

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

OCD Artesia

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.**

1. Type of Well <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other		5. Lease Serial No. NMNM66437
2. Name of Operator DEVON ENERGY PRODUCTION CO		6. If Indian, Allottee or Tribe Name
3a. Address 333 WEST SHERIDAN AVE OKLAHOMA CITY, OK 73102		7. If Unit or CA/Agreement, Name and/or No.
3b. Phone No. (include area code) Ph: 405.552.6558		8. Well Name and No. HELIOS 6 FED COM 4H
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Sec 6 T19S R31E SWSE 25FSL 1800FEL 32.682222 N Lat, 103.905978 W Lon		9. API Well No. 30-015-42316-00-X1
		10. Field and Pool, or Exploratory N HACKBERRY
		11. County or Parish, and State EDDY COUNTY, NM

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

TYPE OF SUBMISSION	TYPE OF ACTION			
<input checked="" type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production (Start/Resume)	<input type="checkbox"/> Water Shut-Off
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing	<input type="checkbox"/> Fracture Treat	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> New Construction	<input type="checkbox"/> Recomplete	<input checked="" type="checkbox"/> Other
	<input type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon	Change to Original A
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Water Disposal	PD

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 recomple 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 run a tapered production string of 7" x 5.5" casing to a total depth of 12,645 ft measured depth as long as hole conditions permits. If lost circulation is encountered we will stay as originally planned to run a 5-1/2" production longstring. Casing design requirements are below as well as the cement design for both the 7" x 5.5" tapered production string and the 5.5" production longstring. The updated directional well plan is also included.

**NM OIL CONSERVATION**  
ARTESIA DISTRICT

NOV 17 2014

**SEE ATTACHED FOR  
CONDITIONS OF APPROVAL**

Accepted for record

NMOC D 11-17-2014

14. I hereby certify that the foregoing is true and correct.		Electronic Submission #278136 verified by the BLM Well Information System For DEVON ENERGY PRODUCTION CO LP, sent to the Carlsbad Committed to AFMSS for processing by JENNIFER MASON on 11/13/2014 (15JAM0076SE)	
Name (Printed/Typed)	LINDA GOOD	Title	REGULATORY SPECIALIST
Signature	(Electronic Submission)	Date	11/11/2014
<b>THIS SPACE FOR FEDERAL OR STATE OFFICE USE</b>			
Approved By		Title	
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	

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.

**Helios 6 Fed Com 4H – APD DRILLING PLAN CHANGE****AAA 11-9-2014: Change to 7" x 5.5" Combination Production String****Casing Program Changes: 7" x 5.5" Tapered Production String**

Hole Size	Hole Interval	OD Csg	Casing Interval	Weight	Collar	Grade
8-3/4"	4100 - 7319	7"	0 - 7319	29#	BTC	P-110
8-3/4"	7319 - 12645	5-1/2"	7319 - 12645	17#	BTC	P-110

**Original Option: 5.5 Production Longstring**

Hole Size	Hole Interval	OD Csg	Casing Interval	Weight	Collar	Grade
8-3/4"	4100 - 12645	5-1/2"	0 - 12645	17#	BTC	P-110

**Note: only new casing will be utilized****MAXIMUM LATERAL TVD      7,890****Design Factors: 7" x 5.5" Tapered Production String**

Casing Size	Collapse Design Factor	Burst Design Factor	Tension Design Factor
7" 29# P-110 BTC	2.49	3.28	4.50
5-1/2" 17# P-110 BTC	2.03	2.88	6.27

**Original Option: 5.5 Production Longstring**

Casing Size	Collapse Design Factor	Burst Design Factor	Tension Design Factor
5-1/2" 17# P-110 BTC	2.03	2.88	2.64

**Cementing Table:**

String	Number of sx	Weight lbs/gal	Water Volume g/sx	Yield cf/sx	Stage; Lead/Tail	Slurry Description
5-1/2" Production 2-Stage Original Option <i>Sell COA</i>	220	12.5	11.02	2.01	Stage 1 Lead	(35:65) Poz (Fly Ash):Prem Plus H + 3% bwow Sodium Chloride + 0.125 lbs/sack Cello Flake + 0.3% bwoc ASA-301 + 6% bwoc Bentonite + 0.7% bwoc FL-52A + 105.6% Fresh Water
	1435	14.2	5.76	1.28	Stage 1 Tail	(50:50) Poz (Fly Ash):Prem Plus H + 5% bwow Sodium Chloride + 0.3% bwoc CD-32 + 0.5% bwoc FL-25 + 0.3% bwoc Sodium Metasilicate + 0.5% bwoc FL-52A + 57.2% Fresh Water
	DV Tool @ 5500 ft					
	130	11.4	17.69	2.88	Stage 2 Lead	Premium Plus C + 1% bwoc R-3 + 0.125 lbs/sack Cello Flake + 3% bwoc Sodium Metasilicate + 0.3% bwoc FL-52A + 157% Fresh Water
	150	13.8	6.40	1.37	Stage 2 Tail	(60:40) Poz (Fly Ash):Prem Plus C + 5% bwow Sodium Chloride + 0.125 lbs/sack Cello Flake + 0.5% bwoc BA-10A + 4% bwoc MPA-5 + 65.1% Fresh Water
7" x 5-1/2" Production Casing Single Stage	110	11.8	13.16	2.3	1 <sup>st</sup> Lead	(50:50) Poz (Fly Ash):Class H + 0.5% bwoc FL-52 + 0.3% bwoc ASA-301 + 10% bwoc Bentonite + 0.35% bwoc R-21 + 130.7% Fresh Water
	175	12.5	11.01	2.01	2 <sup>nd</sup> Lead	(35:65) Poz (Fly Ash):Prem Plus H + 3% bwow Sodium Chloride + 0.125 lbs/sack Cello Flake + 0.7% bwoc FL-52A + 0.3% bwoc ASA-301 + 6% bwoc Bentonite + 0.2% bwoc R-3 + 105.5% Fresh Water
	1385	14.2	5.77	1.28	Tail	(50:50) Poz (Fly Ash):Prem Plus H + 5% bwow Sodium Chloride + 0.3% bwoc CD-32 + 0.5% bwoc FL-25 + 0.4% bwoc FL-52A + 0.5% bwoc Sodium Metasilicate + 57.3% Fresh Water

**TOC for all Strings:**

Production Cement @ 3600' (Cement top will tie-back at least 500' into previous casing)

**Notes:**

- Cement volumes Production based on at least 25% excess
- Actual cement volumes will be adjusted based on fluid caliper and caliper log data
- If lost circulation is encountered while drilling the production wellbore, the 5.5" original production longstring will be used with a DV tool installed a minimum of 50' below the previous casing shoe and of 200' above the current shoe. If the DV tool has to be moved; the cement volumes will be adjusted proportionately.

# devon



Azimuths to Grid North  
True North: -0.23°  
Magnetic North: 7.13°

Magnetic Field  
Strength: 48574.2snT  
Dip Angle: 60.50°  
Date: 9/29/2014  
Model: IGRF200510

## PA HENDER

A Schlumberger Company

Project: Eddy County (NAD83)  
Site: Helios "6" Fed Com 4H  
Well: Helios "6" Fed Com 4H  
Original Hole  
Design 2

### WELL DETAILS: Helios "6" Fed Com 4H

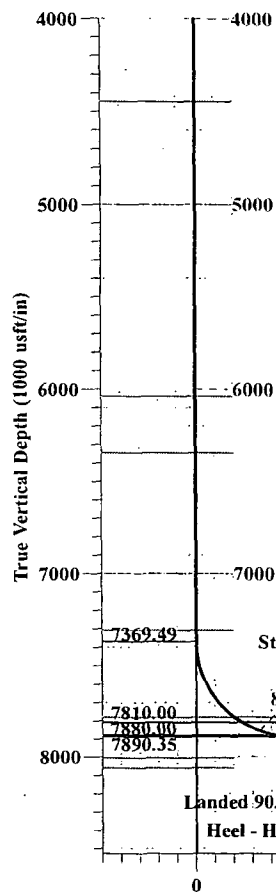
WELL @ 3550.00usft (H&P 300) 3524.00  
+N/-S 0.00 +E/-W 0.00 Northing 612188.33 Easting 672822.86 Latitude 32° 40' 55.999 N Longitude 103° 54' 21.520 W

### SECTION DETAILS

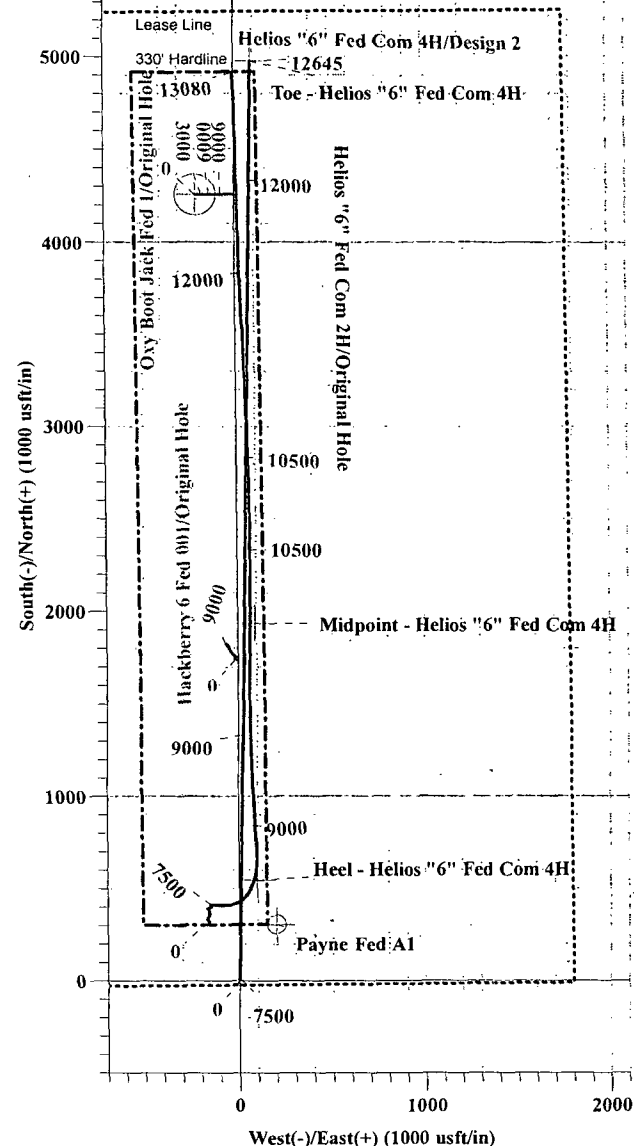
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	7369.49	0.00	0.00	7369.49	0.00	0.00	0.00	0.00	0.00	
3	8191.49	90.42	1.03	7890.35	524.60	9.41	11.00	1.03	524.69	
4	9603.47	90.42	1.03	7880.00	1936.31	34.75	0.00	0.00	1936.63	Midpoint - Helios "6" Fed Com 4H
5	9648.74	91.33	1.04	7879.31	1981.57	35.56	2.00	0.63	1981.89	
6	12645.28	91.33	1.04	7810.00	4976.82	89.83	0.00	0.00	4977.63	Toe - Helios "6" Fed Com 4H

### FORMATION TOP DETAILS

TVDPath	MDPath	Formation
520.00	520.00	Rustler
650.00	650.00	Salado
2100.00	2100.00	Base Salado
2175.00	2175.00	Transil Dolomite
2290.00	2290.00	Yates
2620.00	2620.00	Seven Rivers
3200.00	3200.00	Queen
3715.00	3715.00	San Andres
4445.00	4445.00	Delaware
6040.00	6040.00	Lower Brushy Canyon
6345.00	6345.00	Bone Spring Lm
7310.00	7310.00	Hackberry Avalon
7780.00	7842.31	1st Bone Spring Ss
7805.00	7885.24	1st Bone Spring Upper Ss
7885.00	8112.86	1st Bone Spring Middle Ss



Vertical Section at 1.03° (1000 usft/in)



### LEGEND

- Hackberry 6 Fed 001, Original Hole, Original Hole V0
- △ Helios "6" Fed Com 2H, Original Hole, Original Hole V0
- Oxy Boot Jack Fed 1, Original Hole, Original Hole V0
- Design 2

Plan: Design 2 (Helios "6" Fed Com 4H/Original Hole)

Created By: Jenise Kirkpatrick Date: 16:31, November 03 2014

# **Devon Energy, Inc.**

**Eddy County (NAD83)**

**Helios "6" Fed Com 4H**

**Helios "6" Fed Com 4H**

**Original Hole**

**Plan: Design 2**

## **Standard Planning Report**

**03 November, 2014**

# Pathfinder - A Schlumberger Company

## Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Helios "6" Fed Com 4H
Company:	Devon Energy, Inc.	TVD Reference:	WELL @ 3550.00usft (H&P 300)
Project:	Eddy County (NAD83)	MD Reference:	WELL @ 3550.00usft (H&P 300)
Site:	Helios "6" Fed Com 4H	North Reference:	Grid
Well:	Helios "6" Fed Com 4H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	Design 2		

Project:	Eddy County (NAD83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site:	Helios "6" Fed Com 4H		
Site Position:	Map	Northing:	612,188.33 usft
From:		Easting:	672,822.86 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 40' 55.999 N
		Longitude:	103° 54' 21.520 W
		Grid Convergence:	0.23 °

Well:	Helios "6" Fed Com 4H		
Well Position	+N-S	0.00 usft	Northing:
	+E-W	0.00 usft	Easting:
Position Uncertainty	0.00 usft	Wellhead Elevation:	3,550.00 usft
		Latitude:	32° 40' 55.999 N
		Longitude:	103° 54' 21.520 W
		Ground Level:	3,524.00 usft

Wellbore:	Original Hole		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF200510	9/29/2014	7.37
			Dip Angle
			(°)
			60.50
			Field Strength
			(nT)
			48,574

Design:	Design 2		
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
			(°)
			1.03

Plan Sections:										
Measured	Inclination	Azimuth	Vertical	+N-S	+E-W	Dogleg	Build	Turn	TFO	Target
Depth	(°)	(°)	Depth	(usft)	(usft)	Rate	Rate	Rate	(°)	
(usft)			(usft)			(°/100usft)	(°/100usft)	(°/100usft)		
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
7,369.49	0.00	0.00	7,369.49	0.00	0.00	0.00	0.00	0.00	0.00	
8,191.49	90.42	1.03	7,890.35	524.60	9.41	11.00	11.00	0.00	1.03	
9,603.47	90.42	1.03	7,880.00	1,936.31	34.75	0.00	0.00	0.00	0.00	Midpoint - Helios "6" f
9,648.74	91.33	1.04	7,879.31	1,981.57	35.56	2.00	2.00	0.02	0.63	
12,645.28	91.33	1.04	7,810.00	4,976.82	89.83	0.00	0.00	0.00	0.00	Toe - Helios "6" Fed C

# Pathfinder - A Schlumberger Company

## Planning Report

Database:	EDM-5000.1 Single User Db	Local Co-ordinate Reference:	Well Helios "6" Fed Com 4H
Company:	Devon Energy, Inc.	TVD Reference:	WELL @ 3550.00usft (H&P 300)
Project:	Eddy County (NAD83)	MD Reference:	WELL @ 3550.00usft (H&P 300)
Site:	Helios "6" Fed Com 4H	North Reference:	Grid
Well:	Helios "6" Fed Com 4H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	Design 2		

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)	
7,300.00	0.00	0.00	7,300.00	0.00	0.00	0.00	0.00	0.00	0.00	
7,310.00	0.00	0.00	7,310.00	0.00	0.00	0.00	0.00	0.00	0.00	
Hackberry Avalon										
7,369.49	0.00	0.00	7,369.49	0.00	0.00	0.00	0.00	0.00	0.00	
7,400.00	3.36	1.03	7,399.98	0.89	0.02	0.89	11.00	11.00	0.00	
7,500.00	14.36	1.03	7,498.64	16.26	0.29	16.26	11.00	11.00	0.00	
7,600.00	25.36	1.03	7,592.55	50.17	0.90	50.18	11.00	11.00	0.00	
7,700.00	36.36	1.03	7,678.26	101.37	1.82	101.39	11.00	11.00	0.00	
7,800.00	47.36	1.03	7,752.63	167.98	3.01	168.01	11.00	11.00	0.00	
7,842.31	52.01	1.03	7,780.00	200.23	3.59	200.26	11.00	11.00	0.00	
1st Bone Spring Ss										
7,885.24	56.73	1.03	7,805.00	235.11	4.22	235.14	11.00	11.00	0.00	
1st Bone Spring Upper Ss										
7,900.00	58.36	1.03	7,812.92	247.56	4.44	247.60	11.00	11.00	0.00	
8,000.00	69.36	1.03	7,856.92	337.18	6.05	337.23	11.00	11.00	0.00	
8,100.00	80.36	1.03	7,883.00	433.54	7.78	433.61	11.00	11.00	0.00	
8,112.86	81.77	1.03	7,885.00	446.24	8.01	446.31	11.00	11.00	0.00	
1st Bone Spring Middle Ss										
8,191.49	90.42	1.03	7,890.35	524.60	9.41	524.69	11.00	11.00	0.00	
8,200.00	90.42	1.03	7,890.29	533.11	9.57	533.20	0.00	0.00	0.00	
8,300.00	90.42	1.03	7,889.56	633.09	11.36	633.19	0.00	0.00	0.00	
8,400.00	90.42	1.03	7,888.82	733.07	13.15	733.19	0.00	0.00	0.00	
8,500.00	90.42	1.03	7,888.09	833.05	14.95	833.19	0.00	0.00	0.00	
8,600.00	90.42	1.03	7,887.36	933.03	16.74	933.18	0.00	0.00	0.00	
8,700.00	90.42	1.03	7,886.62	1,033.02	18.54	1,033.18	0.00	0.00	0.00	
8,800.00	90.42	1.03	7,885.89	1,133.00	20.33	1,133.18	0.00	0.00	0.00	
8,900.00	90.42	1.03	7,885.16	1,232.98	22.12	1,233.18	0.00	0.00	0.00	
9,000.00	90.42	1.03	7,884.42	1,332.96	23.92	1,333.17	0.00	0.00	0.00	
9,100.00	90.42	1.03	7,883.69	1,432.94	25.71	1,433.17	0.00	0.00	0.00	
9,200.00	90.42	1.03	7,882.96	1,532.92	27.51	1,533.17	0.00	0.00	0.00	
9,300.00	90.42	1.03	7,882.22	1,632.90	29.30	1,633.17	0.00	0.00	0.00	
9,400.00	90.42	1.03	7,881.49	1,732.88	31.10	1,733.16	0.00	0.00	0.00	
9,500.00	90.42	1.03	7,880.76	1,832.87	32.89	1,833.16	0.00	0.00	0.00	
9,600.00	90.42	1.03	7,880.03	1,932.85	34.68	1,933.16	0.00	0.00	0.00	
9,603.47	90.42	1.03	7,880.00	1,936.31	34.75	1,936.63	0.00	0.00	0.00	
9,648.74	91.33	1.04	7,879.31	1,981.57	35.56	1,981.89	2.00	2.00	0.02	
9,700.00	91.33	1.04	7,878.12	2,032.81	36.49	2,033.14	0.00	0.00	0.00	
9,800.00	91.33	1.04	7,875.81	2,132.77	38.30	2,133.11	0.00	0.00	0.00	
9,900.00	91.33	1.04	7,873.50	2,232.72	40.11	2,233.08	0.00	0.00	0.00	
10,000.00	91.33	1.04	7,871.19	2,332.68	41.92	2,333.06	0.00	0.00	0.00	
10,100.00	91.33	1.04	7,868.87	2,432.64	43.73	2,433.03	0.00	0.00	0.00	
10,200.00	91.33	1.04	7,866.56	2,532.59	45.55	2,533.00	0.00	0.00	0.00	
10,300.00	91.33	1.04	7,864.25	2,632.55	47.36	2,632.98	0.00	0.00	0.00	
10,400.00	91.33	1.04	7,861.93	2,732.51	49.17	2,732.95	0.00	0.00	0.00	
10,500.00	91.33	1.04	7,859.62	2,832.47	50.98	2,832.92	0.00	0.00	0.00	
10,600.00	91.33	1.04	7,857.31	2,932.42	52.79	2,932.90	0.00	0.00	0.00	
10,700.00	91.33	1.04	7,854.99	3,032.38	54.60	3,032.87	0.00	0.00	0.00	
10,800.00	91.33	1.04	7,852.68	3,132.34	56.41	3,132.84	0.00	0.00	0.00	
10,900.00	91.33	1.04	7,850.37	3,232.29	58.22	3,232.82	0.00	0.00	0.00	
11,000.00	91.33	1.04	7,848.06	3,332.25	60.03	3,332.79	0.00	0.00	0.00	
11,100.00	91.33	1.04	7,845.74	3,432.21	61.85	3,432.76	0.00	0.00	0.00	
11,200.00	91.33	1.04	7,843.43	3,532.16	63.66	3,532.74	0.00	0.00	0.00	
11,300.00	91.33	1.04	7,841.12	3,632.12	65.47	3,632.71	0.00	0.00	0.00	

# Pathfinder - A Schlumberger Company

## Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Helios "6" Fed Com 4H
Company:	Devon Energy, Inc.	TVD Reference:	WELL @ 3550.00usft (H&P.300)
Project:	Eddy County (NAD83)	MD Reference:	WELL @ 3550.00usft (H&P 300)
Site:	Helios "6" Fed Com 4H	North Reference:	Grid
Well:	Helios "6" Fed Com 4H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	Design 2		

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)	
11,400.00	91.33	1.04	7,838.80	3,732.08	67.28	3,732.68	0.00	0.00	0.00	
11,500.00	91.33	1.04	7,836.49	3,832.03	69.09	3,832.66	0.00	0.00	0.00	
11,600.00	91.33	1.04	7,834.18	3,931.99	70.90	3,932.63	0.00	0.00	0.00	
11,700.00	91.33	1.04	7,831.86	4,031.95	72.71	4,032.60	0.00	0.00	0.00	
11,800.00	91.33	1.04	7,829.55	4,131.90	74.52	4,132.58	0.00	0.00	0.00	
11,900.00	91.33	1.04	7,827.24	4,231.86	76.33	4,232.55	0.00	0.00	0.00	
12,000.00	91.33	1.04	7,824.93	4,331.82	78.15	4,332.52	0.00	0.00	0.00	
12,100.00	91.33	1.04	7,822.61	4,431.77	79.96	4,432.50	0.00	0.00	0.00	
12,200.00	91.33	1.04	7,820.30	4,531.73	81.77	4,532.47	0.00	0.00	0.00	
12,300.00	91.33	1.04	7,817.99	4,631.69	83.58	4,632.44	0.00	0.00	0.00	
12,400.00	91.33	1.04	7,815.67	4,731.65	85.39	4,732.42	0.00	0.00	0.00	
12,500.00	91.33	1.04	7,813.36	4,831.60	87.20	4,832.39	0.00	0.00	0.00	
12,600.00	91.33	1.04	7,811.05	4,931.56	89.01	4,932.36	0.00	0.00	0.00	
12,645.28	91.33	1.04	7,810.00	4,976.82	89.83	4,977.63	0.00	0.00	0.00	

Design Targets										
Target Name	Dip/Angle (°)	Dip Dir (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
Payne Fed A1 - plan misses target center by 7309.04usft at 7300.00usft MD (7300.00 TVD, 0.00 N, 0.00 E) - Circle (radius 50.00)	0.00	0.00	0.00	304.97	197.46	612,493.30	673,020.32	32° 40' 59.009 N	103° 54' 19.195 W	
Toe - Helios "6" Fed Cor - plan hits target center - Point	0.00	0.00	7,810.00	4,976.82	89.83	617,165.15	672,912.69	32° 41' 45.242 N	103° 54' 20.234 W	
Oxy Boot Offset - plan misses target center by 286.89usft at 11918.37usft MD (7826.81 TVD, 4250.22 N, 76.67 E) - Circle (radius 110.00)	0.00	0.00	7,823.00	4,255.33	-210.15	616,443.66	672,612.71	32° 41' 38.115 N	103° 54' 23.779 W	
Midpoint - Helios "6" Fed - plan misses target center by 55.57usft at 9604.01usft MD (7880.00 TVD, 1936.85 N, 34.76 E) - Point	0.00	0.00	7,880.00	1,935.85	90.32	614,124.19	672,913.18	32° 41' 15.151 N	103° 54' 20.372 W	
Heel - Helios "6" Fed Co - plan misses target center by 85.97usft at 8214.20usft MD (7890.18 TVD, 547.30 N, 9.82 E) - Point	0.00	0.00	7,890.00	545.76	95.77	612,734.09	672,918.63	32° 41' 1.396 N	103° 54' 20.374 W	



# Pathfinder - A Schlumberger Company

## Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Helios "6" Fed Com 4H
Company:	Devon Energy, Inc.	TVD Reference:	WELL @ 3550.00usft (H&P 300)
Project:	Eddy County (NAD83)	MD Reference:	WELL @ 3550.00usft (H&P 300)
Site:	Helios "6" Fed Com 4H	North Reference:	Grid
Well:	Helios "6" Fed Com 4H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	Design 2		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
520.00	520.00	Rustler		0.00		
660.00	660.00	Salado		0.00		
2,100.00	2,100.00	Base Salado		0.00		
2,175.00	2,175.00	Transil Dolomite		0.00		
2,290.00	2,290.00	Yates		0.00		
2,620.00	2,620.00	Seven Rivers		0.00		
3,200.00	3,200.00	Queen		0.00		
3,715.00	3,715.00	San Andres		0.00		
4,445.00	4,445.00	Delaware		0.00		
6,040.00	6,040.00	Lower Brushy Canyon		0.00		
6,345.00	6,345.00	Bone Spring Lm		0.00		
7,310.00	7,310.00	Hackberry Avalon		0.00		
7,842.31	7,780.00	1st Bone Spring Ss		0.00		
7,885.24	7,805.00	1st Bone Spring Upper Ss		0.00		
8,112.86	7,885.00	1st Bone Spring Middle Ss		0.00		

Devon Energy, Inc.  
Helios "6" Fed Com 4H - Design 2

Eddy County (NAD83)  
Helios "6" Fed Com 4H  
Your Ref:

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
0	0	0	0	0	0	0	0
100	0	0	100	0	0	0	0
200	0	0	200	0	0	0	0
300	0	0	300	0	0	0	0
400	0	0	400	0	0	0	0
500	0	0	500	0	0	0	0
600	0	0	600	0	0	0	0
700	0	0	700	0	0	0	0
800	0	0	800	0	0	0	0
900	0	0	900	0	0	0	0
1000	0	0	1000	0	0	0	0
1100	0	0	1100	0	0	0	0
1200	0	0	1200	0	0	0	0
1300	0	0	1300	0	0	0	0
1400	0	0	1400	0	0	0	0
1500	0	0	1500	0	0	0	0
1600	0	0	1600	0	0	0	0
1700	0	0	1700	0	0	0	0
1800	0	0	1800	0	0	0	0
1900	0	0	1900	0	0	0	0
2000	0	0	2000	0	0	0	0
2100	0	0	2100	0	0	0	0
2200	0	0	2200	0	0	0	0
2300	0	0	2300	0	0	0	0
2400	0	0	2400	0	0	0	0
2500	0	0	2500	0	0	0	0
2600	0	0	2600	0	0	0	0
2700	0	0	2700	0	0	0	0
2800	0	0	2800	0	0	0	0
2900	0	0	2900	0	0	0	0
3000	0	0	3000	0	0	0	0
3100	0	0	3100	0	0	0	0

3200	0	0	3200	0	0	0	0
3300	0	0	3300	0	0	0	0
3400	0	0	3400	0	0	0	0
3500	0	0	3500	0	0	0	0
3600	0	0	3600	0	0	0	0
3700	0	0	3700	0	0	0	0
3800	0	0	3800	0	0	0	0
3900	0	0	3900	0	0	0	0
4000	0	0	4000	0	0	0	0
4100	0	0	4100	0	0	0	0
4200	0	0	4200	0	0	0	0
4300	0	0	4300	0	0	0	0
4400	0	0	4400	0	0	0	0
4500	0	0	4500	0	0	0	0
4600	0	0	4600	0	0	0	0
4700	0	0	4700	0	0	0	0
4800	0	0	4800	0	0	0	0
4900	0	0	4900	0	0	0	0
5000	0	0	5000	0	0	0	0
5100	0	0	5100	0	0	0	0
5200	0	0	5200	0	0	0	0
5300	0	0	5300	0	0	0	0
5400	0	0	5400	0	0	0	0
5500	0	0	5500	0	0	0	0
5600	0	0	5600	0	0	0	0
5700	0	0	5700	0	0	0	0
5800	0	0	5800	0	0	0	0
5900	0	0	5900	0	0	0	0
6000	0	0	6000	0	0	0	0
6100	0	0	6100	0	0	0	0
6200	0	0	6200	0	0	0	0
6300	0	0	6300	0	0	0	0
6400	0	0	6400	0	0	0	0
6500	0	0	6500	0	0	0	0
6600	0	0	6600	0	0	0	0
6700	0	0	6700	0	0	0	0
6800	0	0	6800	0	0	0	0
6900	0	0	6900	0	0	0	0
7000	0	0	7000	0	0	0	0
7100	0	0	7100	0	0	0	0
7200	0	0	7200	0	0	0	0
7300	0	0	7300	0	0	0	0
7369.49	0	0	7369.49	0	0	0	0
7400	3.356	1.028	7399.98	0.89	0.02	0.89	11
7450	8.856	1.028	7449.68	6.21	0.11	6.21	11
7500	14.356	1.028	7498.64	16.26	0.29	16.26	11
7550	19.856	1.028	7546.41	30.96	0.56	30.97	11

7600	25.356	1.028	7592.55	50.17	0.9	50.18	11
7650	30.856	1.028	7636.64	73.71	1.32	73.72	11
7700	36.356	1.028	7678.26	101.37	1.82	101.39	11
7750	41.856	1.028	7717.05	132.89	2.38	132.91	11
7800	47.356	1.028	7752.63	167.98	3.01	168.01	11
7850	52.856	1.028	7784.69	206.32	3.7	206.36	11
7900	58.356	1.028	7812.92	247.56	4.44	247.6	11
7950	63.856	1.028	7837.07	291.31	5.23	291.36	11
8000	69.356	1.028	7856.92	337.18	6.05	337.23	11
8050	74.856	1.028	7872.27	384.73	6.9	384.79	11
8100	80.356	1.028	7883	433.54	7.78	433.61	11
8150	85.856	1.028	7889	483.15	8.67	483.23	11
8191.49	90.42	1.028	7890.35	524.6	9.41	524.69	11
8200	90.42	1.028	7890.29	533.11	9.57	533.2	0
8300	90.42	1.028	7889.55	633.09	11.36	633.19	0
8400	90.42	1.028	7888.82	733.07	13.15	733.19	0
8500	90.42	1.028	7888.09	833.05	14.95	833.19	0
8600	90.42	1.028	7887.36	933.03	16.74	933.18	0
8700	90.42	1.028	7886.62	1033.02	18.54	1033.18	0
8800	90.42	1.028	7885.89	1133	20.33	1133.18	0
8900	90.42	1.028	7885.16	1232.98	22.12	1233.18	0
9000	90.42	1.028	7884.42	1332.96	23.92	1333.17	0
9100	90.42	1.028	7883.69	1432.94	25.71	1433.17	0
9200	90.42	1.028	7882.96	1532.92	27.51	1533.17	0
9300	90.42	1.028	7882.22	1632.9	29.3	1633.17	0
9400	90.42	1.028	7881.49	1732.88	31.1	1733.16	0
9500	90.42	1.028	7880.76	1832.87	32.89	1833.16	0
9603.47	90.42	1.028	7880	1936.31	34.75	1936.63	0
9648.74	91.325	1.038	7879.31	1981.57	35.56	1981.89	2
9700	91.325	1.038	7878.12	2032.81	36.49	2033.14	0
9800	91.325	1.038	7875.81	2132.77	38.3	2133.11	0
9900	91.325	1.038	7873.5	2232.72	40.11	2233.08	0
10000	91.325	1.038	7871.19	2332.68	41.92	2333.06	0
10100	91.325	1.038	7868.87	2432.64	43.73	2433.03	0
10200	91.325	1.038	7866.56	2532.59	45.55	2533	0
10300	91.325	1.038	7864.25	2632.55	47.36	2632.98	0
10400	91.325	1.038	7861.93	2732.51	49.17	2732.95	0
10500	91.325	1.038	7859.62	2832.47	50.98	2832.92	0
10600	91.325	1.038	7857.31	2932.42	52.79	2932.9	0
10700	91.325	1.038	7854.99	3032.38	54.6	3032.87	0
10800	91.325	1.038	7852.68	3132.34	56.41	3132.84	0
10900	91.325	1.038	7850.37	3232.29	58.22	3232.82	0
11000	91.325	1.038	7848.06	3332.25	60.03	3332.79	0
11100	91.325	1.038	7845.74	3432.21	61.85	3432.76	0
11200	91.325	1.038	7843.43	3532.16	63.66	3532.74	0
11300	91.325	1.038	7841.12	3632.12	65.47	3632.71	0
11400	91.325	1.038	7838.8	3732.08	67.28	3732.68	0

11500	91.325	1.038	7836.49	3832.03	69.09	3832.66	0
11600	91.325	1.038	7834.18	3931.99	70.9	3932.63	0
11700	91.325	1.038	7831.86	4031.95	72.71	4032.6	0
11800	91.325	1.038	7829.55	4131.9	74.52	4132.58	0
11900	91.325	1.038	7827.24	4231.86	76.33	4232.55	0
12000	91.325	1.038	7824.93	4331.82	78.15	4332.52	0
12100	91.325	1.038	7822.61	4431.77	79.96	4432.5	0
12200	91.325	1.038	7820.3	4531.73	81.77	4532.47	0
12300	91.325	1.038	7817.99	4631.69	83.58	4632.44	0
12400	91.325	1.038	7815.67	4731.65	85.39	4732.42	0
12500	91.325	1.038	7813.36	4831.6	87.2	4832.39	0
12600	91.325	1.038	7811.05	4931.56	89.01	4932.36	0
12645.28	91.325	1.038	7810	4976.82	89.83	4977.63	0

All data are in feet unless otherwise stated. Directions and coordinates are relative to Grid North.  
Vertical depths are relative to WELL. Northings and Eastings are relative to Well.

The Dogleg Severity is in Degrees per 100 feet.

Vertical Section is from Slot and calculated along an Azimuth of 1.034° (Grid).

Coordinate System is North American Datum 1983 US State Plane 1983, New Mexico Eastern Zone.

Central meridian is -104.333°.

Grid Convergence at Surface is 0.231°.

Based upon Minimum Curvature type calculations, at a Measured Depth of 12645.28ft.,  
the Bottom Hole Displacement is 4977.63ft., in the Direction of 1.034° (Grid).

PECOS DISTRICT  
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Devon Energy Production Company, LP.
LEASE NO.:	NMNM-66437
WELL NAME & NO.:	Helios 6 Fed Com 4H
SURFACE HOLE FOOTAGE:	0025' FSL & 1800' FEL
BOTTOM HOLE FOOTAGE	0340' FNL & 1650' FEL
LOCATION:	Section 06, T. 19 S., R 31 E., NMPM
COUNTY:	Eddy County, New Mexico
API:	30-015-42316

**The original COAs still stand with the following drilling modification:**

**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)

☒ **Eddy County**

Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220,  
(575) 361-2822

1. **Although Hydrogen Sulfide has not been reported in the area, it is always a potential hazard. Operator has stated that they will have monitoring equipment in place prior to drilling out of the surface shoe. If Hydrogen Sulfide is encountered, please report measurements 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) time prior to drilling out for a primary cement job will be a minimum 18 hours for a water basin, 24 hours in the potash area, or 500 pounds compressive strength, whichever is greater for all casing strings. DURING THIS WOC TIME, NO DRILL PIPE, ETC. SHALL BE RUN IN THE HOLE. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. IF OPERATOR DOES NOT HAVE THE WELL SPECIFIC CEMENT DETAILS ONSITE PRIOR TO PUMPING THE CEMENT FOR EACH CASING STRING, THE WOC WILL BE 30 HOURS. 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, Tansill, Yates, Seven Rivers, and Queen.  
Possibility of lost circulation in the Tansill, Yates, Seven Rivers, Capitan Reef, and Delaware.**

1. The **13-3/8** inch surface casing shall be set at approximately **600** feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface. **If salt is encountered, set casing at least 25 feet above the salt.**
  - 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 **4100** feet, is:

**Operator has proposed DV tool at depth of 2400', 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. If an ECP is used, it is to be set a minimum of 50' below the shoe to provide cement across the shoe. If it cannot be set below the shoe, a CBL shall be run to verify cement coverage.**

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 circulation on the next stage.

b. Second stage above DV tool:

- ☒ 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 7 X 5-1/2 inch production casing is:

- ☒ Cement should tie-back at least 500 feet into previous casing string. Operator shall provide method of verification.

**Contingency Producing Casing:**

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

**Operator has proposed DV tool at depth of 5500', 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 500 feet into previous casing string. Operator shall provide method of verification. **Excess calculates to 20% - Additional cement may be required.**

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 RP 53 Sec. 17.

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. 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. **For surface casing only:** If the BOP/BOPE is to be tested against casing, the wait on cement (WOC) time for that casing is to be met (see WOC statement at start of casing section). Independent service company required.
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**. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (18 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).

- 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 111314**