

District I  
1625 N French Dr., Hobbs, NM 88240  
District II  
1301 W Grand Avenue, Artesia, NM 88210  
District III  
1000 Rio Brazos Road, Aztec, NM 87410  
District IV  
1220 S St. Francis Dr., Santa Fe, NM 87505

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

Form C-144 CLEZ  
July 21, 2008

For closed-loop systems that only use above ground steel tanks or haul-off bins and propose to implement waste removal for closure, submit to the appropriate NMOCD District Office.

**Closed-Loop System Permit or Closure Plan Application**

*(that only use above ground steel tanks or haul-off bins and propose to implement waste removal for closure)*

Type of action: ☒ Permit ☐ Closure

**Instructions:** Please submit one application (Form C-144 CLEZ) per individual closed-loop system request. For any application request other than for a closed-loop system that only use above ground steel tanks or haul-off bins and propose to implement waste removal for closure, please submit a Form C-144.

Please be advised that approval of this request does not relieve the operator of liability should operations result in pollution of surface water, ground water or the environment. Nor does approval relieve the operator of its responsibility to comply with any other applicable governmental authority's rules, regulations or ordinances.

1. Operator: Devon Energy Production Co., LP OGRID #: 6137  
Address: 20 North Broadway OKC, OK 73102-8260  
Facility or well name: Shaqtus 26 State Com 2H  
API Number: 30-015-39896 OCD Permit Number: 212477  
U/L or Qtr/Qtr C Section 35 Township 21S Range 31E County: Eddy County, NM  
Center of Proposed Design: Latitude \_\_\_\_\_ Longitude \_\_\_\_\_ NAD: ☐ 1927 ☒ 1983  
Surface Owner: ☐ Federal ☒ State ☐ Private ☐ Tribal Trust or Indian Allotment

2. ☒ **Closed-loop System:** Subsection H of 19.15.17.11 NMAC

Operation: ☒ Drilling a new well ☐ Workover or Drilling (Applies to activities which require prior approval of a permit or notice of intent) ☐ P&A

☒ Above Ground Steel Tanks or ☒ Haul-off Bins

3. **Signs:** Subsection C of 19.15.17.11 NMAC

☐ 12"x 24", 2" lettering, providing Operator's name, site location, and emergency telephone numbers

☒ Signed in compliance with 19.15.3.103 NMAC

RECEIVED

FEB 06 2012

NMOCD ARTESIA

4. **Closed-loop Systems Permit Application Attachment Checklist:** Subsection B of 19.15.17.9 NMAC

**Instructions:** Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.

☒ Design Plan - based upon the appropriate requirements of 19.15.17.11 NMAC

☒ Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC

☒ Closure Plan (Please complete Box 5) - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC

☐ Previously Approved Design (attach copy of design) API Number: \_\_\_\_\_

☐ Previously Approved Operating and Maintenance Plan API Number: \_\_\_\_\_

5. **Waste Removal Closure For Closed-loop Systems That Utilize Above Ground Steel Tanks or Haul-off Bins Only:** (19.15.17.13.D NMAC)

**Instructions:** Please identify the facility or facilities for the disposal of liquids, drilling fluids and drill cuttings. Use attachment if more than two facilities are required.

Disposal Facility Name: CRI Disposal Facility Permit Number: R9166

Disposal Facility Name \_\_\_\_\_ Disposal Facility Permit Number: \_\_\_\_\_

Will any of the proposed closed-loop system operations and associated activities occur on or in areas that will not be used for future service and operations?

☐ Yes (If yes, please provide the information below) ☒ No

Required for impacted areas which will not be used for future service and operations:

☐ Soil Backfill and Cover Design Specifications - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC

☐ Re-vegetation Plan - based upon the appropriate requirements of Subsection I of 19.15.17.13 NMAC

☐ Site Reclamation Plan - based upon the appropriate requirements of Subsection G of 19.15.17.13 NMAC

6. **Operator Application Certification:**

I hereby certify that the information submitted with this application is true, accurate and complete to the best of my knowledge and belief.

Name (Print): Judy A. Barnett Title: Regulatory Specialist

Signature: Judy A. Barnett Date: 1/21/12

e-mail address: Judith.Barnett@dvn.com Telephone: 405.228.8699

7. **OCD Approval:** ☒ Permit Application (including closure plan) ☐ Closure Plan (only)

OCD Representative Signature: RDade

Approval Date: 02/07/2012

Title: Dist H Supervisor

OCD Permit Number: 212477

8. **Closure Report (required within 60 days of closure completion):** Subsection K of 19.15.17.13 NMAC

*Instructions: Operators are required to obtain an approved closure plan prior to implementing any closure activities and submitting the closure report. The closure report is required to be submitted to the division within 60 days of the completion of the closure activities. Please do not complete this section of the form until an approved closure plan has been obtained and the closure activities have been completed.*

☐ Closure Completion Date: \_\_\_\_\_

9. **Closure Report Regarding Waste Removal Closure For Closed-loop Systems That Utilize Above Ground Steel Tanks or Haul-off Bins Only:**

*Instructions: Please indentify the facility or facilities for where the liquids, drilling fluids and drill cuttings were disposed. Use attachment if more than two facilities were utilized.*

Disposal Facility Name: \_\_\_\_\_ Disposal Facility Permit Number: \_\_\_\_\_

Disposal Facility Name: \_\_\_\_\_ Disposal Facility Permit Number: \_\_\_\_\_

Were the closed-loop system operations and associated activities performed on or in areas that *will not* be used for future service and operations?

☐ Yes (If yes, please demonstrate compliance to the items below) ☐ No

*Required for impacted areas which will not be used for future service and operations:*

☐ Site Reclamation (Photo Documentation)

☐ Soil Backfilling and Cover Installation

☐ Re-vegetation Application Rates and Seeding Technique

10. **Operator Closure Certification:**

I hereby certify that the information and attachments submitted with this closure report is true, accurate and complete to the best of my knowledge and belief. I also certify that the closure complies with all applicable closure requirements and conditions specified in the approved closure plan

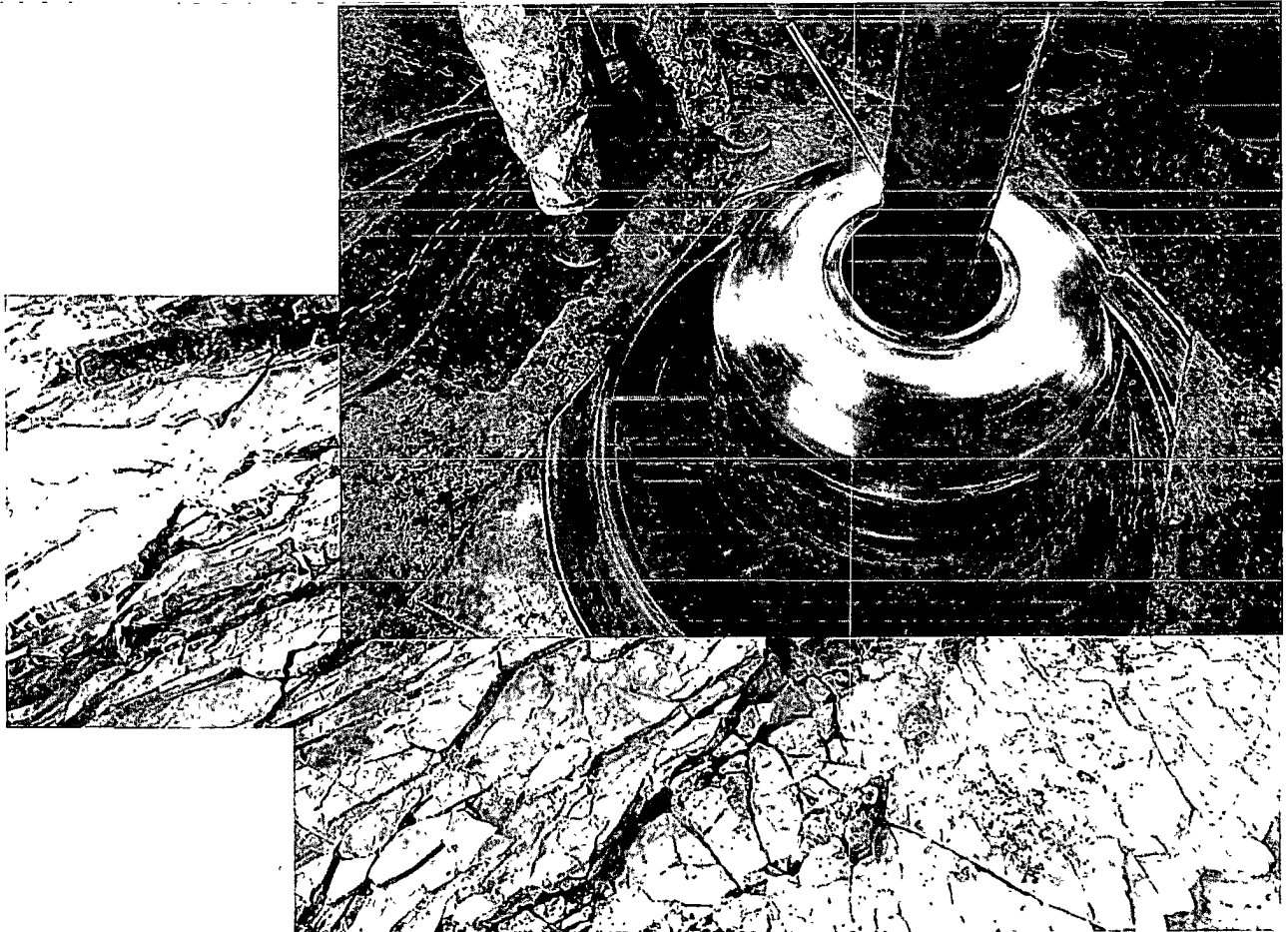
Name (Print): \_\_\_\_\_ Title: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

e-mail address: \_\_\_\_\_ Telephone: \_\_\_\_\_



Commitment Runs Deep



Design Plan  
Operation and Maintenance Plan  
Closure Plan

SENM - Closed Loop Systems  
June 2010

## **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.

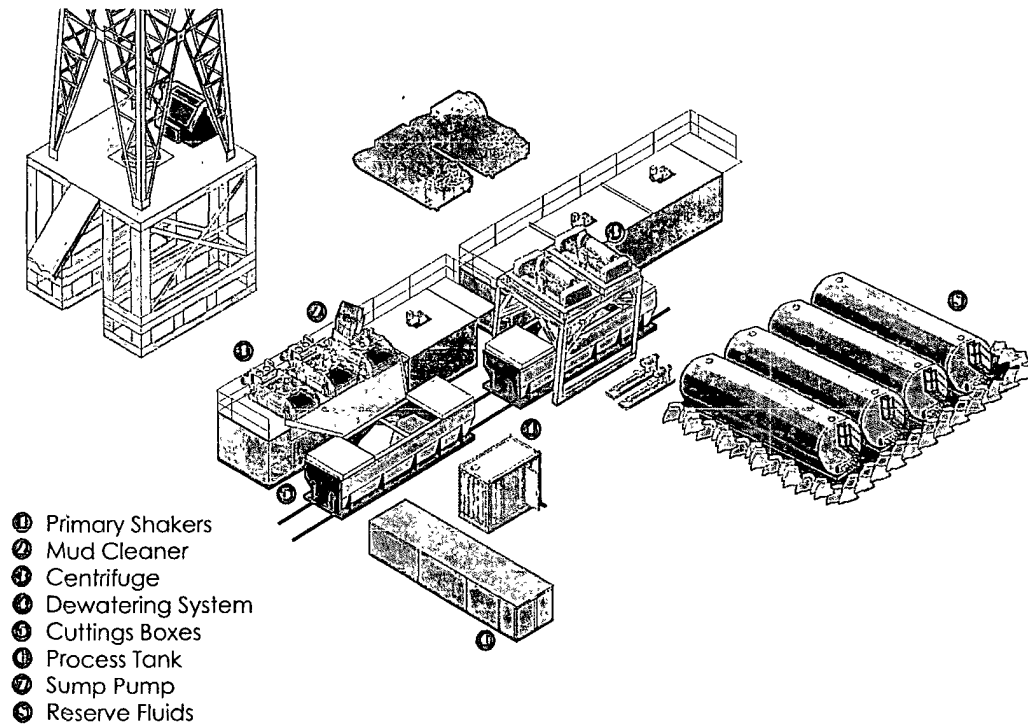
## **II. Operations and Maintenance Plan**

*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.



**Weatherford<sup>®</sup>**

## **Drilling Services**

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## **Proposal**

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**devon**

SHAQTUS 26 STATE COM #2H

EDDY COUNTY, NM

WELL FILE: **PLAN 1**

JANUARY 30, 2012

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**Weatherford International, Ltd.**

P O. Box 61028

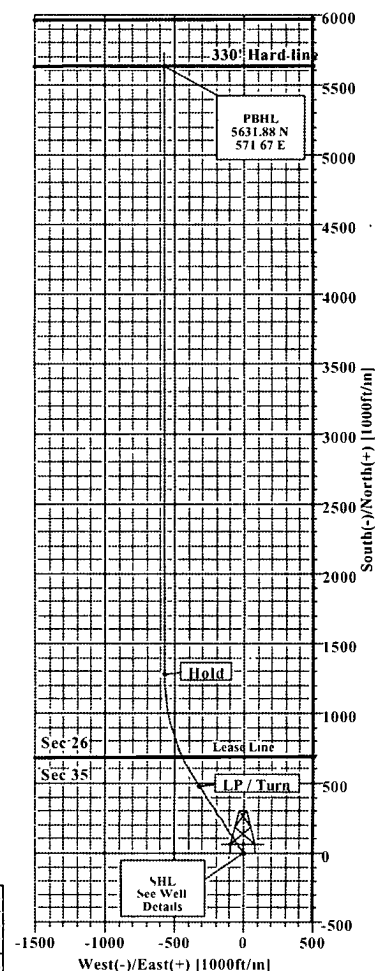
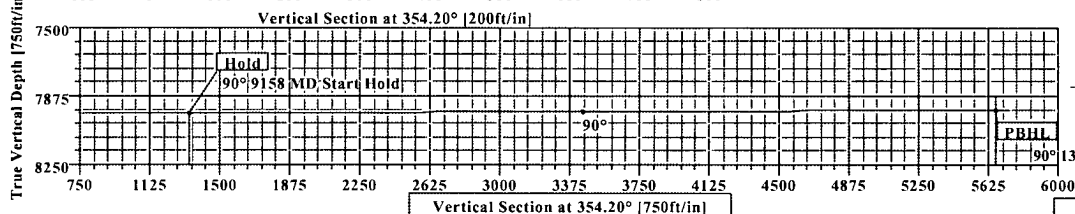
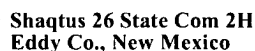
Midland, TX 79711 USA

+1.432.561.8892 Main

+1.432.561.8895 Fax

[www.weatherford.com](http://www.weatherford.com)





Plan: Plan #1 (2H/1)  
Created By: Keith Noack Date: 1/30/2012



# Weatherford International Ltd.

## WFT Plan Report - X & Y's



Company: Devon Energy	Date: 1/30/2012	Time: 09:40 31	Page: 1
Field: Eddy Co., NM (NAD 83)	Co-ordinate(NE) Reference:	Well: 2H, Grid North	
Site: Shaqtus 26 State Com 2H	Vertical (TVD) Reference:	SITE 3540.8	
Well: 2H	Section (VS) Reference:	Well (0 00N,0 00E,354.20Azi)	
Wellpath: 1	Survey Calculation Method:	Minimum Curvature	Db: Sybase

Plan: Plan #1	Date Composed: 1/30/2012
Principal: Yes	Version: 1
	Tied-to: From Surface

Field: Eddy Co , NM (NAD 83)	
Map System: US State Plane Coordinate System 1983	Map Zone: New Mexico, Eastern Zone
Geo Datum: GRS 1980	Coordinate System: Well Centre
Sys Datum: Mean Sea Level	Geomagnetic Model: IGRF2010

Site: Shaqtus 26 State Com 2H		
Site Position:	Northing: 524452.76 ft	Latitude: 32 26 25.539 N
From: Map	Easting: 721610 14 ft	Longitude: 103 44 56 345 W
Position Uncertainty: 0 00 ft		North Reference: Grd
Ground Level: 3514 80 ft		Grid Convergence: 0 31 deg

Well: 2H	Slot Name:	
Well Position: +N/-S 0 00 ft	Northing: 524452 76 ft	Latitude: 32 26 25 539 N
+E/-W 0 00 ft	Easting : 721610 14 ft	Longitude: 103 44 56 345 W
Position Uncertainty: 0 00 ft		

Wellpath: 1	Drilled From: Surface		
Current Datum: SITE	Tie-on Depth: 0 00 ft		
Magnetic Data: 4/1/2012	Above System Datum: Mean Sea Level		
Field Strength: 48673 nT	Declination: 7.59 deg		
Vertical Section: Depth From (TVD)	Mag Dip Angle: 60 34 deg		
ft	+N/-S	+E/-W	Direction
	ft	ft	deg
7953.00	0 00	0.00	354.20

### Plan Section Information

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	TFO deg	Target
0 00	0 00	0 00	0 00	0 00	0 00	0 00	0.00	0.00	0 00	
7400 05	0.00	0 00	7400 05	0 00	0.00	0 00	0.00	0.00	0 00	
8302 25	90 22	325.76	7973 00	475.48	-323 62	10 00	10 00	0 00	325.76	
9158 31	90.22	0 00	7969 62	1281 48	-571 87	4.00	0 00	4 00	89.93	
13508 74	90.22	0 00	7953 00	5631.88	-571 67	0 00	0.00	0 00	0 00	PBHL

### Survey

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	VS ft	DLS deg/100ft	MapN ft	MapE ft	Comment
7400 00	0 00	0.00	7400 00	0 00	0 00	0 00	0.00	524452.76	721610 14	
7400.05	0.00	0 00	7400 05	0.00	0 00	0 00	0.00	524452 76	721610.14	KOP
7500 00	10 00	325 76	7499 49	7.19	-4 89	7 65	10.00	524459 95	721605.25	
7600 00	20 00	325.76	7595 97	28 55	-19.43	30 37	10 00	524481 31	721590.71	
7700.00	30 00	325 76	7686 49	63 44	-43.18	67.48	10.00	524516.20	721566 96	
7800.00	40 00	325 76	7768 30	110 79	-75 40	117.84	10 00	524563.55	721534 74	
7900 00	50 00	325.76	7838.93	169 16	-115 14	179 93	10.00	524621.92	721495.00	
8000 00	60 00	325 76	7896.22	236 79	-161 17	251 87	10 00	524689 55	721448.97	
8100 00	70 00	325 76	7938 44	311.62	-212 09	331 46	10 00	524764 38	721398 05	
8200 00	80 00	325 76	7964 29	391 37	-266 37	416 28	10 00	524844 13	721343.77	
8300.00	90.00	325.76	7973 01	473.62	-322 35	503.77	10 00	524926 38	721287.79	
8302.25	90 22	325 76	7973 00	475.48	-323 62	505.75	10 00	524928 24	721286.52	LP / Turn
8400 00	90.22	329.67	7972 62	558 10	-375 82	593.22	4 00	525010 86	721234.32	
8500.00	90 23	333.67	7972 23	646 10	-423 26	685.57	4 00	525098 86	721186 88	
8600 00	90 23	337.67	7971 83	737 20	-464.45	780 36	4.00	525189 96	721145 69	
8700.00	90.23	341.67	7971.43	830 95	-499.19	877 14	4.00	525283 71	721110 95	



# Weatherford International Ltd.

## WFT Plan Report - X & Y's



Weatherford

Company: Devon Energy  
Field: Eddy Co., NM (NAD 83)  
Site: Shaqtus 26 State Com 2H  
Well: 2H  
Wellpath: 1

Date: 1/30/2012  
Co-ordinate(NE) Reference: Well: 2H, Grid North  
Vertical (TVD) Reference: SITE 3540.8  
Section (VS) Reference: Well (0.00N,0.00E,354.20Azi)  
Survey Calculation Method: Minimum Curvature  
Db: Sybase

Page: 2

### Survey

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	VS ft	DLS deg/100ft	MapN ft	MapE ft	Comment
8800.00	90.23	345.67	7971.03	926.90	-527.30	975.44	4.00	525379.66	721082.84	
8900.00	90.23	349.67	7970.63	1024.57	-548.65	1074.77	4.00	525477.33	721061.49	
9000.00	90.23	353.67	7970.24	1123.49	-563.13	1174.65	4.00	525576.25	721047.01	
9100.00	90.22	357.67	7969.85	1223.19	-570.68	1274.60	4.00	525675.95	721039.46	
9158.31	90.22	0.00	7969.62	1281.48	-571.87	1332.71	4.00	525734.24	721038.27	Hold
9200.00	90.22	0.00	7969.46	1323.17	-571.86	1374.19	0.00	525775.93	721038.28	
9300.00	90.22	0.00	7969.08	1423.17	-571.86	1473.68	0.00	525875.93	721038.28	
9400.00	90.22	0.00	7968.70	1523.17	-571.86	1573.16	0.00	525975.93	721038.28	
9500.00	90.22	0.00	7968.32	1623.17	-571.85	1672.65	0.00	526075.93	721038.29	
9600.00	90.22	0.00	7967.94	1723.17	-571.85	1772.14	0.00	526175.93	721038.29	
9700.00	90.22	0.00	7967.55	1823.17	-571.84	1871.62	0.00	526275.93	721038.30	
9800.00	90.22	0.00	7967.17	1923.17	-571.84	1971.11	0.00	526375.93	721038.30	
9900.00	90.22	0.00	7966.79	2023.17	-571.83	2070.60	0.00	526475.93	721038.31	
10000.00	90.22	0.00	7966.41	2123.17	-571.83	2170.08	0.00	526575.93	721038.31	
10100.00	90.22	0.00	7966.03	2223.17	-571.82	2269.57	0.00	526675.93	721038.32	
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11100.00	90.22	0.00	7962.20	3223.16	-571.78	3264.44	0.00	527675.92	721038.36	
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11900.00	90.22	0.00	7959.15	4023.15	-571.74	4060.33	0.00	528475.91	721038.40	
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12100.00	90.22	0.00	7958.38	4223.15	-571.73	4259.31	0.00	528675.91	721038.41	
12200.00	90.22	0.00	7958.00	4323.15	-571.73	4358.80	0.00	528775.91	721038.41	
12300.00	90.22	0.00	7957.62	4423.15	-571.72	4458.28	0.00	528875.91	721038.42	
12400.00	90.22	0.00	7957.24	4523.15	-571.72	4557.77	0.00	528975.91	721038.42	
12500.00	90.22	0.00	7956.85	4623.15	-571.72	4657.26	0.00	529075.91	721038.42	
12600.00	90.22	0.00	7956.47	4723.15	-571.71	4756.74	0.00	529175.91	721038.43	
12700.00	90.22	0.00	7956.09	4823.15	-571.71	4856.23	0.00	529275.91	721038.43	
12800.00	90.22	0.00	7955.71	4923.15	-571.70	4955.72	0.00	529375.91	721038.44	
12900.00	90.22	0.00	7955.33	5023.14	-571.70	5055.20	0.00	529475.90	721038.44	
13000.00	90.22	0.00	7954.94	5123.14	-571.69	5154.69	0.00	529575.90	721038.45	
13100.00	90.22	0.00	7954.56	5223.14	-571.69	5254.18	0.00	529675.90	721038.45	
13200.00	90.22	0.00	7954.18	5323.14	-571.68	5353.66	0.00	529775.90	721038.46	
13300.00	90.22	0.00	7953.80	5423.14	-571.68	5453.15	0.00	529875.90	721038.46	
13400.00	90.22	0.00	7953.42	5523.14	-571.67	5552.64	0.00	529975.90	721038.47	
13500.00	90.22	0.00	7953.03	5623.14	-571.67	5652.12	0.00	530075.90	721038.47	
13508.74	90.22	0.00	7953.00	5631.88	-571.67	5660.82	0.00	530084.64	721038.47	PBHL



# Weatherford International Ltd.

## WFT Plan Report - X & Y's



Company:	Devon Energy	Date:	1/30/2012	Time:	09 40 31	Page:	3
Field:	Eddy Co., NM (NAD 83)	Co-ordinate(NE) Reference:	Well: 2H, Grid North				
Site:	Shagtus 26 State Com 2H	Vertical (TVD) Reference:	SITE 3540 8				
Well:	2H	Section (VS) Reference:	Well (0.00N,0 00E,354.20Azi)				
Wellpath:	1	Survey Calculation Method:	Minimum Curvature	Db:	Sybase		

### Targets

Name	Description Dip.	Dir.	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	<--- Latitude ---> Deg Min Sec	<--- Longitude ---> Deg Min Sec
PBHL			7953.00	5631 88	-571.67	530084.64	721038 47	32 27 21.298 N	103 45 2.657 W

### Casing Points

MD	TVD	Diameter	Hole Size	Name

### Annotation

MD ft	TVD ft	
7400.05	7400 05	KOP
8302 25	7973 00	LP / Turn
9158.31	7969.62	Hold
13508.73	7953 00	PBHL

### Formations

MD	TVD	Formations	Lithology	Dip Angle	Dip Direction

**Weatherford®****Weatherford Drilling Services**

GeoDec v5.03

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Report Date: January 30, 2012  
Job Number: \_\_\_\_\_  
Customer: Devon Energy  
Well Name: Shaqtus 26 State Com 2H  
API Number: \_\_\_\_\_  
Rig Name: \_\_\_\_\_  
Location: Eddy Co., NM (NAD 83)  
Block: \_\_\_\_\_  
Engineer: KRN

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US State Plane 1983	Geodetic Latitude / Longitude
System: New Mexico Eastern Zone	System: Latitude / Longitude
Projection: Transverse Mercator/Gauss Kruger	Projection: Geodetic Latitude and Longitude
Datum: North American Datum 1983	Datum: North American Datum 1983
Ellipsoid: GRS 1980	Ellipsoid: GRS 1980
North/South 524452.760 USFT	Latitude 32.4404304 DEG
East/West 721610.140 USFT	Longitude -103.7489801 DEG
Grid Convergence: .31°	
Total Correction: +7.28°	

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Geodetic Location WGS84	Elevation =	0.0 Meters
Latitude =	32.44043° N	32° 26 min 25.549 sec
Longitude =	103.74898° W	103° 44 min 56.328 sec

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Magnetic Declination =	7.59°	[True North Offset]
Local Gravity =	.9988 g	Checksum = 6647
Local Field Strength =	48669 nT	Magnetic Vector X = 23875 nT
Magnetic Dip =	60.34°	Magnetic Vector Y = 3180 nT
Magnetic Model =	IGRF-2010g11	Magnetic Vector Z = 42291 nT
Spud Date =	Apr 01, 2012	Magnetic Vector H = 24086 nT

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Signed: \_\_\_\_\_

Date: \_\_\_\_\_