

State of New Mexico
Energy, Minerals and Natural Resources Department

Michelle Lujan Grisham
Governor

Sarah Cottrell Propst
Cabinet Secretary

Todd E. Leahy, JD, PhD
Deputy Secretary

Adrienne Sandoval, Division Director
Oil Conservation Division



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

Operator Signature Date: **Original APD 10/23/2017**
Sundry Date 8/6/2019

WELL INFORMATION:
DJR OPERATING, LLC
30-045-35859 NAGEEZI UNIT #508H

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

- ☒ Notify Aztec OCD 24hrs prior to casing & cement.
- ☒ Hold C-104 for directional survey & "As Drilled" Plat
- ☐ Hold C-104 for NSL, NSP, DHC,
- ☐ Spacing rule violation. Operator must follow up with change of status notification on other well to be shut in or abandoned
- ☒ Regarding the use of a pit, closed loop system or below grade tank, the operator must comply with the following as applicable:
 - ☒ A pit requires a complete C-144 be submitted and approved prior to the construction or use of the pit, pursuant to 19.15.17.8.A
 - ☒ A closed loop system requires notification prior to use, pursuant to 19.15.17.9.A
 - ☒ A below grade tank requires a registration be filed prior to the construction or use of the below grade tank, pursuant to 19.15.17.8.C
- ☒ Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string
- ☒ Submit Gas Capture Plan form prior to spudding or initiating recompletions operations.
- ☒ Regarding Hydraulic Fracturing, review EPA Underground Injection Control Guidance 84

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RECEIVED

Form 3160-5
(March 2012)UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

AUG 06 2019

FORM APPROVED
OMB No. 1004-0137
Expires: October 31, 2014**SUNDRY NOTICES AND REPORTS ON WELLS**
Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.Farmington Field Office
Bureau of Land Management

SUBMIT IN TRIPLICATE – Other instructions on page 2.		5. Lease Serial No. NMNM 8005
1. Type of Well ☒ Oil Well ☐ Gas Well ☐ Other		6. If Indian, Allottee or Tribe Name N/A
2. Name of Operator DJR Operating LLC.		7. If Unit of CA/Agreement, Name and/or No. NMNM 132981A
3a. Address 1 Road 3263 Aztec, New Mexico 87410		8. Well Name and No. NAGEEZI UNIT #508H
3b. Phone No. (include area code) 505-632-3476		9. API Well No. 30-045-35859
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) SHL: 260' FNL and 339' FEL Section 9, T23N, R9W BHL: 330' FNL and 950' FEL Section 5, T23N, R9W		10. Field and Pool or Exploratory Area BASIN MANCOS
		11. County or Parish, State San Juan County, NM

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

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

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

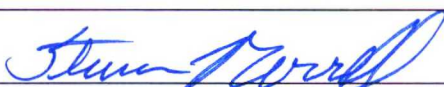
DJR Operating LLC. has an approved APD for the proposed well, Nageezi Unit 508H (API 30-045-35859) which will be part of the NAGEEZI UNIT. DJR Operating is submitting this sundry to change the BHL and Drilling Plan.

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

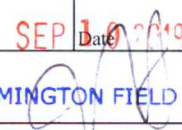
NMOCD

SEP 10 2019

DISTRICT III

14. I hereby certify that the foregoing is true and correct. Name (Printed/Typed) Steven Merrell		Title Regulatory Specialist
Signature 		Date 08/06/2019

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by	Title	Date
Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.	Office	SEP 10 2019
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.		FARMINGTON FIELD OFFICE BY: 

(Instructions on page 2)

NMOCD

DISTRICT I
1626 N. French Dr., Hobbs, N.M. 88240
Phone: (575) 393-8161 Fax: (575) 393-0720

DISTRICT II
611 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) 334-8178 Fax: (505) 334-8170

DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department

Form C-102
Revised August 1, 2011

Submit one copy to appropriate
District Office

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-045-35859	² Pool Code 98080	³ Pool Name NAGEEZI UNIT MANCOS OIL POOL
⁴ Property Code 325208	⁵ Property Name NAGEEZI UNIT	⁶ Well Number 508H
⁷ GRID No. 371838	⁸ Operator Name DJR OPERATING, LLC	⁹ Elevation 6748

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
A	9	23N	9W		260'	NORTH	339'	EAST	SAN JUAN

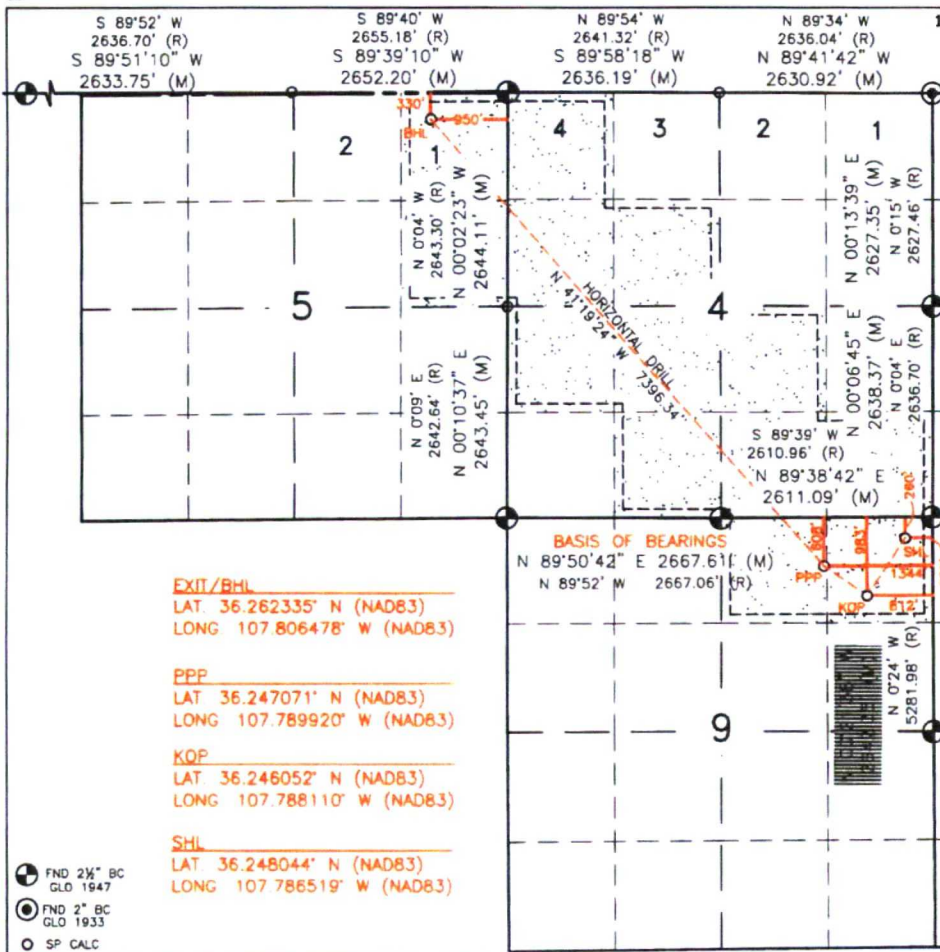
¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	5	23N	9W	1	330'	NORTH	950'	EAST	SAN JUAN

¹² Dedicated Acres SE/SE, SW/SE, NW/SE, SE/SW, NE/SW, NW/SW, SE/NW, SW/NW, & LOT 4 SEC. 4 (360.99 AC), SE/NE & LOT 1 SEC 5 (80.96 AC), NE/NE & NW/NE SEC 9 (80 AC) = 521.95 ACRES TOTAL	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No. R-13856, R-13856A
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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.

Signature: *Steven Merrell* Date: 8/6/19

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

SURVEYOR CERTIFICATION

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

AUGUST 21, 2017

Date of Survey
Signature and Seal of Professional Surveyor:



DISTRICT I

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Phone: (575) 393-6161 Fax: (575) 393-0720

DISTRICT II

611 S. First St., Artesia, N.M. 88210
Phone: (575) 746-1263 Fax: (575) 746-9720

DISTRICT III

1000 Rio Brasso Rd., Aztec, N.M. 87410
Phone: (505) 334-6176 Fax: (505) 334-6170

DISTRICT IV

1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3480 Fax: (505) 476-3482

State of New Mexico
Energy, Minerals & Natural Resources Department

Form C-102
Revised August 1, 2011

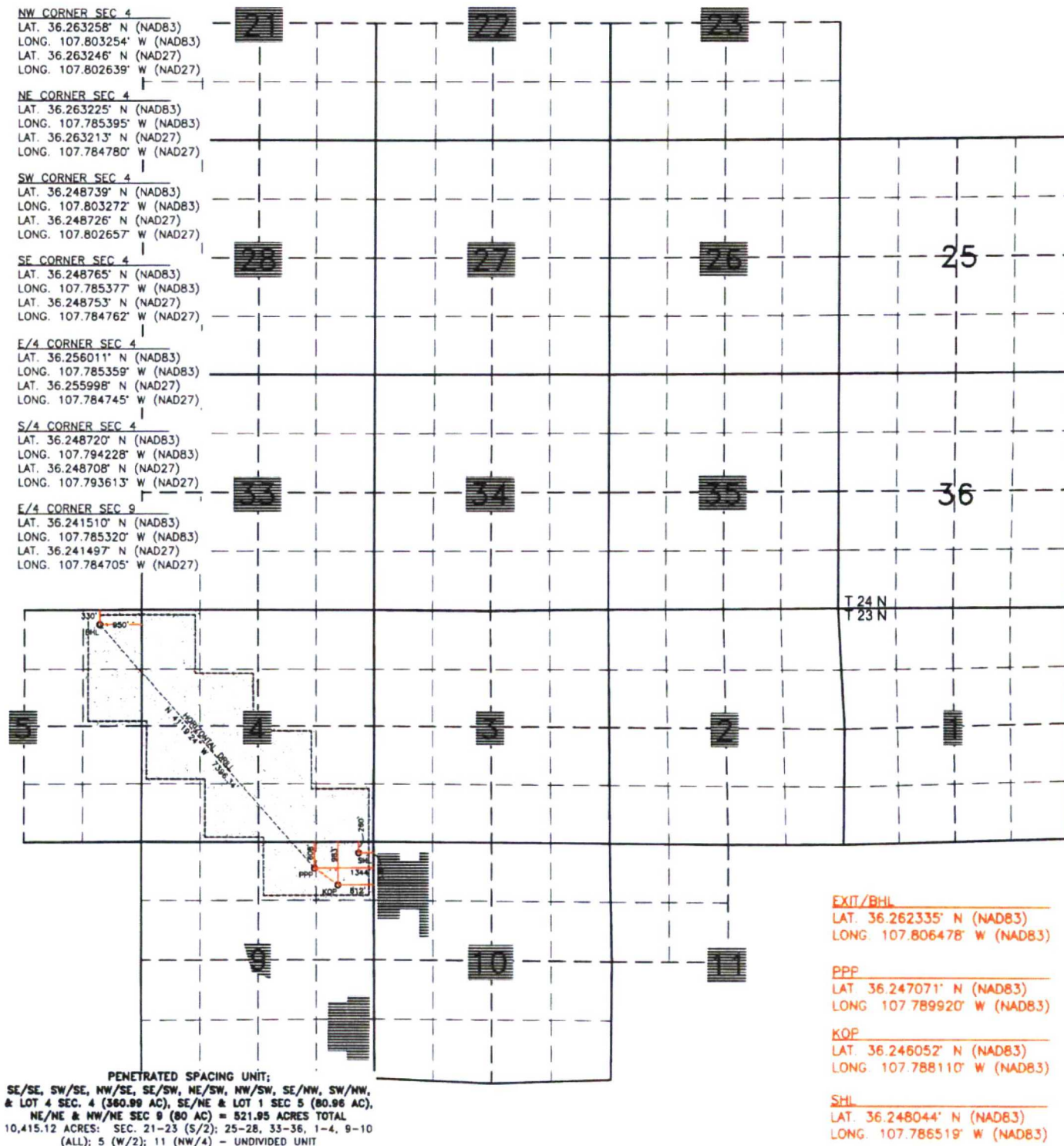
Submit one copy to appropriate
District Office

OIL CONSERVATION DIVISION

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

☐ AMENDED REPORT

DJR OPERATING, LTD
NAGEEZI UNIT #508H



DRILLING PLAN **Nageezi Unit 508H** **San Juan County, New Mexico**

Surface Location

339-ft FEL & 260-ft FNL
 Sec 9 TT23N RR09W
 Graded Elevation 6748' MSL
 RKB Elevation 6773' (25' KB)

SHL Geographical Coordinates (NAD-83)

Latitude 36.2480440° N
 Longitude 107.7865190° W

Kick Off Point for Horizontal Build Curve

4268-ft MD
 4166-ft TVD

Local Coordinates (from SHL)

726-ft South
 468-ft West

First Take Point (Heel target)

5566-ft MD
 1344-ft FEL & 608-ft FNL
 Sec 9 TT23N RR09W

FTP Geographical Coordinates (NAD-83)

Latitude 36.247071° N
 Longitude 107.78992000° W

Last Take Point (Toe target & BHL)

12704-ft MD
 950-ft FEL & 330-ft FNL
 Sec 5 TT23N RR09W

LTP Geographical Coordinates (NAD-83)

Latitude 36.262335° N
 Longitude 107.8064780° W

Well objectives

This well is planned as a 7400-ft lateral in the Gallup CR3 sand.

Bottom Hole temperature and pressure

The temperature in the Gallup CR3 horizontal objective is 136.0°F. Bottom hole pressure in the Gallup CR3 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	461	461	Sd	W	8.3	8.4 - 8.8
Kirtland	593	593	Sh	-	8.3	8.4 - 8.8
Fruitland	907	903	C	G	8.3	9.0 - 9.5
Picture Cliffs	1181	1169	Sd	W	8.3	9.0 - 9.5
Lewis	1287	1272	Sh	-		9.0 - 9.5
Chacra	1892	1859	Sd	-	8.3	9.0 - 9.5
Menefee	2659	2604	Sd, C	G	8.3	9.0 - 9.5
Point Lookout	3622	3538	Sd	-	8.3	9.0 - 9.5
Mancos	3817	3728	Sh	-		9.0 - 9.5
Mancos Silt	4150	4051	Slt	O/G	6.6	9.0 - 9.5
Gallup A	4706	4567	Slt	O/G	6.6	9.0 - 9.5
Gallup B	4754	4604	Sd	O/G	6.6	8.8 - 9.0
Gallup C	4897	4700	Sd	O/G	6.6	8.8 - 9.0
Target	5305	4826	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	5397	surf	4826	surface
4-1/2"	6-1/8"	11.6	P-110	BTC	5197	12704	4816	4866	5197

Note: all casing will be new

Casing Design Load Cases

Description		Casing String		
		9-5/8" Surface	7" Intermediate	4-1/2" Production Liner
Collapse	Full internal evacuation ¹	✓	✓	✓
	Cementing	✓	✓	✓
Burst	Pressure test	✓ ²	✓ 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

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

9-5/8" Surface Casing

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

7" Intermediate Casing

Halliburton Name	Lead	Tail
Type	HALCEM	VARICEM
Additives	Poz/G	Poz/G
Planned top	Ex, L, SA	Ex, FI, SA, L, THX
Density (ppg)	Surface	3317-ft
Yield (cf/sx)	12.30	13.50
Mix water (gal/sx)	1.90	1.31
Volume (sx)	10.03	5.81
Volume (bbls)	430	413
	145	96

4-1/2" Production Liner	Lead
Halliburton Name	EXTENDACEM
Type	Poz/G
Additives	B, De, Di, FI, Re, V
Planned top	5197-ft
Density (ppg)	13.3
Yield (cf/sx)	1.36
Mix water (gal/sx)	6.01
Volume (sx)	728
Volume (bbls)	176

Wellhead & Pressure Control

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

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

Mud Program

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

Hole Section	Fluid type	Interval (MD)	Density (ppg)	Funnel Viscosity	Yield Point	Fluid Loss (cc/30 min)
Surface	Fresh water spud mud	0 – 350	8.4 – 8.8	32 – 44	2 – 12	NC
Intermediate	7% KCl Low solids, non-dispersed	350 – 5397	9.0 – 9.5	38 – 45	8 – 14	<20
Production	Low solids, non-dispersed	5397 – 12704	8.8 – 9.2	34 – 38	6 – 8	6 – 8

Cores, tests and logs

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

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

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

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

Cuttings and drilling fluids management

A closed loop, steel tank-based circulating system will be used. In addition to the rig solids control equipment, a dewatering centrifuge and chemical flocculation system will be operational to strip solids from the whole mud. All solids will be collected in 3-sided bins and will then be put into transports with a bucket loader. Drying agents will be used if necessary. The solids will be taken to a licensed commercial disposal facility. Whole mud will be dewatered back to drill water and used as make up for subsequent wells or hauled off for disposal. A diagram of the closed loop system is included.

Completion

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



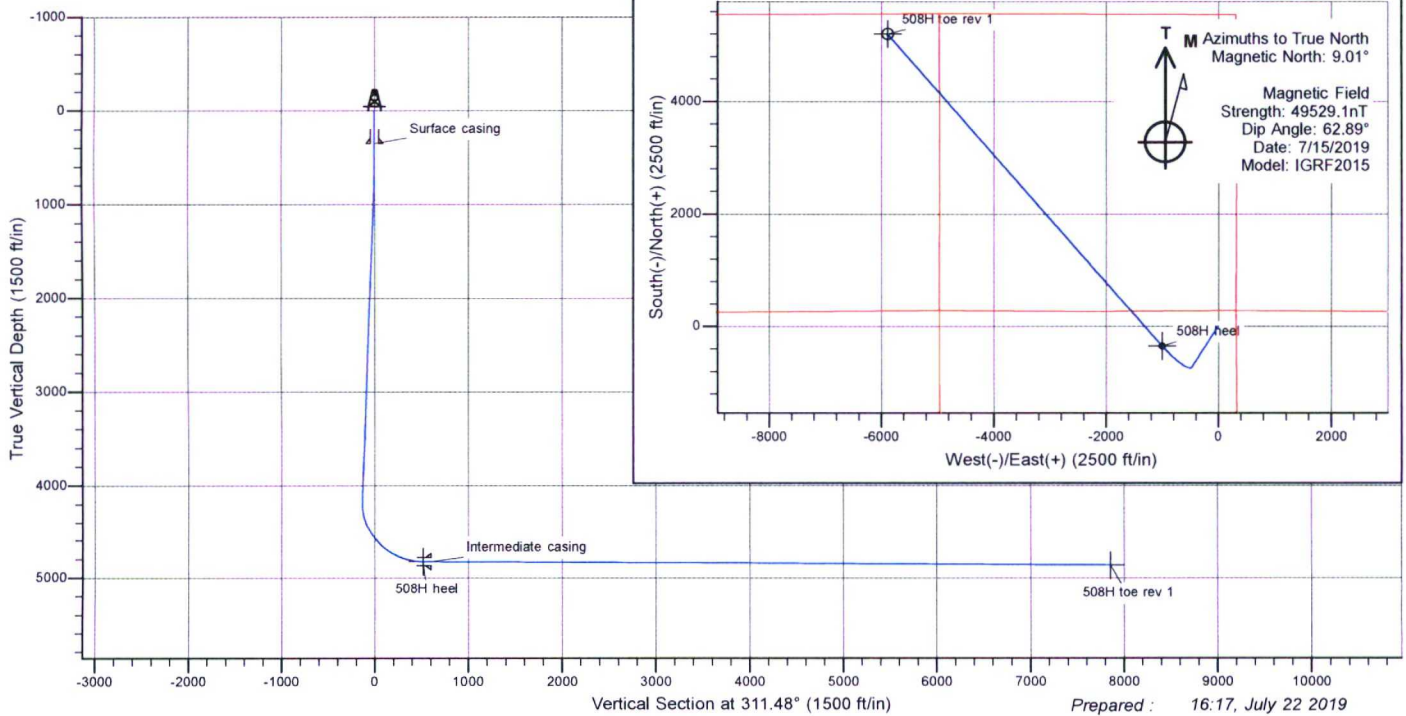
Pad name : A09 2309
Well name : Nageezi Unit #508H

SHL Latitude : 36.24804400
SHL Longitude : -107.78651900

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

TRAJECTORY DETAILS									
Pad elevation : 6748 RIG @ 6773ft (AD #1000)									
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	V/Sect	Target
0	0.00	0.00	0	0	0	0.00	0.00	0	
400	0.00	0.00	400	0	0	0.00	0.00	0	
957	13.91	212.83	951	-57	-36	2.50	212.83	-10	
4268	13.91	212.83	4166	-726	-468	0.00	0.00	-130	
5307	89.69	318.70	4826	-354	-1003	9.00	105.50	517	508H heel
12704	89.69	318.70	4866	5203	-5884	0.00	0.00	7854	508H toe rev 1

TARGET DETAILS							
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
508H heel	4826	-354	-1003	1909235	2735893	36.24707100	-107.78992000
508H toe rev 1	4866	5203	-5884	1914790	2731009	36.26233500	-107.80647800



DJR Operating

Nageezi Unit

A09 2309

508H

Original drilling

Plan: APD

Standard Planning Report

22 July, 2019

Planning Report

Database: EDM
Company: DJR Operating
Project: Nageezi Unit
Site: A09 2309
Well: 508H
Wellbore: Original drilling
Design: APD

Local Co-ordinate Reference: Well 508H
TVD Reference: RIG @ 6773ft (AD #1000)
MD Reference: RIG @ 6773ft (AD #1000)
North Reference: True
Survey Calculation Method: Minimum Curvature

Project	Nageezi 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	A09 2309				
Site Position:		Northing:	1,909,590 usft	Latitude:	36.24804400
From:	Lat/Long	Easting:	2,736,895 usft	Longitude:	-107.78651900
Position Uncertainty:	0 ft	Slot Radius:	13.200 in	Grid Convergence:	0.03 °

Well	508H					
Well Position	+N/-S	0 ft	Northing:	1,909,590 usft	Latitude:	36.24804400
	+E/-W	0 ft	Easting:	2,736,895 usft	Longitude:	-107.78651900
Position Uncertainty		0 ft	Wellhead Elevation:		Ground Level:	6748 ft

Wellbore	Original drilling				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	7/15/2019	9.01	62.89	49,529.10452680

Design	APD			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0	0	0	311.48

Plan Survey Tool Program	Date 7/22/2019			
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0	12,704 APD (Original drilling)	MWD+IGRF	
			OWSG MWD + IGRF or WM	

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0	0.00	0.00	0	0	0	0.00	0.00	0.00	0.00	
400	0.00	0.00	400	0	0	0.00	0.00	0.00	0.00	
957	13.91	212.83	951	-57	-36	2.50	2.50	0.00	212.83	
4268	13.91	212.83	4166	-726	-468	0.00	0.00	0.00	0.00	
5307	89.69	318.70	4826	-354	-1003	9.00	7.30	10.19	105.50	508H heel
12,704	89.69	318.70	4866	5203	-5884	0.00	0.00	0.00	0.00	508H toe rev 1

Planning Report

Database: EDM
Company: DJR Operating
Project: Nageezi Unit
Site: A09 2309
Well: 508H
Wellbore: Original drilling
Design: APD

Local Co-ordinate Reference: Well 508H
TVD Reference: RIG @ 6773ft (AD #1000)
MD Reference: RIG @ 6773ft (AD #1000)
North Reference: True
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0	0.00	0.00	0	0	0	0	0.00	0.00	0.00
100	0.00	0.00	100	0	0	0	0.00	0.00	0.00
200	0.00	0.00	200	0	0	0	0.00	0.00	0.00
300	0.00	0.00	300	0	0	0	0.00	0.00	0.00
350	0.00	0.00	350	0	0	0	0.00	0.00	0.00
Surface casing									
400	0.00	0.00	400	0	0	0	0.00	0.00	0.00
461	1.53	212.83	461	-1	0	0	2.50	2.50	0.00
Ojo Alamo									
500	2.50	212.83	500	-2	-1	0	2.50	2.50	0.00
593	4.83	212.83	593	-7	-4	-1	2.50	2.50	0.00
Kirtland									
600	5.00	212.83	600	-7	-5	-1	2.50	2.50	0.00
700	7.50	212.83	699	-16	-11	-3	2.50	2.50	0.00
800	10.00	212.83	798	-29	-19	-5	2.50	2.50	0.00
900	12.50	212.83	896	-46	-29	-8	2.50	2.50	0.00
907	12.68	212.83	903	-47	-30	-8	2.50	2.50	0.00
Fruitland									
957	13.91	212.83	951	-57	-36	-10	2.50	2.50	0.00
1000	13.91	212.83	993	-65	-42	-12	0.00	0.00	0.00
1100	13.91	212.83	1090	-85	-55	-15	0.00	0.00	0.00
1181	13.91	212.83	1169	-102	-66	-18	0.00	0.00	0.00
Picture Cliffs									
1200	13.91	212.83	1187	-106	-68	-19	0.00	0.00	0.00
1287	13.91	212.83	1272	-123	-80	-22	0.00	0.00	0.00
Lewis									
1300	13.91	212.83	1284	-126	-81	-23	0.00	0.00	0.00
1400	13.91	212.83	1382	-146	-94	-26	0.00	0.00	0.00
1500	13.91	212.83	1479	-166	-107	-30	0.00	0.00	0.00
1600	13.91	212.83	1576	-187	-120	-33	0.00	0.00	0.00
1700	13.91	212.83	1673	-207	-133	-37	0.00	0.00	0.00
1800	13.91	212.83	1770	-227	-146	-41	0.00	0.00	0.00
1892	13.91	212.83	1859	-245	-158	-44	0.00	0.00	0.00
Chacra									
1900	13.91	212.83	1867	-247	-159	-44	0.00	0.00	0.00
2000	13.91	212.83	1964	-267	-173	-48	0.00	0.00	0.00
2100	13.91	212.83	2061	-288	-186	-51	0.00	0.00	0.00
2200	13.91	212.83	2158	-308	-199	-55	0.00	0.00	0.00
2300	13.91	212.83	2255	-328	-212	-59	0.00	0.00	0.00
2400	13.91	212.83	2352	-348	-225	-62	0.00	0.00	0.00
2500	13.91	212.83	2449	-368	-238	-66	0.00	0.00	0.00
2600	13.91	212.83	2546	-389	-251	-70	0.00	0.00	0.00
2659	13.91	212.83	2604	-401	-258	-72	0.00	0.00	0.00
Menefee									
2700	13.91	212.83	2643	-409	-264	-73	0.00	0.00	0.00
2800	13.91	212.83	2740	-429	-277	-77	0.00	0.00	0.00
2900	13.91	212.83	2838	-449	-290	-80	0.00	0.00	0.00
3000	13.91	212.83	2935	-469	-303	-84	0.00	0.00	0.00
3100	13.91	212.83	3032	-490	-316	-88	0.00	0.00	0.00
3200	13.91	212.83	3129	-510	-329	-91	0.00	0.00	0.00
3300	13.91	212.83	3226	-530	-342	-95	0.00	0.00	0.00
3400	13.91	212.83	3323	-550	-355	-98	0.00	0.00	0.00
3500	13.91	212.83	3420	-570	-368	-102	0.00	0.00	0.00

Planning Report

Database: EDM
Company: DJR Operating
Project: Nageezi Unit
Site: A09 2309
Well: 508H
Wellbore: Original drilling
Design: APD

Local Co-ordinate Reference: Well 508H
TVD Reference: RIG @ 6773ft (AD #1000)
MD Reference: RIG @ 6773ft (AD #1000)
North Reference: True
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
3600	13.91	212.83	3517	-591	-381	-106	0.00	0.00	0.00
3622	13.91	212.83	3538	-595	-384	-107	0.00	0.00	0.00
Point Lookout									
3700	13.91	212.83	3614	-611	-394	-109	0.00	0.00	0.00
3800	13.91	212.83	3711	-631	-407	-113	0.00	0.00	0.00
3817	13.91	212.83	3728	-635	-409	-114	0.00	0.00	0.00
Mancos									
3900	13.91	212.83	3808	-651	-420	-117	0.00	0.00	0.00
4000	13.91	212.83	3905	-671	-433	-120	0.00	0.00	0.00
4100	13.91	212.83	4002	-692	-446	-124	0.00	0.00	0.00
4150	13.91	212.83	4051	-702	-453	-126	0.00	0.00	0.00
Mancos Silt									
4200	13.91	212.83	4099	-712	-459	-127	0.00	0.00	0.00
4268	13.91	212.83	4166	-726	-468	-130	0.00	0.00	0.00
4300	13.43	224.70	4196	-731	-473	-130	9.00	-1.53	37.59
4350	13.85	243.78	4245	-738	-482	-128	9.00	0.84	38.16
4400	15.59	260.18	4293	-742	-494	-121	9.00	3.48	32.81
4450	18.28	272.64	4341	-743	-509	-111	9.00	5.37	24.90
4500	21.56	281.71	4388	-741	-526	-97	9.00	6.56	18.15
4550	25.21	288.38	4434	-735	-545	-79	9.00	7.29	13.34
4600	29.08	293.42	4479	-727	-566	-58	9.00	7.74	10.08
4650	33.10	297.35	4522	-716	-589	-33	9.00	8.04	7.86
4700	37.22	300.50	4562	-702	-615	-5	9.00	8.24	6.31
4706	37.70	300.83	4567	-700	-618	-1	9.00	8.32	5.64
Gallup A									
4750	41.40	303.11	4601	-685	-641	26	9.00	8.38	5.15
4754	41.73	303.29	4604	-684	-644	29	9.00	8.43	4.74
Gallup B									
4800	45.64	305.31	4637	-666	-670	61	9.00	8.48	4.38
4850	49.92	307.21	4671	-644	-700	97	9.00	8.55	3.81
4897	53.97	308.80	4700	-621	-729	135	9.00	8.60	3.37
Gallup C									
4900	54.22	308.89	4702	-620	-731	137	9.00	8.62	3.18
4950	58.54	310.40	4729	-593	-763	178	9.00	8.64	3.01
5000	62.88	311.77	4754	-565	-796	222	9.00	8.68	2.74
5050	67.23	313.04	4775	-534	-829	267	9.00	8.70	2.54
5100	71.59	314.23	4792	-502	-863	314	9.00	8.72	2.38
5150	75.95	315.36	4806	-468	-897	362	9.00	8.73	2.26
5200	80.33	316.45	4817	-433	-931	411	9.00	8.74	2.18
5250	84.70	317.51	4823	-397	-965	460	9.00	8.75	2.12
5300	89.08	318.56	4826	-359	-998	510	9.00	8.75	2.09
5305	89.08	318.56	4826	-356	-1001	514	0.00	0.00	0.00
Target									
5307	89.69	318.70	4826	-354	-1003	517	27.11	26.37	6.28
508H heel									
5397	89.69	318.70	4826	-287	-1062	606	0.00	0.00	0.00
Intermediate casing									
5400	89.69	318.70	4827	-284	-1064	609	0.00	0.00	0.00
5500	89.69	318.70	4827	-209	-1130	708	0.00	0.00	0.00
5600	89.69	318.70	4828	-134	-1196	807	0.00	0.00	0.00
5700	89.69	318.70	4828	-59	-1262	907	0.00	0.00	0.00
5800	89.69	318.70	4829	16	-1328	1006	0.00	0.00	0.00
5900	89.69	318.70	4829	91	-1394	1105	0.00	0.00	0.00

Planning Report

Database: EDM
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Project: Nageezi Unit
Site: A09 2309
Well: 508H
Wellbore: Original drilling
Design: APD

Local Co-ordinate Reference: Well 508H
TVD Reference: RIG @ 6773ft (AD #1000)
MD Reference: RIG @ 6773ft (AD #1000)
North Reference: True
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
6000	89.69	318.70	4830	166	-1460	1204	0.00	0.00	0.00
6100	89.69	318.70	4830	242	-1526	1303	0.00	0.00	0.00
6200	89.69	318.70	4831	317	-1592	1403	0.00	0.00	0.00
6300	89.69	318.70	4831	392	-1658	1502	0.00	0.00	0.00
6400	89.69	318.70	4832	467	-1724	1601	0.00	0.00	0.00
6500	89.69	318.70	4832	542	-1790	1700	0.00	0.00	0.00
6600	89.69	318.70	4833	617	-1856	1799	0.00	0.00	0.00
6700	89.69	318.70	4834	692	-1922	1899	0.00	0.00	0.00
6800	89.69	318.70	4834	768	-1988	1998	0.00	0.00	0.00
6900	89.69	318.70	4835	843	-2054	2097	0.00	0.00	0.00
7000	89.69	318.70	4835	918	-2120	2196	0.00	0.00	0.00
7100	89.69	318.70	4836	993	-2186	2295	0.00	0.00	0.00
7200	89.69	318.70	4836	1068	-2252	2395	0.00	0.00	0.00
7300	89.69	318.70	4837	1143	-2318	2494	0.00	0.00	0.00
7400	89.69	318.70	4837	1218	-2384	2593	0.00	0.00	0.00
7500	89.69	318.70	4838	1293	-2450	2692	0.00	0.00	0.00
7600	89.69	318.70	4838	1369	-2516	2791	0.00	0.00	0.00
7700	89.69	318.70	4839	1444	-2582	2891	0.00	0.00	0.00
7800	89.69	318.70	4839	1519	-2648	2990	0.00	0.00	0.00
7900	89.69	318.70	4840	1594	-2714	3089	0.00	0.00	0.00
8000	89.69	318.70	4841	1669	-2780	3188	0.00	0.00	0.00
8100	89.69	318.70	4841	1744	-2846	3287	0.00	0.00	0.00
8200	89.69	318.70	4842	1819	-2912	3387	0.00	0.00	0.00
8300	89.69	318.70	4842	1894	-2978	3486	0.00	0.00	0.00
8400	89.69	318.70	4843	1970	-3044	3585	0.00	0.00	0.00
8500	89.69	318.70	4843	2045	-3110	3684	0.00	0.00	0.00
8600	89.69	318.70	4844	2120	-3176	3783	0.00	0.00	0.00
8700	89.69	318.70	4844	2195	-3242	3883	0.00	0.00	0.00
8800	89.69	318.70	4845	2270	-3308	3982	0.00	0.00	0.00
8900	89.69	318.70	4845	2345	-3374	4081	0.00	0.00	0.00
9000	89.69	318.70	4846	2420	-3440	4180	0.00	0.00	0.00
9100	89.69	318.70	4847	2496	-3506	4280	0.00	0.00	0.00
9200	89.69	318.70	4847	2571	-3572	4379	0.00	0.00	0.00
9300	89.69	318.70	4848	2646	-3638	4478	0.00	0.00	0.00
9400	89.69	318.70	4848	2721	-3704	4577	0.00	0.00	0.00
9500	89.69	318.70	4849	2796	-3770	4676	0.00	0.00	0.00
9600	89.69	318.70	4849	2871	-3836	4776	0.00	0.00	0.00
9700	89.69	318.70	4850	2946	-3902	4875	0.00	0.00	0.00
9800	89.69	318.70	4850	3021	-3968	4974	0.00	0.00	0.00
9900	89.69	318.70	4851	3097	-4034	5073	0.00	0.00	0.00
10,000	89.69	318.70	4851	3172	-4100	5172	0.00	0.00	0.00
10,100	89.69	318.70	4852	3247	-4166	5272	0.00	0.00	0.00
10,200	89.69	318.70	4852	3322	-4232	5371	0.00	0.00	0.00
10,300	89.69	318.70	4853	3397	-4298	5470	0.00	0.00	0.00
10,400	89.69	318.70	4854	3472	-4364	5569	0.00	0.00	0.00
10,500	89.69	318.70	4854	3547	-4430	5668	0.00	0.00	0.00
10,600	89.69	318.70	4855	3622	-4496	5768	0.00	0.00	0.00
10,700	89.69	318.70	4855	3698	-4562	5867	0.00	0.00	0.00
10,800	89.69	318.70	4856	3773	-4628	5966	0.00	0.00	0.00
10,900	89.69	318.70	4856	3848	-4694	6065	0.00	0.00	0.00
11,000	89.69	318.70	4857	3923	-4760	6164	0.00	0.00	0.00
11,100	89.69	318.70	4857	3998	-4826	6264	0.00	0.00	0.00
11,200	89.69	318.70	4858	4073	-4892	6363	0.00	0.00	0.00
11,300	89.69	318.70	4858	4148	-4958	6462	0.00	0.00	0.00

Planning Report

Database: EDM
Company: DJR Operating
Project: Nageezi Unit
Site: A09 2309
Well: 508H
Wellbore: Original drilling
Design: APD

Local Co-ordinate Reference: Well 508H
TVD Reference: RIG @ 6773ft (AD #1000)
MD Reference: RIG @ 6773ft (AD #1000)
North Reference: True
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
11,400	89.69	318.70	4859	4224	-5024	6561	0.00	0.00	0.00
11,500	89.69	318.70	4859	4299	-5090	6660	0.00	0.00	0.00
11,600	89.69	318.70	4860	4374	-5156	6760	0.00	0.00	0.00
11,700	89.69	318.70	4861	4449	-5222	6859	0.00	0.00	0.00
11,800	89.69	318.70	4861	4524	-5288	6958	0.00	0.00	0.00
11,900	89.69	318.70	4862	4599	-5354	7057	0.00	0.00	0.00
12,000	89.69	318.70	4862	4674	-5420	7156	0.00	0.00	0.00
12,100	89.69	318.70	4863	4749	-5486	7256	0.00	0.00	0.00
12,200	89.69	318.70	4863	4825	-5552	7355	0.00	0.00	0.00
12,300	89.69	318.70	4864	4900	-5618	7454	0.00	0.00	0.00
12,400	89.69	318.70	4864	4975	-5684	7553	0.00	0.00	0.00
12,500	89.69	318.70	4865	5050	-5750	7653	0.00	0.00	0.00
12,600	89.69	318.70	4865	5125	-5816	7752	0.00	0.00	0.00
12,704	89.69	318.70	4866	5203	-5884	7854	0.00	0.00	0.00

508H toe rev 1

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
508H heel - plan hits target center - Circle (radius 50)	0.00	0.00	4826	-354	-1003	1,909,235	2,735,893	36.24707100	-107.78992000
508H toe rev 1 - plan hits target center - Circle (radius 100)	0.00	0.00	4866	5203	-5884	1,914,790	2,731,009	36.26233500	-107.80647800

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
350	350	Surface casing	9.625	12.250
5397	4826	Intermediate casing	7.000	8.750

Planning Report

Database: EDM
Company: DJR Operating
Project: Nageezi Unit
Site: A09 2309
Well: 508H
Wellbore: Original drilling
Design: APD

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MD Reference: RIG @ 6773ft (AD #1000)
North Reference: True
Survey Calculation Method: Minimum Curvature

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
461	461	Ojo Alamo		0.00	
593	593	Kirtland		0.00	
907	903	Fruitland		0.00	
1181	1169	Picture Cliffs		0.00	
1287	1272	Lewis		0.00	
1892	1859	Chacra		0.00	
2659	2604	Menefee		0.00	
3622	3538	Point Lookout		0.00	
3817	3728	Mancos		0.00	
4150	4051	Mancos Silt		0.00	
4706	4567	Gallup A		0.00	
4754	4604	Gallup B		0.00	
4897	4700	Gallup C		0.00	
5305	4826	Target		0.00	

DJR Operating

Nageezi Unit

A09 2309

508H

Original drilling

APD

Anticollision Report

22 July, 2019

Anticollision Report

Company:	DJR Operating	Local Co-ordinate Reference:	Well 508H
Project:	Nageezi Unit	TVD Reference:	RIG @ 6773ft (AD #1000)
Reference Site:	A09 2309	MD Reference:	RIG @ 6773ft (AD #1000)
Site Error:	0 ft	North Reference:	True
Reference Well:	508H	Survey Calculation Method:	Minimum Curvature
Well Error:	0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Original drilling	Database:	EDM
Reference Design:	APD	Offset TVD Reference:	Offset Datum

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

Survey Tool Program	Date	7/22/2019		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0	12,704	APD (Original drilling)	MWD+IGRF	OWSG MWD + IGRF or WMM

Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
A09 2309						
507H (ECA) - Original drilling - As drilled	423	412	28	26	13.365	CC, ES
507H (ECA) - Original drilling - As drilled	12,403	12,548	1447	1077	3.911	SF
509H - Original drilling - APD	0	0	30			
509H - Original drilling - APD	4947	4958	70	33	1.878	SF
510H (ECA) - Original drilling - Original drilling	100	89	61	61	211.461	CC
510H (ECA) - Original drilling - Original drilling	600	588	61	58	18.482	ES
510H (ECA) - Original drilling - Original drilling	800	781	74	69	15.485	SF

Offset Design	A09 2309 - 507H (ECA) - Original drilling - As drilled	Offset Site Error:	0 ft									
Survey Program:	366-MWD+HDGM, 4189-MWD+HDGM, 5511-MWD+HDGM	Offset Well Error:	0 ft									
Reference	Offset	Semi Major Axis	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	(ft)	(ft)							
0	0	0	0	0	0	88.59	1	29	31			
100	100	89	89	0	0	88.36	1	29	29	0.29	102.090	
200	200	189	189	0	0	87.54	1	29	29	0.82	35.533	
300	300	289	289	1	0	86.09	2	29	29	1.35	21.179	
400	400	389	389	1	1	83.96	3	28	28	1.92	14.505	
423	423	412	412	1	1	-129.59	3	28	28	2.08	13.365	CC, ES
500	500	489	489	2	1	-133.83	4	27	29	2.62	11.104	
600	600	587	587	2	1	-140.50	4	30	36	3.30	11.028	
700	699	685	684	2	2	-146.27	4	36	51	4.00	12.753	
800	798	780	780	3	2	-149.31	4	45	73	4.71	15.417	
900	896	874	873	3	2	-150.77	3	58	101	5.43	18.546	
957	951	926	924	3	3	-151.39	3	66	119	5.83	20.404	
1000	993	965	963	4	3	-151.84	2	72	134	6.14	21.854	
1100	1090	1054	1050	4	3	-152.12	2	89	171	6.84	25.006	
1200	1187	1144	1138	5	4	-152.02	1	108	210	7.56	27.744	
1300	1284	1236	1227	5	4	-151.99	0	128	249	8.30	29.964	
1400	1382	1326	1315	6	4	-151.91	0	148	288	9.04	31.909	
1500	1479	1418	1405	6	5	-151.78	-1	169	328	9.81	33.461	
1600	1576	1513	1498	7	5	-151.72	-1	190	368	10.61	34.670	
1700	1673	1601	1583	7	6	-151.70	-2	209	407	11.35	35.874	
1800	1770	1689	1669	8	6	-151.53	-3	230	447	12.10	36.976	

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

Anticollision Report

Company: DJR Operating
Project: Nageezi Unit
Reference Site: A09 2309
Site Error: 0 ft
Reference Well: 508H
Well Error: 0 ft
Reference Wellbore: Original drilling
Reference Design: APD

Local Co-ordinate Reference: Well 508H
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MD Reference: RIG @ 6773ft (AD #1000)
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM
Offset TVD Reference: Offset Datum

Offset Design A09 2309 - 507H (ECA) - Original drilling - As drilled													Offset Site Error:	0 ft
Survey Program: 366-MWD+HDGM, 4189-MWD+HDGM, 5511-MWD+HDGM													Offset Well Error:	0 ft
Reference	Offset	Semi Major Axis		Distance		Warning								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
1900	1867	1778	1755	9	7	-151.40	-3	251	488	475	12.86	37.947		
2000	1964	1869	1843	9	7	-151.29	-4	273	529	516	13.65	38.795		
2100	2061	1961	1933	10	7	-151.17	-5	296	570	556	14.45	39.477		
2200	2158	2050	2019	10	8	-151.05	-5	317	611	596	15.23	40.160		
2300	2255	2150	2116	11	8	-150.95	-6	341	652	636	16.10	40.511		
2400	2352	2254	2217	11	9	-150.82	-9	365	692	675	17.01	40.669		
2500	2449	2345	2306	12	9	-150.77	-10	385	730	712	17.80	41.030		
2600	2546	2440	2399	13	10	-150.78	-12	405	769	750	18.62	41.286		
2700	2643	2530	2487	13	10	-150.82	-12	424	807	788	19.40	41.605		
2800	2740	2630	2584	14	11	-150.86	-14	445	845	825	20.26	41.734		
2900	2838	2722	2675	14	11	-150.96	-14	463	883	862	21.05	41.941		
3000	2935	2816	2767	15	12	-151.02	-15	482	921	899	21.85	42.130		
3100	3032	2901	2851	16	12	-151.07	-16	499	958	936	22.59	42.413		
3200	3129	2982	2929	16	12	-151.08	-16	517	997	974	23.29	42.817		
3300	3226	3070	3015	17	13	-151.09	-17	537	1037	1013	24.06	43.116		
3400	3323	3161	3104	17	13	-151.11	-17	557	1077	1052	24.85	43.331		
3500	3420	3258	3198	18	14	-151.14	-17	579	1117	1091	25.70	43.458		
3600	3517	3347	3285	18	14	-151.18	-17	598	1156	1130	26.47	43.677		
3700	3614	3443	3379	19	15	-151.20	-17	619	1195	1168	27.30	43.781		
3800	3711	3534	3467	20	15	-151.20	-18	639	1235	1207	28.09	43.948		
3900	3808	3633	3565	20	16	-151.21	-19	660	1273	1244	28.96	43.973		
4000	3905	3706	3635	21	16	-151.24	-19	676	1313	1283	29.59	44.371		
4100	4002	3815	3742	21	16	-151.21	-20	701	1353	1322	30.55	44.285		
4200	4099	3911	3835	22	17	-151.20	-21	721	1391	1360	31.39	44.319		
4268	4166	3942	3866	22	17	-151.24	-21	728	1418	1387	31.65	44.804		
4300	4196	3960	3883	23	17	-164.06	-20	732	1431	1400	31.80	45.017		
4350	4245	3987	3910	23	17	175.28	-18	738	1453	1421	31.99	45.423		
4400	4293	4022	3944	23	17	157.23	-15	745	1476	1444	32.22	45.811		
4450	4341	4340	4250	23	18	142.79	63	753	1499	1466	33.36	44.932		
4500	4388	4418	4322	24	18	132.32	90	739	1514	1480	33.37	45.358		
4550	4434	4496	4391	24	18	124.33	121	720	1528	1495	33.36	45.807		
4600	4479	4565	4449	24	18	118.14	152	700	1542	1508	33.35	46.227		
4650	4522	4735	4581	24	18	112.49	237	635	1553	1520	33.37	46.551		
4700	4562	4777	4611	24	18	108.70	259	616	1563	1529	33.49	46.662		
4750	4601	4810	4633	24	18	105.59	278	601	1572	1539	33.63	46.756		
4800	4637	4853	4661	25	18	102.87	303	580	1582	1548	33.83	46.765		
4850	4671	4971	4726	25	18	100.09	378	517	1590	1556	34.53	46.060		
4900	4702	5024	4750	25	18	98.07	413	485	1597	1562	35.09	45.515		
4950	4729	5064	4767	25	18	96.43	441	462	1603	1568	35.63	45.003		
5000	4754	5108	4784	25	18	95.05	471	435	1609	1573	36.25	44.391		
5050	4775	5162	4804	25	18	93.92	510	402	1615	1577	37.25	43.347		
5100	4792	5240	4828	25	19	92.99	565	353	1618	1580	38.68	41.835		
5150	4806	5259	4832	26	20	92.33	579	341	1622	1582	39.35	41.203		
5200	4817	5290	4838	26	20	91.79	602	321	1625	1585	40.27	40.345		
5250	4823	5322	4843	26	21	91.40	627	301	1628	1587	41.27	39.446		
5300	4826	5361	4848	27	21	91.20	657	276	1631	1588	42.46	38.404		
5307	4826	5367	4848	27	21	91.18	661	273	1631	1588	42.63	38.260		
5400	4827	5462	4853	28	23	91.31	736	214	1636	1590	45.39	36.032		
5500	4827	5581	4855	29	24	91.38	828	139	1640	1592	47.82	34.286		
5600	4828	5748	4859	30	25	91.49	955	31	1641	1590	51.02	32.167		
5654	4828	5793	4861	31	26	91.56	989	1	1641	1588	52.37	31.329		
5700	4828	5828	4863	31	26	91.61	1015	-22	1641	1587	53.56	30.638		

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

Anticollision Report

Company: DJR Operating
 Project: Nageezi Unit
 Reference Site: A09 2309
 Site Error: 0 ft
 Reference Well: 508H
 Well Error: 0 ft
 Reference Wellbore: Original drilling
 Reference Design: APD

Local Co-ordinate Reference: Well 508H
 TVD Reference: RIG @ 6773ft (AD #1000)
 MD Reference: RIG @ 6773ft (AD #1000)
 North Reference: True
 Survey Calculation Method: Minimum Curvature
 Output errors are at: 2.00 sigma
 Database: EDM
 Offset TVD Reference: Offset Datum

Offset Design A09 2309 - 507H (ECA) - Original drilling - As drilled													Offset Site Error:	0 ft
Survey Program: 366-MWD+HDGM, 4189-MWD+HDGM, 5511-MWD+HDGM													Offset Well Error:	0 ft
Reference	Offset	Semi Major Axis		Distance		Minimum Separation		Separation Factor		Warning				
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
5800	4829	5977	4871	33	28	91.84	1126	-122	1640	1583	57.53	28.511		
5900	4829	6086	4874	35	29	91.95	1206	-196	1638	1576	61.14	26.781		
6000	4830	6175	4876	37	31	92.02	1271	-256	1635	1570	64.59	25.316		
6100	4830	6259	4878	39	32	92.05	1333	-312	1633	1565	68.04	24.006		
6200	4831	6375	4879	40	34	92.08	1419	-391	1632	1560	72.36	22.554		
6300	4831	6488	4877	43	36	91.99	1502	-467	1629	1552	76.73	21.230		
6400	4832	6605	4873	45	39	91.83	1588	-547	1626	1544	81.36	19.983		
6500	4832	6697	4870	47	41	91.70	1654	-611	1622	1536	85.46	18.979		
6600	4833	6809	4866	49	43	91.55	1735	-688	1618	1528	90.14	17.950		
6700	4834	6916	4864	51	45	91.47	1813	-762	1614	1519	94.76	17.027		
6800	4834	7024	4864	53	48	91.43	1890	-837	1609	1509	99.49	16.169		
6900	4835	7132	4862	55	50	91.36	1967	-913	1603	1498	104.27	15.371		
7000	4835	7214	4859	58	52	91.23	2026	-970	1598	1489	108.41	14.737		
7100	4836	7291	4857	60	54	91.16	2082	-1023	1594	1481	112.41	14.178		
7200	4836	7409	4857	62	57	91.13	2167	-1104	1590	1472	117.55	13.524		
7300	4837	7472	4857	64	58	91.11	2213	-1147	1586	1465	121.21	13.085		
7400	4837	7551	4855	67	60	91.03	2271	-1200	1584	1459	125.27	12.648		
7500	4838	7656	4852	69	62	90.89	2349	-1270	1584	1454	130.10	12.173		
7600	4838	7800	4846	71	66	90.67	2456	-1368	1582	1446	136.09	11.622		
7700	4839	7912	4844	74	68	90.55	2537	-1445	1577	1436	141.18	11.171		
7800	4839	8004	4843	76	71	90.52	2603	-1508	1573	1427	145.75	10.794		
7900	4840	8125	4845	78	74	90.56	2690	-1592	1569	1417	151.14	10.378		
8000	4841	8202	4847	81	75	90.61	2745	-1646	1564	1408	155.33	10.067		
8100	4841	8277	4848	83	77	90.64	2801	-1697	1561	1402	159.44	9.791		
8200	4842	8373	4849	85	80	90.65	2871	-1761	1559	1395	164.12	9.501		
8300	4842	8494	4851	88	83	90.73	2960	-1844	1557	1387	169.57	9.180		
8400	4843	8598	4854	90	85	90.82	3036	-1915	1553	1378	174.53	8.898		
8500	4843	8698	4856	93	88	90.86	3109	-1984	1550	1370	179.40	8.638		
8600	4844	8778	4857	95	90	90.89	3167	-2038	1547	1363	183.67	8.421		
8700	4844	8883	4858	97	92	90.92	3245	-2109	1544	1356	188.70	8.184		
8800	4845	8990	4860	100	95	90.97	3323	-2182	1541	1347	193.77	7.954		
8900	4845	9088	4861	102	97	90.98	3394	-2249	1538	1340	198.59	7.746		
9000	4846	9190	4862	104	100	91.00	3469	-2319	1535	1331	203.54	7.541		
9100	4847	9297	4863	107	102	91.00	3547	-2392	1532	1323	208.65	7.342		
9200	4847	9427	4865	109	106	91.09	3640	-2483	1527	1312	214.39	7.121		
9300	4848	9508	4867	112	108	91.14	3698	-2539	1522	1303	218.80	6.954		
9400	4848	9586	4868	114	110	91.16	3755	-2593	1518	1295	223.08	6.805		
9500	4849	9678	4868	116	112	91.15	3822	-2655	1516	1288	227.75	6.655		
9600	4849	9773	4869	119	114	91.18	3892	-2720	1513	1280	232.51	6.507		
9698	4850	9841	4870	121	116	91.19	3942	-2765	1512	1276	236.34	6.397		
9700	4850	9842	4870	121	116	91.19	3943	-2766	1512	1276	236.41	6.396		
9800	4850	9936	4871	124	118	91.22	4014	-2828	1512	1271	241.10	6.273		
9900	4851	10,052	4874	126	121	91.28	4101	-2904	1512	1266	246.49	6.136		
10,000	4851	10,175	4875	128	124	91.32	4192	-2986	1511	1259	252.11	5.993		
10,100	4852	10,267	4875	131	126	91.30	4260	-3048	1509	1252	256.79	5.877		
10,200	4852	10,370	4875	133	129	91.29	4337	-3118	1507	1246	261.81	5.758		
10,300	4853	10,480	4877	136	132	91.31	4418	-3192	1505	1238	267.03	5.637		
10,400	4854	10,574	4878	138	134	91.35	4487	-3256	1503	1231	271.76	5.530		
10,500	4854	10,660	4878	141	136	91.33	4550	-3313	1501	1225	276.25	5.434		
10,594	4855	10,736	4878	143	138	91.32	4608	-3364	1501	1220	280.29	5.354		
10,600	4855	10,741	4878	143	138	91.33	4611	-3367	1501	1220	280.55	5.349		
10,700	4855	10,833	4880	145	141	91.38	4680	-3427	1501	1216	285.16	5.265		

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

Anticollision Report

Company: DJR Operating
Project: Nageezi Unit
Reference Site: A09 2309
Site Error: 0 ft
Reference Well: 508H
Well Error: 0 ft
Reference Wellbore: Original drilling
Reference Design: APD

Local Co-ordinate Reference: Well 508H
TVD Reference: RIG @ 6773ft (AD #1000)
MD Reference: RIG @ 6773ft (AD #1000)
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM
Offset TVD Reference: Offset Datum

Offset Design A09 2309 - 507H (ECA) - Original drilling - As drilled													Offset Site Error:	0 ft
Survey Program: 366-MWD+HDGM, 4189-MWD+HDGM, 5511-MWD+HDGM													Offset Well Error:	0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
10,800	4856	11,011	4887	148	145	91.61	4812	-3547	1500	1208	292.43	5.129		
10,900	4856	11,114	4888	150	148	91.63	4886	-3619	1495	1198	297.47	5.027		
11,000	4857	11,207	4886	153	150	91.53	4954	-3683	1491	1188	302.26	4.932		
11,100	4857	11,370	4885	155	154	91.48	5069	-3798	1484	1176	308.63	4.810		
11,200	4858	11,441	4885	157	156	91.46	5118	-3849	1477	1163	313.06	4.716		
11,300	4858	11,517	4885	160	158	91.45	5172	-3903	1470	1153	317.50	4.631		
11,400	4859	11,603	4885	162	160	91.43	5235	-3962	1466	1144	322.11	4.553		
11,500	4859	11,701	4885	165	163	91.42	5305	-4030	1462	1135	327.03	4.471		
11,600	4860	11,803	4884	167	165	91.35	5379	-4099	1459	1127	332.03	4.393		
11,700	4861	11,871	4881	170	167	91.23	5429	-4146	1456	1120	336.09	4.331		
11,800	4861	11,947	4877	172	169	91.07	5486	-4197	1455	1114	340.25	4.275		
11,808	4861	11,952	4877	172	169	91.06	5490	-4200	1455	1114	340.55	4.271		
11,900	4862	12,039	4876	174	171	90.99	5555	-4257	1455	1110	344.88	4.220		
12,000	4862	12,133	4877	177	173	91.01	5626	-4319	1456	1106	349.57	4.164		
12,100	4863	12,240	4878	179	176	91.02	5707	-4389	1456	1101	354.76	4.104		
12,200	4863	12,392	4880	182	180	91.07	5819	-4492	1454	1092	361.34	4.023		
12,300	4864	12,507	4883	184	183	91.17	5902	-4571	1450	1083	366.69	3.954		
12,400	4864	12,548	4884	187	184	91.21	5932	-4599	1447	1077	369.90	3.912		
12,403	4864	12,548	4884	187	184	91.21	5932	-4599	1447	1077	369.95	3.911 SF		
12,500	4865	12,548	4884	189	184	91.21	5932	-4599	1450	1080	370.51	3.914		
12,600	4865	12,548	4884	191	184	91.21	5932	-4599	1460	1091	369.39	3.953		
12,704	4866	12,548	4884	194	184	91.21	5932	-4599	1478	1111	366.52	4.032		

Anticollision Report

Company: DJR Operating
Project: Nageezi Unit
Reference Site: A09 2309
Site Error: 0 ft
Reference Well: 508H
Well Error: 0 ft
Reference Wellbore: Original drilling
Reference Design: APD

Local Co-ordinate Reference: Well 508H
TVD Reference: RIG @ 6773ft (AD #1000)
MD Reference: RIG @ 6773ft (AD #1000)
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM
Offset TVD Reference: Offset Datum

Offset Design A09 2309 - 509H - Original drilling - APD														Offset Site Error:	0 ft
Survey Program: 0-MWD+IGRF														Offset Well Error:	0 ft
Reference	Offset	Semi Major Axis		Distance		Warning									
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor			
0	0	0	0	0	0	-90.00	0	-30	30						
100	100	99	98	0	0	-91.15	-1	-33	33	32	0.31	107.129			
200	200	197	196	0	1	-93.80	-3	-39	40	39	1.03	38.585			
300	300	294	293	1	1	-96.59	-6	-51	51	50	1.76	29.261			
400	400	390	387	1	1	-98.85	-10	-66	68	65	2.48	27.384			
500	500	486	482	2	2	47.35	-16	-85	87	84	3.17	27.421			
600	600	585	578	2	2	48.41	-22	-105	103	100	3.86	26.779			
700	699	684	675	2	3	50.76	-27	-125	117	113	4.60	25.509			
800	798	783	772	3	3	54.14	-33	-145	129	123	5.39	23.912			
900	896	882	868	3	4	58.46	-39	-165	138	132	6.25	22.159			
957	951	938	923	3	4	61.30	-42	-176	143	136	6.77	21.142			
1000	993	980	965	4	5	63.60	-45	-185	147	140	7.20	20.406			
1100	1090	1079	1061	4	5	68.48	-50	-205	156	148	8.23	19.011			
1200	1187	1178	1158	5	6	72.79	-56	-225	167	158	9.29	17.956			
1300	1284	1277	1254	5	6	76.58	-62	-245	178	168	10.38	17.155			
1400	1382	1375	1351	6	7	79.91	-68	-265	190	179	11.49	16.544			
1500	1479	1474	1447	6	7	82.84	-73	-285	203	190	12.60	16.073			
1600	1576	1573	1544	7	8	85.42	-79	-305	216	202	13.72	15.709			
1700	1673	1671	1640	7	8	87.72	-85	-324	229	214	14.84	15.424			
1800	1770	1770	1737	8	9	89.76	-91	-344	243	227	15.96	15.200			
1900	1867	1869	1833	9	9	91.57	-97	-364	256	239	17.07	15.023			
2000	1964	1968	1930	9	10	93.21	-102	-384	271	252	18.19	14.882			
2100	2061	2066	2026	10	10	94.68	-108	-404	285	266	19.30	14.769			
2200	2158	2165	2123	10	11	96.00	-114	-424	300	279	20.41	14.679			
2300	2255	2264	2219	11	11	97.21	-120	-444	314	293	21.52	14.606			
2400	2352	2362	2316	11	12	98.31	-125	-464	329	306	22.62	14.548			
2500	2449	2461	2412	12	13	99.31	-131	-484	344	320	23.72	14.501			
2600	2546	2560	2509	13	13	100.23	-137	-504	359	334	24.82	14.463			
2700	2643	2659	2605	13	14	101.07	-143	-524	374	348	25.92	14.433			
2800	2740	2757	2702	14	14	101.85	-148	-544	389	362	27.02	14.409			
2900	2838	2856	2798	14	15	102.57	-154	-564	405	376	28.11	14.390			
3000	2935	2955	2895	15	15	103.24	-160	-584	420	391	29.21	14.375			
3100	3032	3053	2991	16	16	103.87	-166	-604	435	405	30.30	14.363			
3200	3129	3152	3088	16	16	104.45	-171	-624	451	419	31.39	14.355			
3300	3226	3251	3184	17	17	104.99	-177	-644	466	434	32.48	14.349			
3400	3323	3349	3281	17	17	105.49	-183	-664	481	448	33.57	14.345			
3500	3420	3448	3377	18	18	105.97	-189	-684	497	462	34.65	14.342			
3600	3517	3547	3474	18	18	106.42	-194	-703	513	477	35.74	14.341			
3700	3614	3646	3570	19	19	106.84	-200	-723	528	491	36.82	14.342			
3800	3711	3744	3667	20	20	107.23	-206	-743	544	506	37.91	14.343			
3900	3808	3843	3763	20	20	107.61	-212	-763	559	520	38.99	14.345			
4000	3905	3942	3860	21	21	107.96	-218	-783	575	535	40.07	14.348			
4100	4002	4040	3956	21	21	108.30	-223	-803	591	549	41.16	14.351			
4200	4099	4139	4053	22	22	108.61	-229	-823	606	564	42.24	14.355			
4268	4166	4207	4119	22	22	108.82	-233	-837	617	574	42.98	14.357			
4300	4196	4570	4467	23	23	99.28	-320	-848	618	578	40.58	15.236			
4350	4245	5078	4790	23	24	101.96	-635	-643	577	557	19.99	28.871			
4400	4293	5141	4807	23	24	118.70	-681	-605	528	511	17.65	29.943			
4450	4341	5150	4809	23	24	138.89	-688	-599	479	462	17.52	27.337			
4500	4388	5143	4807	24	24	150.10	-682	-604	430	412	17.99	23.899			
4550	4434	5128	4804	24	24	154.37	-672	-613	381	362	18.75	20.324			
4600	4479	5111	4799	24	24	155.11	-659	-623	333	313	19.74	16.856			

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

Anticollision Report

Company: DJR Operating
Project: Nageezi Unit
Reference Site: A09 2309
Site Error: 0 ft
Reference Well: 508H
Well Error: 0 ft
Reference Wellbore: Original drilling
Reference Design: APD

Local Co-ordinate Reference: Well 508H
TVD Reference: RIG @ 6773ft (AD #1000)
MD Reference: RIG @ 6773ft (AD #1000)
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM
Offset TVD Reference: Offset Datum

Offset Design A09 2309 - 509H - Original drilling - APD													Offset Site Error:	0 ft
Survey Program: 0-MWD+IGRF													Offset Well Error:	0 ft
Reference	Offset	Semi Major Axis		Distance		Minimum		Separation		Warning				
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
4650	4522	5091	4794	24	24	153.85	-644	-635	285	264	20.96	13.609		
4700	4562	5071	4787	24	24	151.05	-629	-648	239	216	22.45	10.635		
4750	4601	5049	4780	24	24	146.67	-613	-661	194	169	24.32	7.965		
4800	4637	5026	4771	25	24	140.29	-597	-673	151	124	26.82	5.628		
4850	4671	5004	4762	25	24	131.18	-580	-686	112	82	30.39	3.691		
4900	4702	4981	4752	25	24	118.51	-564	-699	82	47	35.18	2.329		
4947	4728	4958	4741	25	24	103.11	-548	-710	70	33	37.45	1.878 SF		
4950	4729	4957	4741	25	24	102.15	-547	-711	70	33	37.37	1.883		
5000	4754	4934	4729	25	24	84.05	-531	-723	84	50	33.56	2.501		
5050	4775	4910	4716	25	24	67.61	-514	-735	113	82	30.52	3.696		
5100	4792	4886	4703	25	24	54.82	-498	-746	147	118	29.71	4.960		
5150	4806	4862	4689	26	24	45.56	-482	-757	184	154	29.98	6.124		
5200	4817	4838	4674	26	24	38.95	-466	-767	220	189	30.70	7.166		
5250	4823	4814	4658	26	24	34.19	-451	-777	256	224	31.61	8.093		
5300	4826	4789	4641	27	24	30.71	-436	-787	291	258	32.60	8.920		
5307	4826	4786	4639	27	24	30.30	-434	-788	296	263	32.73	9.030		
5400	4827	4750	4613	28	24	28.09	-412	-801	362	327	35.03	10.332		
5500	4827	4700	4575	29	24	25.58	-384	-817	438	402	35.84	12.219		
5600	4828	4671	4552	30	24	24.37	-369	-826	518	480	37.52	13.802		
5700	4828	4650	4535	31	24	23.58	-358	-831	601	562	38.99	15.414		
5800	4829	4616	4507	33	23	22.47	-341	-839	686	647	39.54	17.354		
5900	4829	4600	4493	35	23	21.98	-334	-842	774	733	40.49	19.109		
6000	4830	4574	4471	37	23	21.28	-322	-847	863	822	40.93	21.076		
6100	4830	4550	4449	39	23	20.68	-312	-851	953	912	41.29	23.084		
6200	4831	4550	4449	40	23	20.68	-312	-851	1045	1002	42.09	24.815		
6300	4831	4528	4428	43	23	20.18	-303	-854	1137	1095	42.29	26.882		
6400	4832	4500	4403	45	23	19.62	-292	-856	1230	1188	42.35	29.052		
6500	4832	4500	4403	47	23	19.62	-292	-856	1324	1281	42.84	30.901		
6600	4833	4500	4403	49	23	19.62	-292	-856	1418	1375	43.25	32.793		
6700	4834	4500	4403	51	23	19.62	-292	-856	1514	1470	43.60	34.719		
6800	4834	4475	4380	53	23	19.17	-284	-858	1609	1565	43.56	36.927		
6900	4835	4450	4356	55	23	18.74	-276	-860	1705	1661	43.52	39.173		
7000	4835	4450	4356	58	23	18.74	-276	-860	1801	1757	43.77	41.137		
7100	4836	4450	4356	60	23	18.74	-276	-860	1897	1853	44.00	43.119		
7200	4836	4450	4356	62	23	18.74	-276	-860	1994	1950	44.19	45.116		
7300	4837	4450	4356	64	23	18.74	-276	-860	2091	2046	44.37	47.125		
7400	4837	4450	4356	67	23	18.74	-276	-860	2188	2144	44.52	49.145		
7500	4838	4450	4356	69	23	18.74	-276	-860	2286	2241	44.66	51.172		
7600	4838	4426	4333	71	23	18.38	-269	-860	2383	2338	44.58	53.451		
7700	4839	4422	4329	74	23	18.32	-267	-860	2480	2436	44.66	55.534		
7800	4839	4400	4308	76	23	18.02	-261	-860	2578	2534	44.59	57.824		
7900	4840	4400	4308	78	23	18.02	-261	-860	2676	2632	44.71	59.865		
8000	4841	4400	4308	81	23	18.02	-261	-860	2774	2729	44.81	61.910		
8100	4841	4400	4308	83	23	18.02	-261	-860	2872	2828	44.91	63.958		
8200	4842	4400	4308	85	23	18.02	-261	-860	2971	2926	45.00	66.009		
8300	4842	4400	4308	88	23	18.02	-261	-860	3069	3024	45.09	68.061		
8400	4843	4400	4308	90	23	18.02	-261	-860	3168	3122	45.18	70.115		
8500	4843	4400	4308	93	23	18.02	-261	-860	3266	3221	45.26	72.169		
8600	4844	4400	4308	95	23	18.02	-261	-860	3365	3319	45.33	74.223		
8700	4844	4400	4308	97	23	18.02	-261	-860	3463	3418	45.41	76.277		
8800	4845	4400	4308	100	23	18.02	-261	-860	3562	3517	45.48	78.330		
8900	4845	4400	4308	102	23	18.02	-261	-860	3661	3616	45.55	80.382		

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

Anticollision Report

Company: DJR Operating
Project: Nageezi Unit
Reference Site: A09 2309
Site Error: 0 ft
Reference Well: 508H
Well Error: 0 ft
Reference Wellbore: Original drilling
Reference Design: APD

Local Co-ordinate Reference: Well 508H
TVD Reference: RIG @ 6773ft (AD #1000)
MD Reference: RIG @ 6773ft (AD #1000)
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM
Offset TVD Reference: Offset Datum

Offset Design A09 2309 - 509H - Original drilling - APD													Offset Site Error:	0 ft
Survey Program: 0-MWD+IGRF													Offset Well Error:	0 ft
Reference	Offset	Semi Major Axis		Distance		Minimum		Separation		Warning				
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
9000	4846	4400	4308	104	23	18.02	-261	-860	3760	3714	45.61	82.433		
9100	4847	4400	4308	107	23	18.02	-261	-860	3859	3813	45.68	84.483		
9200	4847	4400	4308	109	23	18.02	-261	-860	3958	3912	45.74	86.530		
9300	4848	4377	4285	112	23	17.72	-256	-859	4057	4011	45.65	88.866		
9400	4848	4375	4284	114	23	17.69	-255	-859	4156	4110	45.70	90.935		
9500	4849	4373	4282	116	23	17.67	-255	-859	4255	4209	45.75	93.000		
9600	4849	4350	4259	119	23	17.41	-250	-858	4354	4309	45.66	95.353		
9700	4850	4350	4259	121	23	17.41	-250	-858	4453	4408	45.73	97.391		
9800	4850	4350	4259	124	23	17.41	-250	-858	4552	4507	45.79	99.427		
9900	4851	4350	4259	126	23	17.41	-250	-858	4652	4606	45.85	101.460		
10,000	4851	4350	4259	128	23	17.41	-250	-858	4751	4705	45.91	103.489		
10,100	4852	4350	4259	131	23	17.41	-250	-858	4850	4804	45.97	105.515		
10,200	4852	4350	4259	133	23	17.41	-250	-858	4949	4903	46.02	107.538		
10,300	4853	4350	4259	136	23	17.41	-250	-858	5049	5002	46.08	109.556		
10,400	4854	4350	4259	138	23	17.41	-250	-858	5148	5102	46.14	111.571		
10,500	4854	4350	4259	141	23	17.41	-250	-858	5247	5201	46.20	113.582		
10,600	4855	4350	4259	143	23	17.41	-250	-858	5347	5300	46.26	115.588		
10,700	4855	4350	4259	145	23	17.41	-250	-858	5446	5400	46.31	117.591		
10,800	4856	4350	4259	148	23	17.41	-250	-858	5545	5499	46.37	119.589		
10,900	4856	4350	4259	150	23	17.41	-250	-858	5645	5598	46.43	121.582		
11,000	4857	4350	4259	153	23	17.41	-250	-858	5744	5698	46.49	123.571		
11,100	4857	4350	4259	155	23	17.41	-250	-858	5844	5797	46.54	125.555		
11,200	4858	4350	4259	157	23	17.41	-250	-858	5943	5897	46.60	127.535		
11,300	4858	4350	4259	160	23	17.41	-250	-858	6043	5996	46.66	129.509		
11,400	4859	4350	4259	162	23	17.41	-250	-858	6142	6096	46.72	131.479		
11,500	4859	4350	4259	165	23	17.41	-250	-858	6242	6195	46.78	133.443		
11,600	4860	4350	4259	167	23	17.41	-250	-858	6341	6295	46.83	135.402		
11,700	4861	4350	4259	170	23	17.41	-250	-858	6441	6394	46.89	137.356		
11,800	4861	4350	4259	172	23	17.41	-250	-858	6541	6494	46.95	139.305		
11,900	4862	4350	4259	174	23	17.41	-250	-858	6640	6593	47.01	141.248		
12,000	4862	4350	4259	177	23	17.41	-250	-858	6740	6693	47.07	143.186		
12,100	4863	4350	4259	179	23	17.41	-250	-858	6839	6792	47.13	145.119		
12,200	4863	4350	4259	182	23	17.41	-250	-858	6939	6892	47.19	147.045		
12,300	4864	4350	4259	184	23	17.41	-250	-858	7039	6991	47.25	148.966		
12,400	4864	4350	4259	187	23	17.41	-250	-858	7138	7091	47.31	150.882		
12,500	4865	4350	4259	189	23	17.41	-250	-858	7238	7191	47.37	152.791		
12,600	4865	4350	4259	191	23	17.41	-250	-858	7338	7290	47.43	154.695		
12,704	4866	4350	4259	194	23	17.41	-250	-858	7441	7393	47.50	156.659		

Anticollision Report

Company: DJR Operating
Project: Nageezi Unit
Reference Site: A09 2309
Site Error: 0 ft
Reference Well: 508H
Well Error: 0 ft
Reference Wellbore: Original drilling
Reference Design: APD

Local Co-ordinate Reference: Well 508H
TVD Reference: RIG @ 6773ft (AD #1000)
MD Reference: RIG @ 6773ft (AD #1000)
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM
Offset TVD Reference: Offset Datum

Offset Design A09 2309 - 510H (ECA) - Original drilling - Original drilling														Offset Site Error:	0 ft
Survey Program: 368-MWD+HDGM, 5232-MWD+HDGM														Offset Well Error:	0 ft
Reference	Offset	Semi Major Axis		Distance		Minimum Separation		Separation Factor		Warning					
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor			
0	0	0	0	0	0	-90.00	0	-61	62						
100	100	89	89	0	0	-89.87	0	-61	61	61	0.29	211.461 CC			
200	200	189	189	0	0	-89.42	1	-61	61	61	0.82	74.929			
300	300	288	288	1	0	-88.66	1	-62	62	61	1.35	46.048			
400	400	388	388	1	1	-87.58	3	-63	63	61	1.92	32.973			
500	500	489	489	2	1	63.91	5	-63	63	60	2.62	23.906			
600	600	588	587	2	1	75.10	12	-63	61	58	3.32	18.486			
600	600	588	587	2	1	75.12	12	-63	61	58	3.32	18.482 ES			
700	699	685	685	2	2	91.91	20	-63	64	60	4.04	15.829			
800	798	781	780	3	2	110.14	31	-62	74	69	4.79	15.485 SF			
900	896	875	873	3	2	125.92	43	-60	95	89	5.52	17.169			
957	951	926	923	3	3	132.71	51	-59	111	105	5.93	18.727			
1000	993	964	961	4	3	136.96	57	-59	125	119	6.23	20.132			
1100	1090	1054	1050	4	3	143.74	73	-58	161	155	6.91	23.347			
1200	1187	1141	1135	5	4	148.00	90	-57	201	193	7.57	26.479			
1300	1284	1230	1221	5	4	151.25	109	-55	242	234	8.25	29.318			
1400	1382	1309	1299	6	4	153.54	127	-53	286	277	8.84	32.293			
1500	1479	1388	1374	6	5	155.14	148	-50	333	323	9.44	35.272			
1600	1576	1473	1456	7	5	156.06	173	-49	382	372	10.12	37.738			
1700	1673	1556	1535	7	6	156.57	197	-50	431	420	10.78	40.007			
1800	1770	1634	1610	8	6	156.91	221	-50	482	470	11.40	42.268			
1900	1867	1717	1688	9	6	157.21	247	-51	534	522	12.07	44.200			
2000	1964	1800	1766	9	7	157.44	274	-51	586	573	12.76	45.903			
2100	2061	1891	1853	10	7	157.60	304	-52	638	624	13.53	47.126			
2200	2158	1974	1932	10	8	157.77	330	-52	689	675	14.22	48.468			
2300	2255	2056	2009	11	8	157.95	357	-52	741	727	14.90	49.765			
2400	2352	2153	2101	11	9	158.19	388	-52	793	777	15.72	50.446			
2500	2449	2255	2198	12	9	158.35	419	-52	844	827	16.60	50.820			
2600	2546	2337	2277	13	10	158.46	443	-53	893	876	17.28	51.678			
2700	2643	2429	2364	13	10	158.59	470	-53	943	925	18.05	52.225			
2800	2740	2514	2446	14	11	158.75	495	-52	992	973	18.77	52.870			
2900	2838	2595	2523	14	11	158.90	519	-52	1042	1023	19.44	53.589			
3000	2935	2685	2609	15	12	159.08	546	-51	1092	1072	20.20	54.060			
3100	3032	2781	2701	16	12	159.25	573	-49	1141	1120	21.00	54.349			
3200	3129	2849	2766	16	12	159.36	593	-49	1191	1169	21.56	55.224			
3300	3226	2924	2837	17	13	159.46	616	-48	1242	1220	22.19	55.963			
3400	3323	3008	2917	17	13	159.57	643	-47	1294	1271	22.90	56.479			
3500	3420	3131	3035	18	14	159.64	679	-47	1343	1319	23.95	56.079			
3600	3517	3215	3115	18	14	159.71	703	-47	1392	1368	24.66	56.460			
3700	3614	3297	3193	19	15	159.79	727	-46	1442	1416	25.35	56.874			
3800	3711	3373	3266	20	15	159.86	749	-45	1492	1466	25.99	57.395			
3900	3808	3487	3375	20	16	159.97	782	-44	1541	1514	26.95	57.180			
4000	3905	3560	3446	21	16	160.07	803	-43	1590	1562	27.56	57.675			
4100	4002	3632	3514	21	17	160.18	824	-41	1640	1612	28.16	58.226			
4200	4099	3716	3594	22	17	160.31	848	-38	1690	1661	28.87	58.542			
4268	4166	5724	4879	22	24	-162.98	220	713	1678	1641	36.59	45.849			
4300	4196	5725	4879	23	24	-173.89	219	714	1671	1634	36.99	45.177			
4350	4245	5723	4879	23	24	168.29	221	712	1662	1625	37.55	44.270			
4400	4293	5715	4879	23	23	152.82	227	707	1655	1617	38.00	43.549			
4450	4341	5704	4880	23	23	141.02	236	700	1649	1611	38.36	43.003			
4500	4388	5690	4880	24	23	132.35	247	691	1645	1607	38.63	42.592			
4550	4434	5672	4880	24	23	125.85	260	680	1643	1604	38.83	42.317			

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

Anticollision Report

Company: DJR Operating
 Project: Nageezi Unit
 Reference Site: A09 2309
 Site Error: 0 ft
 Reference Well: 508H
 Well Error: 0 ft
 Reference Wellbore: Original drilling
 Reference Design: APD

Local Co-ordinate Reference: Well 508H
 TVD Reference: RIG @ 6773ft (AD #1000)
 MD Reference: RIG @ 6773ft (AD #1000)
 North Reference: True
 Survey Calculation Method: Minimum Curvature
 Output errors are at 2.00 sigma
 Database: EDM
 Offset TVD Reference: Offset Datum

Offset Design A09 2309 - 510H (ECA) - Original drilling - Original drilling													Offset Site Error: 0 ft
Survey Program: 368-MWD+HDGM, 5232-MWD+HDGM													Offset Well Error: 0 ft
Reference	Offset	Semi Major Axis		Distance		Minimum Separation		Warning					
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Tooface (")	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
4600	4479	5651	4880	24	23	120.78	276	667	1642	1603	38.95	42.165	
4605	4483	5649	4880	24	23	120.33	278	665	1642	1603	38.96	42.156	
4650	4522	5627	4880	24	22	116.63	295	652	1643	1604	39.01	42.116	
4700	4562	5600	4880	24	22	113.08	316	634	1645	1606	39.01	42.152	
4750	4601	5571	4879	24	22	109.98	339	616	1647	1608	39.00	42.246	
4800	4637	5540	4878	25	22	107.22	363	597	1651	1612	38.98	42.364	
4850	4671	5505	4878	25	21	104.68	390	575	1656	1617	38.94	42.516	
4900	4702	5466	4877	25	21	102.30	421	550	1661	1622	38.92	42.666	
4950	4729	5423	4876	25	21	100.13	454	523	1666	1627	38.95	42.765	
5000	4754	5394	4874	25	21	98.42	476	505	1671	1632	39.12	42.720	
5050	4775	5288	4856	25	21	95.35	558	439	1676	1637	39.26	42.687	
5100	4792	5243	4842	25	21	93.62	590	412	1680	1640	39.65	42.368	
5150	4806	5188	4823	26	21	91.87	630	379	1683	1643	39.86	42.235	
5200	4817	5110	4796	26	20	90.00	685	331	1686	1646	40.06	42.077	
5250	4823	5074	4780	26	20	89.06	709	309	1687	1647	40.37	41.797	
5300	4826	5052	4770	27	20	88.49	723	297	1689	1648	40.78	41.409	
5307	4826	5031	4759	27	20	88.10	737	285	1689	1648	40.79	41.402	
5400	4827	4896	4678	28	20	85.32	815	211	1689	1648	41.41	40.790	
5500	4827	4853	4647	29	20	84.27	836	190	1692	1650	42.54	39.784	
5600	4828	4792	4601	30	20	82.73	865	161	1699	1656	43.68	38.901	
5700	4828	4758	4575	31	20	81.82	880	146	1710	1665	44.91	38.078	
5800	4829	4726	4549	33	20	80.95	894	133	1726	1679	46.14	37.399	
5900	4829	4683	4513	35	20	79.75	910	117	1745	1698	47.31	36.895	
6000	4830	4642	4478	37	20	78.57	925	102	1769	1721	48.41	36.547	
6100	4830	4615	4453	39	20	77.75	934	92	1798	1748	49.48	36.329	
6200	4831	4592	4433	40	20	77.07	940	85	1831	1780	50.49	36.255	
6300	4831	4569	4412	43	20	76.39	947	78	1868	1816	51.41	36.329	
6400	4832	4541	4386	45	20	75.55	954	70	1909	1857	52.22	36.552	
6500	4832	4522	4368	47	20	74.96	959	64	1954	1901	52.97	36.880	
6600	4833	4505	4353	49	20	74.45	962	59	2002	1949	53.65	37.320	
6700	4834	4486	4335	51	20	73.87	966	54	2054	2000	54.23	37.878	
6800	4834	4464	4314	53	20	73.21	970	49	2109	2055	54.72	38.546	
6900	4835	4434	4285	55	20	72.26	975	41	2167	2112	55.09	39.343	
7000	4835	4398	4251	58	20	71.15	980	32	2228	2173	55.34	40.257	
7100	4836	4378	4232	60	20	70.53	982	27	2291	2235	55.62	41.187	
7200	4836	4365	4219	62	20	70.12	983	23	2356	2300	55.88	42.166	
7300	4837	4347	4202	64	20	69.57	984	19	2424	2368	56.06	43.238	
7400	4837	4347	4202	67	20	69.57	984	19	2494	2437	56.33	44.274	
7500	4838	4347	4202	69	20	69.57	984	19	2565	2509	56.55	45.367	
7600	4838	4332	4187	71	20	69.09	985	15	2639	2582	56.62	46.605	
7700	4839	4326	4181	74	20	68.91	985	14	2714	2657	56.74	47.833	
7800	4839	4315	4171	76	20	68.56	985	11	2791	2734	56.79	49.140	
7900	4840	4315	4171	78	20	68.56	985	11	2869	2812	56.91	50.415	
8000	4841	4315	4171	81	20	68.56	985	11	2948	2891	57.00	51.726	
8100	4841	4315	4171	83	20	68.56	985	11	3029	2972	57.07	53.071	
8200	4842	4303	4159	85	20	68.20	985	8	3111	3054	57.04	54.532	
8300	4842	4300	4156	88	20	68.08	985	8	3193	3136	57.06	55.964	
8400	4843	4296	4153	90	20	67.98	985	7	3277	3220	57.07	57.420	
8500	4843	4284	4141	93	20	67.59	984	4	3362	3305	57.00	58.976	
8600	4844	4284	4141	95	20	67.59	984	4	3447	3390	57.02	60.452	
8700	4844	4284	4141	97	20	67.59	984	4	3533	3476	57.03	61.949	
8800	4845	4284	4141	100	20	67.59	984	4	3620	3563	57.04	63.464	

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

Anticollision Report

Company: DJR Operating
Project: Nageezi Unit
Reference Site: A09 2309
Site Error: 0 ft
Reference Well: 508H
Well Error: 0 ft
Reference Wellbore: Original drilling
Reference Design: APD

Local Co-ordinate Reference: Well 508H
TVD Reference: RIG @ 6773ft (AD #1000)
MD Reference: RIG @ 6773ft (AD #1000)
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM
Offset TVD Reference: Offset Datum

Offset Design A09 2309 - 510H (ECA) - Original drilling - Original drilling													Offset Site Error:	0 ft
Survey Program: 368-MWD+HDGM, 5232-MWD+HDGM													Offset Well Error:	0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Minimum Separation (ft)	Separation		Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)		Between Centres (ft)	Between Ellipses (ft)			
8900	4845	4284	4141	102	20	67.59	984	4	3707	3650	57.04	64.996		
9000	4846	4284	4141	104	20	67.59	984	4	3796	3738	57.04	66.545		
9100	4847	4284	4141	107	20	67.59	984	4	3884	3827	57.03	68.108		
9200	4847	4284	4141	109	20	67.59	984	4	3973	3916	57.02	69.684		
9300	4848	4272	4129	112	20	67.20	984	2	4063	4006	56.91	71.392		
9400	4848	4269	4126	114	20	67.13	984	1	4153	4096	56.88	73.016		
9500	4849	4267	4124	116	20	67.06	984	1	4244	4187	56.85	74.650		
9600	4849	4265	4122	119	20	67.00	984	0	4335	4278	56.82	76.294		
9700	4850	4252	4109	121	20	66.58	983	-3	4426	4370	56.70	78.070		
9800	4850	4252	4109	124	20	66.58	983	-3	4518	4461	56.68	79.711		
9900	4851	4252	4109	126	20	66.58	983	-3	4610	4553	56.66	81.360		
10,000	4851	4252	4109	128	20	66.58	983	-3	4703	4646	56.65	83.016		
10,100	4852	4252	4109	131	20	66.58	983	-3	4795	4739	56.63	84.678		
10,200	4852	4252	4109	133	20	66.58	983	-3	4888	4832	56.61	86.346		
10,300	4853	4252	4109	136	20	66.58	983	-3	4981	4925	56.60	88.019		
10,400	4854	4252	4109	138	20	66.58	983	-3	5075	5018	56.58	89.697		
10,500	4854	4252	4109	141	20	66.58	983	-3	5169	5112	56.56	91.380		
10,600	4855	4252	4109	143	20	66.58	983	-3	5263	5206	56.55	93.067		
10,700	4855	4252	4109	145	20	66.58	983	-3	5357	5300	56.53	94.757		
10,800	4856	4252	4109	148	20	66.58	983	-3	5451	5395	56.52	96.451		
10,900	4856	4252	4109	150	20	66.58	983	-3	5546	5490	56.51	98.147		
11,000	4857	4252	4109	153	20	66.58	983	-3	5641	5584	56.50	99.846		
11,100	4857	4252	4109	155	20	66.58	983	-3	5736	5679	56.48	101.548		
11,200	4858	4252	4109	157	20	66.58	983	-3	5831	5774	56.47	103.251		
11,300	4858	4252	4109	160	20	66.58	983	-3	5926	5870	56.46	104.956		
11,400	4859	4252	4109	162	20	66.58	983	-3	6022	5965	56.46	106.663		
11,500	4859	4252	4109	165	20	66.58	983	-3	6117	6061	56.45	108.370		
11,600	4860	4238	4095	167	20	66.13	982	-5	6213	6157	56.33	110.292		
11,700	4861	4237	4094	170	20	66.11	982	-6	6309	6252	56.32	112.017		
11,800	4861	4236	4094	172	20	66.08	981	-6	6405	6348	56.31	113.744		
11,900	4862	4235	4093	174	20	66.05	981	-6	6501	6445	56.30	115.470		
12,000	4862	4234	4092	177	20	66.02	981	-6	6597	6541	56.29	117.196		
12,100	4863	4220	4078	179	20	65.58	980	-9	6693	6637	56.18	119.144		
12,200	4863	4220	4078	182	20	65.58	980	-9	6790	6734	56.18	120.860		
12,300	4864	4220	4078	184	20	65.58	980	-9	6886	6830	56.18	122.574		
12,400	4864	4220	4078	187	20	65.58	980	-9	6983	6927	56.18	124.289		
12,500	4865	4220	4078	189	20	65.58	980	-9	7080	7024	56.19	126.002		
12,600	4865	4220	4078	191	20	65.58	980	-9	7177	7120	56.19	127.715		
12,704	4866	4220	4078	194	20	65.58	980	-9	7277	7221	56.20	129.487		

Anticollision Report

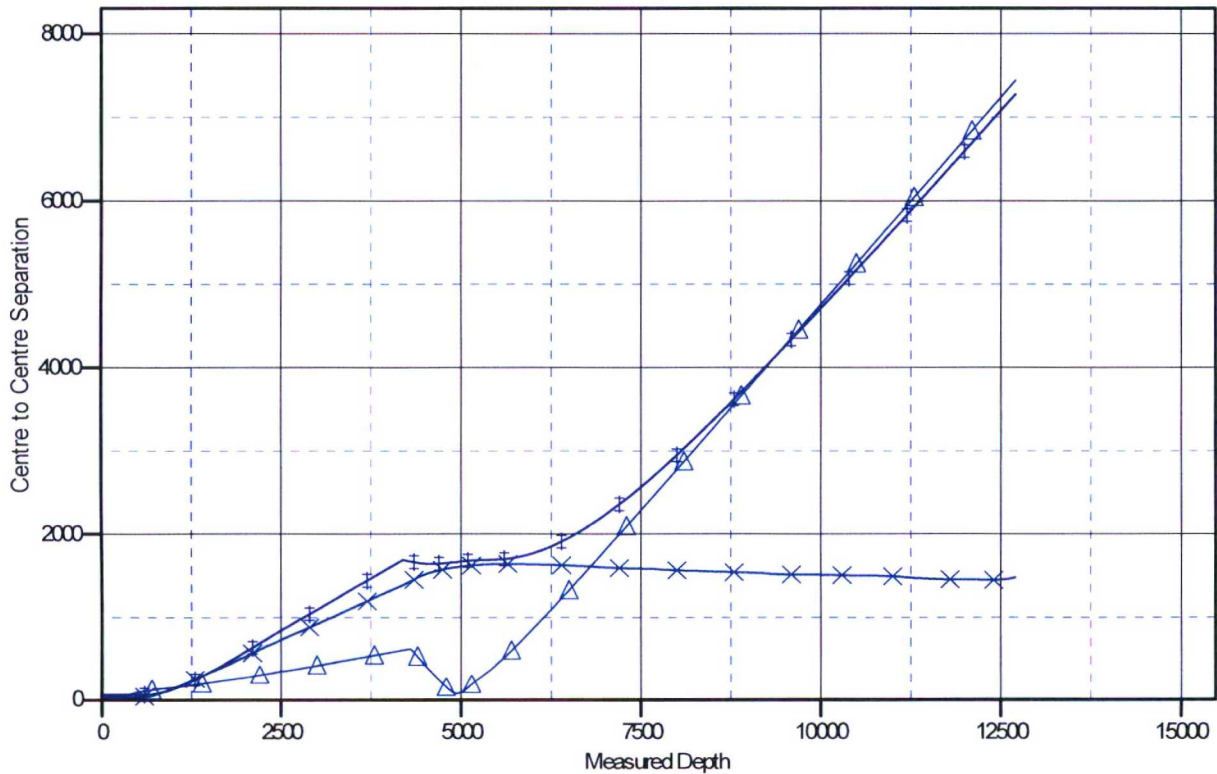
Company: DJR Operating
Project: Nageezi Unit
Reference Site: A09 2309
Site Error: 0 ft
Reference Well: 508H
Well Error: 0 ft
Reference Wellbore: Original drilling
Reference Design: APD

Local Co-ordinate Reference: Well 508H
TVD Reference: RIG @ 6773ft (AD #1000)
MD Reference: RIG @ 6773ft (AD #1000)
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM
Offset TVD Reference: Offset Datum

Reference Depths are relative to RIG @ 6773ft (AD #1000)
Offset Depths are relative to Offset Datum
Central Meridian is -107.8333333

Coordinates are relative to: 508H
Coordinate System is US State Plane 1983, New Mexico Western Zone
Grid Convergence at Surface is: 0.03°

Ladder Plot



LEGEND

507H (E.C.A.) Original drilling, As drilled V.O. 508H Original drilling, APD V.O. 510H (E.C.A.) Original drilling, Origin at drilling V.O.

Anticollision Report

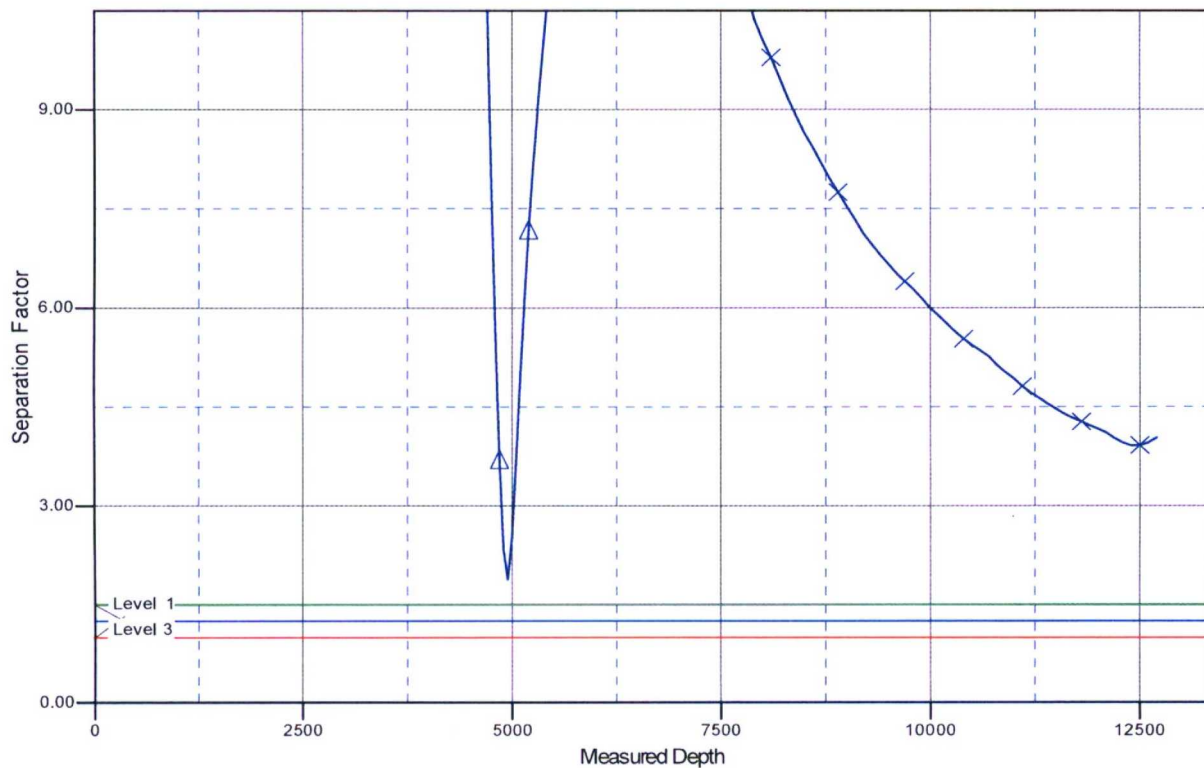
Company: DJR Operating
Project: Nageezi Unit
Reference Site: A09 2309
Site Error: 0 ft
Reference Well: 508H
Well Error: 0 ft
Reference Wellbore: Original drilling
Reference Design: APD

Local Co-ordinate Reference: Well 508H
TVD Reference: RIG @ 6773ft (AD #1000)
MD Reference: RIG @ 6773ft (AD #1000)
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM
Offset TVD Reference: Offset Datum

Reference Depths are relative to RIG @ 6773ft (AD #1000)
Offset Depths are relative to Offset Datum
Central Meridian is -107.8333333

Coordinates are relative to: 508H
Coordinate System is US State Plane 1983, New Mexico Western Zone
Grid Convergence at Surface is: 0.03°

Separation Factor Plot



LEGEND

✕ 507H (E.C.A.) Original drilling. As drilled V0 ▲ 508H. Original drilling. APD V0 ● 510H (E.C.A.) Original drilling. Origin at drilling V0