

30-015-38482

## **SURFACE USE PLAN**

Devon Energy Production Company, LP

### **Helios 6 Fed Com 1H**

Surface Location: 340' FSL & 220' FEL, Unit P, Sec 6 T19S R31E, Eddy, NM

Bottom hole Location: 340' FNL & 340' FEL, Unit A, Sec 6 T19S R31E, Eddy, NM

#### **1. Existing Roads:**

- a. The well site and elevation plat for the proposed well are reflected on the well site layout; Form C-102. The well was staked by Basin Surveys.
- b. All roads into the location are depicted on the surveyor plats.
- c. Directions to Location: From CR #222 (Shugart Road) and CR #248 (Lusk Plant Rd) go north on 222 0.5 miles turn left on caliche road and go southwest 1.5 miles turn left on old abandoned road and go south 0.3 miles to a proposed road survey and follow flags SW 510' to the NW pad corner for this location.
- d. Routine grading and maintenance of existing roads will be conducted as necessary to maintain their condition as long as any operations continue on this lease.
- e. If existing road is shared with other operators, Devon will share in its cost to maintain the road as required by the BLM.

#### **2. New or Reconstructed Access Roads:**

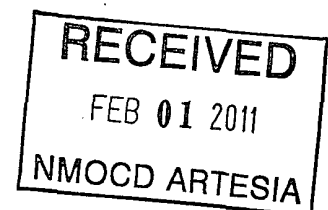
- a. The well site layout, Form C-102 shows approximately 510' of new access road will be constructed as follows:
- b. The maximum width of the road will be 14'. It will be crowned and made of 6" of rolled and compacted caliche. Water will be deflected, as necessary, to avoid accumulation and prevent surface erosion.
- c. Surface material will be native caliche. This material will be obtained from a BLM approved pit nearest in proximity to the location. The average grade will be approximately 2%.
- d. No cattle guards, grates or fence cuts will be required. No turnouts are planned.

#### **3. Location of Existing Wells:**

1 Mile Radius Plat shows all existing and proposed wells within a one-mile radius of the proposed location. See attached plat.

#### **4. Location of Existing and/or Proposed Production Facilities:**

- a. In the event the well is found productive, the Helios Fed Com 1H tank battery (would be utilized and the necessary production equipment will be installed at the well site.
- b. If necessary, the well will be operated by means of an electric prime mover. Electric power poles will be set along side of the access road.
- c. If the well is productive, rehabilitation plans are as follows:
  - i. A closed loop system will be utilized.
  - ii. The original topsoil from the well site will be returned to the location. The drill site will then be contoured as close as possible to the original state.



**4. Location and Types of Water Supply:**

This location will be drilled using a combination of water mud systems (outlined in the Drilling Program). The water will be obtained from commercial water stations in the area and hauled to location by transport truck using the existing and proposed roads shown in the C-102. On occasion, water will be obtained from a pre-existing water well, running a pump directly to the drill rig. In these cases where a poly pipeline is used to transport water for drilling purposes, proper authorizations will be secured. If a poly pipeline is used, the size, distance, and map showing route will be provided to the BLM via sundry notice.

**5. Construction Materials:**

The caliche utilized for the drilling pad and proposed access road will be from minerals that are located onsite or will be used onsite. If minerals are not available onsite, then an established mineral pit will be used to build the location and stem road.

**6. Methods of Handling Waste Material:**

- a. Drill cuttings will be disposed of in a closed loop system.
- b. All trash, junk and other waste material will be contained in trash cages or trash bins to prevent scattering. When the job is completed all contents will be removed and disposed of in an approved sanitary landfill.
- c. The supplier, including broken sacks, will pick up salts remaining after completion of well.
- d. A Porto-john will be provided for the rig crews. This equipment will be properly maintained during the drilling and completion operations and will be removed when all operations are complete.
- e. Remaining drilling fluids will be sent to a closed loop system. Water produced during completion will be put into a closed loop system. Oil and condensate produced will be put into a storage tank and sold.
- f. Disposal of fluids to be transported by the following companies:
  - i. American Production Service Inc, Odessa TX
  - ii. Gandy Corporation, Lovington NM
  - iii. I & W Inc, Loco Hill NM
  - iv. Jims Water Service of Co Inc, Denver CO

**7. Ancillary Facilities:** No campsite or other facilities will be constructed as a result of this well.

**8. Well Site Layout**

- a. The rig layout diagram shows the proposed well site layout with dimensions of the pad layout.
- b. This exhibit indicated proposed location of reserve and sump pits and living facilities.
- c. A closed loop system will be utilized.
- d. If a pit or closed loop system will be utilized, Devon will comply with the NMOCD requirements 19.15.17 and submit form C-144 CLEZ to the appropriate NMOCD District Office. An unapproved copy is provided within the APD.
- e. Topsoil Stockpiling:
  - i. Standard practice is topsoil will be pushed to the high side of location to prevent water from running across location to control erosion. If a cut out is done and there are two or three high sides, we will use those there.

**9. Plans for Surface Reclamation Include Both Final & Interim:**

- a. After concluding the drilling and/or completion operations, if the well is found non-commercial, the caliche will be removed from the pad and used for other drilling locations, repair existing roads, repair existing locations, etc. The road will be reclaimed as directed by the BLM. The original top soil will again be returned to the pad and contoured, as close as possible, to the original topography. We will use a closed loop system.
- b. The location and road will be rehabilitated as recommended by the BLM.
- c. If the well is deemed commercially productive, caliche from areas of the pad site not required for operations will be reclaimed. The original top soil will be returned to the area of the drill pad not necessary to operate the well. These unused areas of the drill pad will be contoured, as close as possible, to match the original topography.
- d. All disturbed areas not needed for active support of production operations will undergo interim reclamation. The portions of the cleared well site not needed for operational and safety purposes will be recontoured to a final or intermediate contour that blends with the surrounding topography as much as possible. Topsoil will be respread over areas not needed for all-weather operations.

**10. Surface Ownership**

- a. The surface is owned by the US Government and is administered by the Bureau of Land Management. The surface is multiple use with the primary uses of the region for the grazing of livestock and the production of oil and gas.
- b. The proposed road routes and the surface location will be restored as directed by the BLM.

**11. Other Information:**

- a. The area surrounding the well site is grassland. The topsoil is very sandy in nature. The vegetation is moderately sparse with native prairie grass, sagebush, yucca and miscellaneous weeds. No wildlife was observed but it is likely that deer, rabbits, coyotes, and rodents traverse the area.
- b. There is no permanent or live water in the general proximity of the location.
- c. There are no dwellings within 2 miles of location.
- d. A Cultural Resources Examination will be completed by Southern New Mexico Archaeological Services, Inc. and forwarded to the BLM office in Carlsbad, New Mexico.

**13. Bond Coverage:**

Bond Coverage is Nationwide; Bond # is CO-1104

**Operators Representative:**

The Devon Energy Production Company, L.P. representatives responsible for ensuring compliance of the surface use plan are listed below.

Steven Jones  
Operations Engineer Advisor

Don Mayberry  
Superintendent

Devon Energy Production Company, L.P.  
20 North Broadway, Suite 1500  
Oklahoma City, OK 73102-8260

Devon Energy Production Company, L.P.  
Post Office Box 250  
Artesia, NM 88211-0250

(405) 552-7994 (office)  
(405) 596-8041 (cell)

(505) 748-0164 (office)  
(505) 748-5235 (cell)

**Certification**

I hereby certify that I, or persons under my direct supervision, have inspected the proposed drill site and access road proposed herein; that I am familiar with the conditions that presently exist; that I have full knowledge of State and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or Devon Energy Production Company, L.P. am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements.

I hereby also certify that I, or Devon Energy Production Company, L.P. have made a good faith effort to provide the surface owner with a copy of the Surface Use Plan of Operations and any Conditions of Approval that are attached to the APD.

Executed this 1st day of November, 2010.

Printed Name: Stephanie A. Masaga

Signed Name: [Signature]

Position Title: Sr. Staff Engineering Technician

Address: 20 North Broadway, OKC OK 73102

Telephone: (405)-552-7802

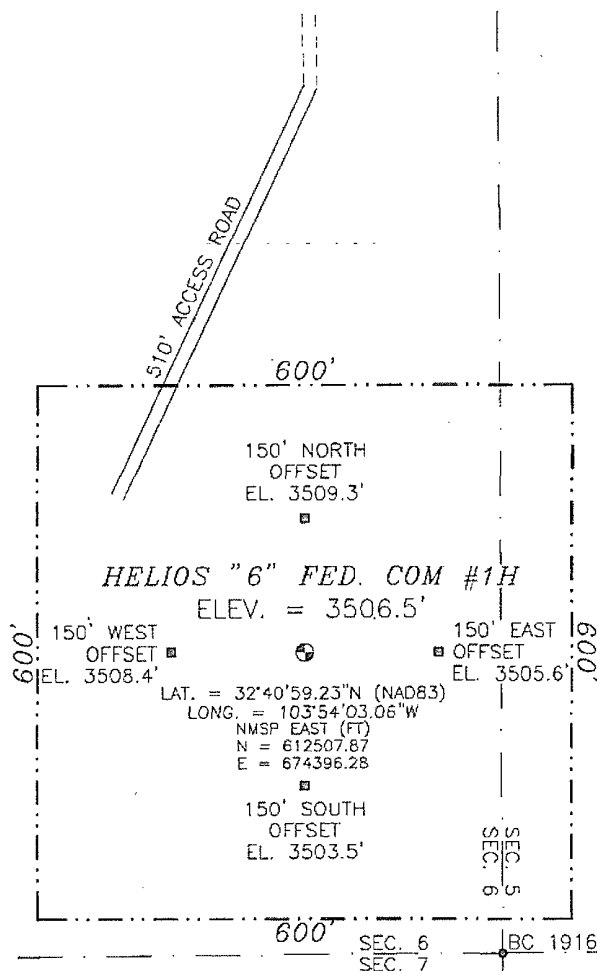
Field Representative (if not above signatory): Don Mayberry (see above)

Address (if different from above):

Telephone (if different from above):

E-mail (optional):

SECTION 6, TOWNSHIP 19 SOUTH, RANGE 31 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO



020 100 200 400

SCALE 1" = 200'

DIRECTIONS TO LOCATION

FROM CR. #222 (SHUGART RD.) AND CR. #248 (LUSK PLANT RD.)  
GO NORTH ON 222 0.5 MILES TURN LEFT ON CALICHE ROAD AND GO  
SOUTHWEST 1.5 MILES TURN LEFT ON OLD ABANDONED ROAD AND GO  
SOUTH 0.3 MILES TO A PROPOSED ROAD SURVEY AND FOLLOW FLAGS  
SW. 510' TO THE NW PAD CORNER FOR THIS LOCATION

DEVON ENERGY PRODUCTION COMPANY, L.P.

**HELIOS "6" FED. COM #1H**

LOCATED 340 FT. FROM THE SOUTH LINE

AND 220 FT. FROM THE EAST LINE OF

SECTION 6, TOWNSHIP 19 SOUTH,

RANGE 31 EAST, N.M.P.M.

EDDY COUNTY, STATE OF NEW MEXICO

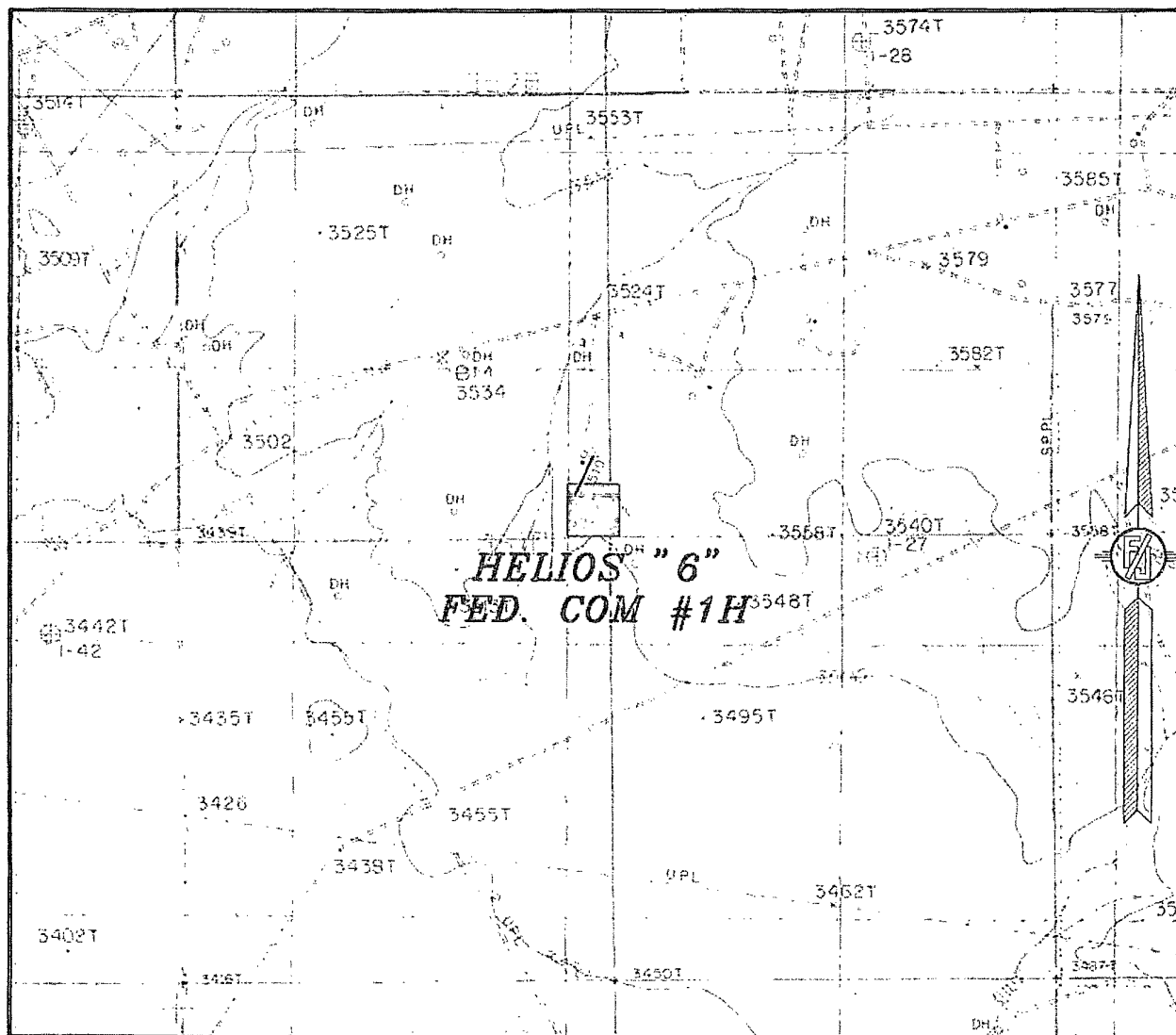
SURVEY NO. 284

OCTOBER 20, 2010

MADRON SURVEYING, INC. 39' SOUTH CANAL CARLSBAD, NEW MEXICO

(575) 887-5830

SECTION 6, TOWNSHIP 19 SOUTH, RANGE 31 EAST, N.M.P.M.  
 EDDY COUNTY, STATE OF NEW MEXICO  
**LOCATION VERIFICATION MAP**



CONTOUR INTERVAL:  
 HACKBERRY LAKE

NOT TO SCALE

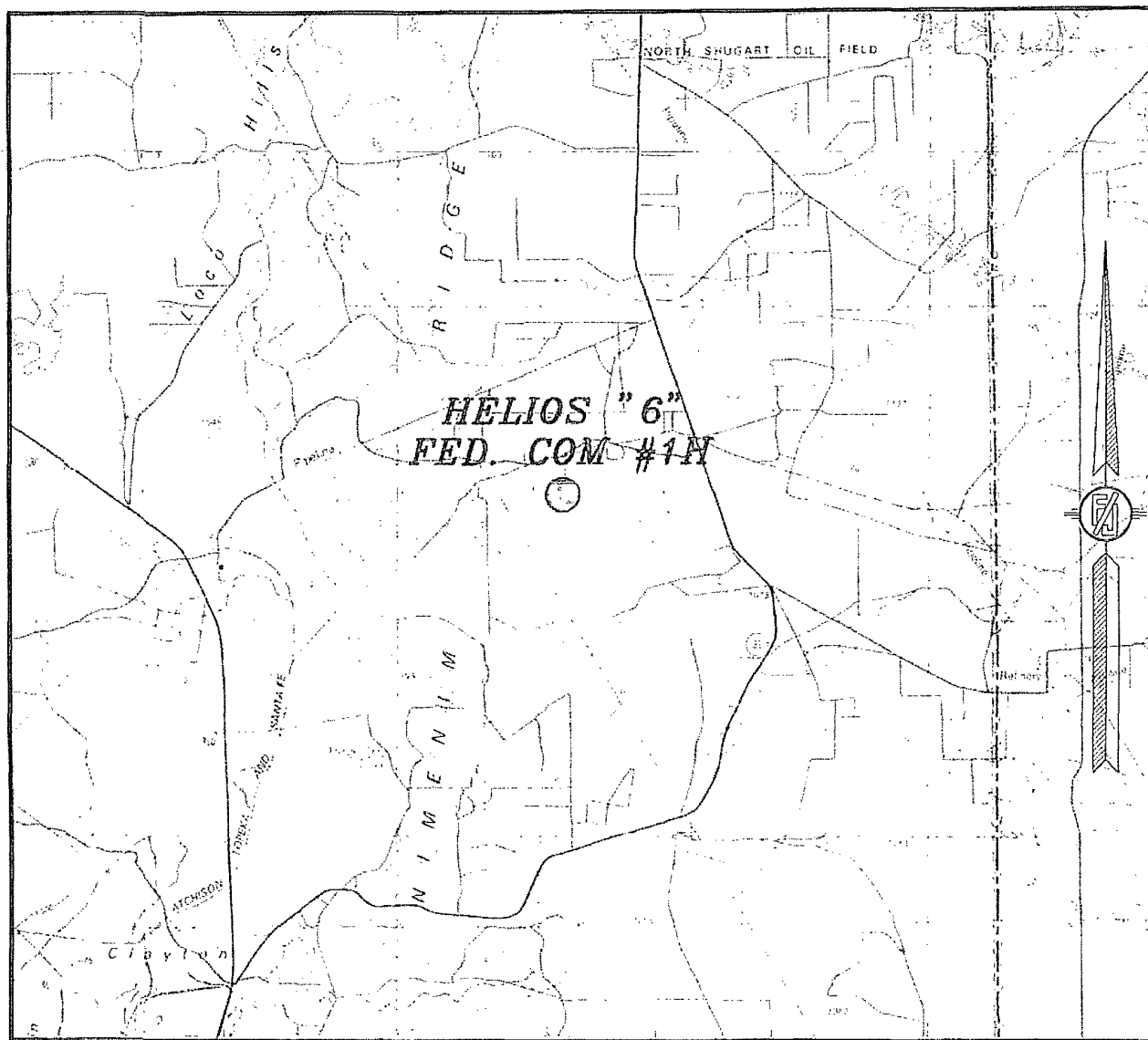
DEVON ENERGY PRODUCTION COMPANY, L.P.  
**HELIOS "6" FED. COM #1H**  
 LOCATED 340 FT. FROM THE SOUTH LINE  
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 SECTION 6, TOWNSHIP 19 SOUTH,  
 RANGE 31 EAST, N.M.P.M.  
 EDDY COUNTY, STATE OF NEW MEXICO

OCTOBER 20, 2010

SURVEY NO. 284

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 887-5830 CARLSBAD, NEW MEXICO

SECTION 6, TOWNSHIP 19 SOUTH, RANGE 31 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO  
**VICINITY MAP**



NOT TO SCALE

DEVON ENERGY PRODUCTION COMPANY, L.P.  
**HELIOS "6" FED. COM #1H**  
LOCATED 340 FT. FROM THE SOUTH LINE  
AND 220 FT. FROM THE EAST LINE OF  
SECTION 6, TOWNSHIP 19 SOUTH,  
RANGE 31 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO

OCTOBER 20, 2010

SURVEY NO. 284

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 867-5630 CARLSBAD, NEW MEXICO

SECTION 6, TOWNSHIP 19 SOUTH, RANGE 31 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO

## AERIAL PHOTO



NOT TO SCALE  
AERIAL PHOTO:  
GOOGLE EARTH  
USDA - AUG, 2009

DEVON ENERGY PRODUCTION COMPANY, L.P.

**HELIOS "6" FED. COM #1H**

LOCATED 340 FT. FROM THE SOUTH LINE  
AND 220 FT. FROM THE EAST LINE OF  
SECTION 6, TOWNSHIP 19 SOUTH,  
RANGE 31 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO

OCTOBER 20, 2010

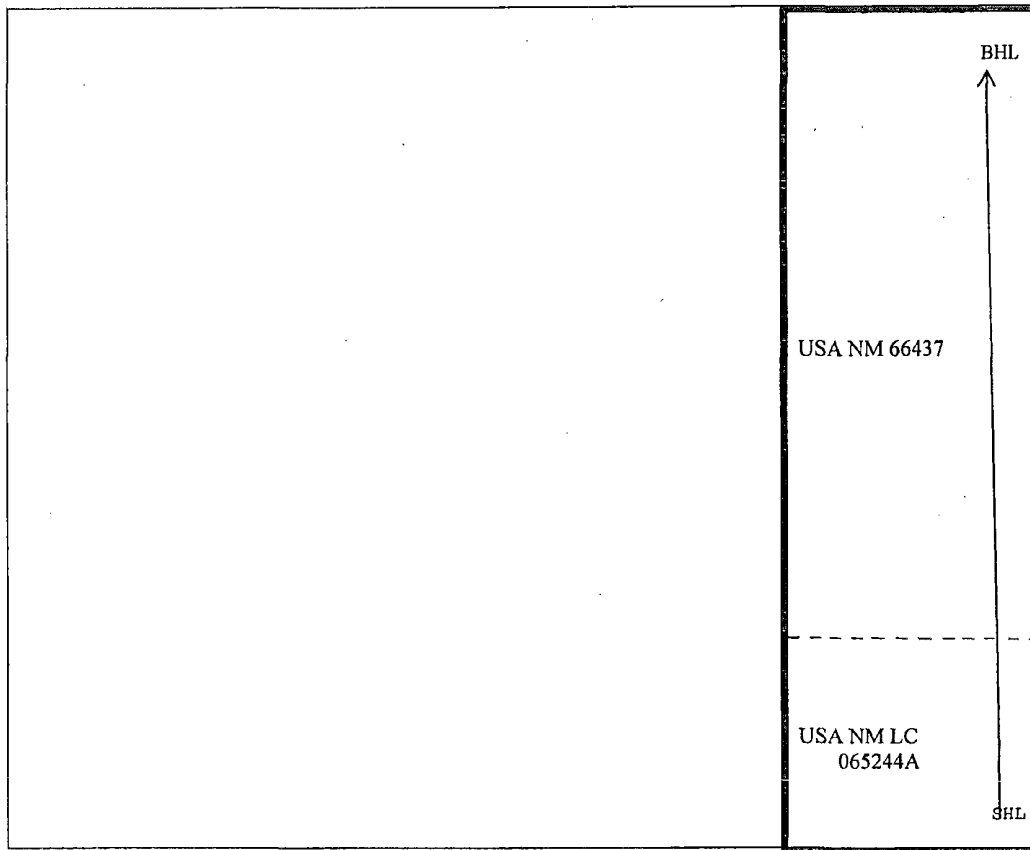
SURVEY NO. 284

MADRON SURVEYING, INC. 301 SOUTH CANAL CARLSBAD, NEW MEXICO  
(505) 887-5830

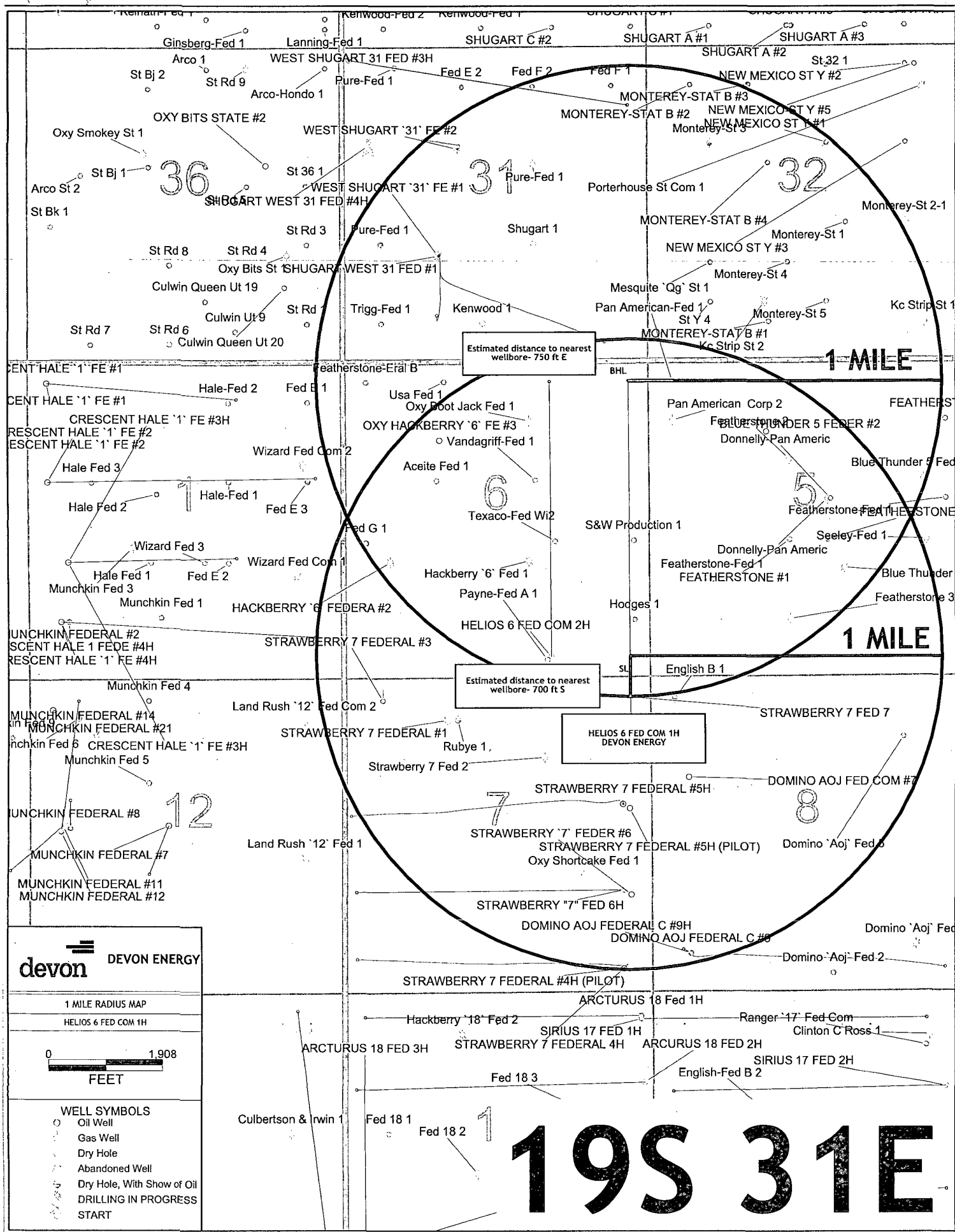
SECTION LAND PLAT

Eddy County State of New Mexico  
Section 6 Township 19 S Range 31 E

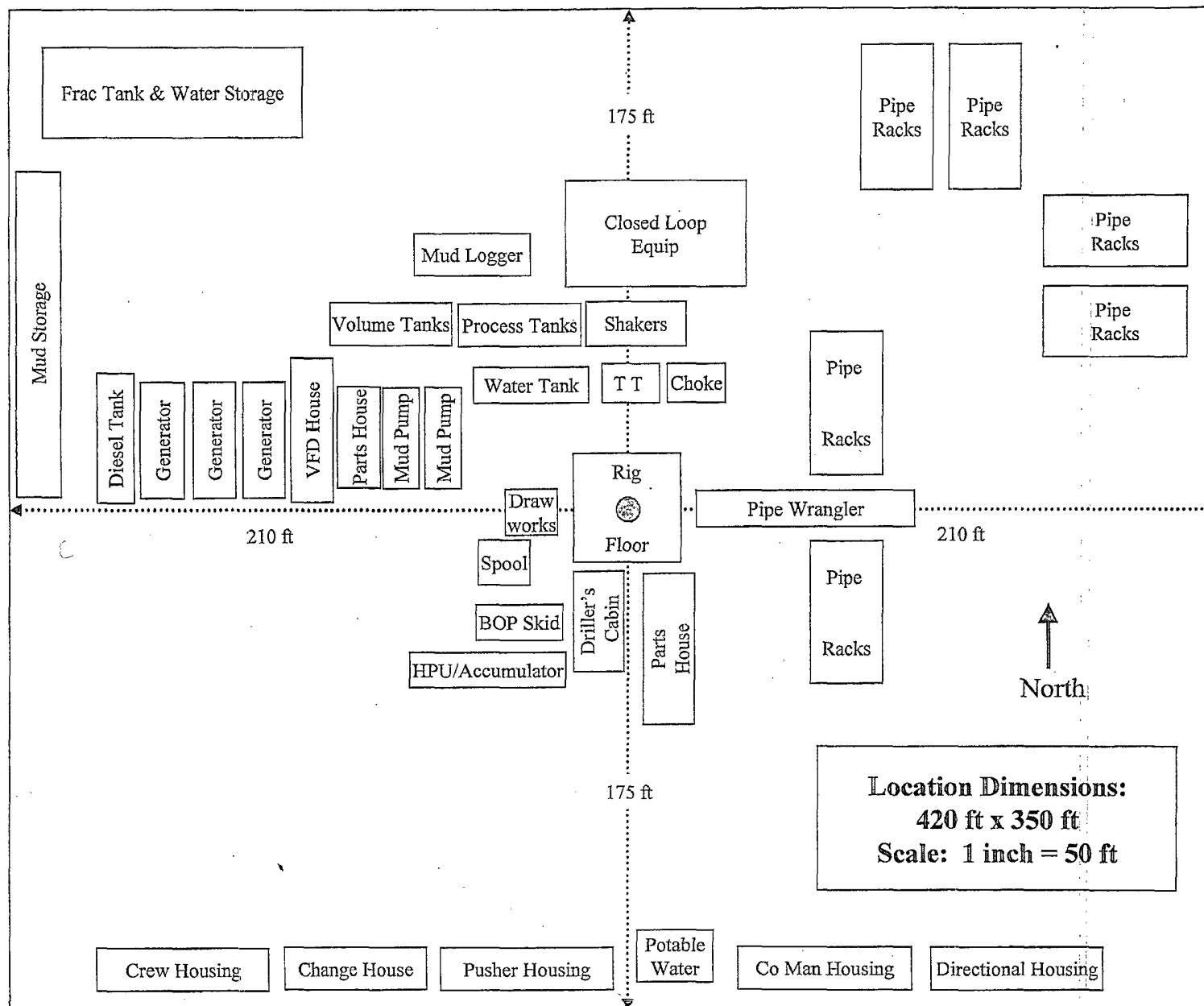
Helios 6 Fed Com 1 H  
SHL: 340' FSL, 220' FEL  
BHL: 340' FSL, 340' FEL



USA NM 66437 359 acres  
USA NMLC 065244A - 80 acres



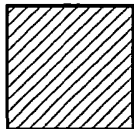
# H&P Flex Rig Location Layout





## Proposed Interim Site Reclamation

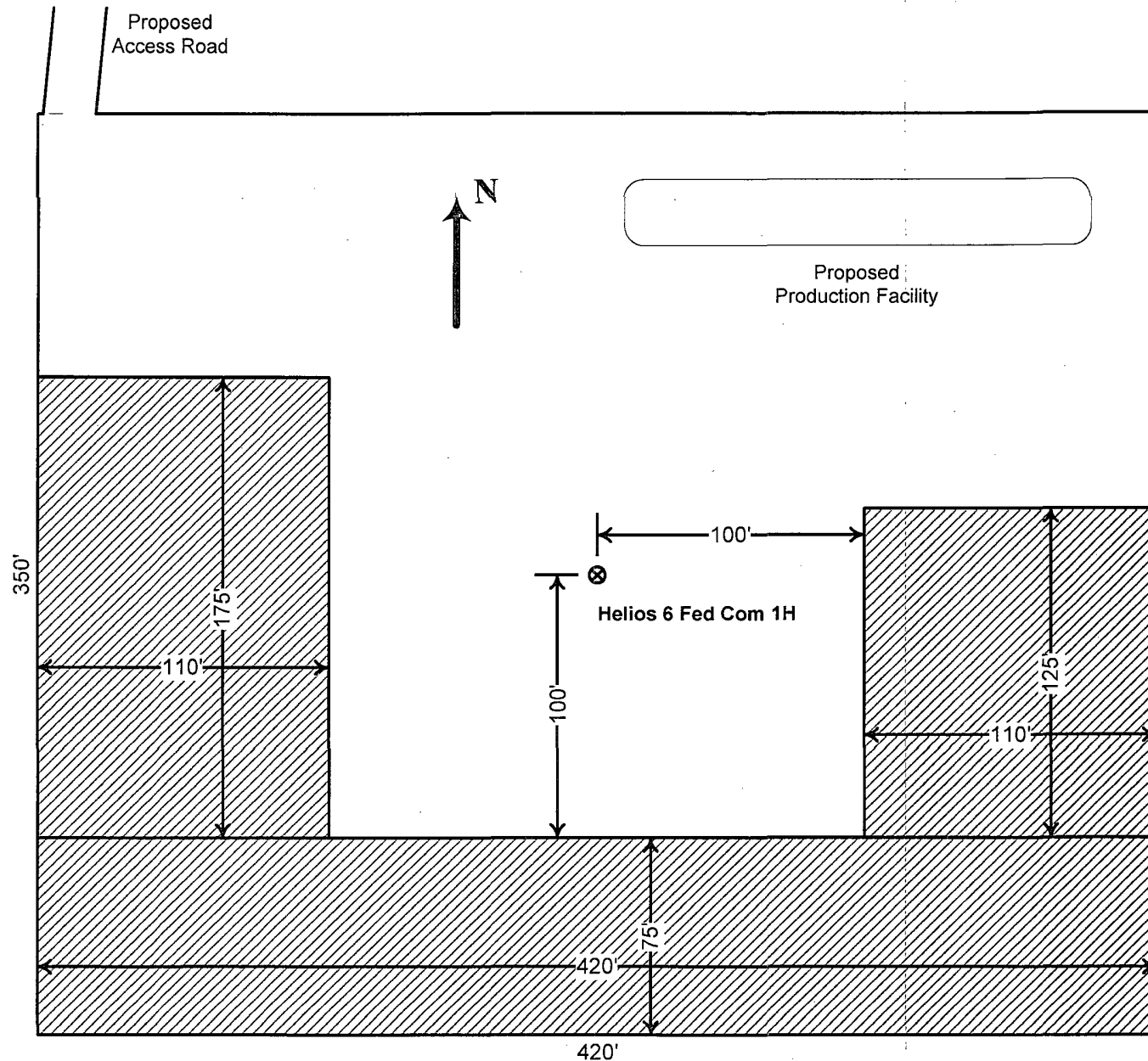
Devon Energy Production Co.  
Helios 6 Fed Com 1H  
340' FSL & 220' FEL  
Sec. 6-T19S-R31E  
Eddy County, NM



Proposed  
Reclamation  
Area

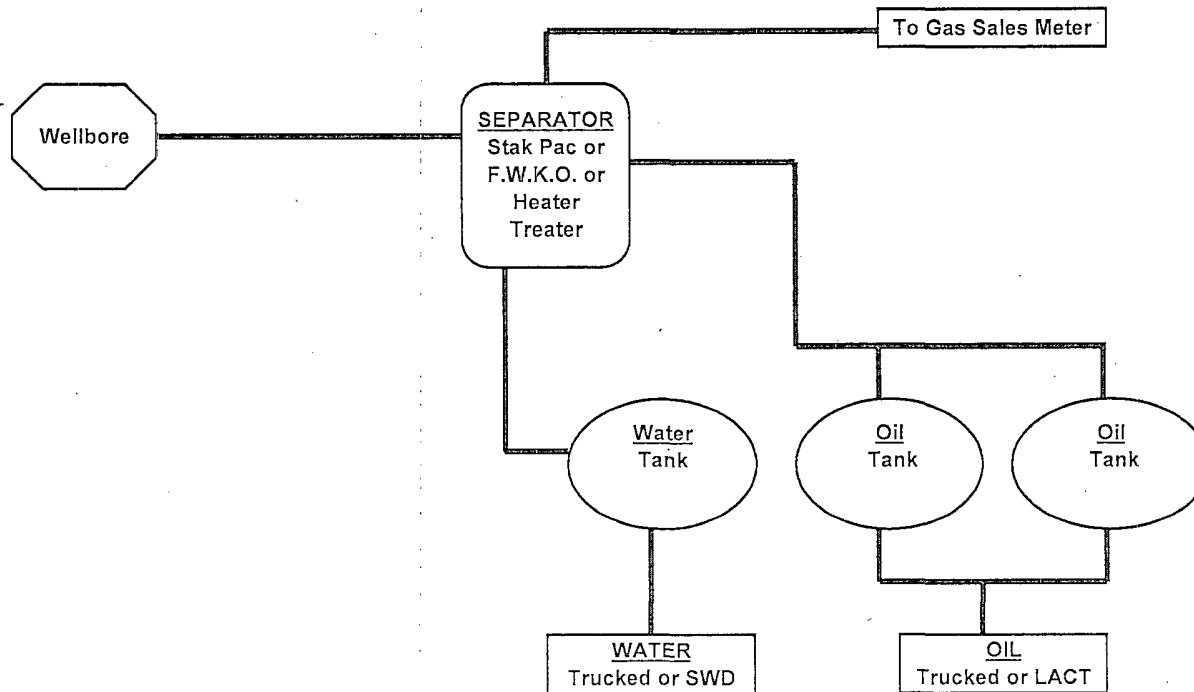


Scale: 1in = 60ft.

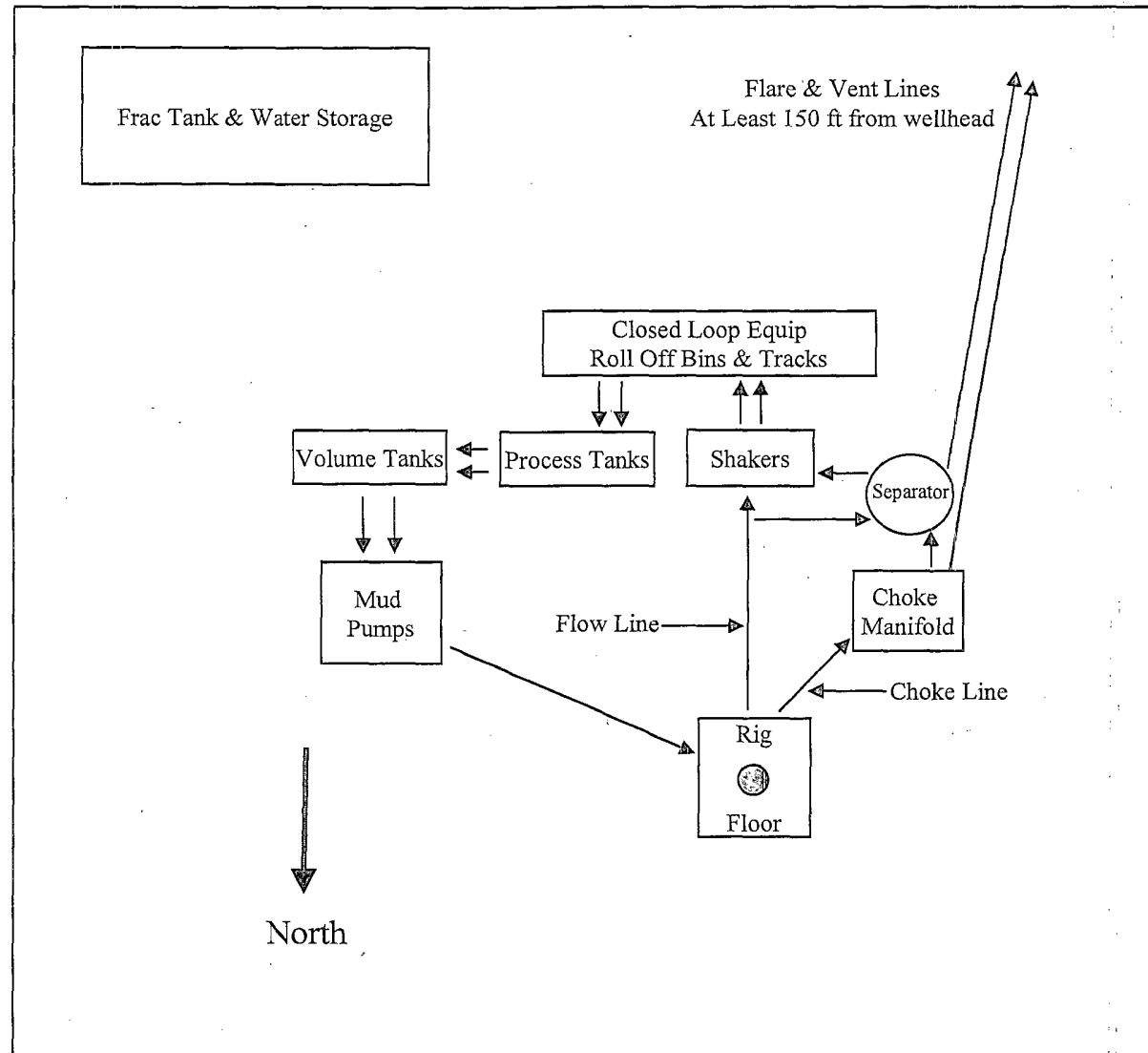


DEVON ENERGY PRODUCTION COMPANY LP

General Production Facilities Diagram



# Closed Loop Equipment Diagram





Proposal No: 690850057A

Devon Energy Corp  
Helios 6 Fed Com #1H

Eddy County, New Mexico  
November 3, 2010

**Well Proposal**

**Prepared for:**

Pat Brown  
Drilling Engineer  
Oklahoma City, Oklahoma  
Bus Phone: (405) 228-8511

**Prepared by:**

John Parks  
Region Technical Rep.  
Oklahoma City, Oklahoma



**Service Point:**

Artesia  
Bus Phone: (505) 746-3140  
Fax: (505) 746-2293

**Service Representatives:**

Larry Johnson  
Senior Sales Rep  
Artesia, New Mexico

**Operator Name:** Devon Energy Corp  
**Well Name:** Helios 6 Fed Com #1H  
**Job Description:** Surface Casing  
**Date:** November 3, 2010



**Proposal No:** 690850057A

### JOB AT A GLANCE

Depth (TVD)	590 ft
Depth (MD)	590 ft
Hole Size	17.5 in
Casing Size/Weight	13 3/8 in, 48 lbs/ft
Pump Via	13 3/8" O.D. (12.715" I.D.) 48
Total Mix Water Required	4,320 gals
<b>Spacer</b>	
Fresh Water	20 bbls
Density	8.3 ppg
<b>Lead Slurry</b>	
Class C + Additives	298 sacks
Density	13.5 ppg
Yield	1.75 cf/sack
<b>Tail Slurry</b>	
Class C	250 sacks
Density	14.8 ppg
Yield	1.35 cf/sack
<b>Displacement</b>	
Mud	86 bbls
Density	9.0 ppg

Operator Name: Devon Energy Corp  
 Well Name: Helios 6 Fed Com #1H  
 Job Description: Surface Casing  
 Date: November 3, 2010



Proposal No: 690850057A

## WELL DATA

### ANNULAR GEOMETRY

ANNULAR I.D. (in)	DEPTH(ft)	
	MEASURED	TRUE VERTICAL
17.500 HOLE	590	590

### SUSPENDED PIPES

DIAMETER (in)		WEIGHT (lbs/ft)	DEPTH(ft)	
O.D.	I.D.		MEASURED	TRUE VERTICAL
13.375	12.715	48	590	590

Float Collar set @ 550 ft  
 Mud Density 9.00 ppg  
 Est. Static Temp. 80 ° F  
 Est. Circ. Temp. 80 ° F

### VOLUME CALCULATIONS

373 ft	x	0.6946 cf/ft	with	100 % excess	=	518.6 cf
217 ft	x	0.6946 cf/ft	with	100 % excess	=	301.1 cf
40 ft	x	0.8818 cf/ft	with	0 % excess	=	35.3 cf (inside pipe)
<b>TOTAL SLURRY VOLUME</b>					=	854.9 cf
					=	152 bbls

**Operator Name:** Devon Energy Corp  
**Well Name:** Helios 6 Fed Com #1H  
**Job Description:** Surface Casing  
**Date:** November 3, 2010



**Proposal No:** 690850057A

### FLUID SPECIFICATIONS

Spacer 20.0 bbls Fresh Water @ 8.34 ppg

<u>FLUID</u>	<u>VOLUME CU-FT</u>	<u>VOLUME FACTOR</u>	<u>AMOUNT AND TYPE OF CEMENT</u>
Lead Slurry	519	/ 1.75	= 298 sacks Class C Cement + 2% bwoc Calcium Chloride + 0.125 lbs/sack Cello Flake + 4% bwoc Bentonite + 81.4% Fresh Water
Tail Slurry	336	/ 1.35	= 250 sacks Class C Cement + 2% bwoc Calcium Chloride + 0.125 lbs/sack Cello Flake + 56.3% Fresh Water

Displacement 86.4 bbls Mud @ 9 ppg

### CEMENT PROPERTIES

	<u>SLURRY NO.1</u>	<u>SLURRY NO.2</u>
Slurry Weight (ppg)	13.50	14.80
Slurry Yield (cf/sack)	1.75	1.35
Amount of Mix Water (gps)	9.17	6.35
Estimated Pumping Time - 70 BC (HH:MM)	3:30	2:30

### COMPRESSIVE STRENGTH

8 hrs @ 80 ° F (psi)		
12 hrs @ 80 ° F (psi)		500
15 hrs @ 80 ° F (psi)	400	865
24 hrs @ 80 ° F (psi)	500	
72 hrs @ 80 ° F (psi)	700	1475
		2700

**Operator Name:** Devon Energy Corp  
**Well Name:** Helios 6 Fed Com #1H  
**Job Description:** Intermediate Casing  
**Date:** November 3, 2010



**Proposal No:** 690850057A

### **JOB AT A GLANCE**

<b>Depth (TVD)</b>	3,150 ft
<b>Depth (MD)</b>	3,150 ft
<b>Hole Size</b>	12.25 in
<b>Casing Size/Weight</b>	9 5/8 in, 40 lbs/ft
<b>Pump Via</b>	9 5/8" O.D. (8.835" I.D) 40
<b>Total Mix Water Required</b>	9,656 gals
<b>Spacer</b>	
<b>Fresh Water</b>	20 bbls
<b>Density</b>	8.3 ppg
<b>Lead Slurry</b>	
<b>35:65:4 Poz:Class C</b>	735 sacks
<b>Density</b>	12.8 ppg
<b>Yield</b>	1.96 cf/sack
<b>Tail Slurry</b>	
<b>Class C</b>	300 sacks
<b>Density</b>	14.8 ppg
<b>Yield</b>	1.34 cf/sack
<b>Displacement</b>	
<b>Mud</b>	236 bbls
<b>Density</b>	10.0 ppg

Operator Name: Devon Energy Corp  
 Well Name: Helios 6 Fed Com #1H  
 Job Description: Intermediate Casing  
 Date: November 3, 2010



Proposal No: 690850057A

## WELL DATA

### ANNULAR GEOMETRY

ANNULAR I.D. (in)	DEPTH(ft)	
	MEASURED	TRUE VERTICAL
12.715 CASING	590	590
12.250 HOLE	3,150	3,150

### SUSPENDED PIPES

DIAMETER (in)		WEIGHT (lbs/ft)	DEPTH(ft)	
O.D.	I.D.		MEASURED	TRUE VERTICAL
9.625	8.835	40	3,150	3,150

Float Collar set @ 3,110 ft  
 Mud Density 10.00 ppg  
 Est. Static Temp. 105 ° F  
 Est. Circ. Temp. 94 ° F

### VOLUME CALCULATIONS

590 ft	x	0.3765 cf/ft	with	0 % excess	=	222.1 cf
1,947 ft	x	0.3132 cf/ft	with	100 % excess	=	1219.8 cf
613 ft	x	0.3132 cf/ft	with	100 % excess	=	383.8 cf
40 ft	x	0.4257 cf/ft	with	0 % excess	=	17.0 cf (inside pipe)
<b>TOTAL SLURRY VOLUME</b>					=	1842.7 cf
					=	328 bbls

**Operator Name:** Devon Energy Corp  
**Well Name:** Helios 6 Fed Com #1H  
**Job Description:** Intermediate Casing  
**Date:** November 3, 2010



**Proposal No:** 690850057A

## FLUID SPECIFICATIONS

Spacer

20.0 bbls Fresh Water @ 8.34 ppg

<u>FLUID</u>	<u>VOLUME CU-FT</u>	<u>VOLUME FACTOR</u>	<u>AMOUNT AND TYPE OF CEMENT</u>
Lead Slurry	1442	/ 1.96	= 735 sacks (35:65) Poz (Fly Ash):Class C Cement + 5% bwow Sodium Chloride + 0.125 lbs/sack Cello Flake + 4% bwoc Bentonite + 0.8% bwoc Sodium Metasilicate + 5% bwoc MPA-5 + 101.1% Fresh Water
Tail Slurry	401	/ 1.34	= 300 sacks Class C Cement + 1% bwoc Calcium Chloride + 0.125 lbs/sack Cello Flake + 56.2% Fresh Water
Displacement			235.8 bbls Mud @ 10 ppg

## **CEMENT PROPERTIES**

	<b>SLURRY NO.1</b>	<b>SLURRY NO.2</b>
Slurry Weight (ppg)	12.80	14.80
Slurry Yield (cf/sack)	1.96	1.34
Amount of Mix Water (gps)	10.55	6.34
Estimated Pumping Time - 70 BC (HH:MM)	3:30	2:30

## **COMPRESSIVE STRENGTH**

12 hrs @ 95 ° F (psi)	
15 hrs @ 95 ° F (psi)	340
24 hrs @ 95 ° F (psi)	500
8 hrs @ 100 ° F (psi)	800
12 hrs @ 100 ° F (psi)	500
24 hrs @ 100 ° F (psi)	850
72 hrs @ 100 ° F (psi)	2250
	3000

ACTUAL CEMENT VOLUMES MAY VARY BASED ON CALIPER.

Operator Name: Devon Energy Corp  
Well Name: Helios 6 Fed Com #1H  
Job Description: Long String  
Date: November 3, 2010



Proposal No: 690850057A

### JOB AT A GLANCE

Depth (TVD)	8,800 ft
Depth (MD)	13,180 ft
Hole Size	8.75 in
Casing Size/Weight	5 1/2 in, 17 lbs/ft
Pump Via	5 1/2" O.D. (4.892" I.D) 17
Total Mix Water Required	22,263 gals
Stage No: 1	Float Collar set @ 13,140 ft
Spacer	
Fresh Water	30 bbls
Density	8.3 ppg
Spacer	
Mud Clean II	1,500 gals
Density	8.5 ppg
Spacer	
Fresh Water	10 bbls
Density	8.3 ppg
Lead Slurry	
35:65:6 Poz:Class H	910 sacks
Density	12.5 ppg
Yield	2.00 cf/sack
Tail Slurry	
50:50 Poz:Class H	1,310 sacks
Density	14.2 ppg
Yield	1.28 cf/sack
Displacement	
Displacement Fluid	305 bbls

**Operator Name:** Devon Energy Corp  
**Well Name:** Helios 6 Fed Com #1H  
**Job Description:** Long String  
**Date:** November 3, 2010



**Proposal No:** 690850057A

**JOB AT A GLANCE (Continued)**

<b>Stage No: 2</b>	<b>Stage Collar set @</b>	4,500 ft
<b>Spacer</b>		
<b>Fresh Water</b>		20 bbls
<b>Density</b>		8.3 ppg
<b>Lead Slurry</b>		
<b>Class C + Additives</b>		210 sacks
<b>Density</b>		11.4 ppg
<b>Yield</b>		2.89 cf/sack
<b>Tail Slurry</b>		
<b>60:40 Poz:Class C (MPA)</b>		150 sacks
<b>Density</b>		13.8 ppg
<b>Yield</b>		1.38 cf/sack
<b>Displacement</b>		
<b>Displacement Fluid</b>		105 bbls

**Proposal No: 690850057A**

## WELL DATA

## ANNULAR GEOMETRY

ANNULAR I.D. (in)	DEPTH(ft)	
	MEASURED	TRUE VERTICAL
8.835 CASING	3,150	3,150
8.750 HOLE	13,180	8,800

## SUSPENDED PIPES

DIAMETER (in)		WEIGHT (lbs/ft)	DEPTH(ft)	
O.D.	I.D.		MEASURED	TRUE VERTICAL
5.500	4.892	17	13,180	8,800

<b><u>STAGE: 1</u></b>	<b>Float Collar set @</b>	13,140 ft
	<b>Mud Density</b>	9.50 ppg
	<b>Est. Static Temp.</b>	150 ° F
	<b>Est. Circ. Temp.</b>	150 ° F

## VOLUME CALCULATIONS

3,600 ft	x	0.2526 cf/ft	with	100 % excess	=	1818.7 cf
5,080 ft	x	0.2526 cf/ft	with	30 % excess	=	1668.1 cf
40 ft	x	0.1305 cf/ft	with	0 % excess	=	5.2 cf (inside pipe)
<b>TOTAL SLURRY VOLUME</b>					=	3492.0 cf
					=	622 bbls

<b><u>STAGE: 2</u></b>	<b>Stage Collar set @</b>	4,500 ft
	<b>Mud Density</b>	9.50 ppg
	<b>Est. Static Temp.</b>	116 ° F
	<b>Est. Circ. Temp.</b>	101 ° F

### VOLUME CALCULATIONS

500 ft	x	0.2607 cf/ft	with	0 % excess	=	130.4 cf
942 ft	x	0.2526 cf/ft	with	100 % excess	=	475.7 cf
408 ft	x	0.2526 cf/ft	with	100 % excess	=	206.3 cf
<b>TOTAL SLURRY VOLUME</b>					=	812.4 cf
					=	145 bbls

**Operator Name:** Devon Energy Corp  
**Well Name:** Helios 6 Fed Com #1H  
**Job Description:** Long String  
**Date:** November 3, 2010



**Proposal No:** 690850057A

## FLUID SPECIFICATIONS

### STAGE NO. 1

Spacer	30.0 bbls Fresh Water @ 8.34 ppg
Spacer	1,500.0 gals Mud Clean II @ 8.45 ppg
Spacer	10.0 bbls Fresh Water @ 8.34 ppg

<u>FLUID</u>	<u>VOLUME CU-FT</u>	<u>VOLUME FACTOR</u>	<u>AMOUNT AND TYPE OF CEMENT</u>
Lead Slurry	1819	/ 2	= 910 sacks (35:65) Poz (Fly Ash):Class H Cement + 3% bwoc Sodium Chloride + 0.125 lbs/sack Cello Flake + 6% bwoc Bentonite + 0.7% bwoc FL-52A + 105.4% Fresh Water
Tail Slurry	1673	/ 1.28	= 1310 sacks (50:50) Poz (Fly Ash):Class H Cement + 5% bwoc Sodium Chloride + 0.3% bwoc CD-32 + 0.5% bwoc FL-25 + 0.5% bwoc Sodium Metasilicate + 0.4% bwoc FL-52A + 57.3% Fresh Water
Displacement			305.5 bbls Displacement Fluid

### CEMENT PROPERTIES

	<b>SLURRY NO.1</b>	<b>SLURRY NO.2</b>
Slurry Weight (ppg)	12.50	14.20
Slurry Yield (cf/sack)	2.00	1.28
Amount of Mix Water (gps)	10.99	5.77
Estimated Pumping Time - 70 BC (HH:MM)	5:00	3:30
Free Water (mls) @ ° F @ 90 ° Angle		0.0
Fluid Loss (cc/30min) at 1000 psi and ° F		50.0

### COMPRESSIVE STRENGTH

12 hrs @ 140 ° F (psi)	175	
24 hrs @ 140 ° F (psi)	250	
72 hrs @ 140 ° F (psi)	700	
12 hrs @ 150 ° F (psi)		250
24 hrs @ 150 ° F (psi)		1500
72 hrs @ 150 ° F (psi)		2000

**Operator Name:** Devon Energy Corp  
**Well Name:** Helios 6 Fed Com #1H  
**Job Description:** Long String  
**Date:** November 3, 2010



**Proposal No:** 690850057A

## FLUID SPECIFICATIONS (Continued)

### STAGE NO. 2

Spacer				20.0 bbls Fresh Water @ 8.34 ppg
Lead Slurry	606	/	2.89	= 210 sacks Class C Cement + 1% bwoc Calcium Chloride + 0.125 lbs/sack Cello Flake + 3% bwoc Sodium Metasilicate + 157.8% Fresh Water
Tail Slurry	206	/	1.38	= 150 sacks (60:40) Poz (Fly Ash):Class C Cement + 5% bwoc Sodium Chloride + 0.125 lbs/sack Cello Flake + 0.3% bwoc Sodium Metasilicate + 4% bwoc MPA-5 + 65.5% Fresh Water

<u>FLUID</u>	<u>VOLUME CU-FT</u>	<u>VOLUME FACTOR</u>	<u>AMOUNT AND TYPE OF CEMENT</u>
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Displacement	104.6 bbls Displacement Fluid
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### CEMENT PROPERTIES

	<u>SLURRY NO.1</u>	<u>SLURRY NO.2</u>
Slurry Weight (ppg)	11.40	13.80
Slurry Yield (cf/sack)	2.89	1.38
Amount of Mix Water (gps)	17.78	6.44
Estimated Pumping Time - 70 BC (HH:MM)	3:45	2:30
Free Water (mls) @ ° F @ 90 ° Angle		
Fluid Loss (cc/30min) at 1000 psi and ° F		

### COMPRESSIVE STRENGTH

12 hrs @ 112 ° F (psi)	130	
24 hrs @ 112 ° F (psi)	300	
12 hrs @ 125 ° F (psi)		900
24 hrs @ 125 ° F (psi)		1800
72 hrs @ 125 ° F (psi)		2500

CEMENT VOLUMES MAY VARY BASED ON CALIPER.

**Operator Name:** Devon Energy Corp  
**Well Name:** Helios 6 Fed Com #1H  
**Job Description:** Whipstock Plug  
**Date:** November 3, 2010



**Proposal No:** 690850057A

### JOB AT A GLANCE

Depth (TVD)	9,135 ft
Depth (MD)	9,135 ft
Hole Size	8.75 in
Casing Size/Weight	9 5/8 in, 40 lbs/ft
Pump Via	Casing 4 1/2" O.D. (4.000" I.D) 11.6
Total Mix Water Required	1,597 gals
Spacer	
Mud Clean II	15 bbls
Cement Slurry	
Class H	540 sacks
Density	18.0 ppg
Yield	0.89 cf/sack

**Operator Name:** Devon Energy Corp  
**Well Name:** Helios 6 Fed Com #1H  
**Job Description:** Whipstock Plug  
**Date:** November 3, 2010



**Proposal No:** 690850057A

## FLUID SPECIFICATIONS

Spacer = 15.0 bbls Mud Clean II

<u>PLUG NO.</u>	<u>VOLUME CU-FT</u>	<u>VOLUME FACTOR</u>	<u>AMOUNT AND TYPE OF CEMENT</u>
1	480	.89	= 540 sacks Class H Cement + 1.2% bwoc CD-32 + 26.2% Fresh Water

## **CEMENT PROPERTIES**

	<b>PLUG NO.1</b>
Slurry Weight (ppg)	18.00
Slurry Yield (cf/sack)	0.89
Amount of Mix Water (gps)	2.96
Estimated Pumping Time - 70 BC (HH:MM)	3:00
<b>COMPRESSIVE STRENGTH</b>	
12 hrs @ 172 ° F (psi)	4700
24 hrs @ 172 ° F (psi)	7000

## PLUG GEOMETRY

	<b>PLUG TOP</b>		<b>PLUG BOTTOM</b>	
1	8200 ft	to	9135 ft	with 8.75 inch Open Hole PDSqT = 131 ° F PDST = 153.08 ° F

Devon Energy  
Helios 6 Fed Com #1H - Design #1

Eddy Co., New Mexico (Nad 83)  
Helios 6 Fed Com #1H

Measured Dogleg Depth Rate (ft) (°/100ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)
0.00	0.00	0.00	0.00	0.00 N	0.00 E	0.00
0.00						
8340.00	0.00	0.00	8340.00	0.00 N	0.00 E	0.00
0.00						
8400.00	7.20	332.00	8399.84	3.32 N	1.77 W	3.38
12.00						
8500.00	19.20	332.00	8497.02	23.45 N	12.47 W	23.85
12.00						
8600.00	31.20	332.00	8587.34	60.97 N	32.42 W	62.02
12.00						
8700.00	43.20	332.00	8666.85	114.26 N	60.75 W	116.21
12.00						
8715.00	45.00	332.00	8677.62	123.48 N	65.65 W	125.59
12.00						
8744.64	45.00	332.00	8698.57	141.98 N	75.49 W	144.40
0.00						
8800.00	50.46	337.13	8735.81	178.97 N	93.00 W	181.96
12.00						
8900.00	60.76	344.61	8792.28	256.85 N	119.66 W	260.67
12.00						
9000.00	71.40	350.69	8832.79	346.00 N	138.98 W	350.42
12.00						
9100.00	82.22	356.04	8855.59	442.54 N	150.11 W	447.28
12.00						
9178.09	90.71	0.01	8860.41	520.35 N	152.78 W	525.13
12.00						
9200.00	90.71	0.01	8860.14	542.26 N	152.77 W	547.03
0.00						
9300.00	90.71	0.01	8858.90	642.25 N	152.76 W	646.96
0.00						
9400.00	90.71	0.01	8857.66	742.24 N	152.74 W	746.90
0.00						
9500.00	90.71	0.01	8856.42	842.24 N	152.72 W	846.84
0.00						
9600.00	90.71	0.01	8855.18	942.23 N	152.70 W	946.77
0.00						
9700.00	90.71	0.01	8853.94	1042.22 N	152.68 W	1046.71
0.00						
9800.00	90.71	0.01	8852.70	1142.21 N	152.66 W	1146.65
0.00						
9900.00	90.71	0.01	8851.46	1242.21 N	152.64 W	1246.58
0.00						
10000.00	90.71	0.01	8850.22	1342.20 N	152.62 W	1346.52
0.00						
10100.00	90.71	0.01	8848.98	1442.19 N	152.60 W	1446.46
0.00						
10200.00	90.71	0.01	8847.74	1542.18 N	152.58 W	1546.39
0.00						
10300.00	90.71	0.01	8846.51	1642.17 N	152.56 W	1646.33
0.00						

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10400.00	90.71	0.01	8845.27	1742.17 N	152.54 W	1746.27
0.00						
10500.00	90.71	0.01	8844.03	1842.16 N	152.53 W	1846.20
0.00						
10600.00	90.71	0.01	8842.79	1942.15 N	152.51 W	1946.14
0.00						
10700.00	90.71	0.01	8841.55	2042.14 N	152.49 W	2046.08
0.00						
10800.00	90.71	0.01	8840.31	2142.14 N	152.47 W	2146.01
0.00						
10900.00	90.71	0.01	8839.07	2242.13 N	152.45 W	2245.95
0.00						
11000.00	90.71	0.01	8837.83	2342.12 N	152.43 W	2345.89
0.00						
11100.00	90.71	0.01	8836.59	2442.11 N	152.41 W	2445.82
0.00						
11200.00	90.71	0.01	8835.35	2542.11 N	152.39 W	2545.76
0.00						
11300.00	90.71	0.01	8834.11	2642.10 N	152.37 W	2645.70
0.00						
11400.00	90.71	0.01	8832.87	2742.09 N	152.35 W	2745.63
0.00						
11500.00	90.71	0.01	8831.64	2842.08 N	152.33 W	2845.57
0.00						
11600.00	90.71	0.01	8830.40	2942.08 N	152.32 W	2945.51
0.00						
11700.00	90.71	0.01	8829.16	3042.07 N	152.30 W	3045.44
0.00						
11800.00	90.71	0.01	8827.92	3142.06 N	152.28 W	3145.38
0.00						
11900.00	90.71	0.01	8826.68	3242.05 N	152.26 W	3245.32
0.00						
12000.00	90.71	0.01	8825.44	3342.04 N	152.24 W	3345.25
0.00						
12100.00	90.71	0.01	8824.20	3442.04 N	152.22 W	3445.19
0.00						
12200.00	90.71	0.01	8822.96	3542.03 N	152.20 W	3545.13
0.00						
12300.00	90.71	0.01	8821.72	3642.02 N	152.18 W	3645.06
0.00						
12400.00	90.71	0.01	8820.48	3742.01 N	152.16 W	3745.00
0.00						
12500.00	90.71	0.01	8819.24	3842.01 N	152.14 W	3844.94
0.00						
12600.00	90.71	0.01	8818.00	3942.00 N	152.12 W	3944.87
0.00						
12700.00	90.71	0.01	8816.77	4041.99 N	152.10 W	4044.81
0.00						
12800.00	90.71	0.01	8815.53	4141.98 N	152.09 W	4144.75
0.00						
12900.00	90.71	0.01	8814.29	4241.98 N	152.07 W	4244.68
0.00						
13000.00	90.71	0.01	8813.05	4341.97 N	152.05 W	4344.62
0.00						
13100.00	90.71	0.01	8811.81	4441.96 N	152.03 W	4444.56
0.00						
13200.00	90.71	0.01	8810.57	4541.95 N	152.01 W	4544.50
0.00						
13246.00	90.71	0.01	8810.00	4587.95 N	152.00 W	4590.47
0.00						

All data are in feet unless otherwise stated. Directions and coordinates are  
Page 2

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relative to Grid North.  
Vertical depths are relative to WELL. Northings and Eastings are relative to Site.

The Dogleg Severity is in Degrees per 100 feet.  
Vertical Section is from Slot and calculated along an Azimuth of 358.100° (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 0.234°.

Based upon Minimum Curvature type calculations, at a Measured Depth of 13246.00ft.,  
the Bottom Hole Displacement is 4590.47ft., in the Direction of 358.100° (Grid).