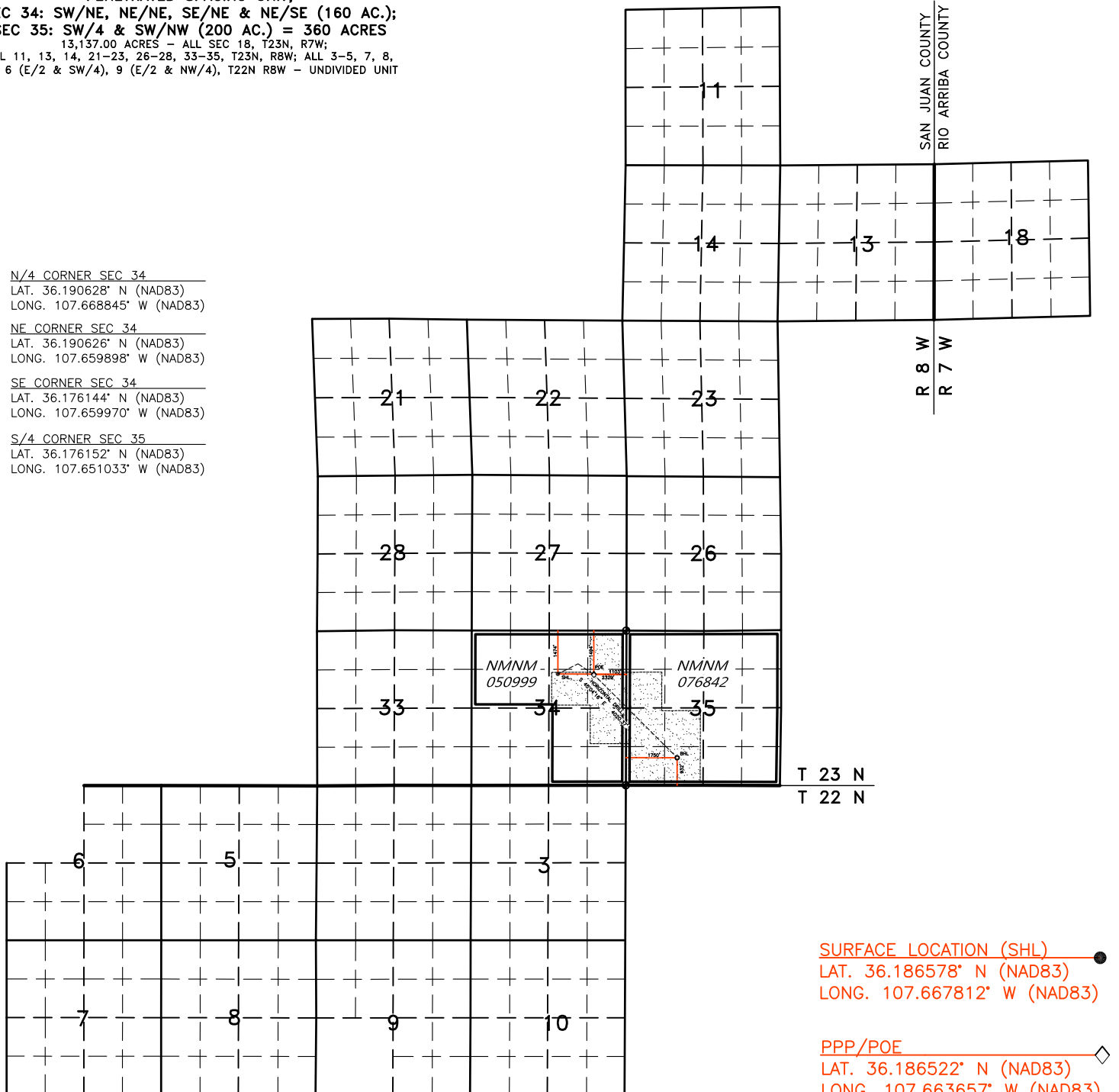
PENETRATED SPACING UNIT;
SEC 34: SW/NE, NE/NE, SE/NE & NE/SE (160 AC.);
SEC 35: SW/4 & SW/NW (200 AC.) = 360 ACRES
13,137.00 ACRES - ALL SEC 18, T23N, R7W;
ALL 11, 13, 14, 21-23, 26-28, 33-35, T23N, R8W; ALL 3-5, 7, 8,
10, 6 (E/2 & SW/4), 9 (E/2 & NW/4), T22N R8W - UNDIVIDED UNIT

N/4 CORNER SEC 34
LAT. 36.190628° N (NAD83)
LONG. 107.668845° W (NAD83)

NE CORNER SEC 34
LAT. 36.190626° N (NAD83)
LONG. 107.659898° W (NAD83)

SE CORNER SEC 34
LAT. 36.176144° N (NAD83)
LONG. 107.659970° W (NAD83)

S/4 CORNER SEC 35
LAT. 36.176152° N (NAD83)
LONG. 107.651033° W (NAD83)



SURFACE LOCATION (SHL) ●
LAT. 36.186578° N (NAD83)
LONG. 107.667812° W (NAD83)

PPP/POE ◇
LAT. 36.186522° N (NAD83)
LONG. 107.663657° W (NAD83)

BOTTOM HOLE LOCATION (BHL) ○
LAT. 36.178709° N (NAD83)
LONG. 107.654029° W (NAD83)

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☐ AMENDED REPORT

BLANCO WASH UNIT #506H

1554.72 LINEAR FEET OF WELLBORE WITHIN
NMNM 050999
LOCATED IN THE SE/NE OF SECTION 34,
T23N, R8W, N.M.P.M.,
SAN JUAN COUNTY, NEW MEXICO

WELLBORE	NS-FOOT	NS INDICATOR	EW-FOOT	EW INDICATOR	LATITUDE	LONGITUDE
FROM	1494	FNL	1103	FEL	36.186522° N	107.663657° W
TO	2594	FNL	0	FEL	36.183501° N	107.659934° W

2465.64 LINEAR FEET OF WELLBORE WITHIN
NMNM 076842
LOCATED IN THE SW/NW, NW/SW, NE/SW
& SE/SW OF SECTION 35,
T23N, R8W, N.M.P.M.,
SAN JUAN COUNTY, NEW MEXICO

WELLBORE	NS-FOOT	NS INDICATOR	EW-FOOT	EW INDICATOR	LATITUDE	LONGITUDE
FROM	2594	FNL	0	FWL	36.183501° N	107.659934° W
TO	932	FSL	1750	FWL	36.178709° N	107.654029° W

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

Submit Original
to Appropriate
District Office

GAS CAPTURE PLAN

Date: 07/15/2020

☒ Original

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

☐ Amended - Reason for Amendment: _____

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

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

Well(s)/Production Facility – Name of facility

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

Well Name	API	Well Location	Footages	Expected MCF/D	Flared or Vented	Comments
Betonne Tsoie Wash Unit # 506H		SWNE, Section 34, T23N, R8W	1474' FNL, 2329' FEL	450	Flared	
Betonne Tsoie Wash Unit # 507H		SWNE, Section 34, T23N, R8W	1480' FNL, 2348' FEL	580	Flared	
Betonne Tsoie Wash Unit # 508H		SWNE, Section 34, T23N, R8W	1492' FNL, 2387' FEL	375	Flared	
Betonne Tsoie Wash Unit # 509H		SWNE, Section 34, T23N, R8W	1486' FNL, 2367' FEL	480	Flared	

Gathering System and Pipeline Notification

Well(s) will be connected to a production facility after flowback operations are complete, if gas transporter system is in place. The gas produced from production facility is dedicated to **Enterprise Field Services, LLC (Enterprise)** and will be connected to **Enterprise's** low/high pressure gathering system located in **Sandoval** County, New Mexico. It will require **10,875'** of pipeline to connect the facility to DJR Operating LLC. low/high pressure existing pipeline in **Sec. 34, T23N, R8W** which ties into **Enterprise's** existing pipeline in **Section 25, T23N, R7W**. **DJR Operating LLC.** provides (periodically) to **Enterprise** a drilling, completion and estimated first production date for wells that are scheduled to be drilled in the foreseeable future. In addition, **DJR Operating LLC.** and **Enterprise** have periodic conference calls to discuss changes to drilling and completion schedules. Gas from these wells will be processed at the **Chaco Processing Plant** located in **Sec. 16, T26N, R12W, San Juan** County, New Mexico. The actual flow of the gas will be based on compression operating parameters and gathering system pressures.

Flowback Strategy

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

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

Alternatives to Reduce Flaring

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

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

Rev 0



DRILLING PLAN

Bettonie Tsosie Wash Unit #506H

San Juan County, New Mexico

Surface Location

2329-ft FEL & 1474-ft FNL
 Sec 34 T23N R08W
 Graded Elevation 6834' MSL
 RKB Elevation 6848' (14' KB)

SHL Geographical Coordinates (NAD-83)

Latitude 36.1865780° N
 Longitude 107.6678120° W

Kick Off Point for Horizontal Build Curve

4368-ft MD
 4289-ft TVD

Local Coordinates (from SHL)

347-ft North
 689-ft East

Heel Location (Pay zone entry)

1103-ft FEL & 1494-ft FNL
 Sec 34 T23N R08W

Heel Geographical Coordinates (NAD-83)

Latitude 36.1865224° N
 Longitude 107.66365700° W

Bottom Hole Location (TD)

1750-ft FWL & 932-ft FSL
 Sec 35 T23N R08W

BHL Geographical Coordinates (NAD-83)

Latitude 36.1787085° N
 Longitude 107.6540291° W

Well objectives

This well is planned as a 4020-ft lateral in the Gallup C sand.

Bottom Hole temperature and pressure

The temperature in the Gallup C horizontal objective is 135°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	613	613	Sd	W	8.3	8.4 – 8.8
Kirtland	765	764	Sh	-	8.3	8.4 – 8.8
Fruitland	971	967	C	G	8.3	9.0 - 9.5
Pictured Cliffs	1242	1232	Sd	W	8.3	9.0 - 9.5
Lewis	1397	1384	Sh	-		9.0 - 9.5
Chacra	1975	1949	Sd	-	8.3	9.0 - 9.5
Menefee	2737	2694	Sd, C	G	8.3	9.0 - 9.5
Point Lookout	3709	3644	Sd	-	8.3	9.0 - 9.5
Mancos	3867	3798	Sh	-		9.0 - 9.5
Mancos Silt	4150	4075	Slt	O/G	6.6	9.0 - 9.5
Gallup A	4684	4580	Slt	O/G	6.6	9.0 - 9.5
Gallup B	4751	4633	Sd	O/G	6.6	8.8 - 9.0
Gallup C	4904	4739	Sd	O/G	6.6	8.8 - 9.0
Target	5331	4871	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	5270	surf	4867	surface
4-1/2"	6-1/8"	11.6	P-110	BTC	4985	9351	4784	4843	4985

Note: all casing will be new

Rev 0



Casing Design Load Cases

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

Note

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

Casing Design Factors

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

Cement Design

9-5/8" Surface Casing

	<u>Lead</u>
Name	Redi-Mix
Type	I-II
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

	<u>Lead</u>	<u>Tail</u>
	BJ Services	BJ Services
Type	III	Poz/G
Planned top	Surface	3868-ft
Density (ppg)	12.30	13.50
Yield (cf/sx)	2.34	1.50
Mix water (gal/sx)	13.26	7.20
Volume (sx)	364	218
Volume (bbls)	152	58
Volume (cu.ft.)	852	325
Excess %	50	50



Rev 0

4-1/2" Production Liner

	BJ Services
Type	Poz/G
Planned top	4985-ft
Density (ppg)	13.3
Yield (cf/sx)	1.56
Mix water (gal/sx)	7.71
Volume (sx)	366
Volume (bbls)	102
Volume (cu.ft)	572
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 – 5270	9.0 – 9.5	38 – 45	8 – 14	<20
Production	Low solids, non-dispersed	5270 – 9351	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.



Company: DJR Operating
Project: Betonnie Tsosie Unit
Site: G34 2308 Pad
Well: # 506H
Wellbore: Original Drilling
Design: APD

PROJECT DETAILS: Betonnie Tsosie Unit

Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Western Zone
System Datum: Mean Sea Level
Local North: True



Azimuths to True North
Magnetic North: 8.1°
Magnetic Field
Strength: 49308.1
Dip Angle: 62.1°
Date: 3/26/2020
Model: HDGM_F

WELL DETAILS: # 506H

GL 6834' & RKB 14' @ 6848.00usft (Aztec 920)

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	
0.00	0.00	1887253.23	2771935.22	36.18657800	-107.66781200	4

Plan: APD (# 506H/Original Drilling)

Created By: Janie Collins Date: 11:55, June 01 2020

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
506H Heel	4871.00	-20.21	1226.10	1887235.11	2773161.36	36.18652240	-107.66365700
506H Toe	4843.00	-2864.37	4067.60	1884395.81	2776007.71	36.17870850	-107.65402910

SECTION DETAILS

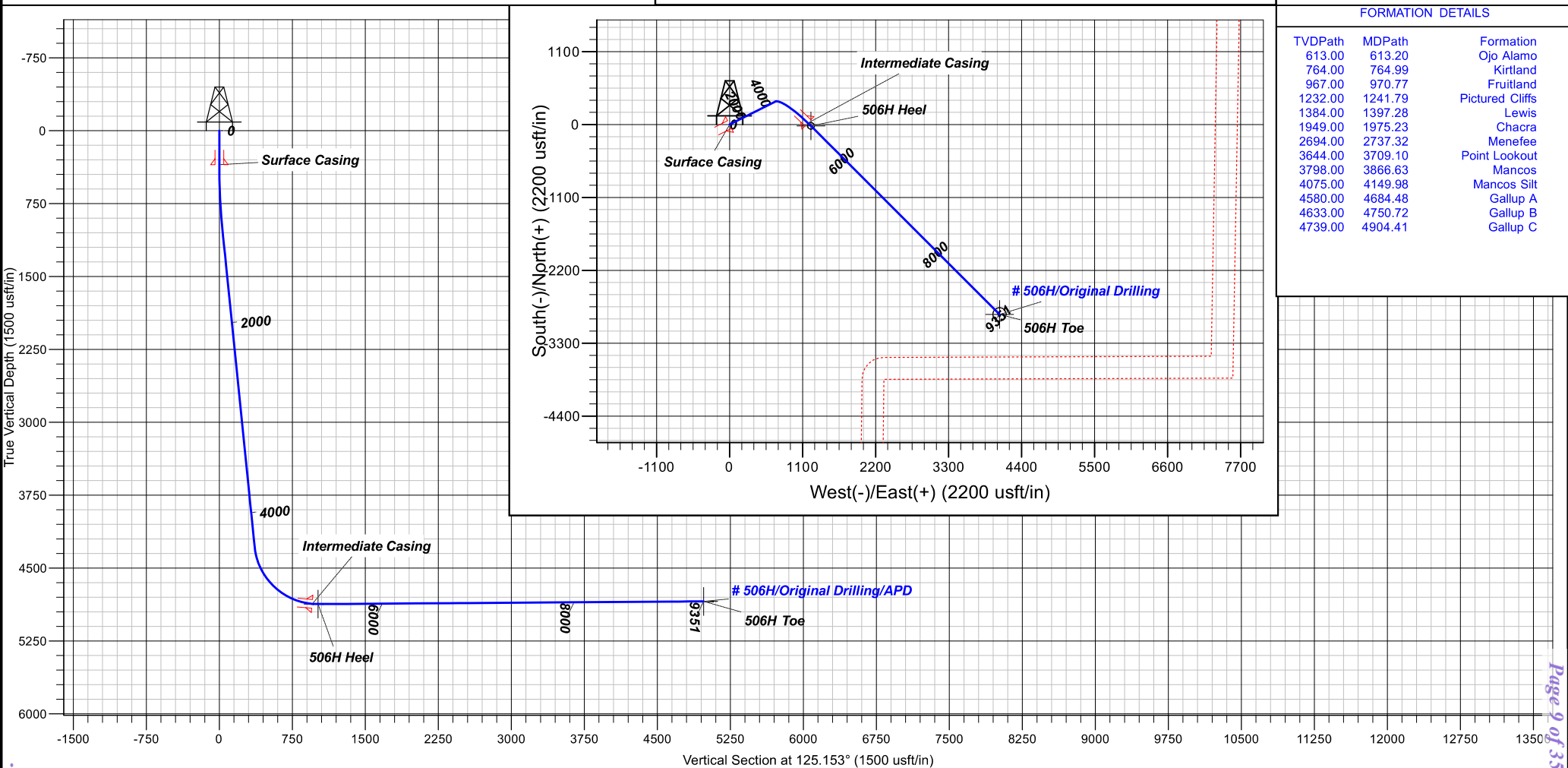
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00	
400.00	0.00	0.000	400.00	0.00	0.00	0.00	0.00	0.00	
1007.70	12.15	63.246	1003.15	28.91	57.34	2.00	63.25	30.24	
4368.41	12.15	63.246	4288.54	347.43	689.16	0.00	0.00	363.43	
5330.82	90.40	135.027	4871.00	-20.21	1226.10	9.00	72.08	1014.12	506H Heel
9351.28	90.40	135.027	4843.00	-2864.37	4067.60	0.00	0.00	4974.93	506H Toe

CASING DETAILS

TVD	MD	Name
350.00	350.00	Surface Casing
4868.5	4269.58	Intermediate Casing

FORMATION DETAILS

TVDPath	MDPath	Formation
613.00	613.20	Ojo Alamo
764.00	764.99	Kirtland
967.00	970.77	Fruitland
1232.00	1241.79	Pictured Cliffs
1384.00	1397.28	Lewis
1949.00	1975.23	Chacra
2694.00	2737.32	Menefee
3644.00	3709.10	Point Lookout
3798.00	3866.63	Mancos
4075.00	4149.98	Mancos Silt
4580.00	4684.48	Gallup A
4633.00	4750.72	Gallup B
4739.00	4904.41	Gallup C





DJR Operating

Bettonnie Tsosie Unit

G34 2308 Pad

506H - Slot 4

Original Drilling

Plan: APD

Standard Planning Report

01 June, 2020



Scientific Drilling, Intl

Planning Report

Database:	DJR	Local Co-ordinate Reference:	Well # 506H - Slot 4
Company:	DJR Operating	TVD Reference:	GL 6834' & RKB 14' @ 6848.00usft (Aztec 920)
Project:	Betonne Tsoie Unit	MD Reference:	GL 6834' & RKB 14' @ 6848.00usft (Aztec 920)
Site:	G34 2308 Pad	North Reference:	True
Well:	# 506H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD		

Project	Betonne Tsoie 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	G34 2308 Pad				
Site Position:		Northing:	1,887,253.23 usft	Latitude:	36.18657800
From:	Lat/Long	Easting:	2,771,935.23 usft	Longitude:	-107.66781200
Position Uncertainty:	0.00 usft	Slot Radius:	13.20 in	Grid Convergence:	0.10 °

Well	# 506H - Slot 4					
Well Position	+N/-S	0.00 usft	Northing:	1,887,253.23 usft	Latitude:	36.18657800
	+E/-W	0.00 usft	Easting:	2,771,935.23 usft	Longitude:	-107.66781200
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	6,834.00 usft

Wellbore	Original Drilling				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM_FILE	3/26/2020	8.73	62.73	49,308.50000000

Design	APD				
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	125.153	

Plan Survey Tool Program	Date	6/1/2020			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	9,351.28	APD (Original Drilling)	MWD+HDGM	
			OWSG MWD + HDGM		

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.000	0.00	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	
1,007.70	12.15	63.246	1,003.15	28.91	57.34	2.00	2.00	0.00	63.25	
4,368.41	12.15	63.246	4,288.54	347.43	689.16	0.00	0.00	0.00	0.00	
5,330.82	90.40	135.027	4,871.00	-20.21	1,226.10	9.00	8.13	7.46	72.08	506H Heel
9,351.28	90.40	135.027	4,843.00	-2,864.37	4,067.60	0.00	0.00	0.00	0.00	506H Toe



Scientific Drilling, Intl Planning Report

Database:	DJR	Local Co-ordinate Reference:	Well # 506H - Slot 4
Company:	DJR Operating	TVD Reference:	GL 6834' & RKB 14' @ 6848.00usft (Aztec 920)
Project:	Betonnies Tsosie Unit	MD Reference:	GL 6834' & RKB 14' @ 6848.00usft (Aztec 920)
Site:	G34 2308 Pad	North Reference:	True
Well:	# 506H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
0.00	0.00	0.000	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	
500.00	2.00	63.246	499.98	0.79	1.56	0.82	2.00	2.00	0.00	
600.00	4.00	63.246	599.84	3.14	6.23	3.29	2.00	2.00	0.00	
700.00	6.00	63.246	699.45	7.06	14.01	7.39	2.00	2.00	0.00	
800.00	8.00	63.246	798.70	12.55	24.90	13.13	2.00	2.00	0.00	
900.00	10.00	63.246	897.47	19.59	38.86	20.49	2.00	2.00	0.00	
1,000.00	12.00	63.246	995.62	28.18	55.90	29.48	2.00	2.00	0.00	
1,007.70	12.15	63.246	1,003.15	28.91	57.34	30.24	2.00	2.00	0.00	
1,100.00	12.15	63.246	1,093.38	37.65	74.69	39.39	0.00	0.00	0.00	
1,200.00	12.15	63.246	1,191.14	47.13	93.49	49.30	0.00	0.00	0.00	
1,300.00	12.15	63.246	1,288.90	56.61	112.29	59.22	0.00	0.00	0.00	
1,400.00	12.15	63.246	1,386.66	66.09	131.09	69.13	0.00	0.00	0.00	
1,500.00	12.15	63.246	1,484.42	75.57	149.89	79.05	0.00	0.00	0.00	
1,600.00	12.15	63.246	1,582.18	85.04	168.69	88.96	0.00	0.00	0.00	
1,700.00	12.15	63.246	1,679.93	94.52	187.49	98.88	0.00	0.00	0.00	
1,800.00	12.15	63.246	1,777.69	104.00	206.29	108.79	0.00	0.00	0.00	
1,900.00	12.15	63.246	1,875.45	113.48	225.09	118.70	0.00	0.00	0.00	
2,000.00	12.15	63.246	1,973.21	122.95	243.89	128.62	0.00	0.00	0.00	
2,100.00	12.15	63.246	2,070.97	132.43	262.69	138.53	0.00	0.00	0.00	
2,200.00	12.15	63.246	2,168.73	141.91	281.49	148.45	0.00	0.00	0.00	
2,300.00	12.15	63.246	2,266.49	151.39	300.29	158.36	0.00	0.00	0.00	
2,400.00	12.15	63.246	2,364.24	160.87	319.09	168.28	0.00	0.00	0.00	
2,500.00	12.15	63.246	2,462.00	170.34	337.89	178.19	0.00	0.00	0.00	
2,600.00	12.15	63.246	2,559.76	179.82	356.69	188.11	0.00	0.00	0.00	
2,700.00	12.15	63.246	2,657.52	189.30	375.49	198.02	0.00	0.00	0.00	
2,800.00	12.15	63.246	2,755.28	198.78	394.29	207.93	0.00	0.00	0.00	
2,900.00	12.15	63.246	2,853.04	208.25	413.09	217.85	0.00	0.00	0.00	
3,000.00	12.15	63.246	2,950.80	217.73	431.89	227.76	0.00	0.00	0.00	
3,100.00	12.15	63.246	3,048.55	227.21	450.69	237.68	0.00	0.00	0.00	
3,200.00	12.15	63.246	3,146.31	236.69	469.49	247.59	0.00	0.00	0.00	
3,300.00	12.15	63.246	3,244.07	246.17	488.29	257.51	0.00	0.00	0.00	
3,400.00	12.15	63.246	3,341.83	255.64	507.09	267.42	0.00	0.00	0.00	
3,500.00	12.15	63.246	3,439.59	265.12	525.90	277.34	0.00	0.00	0.00	
3,600.00	12.15	63.246	3,537.35	274.60	544.70	287.25	0.00	0.00	0.00	
3,700.00	12.15	63.246	3,635.11	284.08	563.50	297.16	0.00	0.00	0.00	
3,800.00	12.15	63.246	3,732.86	293.55	582.30	307.08	0.00	0.00	0.00	
3,900.00	12.15	63.246	3,830.62	303.03	601.10	316.99	0.00	0.00	0.00	
4,000.00	12.15	63.246	3,928.38	312.51	619.90	326.91	0.00	0.00	0.00	
4,100.00	12.15	63.246	4,026.14	321.99	638.70	336.82	0.00	0.00	0.00	
4,200.00	12.15	63.246	4,123.90	331.47	657.50	346.74	0.00	0.00	0.00	
4,300.00	12.15	63.246	4,221.66	340.94	676.30	356.65	0.00	0.00	0.00	
4,368.41	12.15	63.246	4,288.54	347.43	689.16	363.43	0.00	0.00	0.00	
4,400.00	13.30	75.081	4,319.35	349.86	695.64	367.33	9.00	3.64	37.47	
4,500.00	19.35	99.347	4,415.38	350.13	723.16	389.68	9.00	6.05	24.27	
4,600.00	27.06	111.345	4,507.27	339.14	760.77	426.76	9.00	7.70	12.00	
4,700.00	35.34	118.186	4,592.76	317.16	807.55	477.66	9.00	8.29	6.84	
4,800.00	43.88	122.669	4,669.75	284.72	862.33	541.12	9.00	8.54	4.48	
4,900.00	52.55	125.934	4,736.33	242.63	923.77	615.59	9.00	8.67	3.26	



Scientific Drilling, Intl Planning Report

Database:	DJR	Local Co-ordinate Reference:	Well # 506H - Slot 4
Company:	DJR Operating	TVD Reference:	GL 6834' & RKB 14' @ 6848.00usft (Aztec 920)
Project:	Betonnies Tsosie Unit	MD Reference:	GL 6834' & RKB 14' @ 6848.00usft (Aztec 920)
Site:	G34 2308 Pad	North Reference:	True
Well:	# 506H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
5,000.00	61.28	128.513	4,790.87	191.93	990.36	699.23	9.00	8.74	2.58	
5,100.00	70.06	130.692	4,832.02	133.86	1,060.45	789.97	9.00	8.78	2.18	
5,200.00	78.87	132.639	4,858.78	69.85	1,132.33	885.60	9.00	8.80	1.95	
5,300.00	87.68	134.471	4,870.48	1.48	1,204.22	983.74	9.00	8.81	1.83	
5,330.82	90.40	135.027	4,871.00	-20.21	1,226.10	1,014.12	9.00	8.82	1.80	
5,400.00	90.40	135.027	4,870.52	-69.15	1,274.99	1,082.27	0.00	0.00	0.00	
5,500.00	90.40	135.027	4,869.82	-139.89	1,345.67	1,180.79	0.00	0.00	0.00	
5,600.00	90.40	135.027	4,869.13	-210.64	1,416.35	1,279.31	0.00	0.00	0.00	
5,700.00	90.40	135.027	4,868.43	-281.38	1,487.02	1,377.82	0.00	0.00	0.00	
5,800.00	90.40	135.027	4,867.73	-352.12	1,557.70	1,476.34	0.00	0.00	0.00	
5,900.00	90.40	135.027	4,867.04	-422.86	1,628.37	1,574.86	0.00	0.00	0.00	
6,000.00	90.40	135.027	4,866.34	-493.60	1,699.05	1,673.37	0.00	0.00	0.00	
6,100.00	90.40	135.027	4,865.64	-564.35	1,769.73	1,771.89	0.00	0.00	0.00	
6,200.00	90.40	135.027	4,864.95	-635.09	1,840.40	1,870.41	0.00	0.00	0.00	
6,300.00	90.40	135.027	4,864.25	-705.83	1,911.08	1,968.92	0.00	0.00	0.00	
6,400.00	90.40	135.027	4,863.55	-776.57	1,981.75	2,067.44	0.00	0.00	0.00	
6,500.00	90.40	135.027	4,862.86	-847.31	2,052.43	2,165.96	0.00	0.00	0.00	
6,600.00	90.40	135.027	4,862.16	-918.05	2,123.11	2,264.47	0.00	0.00	0.00	
6,700.00	90.40	135.027	4,861.46	-988.80	2,193.78	2,362.99	0.00	0.00	0.00	
6,800.00	90.40	135.027	4,860.77	-1,059.54	2,264.46	2,461.50	0.00	0.00	0.00	
6,900.00	90.40	135.027	4,860.07	-1,130.28	2,335.14	2,560.02	0.00	0.00	0.00	
7,000.00	90.40	135.027	4,859.38	-1,201.02	2,405.81	2,658.54	0.00	0.00	0.00	
7,100.00	90.40	135.027	4,858.68	-1,271.76	2,476.49	2,757.05	0.00	0.00	0.00	
7,200.00	90.40	135.027	4,857.98	-1,342.51	2,547.16	2,855.57	0.00	0.00	0.00	
7,300.00	90.40	135.027	4,857.29	-1,413.25	2,617.84	2,954.09	0.00	0.00	0.00	
7,400.00	90.40	135.027	4,856.59	-1,483.99	2,688.52	3,052.60	0.00	0.00	0.00	
7,500.00	90.40	135.027	4,855.89	-1,554.73	2,759.19	3,151.12	0.00	0.00	0.00	
7,600.00	90.40	135.027	4,855.20	-1,625.47	2,829.87	3,249.64	0.00	0.00	0.00	
7,700.00	90.40	135.027	4,854.50	-1,696.21	2,900.54	3,348.15	0.00	0.00	0.00	
7,800.00	90.40	135.027	4,853.80	-1,766.96	2,971.22	3,446.67	0.00	0.00	0.00	
7,900.00	90.40	135.027	4,853.11	-1,837.70	3,041.90	3,545.18	0.00	0.00	0.00	
8,000.00	90.40	135.027	4,852.41	-1,908.44	3,112.57	3,643.70	0.00	0.00	0.00	
8,100.00	90.40	135.027	4,851.71	-1,979.18	3,183.25	3,742.22	0.00	0.00	0.00	
8,200.00	90.40	135.027	4,851.02	-2,049.92	3,253.93	3,840.73	0.00	0.00	0.00	
8,300.00	90.40	135.027	4,850.32	-2,120.66	3,324.60	3,939.25	0.00	0.00	0.00	
8,400.00	90.40	135.027	4,849.63	-2,191.41	3,395.28	4,037.77	0.00	0.00	0.00	
8,500.00	90.40	135.027	4,848.93	-2,262.15	3,465.95	4,136.28	0.00	0.00	0.00	
8,600.00	90.40	135.027	4,848.23	-2,332.89	3,536.63	4,234.80	0.00	0.00	0.00	
8,700.00	90.40	135.027	4,847.54	-2,403.63	3,607.31	4,333.32	0.00	0.00	0.00	
8,800.00	90.40	135.027	4,846.84	-2,474.37	3,677.98	4,431.83	0.00	0.00	0.00	
8,900.00	90.40	135.027	4,846.14	-2,545.12	3,748.66	4,530.35	0.00	0.00	0.00	
9,000.00	90.40	135.027	4,845.45	-2,615.86	3,819.33	4,628.87	0.00	0.00	0.00	
9,100.00	90.40	135.027	4,844.75	-2,686.60	3,890.01	4,727.38	0.00	0.00	0.00	
9,200.00	90.40	135.027	4,844.05	-2,757.34	3,960.69	4,825.90	0.00	0.00	0.00	
9,300.00	90.40	135.027	4,843.36	-2,828.08	4,031.36	4,924.41	0.00	0.00	0.00	
9,351.28	90.40	135.027	4,843.00	-2,864.37	4,067.60	4,974.93	0.00	0.00	0.00	



Scientific Drilling, Intl
Planning Report

Database:	DJR	Local Co-ordinate Reference:	Well # 506H - Slot 4
Company:	DJR Operating	TVD Reference:	GL 6834' & RKB 14' @ 6848.00usft (Aztec 920)
Project:	Betonnies Tsosie Unit	MD Reference:	GL 6834' & RKB 14' @ 6848.00usft (Aztec 920)
Site:	G34 2308 Pad	North Reference:	True
Well:	# 506H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Drilling		
Design:	APD		

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
506H Toe - plan hits target center - Circle (radius 100.00)	0.00	0.000	4,843.00	-2,864.37	4,067.60	1,884,395.81	2,776,007.71	36.17870850	-107.65402910
506H Heel - plan hits target center - Circle (radius 50.00)	0.00	0.000	4,871.00	-20.21	1,226.10	1,887,235.11	2,773,161.36	36.18652240	-107.66365700

Casing Points				
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)
350.00	350.00	Surface Casing	9.62	12.25
5,269.58	4,868.54	Intermediate Casing	7.00	8.75

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
613.20	613.00	Ojo Alamo		0.00	0.000	
764.99	764.00	Kirtland		0.00	0.000	
970.77	967.00	Fruitland		0.00	0.000	
1,241.79	1,232.00	Pictured Cliffs		0.00	0.000	
1,397.28	1,384.00	Lewis		0.00	0.000	
1,975.23	1,949.00	Chacra		0.00	0.000	
2,737.32	2,694.00	Menefee		0.00	0.000	
3,709.10	3,644.00	Point Lookout		0.00	0.000	
3,866.63	3,798.00	Mancos		0.00	0.000	
4,149.98	4,075.00	Mancos Silt		0.00	0.000	
4,684.48	4,580.00	Gallup A		0.00	0.000	
4,750.72	4,633.00	Gallup B		0.00	0.000	
4,904.41	4,739.00	Gallup C		0.00	0.000	



DJR Operating

Betonnies Tsosie Unit

G34 2308 Pad

506H

Original Drilling

APD

Anticollision Report

01 June, 2020



Scientific Drilling, Intl

Anticollision Report

Company:	DJR Operating	Local Co-ordinate Reference:	Well # 506H - Slot 4
Project:	Betonnies Tsois Unit	TVD Reference:	GL 6834' & RKB 14' @ 6848.00usft (Aztec 920)
Reference Site:	G34 2308 Pad	MD Reference:	GL 6834' & RKB 14' @ 6848.00usft (Aztec 920)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	# 506H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Original Drilling	Database:	DJR
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 ellipse separation of 1,000.00 usft	Error Surface:	Pedal Curve
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program		Date	6/1/2020		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	9,351.28	APD (Original Drilling)	MWD+HDGM	OWSG MWD + HDGM	

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
G34 2308 Pad						
# 507H - Original Drilling - APD	400.00	400.00	19.76	17.30	8.037	CC, ES
# 507H - Original Drilling - APD	4,670.51	4,699.03	137.71	101.35	3.787	SF
# 508H - Original Drilling - APD	400.00	400.00	59.96	57.50	24.384	CC, ES
# 508H - Original Drilling - APD	8,900.00	9,078.70	1,372.64	1,149.42	6.149	SF
# 509H - Original Drilling - APD	400.00	400.00	39.92	37.46	16.232	CC, ES
# 509H - Original Drilling - APD	500.00	498.63	43.22	40.06	13.691	SF

Offset Design											G34 2308 Pad - # 507H - Original Drilling - APD		Offset Site Error:		0.00 usft
Survey Program:											0-MWD+HDGM		Offset Well Error:		0.00 usft
Reference		Offset		Semi Major Axis			Distance								
Measured	Vertical	Measured	Vertical	Reference	Offset	Highside	Offset Wellbore Centre		Between	Between	Minimum	Separation	Warning		
Depth	Depth	Depth	Depth	Reference	Offset	Toolface	+N/-S	+E/-W	Centres	Ellipses	Separation	Factor			
(usft)	(usft)	(usft)	(usft)	(usft)	(usft)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)				
0.00	0.00	0.00	0.00	0.00	0.00	-107.14	-5.82	-18.89	19.76						
100.00	100.00	100.00	100.00	0.15	0.15	-107.14	-5.82	-18.89	19.76	19.46	0.31	64.108			
200.00	200.00	200.00	200.00	0.51	0.51	-107.14	-5.82	-18.89	19.76	18.74	1.03	19.277			
300.00	300.00	300.00	300.00	0.87	0.87	-107.14	-5.82	-18.89	19.76	18.02	1.74	11.344			
400.00	400.00	400.00	400.00	1.23	1.23	-107.14	-5.82	-18.89	19.76	17.30	2.46	8.037	CC, ES		
500.00	499.98	500.52	500.51	1.58	1.58	-171.62	-5.68	-17.90	20.51	17.34	3.17	6.474			
600.00	599.84	601.23	601.12	1.94	1.94	-175.71	-5.03	-13.53	21.42	17.55	3.87	5.535			
700.00	699.45	701.93	701.49	2.30	2.30	177.73	-3.85	-5.66	22.59	18.01	4.58	4.937			
800.00	798.70	802.60	801.51	2.67	2.67	169.37	-2.16	5.69	24.35	19.06	5.29	4.602			
900.00	897.47	903.23	901.01	3.06	3.05	160.13	0.05	20.50	27.05	21.02	6.03	4.486			
1,007.70	1,003.15	1,011.54	1,007.45	3.50	3.49	150.37	3.00	40.29	31.31	24.44	6.87	4.557			
1,100.00	1,093.38	1,103.80	1,097.65	3.89	3.88	142.59	5.86	59.48	35.50	27.86	7.64	4.647			
1,200.00	1,191.14	1,203.58	1,195.17	4.32	4.32	135.98	8.97	80.33	40.57	32.07	8.50	4.770			
1,300.00	1,288.90	1,303.35	1,292.70	4.76	4.76	130.89	12.08	101.18	46.06	36.67	9.39	4.906			
1,400.00	1,386.66	1,403.13	1,390.22	5.21	5.21	126.90	15.18	122.03	51.83	41.54	10.28	5.039			
1,500.00	1,484.42	1,502.90	1,487.74	5.66	5.66	123.73	18.29	142.87	57.80	46.61	11.19	5.165			
1,600.00	1,582.18	1,602.68	1,585.27	6.11	6.11	121.15	21.40	163.72	63.91	51.81	12.10	5.281			
1,700.00	1,679.93	1,702.45	1,682.79	6.56	6.57	119.03	24.51	184.57	70.13	57.11	13.02	5.387			
1,800.00	1,777.69	1,802.23	1,780.32	7.02	7.03	117.25	27.62	205.42	76.43	62.49	13.94	5.483			
1,900.00	1,875.45	1,902.01	1,877.84	7.48	7.50	115.75	30.72	226.26	82.80	67.93	14.86	5.571			



Scientific Drilling, Intl

Anticollision Report

Company:	DJR Operating	Local Co-ordinate Reference:	Well # 506H - Slot 4
Project:	Betonnine Tsois Unit	TVD Reference:	GL 6834' & RKB 14' @ 6848.00usft (Aztec 920)
Reference Site:	G34 2308 Pad	MD Reference:	GL 6834' & RKB 14' @ 6848.00usft (Aztec 920)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	# 506H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Original Drilling	Database:	DJR
Reference Design:	APD	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
2,000.00	1,973.21	2,001.78	1,975.36	7.94	7.96	114.46	33.83	247.11	89.21	73.42	15.79	5.650		
2,100.00	2,070.97	2,101.56	2,072.89	8.40	8.43	113.35	36.94	267.96	95.66	78.94	16.72	5.723		
2,200.00	2,168.73	2,201.33	2,170.41	8.86	8.89	112.37	40.05	288.81	102.14	84.49	17.64	5.789		
2,300.00	2,266.49	2,301.11	2,267.93	9.32	9.36	111.52	43.16	309.66	108.65	90.07	18.57	5.849		
2,400.00	2,364.24	2,400.88	2,365.46	9.79	9.83	110.76	46.26	330.50	115.17	95.67	19.50	5.905		
2,500.00	2,462.00	2,500.66	2,462.98	10.25	10.30	110.08	49.37	351.35	121.72	101.29	20.44	5.956		
2,600.00	2,559.76	2,600.44	2,560.51	10.72	10.77	109.47	52.48	372.20	128.28	106.91	21.37	6.003		
2,700.00	2,657.52	2,700.21	2,658.03	11.18	11.24	108.92	55.59	393.05	134.86	112.56	22.30	6.047		
2,800.00	2,755.28	2,799.99	2,755.55	11.65	11.71	108.42	58.70	413.89	141.45	118.21	23.24	6.087		
2,900.00	2,853.04	2,899.76	2,853.08	12.11	12.18	107.96	61.80	434.74	148.04	123.87	24.17	6.125		
3,000.00	2,950.80	2,999.54	2,950.60	12.58	12.65	107.55	64.91	455.59	154.65	129.54	25.11	6.160		
3,100.00	3,048.55	3,099.31	3,048.12	13.04	13.12	107.17	68.02	476.44	161.26	135.22	26.04	6.192		
3,200.00	3,146.31	3,199.09	3,145.65	13.51	13.59	106.82	71.13	497.29	167.88	140.90	26.98	6.223		
3,300.00	3,244.07	3,298.86	3,243.17	13.98	14.06	106.49	74.24	518.13	174.50	146.59	27.91	6.252		
3,400.00	3,341.83	3,398.64	3,340.70	14.44	14.54	106.19	77.34	538.98	181.13	152.28	28.85	6.279		
3,500.00	3,439.59	3,498.42	3,438.22	14.91	15.01	105.91	80.45	559.83	187.77	157.98	29.79	6.304		
3,600.00	3,537.35	3,598.19	3,535.74	15.38	15.48	105.65	83.56	580.68	194.40	163.68	30.72	6.328		
3,700.00	3,635.11	3,697.97	3,633.27	15.85	15.95	105.41	86.67	601.53	201.05	169.39	31.66	6.350		
3,800.00	3,732.86	3,797.74	3,730.79	16.31	16.43	105.18	89.78	622.37	207.69	175.10	32.60	6.372		
3,900.00	3,830.62	3,897.52	3,828.31	16.78	16.90	104.96	92.89	643.22	214.34	180.81	33.53	6.392		
4,000.00	3,928.38	3,997.29	3,925.84	17.25	17.37	104.76	95.99	664.07	220.99	186.52	34.47	6.411		
4,100.00	4,026.14	4,097.07	4,023.36	17.72	17.85	104.57	99.10	684.92	227.65	192.24	35.41	6.429		
4,200.00	4,123.90	4,196.85	4,120.89	18.19	18.32	104.40	102.21	705.76	234.30	197.96	36.35	6.446		
4,300.00	4,221.66	4,319.31	4,240.93	18.65	18.87	104.69	108.89	728.63	238.66	201.35	37.31	6.397		
4,368.41	4,288.54	4,417.83	4,337.68	18.97	19.22	106.97	125.28	736.26	232.35	194.94	37.41	6.211		
4,400.00	4,319.35	4,461.21	4,379.74	19.13	19.35	97.70	135.85	736.20	226.03	188.77	37.27	6.065		
4,450.00	4,367.74	4,524.39	4,439.86	19.37	19.52	89.54	154.80	732.35	210.82	173.88	36.94	5.707		
4,500.00	4,415.38	4,579.10	4,490.42	19.64	19.64	88.62	174.47	725.45	191.03	154.38	36.66	5.211		
4,550.00	4,461.99	4,624.60	4,531.13	19.91	19.73	93.14	193.03	717.22	169.54	132.97	36.58	4.635		
4,600.00	4,507.27	4,661.13	4,562.78	20.19	19.80	100.57	209.30	709.02	150.39	113.70	36.69	4.099		
4,650.00	4,550.95	4,689.51	4,586.66	20.49	19.84	108.01	222.76	701.68	138.91	102.30	36.61	3.795		
4,670.51	4,568.34	4,699.03	4,594.53	20.62	19.86	110.53	227.43	699.03	137.71	101.35	36.36	3.787 SF		
4,700.00	4,592.76	4,710.77	4,604.12	20.80	19.88	113.35	233.29	695.63	140.32	104.61	35.71	3.929		
4,750.00	4,632.44	4,725.97	4,616.36	21.14	19.90	115.76	241.04	691.03	156.35	122.26	34.09	4.586		
4,800.00	4,669.75	4,736.06	4,624.37	21.49	19.91	115.17	246.29	687.84	184.34	151.84	32.51	5.671		
4,850.00	4,704.45	4,741.87	4,628.93	21.87	19.92	111.64	249.34	685.96	220.27	188.91	31.37	7.023		
4,900.00	4,736.33	4,750.00	4,635.27	22.28	19.94	107.68	253.67	683.28	261.10	230.05	31.05	8.409		
4,950.00	4,765.20	4,750.00	4,635.27	22.73	19.94	98.91	253.67	683.28	304.62	273.93	30.69	9.927		
5,000.00	4,790.87	4,739.98	4,627.45	23.22	19.92	85.18	248.35	686.58	349.53	319.43	30.09	11.615		
5,050.00	4,813.19	4,734.53	4,623.15	23.76	19.91	73.55	245.48	688.33	395.21	365.14	30.07	13.143		
5,100.00	4,832.02	4,727.25	4,617.37	24.34	19.90	62.71	241.70	690.63	440.99	410.84	30.15	14.625		
5,150.00	4,847.25	4,718.42	4,610.30	24.97	19.89	53.54	237.16	693.34	486.45	456.14	30.32	16.046		
5,200.00	4,858.78	4,700.00	4,595.33	25.64	19.86	45.19	227.91	698.75	531.40	501.21	30.19	17.603		
5,250.00	4,866.54	4,700.00	4,595.33	26.36	19.86	40.79	227.91	698.75	575.24	544.32	30.92	18.602		
5,300.00	4,870.48	4,684.64	4,582.62	27.10	19.83	36.13	220.40	702.99	618.08	586.97	31.11	19.870		
5,330.82	4,871.00	4,676.62	4,575.90	27.57	19.82	33.95	216.56	705.11	643.87	612.57	31.31	20.568		
5,400.00	4,870.52	4,650.00	4,553.24	28.68	19.78	32.57	204.22	711.67	701.95	670.48	31.47	22.304		
5,500.00	4,869.82	4,650.00	4,553.24	30.39	19.78	32.57	204.22	711.67	787.78	755.06	32.72	24.077		
5,600.00	4,869.13	4,616.37	4,523.87	32.23	19.71	30.99	189.53	718.88	875.10	842.23	32.87	26.627		
5,700.00	4,868.43	4,600.00	4,509.29	34.17	19.68	30.28	182.75	721.95	964.23	930.88	33.35	28.916		
5,800.00	4,867.73	4,582.76	4,493.74	36.20	19.65	29.57	175.89	724.87	1,054.64	1,020.93	33.71	31.288		



Scientific Drilling, Intl

Anticollision Report

Company:	DJR Operating	Local Co-ordinate Reference:	Well # 506H - Slot 4
Project:	Betonnies Tsois Unit	TVD Reference:	GL 6834' & RKB 14' @ 6848.00usft (Aztec 920)
Reference Site:	G34 2308 Pad	MD Reference:	GL 6834' & RKB 14' @ 6848.00usft (Aztec 920)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	# 506H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Original Drilling	Database:	DJR
Reference Design:	APD	Offset TVD Reference:	Offset Datum

Offset Design													G34 2308 Pad - # 507H - Original Drilling - APD		Offset Site Error:		0.00 usft
Survey Program: 0-MWD+HDGM													Offset Well Error:		0.00 usft		
Reference		Offset		Semi Major Axis			Distance										
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning				
5,900.00	4,867.04	4,568.56	4,480.80	38.29	19.62	29.01	170.45	727.03	1,146.13	1,112.08	34.05	33.659					
6,000.00	4,866.34	4,550.00	4,463.73	40.45	19.58	28.33	163.64	729.53	1,238.56	1,204.30	34.26	36.152					
6,100.00	4,865.64	4,550.00	4,463.73	42.65	19.58	28.33	163.64	729.53	1,331.73	1,297.03	34.71	38.371					
6,200.00	4,864.95	4,550.00	4,463.73	44.90	19.58	28.33	163.64	729.53	1,425.83	1,390.75	35.08	40.642					
6,300.00	4,864.25	4,524.10	4,439.59	47.18	19.51	27.43	154.70	732.38	1,519.93	1,484.86	35.07	43.341					
6,400.00	4,863.55	4,500.00	4,416.84	49.49	19.46	26.66	147.00	734.36	1,615.09	1,580.02	35.08	46.047					
6,500.00	4,862.86	4,500.00	4,416.84	51.83	19.46	26.66	147.00	734.36	1,710.23	1,674.88	35.35	48.378					
6,600.00	4,862.16	4,500.00	4,416.84	54.20	19.46	26.66	147.00	734.36	1,805.90	1,770.30	35.59	50.735					
6,700.00	4,861.46	4,500.00	4,416.84	56.58	19.46	26.66	147.00	734.36	1,902.01	1,866.20	35.81	53.115					
6,800.00	4,860.77	4,500.00	4,416.84	58.98	19.46	26.66	147.00	734.36	1,998.50	1,962.50	36.00	55.512					
6,900.00	4,860.07	4,480.75	4,398.49	61.40	19.40	26.09	141.27	735.48	2,094.94	2,058.95	35.99	58.205					
7,000.00	4,859.38	4,475.25	4,393.23	63.83	19.39	25.93	139.70	735.73	2,191.81	2,155.70	36.11	60.702					
7,100.00	4,858.68	4,470.12	4,388.31	66.27	19.38	25.79	138.27	735.92	2,288.89	2,252.68	36.22	63.203					
7,200.00	4,857.98	4,450.00	4,368.92	68.72	19.32	25.24	132.93	736.41	2,386.40	2,350.21	36.19	65.945					
7,300.00	4,857.29	4,450.00	4,368.92	71.18	19.32	25.24	132.93	736.41	2,483.73	2,447.41	36.32	68.376					
7,400.00	4,856.59	4,450.00	4,368.92	73.65	19.32	25.24	132.93	736.41	2,581.27	2,544.82	36.45	70.814					
7,500.00	4,855.89	4,450.00	4,368.92	76.13	19.32	25.24	132.93	736.41	2,678.99	2,642.42	36.57	73.257					
7,600.00	4,855.20	4,450.00	4,368.92	78.62	19.32	25.24	132.93	736.41	2,776.87	2,740.18	36.68	75.703					
7,700.00	4,854.50	4,450.00	4,368.92	81.11	19.32	25.24	132.93	736.41	2,874.89	2,838.11	36.79	78.151					
7,800.00	4,853.80	4,450.00	4,368.92	83.61	19.32	25.24	132.93	736.41	2,973.05	2,936.16	36.89	80.601					
7,900.00	4,853.11	4,450.00	4,368.92	86.11	19.32	25.24	132.93	736.41	3,071.33	3,034.35	36.98	83.052					
8,000.00	4,852.41	4,450.00	4,368.92	88.62	19.32	25.24	132.93	736.41	3,169.71	3,132.64	37.07	85.502					
8,100.00	4,851.71	4,450.00	4,368.92	91.14	19.32	25.24	132.93	736.41	3,268.19	3,231.04	37.16	87.951					
8,200.00	4,851.02	4,450.00	4,368.92	93.65	19.32	25.24	132.93	736.41	3,366.77	3,329.52	37.24	90.399					
8,300.00	4,850.32	4,427.68	4,347.27	96.17	19.25	24.67	127.50	736.43	3,464.96	3,427.78	37.18	93.196					
8,400.00	4,849.63	4,425.23	4,344.88	98.70	19.25	24.61	126.94	736.40	3,563.58	3,526.34	37.25	95.679					
8,500.00	4,848.93	4,422.88	4,342.60	101.23	19.24	24.55	126.40	736.36	3,662.27	3,624.96	37.31	98.158					
8,600.00	4,848.23	4,400.00	4,320.25	103.76	19.17	24.02	121.52	735.68	3,761.41	3,724.16	37.25	100.985					
8,700.00	4,847.54	4,400.00	4,320.25	106.29	19.17	24.02	121.52	735.68	3,860.13	3,822.81	37.33	103.419					
8,800.00	4,846.84	4,400.00	4,320.25	108.83	19.17	24.02	121.52	735.68	3,958.92	3,921.52	37.40	105.849					
8,900.00	4,846.14	4,400.00	4,320.25	111.37	19.17	24.02	121.52	735.68	4,057.77	4,020.30	37.48	108.275					
9,000.00	4,845.45	4,400.00	4,320.25	113.91	19.17	24.02	121.52	735.68	4,156.68	4,119.13	37.55	110.697					
9,100.00	4,844.75	4,400.00	4,320.25	116.45	19.17	24.02	121.52	735.68	4,255.63	4,218.01	37.62	113.114					
9,200.00	4,844.05	4,400.00	4,320.25	118.99	19.17	24.02	121.52	735.68	4,354.64	4,316.94	37.69	115.526					
9,300.00	4,843.36	4,400.00	4,320.25	121.54	19.17	24.02	121.52	735.68	4,453.68	4,415.92	37.76	117.933					
9,351.28	4,843.00	4,400.00	4,320.25	122.85	19.17	24.01	121.52	735.68	4,504.49	4,466.69	37.80	119.165					



Scientific Drilling, Intl

Anticollision Report

Company:	DJR Operating	Local Co-ordinate Reference:	Well # 506H - Slot 4
Project:	Betonnies Tsois Unit	TVD Reference:	GL 6834' & RKB 14' @ 6848.00usft (Aztec 920)
Reference Site:	G34 2308 Pad	MD Reference:	GL 6834' & RKB 14' @ 6848.00usft (Aztec 920)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	# 506H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Original Drilling	Database:	DJR
Reference Design:	APD	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	-107.31	-17.84	-57.25	59.96					
100.00	100.00	100.00	100.00	0.15	0.15	-107.31	-17.84	-57.25	59.96	59.65	0.31	194.501		
200.00	200.00	200.00	200.00	0.51	0.51	-107.31	-17.84	-57.25	59.96	58.94	1.03	58.486		
300.00	300.00	300.00	300.00	0.87	0.87	-107.31	-17.84	-57.25	59.96	58.22	1.74	34.418		
400.00	400.00	400.00	400.00	1.23	1.23	-107.31	-17.84	-57.25	59.96	57.50	2.46	24.384 CC, ES		
500.00	499.98	498.42	498.42	1.58	1.57	-171.00	-18.32	-58.06	62.62	59.46	3.16	19.822		
600.00	599.84	595.74	595.64	1.94	1.91	-172.35	-20.43	-61.62	71.96	68.10	3.85	18.682		
700.00	699.45	691.77	691.38	2.30	2.24	-174.01	-24.16	-67.93	88.06	83.51	4.55	19.369		
800.00	798.70	788.63	787.77	2.67	2.59	-175.51	-29.07	-76.24	109.91	104.67	5.25	20.952		
900.00	897.47	885.33	883.97	3.06	2.95	-176.61	-34.02	-84.61	135.28	129.33	5.95	22.744		
1,007.70	1,003.15	988.41	986.53	3.50	3.33	-177.46	-39.30	-93.52	166.40	159.69	6.70	24.822		
1,100.00	1,093.38	1,076.23	1,073.90	3.89	3.66	-178.02	-43.80	-101.12	194.74	187.39	7.35	26.508		
1,200.00	1,191.14	1,171.38	1,168.57	4.32	4.02	-178.46	-48.67	-109.35	225.46	217.42	8.04	28.041		
1,300.00	1,288.90	1,266.53	1,263.24	4.76	4.38	-178.80	-53.54	-117.59	256.19	247.46	8.74	29.318		
1,400.00	1,386.66	1,361.68	1,357.91	5.21	4.74	-179.06	-58.41	-125.82	286.93	277.49	9.44	30.397		
1,500.00	1,484.42	1,456.84	1,452.58	5.66	5.11	-179.27	-63.28	-134.05	317.67	307.53	10.14	31.319		
1,600.00	1,582.18	1,551.99	1,547.25	6.11	5.47	-179.45	-68.15	-142.28	348.42	337.57	10.85	32.116		
1,700.00	1,679.93	1,647.14	1,641.92	6.56	5.84	-179.59	-73.02	-150.51	379.16	367.61	11.56	32.811		
1,800.00	1,777.69	1,742.29	1,736.59	7.02	6.20	-179.72	-77.89	-158.75	409.91	397.65	12.27	33.421		
1,900.00	1,875.45	1,837.44	1,831.26	7.48	6.57	-179.83	-82.77	-166.98	440.66	427.69	12.98	33.962		
2,000.00	1,973.21	1,932.59	1,925.93	7.94	6.93	-179.92	-87.64	-175.21	471.42	457.73	13.69	34.444		
2,100.00	2,070.97	2,027.75	2,020.60	8.40	7.30	180.00	-92.51	-183.44	502.17	487.77	14.40	34.877		
2,200.00	2,168.73	2,122.90	2,115.27	8.86	7.66	179.92	-97.38	-191.68	532.92	517.81	15.11	35.267		
2,300.00	2,266.49	2,218.05	2,209.94	9.32	8.03	179.86	-102.25	-199.91	563.68	547.85	15.82	35.621		
2,400.00	2,364.24	2,313.20	2,304.61	9.79	8.40	179.80	-107.12	-208.14	594.43	577.89	16.54	35.942		
2,500.00	2,462.00	2,408.35	2,399.28	10.25	8.76	179.75	-111.99	-216.37	625.19	607.93	17.25	36.236		
2,600.00	2,559.76	2,503.50	2,493.95	10.72	9.13	179.70	-116.86	-224.60	655.94	637.97	17.97	36.506		
2,700.00	2,657.52	2,598.65	2,588.62	11.18	9.50	179.66	-121.73	-232.84	686.70	668.02	18.68	36.754		
2,800.00	2,755.28	2,693.81	2,683.29	11.65	9.87	179.62	-126.60	-241.07	717.46	698.06	19.40	36.984		
2,900.00	2,853.04	2,788.96	2,777.96	12.11	10.23	179.58	-131.48	-249.30	748.21	728.10	20.12	37.196		
3,000.00	2,950.80	2,884.11	2,872.63	12.58	10.60	179.55	-136.35	-257.53	778.97	758.14	20.83	37.393		
3,100.00	3,048.55	2,979.26	2,967.30	13.04	10.97	179.52	-141.22	-265.77	809.73	788.18	21.55	37.577		
3,200.00	3,146.31	3,074.41	3,061.97	13.51	11.34	179.49	-146.09	-274.00	840.48	818.22	22.27	37.748		
3,300.00	3,244.07	3,169.56	3,156.63	13.98	11.70	179.46	-150.96	-282.23	871.24	848.26	22.98	37.908		
3,400.00	3,341.83	3,264.72	3,251.30	14.44	12.07	179.44	-155.83	-290.46	902.00	878.30	23.70	38.058		
3,500.00	3,439.59	3,359.87	3,345.97	14.91	12.44	179.42	-160.70	-298.69	932.76	908.34	24.42	38.199		
3,600.00	3,537.35	3,455.02	3,440.64	15.38	12.81	179.40	-165.57	-306.93	963.52	938.38	25.14	38.332		
3,700.00	3,635.11	3,550.17	3,535.31	15.85	13.18	179.37	-170.44	-315.16	994.27	968.42	25.85	38.457		
3,800.00	3,732.86	3,645.32	3,629.98	16.31	13.54	179.36	-175.32	-323.39	1,025.03	998.46	26.57	38.575		
3,900.00	3,830.62	3,740.47	3,724.65	16.78	13.91	179.34	-180.19	-331.62	1,055.79	1,028.50	27.29	38.686		
4,000.00	3,928.38	3,835.63	3,819.32	17.25	14.28	179.32	-185.06	-339.86	1,086.55	1,058.54	28.01	38.792		
4,100.00	4,026.14	3,930.78	3,913.99	17.72	14.65	179.30	-189.93	-348.09	1,117.31	1,088.58	28.73	38.892		
4,200.00	4,123.90	4,025.93	4,008.66	18.19	15.02	179.29	-194.80	-356.32	1,148.07	1,118.62	29.45	38.987		
4,300.00	4,221.66	4,121.08	4,103.33	18.65	15.38	179.28	-199.67	-364.55	1,178.83	1,148.66	30.17	39.077		
4,368.41	4,288.54	4,186.18	4,168.10	18.97	15.64	179.27	-203.00	-370.18	1,199.87	1,169.21	30.66	39.136		
4,400.00	4,319.35	4,216.15	4,197.92	19.13	15.75	166.85	-204.54	-372.78	1,209.80	1,178.91	30.89	39.169		
4,450.00	4,367.74	4,317.71	4,298.76	19.37	16.13	151.62	-215.02	-376.37	1,225.42	1,193.82	31.60	38.783		
4,500.00	4,415.38	4,426.78	4,404.70	19.64	16.50	140.55	-238.85	-367.59	1,239.67	1,207.39	32.28	38.408		
4,550.00	4,461.99	4,535.55	4,504.88	19.91	16.83	132.18	-274.92	-346.06	1,252.44	1,219.54	32.90	38.071		
4,600.00	4,507.27	4,641.62	4,594.54	20.19	17.13	125.47	-320.93	-313.35	1,263.75	1,230.24	33.51	37.716		
4,650.00	4,550.95	4,743.05	4,670.54	20.49	17.39	119.86	-373.75	-272.11	1,273.69	1,239.51	34.18	37.265		



Scientific Drilling, Intl

Anticollision Report

Company:	DJR Operating	Local Co-ordinate Reference:	Well # 506H - Slot 4
Project:	Betonnies Tsois Unit	TVD Reference:	GL 6834' & RKB 14' @ 6848.00usft (Aztec 920)
Reference Site:	G34 2308 Pad	MD Reference:	GL 6834' & RKB 14' @ 6848.00usft (Aztec 920)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	# 506H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Original Drilling	Database:	DJR
Reference Design:	APD	Offset TVD Reference:	Offset Datum

Offset Design G34 2308 Pad - # 508H - Original Drilling - APD													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
4,700.00	4,592.76	4,838.57	4,731.65	20.80	17.69	115.02	-430.16	-225.31	1,282.40	1,247.42	34.99	36.653		
4,750.00	4,632.44	4,927.58	4,778.22	21.14	18.18	110.75	-487.42	-175.68	1,290.05	1,254.10	35.95	35.886		
4,800.00	4,669.75	5,010.05	4,811.61	21.49	18.88	106.97	-543.52	-125.38	1,296.79	1,259.67	37.12	34.932		
4,850.00	4,704.45	5,086.30	4,833.64	21.87	19.71	103.58	-597.15	-75.93	1,302.75	1,264.31	38.44	33.889		
4,900.00	4,736.33	5,156.86	4,846.16	22.28	20.62	100.55	-647.61	-28.28	1,308.05	1,268.17	39.87	32.804		
4,950.00	4,765.20	5,222.35	4,850.88	22.73	21.56	97.82	-694.60	17.05	1,312.75	1,271.36	41.38	31.720		
5,000.00	4,790.87	5,270.78	4,850.77	23.22	22.32	95.69	-729.21	50.92	1,317.05	1,274.34	42.71	30.837		
5,050.00	4,813.19	5,315.05	4,850.44	23.76	23.04	93.93	-760.83	81.91	1,321.27	1,277.23	44.04	30.003		
5,100.00	4,832.02	5,361.00	4,850.09	24.34	23.83	92.41	-793.65	114.07	1,325.23	1,279.75	45.48	29.141		
5,150.00	4,847.25	5,408.36	4,849.73	24.97	24.66	91.15	-827.47	147.21	1,328.75	1,281.74	47.01	28.265		
5,200.00	4,858.78	5,456.82	4,849.37	25.64	25.56	90.17	-862.09	181.13	1,331.68	1,283.03	48.66	27.369		
5,250.00	4,866.54	5,506.10	4,848.99	26.36	26.49	89.49	-897.28	215.61	1,333.90	1,283.52	50.38	26.478		
5,300.00	4,870.48	5,555.88	4,848.62	27.10	27.47	89.11	-932.84	250.45	1,335.33	1,283.14	52.19	25.588		
5,330.82	4,871.00	5,586.68	4,848.39	27.57	28.08	89.03	-954.84	272.01	1,335.79	1,282.46	53.32	25.050		
5,400.00	4,870.52	5,655.86	4,847.86	28.68	29.50	89.02	-1,004.25	320.42	1,336.46	1,280.49	55.97	23.879		
5,500.00	4,869.82	5,755.85	4,847.11	30.39	31.60	89.02	-1,075.67	390.41	1,337.43	1,277.48	59.95	22.307		
5,600.00	4,869.13	5,855.85	4,846.35	32.23	33.77	89.02	-1,147.09	460.39	1,338.40	1,274.29	64.11	20.876		
5,700.00	4,868.43	5,955.85	4,845.60	34.17	36.00	89.02	-1,218.51	530.37	1,339.37	1,270.97	68.41	19.580		
5,800.00	4,867.73	6,055.84	4,844.84	36.20	38.26	89.02	-1,289.93	600.35	1,340.35	1,267.53	72.81	18.408		
5,900.00	4,867.04	6,155.84	4,844.08	38.29	40.57	89.02	-1,361.36	670.34	1,341.32	1,264.00	77.31	17.349		
6,000.00	4,866.34	6,255.83	4,843.33	40.45	42.90	89.01	-1,432.78	740.32	1,342.29	1,260.40	81.90	16.390		
6,100.00	4,865.64	6,355.83	4,842.57	42.65	45.27	89.01	-1,504.20	810.30	1,343.26	1,256.72	86.54	15.522		
6,200.00	4,864.95	6,455.82	4,841.82	44.90	47.65	89.01	-1,575.62	880.28	1,344.24	1,252.99	91.24	14.732		
6,300.00	4,864.25	6,555.82	4,841.06	47.18	50.05	89.01	-1,647.04	950.26	1,345.21	1,249.21	95.99	14.013		
6,400.00	4,863.55	6,655.81	4,840.31	49.49	52.47	89.01	-1,718.46	1,020.25	1,346.18	1,245.39	100.78	13.357		
6,500.00	4,862.86	6,755.81	4,839.55	51.83	54.90	89.00	-1,789.88	1,090.23	1,347.15	1,241.54	105.61	12.756		
6,600.00	4,862.16	6,855.80	4,838.80	54.20	57.35	89.00	-1,861.30	1,160.21	1,348.12	1,237.66	110.47	12.204		
6,700.00	4,861.46	6,955.80	4,838.04	56.58	59.80	89.00	-1,932.73	1,230.19	1,349.10	1,233.75	115.35	11.696		
6,800.00	4,860.77	7,055.79	4,837.28	58.98	62.27	89.00	-2,004.15	1,300.17	1,350.07	1,229.81	120.26	11.227		
6,900.00	4,860.07	7,155.79	4,836.53	61.40	64.74	89.00	-2,075.57	1,370.16	1,351.04	1,225.86	125.18	10.793		
7,000.00	4,859.38	7,255.78	4,835.77	63.83	67.23	89.00	-2,146.99	1,440.14	1,352.01	1,221.88	130.13	10.390		
7,100.00	4,858.68	7,355.78	4,835.02	66.27	69.71	88.99	-2,218.41	1,510.12	1,352.98	1,217.89	135.09	10.015		
7,200.00	4,857.98	7,455.77	4,834.26	68.72	72.21	88.99	-2,289.83	1,580.10	1,353.96	1,213.89	140.06	9.667		
7,300.00	4,857.29	7,555.77	4,833.51	71.18	74.71	88.99	-2,361.25	1,650.09	1,354.93	1,209.87	145.05	9.341		
7,400.00	4,856.59	7,655.76	4,832.75	73.65	77.21	88.99	-2,432.67	1,720.07	1,355.90	1,205.84	150.05	9.036		
7,500.00	4,855.89	7,755.76	4,832.00	76.13	79.72	88.99	-2,504.09	1,790.05	1,356.87	1,201.81	155.07	8.750		
7,600.00	4,855.20	7,855.76	4,831.24	78.62	82.24	88.99	-2,575.52	1,860.03	1,357.84	1,197.76	160.09	8.482		
7,700.00	4,854.50	7,955.75	4,830.48	81.11	84.75	88.98	-2,646.94	1,930.01	1,358.82	1,193.70	165.12	8.229		
7,800.00	4,853.80	8,055.75	4,829.73	83.61	87.27	88.98	-2,718.36	2,000.00	1,359.79	1,189.63	170.15	7.992		
7,900.00	4,853.11	8,155.74	4,828.97	86.11	89.80	88.98	-2,789.78	2,069.98	1,360.76	1,185.56	175.20	7.767		
8,000.00	4,852.41	8,255.74	4,828.22	88.62	92.32	88.98	-2,861.20	2,139.96	1,361.73	1,181.48	180.25	7.555		
8,100.00	4,851.71	8,355.73	4,827.46	91.14	94.85	88.98	-2,932.62	2,209.94	1,362.70	1,177.40	185.31	7.354		
8,200.00	4,851.02	8,455.73	4,826.71	93.65	97.39	88.97	-3,004.04	2,279.92	1,363.68	1,173.31	190.37	7.163		
8,300.00	4,850.32	8,555.72	4,825.95	96.17	99.92	88.97	-3,075.46	2,349.91	1,364.65	1,169.21	195.44	6.983		
8,400.00	4,849.63	8,655.72	4,825.20	98.70	102.45	88.97	-3,146.88	2,419.89	1,365.62	1,165.11	200.51	6.811		
8,500.00	4,848.93	8,755.71	4,824.44	101.23	104.99	88.97	-3,218.31	2,489.87	1,366.59	1,161.01	205.59	6.647		
8,600.00	4,848.23	8,855.71	4,823.69	103.76	107.53	88.97	-3,289.73	2,559.85	1,367.56	1,156.90	210.67	6.492		
8,700.00	4,847.54	8,955.70	4,822.93	106.29	110.07	88.97	-3,361.15	2,629.84	1,368.54	1,152.78	215.75	6.343		
8,800.00	4,846.84	9,055.79	4,822.17	108.83	112.62	88.96	-3,432.63	2,699.88	1,369.50	1,148.66	220.84	6.201		
8,900.00	4,846.14	9,078.70	4,822.00	111.37	113.20	88.96	-3,449.00	2,715.92	1,372.64	1,149.42	223.21	6.149 SF		



Scientific Drilling, Intl
Anticollision Report

Company:	DJR Operating	Local Co-ordinate Reference:	Well # 506H - Slot 4
Project:	Betonnies Tsoie Unit	TVD Reference:	GL 6834' & RKB 14' @ 6848.00usft (Aztec 920)
Reference Site:	G34 2308 Pad	MD Reference:	GL 6834' & RKB 14' @ 6848.00usft (Aztec 920)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	# 506H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Original Drilling	Database:	DJR
Reference Design:	APD	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
G34 2308 Pad - # 508H - Original Drilling - APD													Offset Well Error:	0.00 usft
Survey Program: 0-MWD+HDGM														
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
9,000.00	4,845.45	9,078.70	4,822.00	113.91	113.20	88.96	-3,449.00	2,715.92	1,382.82	1,159.07	223.75	6.180		
9,100.00	4,844.75	9,078.70	4,822.00	116.45	113.20	88.96	-3,449.00	2,715.92	1,400.09	1,176.90	223.19	6.273		
9,200.00	4,844.05	9,078.70	4,822.00	118.99	113.20	88.96	-3,449.00	2,715.92	1,424.19	1,202.59	221.60	6.427		
9,300.00	4,843.36	9,078.70	4,822.00	121.54	113.20	88.96	-3,449.00	2,715.92	1,454.78	1,235.65	219.12	6.639		
9,351.28	4,843.00	9,078.70	4,822.00	122.85	113.20	88.96	-3,449.00	2,715.92	1,472.85	1,255.30	217.55	6.770		



Scientific Drilling, Intl

Anticollision Report

Company:	DJR Operating	Local Co-ordinate Reference:	Well # 506H - Slot 4
Project:	Betonnies Tsois Unit	TVD Reference:	GL 6834' & RKB 14' @ 6848.00usft (Aztec 920)
Reference Site:	G34 2308 Pad	MD Reference:	GL 6834' & RKB 14' @ 6848.00usft (Aztec 920)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	# 506H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Original Drilling	Database:	DJR
Reference Design:	APD	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	-107.51	-12.01	-38.07	39.92					
100.00	100.00	100.00	100.00	0.15	0.15	-107.51	-12.01	-38.07	39.92	39.61	0.31	129.481		
200.00	200.00	200.00	200.00	0.51	0.51	-107.51	-12.01	-38.07	39.92	38.89	1.03	38.935		
300.00	300.00	300.00	300.00	0.87	0.87	-107.51	-12.01	-38.07	39.92	38.17	1.74	22.912		
400.00	400.00	400.00	400.00	1.23	1.23	-107.51	-12.01	-38.07	39.92	37.46	2.46	16.232 CC, ES		
500.00	499.98	498.63	498.61	1.58	1.57	-172.06	-13.15	-39.32	43.22	40.06	3.16	13.691 SF		
600.00	599.84	596.57	596.42	1.94	1.91	-174.98	-16.54	-43.06	53.19	49.34	3.85	13.812		
700.00	699.45	693.99	693.50	2.30	2.25	-177.94	-21.97	-49.06	69.69	65.14	4.55	15.319		
800.00	798.70	791.79	790.90	2.67	2.60	-179.92	-27.86	-55.55	90.36	85.11	5.25	17.200		
900.00	897.47	888.80	887.53	3.06	2.95	178.87	-33.69	-61.99	114.49	108.54	5.96	19.218		
1,007.70	1,003.15	992.28	990.59	3.50	3.34	178.07	-39.92	-68.85	144.29	137.57	6.72	21.483		
1,100.00	1,093.38	1,080.47	1,078.42	3.89	3.66	177.64	-45.23	-74.71	171.50	164.14	7.36	23.294		
1,200.00	1,191.14	1,176.02	1,173.59	4.32	4.02	177.30	-50.97	-81.05	200.99	192.93	8.06	24.936		
1,300.00	1,288.90	1,271.56	1,268.75	4.76	4.38	177.06	-56.72	-87.39	230.49	221.72	8.76	26.306		
1,400.00	1,386.66	1,367.11	1,363.91	5.21	4.74	176.86	-62.47	-93.73	259.98	250.52	9.47	27.464		
1,500.00	1,484.42	1,462.66	1,459.08	5.66	5.10	176.71	-68.22	-100.07	289.48	279.31	10.17	28.455		
1,600.00	1,582.18	1,558.21	1,554.24	6.11	5.46	176.59	-73.97	-106.42	318.98	308.10	10.88	29.312		
1,700.00	1,679.93	1,653.75	1,649.40	6.56	5.82	176.48	-79.71	-112.76	348.48	336.89	11.59	30.059		
1,800.00	1,777.69	1,749.30	1,744.57	7.02	6.18	176.40	-85.46	-119.10	377.99	365.68	12.31	30.717		
1,900.00	1,875.45	1,844.85	1,839.73	7.48	6.55	176.32	-91.21	-125.44	407.49	394.47	13.02	31.300		
2,000.00	1,973.21	1,940.40	1,934.89	7.94	6.91	176.26	-96.96	-131.78	436.99	423.26	13.73	31.820		
2,100.00	2,070.97	2,035.94	2,030.06	8.40	7.27	176.20	-102.71	-138.12	466.50	452.05	14.45	32.286		
2,200.00	2,168.73	2,131.49	2,125.22	8.86	7.64	176.15	-108.45	-144.47	496.00	480.84	15.16	32.707		
2,300.00	2,266.49	2,227.04	2,220.38	9.32	8.00	176.11	-114.20	-150.81	525.50	509.62	15.88	33.089		
2,400.00	2,364.24	2,322.59	2,315.55	9.79	8.36	176.07	-119.95	-157.15	555.01	538.41	16.60	33.437		
2,500.00	2,462.00	2,418.13	2,410.71	10.25	8.73	176.03	-125.70	-163.49	584.52	567.20	17.32	33.755		
2,600.00	2,559.76	2,513.68	2,505.87	10.72	9.09	176.00	-131.45	-169.83	614.02	595.99	18.03	34.046		
2,700.00	2,657.52	2,609.23	2,601.04	11.18	9.45	175.97	-137.19	-176.17	643.53	624.77	18.75	34.315		
2,800.00	2,755.28	2,704.78	2,696.20	11.65	9.82	175.94	-142.94	-182.51	673.03	653.56	19.47	34.563		
2,900.00	2,853.04	2,800.32	2,791.36	12.11	10.18	175.92	-148.69	-188.86	702.54	682.35	20.19	34.793		
3,000.00	2,950.80	2,895.87	2,886.53	12.58	10.54	175.90	-154.44	-195.20	732.04	711.13	20.91	35.007		
3,100.00	3,048.55	2,991.42	2,981.69	13.04	10.91	175.88	-160.19	-201.54	761.55	739.92	21.63	35.206		
3,200.00	3,146.31	3,086.97	3,076.85	13.51	11.27	175.86	-165.94	-207.88	791.06	768.70	22.35	35.391		
3,300.00	3,244.07	3,182.51	3,172.02	13.98	11.64	175.84	-171.68	-214.22	820.56	797.49	23.07	35.565		
3,400.00	3,341.83	3,278.06	3,267.18	14.44	12.00	175.82	-177.43	-220.56	850.07	826.27	23.79	35.728		
3,500.00	3,439.59	3,373.61	3,362.34	14.91	12.37	175.81	-183.18	-226.91	879.57	855.06	24.51	35.881		
3,600.00	3,537.35	3,469.16	3,457.51	15.38	12.73	175.79	-188.93	-233.25	909.08	883.85	25.23	36.025		
3,700.00	3,635.11	3,564.70	3,552.67	15.85	13.10	175.78	-194.68	-239.59	938.59	912.63	25.96	36.161		
3,800.00	3,732.86	3,660.25	3,647.83	16.31	13.46	175.77	-200.42	-245.93	968.09	941.42	26.68	36.289		
3,900.00	3,830.62	3,755.80	3,743.00	16.78	13.82	175.76	-206.17	-252.27	997.60	970.20	27.40	36.410		
4,000.00	3,928.38	3,851.35	3,838.16	17.25	14.19	175.74	-211.92	-258.61	1,027.11	998.98	28.12	36.525		
4,100.00	4,026.14	3,946.90	3,933.32	17.72	14.55	175.73	-217.67	-264.96	1,056.61	1,027.77	28.84	36.633		
4,200.00	4,123.90	4,042.44	4,028.49	18.19	14.92	175.72	-223.42	-271.30	1,086.12	1,056.55	29.57	36.737		
4,300.00	4,221.66	4,137.99	4,123.65	18.65	15.28	175.71	-229.16	-277.64	1,115.63	1,085.34	30.29	36.835		
4,368.41	4,288.54	4,203.36	4,188.76	18.97	15.53	175.71	-233.10	-281.98	1,135.81	1,105.03	30.78	36.899		
4,400.00	4,319.35	4,233.47	4,218.75	19.13	15.65	163.33	-234.91	-283.98	1,145.30	1,114.29	31.01	36.933		
4,450.00	4,367.74	4,268.26	4,253.39	19.37	15.78	148.14	-236.57	-286.72	1,161.22	1,129.94	31.28	37.120		
4,500.00	4,415.38	4,300.00	4,284.91	19.64	15.90	137.45	-236.92	-290.36	1,178.51	1,146.97	31.53	37.374		
4,550.00	4,461.99	4,328.74	4,313.32	19.91	16.01	129.72	-236.27	-294.60	1,197.14	1,165.39	31.76	37.699		
4,600.00	4,507.27	4,350.00	4,334.23	20.19	16.09	123.69	-235.20	-298.32	1,217.16	1,185.24	31.92	38.133		
4,650.00	4,550.95	4,379.14	4,362.68	20.49	16.19	119.07	-232.91	-304.20	1,238.51	1,206.37	32.14	38.532		



Scientific Drilling, Intl

Anticollision Report

Company:	DJR Operating	Local Co-ordinate Reference:	Well # 506H - Slot 4
Project:	Betonnies Tsois Unit	TVD Reference:	GL 6834' & RKB 14' @ 6848.00usft (Aztec 920)
Reference Site:	G34 2308 Pad	MD Reference:	GL 6834' & RKB 14' @ 6848.00usft (Aztec 920)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	# 506H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Original Drilling	Database:	DJR
Reference Design:	APD	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
4,700.00	4,592.76	4,400.00	4,382.86	20.80	16.27	114.96	-230.69	-308.96	1,261.26	1,228.96	32.30	39.045		
4,750.00	4,632.44	4,417.54	4,399.70	21.14	16.33	111.21	-228.45	-313.31	1,285.35	1,252.91	32.44	39.622		
4,800.00	4,669.75	4,432.20	4,413.68	21.49	16.39	107.65	-226.32	-317.20	1,310.73	1,278.17	32.56	40.253		
4,850.00	4,704.45	4,450.00	4,430.51	21.87	16.45	104.40	-223.42	-322.21	1,337.34	1,304.62	32.73	40.864		
4,900.00	4,736.33	4,450.00	4,430.51	22.28	16.45	100.45	-223.42	-322.21	1,364.99	1,332.24	32.75	41.679		
4,950.00	4,765.20	4,450.00	4,430.51	22.73	16.45	96.53	-223.42	-322.21	1,393.66	1,360.86	32.79	42.498		
5,000.00	4,790.87	4,464.15	4,443.77	23.22	16.50	93.36	-220.87	-326.43	1,422.95	1,389.96	32.99	43.128		
5,050.00	4,813.19	4,466.46	4,445.93	23.76	16.51	89.67	-220.44	-327.14	1,452.90	1,419.79	33.11	43.875		
5,100.00	4,832.02	4,466.91	4,446.35	24.34	16.51	85.98	-220.35	-327.27	1,483.24	1,449.99	33.25	44.610		
5,150.00	4,847.25	4,465.69	4,445.21	24.97	16.51	82.32	-220.58	-326.90	1,513.75	1,480.35	33.40	45.321		
5,200.00	4,858.78	4,450.00	4,430.51	25.64	16.45	78.15	-223.42	-322.21	1,544.38	1,510.94	33.45	46.174		
5,250.00	4,866.54	4,450.00	4,430.51	26.36	16.45	74.92	-223.42	-322.21	1,574.60	1,540.92	33.67	46.762		
5,300.00	4,870.48	4,450.00	4,430.51	27.10	16.45	71.90	-223.42	-322.21	1,604.41	1,570.49	33.92	47.294		
5,330.82	4,871.00	4,450.00	4,430.51	27.57	16.45	70.16	-223.42	-322.21	1,622.53	1,588.44	34.09	47.595		
5,400.00	4,870.52	4,450.00	4,430.51	28.68	16.45	70.16	-223.42	-322.21	1,663.87	1,629.39	34.49	48.248		
5,500.00	4,869.82	4,429.81	4,411.41	30.39	16.38	69.36	-226.69	-316.55	1,726.46	1,691.57	34.89	49.482		
5,600.00	4,869.13	4,419.59	4,401.67	32.23	16.34	68.95	-228.17	-313.84	1,792.31	1,756.92	35.39	50.648		
5,700.00	4,868.43	4,400.00	4,382.86	34.17	16.27	68.17	-230.69	-308.96	1,861.15	1,825.36	35.79	51.996		
5,800.00	4,867.73	4,400.00	4,382.86	36.20	16.27	68.17	-230.69	-308.96	1,932.42	1,896.07	36.35	53.159		
5,900.00	4,867.04	4,400.00	4,382.86	38.29	16.27	68.17	-230.69	-308.96	2,006.14	1,969.26	36.88	54.394		
6,000.00	4,866.34	4,400.00	4,382.86	40.45	16.27	68.17	-230.69	-308.96	2,082.06	2,044.68	37.38	55.698		
6,100.00	4,865.64	4,380.92	4,364.40	42.65	16.20	67.41	-232.74	-304.58	2,159.62	2,121.92	37.70	57.281		
6,200.00	4,864.95	4,375.00	4,358.65	44.90	16.18	67.17	-233.29	-303.31	2,239.03	2,200.93	38.10	58.766		
6,300.00	4,864.25	4,369.53	4,353.33	47.18	16.16	66.95	-233.77	-302.16	2,319.98	2,281.50	38.48	60.297		
6,400.00	4,863.55	4,350.00	4,334.23	49.49	16.09	66.18	-235.20	-298.32	2,402.50	2,363.78	38.72	62.051		
6,500.00	4,862.86	4,350.00	4,334.23	51.83	16.09	66.18	-235.20	-298.32	2,485.99	2,446.90	39.09	63.604		
6,600.00	4,862.16	4,350.00	4,334.23	54.20	16.09	66.18	-235.20	-298.32	2,570.66	2,531.23	39.43	65.198		
6,700.00	4,861.46	4,350.00	4,334.23	56.58	16.09	66.18	-235.20	-298.32	2,656.40	2,616.65	39.75	66.830		
6,800.00	4,860.77	4,350.00	4,334.23	58.98	16.09	66.18	-235.20	-298.32	2,743.10	2,703.05	40.05	68.496		
6,900.00	4,860.07	4,350.00	4,334.23	61.40	16.09	66.18	-235.20	-298.32	2,830.68	2,790.35	40.33	70.193		
7,000.00	4,859.38	4,350.00	4,334.23	63.83	16.09	66.18	-235.20	-298.32	2,919.06	2,878.47	40.59	71.917		
7,100.00	4,858.68	4,350.00	4,334.23	66.27	16.09	66.18	-235.20	-298.32	3,008.17	2,967.33	40.84	73.666		
7,200.00	4,857.98	4,350.00	4,334.23	68.72	16.09	66.18	-235.20	-298.32	3,097.94	3,056.87	41.07	75.437		
7,300.00	4,857.29	4,350.00	4,334.23	71.18	16.09	66.18	-235.20	-298.32	3,188.32	3,147.03	41.28	77.229		
7,400.00	4,856.59	4,328.77	4,313.35	73.65	16.01	65.34	-236.27	-294.61	3,278.86	3,237.51	41.35	79.294		
7,500.00	4,855.89	4,326.23	4,310.85	76.13	16.00	65.24	-236.36	-294.19	3,370.21	3,328.68	41.53	81.151		
7,600.00	4,855.20	4,323.82	4,308.47	78.62	15.99	65.14	-236.45	-293.81	3,462.03	3,420.33	41.70	83.023		
7,700.00	4,854.50	4,321.53	4,306.22	81.11	15.98	65.05	-236.52	-293.45	3,554.28	3,512.42	41.86	84.906		
7,800.00	4,853.80	4,300.00	4,284.91	83.61	15.90	64.21	-236.92	-290.36	3,647.26	3,605.37	41.89	87.069		
7,900.00	4,853.11	4,300.00	4,284.91	86.11	15.90	64.21	-236.92	-290.36	3,740.22	3,698.17	42.05	88.947		
8,000.00	4,852.41	4,300.00	4,284.91	88.62	15.90	64.21	-236.92	-290.36	3,833.53	3,791.33	42.20	90.834		
8,100.00	4,851.71	4,300.00	4,284.91	91.14	15.90	64.21	-236.92	-290.36	3,927.17	3,884.82	42.35	92.731		
8,200.00	4,851.02	4,300.00	4,284.91	93.65	15.90	64.21	-236.92	-290.36	4,021.12	3,978.63	42.49	94.637		
8,300.00	4,850.32	4,300.00	4,284.91	96.17	15.90	64.21	-236.92	-290.36	4,115.35	4,072.72	42.62	96.549		
8,400.00	4,849.63	4,300.00	4,284.91	98.70	15.90	64.21	-236.92	-290.36	4,209.85	4,167.09	42.75	98.469		
8,500.00	4,848.93	4,300.00	4,284.91	101.23	15.90	64.21	-236.92	-290.36	4,304.59	4,261.72	42.88	100.394		
8,600.00	4,848.23	4,300.00	4,284.91	103.76	15.90	64.21	-236.92	-290.36	4,399.57	4,356.58	43.00	102.324		
8,700.00	4,847.54	4,300.00	4,284.91	106.29	15.90	64.21	-236.92	-290.36	4,494.77	4,451.66	43.11	104.259		
8,800.00	4,846.84	4,300.00	4,284.91	108.83	15.90	64.21	-236.92	-290.36	4,590.17	4,546.95	43.22	106.198		
8,900.00	4,846.14	4,300.00	4,284.91	111.37	15.90	64.21	-236.92	-290.36	4,685.76	4,642.43	43.33	108.140		



Scientific Drilling, Intl
Anticollision Report

Company:	DJR Operating	Local Co-ordinate Reference:	Well # 506H - Slot 4
Project:	Betonnies Tsoie Unit	TVD Reference:	GL 6834' & RKB 14' @ 6848.00usft (Aztec 920)
Reference Site:	G34 2308 Pad	MD Reference:	GL 6834' & RKB 14' @ 6848.00usft (Aztec 920)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	# 506H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Original Drilling	Database:	DJR
Reference Design:	APD	Offset TVD Reference:	Offset Datum

Offset Design G34 2308 Pad - # 509H - Original Drilling - APD													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)						
9,000.00	4,845.45	4,300.00	4,284.91	113.91	15.90	64.21	-236.92	-290.36	4,781.54	4,738.10	43.44	110.085		
9,100.00	4,844.75	4,300.00	4,284.91	116.45	15.90	64.21	-236.92	-290.36	4,877.48	4,833.94	43.54	112.032		
9,200.00	4,844.05	4,300.00	4,284.91	118.99	15.90	64.21	-236.92	-290.36	4,973.58	4,929.95	43.63	113.982		
9,300.00	4,843.36	4,300.00	4,284.91	121.54	15.90	64.21	-236.92	-290.36	5,069.84	5,026.10	43.73	115.933		
9,351.28	4,843.00	4,300.00	4,284.91	122.85	15.90	64.21	-236.92	-290.36	5,119.25	5,075.47	43.78	116.934		



Scientific Drilling, Intl

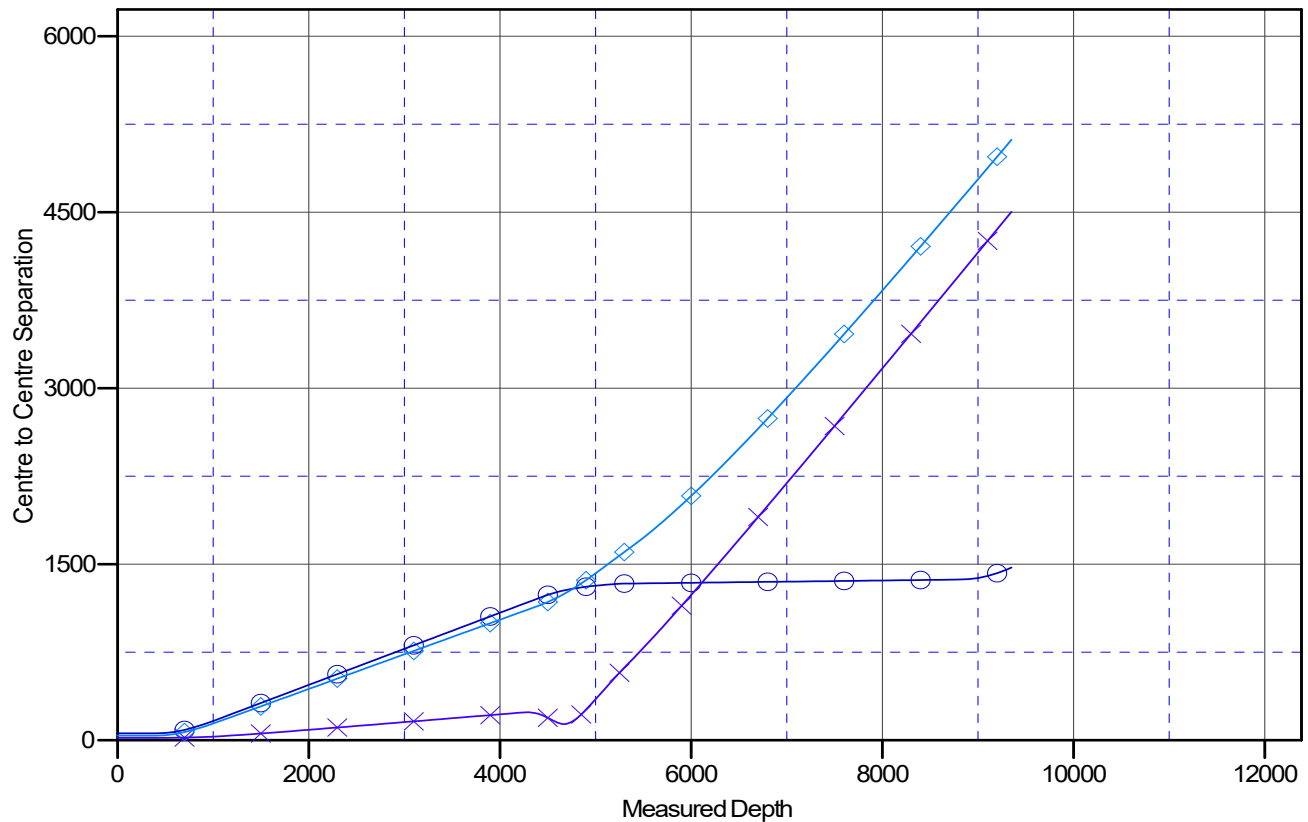
Anticollision Report

Company:	DJR Operating	Local Co-ordinate Reference:	Well # 506H - Slot 4
Project:	Betonnies Tsosie Unit	TVD Reference:	GL 6834' & RKB 14' @ 6848.00usft (Aztec 920)
Reference Site:	G34 2308 Pad	MD Reference:	GL 6834' & RKB 14' @ 6848.00usft (Aztec 920)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	# 506H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Original Drilling	Database:	DJR
Reference Design:	APD	Offset TVD Reference:	Offset Datum

Reference Depths are relative to GL 6834' & RKB 14' @ 6848.00usft (A)
 Offset Depths are relative to Offset Datum
 Central Meridian is -107.8333333

Coordinates are relative to: # 506H - Slot 4
 Coordinate System is US State Plane 1983, New Mexico Western Zone
 Grid Convergence at Surface is: 0.10°

Ladder Plot



LEGEND

—●— # 508HOriginalDrilling.APOVO
 —×— # 507HOriginalDrilling.APOVO
 —◆— # 509HOriginalDrilling.APOVO



Scientific Drilling, Intl

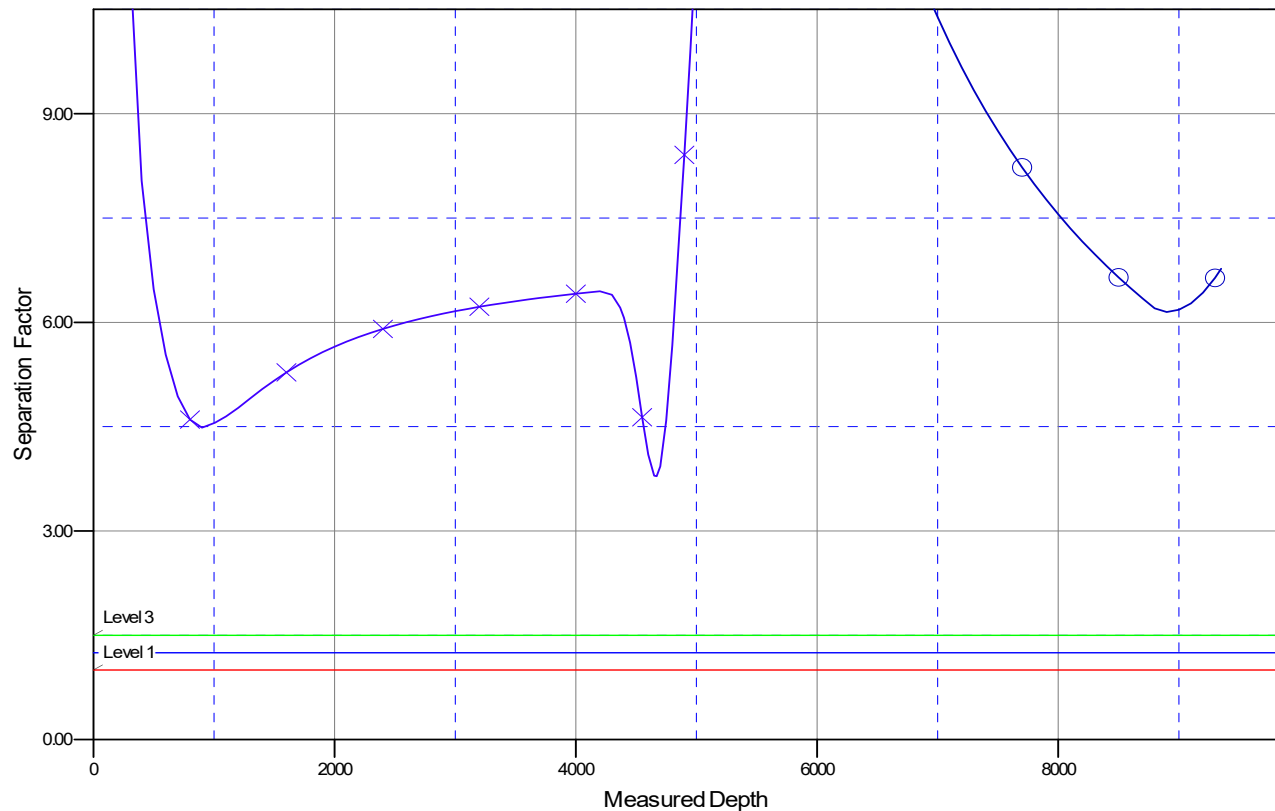
Anticollision Report

Company:	DJR Operating	Local Co-ordinate Reference:	Well # 506H - Slot 4
Project:	Betonnies Tsoie Unit	TVD Reference:	GL 6834' & RKB 14' @ 6848.00usft (Aztec 920)
Reference Site:	G34 2308 Pad	MD Reference:	GL 6834' & RKB 14' @ 6848.00usft (Aztec 920)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	# 506H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Original Drilling	Database:	DJR
Reference Design:	APD	Offset TVD Reference:	Offset Datum

Reference Depths are relative to GL 6834' & RKB 14' @ 6848.00usft (A)
 Offset Depths are relative to Offset Datum
 Central Meridian is -107.83333333

Coordinates are relative to: # 506H - Slot 4
 Coordinate System is US State Plane 1983, New Mexico Western Zone
 Grid Convergence at Surface is: 0.10°

Separation Factor Plot



LEGEND

508H Original Drilling APDVO
 # 507H Original Drilling APDVO
 # 509H Original Drilling APDVO



United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Farmington District Office
6251 College Blvd, Suite A
Farmington, New Mexico 87402



In Reply Refer To:
3162.3-1(NMF0110)

* DJR Operating, LLC
#506H Bettonnie Tsosie Wash Unit
Lease: NMNM050999 Unit: NMNM135219A
SH: SW $\frac{1}{4}$ NE $\frac{1}{4}$ Section 34, T.23 N., R.8 W.
BH: SE $\frac{1}{4}$ SW $\frac{1}{4}$ Section 35, T.23 N., R.8 W.
San Juan County, New Mexico

***Above Data Required on Well Sign**

GENERAL REQUIREMENTS FOR OIL AND GAS OPERATIONS ON FEDERAL AND INDIAN LEASES

The following special requirements apply and are effective when **checked**:

- A. ☒ Note all surface/drilling conditions of approval attached.
- B. ☒ The required wait on cement (WOC) time will be a minimum of 500 psi compressive strength at 60 degrees. Blowout preventor (BOP) nipple-up operations may then be initiated
- C. ☐ Test the surface casing to a minimum of _____ psi for 30 minutes.
- D. ☐ Test all casing strings below the surface casing to .22 psi/ft. of casing string length or 1500 psi, whichever is greater, but not to exceed 70% of the minimum internal yield burst) for a minimum of 30 minutes.
- E. ☐ Communitization Agreement covering the acreage dedicated to this well must be filed for approval with the Bureau of Land Management, Farmington District Office, Branch of Reservoir Management, 6251 College Blvd. Suite A, Farmington, New Mexico 87402. The effective date of the agreement must be **prior** to any sales.
- F. ☒ The use of co-flex hose is authorized contingent upon the following:
 1. From the BOP to the choke manifold: the co-flex hose must be hobbled on both ends and saddle to prevent whip.

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COLORADO, NEW MEXICO, UTAH, WYOMING

2. From the choke manifold to the discharge tank: the co-flex hoses must be as straight as practical, hobbled on both ends and anchored to prevent whip.
3. The co-flex hose pressure rating must be at least commensurate with approved BOPE.

I. GENERAL

- A. Full compliance with all applicable laws, regulations, and Onshore Orders, with the approved Permit to drill, and with the approved Surface Use and Operations Plan is required. Lessees and/or operators are fully accountable for the actions of their contractors and subcontractors. Failure to comply with these requirements and the filing of required reports will result in strict enforcement pursuant to 43 CFR 3163.1 or 3163.2.
- B. Each well shall have a well sign in legible condition from spud date to final abandonment. The sign should show the operator's name, lease serial number, or unit name, well number, location of the well, and whether lease is Tribal or Allotted, (See 43 CFR 3162.6(b)).
- C. A complete copy of the approved Application for Permit to Drill, along with any conditions of approval, shall be available to authorized personnel at the drill site whenever active drilling operations are under way.
- D. For Wildcat wells only, a drilling operations progress report is to be submitted, to the BLM-Field Office, weekly from the spud date until the well is completed and the Well Completion Report (Form 3160-4) is filed. The report should be on 8-1/2 x 11 inch paper, and each page should identify the well by; operator's name, well number, location and lease number.
- E. As soon as practical, notice is required of all blowouts, fires and accidents involving life-threatening injuries or loss of life. (See NTL-3A).
- F. Prior approval by the BLM-Authorized Office (Drilling and Production Section) is required for variance from the approved drilling program and before commencing plugging operations, plug back work casing repair work, corrective cementing operations, or suspending drilling operations indefinitely. Emergency approval may be obtained orally, but such approval is contingent upon filing of a notice of intent (on a Sundry Notice, Form 3160-5) within three business days (original and three copies of Federal leases and an original and four copies on Indian leases). **Any changes to the approved plan or any questions regarding drilling operations should be directed to BLM during regular business hours at 505-564-7600. Emergency program changes after hours should be directed to at Virgil Lucero at 505-793-1836.**
- G. **The Inspection and Enforcement Section (I&E), phone number (505-564-7750) is to be notified at least 24 hours in advance of BOP test, spudding, cementing, or plugging operations so that a BLM representative may witness the operations.**
- H. Unless drilling operations are commenced within two years, approval of the Application for Permit to Drill will expire. A written request for a two years extension may be granted if submitted prior to expiration.
- I. From the time drilling operations are initiated and until drilling operations are completed, a member of the drilling crew or the tool pusher shall maintain rig surveillance at all time, unless the well is secured with blowout preventers or cement plugs.

- J. If for any reason, drilling operations are suspended for more than 90 days, a written notice must be provided to this office outlining your plans for this well.

II. REPORTING REQUIREMENTS

A. For reporting purposes, all well Sundry notices, well completion and other well actions shall be referenced by the appropriate lease, communitization agreement and/or unit agreement numbers.

B. The following reports shall be filed with the BLM-Authorized Officer within 30 days after the work is completed.

1. Original and three copies on Federal and an Original and five copies on Indian leases of Sundry Notice (Form 3150-5), giving complete information concerning.

- a. Setting of each string of casing. Show size and depth of hole, grade and weight of casing, depth set, depth of any and all cementing tools that are used, amount (in cubic feet) and types of cement used, whether cement circulated to surface and all cement tops in the casing annulus, casing test method and results, and the date work was done. Show spud date on first report submitted.
 - b. Intervals tested, perforated (include; size, number and location of perforations), acidized, or fractured; and results obtained. Provide date work was done on well completion report and completion sundry notice.
 - c. Subsequent Report of Abandonment, show the manner in which the well was plugged, including depths where casing was cut and pulled, intervals (by depths) where cement plugs were replaced, and dates of the operations.
2. Well Completion Report (Form 3160-4) will be submitted with 30 days after well has been completed.
- a. Initial Bottom Hole Pressure (BHP) for the producing formations. Show the BHP on the completion report. The pressure may be: 1) measured with a bottom hole bomb, or; 2) calculated based on shut in surface pressures (minimum seven day buildup) and fluid level shot.

3. Submit a cement evaluation log, if cement is not circulated to surface.

III. DRILLER'S LOG

The following shall be entered in the daily driller's log: 1) Blowout preventer pressures tests, including test pressures and results. 2) Blowout preventer tests for proper functioning, 3) Blowout prevention drills conducted, 4) Casing run, including size, grade, weight, and depth set, 5) How pipe was cemented, including amount of cement, type, whether cement circulated to surface, location of cementing tools, etc., 6) Waiting on cement time for each casing string, 7) Casing pressure tests after cementing, including test pressure and results and 8) Estimated amounts of oil and gas recovered and/or produced during drill stem test.

IV. GAS FLARING

Gas produced from this well may not be vented or flared beyond an initial, authorized test period of *** Days** or 50 MMCF following its (completion)(recompletion), whichever first occurs, without the prior, written approval of the authorized officer. Should gas be vented or flared without approval beyond the test period authorized above, you may be directed to shut-in the well until the gas can be captured or approval to continue venting or flaring as uneconomic is granted. You shall be required to compensate the lessor for the portion of the gas vented or flared without approval which is determined to have been avoidably lost.

***30 days**, unless a longer test period is specifically approved by the authorized officer. The 30-day period will commence upon the first gas to surface.

V. SAFETY

- A. All rig heating stoves are to be of the explosion-proof type.
- B. Rig safety lines are to be installed.
- C. Hard hats and other Personal Protective Equipment (PPE) must be utilized.

VI. CHANGE OF PLANS OR ABANDONMENT

- A. Any changes of plans required in order to mitigate unanticipated conditions encountered during drilling operations, will require approval as set forth in Section I.F.
- B. If the well is dry, it is to be plugged in accordance with 43 CFR 3162.3-4, approval of the proposed plugging program is required as set forth in Section I.F. The report should show the total depth reached, the reason for plugging, and the proposed intervals, by depths, where cement plugs are to be placed, type of plugging mud, etc. A Subsequent Report of Abandonment is required as set forth in Section II.B.1c.
- C. Unless a well has been properly cased and cemented, or properly plugged, the drilling rig must not be moved from the drill site without prior approval from the BLM-Authorized Officer.

VII. PHONE NUMBERS

- A. For BOPE tests, cementing, and plugging operations the phone number is 505-564-7750 and must be called 24 hours in advance in order that a BLM representative may witness the operations.
- B. Emergency program changes after hours contact:

Virgil Lucero (505) 793-1836
Joe Killins (505) 564-7736
John Hoffman (505) 564-7742

North Alamito Unit 2208 and Betonnie Tsosie Wash Unit 2308 Cluster Oil and Natural Gas Wells Project

DOI-BLM-NM-F010-2021-0003-EA

Conditions of Approval

NAU I01-2208 Well Pad, Well Nos. 405H, 406H, 407H, 408H, 509H, 510H, 511H, and 512H (NAU I01)

NAU E01-2208 Well Pad, Well Nos. 502H, 504H, 507H, and 508H (NAU E01)

BTWU G34-2308 Well Pad, Well Nos. 506H, 507H, 508H, and 509H (BTWU G34)

BTWU A35-2308 Well Pad, Well Nos. 213H, 214H, and 501H (BTWU A35)

BTWU E35-2308 Well Pad, Well Nos. 502H, 503H, 504H and 505H (BTWU E35)

Associated Pipelines, Staging Areas, Access Roads, and Appurtenances

Construction & Reclamation Notification: The operator or their contractor will contact the Bureau of Land Management Farmington Field Office (BLM-FFO), Surface and Environmental Protection Staff, (505) 564-7600 at least 48 hours prior to any construction or reclamation on this project.

Weather: No construction or routine maintenance activities shall be performed during periods when the soil is too wet to adequately support construction equipment. If such equipment creates ruts in excess of 6 inches deep, the soil shall be deemed too wet.

Culverts: Silt traps/bell holes will be built at the upstream end of all culvert locations. The features must be maintained throughout their life span. Armoring may be required for culverts that experience negative erosional impacts. The approved minimum culvert diameter is 24 inches.

Grazing Permittee Notification and Concerns: The operator will notify the grazing lease operator(s) at least ten business days prior to beginning any construction activity to ensure there will be no conflicts between construction activities and livestock grazing operations. The operator is not obligated to cease or delay construction unless directed by the AO. Any range improvement (fences, pipelines, ponds, etc.) disturbed by construction activities will be repaired immediately following construction and will be repaired to the condition the improvement was in prior to disturbance. Cattle guards will be installed to replace any livestock fencing or gates removed for road construction.

Air Quality: Operator must control fugitive dust and particulate matter through the use of freshwater spraying during construction and reclamation of the proposed action disturbance.

Groundwater Quality and Quantity: Operator shall only use freshwater and/or magnesium chloride for dust abatement purposes. Operator shall not discharge any water used in drilling of the wellbore to the surface of the location.

Cultural Resources: Four Class III Archaeological Surveys (NMCRIS No. 146574; BLM Report No. 2021(I)002F, & NMCRIS No. 146998; BLM Report No. 2021(I)002.1F, NMCRIS No. 145984; BLM Report No.2020(III)014F, NMCRIS No. 145985; BLM Report No. 2020(IV)001F) were conducted in the proposed project areas and during these surveys eight cultural sites (LA178234, LA82880, LA82881, LA197578, LA197579, LA197580, LA197581, & LA197582) were discovered. Two sites (LA82880, &

LA178234) were determined to be Eligible for listing on the NRHP, three sites (LA82881, LA197578, & LA197580) were determined to be Not Eligible for listing, and three sites (LA197579, LA197581, & LA197582) were given an Undetermined eligibility status. The sites that were given an Eligible and Undetermined eligibility status will require protective fencing and the presence of an archaeological monitor.

Paleontology: Any paleontological resource discovered by the Operator, or any person working on his behalf, on public or Federal land shall be immediately reported to the Authorized Officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant scientific values. The Holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the Authorized Officer after consulting with the Holder.

Public Safety: The Operator will instruct employees and contractors to obey all speed limits, traffic laws, and to use caution while driving when school busses, school bus stops, and children are present.

Wildlife: Migratory Bird Nest Survey: For any construction activities that exceed 4.0 acres of ground disturbance from 5/15 to 7/31 within the same lease, a migratory bird nest survey is required prior to any new ground disturbance.

Nest surveys will be conducted within 48 hours of scheduled construction by BLM/FFO personnel or approved biologist. Any active nests will require a disturbance buffer to eliminate impacts to nesting birds. Active nests will be avoided.

A burrowing owl and prairie dog survey required for any new ground disturbing activity between 4/1-8/15.

Any open water containing fluids that could harm birds, bats, and other mammals will require netting or some type of covering to prevent wildlife from entering.

Applicant will adhere to timing limitations and management measures if any new raptor nests are discovered within the project area. These timing limitations are species specific depending on the raptor that is discovered. The following timing limitations may apply:

Raptor Species of Nest Discovered	Timing Limitation
Bald Eagle	March 1-June 30
Burrowing Owl	April 1-August 15
Golden Eagle	February 1-June 30
Other Raptors	March 1- June 30

Noxious/Invasive Weeds: DJR is responsible for the life of the wells and associated permitted pipelines, facilities, and roads, to treat any and all Class A and B species and to minimize and control Class C species. If treatment is needed DJR will provide the BLM FFO with a Pesticide Use Proposal (PUP) prior to treatment. The FFO is not responsible for specific treatment suggestions but will assist DJR when needed.

Disclaimers: BLM's approval of the Applications for Permit to Drill (APD) does not relieve the lessee and operator from obtaining any other authorizations that may be required by the State of New Mexico or other jurisdictional entities.

Copy of Plans: A complete copy of the APD packages, including: Surface Use Plan of Operations, Plan of Development (if required), Conditions of Approval, Cultural Resource Record of Review, Cultural Resources Compliance Form (if required), and Project Stipulations (if required) shall be at the project area at all times and available to all persons.

Review of NEPA documents: It is the responsibility of the operator to follow all the design features, best management practices, and mitigation measures as contained in DOI-BLM-NM-F010-2021-0003-EA entitled "North Alamo Unit Unit 2208 and Bettonie Tsosie Wash Unit 2308 Cluster Oil and Natural Gas Wells Project". Copies of the EA, Decision Record, and Finding of No Significant Impact may be obtained from the BLM FFO public room, or online at eplanning.blm.gov.

Best Management Practices (BMPs): Farmington Field Office established environmental Best Management Practices (BMPs) will be followed during construction and reclamation of well site pads, access roads, pipeline ties, facility placement or any other surface disturbing activity associated with this project. Bureau wide standard BMPs are found in the Gold Book, Fourth Edition-Revised 2007 and at http://www.blm.gov/wo/st/en/prog/energy/oil_and_gas/best_management_practices.html

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

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

COMMENTS

Action 26466

COMMENTS

Operator:	DJR OPERATING, LLC	1 Road 3263	Aztec, NM87410	OGRID:	371838	Action Number:	26466	Action Type:	FORM 3160-3
Created By	Comment					Comment Date			
kpickford	KP GEO Review 5/4/2021					05/04/2021			

District I

1625 N. French Dr., Hobbs, NM 88240
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State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 26466

CONDITIONS OF APPROVAL

Operator:			OGRID:	Action Number:	Action Type:
DJR OPERATING, LLC	1 Road 3263	Aztec, NM87410	371838	26466	FORM 3160-3

OCD Reviewer	Condition
kpickford	Notify OCD 24 hours prior to casing & cement
kpickford	Will require a File As Drilled C-102 and a Directional Survey with the C-104
kpickford	Cement is required to circulate on both surface and intermediate1 strings of casing
kpickford	Oil base muds are not to be used until fresh water zones are cased and cemented providing isolation from the oil or diesel. This includes synthetic oils. Oil based mud, drilling fluids and solids must be contained in a steel closed loop system