HOBBS OCD
OCD Hobbs

Form 3160-5
(August 2007)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

AUG 24 2015

RECEIVED

FORM APPROVED
OMB NO. 1004-0135
Expires: July 31, 2010

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE - Other instructions on reverse side.

5. Lease Serial No.
NMNM101610

6. If Indian, Allottee or Tribe Name

7. If Unit or CA/Agreement, Name and/or No.
NMNM112744X

1. Type of Well
☒ Oil Well ☐ Gas Well ☐ Other

8. Well Name and No.
ARENA ROJA FED UNIT 16H

2. Name of Operator
DEVON ENERGY PRODUCTION CO E Contact: TRINA C COUCH
EMail: trina.couch@dvn.com

9. API Well No.
30-025-42672-00-X1

3a. Address
333 WEST SHERIDAN AVE
OKLAHOMA CITY, OK 73102

3b. Phone No. (include area code)
Ph: 405-228-7203

10. Field and Pool, or Exploratory
JABALINA

4. Location of Well *(Footage, Sec., T., R., M., or Survey Description)*
Sec 27 T26S R35E NWNW 200FNL 60FWL

11. County or Parish, and State
LEA COUNTY, NM

12. CHECK 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 Change to Original APD
	☐ 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 recomplete 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 shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

Devon Energy Production Company, L.P. respectfully requests to change the intermediate casing to a mixed string, add a two-stage cement option for the production casing and update the TD due to a new directional plan.

Please see attached:
Drilling Plan
Directional Survey

Thank you

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

14. I hereby certify that the foregoing is true and correct.

Electronic Submission #313358 verified by the BLM Well Information System
For DEVON ENERGY PRODUCTION CO LP, sent to the Hobbs
Committed to AFMSS for processing by JENNIFER SANCHEZ on 08/21/2015 (15JAS0103SE)

Name *(Printed/Typed)* TRINA C COUCH — Title REGULATORY ANALYST

Signature (Electronic Submission) — Date 08/20/2015

APPROVED

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By _____ Title AUG 21 2015 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 BUREAU OF LAND MANAGEMENT

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.

**** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ****

AUG 31 2015

1. Geologic Formations

TVD of target	9,052'	Pilot hole depth	N/A
MD at TD:	15,941'	Deepest expected fresh water:	

Basin

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
Rustler	993	Barren	
Salado	1251	Barren	
Base of Salt	5189	Barren	
Delaware	5241	Oil	
Bell Canyon	5265	Oil	
Cherry Canyon	6360	Oil	
Brushy Canyon	7939	Oil	
Madera	8797	Oil	
Lower Brushy	8984	Oil	
Lower Brushy D Sand	9034	Oil	
Lower Brushy D Base	9089	Oil	

*H2S, water flows, loss of circulation, abnormal pressures, etc.

2. Casing Program

Hole Size	Casing Interval From	Casing Interval To	Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
17.5"	0	1,070'	13.375"	54.5	J-55	BTC	1.64	3.68	10.73
12.25"	0	4,300'	9.625"	40	J-55	BTC	1.15	3.43	4.69
12.25"	4,300'	5,250	9.625"	40	HCK-55	BTC	1.57	4.63	6.07
8.75"	0	15,941'	5.5"	17	P-110RY	DWC/C	1.79	2.55	3.68
				BLM Minimum Safety Factor			1.125	1.00	1.6 Dry 1.8 Wet

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

Must have table for contingency casing

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Does casing meet API specifications? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	N
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	
Is well within the designated 4 string boundary.	
Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3rd string cement tied back 500' into previous casing?	
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2nd string set 100' to 600' below the base of salt?	
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

3. Cementing Program

Casing	# Sks	Wt lb/ gal	H_2O gal/sk	Yld ft3/ sack	500# Comp. Strength (hours)	Slurry Description
13-3/8" Surface	1140	14.8	6.32	1.33	6	Tail: Class C Cement + 0.125 lbs/sack Poly-E-Flake
9-5/8" Inter.	1140	12.9	9.81	1.85	17	Lead: (65:35) Class C Cement: Poz (Fly Ash): 6% BWOC Bentonite + 5% BWOW Sodium Chloride + 0.125 lbs/sack Poly-E-Flake
	430	14.8	6.32	1.33	6	Tail: Class C Cement + 0.125 lbs/sack Poly-E-Flake
5-1/2" Prod	480	11.9	12.89	2.31	n/a	1st Lead: (50:50) Class H Cement: Poz (Fly Ash) + 10% BWOC Bentonite + 1 lb/sk of Kol-Seal + 0.3% BWOC HR-601 + 0.5lb/sk D-Air 5000
	1960	14.5	5.31	1.2	25	Tail: (50:50) Class H Cement: Poz (Fly Ash) + 0.5% bwoc HALAD-344 + 0.4% bwoc CFR-3 + 0.2% BWOC HR-601 + 2% bwoc Bentonite
5-1/2" Prod Two Stage	450	11.9	12.89	2.31	n/a	1st Stage Lead: (50:50) Class H Cement: Poz (Fly Ash) + 10% BWOC Bentonite + 1 lb/sk of Kol-Seal + 0.3% BWOC HR-601 + 0.5lb/sk D-Air 5000
	1960	14.5	5.31	1.2	25	1st Stage Tail: (50:50) Class H Cement: Poz (Fly Ash) + 0.5% bwoc HALAD-344 + 0.4% bwoc CFR-3 + 0.2% BWOC HR-601 + 2% bwoc Bentonite
	DV Tool = 5300ft					
	20	11	14.81	2.55	22	2nd Stage Lead: Tuned Light® Cement + 0.125 lb/sk Pol-E-Flake
	30	14.8	6.32	1.33	6	2nd Stage Tail: Class C Cement + 0.125 lbs/sack Poly-E-Flake

DV tool depth(s) will be adjusted based on hole conditions and cement volumes will be adjusted proportionally. DV tool will be set a minimum of 50 feet below previous casing and a minimum of 200 feet above current shoe. Lab reports with the 500 psi compressive strength time for the cement will be onsite for review.

Casing String	TOC	% Excess
13-3/8" Surface	0'	100%
9-5/8" Intermediate	0'	75%
5-1/2" Production Casing	5050'	25%
5-1/2" Production Casing Two Stage Option	1St Stage = 5300ft / 2nd Stage = 5050'	25%

4. Pressure Control Equipment

N	A variance is requested for the use of a diverter on the surface casing. See attached for schematic.

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✓	Tested to:
12-1/4"	13-5/8"	3M	Annular	x	50% of working pressure
			Blind Ram		3M
			Pipe Ram		
			Double Ram	x	
			Other*		
8-3/4"	13-5/8"	3M	Annular	x	50% testing pressure
			Blind Ram		3M
			Pipe Ram		
			Double Ram	x	
			Other *		
			Annular		
			Blind Ram		
			Pipe Ram		
			Double Ram		
			Other *		

*Specify if additional ram is utilized.

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold. See attached schematics.

Y	Formation integrity test will be performed per Onshore Order #2. On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i.

Y	A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.	
	Y	Are anchors required by manufacturer?
Y	A multibowl wellhead is being used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested. Devon proposes using a multi-bowl wellhead assembly (FMC Uni-head). This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be 3000 (3M) psi. • Wellhead will be installed by FMC's representatives. • If the welding is performed by a third party, the FMC's representative will monitor the temperature to verify that it does not exceed the maximum temperature of the seal. • FMC representative will install the test plug for the initial BOP test. • FMC will install a solid steel body pack-off to completely isolate the lower head after cementing intermediate casing. After installation of the pack-off, the pack-off and the lower flange will be tested to 5M, as shown on the attached schematic. Everything above the pack-off will not have been altered whatsoever from the initial nipple up. Therefore the BOP components will not be retested at that time. • If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head will be cut and top out operations will be conducted. • Devon will pressure test all seals above and below the mandrel (but still above the casing) to full working pressure rating. • Devon will test the casing to 0.22 psi/ft or 1500 psi, whichever is greater, as per Onshore Order #2. After running the 13-3/8" surface casing, a 13-5/8" BOP/BOPE system with a minimum rating of 3M will be installed on the EMC Uni-head wellhead system and will undergo a 250 psi low pressure test followed by a 3,000 psi high pressure test. The 3,000 psi high and 250 psi low test will cover testing requirements a maximum of 30 days, as per Onshore Order #2. If the well is not complete within 30 days of this BOP test, another full BOP test will be conducted, as per Onshore Order #2. After running the 9-5/8' intermediate casing with a mandrel hanger, the 13-5/8" BOP/BOPE system with a minimum rating of 3M will already be installed on the FMC Uni-head. The pipe rams will be operated and checked each 24 hour period and each time the drill pipe is out of the hole. These tests will be logged in the daily driller's log. A 2" kill line and 3" choke line will be incorporated into the drilling spool below the ram BOP. In addition to the rams and annular preventer, additional BOP accessories include a kelly cock, floor safety valve, choke lines, and choke manifold rated at 3,000 psi WP.	

	Devon requests a variance to use a flexible line with flanged ends between the BOP and the choke manifold (choke line). The line will be kept as straight as possible with minimal turns See attached schematic.

5. Mud Program

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From	To				
0	1,050'	FW Gel	8.6-8.8	28-34	N/C
1,050'	5,400'	Saturated Brine	10.0-10.2	28-34	N/C
5,400'	15,941'	Cut Brine	8.5-9.3	28-34	N/C

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times.

What will be used to monitor the loss or gain of fluid?	PVT/Pason/Visual Monitoring

6. Logging and Testing Procedures

Logging, Coring and Testing.	
x	Will run GR/CNL fromTD to surface (horizontal well – vertical portion of hole). Stated logs run will be in the Completion Report and submitted to the BLM.
	No Logs are planned based on well control or offset log information.
	Drill stem test? If yes, explain
	Coring? If yes, explain

Additional logs planned		Interval
	Resistivity	Int. shoe to KOP
	Density	Int. shoe to KOP
X	CBL	Production casing
X	Mud log	Intermediate shoe to TD
	PEX	

7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	3929 psi
Abnormal Temperature	No

Mitigation measure for abnormal conditions. Describe. Lost circulation material/sweeps/mud scavengers.

Hydrogen Sulfide (H2S) monitors will be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM.	
N	H2S is present
Y	H2S Plan attached

8. Other facets of operation

Is this a walking operation? No.
Will be pre-setting casing? No.

Attachments
_x_ Directional Plan
___ Other, describe

devon

Arena Roja Fed Unit 16H
Lea Co, NM

Weatherford

Plan Data for Arena Roja Fed Unit 16H

Plan Point Information:

DogLeg Severity Unit: °/100.00ft Position offsets from Slot centre

MD (USft)	Inc (°)	Az (°)	TVD (USft)	+N/-S (USft)	+E/-W (USft)	Northing (USft)	Easting (USft)	VSec (USft)	DLS (DLSU)
0.00	0.00	0.00	0.00	0.00	0.00	372704.66	841859.58	0.00	0.00
3100.00	0.00	0.00	3100.00	0.00	0.00	372704.66	841859.58	0.00	0.00
3600.00	5.00	90.00	3599.37	0.00	21.80	372704.66	841881.38	1.14	1.00
7000.00	5.00	90.00	6986.43	0.00	318.13	372704.66	842177.71	16.65	0.00
8000.00	0.00	0.00	7985.16	0.00	361.74	372704.66	842221.32	18.93	0.50
8540.50	0.00	0.00	8525.66	0.00	361.74	372704.66	842221.32	18.93	0.00
8840.50	30.00	170.30	8812.14	-75.66	374.67	372629.00	842234.25	95.17	10.00
9173.86	70.00	170.30	9022.08	-322.30	416.83	372382.36	842276.41	343.68	12.00
9356.40	90.90	177.00	9052.23	-500.15	436.29	372204.51	842295.87	522.30	12.00
11661.55	90.90	177.70	9016.00	-2802.54	542.84	369902.12	842402.42	2827.11	0.03
15941.27	89.90	179.00	8986.00	-7080.24	665.93	365624.42	842525.51	7105.39	0.04

Plan Data for Arena Roja Fed Unit 16H

Slot: Arena Roja Fed Unit 16H
Position:
Offset is from Site centre
+N/-S: 0.47USft Northing: 372704.66USft Latitude: 32°1'15.4"
+E/-W: 49.96USft Easting: 841859.58USft Longitude: -103°21'49.2"
Elevation Above VRD: 3112.00USft

Plan Data for Arena Roja Fed Unit 16H

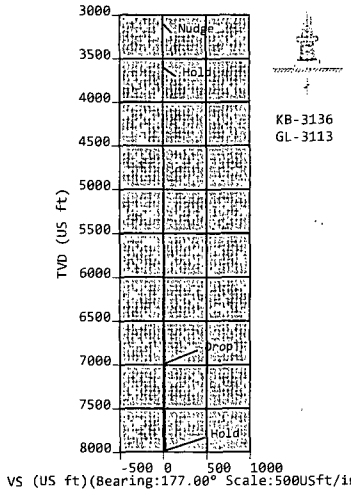
Target Set Information:
Name: Arena Roja Fed Unit 16H
Position offsets from Slot centre

Name	TVD (USft)	+N/-S (USft)	+E/-W (USft)	Northing (USft)	Easting (USft)	Shape	Comment
LP Tgt	9051.00	-571.46	375.18	372132.73	842184.80	Point	
T1	9016.00	-2802.07	592.80	369902.12	842402.42	Cuboid	
PBHL 16H	8986.00	-7079.77	715.89	365624.42	842525.51	Cuboid	

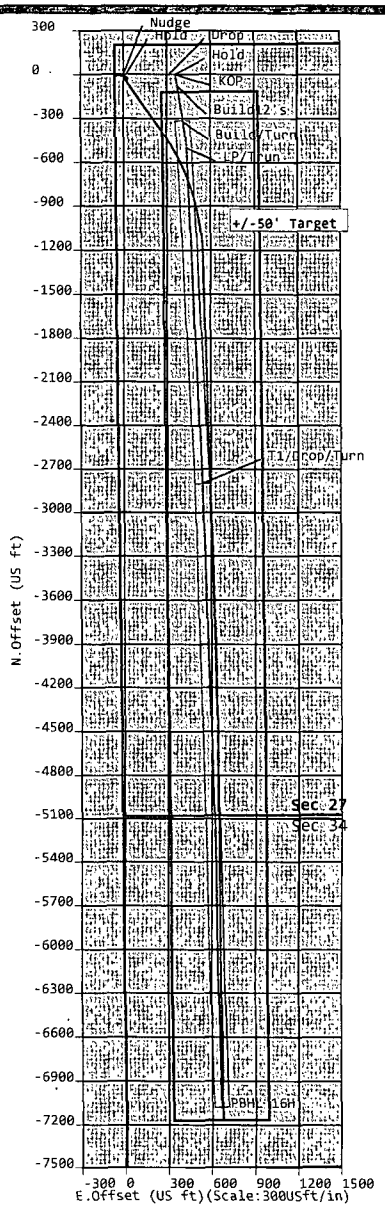
Plan Data for Arena Roja Fed Unit 16H

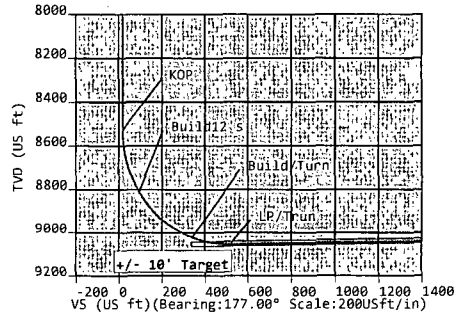
Well: Arena Roja Fed Unit 16H
Type: Main-Well
File Number:
Plan Folder: P1 Plan: P1:V1
Vertical Section: Position offset of origin from Slot centre:
+N/-S: 0.00USft Azimuth: 177.00°
+E/-W: 0.00USft
Magnetic Parameters:

Model:	Field Strength:	Declination:	Dip:	Date:
bggm2015	48128(nT)	7.13°	59.99°	2015-08-30

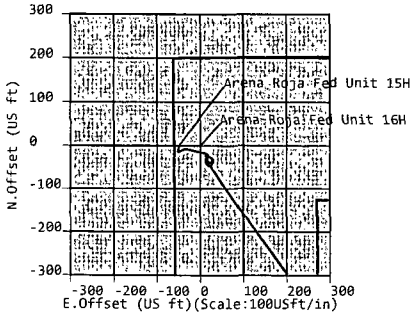


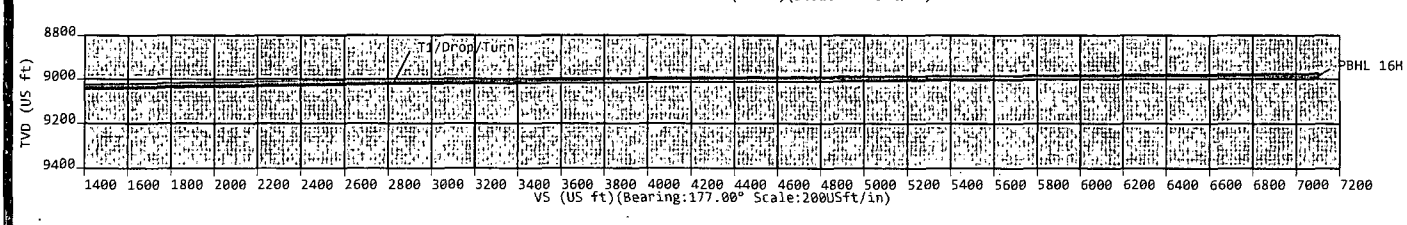
KB-3136
GL-3113



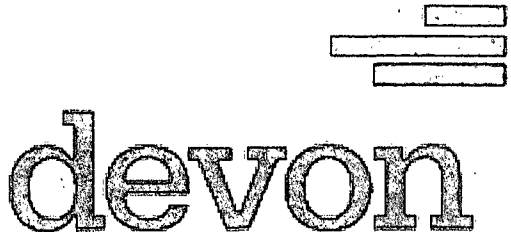


Arena Roja Fed Unit 16H
Arena Roja Fed Unit 15H
Arena Roja Fed Unit 15H





Sign Off: Russell Joyner



5D Plan Report

Devon Energy

Field Name: *Lea Co, NM Nad 83 NMEZ*
Site Name: *Arena Roja Fed Unit 15H*
Well Name: *Arena Roja Fed Unit 16H*
Plan: *P1:V1*

14 August 2015

devon

Weatherford

Arena Roja Fed Unit 16H

Field Name: Lea Co, NM Nad 83 NMEZ

Map Units: US ft
Company Name: Devon Energy
Vertical Reference Datum (VRD): Mean Sea Level
Projected Coordinate System: NAD83 / New Mexico East (ftUS)
Comment:

Site: Arena Roja Fed Unit 15H

Units: US ft **North Reference:** Grid **Convergence Angle:** 0.51
Position: **Northing:** 372704.19US ft **Latitude:** 32° 1' 15.38"
Easting: 841809.62US ft **Longitude:** -103° 21' 49.79"
Elevation above MSL: 3113.00 US ft
Comment:

Slot: Arena Roja Fed Unit 16H

Position (Relative to Site Centre)
+N/-S: 0.47US ft **Northing:** 372704.66US ft **Latitude:** 32° 1' 15.38"
+E/-W: 49.96US ft **Easting:** 841859.58US ft **Longitude:** -103° 21' 49.21"
Slot TVD Reference: Ground Elevation
Elevation above MSL: 3112.00US ft
Comment:

Well: Arena Roja Fed Unit 16H

Type: Main well **UWI:** **Plan:** P1:V1
File Number: **Comment:**
Closure Distance: 7111.49US ft **Closure Azimuth:** 174.63°
Vertical Section: Position of Origin (Relative to Slot centre)
+N/-S: 0.00US ft **+E/-W:** 0.00US ft **Az:** 177.00°
Magnetic Parameters:
Model: bggm2015 **Field Strength:** 48128.7nT **Declination:** 7.13° **Dip:** 59.99° **Date:** 30/Aug/2015

Drill floor: Plan: P1:V1
Rig Height (Kelly Bushing): 24.00US ft **Elevation above MSL:** 3136.00US ft **Inclination:** 0.00° **Azimuth:** 0.00°

Target set: Arena Roja Fed Unit 16H Comment:

Target Name:	Shape:	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	Northing (USft)	Easting (USFt)	Comment
LP Tgt	Point	9051.00	-571.93	325.22	372132.73	842184.80	
T1	Cuboid	9016.00	-2802.54	542.84	369902.12	842402.42	
PBHL 16H	Cuboid	8986.00	-7080.24	665.93	365624.42	842525.51	

Wellpath created using minimum curvature.

5D Plan Report

Tie Point:

MD: 0.00USFt **Inclination:** 0.00° **Azimuth:** 0.00° **TVD:** 0.00USFt **North Offset:** 0.00USFt **East Offset:** 0.00USFt

Salient Points: (Relative to Slot centre)(TVD relative to Kelly Bushing)

MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	VS (US ft)	DLS (°/100US ft)	B.Rate (°/100US ft)	T.Rate (°/100US ft)	T.Face (°)	Comment
0.00	0.00	0.00	0.00	0.00	0.00	-0.00	0.00	0.00	0.00	0.00	
3100.00	0.00	0.00	3100.00	0.00	0.00	-0.00	0.00	0.00	0.00	0.00	Nudge
3600.00	5.00	90.00	3599.37	0.00	21.80	1.14	1.00	1.00	0.00	90.00	Hold
7000.00	5.00	90.00	6986.43	0.00	318.13	16.65	0.00	0.00	0.00	0.00	Drop
8000.00	0.00	0.00	7985.16	0.00	361.74	18.93	0.50	-0.50	0.00	180.00	Hold
8540.50	0.00	0.00	8525.66	0.00	361.74	18.93	0.00	0.00	0.00	0.00	KOP
8840.50	30.00	170.30	8812.14	-75.66	374.67	95.17	10.00	10.00	0.00	170.30	Build12's
9173.86	70.00	170.30	9022.08	-322.30	416.83	343.68	12.00	12.00	-0.00	0.00	Build/Turn
9356.40	90.90	177.00	9052.23	-500.15	436.29	522.30	12.00	11.45	3.67	18.22	LP/Trun
11661.55	90.90	177.70	9016.00	-2802.54	542.84	2827.11	0.03	0.00	0.03	89.91	T1/Drop/Turn
15941.27	89.90	179.00	8986.00	-7080.24	665.93	7105.39	0.04	-0.02	0.03	127.50	PBHL 16H

Interpolated Points: (Relative to Slot centre)(TVD relative to Kelly Bushing)

MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	VS (US ft)	DLS (°/100US ft)	Northing (US ft)	Easting (US ft)	Comment
3100.00	0.00	0.00	3100.00	0.00	0.00	-0.00	0.00	372704.66	841859.58	Nudge
3200.00	1.00	90.00	3199.99	0.00	0.87	0.05	1.00	372704.66	841860.45	
3300.00	2.00	90.00	3299.96	0.00	3.49	0.18	1.00	372704.66	841863.07	
3400.00	3.00	90.00	3399.86	0.00	7.85	0.41	1.00	372704.66	841867.43	
3500.00	4.00	90.00	3499.68	0.00	13.96	0.73	1.00	372704.66	841873.54	
3600.00	5.00	90.00	3599.37	0.00	21.80	1.14	1.00	372704.66	841881.38	Hold
3700.00	5.00	90.00	3698.99	0.00	30.52	1.60	0.00	372704.66	841890.10	
3800.00	5.00	90.00	3798.60	0.00	39.23	2.05	0.00	372704.66	841898.81	
3900.00	5.00	90.00	3898.22	0.00	47.95	2.51	0.00	372704.66	841907.53	
4000.00	5.00	90.00	3997.84	0.00	56.67	2.97	0.00	372704.66	841916.25	
4100.00	5.00	90.00	4097.46	0.00	65.38	3.42	0.00	372704.66	841924.96	
4200.00	5.00	90.00	4197.08	0.00	74.10	3.88	0.00	372704.66	841933.68	
4300.00	5.00	90.00	4296.70	0.00	82.81	4.33	0.00	372704.66	841942.39	
4400.00	5.00	90.00	4396.32	0.00	91.53	4.79	0.00	372704.66	841951.11	
4500.00	5.00	90.00	4495.94	0.00	100.24	5.25	0.00	372704.66	841959.82	
4600.00	5.00	90.00	4595.56	0.00	108.96	5.70	0.00	372704.66	841968.54	
4700.00	5.00	90.00	4695.18	0.00	117.67	6.16	0.00	372704.66	841977.25	
4800.00	5.00	90.00	4794.80	0.00	126.39	6.61	0.00	372704.66	841985.97	
4900.00	5.00	90.00	4894.42	0.00	135.11	7.07	0.00	372704.66	841994.69	
5000.00	5.00	90.00	4994.04	0.00	143.82	7.53	0.00	372704.66	842003.40	
5100.00	5.00	90.00	5093.66	0.00	152.54	7.98	0.00	372704.66	842012.12	
5200.00	5.00	90.00	5193.28	0.00	161.25	8.44	0.00	372704.66	842020.83	
5300.00	5.00	90.00	5292.90	0.00	169.97	8.90	0.00	372704.66	842029.55	
5400.00	5.00	90.00	5392.52	0.00	178.68	9.35	0.00	372704.66	842038.26	
5500.00	5.00	90.00	5492.14	0.00	187.40	9.81	0.00	372704.66	842046.98	
5600.00	5.00	90.00	5591.76	0.00	196.11	10.26	0.00	372704.66	842055.69	
5700.00	5.00	90.00	5691.37	0.00	204.83	10.72	0.00	372704.66	842064.41	
5800.00	5.00	90.00	5790.99	0.00	213.55	11.18	0.00	372704.66	842073.13	
5900.00	5.00	90.00	5890.61	0.00	222.26	11.63	0.00	372704.66	842081.84	
6000.00	5.00	90.00	5990.23	0.00	230.98	12.09	0.00	372704.66	842090.56	
6100.00	5.00	90.00	6089.85	0.00	239.69	12.54	0.00	372704.66	842099.27	
6200.00	5.00	90.00	6189.47	0.00	248.41	13.00	0.00	372704.66	842107.99	
6300.00	5.00	90.00	6289.09	0.00	257.12	13.46	0.00	372704.66	842116.70	
6400.00	5.00	90.00	6388.71	0.00	265.84	13.91	0.00	372704.66	842125.42	
6500.00	5.00	90.00	6488.33	0.00	274.55	14.37	0.00	372704.66	842134.13	
6600.00	5.00	90.00	6587.95	0.00	283.27	14.83	0.00	372704.66	842142.85	
6700.00	5.00	90.00	6687.57	0.00	291.99	15.28	0.00	372704.66	842151.57	
6800.00	5.00	90.00	6787.19	0.00	300.70	15.74	0.00	372704.66	842160.28	
6900.00	5.00	90.00	6886.81	0.00	309.42	16.19	0.00	372704.66	842169.00	
7000.00	5.00	90.00	6986.43	0.00	318.13	16.65	0.00	372704.66	842177.71	Drop

5D Plan Report

Interpolated Points: (Relative to Slot centre) (TVD relative to Kelly Bushing)

MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	VS (US ft)	DLS (°/100US ft)	Northing (US ft)	Easting (US ft)	Comment
7100.00	4.50	90.00	7086.08	0.00	326.41	17.08	0.50	372704.66	842185.99	
7200.00	4.00	90.00	7185.81	0.00	333.82	17.47	0.50	372704.66	842193.40	
7300.00	3.50	90.00	7285.59	0.00	340.36	17.81	0.50	372704.66	842199.94	
7400.00	3.00	90.00	7385.43	0.00	346.03	18.11	0.50	372704.66	842205.61	
7500.00	2.50	90.00	7485.32	0.00	350.83	18.36	0.50	372704.66	842210.41	
7600.00	2.00	90.00	7585.24	0.00	354.76	18.57	0.50	372704.66	842214.34	
7700.00	1.50	90.00	7685.19	0.00	357.81	18.73	0.50	372704.66	842217.39	
7800.00	1.00	90.00	7785.17	0.00	359.99	18.84	0.50	372704.66	842219.57	
7900.00	0.50	90.00	7885.16	0.00	361.30	18.91	0.50	372704.66	842220.88	
8000.00	0.00	0.00	7985.16	0.00	361.74	18.93	0.50	372704.66	842221.32	Hold
8100.00	0.00	0.00	8085.16	0.00	361.74	18.93	0.00	372704.66	842221.32	
8200.00	0.00	0.00	8185.16	0.00	361.74	18.93	0.00	372704.66	842221.32	
8300.00	0.00	0.00	8285.16	0.00	361.74	18.93	0.00	372704.66	842221.32	
8400.00	0.00	0.00	8385.16	0.00	361.74	18.93	0.00	372704.66	842221.32	
8500.00	0.00	0.00	8485.16	0.00	361.74	18.93	0.00	372704.66	842221.32	
8540.50	0.00	0.00	8525.66	0.00	361.74	18.93	0.00	372704.66	842221.32	KOP
8600.00	5.95	170.30	8585.05	-3.04	362.26	22.00	10.00	372701.62	842221.84	
8700.00	15.95	170.30	8683.11	-21.74	365.45	40.84	10.00	372682.92	842225.03	
8800.00	25.95	170.30	8776.38	-56.94	371.47	76.31	10.00	372647.72	842231.05	
8840.50	30.00	170.30	8812.14	-75.66	374.67	95.17	10.00	372629.00	842234.25	Build12's
8900.00	37.14	170.30	8861.68	-108.07	380.21	127.82	12.00	372596.59	842239.79	
9000.00	49.14	170.30	8934.52	-175.35	391.71	195.61	12.00	372529.31	842251.29	
9100.00	61.14	170.30	8991.57	-256.09	405.51	276.96	12.00	372448.57	842265.09	
9173.86	70.00	170.30	9022.08	-322.30	416.83	343.68	12.00	372382.36	842276.41	Build/Turn
9200.00	72.99	171.33	9030.38	-346.77	420.79	368.32	12.00	372357.89	842280.37	
9300.00	84.43	175.01	9049.93	-443.97	432.37	465.99	12.00	372260.69	842291.95	
9356.40	90.90	177.00	9052.23	-500.15	436.29	522.30	12.00	372204.51	842295.87	LP/Trun
9400.00	90.90	177.01	9051.55	-543.69	438.57	565.90	0.03	372160.97	842298.15	
9500.00	90.90	177.04	9049.97	-643.54	443.75	665.88	0.03	372061.12	842303.33	
9600.00	90.90	177.07	9048.40	-743.40	448.89	765.87	0.03	371961.26	842308.47	
9700.00	90.90	177.10	9046.83	-843.26	453.96	865.86	0.03	371861.40	842313.54	
9800.00	90.90	177.13	9045.26	-943.12	458.99	965.85	0.03	371761.54	842318.57	
9900.00	90.90	177.17	9043.69	-1042.98	463.96	1065.83	0.03	371661.68	842323.54	
10000.00	90.90	177.20	9042.12	-1142.85	468.88	1165.82	0.03	371561.81	842328.46	
10100.00	90.90	177.23	9040.55	-1242.72	473.74	1265.81	0.03	371461.94	842333.32	
10200.00	90.90	177.26	9038.98	-1342.59	478.55	1365.79	0.03	371362.07	842338.13	
10300.00	90.90	177.29	9037.40	-1442.46	483.31	1465.78	0.03	371262.20	842342.89	
10400.00	90.90	177.32	9035.83	-1542.34	488.02	1565.77	0.03	371162.32	842347.60	
10500.00	90.90	177.35	9034.26	-1642.22	492.67	1665.75	0.03	371062.44	842352.25	
10600.00	90.90	177.38	9032.69	-1742.10	497.27	1765.74	0.03	370962.56	842356.85	
10700.00	90.90	177.41	9031.12	-1841.99	501.82	1865.72	0.03	370862.67	842361.40	
10800.00	90.90	177.44	9029.55	-1941.87	506.32	1965.71	0.03	370762.79	842365.90	
10900.00	90.90	177.47	9027.97	-2041.76	510.76	2065.69	0.03	370662.90	842370.34	
11000.00	90.90	177.50	9026.40	-2141.65	515.14	2165.68	0.03	370563.01	842374.72	
11100.00	90.90	177.53	9024.83	-2241.55	519.48	2265.66	0.03	370463.11	842379.06	
11200.00	90.90	177.56	9023.26	-2341.44	523.76	2365.64	0.03	370363.22	842383.34	
11300.00	90.90	177.59	9021.69	-2441.34	527.99	2465.63	0.03	370263.32	842387.57	
11400.00	90.90	177.62	9020.11	-2541.24	532.17	2565.61	0.03	370163.42	842391.75	
11500.00	90.90	177.65	9018.54	-2641.14	536.29	2665.59	0.03	370063.52	842395.87	
11600.00	90.90	177.68	9016.97	-2741.05	540.36	2765.57	0.03	369963.61	842399.94	
11661.55	90.90	177.70	9016.00	-2802.54	542.84	2827.11	0.03	369902.12	842402.42	T1/Drop/Turn
11700.00	90.89	177.71	9015.40	-2840.95	544.38	2865.55	0.04	369863.71	842403.96	
11800.00	90.87	177.74	9013.86	-2940.86	548.34	2965.53	0.04	369763.80	842407.92	
11900.00	90.85	177.77	9012.37	-3040.78	552.25	3065.51	0.04	369663.88	842411.83	
12000.00	90.82	177.80	9010.91	-3140.69	556.11	3165.49	0.04	369563.97	842415.69	
12100.00	90.80	177.83	9009.50	-3240.61	559.92	3265.47	0.04	369464.05	842419.50	
12200.00	90.78	177.86	9008.12	-3340.53	563.67	3365.45	0.04	369364.13	842423.25	
12300.00	90.75	177.90	9006.79	-3440.45	567.37	3465.43	0.04	369264.21	842426.95	
12400.00	90.73	177.93	9005.50	-3540.38	571.01	3565.41	0.04	369164.28	842430.59	

Interpolated Points: (Relative to Slot centre) (TVD relative to Kelly Bushing)

MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	VS (US ft)	DLS (°/100US-ft)	Northing (US ft)	Easting (US ft)	Comment
12500.00	90.71	177.96	9004.25	-3640.30	574.61	3665.39	0.04	369064.36	842434.19	
12600.00	90.68	177.99	9003.04	-3740.23	578.15	3765.37	0.04	368964.43	842437.73	
12700.00	90.66	178.02	9001.87	-3840.17	581.63	3865.34	0.04	368864.49	842441.21	
12800.00	90.64	178.05	9000.74	-3940.10	585.07	3965.32	0.04	368764.56	842444.65	
12900.00	90.61	178.08	8999.65	-4040.04	588.45	4065.30	0.04	368664.62	842448.03	
13000.00	90.59	178.11	8998.60	-4139.98	591.78	4165.27	0.04	368564.68	842451.36	
13100.00	90.57	178.14	8997.59	-4239.92	595.05	4265.25	0.04	368464.74	842454.63	
13200.00	90.54	178.17	8996.63	-4339.86	598.27	4365.23	0.04	368364.80	842457.85	
13300.00	90.52	178.20	8995.70	-4439.81	601.44	4465.20	0.04	368264.85	842461.02	
13400.00	90.50	178.23	8994.82	-4539.75	604.56	4565.17	0.04	368164.91	842464.14	
13500.00	90.47	178.26	8993.97	-4639.70	607.62	4665.15	0.04	368064.96	842467.20	
13600.00	90.45	178.29	8993.17	-4739.66	610.63	4765.12	0.04	367965.00	842470.21	
13700.00	90.43	178.32	8992.41	-4839.61	613.59	4865.09	0.04	367865.05	842473.17	
13800.00	90.40	178.35	8991.68	-4939.56	616.49	4965.06	0.04	367765.10	842476.07	
13900.00	90.38	178.38	8991.00	-5039.52	619.34	5065.03	0.04	367665.14	842478.92	
14000.00	90.36	178.41	8990.36	-5139.48	622.14	5165.00	0.04	367565.18	842481.72	
14100.00	90.33	178.44	8989.76	-5239.44	624.88	5264.96	0.04	367465.22	842484.46	
14200.00	90.31	178.47	8989.20	-5339.40	627.57	5364.93	0.04	367365.26	842487.15	
14300.00	90.29	178.50	8988.68	-5439.37	630.21	5464.90	0.04	367265.29	842489.79	
14400.00	90.26	178.53	8988.21	-5539.33	632.80	5564.86	0.04	367165.33	842492.38	
14500.00	90.24	178.56	8987.77	-5639.30	635.33	5664.82	0.04	367065.36	842494.91	
14600.00	90.22	178.59	8987.37	-5739.27	637.81	5764.78	0.04	366965.39	842497.39	
14700.00	90.19	178.63	8987.02	-5839.24	640.23	5864.74	0.04	366865.42	842499.81	
14800.00	90.17	178.66	8986.70	-5939.21	642.61	5964.70	0.04	366765.45	842502.19	
14900.00	90.15	178.69	8986.43	-6039.18	644.93	6064.66	0.04	366665.48	842504.51	
15000.00	90.12	178.72	8986.20	-6139.16	647.19	6164.61	0.04	366565.50	842506.77	
15100.00	90.10	178.75	8986.01	-6239.13	649.41	6264.57	0.04	366465.53	842508.99	
15200.00	90.08	178.78	8985.85	-6339.11	651.57	6364.52	0.04	366365.55	842511.15	
15300.00	90.05	178.81	8985.74	-6439.09	653.68	6464.47	0.04	366265.57	842513.26	
15400.00	90.03	178.84	8985.67	-6539.06	655.73	6564.42	0.04	366165.60	842515.31	
15500.00	90.01	178.87	8985.64	-6639.04	657.73	6664.37	0.04	366065.62	842517.31	
15600.00	89.98	178.90	8985.65	-6739.03	659.68	6764.31	0.04	365965.63	842519.26	
15700.00	89.96	178.93	8985.71	-6839.01	661.58	6864.26	0.04	365865.65	842521.16	
15800.00	89.94	178.96	8985.80	-6938.99	663.42	6964.20	0.04	365765.67	842523.00	
15900.00	89.91	178.99	8985.93	-7038.97	665.21	7064.14	0.04	365665.69	842524.79	
15941.27	89.90	179.00	8986.00	-7080.24	665.93	7105.39	0.04	365624.42	842525.51	PBHL 16H

devon

5D Anti-Collision Report

Devon Energy

Field Name: *Lea Co, NM Nad 83 NMEZ*
Site Name: *Arena Roja Fed Unit 15H*
Well Name: *Arena Roja Fed Unit 16H*

14 August 2015

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Arena Roja Fed Unit 16H

Field Name: Lea Co, NM Nad 83 NMEZ

Map Units: US ft **Company Name:** Devon Energy

Vertical Reference Datum (VRD): Mean Sea Level

Projected Coordinate System: NAD83 / New Mexico East (ftUS)

Comment:

Site: Arena Roja Fed Unit 15H

Units: US ft **North Reference:** Grid **Convergence Angle:** 0.51

Position: **Northing:** 372704.19US ft **Latitude:** 32° 1' 15.38"

Easting: 841809.62US ft **Longitude:** -103° 21' 49.79"

Elevation above MSL: 3113.00 US ft

Comment:

Slot: Arena Roja Fed Unit 16H

Position (Relative to Site Centre)

+N/-S: 0.47US ft **Northing:** 372704.66US ft **Latitude:** 32°1'15.38"

+E/-W: 49.96US ft **Easting:** 841859.58US ft **Longitude:** -103°21'49.21"

Slot TVD Reference: Ground Elevation

Elevation above MSL: 3112.00US ft

Comment:

Well: Arena Roja Fed Unit 16H

Type: Main well **UWI:** **Plan:** Working Plan

File Number: **Comment:**

Closure Distance: 7111.49US ft **Closure Azimuth:** 174.63°

Vertical Section: Position of Origin (Relative to Slot centre)

+N/-S: 0.00US ft **+E/-W:** 0.00US ft **Az:** 177.00°

Magnetic Parameters:

Model: bggm2015 **Field Strength:** 48128.7nT **Declination:** 7.13° **Dip:** 59.99° **Date:** 30/Aug/2015

Drill floor: Plan: Working Plan

Rig Height (Kelly Bushing): 24.00US ft **Elevation above MSL:** 3136.00US ft **Inclination:** 0.00° **Azimuth:** 0.00°

Collision / Uncertainty Analysis

Primary Well	Start MD (USFt)	End MD (USFt)	Collision Risk Interval	No. of Std. Deviations in Error Computation
Arena Roja Fed Unit 16H (p)	0.00	15941.27	100.00	2

Secondary Well Names:

Arena Roja Fed Unit 15H (p)
Arena Roja Fed Unit 15H (s)

Anti-Collision Report Terminology

S.Minor, S.Major: Radii of the ellipse of uncertainty at the current location as seen in the along hole direction.
PHI: Angle between high-side vector and semi-minor axis
TVD Spread: Total TVD range of the ellipsoid of uncertainty at the current location.
ES: Distance between the extremities of the primary and secondary uncertainty ellipsoids in the direction Cr-Cr.
T.Face to Sec: Angle between the Hi-Side vector of the primary well at the current location and line of closest approach between the two wells.

5D Anti-Collision Report

AC Filter Info: No filter has been applied.

Separation factors calculated using Pedal Curve (Independent Uncertainty). Surface Uncertainty (S.U.) Not Applied. Wellpath created using minimum curvature.

Anti-Collision Summary (TVD relative to Kelly Bushing)

SF

Secondary Well Name	Pri MD (US ft)	TVD (US ft)	Sec MD (US ft)	ES (US ft)	CC (US ft)	SF	Risk
Arena Roja Fed Unit 15H (p)	3240.43	3240.42	3242.95	32.42	46.85	3.25	
Arena Roja Fed Unit 15H (s)	3240.43	3240.42	3242.95	32.42	46.85	3.25	

Primary Well: Arena Roja Fed Unit 16H (p) (TVD relative to Kelly Bushing) (All Azimuth Relative to GRID NORTH)

MD (US ft)	TVD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	TVD Spread (US ft)	Nearest Well	ES (US ft)	CC (US ft)	SF	Risk
0.00	0.00	269.46	0.00	0.00	0.00	Arena Roja Fed Unit 15H (p)	49.27	49.96	72.55	
100.00	100.00	269.08	0.11	0.11	4.60	Arena Roja Fed Unit 15H (p)	49.07	49.98	54.89	
200.00	200.00	268.00	0.34	0.34	4.62	Arena Roja Fed Unit 15H (p)	48.75	50.03	39.02	
300.00	300.00	266.50	0.56	0.56	4.65	Arena Roja Fed Unit 15H (p)	48.46	50.19	29.06	
400.00	400.00	264.98	0.79	0.79	4.69	Arena Roja Fed Unit 15H (p)	48.36	50.52	23.35	
500.00	500.00	263.52	1.01	1.01	4.74	Arena Roja Fed Unit 15H (p)	48.40	50.99	19.63	
600.00	600.00	262.09	1.24	1.24	4.81	Arena Roja Fed Unit 15H (p)	48.47	51.50	17.02	
700.00	700.00	260.79	1.46	1.46	4.88	Arena Roja Fed Unit 15H (p)	48.53	51.98	15.06	
800.00	800.00	259.53	1.69	1.69	4.96	Arena Roja Fed Unit 15H (p)	48.52	52.40	13.50	
900.00	900.00	258.28	1.91	1.91	5.05	Arena Roja Fed Unit 15H (p)	48.47	52.79	12.23	
1000.00	1000.00	257.19	2.14	2.14	5.15	Arena Roja Fed Unit 15H (p)	48.35	53.10	11.19	
1100.00	1100.00	256.57	2.36	2.36	5.26	Arena Roja Fed Unit 15H (p)	48.21	53.38	10.32	
1200.00	1200.00	256.15	2.59	2.59	5.37	Arena Roja Fed Unit 15H (p)	47.93	53.54	9.55	
1300.00	1300.00	255.48	2.81	2.81	5.49	Arena Roja Fed Unit 15H (p)	47.28	53.33	8.82	
1400.00	1400.00	254.78	3.04	3.04	5.61	Arena Roja Fed Unit 15H (p)	46.45	52.92	8.18	
1500.00	1500.00	254.14	3.26	3.26	5.74	Arena Roja Fed Unit 15H (p)	45.64	52.55	7.61	
1600.00	1600.00	253.57	3.48	3.48	5.87	Arena Roja Fed Unit 15H (p)	44.91	52.25	7.12	
1700.00	1700.00	253.36	3.71	3.71	6.01	Arena Roja Fed Unit 15H (p)	44.28	52.05	6.69	
1800.00	1800.00	253.63	3.93	3.93	6.16	Arena Roja Fed Unit 15H (p)	43.76	51.96	6.33	
1900.00	1900.00	253.90	4.16	4.16	6.30	Arena Roja Fed Unit 15H (p)	43.15	51.79	6.00	

5D Anti-Collision Report

Primary Well: Arena Roja Fed Unit 16H (p) (TVD relative to Kelly Bushing) (All Azimuth Relative to GRID NORTH)

MD (US ft)	TVD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	TVD Spread (US ft)	Nearest Well	ES (US ft)	CC (US ft)	SF	Risk
2000.00	2000.00	253.97	4.38	4.38	6.45	Arena Roja Fed Unit 15H (p)	42.38	51.45	5.67	
2100.00	2100.00	254.02	4.61	4.61	6.61	Arena Roja Fed Unit 15H (p)	41.67	51.17	5.38	
2200.00	2200.00	254.12	4.83	4.83	6.77	Arena Roja Fed Unit 15H (p)	41.07	51.01	5.13	
2300.00	2300.00	254.31	5.06	5.06	6.93	Arena Roja Fed Unit 15H (p)	40.43	50.81	4.90	
2400.00	2400.00	254.58	5.28	5.28	7.09	Arena Roja Fed Unit 15H (p)	39.73	50.54	4.68	
2500.00	2500.00	254.75	5.51	5.51	7.26	Arena Roja Fed Unit 15H (p)	39.09	50.33	4.48	
2600.00	2600.00	254.82	5.73	5.73	7.43	Arena Roja Fed Unit 15H (p)	38.47	50.15	4.30	
2700.00	2700.00	254.86	5.96	5.96	7.60	Arena Roja Fed Unit 15H (p)	37.68	49.78	4.12	
2800.00	2800.00	254.86	6.18	6.18	7.78	Arena Roja Fed Unit 15H (s)	36.66	49.19	3.93	
2900.00	2900.00	254.82	6.41	6.41	7.96	Arena Roja Fed Unit 15H (p)	35.34	48.32	3.72	
3000.00	3000.00	254.77	6.63	6.63	8.14	Arena Roja Fed Unit 15H (p)	33.89	47.28	3.53	
3100.00	3100.00	254.84	6.86	6.86	8.33	Arena Roja Fed Unit 15H (p)	32.52	46.37	3.35	
3200.00	3199.99	165.27	7.07	7.07	8.51	Arena Roja Fed Unit 15H (p)	32.11	46.38	3.25	
3300.00	3299.96	166.25	7.27	7.26	8.70	Arena Roja Fed Unit 15H (p)	33.30	47.99	3.27	
3400.00	3399.86	167.67	7.47	7.45	8.90	Arena Roja Fed Unit 15H (s)	35.99	51.08	3.39	
3500.00	3499.68	169.42	7.67	7.65	9.09	Arena Roja Fed Unit 15H (s)	40.08	55.55	3.59	
3600.00	3599.37	171.14	7.88	7.84	9.29	Arena Roja Fed Unit 15H (s)	45.87	61.78	3.88	
3700.00	3698.99	172.49	8.09	8.05	9.49	Arena Roja Fed Unit 15H (s)	52.91	69.23	4.24	
3800.00	3798.60	173.48	8.31	8.25	9.69	Arena Roja Fed Unit 15H (s)	60.31	77.06	4.60	
3900.00	3898.22	174.23	8.53	8.46	9.90	Arena Roja Fed Unit 15H (s)	68.10	85.25	4.97	
4000.00	3997.84	174.83	8.76	8.66	10.11	Arena Roja Fed Unit 15H (p)	76.11	93.66	5.34	
4100.00	4097.46	175.33	8.98	8.87	10.33	Arena Roja Fed Unit 15H (p)	84.23	102.20	5.69	
4200.00	4197.08	175.76	9.21	9.08	10.55	Arena Roja Fed Unit 15H (p)	92.49	110.88	6.03	
4300.00	4296.70	176.12	9.44	9.29	10.77	Arena Roja Fed Unit 15H (p)	100.85	119.67	6.36	
4400.00	4396.32	176.40	9.68	9.50	11.00	Arena Roja Fed Unit 15H (p)	109.15	128.38	6.67	
4500.00	4495.94	176.60	9.91	9.72	11.23	Arena Roja Fed Unit 15H (p)	117.26	136.92	6.97	

Primary Well: Arena Roja Fed Unit 16H (p) (TVD relative to Kelly Bushing) (All Azimuth Relative to GRID NORTH)

MD (US ft)	TVD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	TVD Spread (US ft)	Nearest Well	ES (US ft)	CC (US ft)	SF	Risk
4600.00	4595.56	176.77	10.15	9.93	11.46	Arena Roja Fed Unit 15H (p)	124.83	144.90	7.22	
4700.00	4695.18	176.91	10.39	10.15	11.70	Arena Roja Fed Unit 15H (p)	131.74	152.23	7.43	
4800.00	4794.80	177.03	10.63	10.36	11.94	Arena Roja Fed Unit 15H (p)	137.82	158.72	7.60	
4900.00	4894.42	177.09	10.88	10.58	12.18	Arena Roja Fed Unit 15H (p)	143.18	164.50	7.72	
5000.00	4994.04	176.98	11.12	10.79	12.43	Arena Roja Fed Unit 15H (p)	148.41	170.17	7.82	
5100.00	5093.66	176.80	11.36	11.01	12.68	Arena Roja Fed Unit 15H (p)	153.89	176.08	7.94	
5200.00	5193.28	176.74	11.61	11.23	12.94	Arena Roja Fed Unit 15H (p)	160.44	183.06	8.10	
5300.00	5292.90	176.77	11.86	11.45	13.20	Arena Roja Fed Unit 15H (p)	167.46	190.50	8.27	
5400.00	5392.52	176.78	12.11	11.67	13.46	Arena Roja Fed Unit 15H (p)	173.70	197.18	8.40	
5500.00	5492.14	176.77	12.36	11.89	13.73	Arena Roja Fed Unit 15H (p)	179.55	203.35	8.54	
5600.00	5591.76	176.72	12.61	12.11	14.00	Arena Roja Fed Unit 15H (p)	185.41	209.65	8.65	
5700.00	5691.37	176.63	12.86	12.33	14.28	Arena Roja Fed Unit 15H (p)	191.39	216.05	8.76	
5800.00	5790.99	176.56	13.12	12.55	14.56	Arena Roja Fed Unit 15H (p)	197.40	222.50	8.87	
5900.00	5890.61	176.54	13.37	12.77	14.85	Arena Roja Fed Unit 15H (p)	203.50	229.03	8.97	
6000.00	5990.23	176.54	13.62	12.99	15.14	Arena Roja Fed Unit 15H (p)	209.71	235.67	9.08	
6100.00	6089.85	176.55	13.88	13.22	15.43	Arena Roja Fed Unit 15H (p)	216.05	242.44	9.19	
6200.00	6189.47	176.58	14.14	13.44	15.73	Arena Roja Fed Unit 15H (p)	222.53	249.36	9.30	
6300.00	6289.09	176.60	14.39	13.66	16.04	Arena Roja Fed Unit 15H (s)	229.18	256.43	9.41	
6400.00	6388.71	176.59	14.65	13.89	16.35	Arena Roja Fed Unit 15H (s)	235.99	263.68	9.52	
6500.00	6488.33	176.60	14.91	14.11	16.66	Arena Roja Fed Unit 15H (s)	242.93	271.05	9.64	
6600.00	6587.95	176.65	15.17	14.33	16.98	Arena Roja Fed Unit 15H (s)	249.97	278.52	9.76	
6700.00	6687.57	176.70	15.43	14.56	17.30	Arena Roja Fed Unit 15H (s)	257.05	286.03	9.87	
6800.00	6787.19	176.74	15.68	14.78	17.63	Arena Roja Fed Unit 15H (s)	264.15	293.56	9.98	
6900.00	6886.81	176.78	15.94	15.01	17.97	Arena Roja Fed Unit 15H (s)	271.40	301.25	10.09	
7000.00	6986.43	176.83	16.21	15.23	18.30	Arena Roja Fed Unit 15H (s)	278.83	309.11	10.21	
7100.00	7086.08	176.87	16.44	15.44	18.65	Arena Roja Fed Unit 15H (p)	285.90	316.60	10.32	

Primary Well: Arena Roja Fed Unit 16H (p)(TVD relative to Kelly Bushing)(All Azimuth Relative to GRID NORTH)

MD (US ft)	TVD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	TVD Spread (US ft)	Nearest Well	ES (US ft)	CC (US ft)	SF	Risk
7200.00	7185.81	176.87	16.65	15.64	19.00	Arena Roja Fed Unit 15H (p)	292.19	323.27	10.40	
7300.00	7285.59	176.87	16.86	15.83	19.35	Arena Roja Fed Unit 15H (p)	297.76	329.25	10.46	
7400.00	7385.43	176.87	17.06	16.03	19.71	Arena Roja Fed Unit 15H (p)	302.58	334.46	10.49	
7500.00	7485.32	176.88	17.26	16.22	20.07	Arena Roja Fed Unit 15H (p)	306.33	338.61	10.49	
7600.00	7585.24	176.90	17.46	16.41	20.44	Arena Roja Fed Unit 15H (p)	308.95	341.63	10.45	
7700.00	7685.19	176.84	17.65	16.60	20.82	Arena Roja Fed Unit 15H (p)	310.34	343.43	10.38	
7800.00	7785.17	176.71	17.84	16.79	21.20	Arena Roja Fed Unit 15H (p)	310.89	344.37	10.28	
7900.00	7885.16	176.48	18.02	16.98	21.58	Arena Roja Fed Unit 15H (p)	311.47	345.34	10.20	
8000.00	7985.16	266.18	18.21	17.17	21.97	Arena Roja Fed Unit 15H (p)	311.90	346.16	10.11	
8100.00	8085.16	265.89	18.40	17.37	22.37	Arena Roja Fed Unit 15H (p)	312.21	346.84	10.01	
8200.00	8185.16	265.61	18.60	17.59	22.77	Arena Roja Fed Unit 15H (p)	312.63	347.72	9.91	
8300.00	8285.16	265.33	18.81	17.80	23.17	Arena Roja Fed Unit 15H (p)	313.11	348.66	9.81	
8400.00	8385.16	265.06	19.02	18.02	23.59	Arena Roja Fed Unit 15H (p)	313.52	349.51	9.71	
8500.00	8485.16	264.81	19.22	18.23	24.00	Arena Roja Fed Unit 15H (p)	313.65	350.07	9.61	
8600.00	8585.05	94.71	19.36	18.45	24.42	Arena Roja Fed Unit 15H (p)	313.85	350.67	9.52	
8700.00	8683.11	97.26	19.18	18.62	24.83	Arena Roja Fed Unit 15H (s)	315.65	352.88	9.48	
8800.00	8776.38	101.81	19.03	18.48	25.19	Arena Roja Fed Unit 15H (s)	321.44	359.01	9.55	
8900.00	8861.68	106.96	19.25	17.60	25.50	Arena Roja Fed Unit 15H (s)	335.38	373.32	9.84	
9000.00	8934.52	110.95	19.60	16.34	25.77	Arena Roja Fed Unit 15H (s)	363.13	401.38	10.50	
9100.00	8991.57	112.06	20.08	15.02	26.01	Arena Roja Fed Unit 15H (s)	408.00	446.49	11.60	
9200.00	9030.38	108.09	20.66	13.94	26.24	Arena Roja Fed Unit 15H (s)	469.43	508.08	13.15	
9300.00	9049.93	98.07	21.24	13.36	26.54	Arena Roja Fed Unit 15H (p)	540.95	579.76	14.94	
9400.00	9051.55	90.71	21.95	13.39	26.88	Arena Roja Fed Unit 15H (p)	618.08	656.92	16.91	
9500.00	9049.97	90.72	22.79	13.59	27.28	Arena Roja Fed Unit 15H (p)	700.25	739.12	19.02	
9600.00	9048.40	90.73	23.74	13.83	27.76	Arena Roja Fed Unit 15H (p)	786.36	825.24	21.23	
9700.00	9046.83	90.75	24.79	14.10	28.31	Arena Roja Fed Unit 15H (p)	875.21	914.16	23.47	

Primary Well: Arena Roja Fed Unit 16H (p)(TVD relative to Kelly Bushing)(All Azimuth Relative to GRID NORTH)

MD (US ft)	TVD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	TVD Spread (US ft)	Nearest Well	ES (US ft)	CC (US ft)	SF	Risk
9800.00	9045.26	90.76	25.93	14.40	28.92	Arena Roja Fed Unit 15H (p)	966.17	1005.14	25.79	
9900.00	9043.69	90.77	27.15	14.74	29.59	Arena Roja Fed Unit 15H (p)	1058.71	1097.68	28.17	
10000.00	9042.12	90.78	28.43	15.10	30.32	Arena Roja Fed Unit 15H (p)	1152.43	1191.41	30.57	
10100.00	9040.55	90.79	29.77	15.49	31.10	Arena Roja Fed Unit 15H (p)	1247.02	1286.06	32.94	
10200.00	9038.98	90.81	31.17	15.91	31.93	Arena Roja Fed Unit 15H (p)	1342.37	1381.45	35.35	
10300.00	9037.40	90.82	32.60	16.34	32.80	Arena Roja Fed Unit 15H (p)	1438.33	1477.44	37.78	
10400.00	9035.83	90.83	34.07	16.80	33.71	Arena Roja Fed Unit 15H (p)	1534.78	1573.92	40.22	
10500.00	9034.26	90.84	35.58	17.28	34.66	Arena Roja Fed Unit 15H (p)	1631.64	1670.79	42.68	
10600.00	9032.69	90.85	37.12	17.77	35.65	Arena Roja Fed Unit 15H (p)	1728.84	1768.00	45.14	
10700.00	9031.12	90.86	38.68	18.28	36.67	Arena Roja Fed Unit 15H (p)	1826.33	1865.50	47.63	
10800.00	9029.55	90.86	40.27	18.81	37.72	Arena Roja Fed Unit 15H (p)	1924.09	1963.23	50.15	
10900.00	9027.97	90.87	41.87	19.35	38.79	Arena Roja Fed Unit 15H (p)	2021.95	2061.18	52.54	
11000.00	9026.40	90.88	43.50	19.90	39.89	Arena Roja Fed Unit 15H (p)	2120.06	2159.30	55.02	
11100.00	9024.83	90.89	45.14	20.46	41.02	Arena Roja Fed Unit 15H (p)	2218.26	2257.57	57.42	
11200.00	9023.26	90.90	46.79	21.04	42.16	Arena Roja Fed Unit 15H (p)	2316.68	2355.99	59.94	
11300.00	9021.69	90.90	48.46	21.62	43.33	Arena Roja Fed Unit 15H (p)	2415.18	2454.52	62.40	
11400.00	9020.11	90.91	50.14	22.21	44.51	Arena Roja Fed Unit 15H (p)	2513.78	2553.16	64.84	
11500.00	9018.54	90.92	51.82	22.81	45.71	Arena Roja Fed Unit 15H (p)	2612.47	2651.89	67.27	
11600.00	9016.97	90.92	53.52	23.42	46.92	Arena Roja Fed Unit 15H (p)	2711.25	2750.70	69.71	
11700.00	9015.40	90.99	55.22	24.04	48.15	Arena Roja Fed Unit 15H (p)	2810.10	2849.59	72.15	
11800.00	9013.86	91.16	56.89	24.66	49.39	Arena Roja Fed Unit 15H (p)	2909.02	2948.55	74.59	
11900.00	9012.37	91.34	58.57	25.29	50.64	Arena Roja Fed Unit 15H (p)	3008.00	3047.57	77.03	
12000.00	9010.91	91.53	60.26	25.92	51.90	Arena Roja Fed Unit 15H (p)	3107.04	3146.64	79.46	
12100.00	9009.50	91.72	61.97	26.56	53.18	Arena Roja Fed Unit 15H (p)	3206.13	3245.76	81.89	
12200.00	9008.12	91.92	63.68	27.20	54.46	Arena Roja Fed Unit 15H (p)	3305.26	3344.93	84.31	
12300.00	9006.79	92.13	65.40	27.85	55.76	Arena Roja Fed Unit 15H (p)	3404.43	3444.14	86.73	

Primary Well: Arena Roja Fed Unit 16H (p) (TVD relative to Kelly Bushing) (All Azimuth Relative to GRID NORTH)

MD (US ft)	TVD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	TVD Spread (US ft)	Nearest Well	ES (US ft)	CC (US ft)	SF	Risk
12400.00	9005.50	92.35	67.13	28.50	57.06	Arena Roja Fed Unit 15H (s)	3503.64	3543.39	89.14	
12500.00	9004.25	92.58	68.86	29.16	58.37	Arena Roja Fed Unit 15H (s)	3602.88	3642.67	91.54	
12600.00	9003.04	180.77	70.60	29.82	59.69	Arena Roja Fed Unit 15H (p)	3630.03	3696.11	55.93	
12700.00	9001.87	180.76	72.35	30.48	61.01	Arena Roja Fed Unit 15H (p)	3629.22	3696.55	54.91	
12800.00	9000.74	180.74	74.11	31.14	62.34	Arena Roja Fed Unit 15H (p)	3628.37	3696.94	53.91	
12900.00	8999.65	180.72	75.87	31.81	63.68	Arena Roja Fed Unit 15H (p)	3627.47	3697.29	52.95	
13000.00	8998.60	180.71	77.63	32.48	65.02	Arena Roja Fed Unit 15H (p)	3626.52	3697.60	52.02	
13100.00	8997.59	180.69	79.40	33.16	66.37	Arena Roja Fed Unit 15H (p)	3625.53	3697.87	51.11	
13200.00	8996.63	180.67	81.17	33.84	67.72	Arena Roja Fed Unit 15H (p)	3624.48	3698.10	50.23	
13300.00	8995.70	180.65	82.95	34.51	69.08	Arena Roja Fed Unit 15H (p)	3623.39	3698.29	49.38	
13400.00	8994.82	180.64	84.73	35.20	70.44	Arena Roja Fed Unit 15H (p)	3622.25	3698.44	48.54	
13500.00	8993.97	180.62	86.52	35.88	71.80	Arena Roja Fed Unit 15H (p)	3621.07	3698.55	47.74	
13600.00	8993.17	180.60	88.31	36.56	73.17	Arena Roja Fed Unit 15H (p)	3619.84	3698.62	46.95	
13700.00	8992.41	180.58	90.10	37.25	74.55	Arena Roja Fed Unit 15H (p)	3618.56	3698.64	46.19	
13800.00	8991.68	180.56	91.89	37.94	75.92	Arena Roja Fed Unit 15H (p)	3617.24	3698.63	45.44	
13900.00	8991.00	180.54	93.69	38.63	77.30	Arena Roja Fed Unit 15H (p)	3615.87	3698.57	44.72	
14000.00	8990.36	180.53	95.49	39.32	78.69	Arena Roja Fed Unit 15H (p)	3614.45	3698.48	44.02	
14100.00	8989.76	180.51	97.29	40.02	80.07	Arena Roja Fed Unit 15H (p)	3612.99	3698.34	43.33	
14200.00	8989.20	180.49	99.10	40.71	81.46	Arena Roja Fed Unit 15H (p)	3611.49	3698.16	42.67	
14300.00	8988.68	180.47	100.90	41.41	82.85	Arena Roja Fed Unit 15H (p)	3609.94	3697.95	42.02	
14400.00	8988.21	180.45	102.71	42.11	84.25	Arena Roja Fed Unit 15H (p)	3608.35	3697.69	41.39	
14500.00	8987.77	180.43	104.52	42.80	85.65	Arena Roja Fed Unit 15H (p)	3606.71	3697.39	40.77	
14600.00	8987.37	180.41	106.33	43.50	87.05	Arena Roja Fed Unit 15H (p)	3605.02	3697.05	40.17	
14700.00	8987.02	180.39	108.15	44.21	88.45	Arena Roja Fed Unit 15H (p)	3603.30	3696.67	39.59	
14800.00	8986.70	180.37	109.96	44.91	89.85	Arena Roja Fed Unit 15H (p)	3601.52	3696.25	39.02	
14900.00	8986.43	180.35	111.78	45.61	91.26	Arena Roja Fed Unit 15H (p)	3599.71	3695.79	38.47	

Primary Well: Arena Roja Fed Unit 16H (p) (TVD relative to Kelly Bushing) (All Azimuth Relative to GRID NORTH)

MD (US ft)	TVD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	TVD Spread (US ft)	Nearest Well	ES (US ft)	CC (US ft)	SF	Risk
15000.00	8986.20	180.33	113.60	46.31	92.67	Arena Roja Fed Unit 15H (p)	3597.85	3695.28	37.93	
15100.00	8986.01	180.31	115.42	47.02	94.07	Arena Roja Fed Unit 15H (p)	3595.95	3694.74	37.40	
15200.00	8985.85	180.29	117.24	47.72	95.49	Arena Roja Fed Unit 15H (p)	3594.00	3694.16	36.88	
15300.00	8985.74	180.27	119.06	48.43	96.90	Arena Roja Fed Unit 15H (p)	3592.01	3693.54	36.38	
15400.00	8985.67	180.25	120.89	49.14	98.31	Arena Roja Fed Unit 15H (p)	3589.98	3692.87	35.89	
15500.00	8985.64	180.23	122.71	49.85	99.73	Arena Roja Fed Unit 15H (p)	3587.91	3692.17	35.41	
15600.00	8985.65	180.21	124.54	50.56	101.15	Arena Roja Fed Unit 15H (p)	3585.79	3691.42	34.94	
15700.00	8985.71	180.18	126.36	51.26	102.57	Arena Roja Fed Unit 15H (p)	3583.63	3690.64	34.49	
15800.00	8985.80	180.16	128.19	51.97	103.99	Arena Roja Fed Unit 15H (p)	3581.42	3689.81	34.04	
15900.00	8985.93	180.14	130.02	52.69	105.41	Arena Roja Fed Unit 15H (p)	3579.17	3688.94	33.61	
15941.27	8986.00	180.13	130.77	52.98	106.00	Arena Roja Fed Unit 15H (p)	3578.23	3688.57	33.43	

Secondary Well: Arena Roja Fed Unit 15H (p) (TVD relative to Kelly Bushing) (All Azimuth Relative to GRID NORTH)

Pri MD (US ft)	TVD (US ft)	Sec MD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	TVD Spread (US ft)	ES (US ft)	CC (US ft)	SF	Risk
0.00	-0.00	2.00	269.46	0.00	0.00	0.06	49.27	49.96	72.55	
100.00	99.98	101.99	269.08	0.12	0.12	2.75	49.07	49.98	54.89	
200.00	199.95	201.96	268.00	0.26	0.26	4.62	48.75	50.03	39.02	
300.00	299.88	301.89	266.50	0.48	0.48	4.65	48.46	50.19	29.06	
400.00	399.79	401.81	264.98	0.70	0.69	4.69	48.36	50.52	23.35	
500.00	499.74	501.77	263.52	0.91	0.90	4.75	48.40	50.99	19.63	
600.00	599.75	601.79	262.09	1.11	1.10	4.81	48.47	51.50	17.02	
700.00	699.76	701.81	260.79	1.31	1.30	4.88	48.53	51.98	15.06	
800.00	799.79	801.85	259.53	1.51	1.51	4.97	48.52	52.40	13.50	
900.00	899.81	901.88	258.28	1.72	1.72	5.06	48.47	52.79	12.23	
1000.00	999.84	1001.91	257.19	1.93	1.92	5.16	48.35	53.10	11.19	
1100.00	1099.86	1101.93	256.57	2.14	2.13	5.26	48.21	53.38	10.32	
1200.00	1199.99	1202.06	256.15	2.35	2.34	5.37	47.93	53.54	9.55	
1300.00	1300.23	1302.31	255.48	2.56	2.56	5.49	47.28	53.33	8.82	
1400.00	1400.20	1402.28	254.78	2.77	2.77	5.61	46.45	52.92	8.18	
1500.00	1500.18	1502.27	254.14	2.98	2.97	5.74	45.64	52.55	7.61	
1600.00	1600.13	1602.21	253.57	3.19	3.18	5.88	44.91	52.25	7.12	
1700.00	1700.07	1702.16	253.36	3.40	3.39	6.02	44.28	52.05	6.69	
1800.00	1800.05	1802.13	253.63	3.61	3.60	6.16	43.76	51.96	6.33	
1900.00	1900.14	1902.22	253.90	3.82	3.81	6.31	43.15	51.79	6.00	
2000.00	2000.17	2002.26	253.97	4.02	4.02	6.46	42.38	51.45	5.67	
2100.00	2100.11	2102.19	254.02	4.23	4.23	6.61	41.67	51.17	5.38	
2200.00	2200.08	2202.17	254.12	4.44	4.44	6.77	41.07	51.01	5.13	
2300.00	2300.12	2302.21	254.31	4.65	4.65	6.93	40.43	50.81	4.90	
2400.00	2400.12	2402.21	254.58	4.86	4.86	7.10	39.73	50.54	4.68	
2500.00	2500.09	2502.18	254.75	5.07	5.07	7.26	39.09	50.33	4.48	
2600.00	2600.13	2602.22	254.82	5.28	5.27	7.43	38.47	50.15	4.30	
2700.00	2700.23	2702.32	254.86	5.49	5.48	7.61	37.68	49.78	4.12	
2800.00	2800.36	2802.45	254.86	5.70	5.69	7.78	36.66	49.19	3.93	
2900.00	2900.49	2902.58	254.82	5.91	5.91	7.96	35.34	48.32	3.72	

Secondary Well: Arena Roja Fed Unit 15H (P) (TVD relative to Kelly Bushing) (All Azimuth Relative to GRID NORTH)

Pri MD (US ft)	TVD (US ft)	Sec MD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	TVD Spread (US ft)	ES (US ft)	CC (US ft)	SF	Risk
3000.00	3000.46	3002.56	254.77	6.12	6.12	8.15	33.89	47.28	3.53	
3100.00	3100.39	3102.50	254.84	6.33	6.32	8.33	32.52	46.37	3.35	
3200.00	3200.38	3202.49	165.27	6.54	6.53	8.52	32.11	46.38	3.25	
3300.00	3300.46	3302.57	166.25	6.75	6.75	8.71	33.30	47.99	3.27	
3400.00	3400.54	3402.66	167.67	6.96	6.96	8.90	35.99	51.08	3.39	
3500.00	3500.61	3502.74	169.42	7.18	7.17	9.10	40.08	55.55	3.59	
3600.00	3600.19	3602.34	171.14	7.38	7.38	9.30	45.87	61.78	3.88	
3700.00	3699.69	3701.84	172.49	7.59	7.59	9.50	52.91	69.23	4.24	
3800.00	3799.11	3801.26	173.48	7.80	7.79	9.71	60.31	77.06	4.60	
3900.00	3898.51	3900.67	174.23	8.00	8.00	9.91	68.10	85.25	4.97	
4000.00	3998.03	4000.19	174.83	8.21	8.20	10.13	76.11	93.66	5.34	
4100.00	4097.54	4099.69	175.33	8.42	8.41	10.34	84.23	102.20	5.69	
4200.00	4197.03	4199.19	175.76	8.62	8.62	10.56	92.49	110.88	6.03	
4300.00	4296.60	4298.76	176.12	8.83	8.83	10.78	100.85	119.67	6.36	
4400.00	4396.39	4398.54	176.40	9.04	9.04	11.00	109.15	128.38	6.67	
4500.00	4496.49	4498.64	176.60	9.25	9.25	11.23	117.26	136.92	6.97	
4600.00	4597.06	4599.22	176.77	9.46	9.46	11.46	124.83	144.90	7.22	
4700.00	4697.89	4700.06	176.91	9.67	9.67	11.70	131.74	152.23	7.43	
4800.00	4799.02	4801.21	177.03	9.88	9.88	11.95	137.82	158.72	7.60	
4900.00	4899.38	4901.62	177.09	10.10	10.09	12.19	143.18	164.50	7.72	
5000.00	4999.27	5001.56	176.98	10.31	10.30	12.44	148.41	170.17	7.82	
5100.00	5097.68	5100.01	176.80	10.51	10.50	12.69	153.89	176.08	7.94	
5200.00	5195.44	5197.79	176.74	10.72	10.71	12.93	160.44	183.06	8.10	
5300.00	5296.00	5298.36	176.77	10.93	10.92	13.20	167.46	190.50	8.27	
5400.00	5397.31	5399.69	176.78	11.15	11.13	13.46	173.70	197.18	8.40	
5500.00	5497.33	5499.74	176.77	11.36	11.34	13.73	179.55	203.35	8.54	
5600.00	5596.63	5599.07	176.72	11.57	11.55	14.00	185.41	209.65	8.65	
5700.00	5696.31	5698.79	176.63	11.78	11.76	14.28	191.39	216.05	8.76	
5800.00	5795.96	5798.46	176.56	11.99	11.97	14.56	197.40	222.50	8.87	
5900.00	5895.47	5898.00	176.54	12.20	12.18	14.84	203.50	229.03	8.97	
6000.00	5994.96	5997.51	176.54	12.41	12.39	15.13	209.71	235.67	9.08	
6100.00	6094.37	6096.94	176.55	12.62	12.59	15.42	216.05	242.44	9.19	
6200.00	6193.75	6196.34	176.58	12.83	12.80	15.72	222.53	249.36	9.30	
6300.00	6293.05	6295.65	176.60	13.04	13.01	16.02	229.18	256.43	9.41	
6400.00	6392.36	6394.97	176.59	13.25	13.22	16.33	235.99	263.68	9.52	
6500.00	6491.81	6494.43	176.60	13.46	13.43	16.64	242.93	271.05	9.64	
6600.00	6591.30	6593.93	176.65	13.67	13.64	16.96	249.97	278.52	9.76	
6700.00	6690.96	6693.60	176.70	13.88	13.85	17.28	257.05	286.03	9.87	
6800.00	6790.46	6793.11	176.74	14.09	14.06	17.61	264.15	293.56	9.98	
6900.00	6889.61	6892.26	176.78	14.30	14.27	17.94	271.40	301.25	10.09	
7000.00	6988.90	6991.56	176.83	14.51	14.48	18.27	278.83	309.11	10.21	
7100.00	7088.49	7091.15	176.87	14.72	14.69	18.61	285.90	316.60	10.32	
7200.00	7187.91	7190.58	176.87	14.93	14.90	18.96	292.19	323.27	10.40	
7300.00	7287.14	7289.80	176.87	15.14	15.10	19.31	297.76	329.25	10.46	
7400.00	7387.18	7389.85	176.87	15.35	15.32	19.67	302.58	334.46	10.49	
7500.00	7487.89	7490.56	176.88	15.56	15.53	20.03	306.33	338.61	10.49	
7600.00	7588.92	7591.59	176.90	15.77	15.74	20.41	308.95	341.63	10.45	
7700.00	7690.12	7692.80	176.84	15.98	15.95	20.79	310.34	343.43	10.38	
7800.00	7787.94	7790.63	176.71	16.19	16.15	21.16	310.89	344.37	10.28	
7900.00	7884.73	7887.44	176.48	16.39	16.35	21.53	311.47	345.34	10.20	
8000.00	7983.29	7986.01	266.18	16.60	16.56	21.92	311.90	346.16	10.11	
8100.00	8082.30	8085.04	265.89	16.80	16.77	22.31	312.21	346.84	10.01	
8200.00	8181.98	8184.75	265.61	17.02	16.98	22.71	312.63	347.72	9.91	
8300.00	8281.78	8284.56	265.33	17.23	17.20	23.11	313.11	348.66	9.81	
8400.00	8382.70	8385.50	265.06	17.44	17.41	23.53	313.52	349.51	9.71	
8500.00	8483.66	8486.47	264.81	17.65	17.62	23.95	313.65	350.07	9.61	
8600.00	8584.06	8586.88	94.71	17.86	17.83	24.38	313.85	350.67	9.52	
8700.00	8683.02	8685.86	97.26	18.06	18.03	24.81	315.65	352.88	9.48	

Secondary Well: Arena Roja Fed Unit 15H (p) (TVD relative to Kelly Bushing) (All Azimuth Relative to GRID NORTH)

Pri MD (US ft)	TVD (US ft)	Sec MD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	TVD Spread (US ft)	ES (US ft)	CC (US ft)	SF	Risk
8800.00	8778.18	8781.04	101.81	18.26	18.23	25.22	321.44	359.01	9.55	
8900.00	8865.51	8868.38	106.96	18.44	18.41	25.60	335.38	373.32	9.84	
9000.00	8940.26	8943.14	110.95	18.60	18.56	25.94	363.13	401.38	10.50	
9100.00	8999.39	9002.28	112.06	18.72	18.69	26.20	408.00	446.49	11.60	
9200.00	9040.33	9043.23	108.09	18.81	18.77	26.39	469.43	508.08	13.15	
9300.00	9061.46	9064.36	98.07	18.85	18.82	26.48	540.95	579.76	14.94	
9400.00	9064.65	9067.55	90.71	18.86	18.82	26.50	618.08	656.92	16.91	
9500.00	9064.75	9067.65	90.72	18.86	18.82	26.50	700.25	739.12	19.02	
9600.00	9064.84	9067.75	90.73	18.86	18.82	26.50	786.36	825.24	21.23	
9700.00	9064.94	9067.84	90.75	18.86	18.82	26.50	875.21	914.16	23.47	
9800.00	9065.03	9067.93	90.76	18.86	18.82	26.50	966.17	1005.14	25.79	
9900.00	9065.12	9068.02	90.77	18.86	18.82	26.50	1058.71	1097.68	28.17	
10000.00	9065.21	9068.11	90.78	18.86	18.82	26.50	1152.43	1191.41	30.57	
10100.00	9065.29	9068.19	90.79	18.86	18.82	26.50	1247.02	1286.06	32.94	
10200.00	9065.38	9068.28	90.81	18.86	18.82	26.50	1342.37	1381.45	35.35	
10300.00	9065.46	9068.36	90.82	18.86	18.82	26.50	1438.33	1477.44	37.78	
10400.00	9065.54	9068.45	90.83	18.86	18.82	26.50	1534.78	1573.92	40.22	
10500.00	9065.62	9068.53	90.84	18.86	18.82	26.50	1631.64	1670.79	42.68	
10600.00	9065.70	9068.61	90.85	18.86	18.82	26.50	1728.84	1768.00	45.14	
10700.00	9065.78	9068.68	90.86	18.86	18.82	26.50	1826.33	1865.50	47.63	
10800.00	9065.86	9068.76	90.86	18.86	18.82	26.50	1924.09	1963.23	50.15	
10900.00	9065.93	9068.84	90.87	18.86	18.82	26.50	2021.95	2061.18	52.54	
11000.00	9066.01	9068.91	90.88	18.86	18.82	26.50	2120.06	2159.30	55.02	
11100.00	9066.08	9068.98	90.89	18.86	18.82	26.50	2218.26	2257.57	57.42	
11200.00	9066.15	9069.05	90.90	18.86	18.82	26.50	2316.68	2355.99	59.94	
11300.00	9066.22	9069.12	90.90	18.86	18.83	26.50	2415.18	2454.52	62.40	
11400.00	9066.29	9069.19	90.91	18.86	18.83	26.50	2513.78	2553.16	64.84	
11500.00	9066.36	9069.26	90.92	18.86	18.83	26.50	2612.47	2651.89	67.27	
11600.00	9066.42	9069.33	90.92	18.86	18.83	26.51	2711.25	2750.70	69.71	
11700.00	9066.49	9069.39	90.99	18.86	18.83	26.51	2810.10	2849.59	72.15	
11800.00	9066.59	9069.49	91.16	18.86	18.83	26.51	2909.02	2948.55	74.59	
11900.00	9066.71	9069.62	91.34	18.86	18.83	26.51	3008.00	3047.57	77.03	
12000.00	9066.88	9069.78	91.53	18.86	18.83	26.51	3107.04	3146.64	79.46	
12100.00	9067.07	9069.97	91.72	18.86	18.83	26.51	3206.13	3245.76	81.89	
12200.00	9067.29	9070.20	91.92	18.86	18.83	26.51	3305.26	3344.93	84.31	
12300.00	9067.55	9070.45	92.13	18.86	18.83	26.51	3404.43	3444.14	86.73	
12400.00	9067.84	9070.74	92.35	18.87	18.83	26.51	3503.64	3543.39	89.14	
12500.00	9068.15	9071.06	92.58	18.87	18.83	26.51	3602.88	3642.67	91.54	
12600.00	12698.71	16203.46	180.77	74.78	35.83	71.64	3630.03	3696.11	55.93	
12700.00	12697.99	16303.50	180.76	76.47	36.39	72.77	3629.22	3696.55	54.91	
12800.00	12697.27	16403.53	180.74	78.17	36.96	73.91	3628.37	3696.94	53.91	
12900.00	12696.55	16503.56	180.72	79.87	37.54	75.07	3627.47	3697.29	52.95	
13000.00	12695.82	16603.59	180.71	81.57	38.12	76.23	3626.52	3697.60	52.02	
13100.00	12695.10	16703.62	180.69	83.29	38.71	77.40	3625.53	3697.87	51.11	
13200.00	12694.38	16803.65	180.67	85.00	39.30	78.58	3624.48	3698.10	50.23	
13300.00	12693.65	16903.68	180.65	86.72	39.89	79.78	3623.39	3698.29	49.38	
13400.00	12692.93	17003.71	180.64	88.45	40.50	80.98	3622.25	3698.44	48.54	
13500.00	12692.21	17103.74	180.62	90.17	41.10	82.19	3621.07	3698.55	47.74	
13600.00	12691.48	17203.76	180.60	91.90	41.71	83.40	3619.84	3698.62	46.95	
13700.00	12690.76	17303.79	180.58	93.64	42.32	84.63	3618.56	3698.64	46.19	
13800.00	12690.03	17403.81	180.56	95.37	42.94	85.86	3617.24	3698.63	45.44	
13900.00	12689.31	17503.84	180.54	97.11	43.56	87.11	3615.87	3698.57	44.72	
14000.00	12688.58	17603.86	180.53	98.86	44.18	88.35	3614.45	3698.48	44.02	
14100.00	12687.86	17703.88	180.51	100.60	44.81	89.61	3612.99	3698.34	43.33	
14200.00	12687.13	17803.90	180.49	102.35	45.44	90.87	3611.49	3698.16	42.67	
14300.00	12686.41	17903.92	180.47	104.10	46.08	92.13	3609.94	3697.95	42.02	
14400.00	12685.68	18003.94	180.45	105.85	46.71	93.41	3608.35	3697.69	41.39	
14500.00	12684.95	18103.96	180.43	107.60	47.35	94.69	3606.71	3697.39	40.77	

Secondary Well: Arena Roja Fed Unit 15H (p)(TVD relative to Kelly Bushing)(All Azimuth Relative to GRID NORTH)										
Pri MD (US ft)	TVD (US ft)	Sec MD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	TVD Spread (US ft)	ES (US ft)	CC (US ft)	SF	Risk
14600.00	12684.23	18203.98	180.41	109.36	47.99	95.97	3605.02	3697.05	40.17	
14700.00	12683.50	18303.99	180.39	111.12	48.64	97.26	3603.30	3696.67	39.59	
14800.00	12682.78	18404.01	180.37	112.88	49.28	98.55	3601.52	3696.25	39.02	
14900.00	12682.05	18504.02	180.35	114.64	49.93	99.85	3599.71	3695.79	38.47	
15000.00	12681.32	18604.03	180.33	116.40	50.59	101.15	3597.85	3695.28	37.93	
15100.00	12680.59	18704.04	180.31	118.16	51.24	102.46	3595.95	3694.74	37.40	
15200.00	12679.87	18804.05	180.29	119.93	51.90	103.77	3594.00	3694.16	36.88	
15300.00	12679.14	18904.06	180.27	121.69	52.55	105.09	3592.01	3693.54	36.38	
15400.00	12678.41	19004.07	180.25	123.46	53.21	106.41	3589.98	3692.87	35.89	
15500.00	12677.68	19104.08	180.23	125.23	53.88	107.73	3587.91	3692.17	35.41	
15600.00	12676.95	19204.08	180.21	127.00	54.54	109.06	3585.79	3691.42	34.94	
15700.00	12676.22	19304.09	180.18	128.77	55.21	110.39	3583.63	3690.64	34.49	
15800.00	12675.50	19404.09	180.16	130.54	55.87	111.72	3581.42	3689.81	34.04	
15900.00	12674.77	19504.09	180.14	132.31	56.54	113.06	3579.17	3688.94	33.61	
15941.27	12674.47	19545.36	180.13	133.04	56.82	113.62	3578.23	3688.57	33.43	

Secondary Well: Arena Roja Fed Unit 15H (s)(TVD relative to Kelly Bushing)(All Azimuth Relative to GRID NORTH)										
Pri MD (US ft)	TVD (US ft)	Sec MD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	TVD Spread (US ft)	ES (US ft)	CC (US ft)	SF	Risk
0.00	-0.00	2.00	269.46	0.00	0.00	0.06	49.27	49.96	72.55	
100.00	99.98	101.99	269.08	0.12	0.12	2.75	49.07	49.98	54.89	
200.00	199.95	201.96	268.00	0.26	0.26	4.62	48.75	50.03	39.02	
300.00	299.88	301.89	266.50	0.48	0.48	4.65	48.46	50.19	29.06	
400.00	399.79	401.81	264.98	0.70	0.69	4.69	48.36	50.52	23.35	
500.00	499.74	501.77	263.52	0.91	0.90	4.75	48.40	50.99	19.63	
600.00	599.75	601.79	262.09	1.11	1.10	4.81	48.47	51.50	17.02	
700.00	699.76	701.81	260.79	1.31	1.30	4.88	48.53	51.98	15.06	
800.00	799.79	801.85	259.53	1.51	1.51	4.97	48.52	52.40	13.50	
900.00	899.81	901.88	258.28	1.72	1.72	5.06	48.47	52.79	12.23	
1000.00	999.84	1001.91	257.19	1.93	1.92	5.16	48.35	53.10	11.19	
1100.00	1099.86	1101.93	256.57	2.14	2.13	5.26	48.21	53.38	10.32	
1200.00	1199.99	1202.06	256.15	2.35	2.34	5.37	47.93	53.54	9.55	
1300.00	1300.23	1302.31	255.48	2.56	2.56	5.49	47.28	53.33	8.82	
1400.00	1400.20	1402.28	254.78	2.77	2.77	5.61	46.45	52.92	8.18	
1500.00	1500.18	1502.27	254.14	2.98	2.97	5.74	45.64	52.55	7.61	
1600.00	1600.13	1602.21	253.57	3.19	3.18	5.88	44.91	52.25	7.12	
1700.00	1700.07	1702.16	253.36	3.40	3.39	6.02	44.28	52.05	6.69	
1800.00	1800.05	1802.13	253.63	3.61	3.60	6.16	43.76	51.96	6.33	
1900.00	1900.14	1902.22	253.90	3.82	3.81	6.31	43.15	51.79	6.00	
2000.00	2000.17	2002.26	253.97	4.02	4.02	6.46	42.38	51.45	5.67	
2100.00	2100.11	2102.19	254.02	4.23	4.23	6.61	41.67	51.17	5.38	
2200.00	2200.08	2202.17	254.12	4.44	4.44	6.77	41.07	51.01	5.13	
2300.00	2300.12	2302.21	254.31	4.65	4.65	6.93	40.43	50.81	4.90	
2400.00	2400.12	2402.21	254.58	4.86	4.86	7.10	39.73	50.54	4.68	
2500.00	2500.09	2502.18	254.75	5.07	5.07	7.26	39.09	50.33	4.48	
2600.00	2600.13	2602.22	254.82	5.28	5.27	7.43	38.47	50.15	4.30	
2700.00	2700.23	2702.32	254.86	5.49	5.48	7.61	37.68	49.78	4.12	
2800.00	2800.36	2802.45	254.86	5.70	5.69	7.78	36.66	49.19	3.93	
2900.00	2900.49	2902.58	254.82	5.91	5.91	7.96	35.34	48.32	3.72	
3000.00	3000.46	3002.56	254.77	6.12	6.12	8.15	33.89	47.28	3.53	
3100.00	3100.39	3102.50	254.84	6.33	6.32	8.33	32.52	46.37	3.35	
3200.00	3200.38	3202.49	165.27	6.54	6.53	8.52	32.11	46.38	3.25	
3300.00	3300.46	3302.57	166.25	6.75	6.75	8.71	33.30	47.99	3.27	
3400.00	3400.54	3402.66	167.67	6.96	6.96	8.90	35.99	51.08	3.39	
3500.00	3500.61	3502.74	169.42	7.18	7.17	9.10	40.08	55.55	3.59	
3600.00	3600.19	3602.34	171.14	7.38	7.38	9.30	45.87	61.78	3.88	
3700.00	3699.69	3701.84	172.49	7.59	7.59	9.50	52.91	69.23	4.24	
3800.00	3799.11	3801.26	173.48	7.80	7.79	9.71	60.31	77.06	4.60	
3900.00	3898.51	3900.67	174.23	8.00	8.00	9.91	68.10	85.25	4.97	

Secondary Well: Arena Roja Fed Unit 15H (S)(TVD relative to Kelly Bushing)(All Azimuth Relative to GRID NORTH)

Pri MD (US ft)	TVD (US ft)	Sec MD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	TVD Spread (US ft)	ES (US ft)	CC (US ft)	SF	Risk
4000.00	3998.03	4000.19	174.83	8.21	8.20	10.13	76.11	93.66	5.34	
4100.00	4097.54	4099.69	175.33	8.42	8.41	10.34	84.23	102.20	5.69	
4200.00	4197.03	4199.19	175.76	8.62	8.62	10.56	92.49	110.88	6.03	
4300.00	4296.60	4298.76	176.12	8.83	8.83	10.78	100.85	119.67	6.36	
4400.00	4396.39	4398.54	176.40	9.04	9.04	11.00	109.15	128.38	6.67	
4500.00	4496.49	4498.64	176.60	9.25	9.25	11.23	117.26	136.92	6.97	
4600.00	4597.06	4599.22	176.77	9.46	9.46	11.46	124.83	144.90	7.22	
4700.00	4697.89	4700.06	176.91	9.67	9.67	11.70	131.74	152.23	7.43	
4800.00	4799.02	4801.21	177.03	9.88	9.88	11.95	137.82	158.72	7.60	
4900.00	4899.38	4901.62	177.09	10.10	10.09	12.19	143.18	164.50	7.72	
5000.00	4999.27	5001.56	176.98	10.31	10.30	12.44	148.41	170.17	7.82	
5100.00	5097.68	5100.01	176.80	10.51	10.50	12.69	153.89	176.08	7.94	
5200.00	5195.44	5197.79	176.74	10.72	10.71	12.93	160.44	183.06	8.10	
5300.00	5296.00	5298.36	176.77	10.93	10.92	13.20	167.46	190.50	8.27	
5400.00	5397.31	5399.69	176.78	11.15	11.13	13.46	173.70	197.18	8.40	
5500.00	5497.33	5499.74	176.77	11.36	11.34	13.73	179.55	203.35	8.54	
5600.00	5596.63	5599.07	176.72	11.57	11.55	14.00	185.41	209.65	8.65	
5700.00	5696.31	5698.79	176.63	11.78	11.76	14.28	191.39	216.05	8.76	
5800.00	5795.96	5798.46	176.56	11.99	11.97	14.56	197.40	222.50	8.87	
5900.00	5895.47	5898.00	176.54	12.20	12.18	14.84	203.50	229.03	8.97	
6000.00	5994.96	5997.51	176.54	12.41	12.39	15.13	209.71	235.67	9.08	
6100.00	6094.37	6096.94	176.55	12.62	12.59	15.42	216.05	242.44	9.19	
6200.00	6193.75	6196.34	176.58	12.83	12.80	15.72	222.53	249.36	9.30	
6300.00	6293.05	6295.65	176.60	13.04	13.01	16.02	229.18	256.43	9.41	
6400.00	6392.36	6394.97	176.59	13.25	13.22	16.33	235.99	263.68	9.52	
6500.00	6491.81	6494.43	176.60	13.46	13.43	16.64	242.93	271.05	9.64	
6600.00	6591.30	6593.93	176.65	13.67	13.64	16.96	249.97	278.52	9.76	
6700.00	6690.96	6693.60	176.70	13.88	13.85	17.28	257.05	286.03	9.87	
6800.00	6790.46	6793.11	176.74	14.09	14.06	17.61	264.15	293.56	9.98	
6900.00	6889.61	6892.26	176.78	14.30	14.27	17.94	271.40	301.25	10.09	
7000.00	6988.90	6991.56	176.83	14.51	14.48	18.27	278.83	309.11	10.21	
7100.00	7088.49	7091.15	176.87	14.72	14.69	18.61	285.90	316.60	10.32	
7200.00	7187.91	7190.58	176.87	14.93	14.90	18.96	292.19	323.27	10.40	
7300.00	7287.14	7289.80	176.87	15.14	15.10	19.31	297.76	329.25	10.46	
7400.00	7387.18	7389.85	176.87	15.35	15.32	19.67	302.58	334.46	10.49	
7500.00	7487.89	7490.56	176.88	15.56	15.53	20.03	306.33	338.61	10.49	
7600.00	7588.92	7591.59	176.90	15.77	15.74	20.41	308.95	341.63	10.45	
7700.00	7690.12	7692.80	176.84	15.98	15.95	20.79	310.34	343.43	10.38	
7800.00	7787.94	7790.63	176.71	16.19	16.15	21.16	310.89	344.37	10.28	
7900.00	7884.73	7887.44	176.48	16.39	16.35	21.53	311.47	345.34	10.20	
8000.00	7983.29	7986.01	266.18	16.60	16.56	21.92	311.90	346.16	10.11	
8100.00	8082.30	8085.04	265.89	16.80	16.77	22.31	312.21	346.84	10.01	
8200.00	8181.98	8184.75	265.61	17.02	16.98	22.71	312.63	347.72	9.91	
8300.00	8281.78	8284.56	265.33	17.23	17.20	23.11	313.11	348.66	9.81	
8400.00	8382.70	8385.50	265.06	17.44	17.41	23.53	313.52	349.51	9.71	
8500.00	8483.66	8486.47	264.81	17.65	17.62	23.95	313.65	350.07	9.61	
8600.00	8584.06	8586.88	94.71	17.86	17.83	24.38	313.85	350.67	9.52	
8700.00	8683.02	8685.86	97.26	18.06	18.03	24.81	315.65	352.88	9.48	
8800.00	8778.18	8781.04	101.81	18.26	18.23	25.22	321.44	359.01	9.55	
8900.00	8865.51	8868.38	106.96	18.44	18.41	25.60	335.38	373.32	9.84	
9000.00	8940.26	8943.14	110.95	18.60	18.56	25.94	363.13	401.38	10.50	
9100.00	8999.39	9002.28	112.06	18.72	18.69	26.20	408.00	446.49	11.60	
9200.00	9040.33	9043.23	108.09	18.81	18.77	26.39	469.43	508.08	13.15	
9300.00	9061.46	9064.36	98.07	18.85	18.82	26.48	540.95	579.76	14.94	
9400.00	9064.65	9067.55	90.71	18.86	18.82	26.50	618.08	656.92	16.91	
9500.00	9064.75	9067.65	90.72	18.86	18.82	26.50	700.25	739.12	19.02	
9600.00	9064.84	9067.75	90.73	18.86	18.82	26.50	786.36	825.24	21.23	
9700.00	9064.94	9067.84	90.75	18.86	18.82	26.50	875.21	914.16	23.47	

Secondary Well: Arena Roja Fed Unit 15H (s) (TVD relative to Kelly Bushing) (All Azimuth Relative to GRID NORTH)

Pri MD (US ft)	TVD (US ft)	Sec MD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	TVD Spread (US ft)	ES (US ft)	CC (US ft)	SF	Risk
9800.00	9065.03	9067.93	90.76	18.86	18.82	26.50	966.17	1005.14	25.79	
9900.00	9065.12	9068.02	90.77	18.86	18.82	26.50	1058.71	1097.68	28.17	
10000.00	9065.21	9068.11	90.78	18.86	18.82	26.50	1152.43	1191.41	30.57	
10100.00	9065.29	9068.19	90.79	18.86	18.82	26.50	1247.02	1286.06	32.94	
10200.00	9065.38	9068.28	90.81	18.86	18.82	26.50	1342.37	1381.45	35.35	
10300.00	9065.46	9068.36	90.82	18.86	18.82	26.50	1438.33	1477.44	37.78	
10400.00	9065.54	9068.45	90.83	18.86	18.82	26.50	1534.78	1573.92	40.22	
10500.00	9065.62	9068.53	90.84	18.86	18.82	26.50	1631.64	1670.79	42.68	
10600.00	9065.70	9068.61	90.85	18.86	18.82	26.50	1728.84	1768.00	45.14	
10700.00	9065.78	9068.68	90.86	18.86	18.82	26.50	1826.33	1865.50	47.63	
10800.00	9065.86	9068.76	90.86	18.86	18.82	26.50	1924.09	1963.23	50.15	
10900.00	9065.93	9068.84	90.87	18.86	18.82	26.50	2021.95	2061.18	52.54	
11000.00	9066.01	9068.91	90.88	18.86	18.82	26.50	2120.06	2159.30	55.02	
11100.00	9066.08	9068.98	90.89	18.86	18.82	26.50	2218.26	2257.57	57.42	
11200.00	9066.15	9069.05	90.90	18.86	18.82	26.50	2316.68	2355.99	59.94	
11300.00	9066.22	9069.12	90.90	18.86	18.83	26.50	2415.18	2454.52	62.40	
11400.00	9066.29	9069.19	90.91	18.86	18.83	26.50	2513.78	2553.16	64.84	
11500.00	9066.36	9069.26	90.92	18.86	18.83	26.50	2612.47	2651.89	67.27	
11600.00	9066.42	9069.33	90.92	18.86	18.83	26.51	2711.25	2750.70	69.71	
11700.00	9066.49	9069.39	90.99	18.86	18.83	26.51	2810.10	2849.59	72.15	
11800.00	9066.59	9069.49	91.16	18.86	18.83	26.51	2909.02	2948.55	74.59	
11900.00	9066.71	9069.62	91.34	18.86	18.83	26.51	3008.00	3047.57	77.03	
12000.00	9066.88	9069.78	91.53	18.86	18.83	26.51	3107.04	3146.64	79.46	
12100.00	9067.07	9069.97	91.72	18.86	18.83	26.51	3206.13	3245.76	81.89	
12200.00	9067.29	9070.20	91.92	18.86	18.83	26.51	3305.26	3344.93	84.31	
12300.00	9067.55	9070.45	92.13	18.86	18.83	26.51	3404.43	3444.14	86.73	
12400.00	9067.84	9070.74	92.35	18.87	18.83	26.51	3503.64	3543.39	89.14	
12500.00	9068.15	9071.06	92.58	18.87	18.83	26.51	3602.88	3642.67	91.54	
12600.00	9068.50	9071.41	92.81	18.87	18.83	26.51	3702.15	3741.98	93.94	
12700.00	9068.88	9071.78	93.05	18.87	18.83	26.52	3801.45	3841.33	96.33	
12800.00	9069.29	9072.19	93.30	18.87	18.83	26.52	3900.77	3940.70	98.71	
12900.00	9069.72	9072.63	93.55	18.87	18.83	26.52	4000.12	4040.09	101.08	
13000.00	9070.19	9073.09	93.80	18.87	18.83	26.52	4099.50	4139.51	103.45	
13100.00	9070.68	9073.58	94.07	18.87	18.83	26.52	4198.89	4238.95	105.81	
13200.00	9071.20	9074.11	94.34	18.87	18.84	26.53	4298.30	4338.41	108.16	
13300.00	9071.75	9074.65	94.61	18.87	18.84	26.53	4397.73	4437.89	110.51	
13400.00	9072.32	9075.23	94.89	18.87	18.84	26.53	4497.18	4537.39	112.85	
13500.00	9072.93	9075.83	95.17	18.88	18.84	26.53	4596.64	4636.90	115.17	
13600.00	9073.55	9076.46	95.46	18.88	18.84	26.54	4696.11	4736.42	117.50	
13700.00	9074.21	9077.11	95.75	18.88	18.84	26.54	4795.60	4835.96	119.81	
13800.00	9074.89	9077.79	96.05	18.88	18.84	26.54	4895.10	4935.52	122.11	
13900.00	9075.59	9078.50	96.35	18.88	18.84	26.55	4994.61	5035.09	124.41	
14000.00	9076.32	9079.23	96.66	18.88	18.85	26.55	5094.14	5134.66	126.70	
14100.00	9077.08	9079.98	96.96	18.88	18.85	26.55	5193.67	5234.25	128.98	
14200.00	9077.86	9080.76	97.27	18.89	18.85	26.56	5293.21	5333.85	131.25	
14300.00	9078.66	9081.57	97.58	18.89	18.85	26.56	5392.76	5433.46	133.51	
14400.00	9079.49	9082.39	97.90	18.89	18.85	26.56	5492.32	5533.08	135.76	
14500.00	9080.34	9083.24	98.22	18.89	18.85	26.57	5591.89	5632.70	138.00	
14600.00	9081.21	9084.12	98.54	18.89	18.86	26.57	5691.46	5732.34	140.24	
14700.00	9082.11	9085.01	98.86	18.90	18.86	26.58	5791.04	5831.98	142.46	
14800.00	9083.03	9085.93	99.18	18.90	18.86	26.58	5890.63	5931.63	144.67	
14900.00	9083.97	9086.88	99.51	18.90	18.86	26.59	5990.22	6031.28	146.88	
15000.00	9084.93	9087.84	99.83	18.90	18.86	26.59	6089.82	6130.94	149.07	
15100.00	9085.92	9088.82	100.16	18.90	18.87	26.59	6189.42	6230.61	151.26	
15200.00	9086.93	9089.83	100.49	18.91	18.87	26.60	6289.03	6330.28	153.44	
15300.00	9087.95	9090.86	100.82	18.91	18.87	26.60	6388.64	6429.96	155.60	
15400.00	9089.00	9091.91	101.15	18.91	18.87	26.61	6488.25	6529.64	157.76	
15500.00	9090.07	9092.98	101.48	18.91	18.88	26.61	6587.87	6629.33	159.91	

Secondary Well: Arena Roja Fed Unit 15H (s) (TVD relative to Kelly Bushing) (All Azimuth Relative to GRID NORTH)										
Pri MD (US ft)	TVD (US ft)	Sec MD (US ft)	T.Face to Sec (°)	S.Major (US ft)	S.Minor (US ft)	TVD Spread (US ft)	ES (US ft)	CC (US ft)	SF	Risk
15600.00	9091.16	9094.07	101.80	18.91	18.88	26.62	6687.50	6729.02	162.04	
15700.00	9092.28	9095.18	102.13	18.92	18.88	26.62	6787.12	6828.72	164.17	
15800.00	9093.41	9096.31	102.46	18.92	18.88	26.63	6886.75	6928.42	166.28	
15900.00	9094.56	9097.47	102.79	18.92	18.88	26.63	6986.38	7028.12	168.39	
15941.27	9095.04	9097.95	102.93	18.92	18.89	26.64	7027.50	7069.27	169.25	

Weatherford

Weatherford Drilling Services

GeoDec4 v2.1.0.0

Report Date:	August 14, 2015
Job Number:	
Customer:	Devon Energy
Well Name:	Arena Roja Fed Unit 16H
API Number:	
Rig Name:	
Location:	Lea Co, NM Nad83 NME
Block:	
Engineer:	RWJ

NAD83 / New Mexico East (ftUS)
Projected Coordinate System
Datum: North American Datum 1983 (1986)
Ellipsoid: GRS 1980
EPSG: 2257
North: 372704.66 US Survey Foot
East: 841859.58 US Survey Foot
Convergence: 0.51°
Declination: 7.13°
Total Correction: 6.62°
Datum Transformation: none

NAD83 (1986)
Geodetic Coordinate System
Datum: North American Datum 1983 (1986)
Ellipsoid: GRS 1980
EPSG: 4269
Latitude: 32.020938 Degree
Longitude: -103.36367 Degree

Geodetic Location WGS84

MSL Elevation	=	0 m
Latitude	=	32° 01' 15.38" N
Longitude	=	103° 21' 49.21" W

Magnetic Declination	=	7.13 deg	[True North Offset]		
Local Gravity	=	.9988 g	CheckSum	=	6834
Local Field Strength	=	48133 nT	Magnetic Vector X	=	23885 nT
Magnetic Dip	=	59.99 deg	Magnetic Vector Y	=	2988 nT
Magnetic Model	=	bggm2015.dat	Magnetic Vector Z	=	41682 nT
Run Date	=	August 14, 2015	Magnetic Vector H	=	24071 nT

Signed:_____ Date:_____

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	**Devon Energy Production Company, L.P.**
LEASE NO.:	**NMNM-101610**
WELL NAME & NO.:	**Arena Roja Fed Unit 16H**
SURFACE HOLE FOOTAGE:	**0200' FNL & 0060' FWL**
BOTTOM HOLE FOOTAGE	**2000' FNL & 0660' FWL Sec. 34, T. 26 S., R 35 E.**
LOCATION:	**Section 27, T. 26 S., R 35 E., NMPM**
COUNTY:	**Lea County, New Mexico**
API:	**30-025-42672**

The original COAs still stand with the following drilling modifications:

I. DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

The BLM is to be notified in advance for a representative to witness:

a. Spudding well (minimum of 24 hours)
b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
c. BOPE tests (minimum of 4 hours)

☒ **Lea County**
Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240,
(575) 393-3612

1. **Operator has stated that Hydrogen Sulfide (H2S) monitors will be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the Hydrogen Sulfide area shall meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, provide measured values and formations to the BLM.**

2. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval. **If the drilling rig is removed without approval – an Incident of Non-Compliance will be written and will be a "Major" violation.**

3. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works is located, this does not include the dog house or stairway area.

4. **The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.**

B. CASING

Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.

Centralizers required on surface casing per Onshore Order 2.III.B.1.f.

Wait on cement (WOC) for Water Basin:
After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements.

No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.

Possibility of water flows in the Salado and Castile.
Possibility of lost circulation in the Red Beds, Rustler, and Delaware.

1. The **13-3/8** inch surface casing shall be set at approximately **1070** feet (**in a competent bed below the Magenta Dolomite, which is a Member of the Rustler, and if salt is encountered, set casing at least 25 feet above the salt**) and cemented to the surface.

    a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.

b. Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.

c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.

d. If cement falls back, remedial cementing will be done prior to drilling out that string.

2. The minimum required fill of cement behind the **9-5/8** inch intermediate casing, which shall be set at approximately **5250** feet (**in the basal anhydrite of the Castile formation or the top of the Lamar Limestone**), is:

☒ Cement to surface. If cement does not circulate see B.1.a, c-d above.

Centralizers required on horizontal leg, must be type for horizontal service and a minimum of one every other joint.

3. The minimum required fill of cement behind the **5-1/2** inch production casing is:

Option #1 (Single State):

☒ Cement should tie-back at least 200 feet into previous casing string. Operator shall provide method of verification.

Option #2:

Operator has proposed DV tool at depth of 5300', but will adjust cement proportionately if moved. DV tool shall be set a minimum of 50' below previous shoe and a minimum of 200' above current shoe. Operator shall submit sundry if DV tool depth cannot be set in this range.

a. First stage to DV tool:

☒ Cement to circulate. If cement does not circulate, contact the appropriate BLM office before proceeding with second stage cement job. Operator should have plans as to how they will achieve approved top of cement on the next stage.

b. Second stage above DV tool:

☒ Cement should tie-back at least 200 feet into previous casing string. Operator shall provide method of verification.

4. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

C. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API 53.

2. Variance approved to use flex line from BOP to choke manifold. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. **Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.** If the BLM inspector questions the straightness of the hose, a BLM engineer will be contacted and will review in the field or via picture supplied by inspector to determine if changes are required (operator shall expect delays if this occurs).

3. **Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be 3000 (3M) psi.**
    a. **Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.**
    b. **If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.**
    c. **Manufacturer representative shall install the test plug for the initial BOP test.**
    d. **Operator shall perform the intermediate casing integrity test to 70% of the casing burst. This will test the multi-bowl seals.**
    e. **If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.**

4. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.

   a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

   b. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer**.

   c. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.

   d. The results of the test shall be reported to the appropriate BLM office.

   e. All tests are required to be recorded on a calibrated test chart. **A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.**

   f. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.

D. DRILL STEM TEST

If drill stem tests are performed, Onshore Order 2.III.D shall be followed.

E. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

JAM 082115