

OCD Hobbs
HOBBS OCD

15-365

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

JUL 07 2015

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

(H)

APPLICATION FOR PERMIT TO DRILL OR REENTER

RECEIVED

UNORTHODOX
LOCATION

1a. Type of work: ☒ DRILL ☐ REENTER		5. Lease Serial No. SHL:NMNM97910; BHL: NMNM101610
1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone		6. If Indian, Allottee or Tribe Name
2. Name of Operator Devon Energy Production Company, L.P. (6137)		7. If Unit or CA Agreement, Name and No. NMNM112744X
3a. Address 333 W. Sheridan Oklahoma City, OK 73102-5010		8. Lease Name and Well No. (34832) Arena Roja Fed Unit 15H
3b. Phone No. (include area code) 405.552.7848		9. API Well No. 30-025-42671
4. Location of Well (Report location clearly and in accordance with any State requirements.) At surface 200 FNL & 10 FWL, Unit D (D) PP: 200 FNL & 660 FWL At proposed prod. zone 2000 FNL & 660 FWL; Lot 4, Sec. 34 T26S R35E (E4)		10. Field and Pool, or Exploratory ADORE SPRING (98143) WOLF CAMP 11. Sec., T. R. M. or Blk. and Survey or Area 96716 Sec. 27 T26S R35E
14. Distance in miles and direction from nearest town or post office* Approximately 15 miles SW of Jal, NM		12. County or Parish Lea County
15. Distance from proposed* See attached map location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)		13. State NM
16. No. of acres in lease NMNM 97910 - 2200 ac NMNM101610 - 881.48 ac		17. Spacing Unit dedicated to this well 233.44 ac
18. Distance from proposed location* See attached map to nearest well, drilling, completed, applied for, on this lease, ft.		19. Proposed Depth TVD: 12,417' MD: 19,297'
20. BLM/BIA Bond No. on file CO-1104; NMB-000801		21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3112.8' GL
22. Approximate date work will start* 07/18/2015		23. Estimated duration 45 Days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, must be attached to this form:

- | | |
|--|---|
| 1. Well plat certified by a registered surveyor. | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). |
| 2. A Drilling Plan. | 5. Operator certification |
| 3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office). | 6. Such other site specific information and/or plans as may be required by the BLM. |

25. Signature (Signature)	Name (Printed/Typed) David H. Cook	Date 06/17/2015
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Title
Regulatory Specialist

Approved by (Signature) Steve Caffey	Name (Printed/Typed)	Date JUN 30 2015
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Title FIELD MANAGER	Office CARLSBAD FIELD OFFICE
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Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
Conditions of approval, if any, are attached.

APPROVAL FOR TWO YEARS

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

(Continued on page 2)

*(Instructions on page 2)

Carlsbad Controlled Water Basin

Ka
07/01/15

MAY NOT PRODUCE FROM AUTH BS & WC WITHOUT ADHC ORDER

Approval Subject to General Requirements
& Special Stipulations Attached

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

JUL 09 2015

Devon Energy, Arena Roja Fed Unit 15H

JUL 07 2015

1. Geologic Formations

RECEIVED

TVD of target	12,417'	Pilot hole depth	
MD at TD:	19,297'	Deepest expected fresh water:	300'

Basin

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
Rustler	1,018	Barren	
Top of Salt	1,978	Barren	
Base of Salt	4,850	Barren	
Delaware	5,400	Oil	
Bell Canyon	5,759	Oil	
Cherry Canyon	6,255	Oil	
Brushy Canyon	7,750	Oil	
Lwr Brushy Canyon	8,940	Oil	
Bone Spring	9,150	Oil	
1st BSPG Sand	10,405	Oil	
2nd BSPG Lime	10,990	Oil	
3rd BSPG Sand	12,050	Oil	
Wolfcamp	12,360	Oil	

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

Devon Energy, Arena Roja Fed Unit 15H

2. Casing Program

See CoA

Hole Size	Casing Interval		Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
17.5"	0	1,050' 1070'	13.375"	48	H-40	STC	1.64	3.68	10.73
12.25"	0	5,400' 5250'	9.625"	40	HCK-55	BTC	1.506	1.41	4.29
8.75"	0	12,482'	7"	29	P110EC	BTC	1.57	1.33	2.30
6.125"	12,482'	19,297	4.5"	13.5	P-110	BTC	1.23	1.43	2.55
12,282' - per Ryan D. 6-29-15				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 3 rd 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 2 nd 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?	

Devon Energy, Arena Roja Fed Unit 15H

3. Cementing Program

Casing	# Sk	Wt. lb/ gal	H ₂ O gal/sk	Yld ft ³ / sack	500# Comp. Strength (hours)	Slurry Description
13-3/8" Surface	450	13.5	9.07	1.72	12	Lead: Class C Cement + 4% Bentonite Gel + 0.125 lbs/sack Poly-E-Flake
	550	14.8	6.32	1.33	6	Tail: Class C Cement + 0.125 lbs/sack Poly-E-Flake
9-5/8" Inter.	1190	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
7" Int Single Stage	410	11	14.81	2.55	14	Lead: Tuned Light® Cement + 0.125 lb/sk Pol-E-Flake
	400	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
7" Int Two Stage Option	460	11.9	12.89	2.31	n/a	1 st 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
	320	14.5	5.31	1.2	25	1 st 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 = 5450ft					
	20	11	14.81	2.55	14	2 nd Stage Lead: Tuned Light® Cement + 0.125 lb/sk Pol-E-Flake
	40	14.8	6.32	1.33	6	2 nd stage Tail: Class C Cement + 0.125 lbs/sack Poly-E-Flake
4-1/2" Liner	790	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

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%
7" Intermediate Single Stage	5200'	25%
7" Intermediate Two Stage	1 st Stage = 5450' / 2 nd Stage = 5200'	25%
4-1/2" Production Liner	11600'	25%

Devon Energy, Arena Roja Fed Unit 15H

4. Pressure Control Equipment

N	A variance is requested for the use of a diverter on the surface casing. See attached for schematic.
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Multibowl must be tested to 5,000 psi

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✓	Tested to:
12-1/4"	13-5/8"	3M 5M	Annular	x	50% of working pressure
			Blind Ram		3M 5M - per Ryan D. 6-29-15
			Pipe Ram		
			Double Ram	x	
			Other*		
8-3/4"	13-5/8"	5M	Annular	x	50% testing pressure
			Blind Ram		5M
			Pipe Ram		
			Double Ram	x	
			Other*		
6-1/8"	13-5/8"	5M	Annular	X	50% testing pressure
			Blind Ram		5M
			Pipe Ram		
			Double Ram	x	
			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

Devon Energy, Arena Roja Fed Unit 15H

	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 5000 (5M) 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 5M will be installed on the FMC Uni-head wellhead system and will undergo a 250 psi low pressure test followed by a 5,000 psi high pressure test. The 5,000 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 5M 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 5,000 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
COA

Devon Energy, Arena Roja Fed Unit 15H

See attached schematic.

5. Mud Program

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From	To				
0	1,050' 1070'	FW Gel	8.6-8.8	28-34	N/C
1,050'	5,400' 5250'	Saturated Brine	10.0-10.2	28-34	N/C
5,400'	12,482'	Cut Brine	8.5-9.3	28-34	N/C
12,482'	19,297'	Oil Base Mud	10.0-11.5	40-50	4-8

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 from TD 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?
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Devon Energy, Arena Roja Fed Unit 15H

BH Pressure at deepest TVD	5780 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	H ₂ S is present
Y	H ₂ S Plan attached

8. Other facets of operation

Is this a walking operation? No.

Will be pre-setting casing? No.

Attachments

☒ Directional Plan

☐ Other, describe

DEVON ENERGY

Project: Lea County, NM (NAD-83)
Site: Arena Roja Fed Unit
Well: 15H
Wellbore: OH
Design: Plan #4



Azimuths to Grid North
True North: -0.51°
Magnetic North: 6.69°

Magnetic Field
Strength: 48129.5snT
Dip Angle: 59.94°
Date: 12/2/2014
Model: BGGM2014

PROJECT DETAILS: Lea County, NM (NAD-83)
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone

devon

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
SHL (ARFU 15H)	0.00	0.00	0.00	372704.19	841809.62	32° 1' 15.378 N	103° 21' 49.792 W
PBHL (ARFU 15H)	12417.00	-7079.77	715.89	365624.42	842525.51	32° 0' 5.260 N	103° 21' 42.217 W

SECTION DETAILS

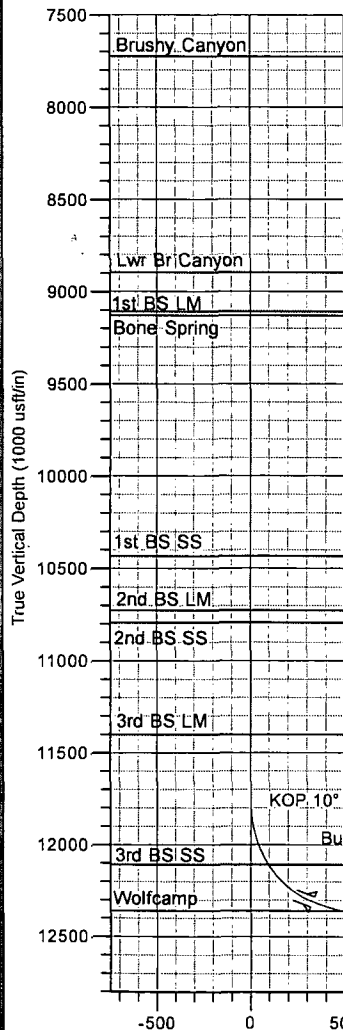
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	11766.50	0.00	0.00	11766.50	0.00	0.00	0.00	0.00	0.00	KOP 10° DLS
3	12482.16	71.58	145.00	12310.00	-320.98	224.75	10.00	145.00	331.61	Build/Turn
4	13091.45	89.94	177.19	12410.02	-881.15	411.85	6.00	63.44	900.28	LP
5	19297.53	89.94	177.19	12417.00	-7079.77	715.89	0.00	0.00	7106.35	TD

FORMATION TOP DETAILS

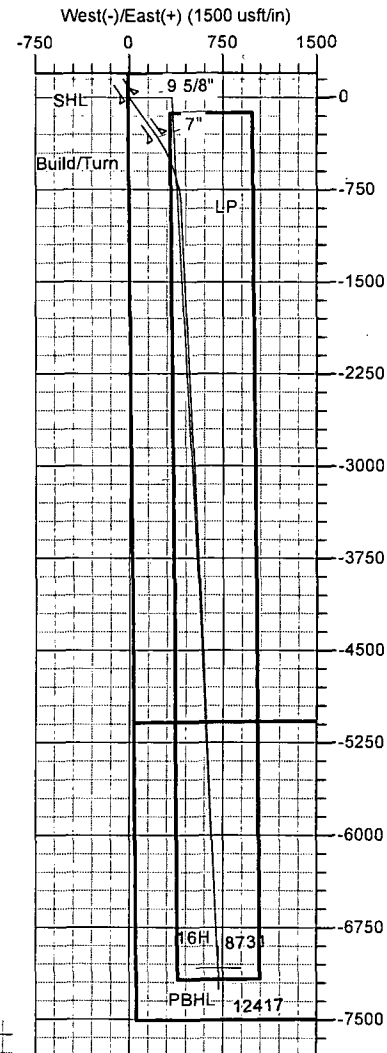
TVDPath	MDPath	Formation	DipAngle
994.00	994.00	Rustler	0.00
1252.00	1252.00	Salado	0.00
5190.00	5190.00	Base Salt	0.00
5242.00	5242.00	Delaware	0.00
5266.00	5266.00	Bell Canyon	0.00
6272.00	6272.00	Cherry Canyon	0.00
7726.00	7726.00	Brushy Canyon	0.00
8897.00	8897.00	Lwr Br Canyon	0.00
9110.00	9110.00	Bone Spring	0.00
9131.00	9131.00	1st BS LM	0.00
10434.00	10434.00	1st BS SS	0.00
10727.00	10727.00	2nd BS LM	0.00
10792.00	10792.00	2nd BS SS	0.00
11402.00	11402.00	3rd BS LM	0.00
12109.00	12133.62	3rd BS SS	0.00
12360.00	12664.93	Wolfcamp	0.00

PLANNED CASING DETAILS

TVD	MD	Name	Size
5400.00	5400.00	9 5/8"	9-5/8
12310.00	12482.16	7"	7



Vertical Section at 177.19° (1000 usft/m)



LEAM DRILLING SYSTEMS LLC
2010 East Davis, Conroe, Texas 77301
Phone: 936/756-7577, Fax 936/756-7595

Plan: Plan #4 (15H/OH)
Arena Roja Fed Unit
Created By: Brady Deaver
Date: 15:33, June 16 2015
Approved: _____
Date: _____

DEVON ENERGY

Lea County, NM (NAD-83)

Arena Roja Fed Unit

15H

OH

Plan: Plan #4

Standard Planning Report

16 June, 2015

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 15H
Company:	DEVON ENERGY	TVD Reference:	3112.8' GL +25' RKB @ 3137.80usft
Project:	Lea County, NM (NAD-83)	MD Reference:	3112.8' GL +25' RKB @ 3137.80usft
Site:	Arena Roja Fed Unit	North Reference:	Grid
Well:	15H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #4		

Project	Lea County, NM (NAD-83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Arena Roja Fed Unit		
Site Position:		Northing:	372,721.16 usft
From:	Map	Easting:	843,594.22 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 1' 15.387 N
		Longitude:	103° 21' 29.063 W
		Grid Convergence:	0.52 °

Well	15H, Wolfcamp		
Well Position	+N/-S	-16.97 usft	Northing:
	+E/-W	-1,784.60 usft	Easting:
Position Uncertainty	0.00 usft	Wellhead Elevation:	3,137.80 usft
		Latitude:	32° 1' 15.378 N
		Longitude:	103° 21' 49.792 W
		Ground Level:	3,112.80 usft

Wellbore	OH		
Magnetics	Model Name	Sample Date	Declination
	BGGM2014	12/2/2014	7.21
			Dip Angle
			59.94
			Field Strength
			48,129

Design	Plan #4		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth:
			0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			Direction
			177.19

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
11,766.50	0.00	0.00	11,766.50	0.00	0.00	0.00	0.00	0.00	0.00	
12,482.16	71.58	145.00	12,310.00	-320.98	224.75	10.00	10.00	0.00	145.00	
13,091.45	89.94	177.19	12,410.02	-881.15	411.85	6.00	3.01	5.28	63.44	
19,297.53	89.94	177.19	12,417.00	-7,079.77	715.89	0.00	0.00	0.00	0.00	PBHL (ARFU 15H)

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 15H
Company:	DEVON ENERGY	TVD Reference:	3112.8' GL +25' RKB @ 3137.80usft
Project:	Lea County, NM (NAD-83)	MD Reference:	3112.8' GL +25' RKB @ 3137.80usft
Site:	Arena Roja Fed Unit	North Reference:	Grid
Well:	15H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #4		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SHL (ARFU 15H)									
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
994.00	0.00	0.00	994.00	0.00	0.00	0.00	0.00	0.00	0.00
Rustler									
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,252.00	0.00	0.00	1,252.00	0.00	0.00	0.00	0.00	0.00	0.00
Salado									
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	0.00	0.00
4,700.00	0.00	0.00	4,700.00	0.00	0.00	0.00	0.00	0.00	0.00

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 15H
Company:	DEVON ENERGY	TVD Reference:	3112.8' GL +25' RKB @ 3137.80usft
Project:	Lea County, NM (NAD-83)	MD Reference:	3112.8' GL +25' RKB @ 3137.80usft
Site:	Arena Roja Fed Unit	North Reference:	Grid
Well:	15H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #4		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,800.00	0.00	0.00	4,800.00	0.00	0.00	0.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,900.00	0.00	0.00	0.00	0.00	0.00	0.00
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,100.00	0.00	0.00	0.00	0.00	0.00	0.00
5,190.00	0.00	0.00	5,190.00	0.00	0.00	0.00	0.00	0.00	0.00
Base Salt									
5,200.00	0.00	0.00	5,200.00	0.00	0.00	0.00	0.00	0.00	0.00
5,242.00	0.00	0.00	5,242.00	0.00	0.00	0.00	0.00	0.00	0.00
Delaware									
5,266.00	0.00	0.00	5,266.00	0.00	0.00	0.00	0.00	0.00	0.00
Bell Canyon									
5,300.00	0.00	0.00	5,300.00	0.00	0.00	0.00	0.00	0.00	0.00
5,400.00	0.00	0.00	5,400.00	0.00	0.00	0.00	0.00	0.00	0.00
9 5/8"									
5,500.00	0.00	0.00	5,500.00	0.00	0.00	0.00	0.00	0.00	0.00
5,600.00	0.00	0.00	5,600.00	0.00	0.00	0.00	0.00	0.00	0.00
5,700.00	0.00	0.00	5,700.00	0.00	0.00	0.00	0.00	0.00	0.00
5,800.00	0.00	0.00	5,800.00	0.00	0.00	0.00	0.00	0.00	0.00
5,900.00	0.00	0.00	5,900.00	0.00	0.00	0.00	0.00	0.00	0.00
6,000.00	0.00	0.00	6,000.00	0.00	0.00	0.00	0.00	0.00	0.00
6,100.00	0.00	0.00	6,100.00	0.00	0.00	0.00	0.00	0.00	0.00
6,200.00	0.00	0.00	6,200.00	0.00	0.00	0.00	0.00	0.00	0.00
6,272.00	0.00	0.00	6,272.00	0.00	0.00	0.00	0.00	0.00	0.00
Cherry Canyon									
6,300.00	0.00	0.00	6,300.00	0.00	0.00	0.00	0.00	0.00	0.00
6,400.00	0.00	0.00	6,400.00	0.00	0.00	0.00	0.00	0.00	0.00
6,500.00	0.00	0.00	6,500.00	0.00	0.00	0.00	0.00	0.00	0.00
6,600.00	0.00	0.00	6,600.00	0.00	0.00	0.00	0.00	0.00	0.00
6,700.00	0.00	0.00	6,700.00	0.00	0.00	0.00	0.00	0.00	0.00
6,800.00	0.00	0.00	6,800.00	0.00	0.00	0.00	0.00	0.00	0.00
6,900.00	0.00	0.00	6,900.00	0.00	0.00	0.00	0.00	0.00	0.00
7,000.00	0.00	0.00	7,000.00	0.00	0.00	0.00	0.00	0.00	0.00
7,100.00	0.00	0.00	7,100.00	0.00	0.00	0.00	0.00	0.00	0.00
7,200.00	0.00	0.00	7,200.00	0.00	0.00	0.00	0.00	0.00	0.00
7,300.00	0.00	0.00	7,300.00	0.00	0.00	0.00	0.00	0.00	0.00
7,400.00	0.00	0.00	7,400.00	0.00	0.00	0.00	0.00	0.00	0.00
7,500.00	0.00	0.00	7,500.00	0.00	0.00	0.00	0.00	0.00	0.00
7,600.00	0.00	0.00	7,600.00	0.00	0.00	0.00	0.00	0.00	0.00
7,700.00	0.00	0.00	7,700.00	0.00	0.00	0.00	0.00	0.00	0.00
7,726.00	0.00	0.00	7,726.00	0.00	0.00	0.00	0.00	0.00	0.00
Brushy Canyon									
7,800.00	0.00	0.00	7,800.00	0.00	0.00	0.00	0.00	0.00	0.00
7,900.00	0.00	0.00	7,900.00	0.00	0.00	0.00	0.00	0.00	0.00
8,000.00	0.00	0.00	8,000.00	0.00	0.00	0.00	0.00	0.00	0.00
8,100.00	0.00	0.00	8,100.00	0.00	0.00	0.00	0.00	0.00	0.00
8,200.00	0.00	0.00	8,200.00	0.00	0.00	0.00	0.00	0.00	0.00
8,300.00	0.00	0.00	8,300.00	0.00	0.00	0.00	0.00	0.00	0.00
8,400.00	0.00	0.00	8,400.00	0.00	0.00	0.00	0.00	0.00	0.00
8,500.00	0.00	0.00	8,500.00	0.00	0.00	0.00	0.00	0.00	0.00
8,600.00	0.00	0.00	8,600.00	0.00	0.00	0.00	0.00	0.00	0.00
8,700.00	0.00	0.00	8,700.00	0.00	0.00	0.00	0.00	0.00	0.00
8,800.00	0.00	0.00	8,800.00	0.00	0.00	0.00	0.00	0.00	0.00
8,897.00	0.00	0.00	8,897.00	0.00	0.00	0.00	0.00	0.00	0.00

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 15H
Company:	DEVON ENERGY	TVD Reference:	3112.8' GL +25' RKB @ 3137.80usft
Project:	Lea County, NM (NAD-83)	MD Reference:	3112.8' GL +25' RKB @ 3137.80usft
Site:	Arena Roja Fed Unit	North Reference:	Grid
Well:	15H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #4		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
Lwr Br Canyon									
8,900.00	0.00	0.00	8,900.00	0.00	0.00	0.00	0.00	0.00	0.00
9,000.00	0.00	0.00	9,000.00	0.00	0.00	0.00	0.00	0.00	0.00
9,100.00	0.00	0.00	9,100.00	0.00	0.00	0.00	0.00	0.00	0.00
9,110.00	0.00	0.00	9,110.00	0.00	0.00	0.00	0.00	0.00	0.00
Bone Spring									
9,131.00	0.00	0.00	9,131.00	0.00	0.00	0.00	0.00	0.00	0.00
1st BS LM									
9,200.00	0.00	0.00	9,200.00	0.00	0.00	0.00	0.00	0.00	0.00
9,300.00	0.00	0.00	9,300.00	0.00	0.00	0.00	0.00	0.00	0.00
9,400.00	0.00	0.00	9,400.00	0.00	0.00	0.00	0.00	0.00	0.00
9,500.00	0.00	0.00	9,500.00	0.00	0.00	0.00	0.00	0.00	0.00
9,600.00	0.00	0.00	9,600.00	0.00	0.00	0.00	0.00	0.00	0.00
9,700.00	0.00	0.00	9,700.00	0.00	0.00	0.00	0.00	0.00	0.00
9,800.00	0.00	0.00	9,800.00	0.00	0.00	0.00	0.00	0.00	0.00
9,900.00	0.00	0.00	9,900.00	0.00	0.00	0.00	0.00	0.00	0.00
10,000.00	0.00	0.00	10,000.00	0.00	0.00	0.00	0.00	0.00	0.00
10,100.00	0.00	0.00	10,100.00	0.00	0.00	0.00	0.00	0.00	0.00
10,200.00	0.00	0.00	10,200.00	0.00	0.00	0.00	0.00	0.00	0.00
10,300.00	0.00	0.00	10,300.00	0.00	0.00	0.00	0.00	0.00	0.00
10,400.00	0.00	0.00	10,400.00	0.00	0.00	0.00	0.00	0.00	0.00
10,434.00	0.00	0.00	10,434.00	0.00	0.00	0.00	0.00	0.00	0.00
1st BS SS									
10,500.00	0.00	0.00	10,500.00	0.00	0.00	0.00	0.00	0.00	0.00
10,600.00	0.00	0.00	10,600.00	0.00	0.00	0.00	0.00	0.00	0.00
10,700.00	0.00	0.00	10,700.00	0.00	0.00	0.00	0.00	0.00	0.00
10,727.00	0.00	0.00	10,727.00	0.00	0.00	0.00	0.00	0.00	0.00
2nd BS LM									
10,792.00	0.00	0.00	10,792.00	0.00	0.00	0.00	0.00	0.00	0.00
2nd BS SS									
10,800.00	0.00	0.00	10,800.00	0.00	0.00	0.00	0.00	0.00	0.00
10,900.00	0.00	0.00	10,900.00	0.00	0.00	0.00	0.00	0.00	0.00
11,000.00	0.00	0.00	11,000.00	0.00	0.00	0.00	0.00	0.00	0.00
11,100.00	0.00	0.00	11,100.00	0.00	0.00	0.00	0.00	0.00	0.00
11,200.00	0.00	0.00	11,200.00	0.00	0.00	0.00	0.00	0.00	0.00
11,300.00	0.00	0.00	11,300.00	0.00	0.00	0.00	0.00	0.00	0.00
11,400.00	0.00	0.00	11,400.00	0.00	0.00	0.00	0.00	0.00	0.00
11,402.00	0.00	0.00	11,402.00	0.00	0.00	0.00	0.00	0.00	0.00
3rd BS LM									
11,500.00	0.00	0.00	11,500.00	0.00	0.00	0.00	0.00	0.00	0.00
11,600.00	0.00	0.00	11,600.00	0.00	0.00	0.00	0.00	0.00	0.00
11,700.00	0.00	0.00	11,700.00	0.00	0.00	0.00	0.00	0.00	0.00
11,766.50	0.00	0.00	11,766.50	0.00	0.00	0.00	0.00	0.00	0.00
KOP 10° DLS									
11,800.00	3.35	145.00	11,799.98	-0.80	0.56	0.83	10.00	10.00	0.00
11,850.00	8.35	145.00	11,849.70	-4.98	3.48	5.14	10.00	10.00	0.00
11,900.00	13.35	145.00	11,898.80	-12.68	8.88	13.11	10.00	10.00	0.00
11,950.00	18.35	145.00	11,946.88	-23.87	16.71	24.66	10.00	10.00	0.00
12,000.00	23.35	145.00	11,993.59	-38.45	26.92	39.72	10.00	10.00	0.00
12,050.00	28.36	145.00	12,038.57	-56.30	39.42	58.17	10.00	10.00	0.00
12,100.00	33.36	145.00	12,081.48	-77.30	54.13	79.86	10.00	10.00	0.00
12,133.62	36.72	145.00	12,109.00	-93.11	65.20	96.19	10.00	10.00	0.00
3rd BS SS									

LEAM Drilling Systems LLC

Planning Report

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Project:	Lea County, NM (NAD-83)	MD Reference:	3112.8' GL +25' RKB @ 3137.80usft
Site:	Arena Roja Fed Unit	North Reference:	Grid
Well:	15H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #4		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
12,150.00	38.36	145.00	12,121.99	-101.28	70.92	104.64	10.00	10.00	0.00
12,200.00	43.36	145.00	12,159.79	-128.07	89.68	132.31	10.00	10.00	0.00
12,250.00	48.36	145.00	12,194.60	-157.45	110.25	162.67	10.00	10.00	0.00
12,300.00	53.36	145.00	12,226.16	-189.21	132.49	195.48	10.00	10.00	0.00
12,350.00	58.36	145.00	12,254.21	-223.10	156.22	230.49	10.00	10.00	0.00
12,400.00	63.36	145.00	12,278.55	-258.86	181.26	267.44	10.00	10.00	0.00
12,450.00	68.36	145.00	12,298.99	-296.23	207.42	306.04	10.00	10.00	0.00
12,482.16	71.58	145.00	12,310.00	-320.98	224.75	331.61	10.00	10.00	0.00
Build/Turn - 7"									
12,500.00	72.06	146.01	12,315.56	-334.94	234.35	346.03	6.00	2.70	5.64
12,550.00	73.44	148.80	12,330.40	-375.17	260.07	387.47	6.00	2.75	5.58
12,600.00	74.85	151.55	12,344.06	-416.89	283.98	430.31	6.00	2.82	5.50
12,650.00	76.29	154.26	12,356.52	-460.00	306.03	474.44	6.00	2.89	5.43
12,664.93	76.73	155.07	12,360.00	-473.11	312.24	487.85	6.00	2.93	5.38
Wolfcamp									
12,700.00	77.77	156.95	12,367.74	-504.37	326.15	519.75	6.00	2.96	5.35
12,750.00	79.27	159.60	12,377.69	-549.88	344.28	566.10	6.00	3.00	5.30
12,800.00	80.79	162.22	12,386.35	-596.41	360.39	613.36	6.00	3.04	5.25
12,850.00	82.33	164.82	12,393.69	-643.83	374.41	661.41	6.00	3.08	5.20
12,900.00	83.89	167.41	12,399.69	-692.02	386.32	710.12	6.00	3.11	5.17
12,950.00	85.46	169.97	12,404.33	-740.83	396.08	759.35	6.00	3.14	5.14
13,000.00	87.04	172.53	12,407.60	-790.13	403.67	808.97	6.00	3.16	5.11
13,050.00	88.62	175.08	12,409.50	-839.80	409.06	858.85	6.00	3.17	5.10
13,091.45	89.94	177.19	12,410.02	-881.15	411.85	900.28	6.00	3.17	5.09
LP									
13,100.00	89.94	177.19	12,410.03	-889.69	412.27	908.83	0.00	0.00	0.00
13,200.00	89.94	177.19	12,410.14	-989.57	417.17	1,008.83	0.00	0.00	0.00
13,300.00	89.94	177.19	12,410.25	-1,089.45	422.07	1,108.83	0.00	0.00	0.00
13,400.00	89.94	177.19	12,410.37	-1,189.33	426.96	1,208.83	0.00	0.00	0.00
13,500.00	89.94	177.19	12,410.48	-1,289.21	431.86	1,308.83	0.00	0.00	0.00
13,600.00	89.94	177.19	12,410.59	-1,389.09	436.76	1,408.83	0.00	0.00	0.00
13,700.00	89.94	177.19	12,410.70	-1,488.97	441.66	1,508.83	0.00	0.00	0.00
13,800.00	89.94	177.19	12,410.82	-1,588.85	446.56	1,608.83	0.00	0.00	0.00
13,900.00	89.94	177.19	12,410.93	-1,688.73	451.46	1,708.83	0.00	0.00	0.00
14,000.00	89.94	177.19	12,411.04	-1,788.61	456.36	1,808.83	0.00	0.00	0.00
14,100.00	89.94	177.19	12,411.15	-1,888.49	461.26	1,908.83	0.00	0.00	0.00
14,200.00	89.94	177.19	12,411.27	-1,988.37	466.16	2,008.83	0.00	0.00	0.00
14,300.00	89.94	177.19	12,411.38	-2,088.25	471.06	2,108.83	0.00	0.00	0.00
14,400.00	89.94	177.19	12,411.49	-2,188.13	475.96	2,208.83	0.00	0.00	0.00
14,500.00	89.94	177.19	12,411.60	-2,288.01	480.85	2,308.83	0.00	0.00	0.00
14,600.00	89.94	177.19	12,411.72	-2,387.89	485.75	2,408.83	0.00	0.00	0.00
14,700.00	89.94	177.19	12,411.83	-2,487.77	490.65	2,508.83	0.00	0.00	0.00
14,800.00	89.94	177.19	12,411.94	-2,587.65	495.55	2,608.83	0.00	0.00	0.00
14,900.00	89.94	177.19	12,412.05	-2,687.53	500.45	2,708.83	0.00	0.00	0.00
15,000.00	89.94	177.19	12,412.17	-2,787.41	505.35	2,808.83	0.00	0.00	0.00
15,100.00	89.94	177.19	12,412.28	-2,887.29	510.25	2,908.83	0.00	0.00	0.00
15,200.00	89.94	177.19	12,412.39	-2,987.17	515.15	3,008.83	0.00	0.00	0.00
15,300.00	89.94	177.19	12,412.50	-3,087.05	520.05	3,108.83	0.00	0.00	0.00
15,400.00	89.94	177.19	12,412.62	-3,186.93	524.95	3,208.83	0.00	0.00	0.00
15,500.00	89.94	177.19	12,412.73	-3,286.81	529.85	3,308.83	0.00	0.00	0.00
15,600.00	89.94	177.19	12,412.84	-3,386.69	534.74	3,408.83	0.00	0.00	0.00
15,700.00	89.94	177.19	12,412.95	-3,486.57	539.64	3,508.83	0.00	0.00	0.00
15,800.00	89.94	177.19	12,413.07	-3,586.45	544.54	3,608.83	0.00	0.00	0.00

LEAM Drilling Systems LLC

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 15H
Company:	DEVON ENERGY	TVD Reference:	3112.8' GL +25' RKB @ 3137.80usft
Project:	Lea County, NM (NAD-83)	MD Reference:	3112.8' GL +25' RKB @ 3137.80usft
Site:	Arena Roja Fed Unit	North Reference:	Grid
Well:	15H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #4		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
15,900.00	89.94	177.19	12,413.18	-3,686.33	549.44	3,708.83	0.00	0.00	0.00
16,000.00	89.94	177.19	12,413.29	-3,786.21	554.34	3,808.83	0.00	0.00	0.00
16,100.00	89.94	177.19	12,413.40	-3,886.09	559.24	3,908.83	0.00	0.00	0.00
16,200.00	89.94	177.19	12,413.52	-3,985.97	564.14	4,008.83	0.00	0.00	0.00
16,300.00	89.94	177.19	12,413.63	-4,085.85	569.04	4,108.83	0.00	0.00	0.00
16,400.00	89.94	177.19	12,413.74	-4,185.73	573.94	4,208.83	0.00	0.00	0.00
16,500.00	89.94	177.19	12,413.85	-4,285.61	578.84	4,308.83	0.00	0.00	0.00
16,600.00	89.94	177.19	12,413.97	-4,385.49	583.74	4,408.83	0.00	0.00	0.00
16,700.00	89.94	177.19	12,414.08	-4,485.37	588.63	4,508.83	0.00	0.00	0.00
16,800.00	89.94	177.19	12,414.19	-4,585.25	593.53	4,608.83	0.00	0.00	0.00
16,900.00	89.94	177.19	12,414.30	-4,685.13	598.43	4,708.83	0.00	0.00	0.00
17,000.00	89.94	177.19	12,414.42	-4,785.01	603.33	4,808.83	0.00	0.00	0.00
17,100.00	89.94	177.19	12,414.53	-4,884.88	608.23	4,908.83	0.00	0.00	0.00
17,200.00	89.94	177.19	12,414.64	-4,984.76	613.13	5,008.83	0.00	0.00	0.00
17,300.00	89.94	177.19	12,414.75	-5,084.64	618.03	5,108.83	0.00	0.00	0.00
17,400.00	89.94	177.19	12,414.87	-5,184.52	622.93	5,208.83	0.00	0.00	0.00
17,500.00	89.94	177.19	12,414.98	-5,284.40	627.83	5,308.83	0.00	0.00	0.00
17,600.00	89.94	177.19	12,415.09	-5,384.28	632.73	5,408.83	0.00	0.00	0.00
17,700.00	89.94	177.19	12,415.20	-5,484.16	637.63	5,508.83	0.00	0.00	0.00
17,800.00	89.94	177.19	12,415.32	-5,584.04	642.52	5,608.83	0.00	0.00	0.00
17,900.00	89.94	177.19	12,415.43	-5,683.92	647.42	5,708.83	0.00	0.00	0.00
18,000.00	89.94	177.19	12,415.54	-5,783.80	652.32	5,808.83	0.00	0.00	0.00
18,100.00	89.94	177.19	12,415.65	-5,883.68	657.22	5,908.83	0.00	0.00	0.00
18,200.00	89.94	177.19	12,415.77	-5,983.56	662.12	6,008.83	0.00	0.00	0.00
18,300.00	89.94	177.19	12,415.88	-6,083.44	667.02	6,108.83	0.00	0.00	0.00
18,400.00	89.94	177.19	12,415.99	-6,183.32	671.92	6,208.83	0.00	0.00	0.00
18,500.00	89.94	177.19	12,416.10	-6,283.20	676.82	6,308.83	0.00	0.00	0.00
18,600.00	89.94	177.19	12,416.22	-6,383.08	681.72	6,408.83	0.00	0.00	0.00
18,700.00	89.94	177.19	12,416.33	-6,482.96	686.62	6,508.83	0.00	0.00	0.00
18,800.00	89.94	177.19	12,416.44	-6,582.84	691.52	6,608.83	0.00	0.00	0.00
18,900.00	89.94	177.19	12,416.55	-6,682.72	696.41	6,708.83	0.00	0.00	0.00
19,000.00	89.94	177.19	12,416.67	-6,782.60	701.31	6,808.83	0.00	0.00	0.00
19,100.00	89.94	177.19	12,416.78	-6,882.48	706.21	6,908.83	0.00	0.00	0.00
19,200.00	89.94	177.19	12,416.89	-6,982.36	711.11	7,008.83	0.00	0.00	0.00
19,297.53	89.94	177.19	12,417.00	-7,079.77	715.89	7,106.35	0.00	0.00	0.00
TD - PBHL (ARFU 15H)									

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
SHL (ARFU 15H)	0.00	0.00	0.00	0.00	0.00	372,704.19	841,809.62	32° 1' 15.378 N	103° 21' 49.792 W
- hit/miss target									
- Shape									
- Point									
PBHL (ARFU 15H)	0.00	0.00	12,417.00	-7,079.77	715.89	365,624.42	842,525.51	32° 0' 5.260 N	103° 21' 42.217 W
- plan hits target center									
- Point									

LEAM Drilling Systems LLC

Planning Report

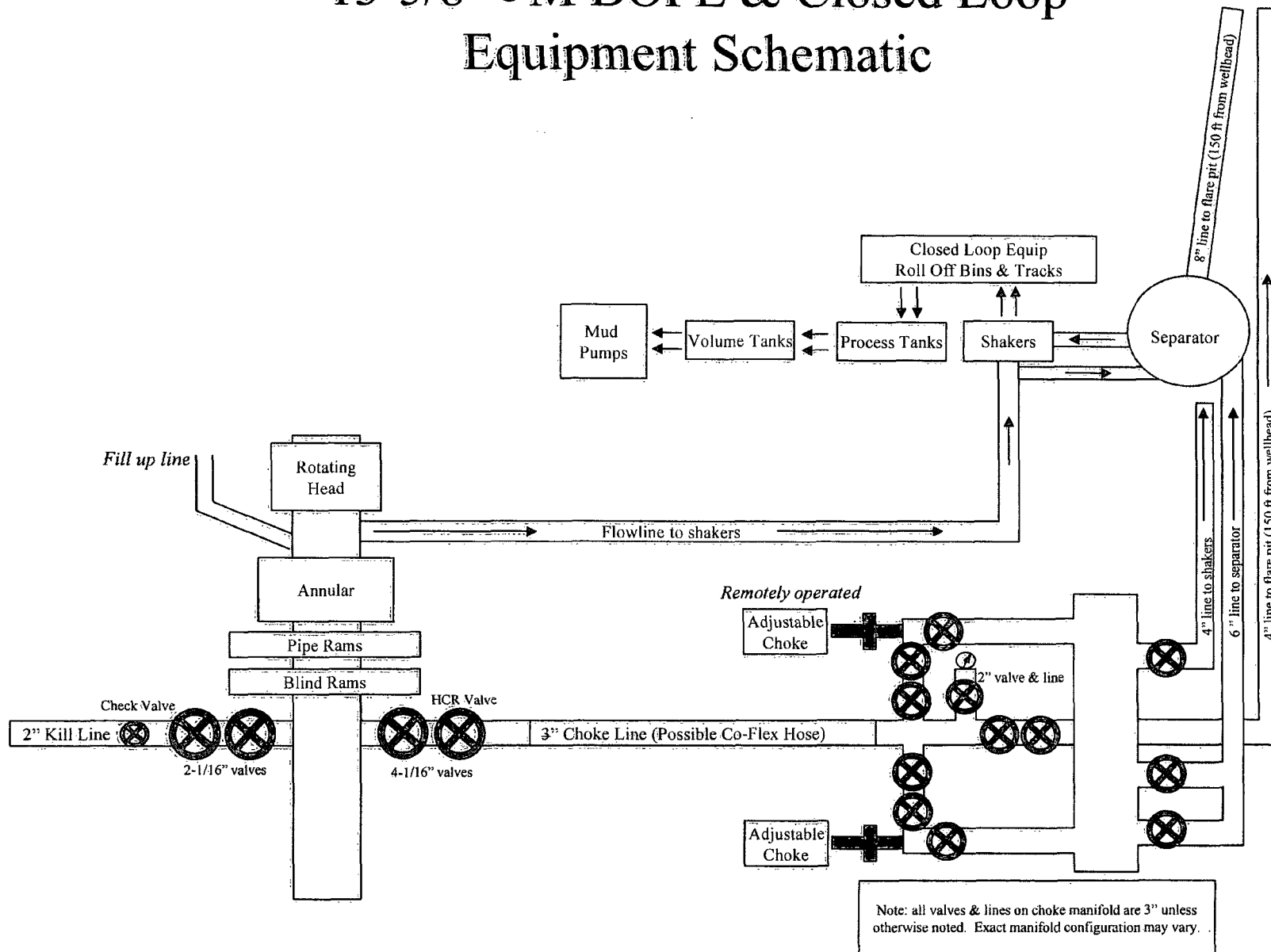
Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 15H
Company:	DEVON ENERGY	TVD Reference:	3112.8' GL +25' RKB @ 3137.80usft
Project:	Lea County, NM (NAD-83)	MD Reference:	3112.8' GL +25' RKB @ 3137.80usft
Site:	Arena Roja Fed Unit	North Reference:	Grid
Well:	15H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #4		

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
5,400.00	5,400.00	9 5/8"	9-5/8	12-1/4	
12,482.16	12,310.00	7"	7	8-3/4	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
994.00	994.00	Rustler		0.00		
1,252.00	1,252.00	Salado		0.00		
5,190.00	5,190.00	Base Salt		0.00		
5,242.00	5,242.00	Delaware		0.00		
5,266.00	5,266.00	Bell Canyon		0.00		
6,272.00	6,272.00	Cherry Canyon		0.00		
7,726.00	7,726.00	Brushy Canyon		0.00		
8,897.00	8,897.00	Lwr Br Canyon		0.00		
9,110.00	9,110.00	Bone Spring		0.00		
9,131.00	9,131.00	1st BS LM		0.00		
10,434.00	10,434.00	1st BS SS		0.00		
10,727.00	10,727.00	2nd BS LM		0.00		
10,792.00	10,792.00	2nd BS SS		0.00		
11,402.00	11,402.00	3rd BS LM		0.00		
12,133.62	12,109.00	3rd BS SS		0.00		
12,664.93	12,360.00	Wolfcamp		0.00		

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
11,766.50	11,766.50	0.00	0.00	KOP 10° DLS	
12,482.16	12,310.00	-320.97	224.75	Build/Turn	
13,091.45	12,410.02	-881.15	411.85	LP	
19,297.53	12,417.00	-7,079.77	715.89	TD	

13-5/8" 5M BOPE & Closed Loop Equipment Schematic





Fluid Technology

ContiTech Beattie Corp.
Website: www.contitechbeattie.com

Monday, June 14, 2010

RE: Drilling & Production Hoses
Lifting & Safety Equipment

To Helmerich & Payne,

A Continental Contitech hose assembly can perform as intended and suitable for the application regardless of whether the hose is secured or unsecured in its configuration. As a manufacturer of High Pressure Hose Assemblies for use in Drilling & Production, we do offer the corresponding lifting and safety equipment, this has the added benefit of easing the lifting and handling of each hose assembly whilst affording hose longevity by ensuring correct handling methods and procedures as well as securing the hose in the unlikely event of a failure; but in no way does the lifting and safety equipment affect the performance of the hoses providing the hoses have been handled and installed correctly it is good practice to use lifting & safety equipment but not mandatory

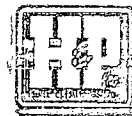
Should you have any questions or require any additional information/clarifications then please do not hesitate to contact us.

ContiTech Beattie is part of the Continental AG Corporation and can offer the full support resources associated with a global organization.

Best regards,

Robin Hodgson
Sales Manager
ContiTech Beattie Corp

ContiTech Beattie Corp,
11535 Brittonmoore Park Drive,
Houston, TX 77041
Phone: +1 (832) 327-0141
Fax: +1 (832) 327-0148
www.contitechbeattie.com



RIG 212



QUALITY DOCUMENT

**PHOENIX RUBBER
INDUSTRIAL LTD.**

 6728 Szeged, Budapesti út 10, Hungary • H-6701 Szeged, P. O. Box 152
 Phone: (3662) 566-737 • Fax: (3662) 566-738

 SALES & MARKETING: H-1092 Budapest, Ráday u. 42-44, Hungary • H-1440 Budapest, P. O. Box 26
 Phone: (361) 456-4200 • Fax: (361) 217-2972, 456-4273 • www.taurusemerge.hu

QUALITY CONTROL INSPECTION AND TEST CERTIFICATE				CERT. N°: 552	
PURCHASER: Phoenix Beattie Co.				P.O. N°: 1519FA-871	
PHOENIX RUBBER order N°: 170466		HOSE TYPE: 3" ID Choke and Kill Hose			
HOSE SERIAL N°: 34128		NOMINAL / ACTUAL LENGTH: 11,43 m			
W.P. 68,96 MPa 10000 psi		T.P. 103,4 MPa 15000 psi		Duration: 60 min.	
Pressure test with water at ambient temperature See attachment. (1 page)					
↑ 10 mm = 10 Min. → 10 mm = 25 MPa					
COUPLINGS					
Type	Serial N°	Quality	Heat N°		
3" coupling with 4 1/16" Flange end	720 719	AISI 4130	C7626		
		AISI 4130	47357		
API Spec 16 C Temperature rate: "B"					
All metal parts are flawless					
WE CERTIFY THAT THE ABOVE HOSE HAS BEEN MANUFACTURED IN ACCORDANCE WITH THE TERMS OF THE ORDER AND PRESSURE TESTED AS ABOVE WITH SATISFACTORY RESULT.					
Date:	Inspector	Quality Control			
29. April. 2002.		PHOENIX RUBBER Industrial Ltd. Hose Inspection and Verification PHOENIX RUBBER G.C.			

14094-65

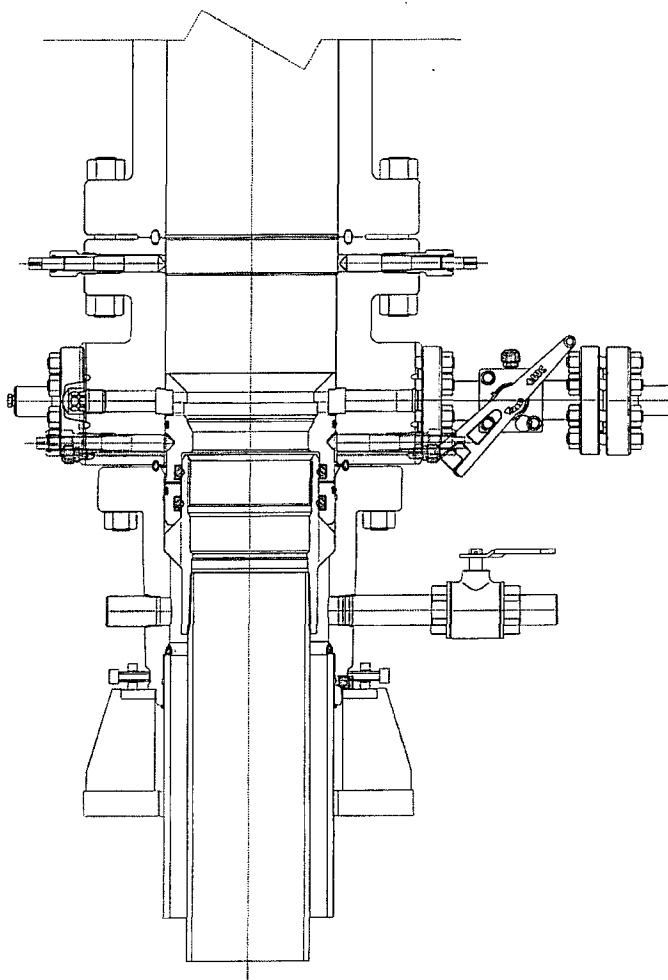
N600C

40920-0-00015

8	GNL +0.000 PC	14.00			
	RDL +0.000 PC	14.00			
	BL +0.000 PC	14.00			
7	GNL +0.000 PC	13.45	40	60	80
	RDL +0.000 PC	13.45			
	BL +0.000 PC	13.45			
6	GNL +0.000 PC	13.20			
	RDL +0.000 PC	13.20			
	BL +0.000 PC	13.20			
5	GNL +0.000 PC	13.00			
	RDL +0.000 PC	13.00			
	BL +0.000 PC	13.00			
4					
3					
2					

PHOENIX RUBBER
Industrial Ltd.
Hose Inspection and
Certification Dept.

VERIFIED TRUE CO.
PHOENIX RUBBER CO.



PRIMARY MODE

DEVON ENERGY

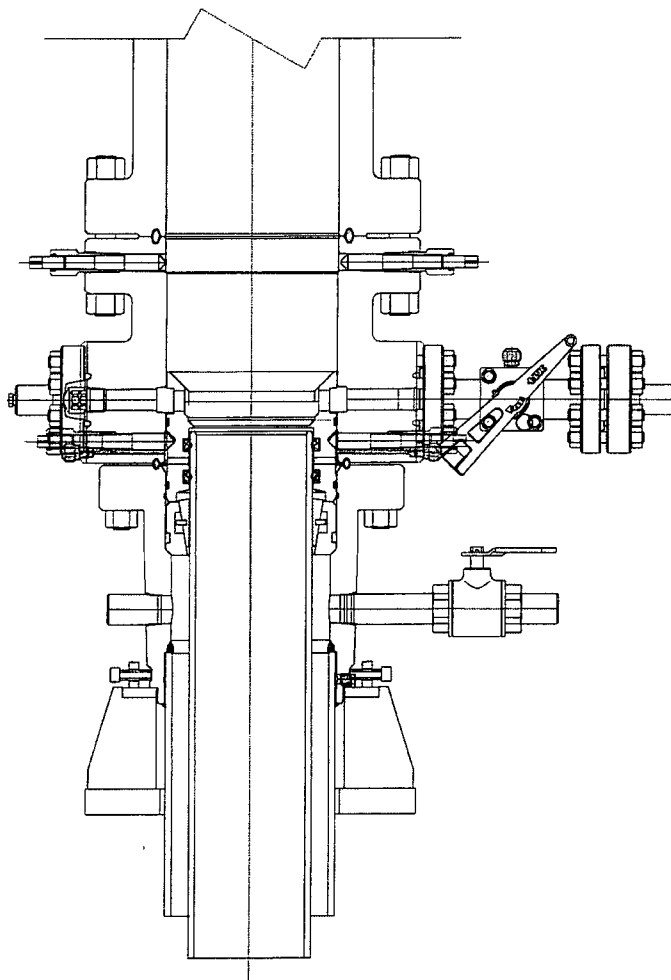
ARTESIA

S.E.N.M

13 3/8 X 9 5/8

QUOTE LAYOUT
F18648
REF: DM100161737
DM100151315

PRIVATE AND CONFIDENTIAL THIS DOCUMENT AND ALL THE INFORMATION CONTAINED HEREIN ARE THE CONFIDENTIAL AND EXCLUSIVE PROPERTY OF FMC TECHNOLOGIES AND MAY NOT BE REPRODUCED, USED, DISCLOSED, OR MADE PUBLIC IN ANY MANNER PRIOR TO EXPRESS WRITTEN AUTHORIZATION BY FMC TECHNOLOGIES. THIS DOCUMENT IS ACCEPTED BY RECIPIENT PURSUANT TO AGREEMENT TO THE FOREGOING, AND MUST BE RETURNED UPON DEMAND. MANUFACTURER AGREES THAT ARTICLES MADE IN ACCORDANCE WITH THIS DOCUMENT SHALL BE CONSIDERED FMC TECHNOLOGIES' DESIGN AND THAT IDENTICAL ARTICLES OR PARTS THEREOF SHALL NOT BE MANUFACTURED FOR THE USE OR SALE BY MANUFACTURER OR ANY OTHER PERSON WITHOUT THE PRIOR EXPRESS WRITTEN AUTHORIZATION BY FMC TECHNOLOGIES.	REVISIONS	DESCRIPTION	DATE	BY
	A	05-08-13		
	B	1-22-14		
	C	5-13-14		
SURFACE WELLHEAD LAYOUT UNIHEAD, UH-1, SOW, DEVON ENERGY, ODESSA			05-08-13	K. VU
			05-08-13	Z. MARQUEZ
			05-08-13	K. TAHA
			05-08-13	R. HAMILTON
				FMC Technologies
				DRAWING NUMBER
				DM100161771-2A



CONTINGENCY MODE

DEVON ENERGY

ARTESIA

S.E.N.M

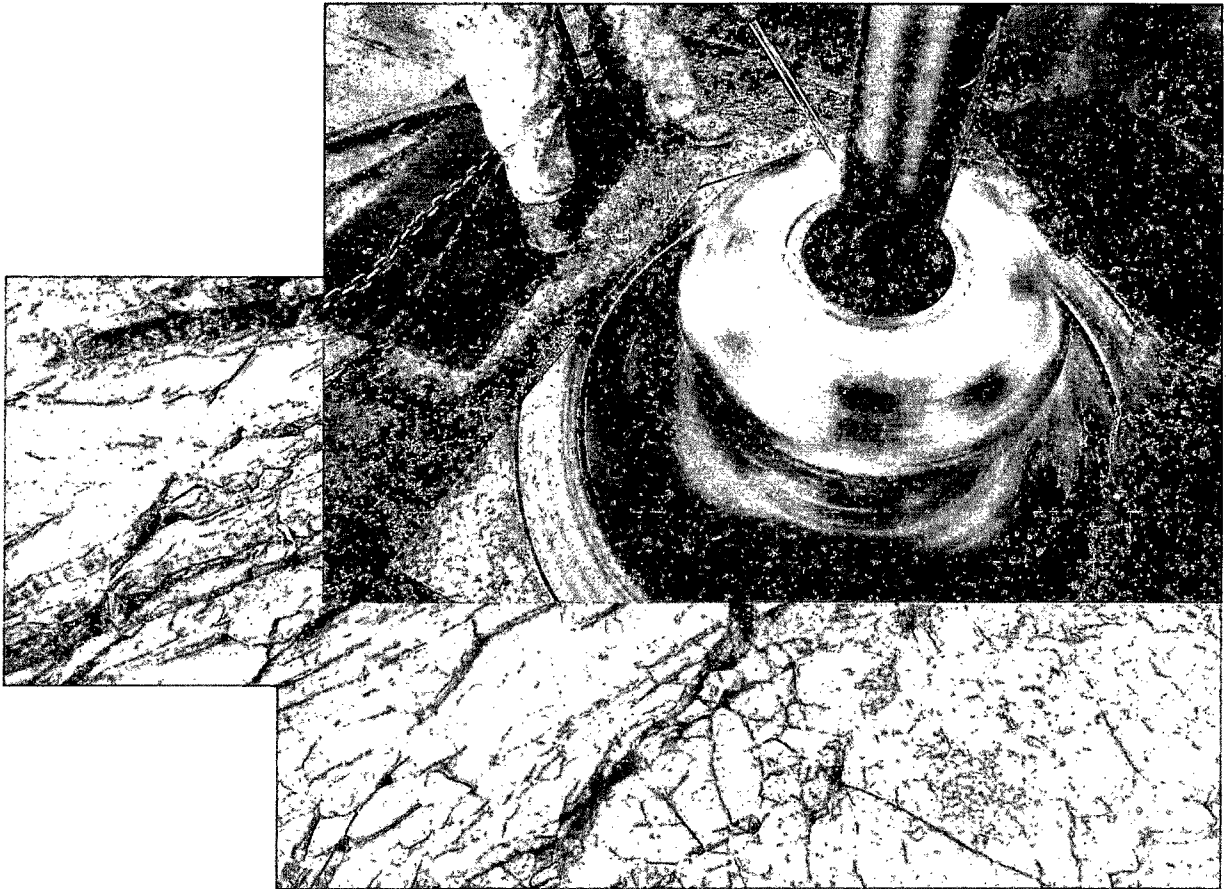
13 3/8 X 9 5/8

QUOTE LAYOUT
F18648
REF: DM100161737
DM100151315

PRIVATE AND CONFIDENTIAL		REVISIONS	DESCRIPTION			
THIS DOCUMENT AND ALL THE INFORMATION CONTAINED HEREIN ARE THE CONFIDENTIAL AND EXCLUSIVE PROPERTY OF FMC TECHNOLOGIES AND MAY NOT BE REPRODUCED, USED, DISCLOSED, OR MADE PUBLIC IN ANY MANNER PRIOR TO EXPRESS WRITTEN AUTHORIZATION BY FMC TECHNOLOGIES. THIS DOCUMENT IS ACCEPTED BY RECIPIENT PURSUANT TO AGREEMENT TO THE FOREGOING, AND MUST BE RETURNED UPON DEMAND.		A	05-08-13	SURFACE WELLHEAD LAYOUT UNIHEAD, UH-1, SOW, DEVON ENERGY, ODESSA	DRAWN BY K. VU	05-08-13
		B	1-22-14			
		C	5-13-14			
MANUFACTURER AGREES THAT ARTICLES MADE IN ACCORDANCE WITH THIS DOCUMENT SHALL BE CONSIDERED FMC TECHNOLOGIES' DESIGN AND THAT IDENTICAL ARTICLES OR PARTS THEREOF SHALL NOT BE MANUFACTURED FOR THE USE OR SALE BY MANUFACTURER OR ANY OTHER PERSON WITHOUT THE PRIOR EXPRESS WRITTEN AUTHORIZATION BY FMC TECHNOLOGIES					CHAFING REVIEW Z. MARQUEZ	05-08-13
					DESIGN REVIEW K. TAHA	05-08-13
					APPROVED BY R. HAMILTON	05-08-13
				DRAWING NUMBER		DM100161771-2B



Commitment Runs Deep



Design Plan
Operation and Maintenance Plan
Closure Plan

SENM - Closed Loop Systems
September 2014

I. Design Plan

Devon uses MI SWACO closed loop system (CLS). The MI SWACO CLS is designed to maintain drill solids at or below 5%. The equipment is arranged to progressively remove solids from the largest to the smallest size. Drilling fluids can thus be reused and savings is realized on mud and disposal costs. Dewatering may be required with the centrifuges to insure removal of ultra fine solids.

The drilling location is constructed to allow storm water to flow to a central sump normally the cellar. This insures no contamination leaves the drilling pad in the event of a spill. Storm water is reused in the mud system or stored in a reserve fluid tank farm until it can be reused. All lubricants, oils, or chemicals are removed immediately from the ground to prevent the contamination of storm water. An oil trap is normally installed on the sump if an oil spill occurs during a storm.

A tank farm is utilized to store drilling fluids including fresh water and brine fluids. The tank farm is constructed on a 20 ml plastic lined, bermed pad to prevent the contamination of the drilling site during a spill. Fluids from other sites may be stored in these tanks for processing by the solids control equipment and reused in the mud system. At the end of the well the fluids are transported from the tank farm to an adjoining well or to the next well for the rig.

Prior to installing a closed-loop system on site, the topsoil, if present, will be stripped and stockpiled for use as the final cover or fill at the time of closure.

Signs will be posted on the fence surrounding the closed-loop system unless the closed-loop system is located on a site where there is an existing well, that is operated by Devon.

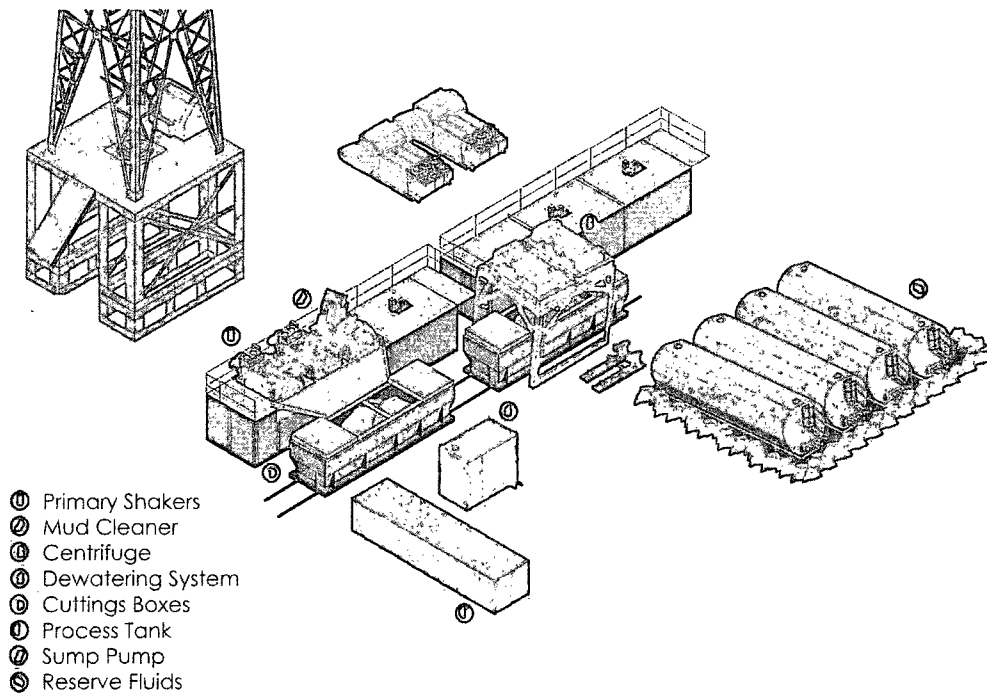
II. Operations and Maintenance Plan

Primary Shakers: The primary shakers make the first removal of drill solids from the drilling mud as it leaves the well bore. The shakers are sized to handle maximum drilling rate at optimal screen size. The shakers normally remove solids down to 74 microns.

Mud Cleaner: The Mud Cleaner cleans the fluid after it leaves the shakers. A set of hydrocyclones are sized to handle 1.25 to 1.5 times the maximum circulating rate. This ensures all the fluid is being processed to an average cut point of 25 microns. The wet discharged is dewatered on a shaker equipped with ultra fine mesh screens and generally cut at 40 microns.



Closed Loop Schematic



Centrifuges: The centrifuges can be one or two in number depending on the well geometry or depth of well. The centrifuges are sized to maintain low gravity solids at 5% or below. They may or may not need a dewatering system to enhance the removal rates. The centrifuges can make a cut point of 8-10 microns depending on bowl speed, feed rate, solids loading and other factors.

The centrifuge system is designed to work on the active system and be flexible to process incoming fluids from other locations. This set-up is also dependant on well factors.

Dewatering System: The dewatering system is a chemical mixing and dosing system designed to enhance the solids removal of the centrifuge. Not commonly used in shallow wells. It may contain pH adjustment, coagulant mixing and dosing, and polymer mixing and dosing. Chemical flocculation binds ultra fine solids into a mass that is within the centrifuge operating design. The

dewatering system improves the centrifuge cut point to infinity or allows for the return of clear water or brine fluid. This ability allows for the ultimate control of low gravity solids.

Cuttings Boxes: Cuttings boxes are utilized to capture drill solids that are discarded from the solids control equipment. These boxes are set upon a rail system that allows for the removal and replacement of a full box of cuttings with an empty one. They are equipped with a cover that insures no product is spilled into the environment during the transportation phase.

Process Tank: (Optional) The process tank allows for the holding and process of fluids that are being transferred into the mud system. Additionally, during times of lost circulation the process tank may hold active fluids that are removed for additional treatment. It can further be used as a mixing tank during well control conditions.

Sump and Sump Pump: The sump is used to collect storm water and the pump is used to transfer this fluid to the active system or to the tank for to hold in reserve. It can also be used to collect fluids that may escape during spills. The location contains drainage ditches that allow the location fluids to drain to the sump.

Reserve Fluids (Tank Farm): A series of frac tanks are used to replace the reserve pit. These are steel tanks that are equipped with a manifold system and a transfer pump. These tanks can contain any number of fluids used during the drilling process. These can include fresh water, cut brine, and saturated salt fluid. The fluid can be from the active well or reclaimed fluid from other locations. A 20 ml liner and berm system is employed to ensure the fluids do not migrate to the environment during a spill.

If a leak develops, the appropriate division district office will be notified within 48 hours of the discovery and the leak will be addressed. Spill prevention is accomplished by maintaining pump packing, hoses, and pipe fittings to insure no leaks are occurring. During an upset condition the source of the spill is isolated and repaired as soon as it is discovered. Free liquid is removed by a diaphragm pump and returned to the mud system. Loose topsoil may be used to stabilize the spill and the contaminated soil is excavated and placed in the cuttings boxes. After the well is finished and the rig has moved, the entire location is scrapped and testing will be performed to determine if a release has occurred.

All trash is kept in a wire mesh enclosure and removed to an approved landfill when full. All spent motor oils are kept in separate containers and they are removed and sent to an approved recycling center. Any spilled lubricants, pipe

dope, or regulated chemicals are removed from soil and sent to landfills approved for these products.

These operations are monitored by Mi Swaco service technicians. Daily logs are maintained to ensure optimal equipment operation and maintenance. Screen and chemical use is logged to maintain inventory control. Fluid properties are monitored and recorded and drilling mud volumes are accounted for in the mud storage farm. This data is kept for end of well review to insure performance goals are met. Lessons learned are logged and used to help with continuous improvement.

A MI SWACO field supervisor manages from 3-5 wells. They are responsible for training personnel, supervising installations, and inspecting sites for compliance of MI SWACO safety and operational policy.

III. Closure Plan

A maximum 340' X 340' caliche pad is built per well. All of the trucks and steel tanks fit on this pad. All fluid cuttings go to the steel tanks to be hauled by various trucking companies to an agency approved disposal.

H&P Flex Rig Location Layout

2 Well Pad

