

SEP - 1 2009  
OCD-ARTESIA

ATS-09-306  
EA-09-587

Form 3160-3  
(February 2005)

SECRETARY'S POTASH

FORM APPROVED  
OMB No 1004-0137  
Expires March 31, 2007

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT  
APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5 Lease Serial No. NMNM-54113
1b. Type of Well: <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other <input checked="" type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		6 If Indian, Allottee or Tribe Name
2 Name of Operator Devon Energy Production Co., LP		7 If Unit or CA Agreement, Name and No
3a Address: 20 North Broadway OKC, OK 73102	3b Phone No. (include area code) (405)-552-7802	8 Lease Name and Well No Strawberry 7 Federal 6H
4 Location of Well (Report location clearly and in accordance with any State requirements *) At surface SESE 340' FSL & 340' FEL At proposed prod. zone <del>NESE</del> SESE 2310' FSL & 2310' FEL		9 API Well No 30-015-37258
14 Distance in miles and direction from nearest town or post office* Approximately 10 miles southeast of Loco Hills, NM.		10 Field and Pool, or Exploratory Hackberry; Bone Springs, North 97056
15 Distance from proposed* location to nearest property or lease line, ft (Also to nearest drig unit line, if any) 340'		11 Sec, T R M or Blk and Survey or Area Sec 7 T19S-R31E Lot P
16 No of acres in lease 160	17 Spacing Unit dedicated to this well 160	12 County or Parish Eddy
18 Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft 1827'	19 Proposed Depth 8,838' TVD 11,351' MD	13 State NM
20 BLM/BIA Bond No. on file CO-1104	21 Elevations (Show whether DF, KDB, RT, GL, etc) 3455' GL	22 Approximate date work will start* 03/15/2009
23 Estimated duration 45 days		

24. Attachments

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

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

25 Signature 	Name (Printed/Typed) Stephanie A. Ysasaga	Date 02/15/2009
Title Sr. Staff Engineering Technician		
Approved by (Signature) /s/ Linda S.C. Rundell	Name (Printed/Typed) /s/ Linda S.C. Rundell	Date AUG 26 2009
Title STATE DIRECTOR		
Office NM STATE OFFICE		

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Conditions of approval, if any, are attached

APPROVAL FOR TWO YEARS

Title 18 USC Section 1001 and Title 43 USC 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

\*(Instructions on page 2)

Capitan Controlled Water Basin

SEE ATTACHED FOR  
CONDITIONS OF APPROVAL

Approval Subject to General Requirements  
& Special Stipulations Attached

**DISTRICT IV**  
1220 S. St. Francis Dr., Santa Fe, NM 87505

Form C-102  
Revised October 12, 2005

**Submit to Appropriate District Office**  
**State Lease - 4 Copies**  
**Fee Lease - 3 Copies**

**OIL CONSERVATION DIVISION**  
1220 South St. Francis Dr.  
Santa Fe, New Mexico 87505

## WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number 30-015-37258	Pool Code	Pool Name HACKBERRY; BONE SPRINGS, NORTH
Property Code 37757	Property Name STRAWBERRY "7" FEDERAL COM	Well Number 6H
OGRID No. 6137	Operator Name DEVON ENERGY PRODUCTION COMPANY LP	Elevation 3455'

### Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	7	19 S	31 E		340	SOUTH	340	EAST	EDDY

## Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
J	7	19 S	31 E		2310	SOUTH	2310	EAST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
160			

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED  
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

**GRID N: 612135.214**  
**GRID E: 659456.978**  
**LATITUDE: 32°40'55.608"**  
**LONGITUDE: -103°55'00.905"**

**GRID N: 612156.538**  
**GRID E: 671993.399**  
**LATITUDE: 32°40'55.718"**  
**LONGITUDE: -103°54'31.344"**

**GRID N: 612177.591**  
**GRID E: 674623.315**  
**LATITUDE: 32°40'55.821"**  
**LONGITUDE: -103°54'00.454"**

**GRID N: 609495.508**  
**GRID E: 689485.133**  
**LATITUDE: 32°40'29.485"**  
**LONGITUDE: -103°55'00.931"**

**GRID N: 609538.094**  
**GRID E: 674642.187**  
**LATITUDE: 32°40'29.702"**  
**LONGITUDE: -103°54'00.360"**

**GRID N: 608876.024**  
**GRID E: 672020.210**  
**LATITUDE: 32°40'03.488"**  
**LONGITUDE: -103°54'31.160"**

**GRID N: 608896.542**  
**GRID E: 674661.482**  
**LATITUDE: 32°40'03.563"**  
**LONGITUDE: -103°54'00.280"**

**PROJECT AREA**  
**PRODUCING AREA**

**BOTTOM HOLE LOCATION**  
Lat - N32°40'26.34"  
Long - W103°54'26.94"  
SPC- N.: 609188.824  
E.: 672371.734  
(NAD-83)

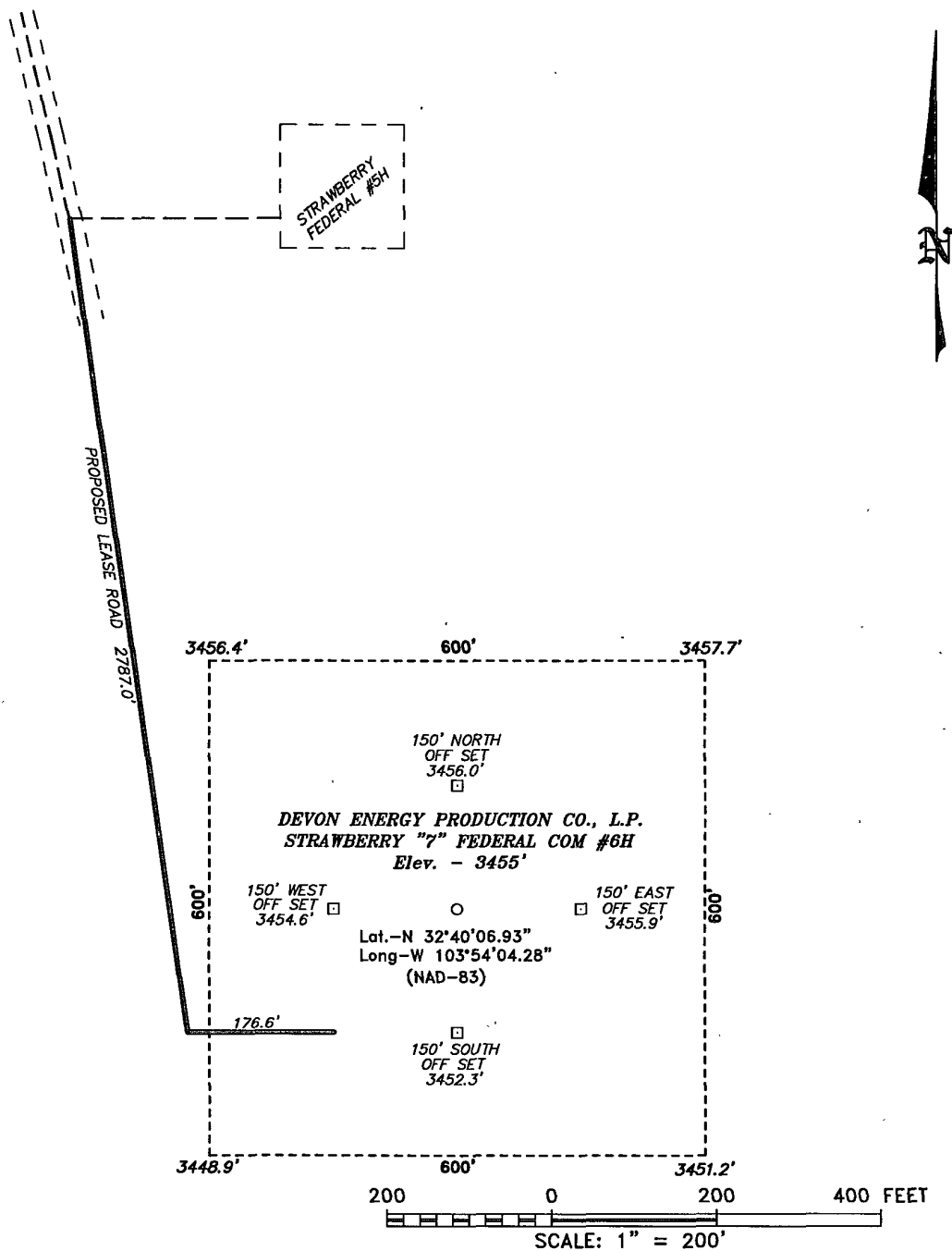
**SURFACE LOCATION**  
Lat - N32°40'06.93"  
Long - W103°54'04.28"  
SPC- N.: 607233.892  
E.: 674319.009  
(NAD-83)

**PENETRATION POINT:**  
**400' FNL & 430' FEL**

**OPERATOR CERTIFICATION**  
I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.  
Signature: *[Signature]* Date: 02/05/09  
Printed Name: STEPHANIE A. YSASAGA

**SURVEYOR CERTIFICATION**  
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.  
Date Surveyed: NOVEMBER 14, 2008  
Signature: *[Signature]*  
Professional Surveyor: 7977  
W.O. No. 200809  
Certificate No. Gary L. Jones 7977  
BASIN SURVEYS

SECTION 7, TOWNSHIP 19 SOUTH, RANGE 31 EAST, N.M.P.M.,  
EDDY COUNTY, NEW MEXICO.



**DEVON ENERGY PROD. CO., L.P.**

REF: STRAWBERRY "7" FEDERAL COM #6H / WELL PAD TOPO

THE STRAWBERRY "7" FEDERAL COM #6H LOCATED 340' FROM

THE SOUTH LINE AND 340' FROM THE EAST LINE OF

SECTION 7, TOWNSHIP 19 SOUTH, RANGE 31 EAST,

N.M.P.M., EDDY COUNTY, NEW MEXICO.

Directions to Location:

FROM THE JUNCTION OF CO. RD. 229 AND CO. RD. 222, GO NORTHERLY ON CO. RD. 222 FOR 250' TO LEASE ROAD, ON LEASE ROAD GO WESTERLY 2.8 MILES TO LEASE ROAD, ON LEASE ROAD GO NORTHEASTERLY 0.2 MILES TO LEASE ROAD, ON LEASE ROAD GO SOUTHERLY 0.4 MILES TO LEASE ROAD, ON LEASE ROAD GO EASTERLY TO WELL PAD AND PROPOSED LEASE ROAD.

**BASIN SURVEYS** P.O. BOX 1786—HOBBS, NEW MEXICO

W.O. Number: 20609

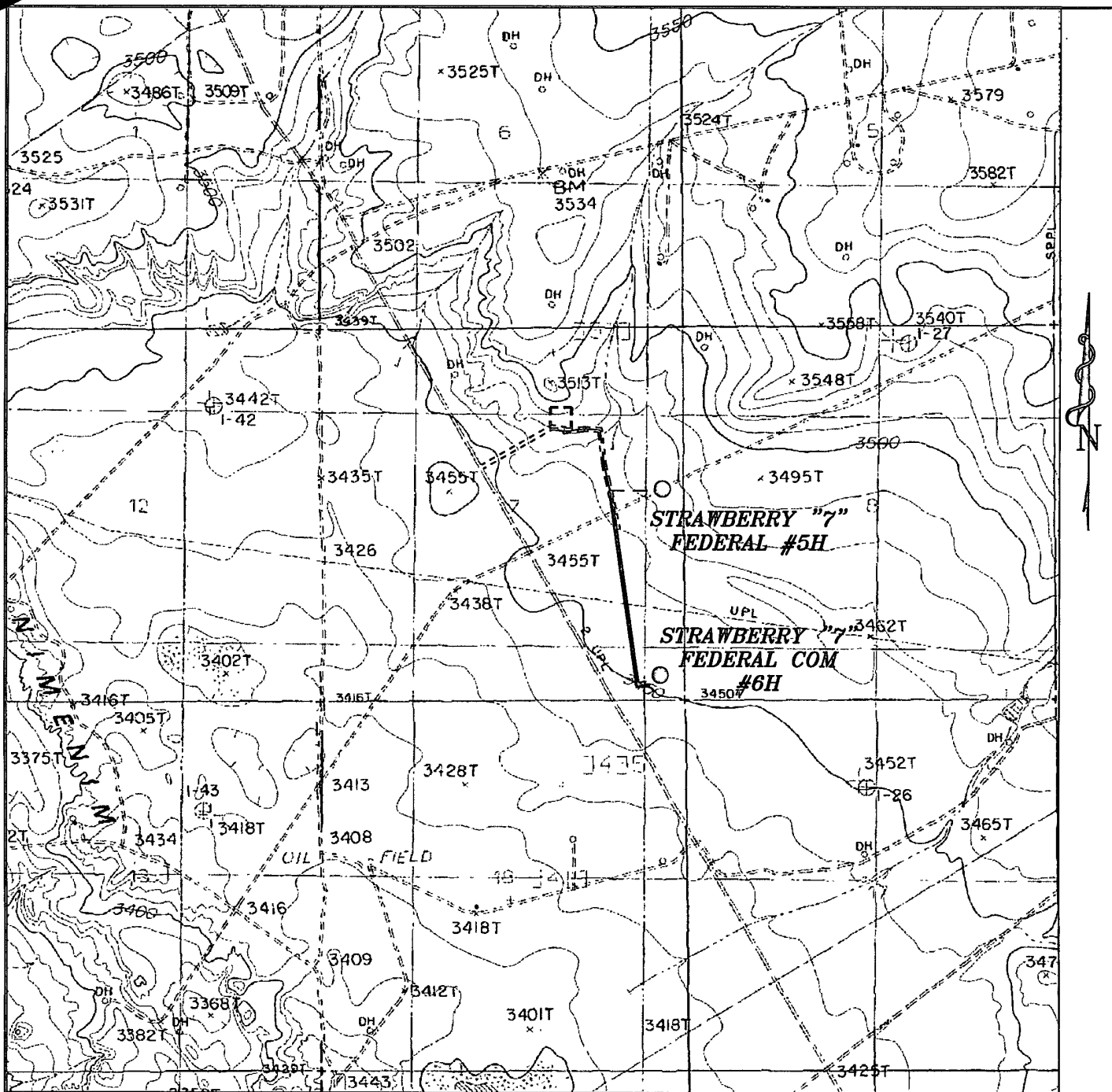
Drawn By: J. M. SMALL

Date: 11-17-2008

Disk: 20609 JMS

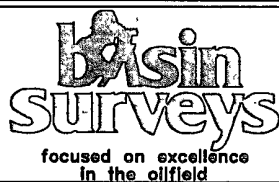
Survey Date: 11-14-2008

Sheet 1 of 1 Sheets



### STRAWBERRY "7" FEDERAL #6H

Located at 340' FSL AND 340' FEL  
 Section 7, Township 19 South, Range 31 East,  
 N.M.P.M., Eddy County, New Mexico.



P.O. Box 1786  
 1120 N. West County Rd.  
 Hobbs, New Mexico 88241  
 (575) 393-7316 - Office  
 (575) 392-2206 - Fax  
 basinsurveys.com

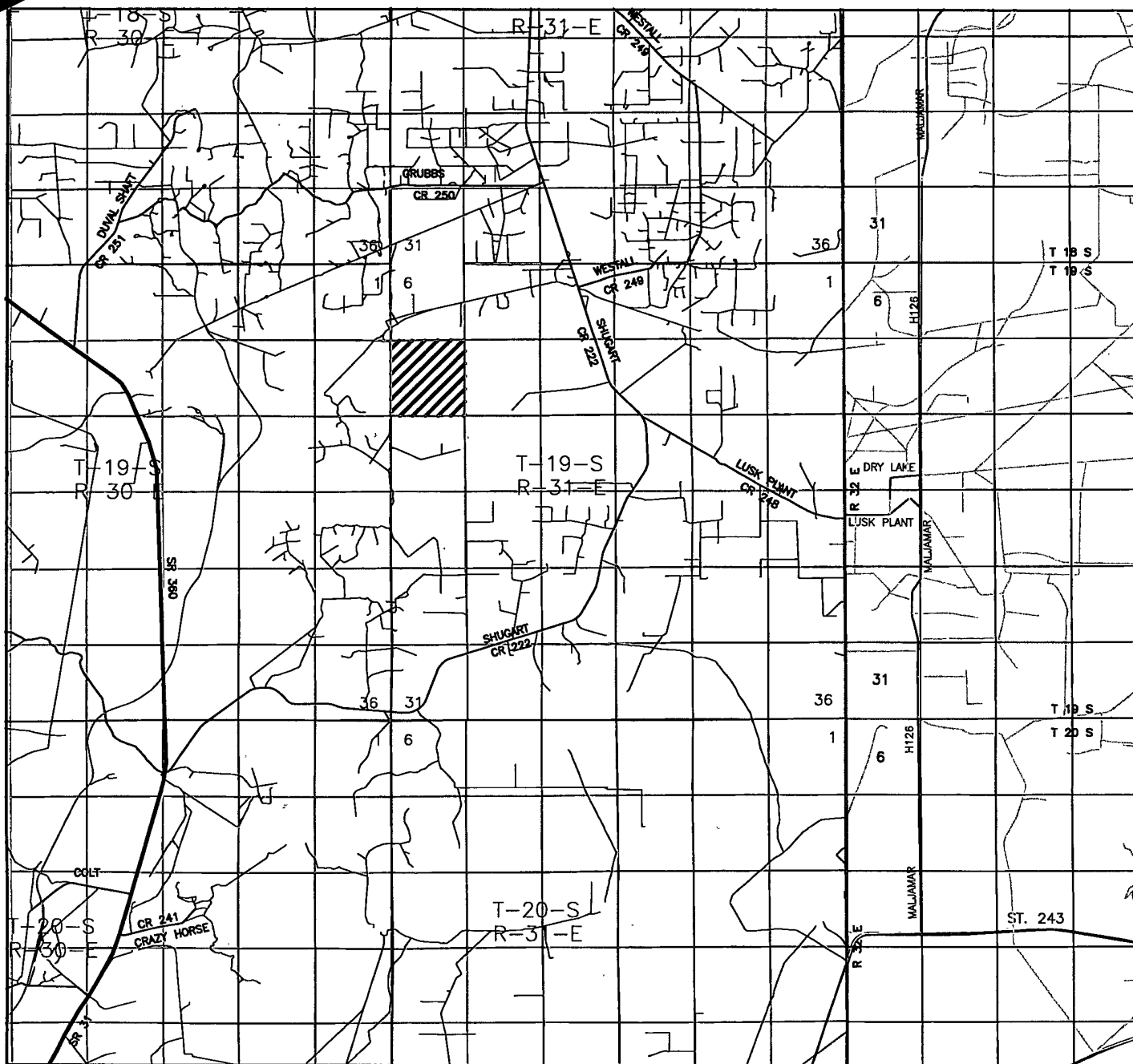
W.O. Number: JMS 20609

Survey Date: 11-14-2008

Scale: 1" = 2000'

Date: 11-17-2008

DEVON ENERGY  
 PROD. CO., L.P.



**STRAWBERRY "7" FEDERAL #6H**  
 Located at 340' FSL AND 340' FEL  
 Section 7, Township 19 South, Range 31 East,  
 N.M.P.M., Eddy County, New Mexico.



P.O. Box 1786  
 1120 N. West County Rd.  
 Hobbs, New Mexico 88241  
 (575) 393-7316 - Office  
 (575) 392-2206 - Fax  
 basinsurveys.com

W.O. Number: JMS 20609

Survey Date: 11-14-2008

Scale: 1" = 2000'

Date: 11-17-2008

**DEVON ENERGY  
 PROD. CO., L.P.**

**devon**

**SOUTHWEST EDDY**

**STRAWBERRY 7 FEDERAL #6H**

SEC 7 T 19 S - R 31E

340' FSL 340' FEL

**POSTED WELL DATA**

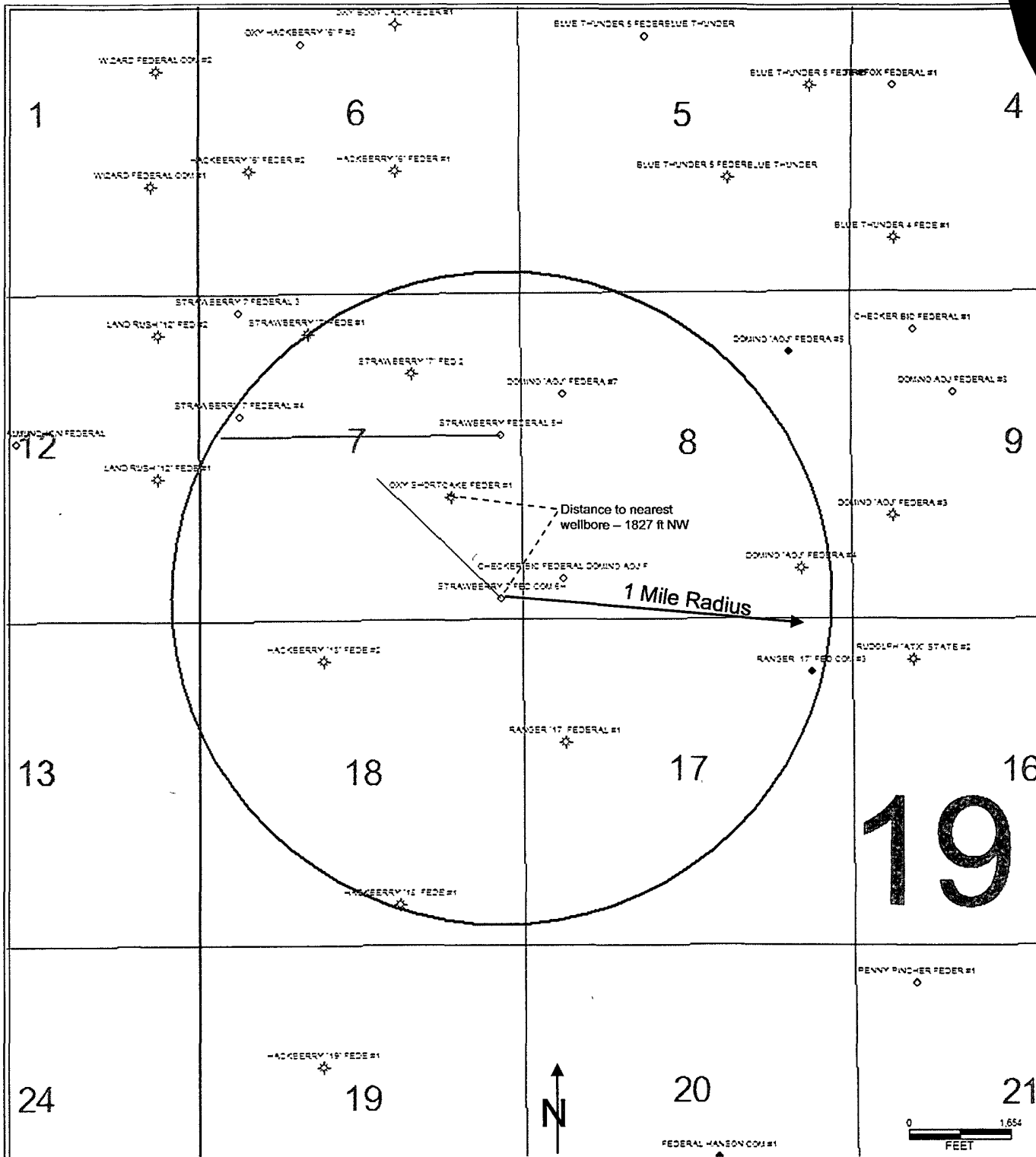
Well Label

**WELL SYMBOLS**

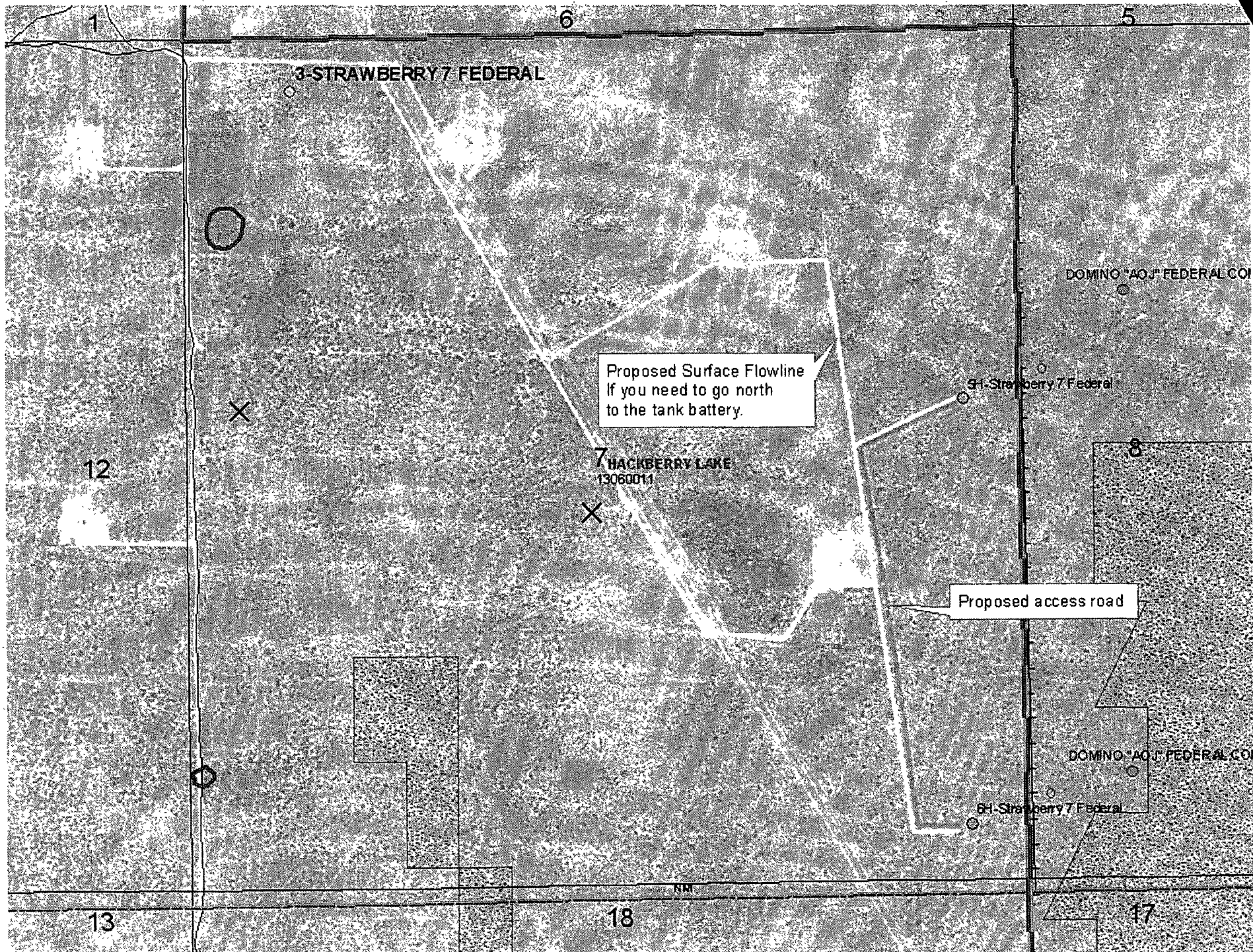
- Location Only
- Oil Well
- ✱ Gas Well
- ✱ Dry Hole
- START

By: SEAN BINGHAM

November 19, 2008







## DRILLING PROGRAM

Devon Energy Production Company, LP

### **Strawberry 7 Federal Com 6H**

Surface Location: 340' FSL & 340' FEL, Unit P, Sec 7 T19S R31E, Eddy, NM

Bottom hole Location: 2310' FSL & 2310' FEL, Unit J, Sec 7 T19S R31E, Eddy, NM

#### **1. Geologic Name of Surface Formation**

a. Quaternary

#### **2. Estimated Tops of Geological Markers & Depths of Anticipated Fresh Water, Oil or Gas:**

a. Rustler	496'	
b. Salado Salt	643'	
c. Base of Salt	2036'	
d. Tansil Dol	2121'	
e. Yates	2257'	
f. Seven Rivers	2610'	Oil
g. Queen	3180'	Oil
h. San Andres	3769'	Oil
i. Delaware	4532'	Oil
j. 1 <sup>st</sup> Bone Springs Lm	6395'	Oil
k. 1 <sup>st</sup> Bone Springs Ss	7783'	Oil
l. 2 <sup>nd</sup> Bone Springs Lm	8028'	Oil
m. 2nd Bone Springs Ss	8571'	Oil
n. Total Depth	8838' TVD 11,351' MD	

No other formations are expected to yield oil, gas or fresh water in measurable volumes. The surface fresh water sands will be protected by setting 13 3/8" casing at 485' and circulating cement back to surface. Fresh water sands will be protected by setting 9 5/8" casing at 3150' and circulating cement to surface. The Morrow intervals will be isolated by setting 5 1/2" casing to total depth and circulating cement above the base of the 9 5/8" casing.

#### **3. Casing Program:**

<u>Hole Size</u>	<u>Hole Interval</u>	<u>OD Csg</u>	<u>Casing Interval</u>	<u>Weight</u>	<u>Collar</u>	<u>Grade</u>
30"	0 - 40'	20"	0 - 40'	n/a	n/a	Conductor
17 1/2"	40' - 450'	13 3/8"	0'-485'	48#/ft	ST&C	H-40
12 1/4"	485'-3150'	9 5/8"	0-3150'	36#/ft	LT&C	J-55
8 3/4"	3150'- 11351'	5 1/2"	0'-11351'	20#/ft	BT&C	N-80



**Design Parameter Factors:**

<u>Casing Size</u>	<u>Collapse Design</u>	<u>Burst Design</u>	<u>Tension Design</u>
	<u>Factor</u>	<u>Factor</u>	<u>Factor</u>
13 3/8"	3.66	1.71	2.52
9 5/8"	1.24	1.87	2.55
5 1/2"	1.89	1.46	1.83

**4. Cement Program:**

- a. 20" Conductor Ready mix to surface
- b. 13 3/8" Surface Cement **Lead Slurry**: Lead with 165 sacks (35:65) Poz (Fly Ash):Premium Plus C Cement + 0.125 lbs/sack Cello Flake + 4% bwoc Bentonite + 1% bwoc Sodium Metasilicate + 5% bwoc MPA-5 + 5% bwow Sodium Chloride + 101.3% Fresh Water. Lead yields 1.97 cuft/sx. **Tail** with 250 sacks Premium Plus C Cement + 2% bwoc Calcium Chloride + 0.125 lbs/sack Cello Flake + 56.3% Fresh Water. Tail yields 1.35 cuft/sx. TOC to surface.
- c. 9 5/8" Intermediate Cement **Lead Slurry**: Lead with 710 sacks (35:65) Poz (Fly Ash):Premium Plus C Cement + 5% bwow Sodium Chloride + 0.125 lbs/sack Cello Flake + 6% bwoc Bentonite + 107.7% Fresh Water. Lead yields 2.04 cuft/sx. **Tail** with 300 sacks Premium Plus C Cement + 1% bwoc Calcium Chloride + 0.125 lbs/sack Cello Flake + 56.2% Fresh Water. Tail yields 1.34 cuft/sx. TOC to surface.
- d. 5 1/2" Production **2 Stage Cement Job - DV tool at 6500' MD**  
 Stage 1 (6,500'-TD): Lead with 420 sacks (35:65) Poz (Fly Ash):Class H Cement + 0.125 lbs/sack Cello Flake + 6% bwoc Bentonite + 0.5% bwoc FL-52A + 102.1% Fresh Water. Lead yields 1.94 cuft/sx. Tail with 1460 sacks (50:50) Poz (Fly Ash):Class H Cement + 5% bwow Sodium Chloride + 0.4% bwoc CD-32 + 0.5% bwoc FL-25 + 2% bwoc Bentonite + 0.5% bwoc Sodium Metasilicate + 0.5% bwoc FL-52A + 58.3% Fresh Water. Tail yields 1.31 cuft/sx.  
 Stage 2 ( 2,600'-6,500'): Lead with 850 sacks (35:65) Poz (Fly Ash):Premium Plus C Cement + 1% bwow Sodium Chloride + 0.125 lbs/sack Cello Flake + 6% bwoc Bentonite + 0.4% bwoc FL-52A + 103.2% Fresh Water. Lead yields 1.96 cuft/sx. Tail with 150 sacks (60:40) Poz (Fly Ash):Premium Plus C Cement + 2% bwow Sodium Chloride + 0.125 lbs/sack Cello Flake + 0.1% bwoc Sodium Metasilicate + 4% bwoc MPA-5 + 64% Fresh Water. Tail yields 1.35 cuft/sx. TOC ~2,600'. Designed for 500' into intermediate shoe.

The above cement volumes could be revised pending the caliper measurement from the open hole logs. The top of cement is designed to reach approximately 500' above the 9 5/8" casing shoe. All casing is new and API approved.

**5. Pressure Control Equipment:**

The blowout preventor equipment (BOP) shown in Exhibit #1 will consist of a (5M system) double ram type (5000 psi WP) preventor and a bag-type (Hydril) preventor (3000 psi WP) and rotating head. Both units will be hydraulically operated and the ram type preventor will be equipped with blind rams on top and 4 1/2" drill pipe rams on bottom. An annular and rotating head will be installed on the 13 3/8" surface casing and utilized to setting depth of the 9 5/8" intermediate casing. The annular and associated equipment will be tested to **1000 psi with the rig pump before drilling out the 13-3/8" casing shoe.** The BOPE will be installed on the 9 5/8" intermediate casing and utilized continuously until total depth is reached. Prior to drilling out the 9-5/8" casing shoe, the BOP's and Hydril will be tested as per BLM Drilling Operations Order #2.

Pipe rams will be operated and checked each 24-hour period and each time the drill pipe is out of the hole. These functional tests will be documented on the daily drillers log. A 2" kill line and 3" choke line will be incorporated in the drilling spool below the ram-type BOP. Other accessory BOP equipment will include a Kelly cock, floor safety valve, choke lines and choke manifold having 5000 psi WP rating.

**6. Proposed Mud Circulation System**

<u>Depth</u>	<u>Mud Wt.</u>	<u>Visc</u>	<u>Fluid Loss</u>	<u>Type System</u>
0' - 450'	8.4-9.7	32-34	NC	Fresh Water
450- 3100'	10	28	NC	Brine
3100'-8265'	8.3-9.0	28	NC	Fresh Water
8265'-11351'	9.0	29-38	10cc	Fresh Water

The necessary mud products for weight addition and fluid loss control will be on location at all times.

**7. Auxiliary Well Control and Monitoring Equipment:**

- A Kelly cock will be in the drill string at all times.
- A full opening drill pipe stabbing valve having the appropriate connections will be on the rig floor at all times.
- Hydrogen Sulfide detection equipment will be in operation after drilling out the 13 3/8" casing shoe until the 5 1/2" casing is cemented. Breathing equipment will be on location upon drilling the 13 3/8" shoe until total depth is reached.

**8. Logging, Coring, and Testing Program:**

- Drill stem tests will be based on geological sample shows.
- If a drill stem test is anticipated; a procedure, equipment to be used and safety measures will be provided via sundry notice to the BLM.
- The open hole electrical logging program will be:

- i. Total Depth to Intermediate Casing                      Dual Laterolog-Micro Laterolog with SP and Gamma Ray. Compensated Neutron – Z Density log with Gamma Ray and Caliper.
- ii. Total Depth to Surface                                      Compensated Neutron with Gamma Ray
- iii. No coring program is planned
- iv. Additional testing will be initiated subsequent to setting the 5 ½" production casing. Specific intervals will be targeted based on log evaluation, geological sample shows and drill stem tests.

**9. Potential Hazards:**

- a. No abnormal pressures or temperatures are expected. There is no known presence of H<sub>2</sub>S in this area. If H<sub>2</sub>S is encountered the operator will comply with the provisions of Onshore Oil and Gas Order No. 6 No lost circulation is expected to occur. All personnel will be familiar with all aspects of safe operation of equipment being used to drill this well. Estimated BHP 1670 psi and Estimated BHT 141°. No H<sub>2</sub>S is anticipated to be encountered.

**10. Anticipated Starting Date and Duration of Operations:**

- a. Road and location construction will begin after the BLM has approved the APD. Anticipated spud date will be as soon after BLM approval and as soon as a rig will be available. Move in operations and drilling is expected to take 32 days. If production casing is run then an additional 30 days will be needed to complete well and construct surface facilities and/or lay flow lines in order to place well on production.

# **Devon Energy**

**Eddy County (NM83E)**

**Sec. 7-T19S-R31E**

**Strawberry 7 Federal #6H**

**Wellbore #1**

**Plan: Plan #1**

## **Standard Planning Report**

**06 February, 2009**

*devon*

**Quantum**  
Planning Report

*devon*

<b>Database:</b>	EDM 2003.16 Single User Db	<b>Local Co-ordinate Reference:</b>	Well Strawberry 7 Federal #6H
<b>Company:</b>	Devon Energy	<b>TVD.Reference:</b>	WELL @ 0.0ft (Original Well Elev)
<b>Project:</b>	Eddy County (NM83E)	<b>MD Reference:</b>	WELL @ 0.0ft (Original Well Elev)
<b>Site:</b>	Sec. 7-T19S-R31E	<b>North Reference:</b>	Grid
<b>Well:</b>	Strawberry 7 Federal #6H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1		

<b>Project</b>	Eddy County (NM83E)		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	New Mexico Eastern Zone		

<b>Site</b>	Sec. 7-T19S-R31E		
<b>Site Position:</b>		<b>Northing:</b>	612,177.59ft
<b>From:</b>	Map	<b>Easting:</b>	674,623.32ft
<b>Position Uncertainty:</b>	0.0 ft	<b>Slot Radius:</b>	"
		<b>Latitude:</b>	32° 40' 55.821 N
		<b>Longitude:</b>	103° 54' 0.454 W
		<b>Grid Convergence:</b>	0.23 °

<b>Well</b>	Strawberry 7 Federal #6H		
<b>Well Position</b>	+N/-S	0.0 ft	<b>Northing:</b> 607,233.89 ft
	+E/-W	0.0 ft	<b>Easting:</b> 674,319.01ft
<b>Position Uncertainty</b>	0.0 ft	<b>Wellhead Elevation:</b>	ft
		<b>Latitude:</b>	32° 40' 6.915 N
		<b>Longitude:</b>	103° 54' 4.250 W
		<b>Ground Level:</b>	0.0ft

<b>Wellbore</b>	Wellbore #1		
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination</b>
			(°)
	IGRF200510	2009/02/06	8.04
			Dip Angle
			(°)
			60.61
			Field Strength
			(nT)
			49,137

<b>Design</b>	Plan #1		
<b>Audit Notes:</b>			
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b> 0.0
<b>Vertical Section:</b>	<b>Depth From (TVD)</b>	<b>+N/-S</b>	<b>+E/-W</b>
	(ft)	(ft)	(ft)
	0.0	0.0	0.0
			<b>Direction</b>
			(°)
			315.11

<b>Plan Sections</b>										
<b>Measured</b>	<b>Inclination</b>	<b>Azimuth</b>	<b>Vertical</b>	<b>+N/-S</b>	<b>+E/-W</b>	<b>Dogleg</b>	<b>Build</b>	<b>Turn</b>	<b>TFO</b>	<b>Target</b>
<b>Depth</b>	<b>(°)</b>	<b>(°)</b>	<b>Depth</b>	<b>(ft)</b>	<b>(ft)</b>	<b>Rate</b>	<b>Rate</b>	<b>Rate</b>	<b>(°)</b>	
(ft)			(ft)			(°/100ft)	(°/100ft)	(°/100ft)		
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
8,265.0	0.00	0.00	8,265.0	0.0	0.0	0.00	0.00	0.00	0.00	
9,165.0	90.00	315.11	8,838.0	405.9	-404.4	10.00	10.00	0.00	315.11	
11,351.4	90.00	315.11	8,838.0	1,954.9	-1,947.3	0.00	0.00	0.00	0.00	Strawberry 7 Fed #

<b>Database:</b>	EDM 2003.16 Single User Db	<b>Local Co-ordinate Reference:</b>	Well Strawberry 7 Federal #6H
<b>Company:</b>	Devon Energy	<b>TVD Reference:</b>	WELL @ 0.0ft (Original Well Elev)
<b>Project:</b>	Eddy County (NM83E)	<b>MD Reference:</b>	WELL @ 0.0ft (Original Well Elev)
<b>Site:</b>	Sec. 7-T19S-R31E	<b>North Reference:</b>	Grid
<b>Well:</b>	Strawberry 7 Federal #6H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
8,265.0	0.00	0.00	8,265.0	0.0	0.0	0.0	0.00	0.00	0.00	
<b>KOP Start Build 10°/100' @ 315.11° Azi</b>										
9,165.0	90.00	315.11	8,838.0	405.9	-404.4	573.0	10.00	10.00	0.00	
<b>EOC Hold 90° Inc 315.11° Azi to TD</b>										
11,351.4	90.00	315.11	8,838.0	1,954.9	-1,947.3	2,759.3	0.00	0.00	0.00	
<b>TD PBHL 1351.4' MD/ 8838' TVD - Strawberry 7 Fed #6H PBHL</b>										

Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude	
- hit/miss target										
- Shape										
Strawberry 7 Fed #6H	0.00	0.00	8,838.0	1,954.9	-1,947.3	609,188.82	672,371.73	32° 40' 26.337 N	103° 54' 26.939 W	
- plan hits target										
- Point										

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
8,265.0	8,265.0	0.0	0.0	KOP Start Build 10°/100' @ 315.11° Azi	
9,165.0	8,838.0	405.9	-404.4	EOC Hold 90° Inc 315.11° Azi to TD	
11,351.4	8,838.0	1,954.9	-1,947.3	TD PBHL 1351.4' MD/ 8838' TVD	



## Devon Energy

Project: Eddy County (NM83E)  
Site Sec. 7-T19S-R31E  
Well: Strawberry 7 Federal #6H  
Wellbore: Wellbore #1  
Design: Plan #1  
Plan Version: .

## REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well Strawberry 7 Federal #6H, Grid North  
Vertical (TVD) Reference: WELL @ 0.0ft (Original Well Elev)  
Section (VS) Reference: Slot - (0.0N, 0.0E)  
Measured Depth Reference: WELL @ 0.0ft (Original Well Elev)  
Calculation Method: Minimum Curvature



Azimuths to Grid North  
True North -0.23°  
Magnetic North 7.81°  
Magnetic Field  
Strength 49136.7nT  
Dip Angle: 60.61°  
Date: 2005/02/06  
Model IGRF200510

## SECTION DETAILS

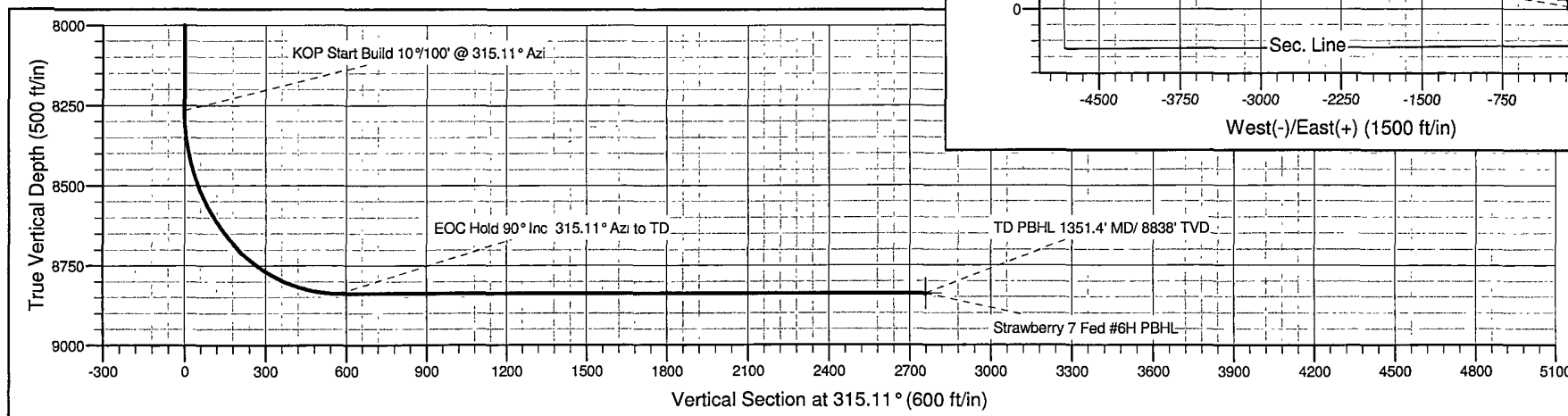
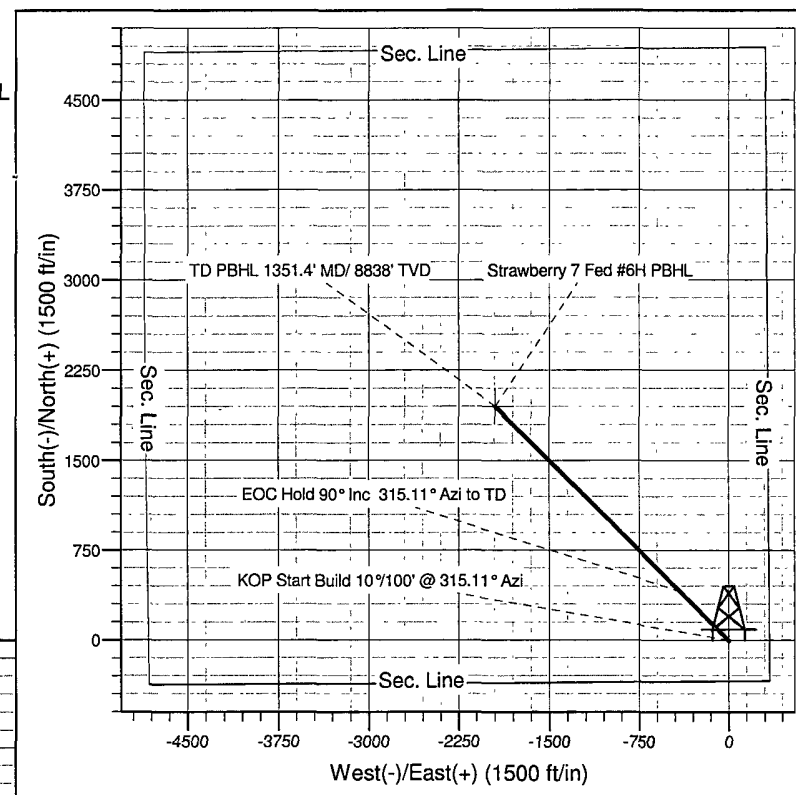
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	8265.0	0.00	0.00	8265.0	0.0	0.0	0.00	0.00	0.0	
3	9164.9	90.00	315.11	8837.9	405.9	-404.3	10.00	315.11	572.9	
4	11351.3	90.00	315.11	8838.0	1954.9	-1947.3	0.00	0.00	2759.3	Strawberry 7 Fed #6H PBHL

## WELL DETAILS: Strawberry 7 Federal #6H

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	607233.89	674319.01	32° 40' 6.915 N	103° 54' 4.250 W	

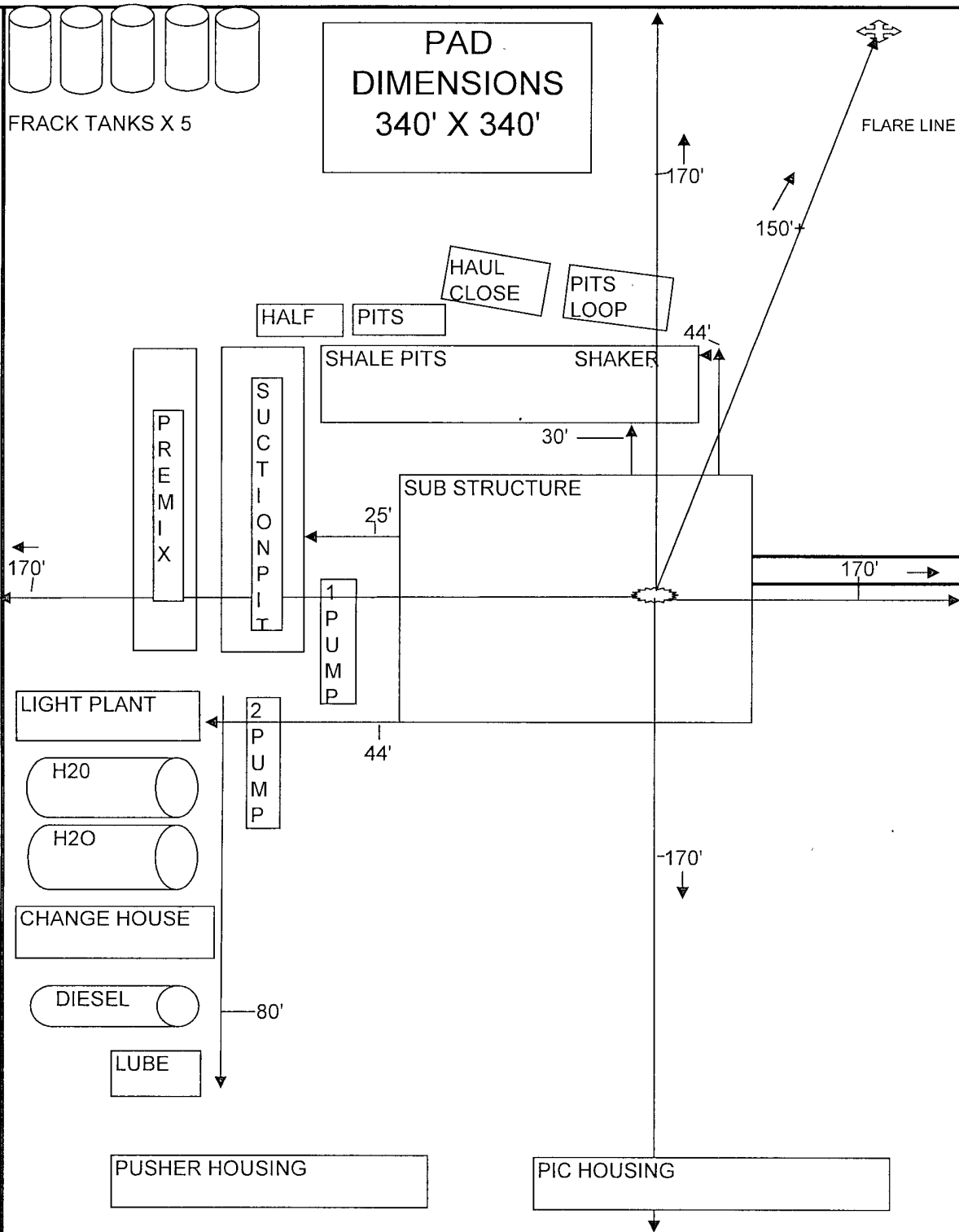
## WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
Strawberry 7 Fed #6H PBHL8838.0	1954.9	-1947.3	609188.82	672371.73		Point





MCVAY RIG # 7  
GENERAL RIG LAY OUT



Attachment to Exhibit #1  
NOTES REGARDING BLOWOUT PREVENTERS  
Devon Energy Production Company, LP

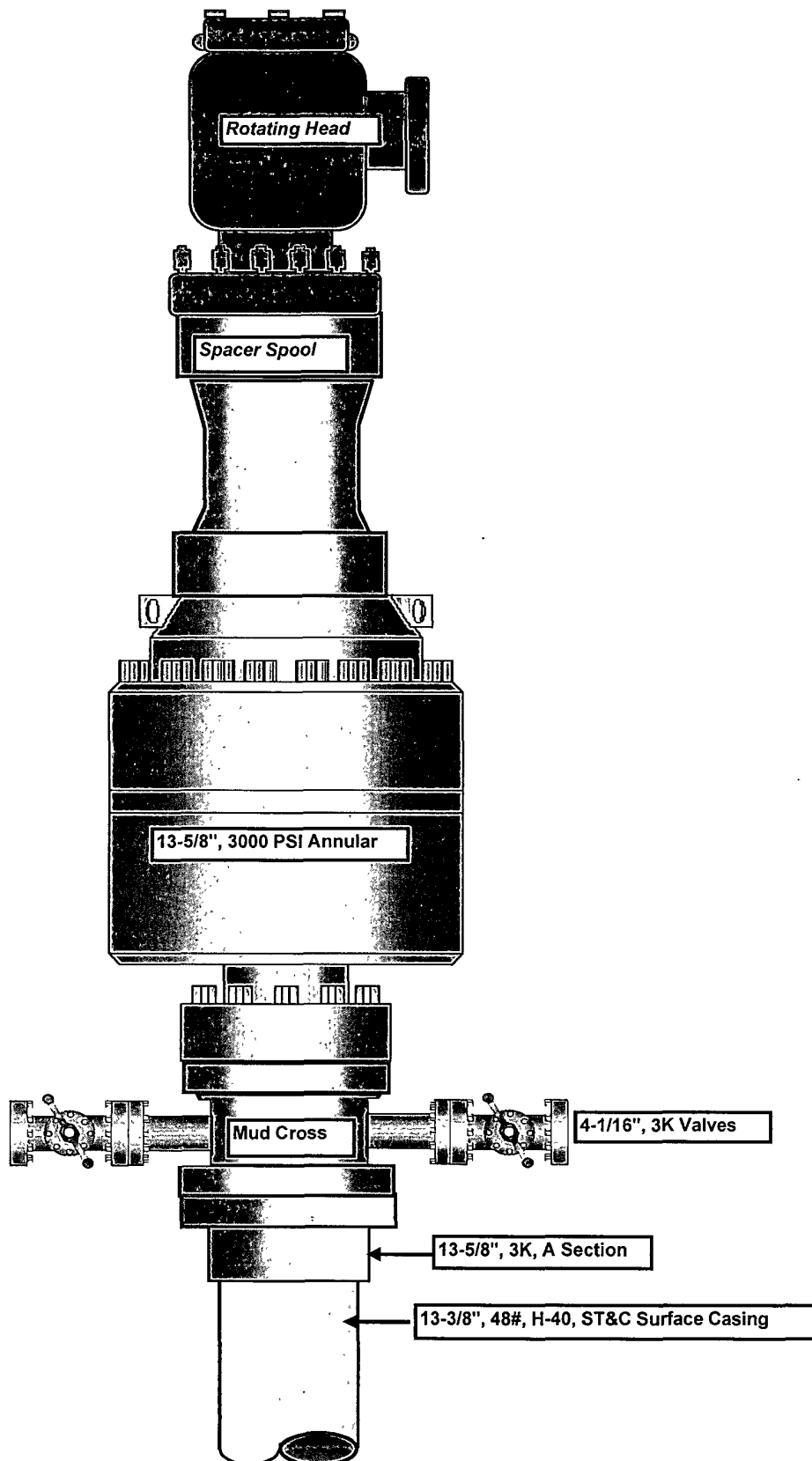
**Strawberry 7 Federal Com 6H**

Surface Location: 340' FSL & 340' FEL, Unit P, Sec 7 T19S R31E, Eddy, NM

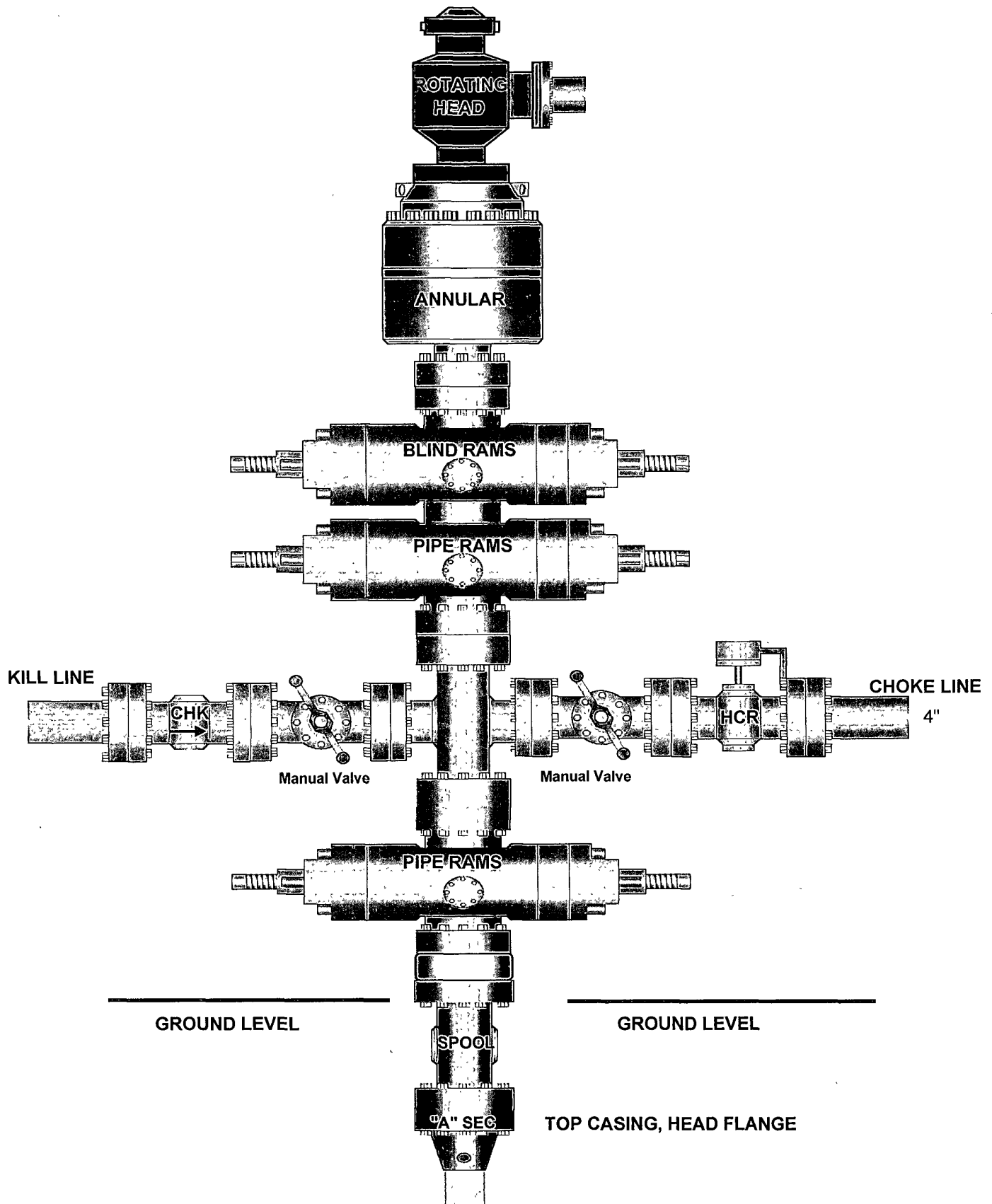
Bottom hole Location: 2310' FSL & 2310' FEL, Unit J, Sec 7 T19S R31E, Eddy, NM

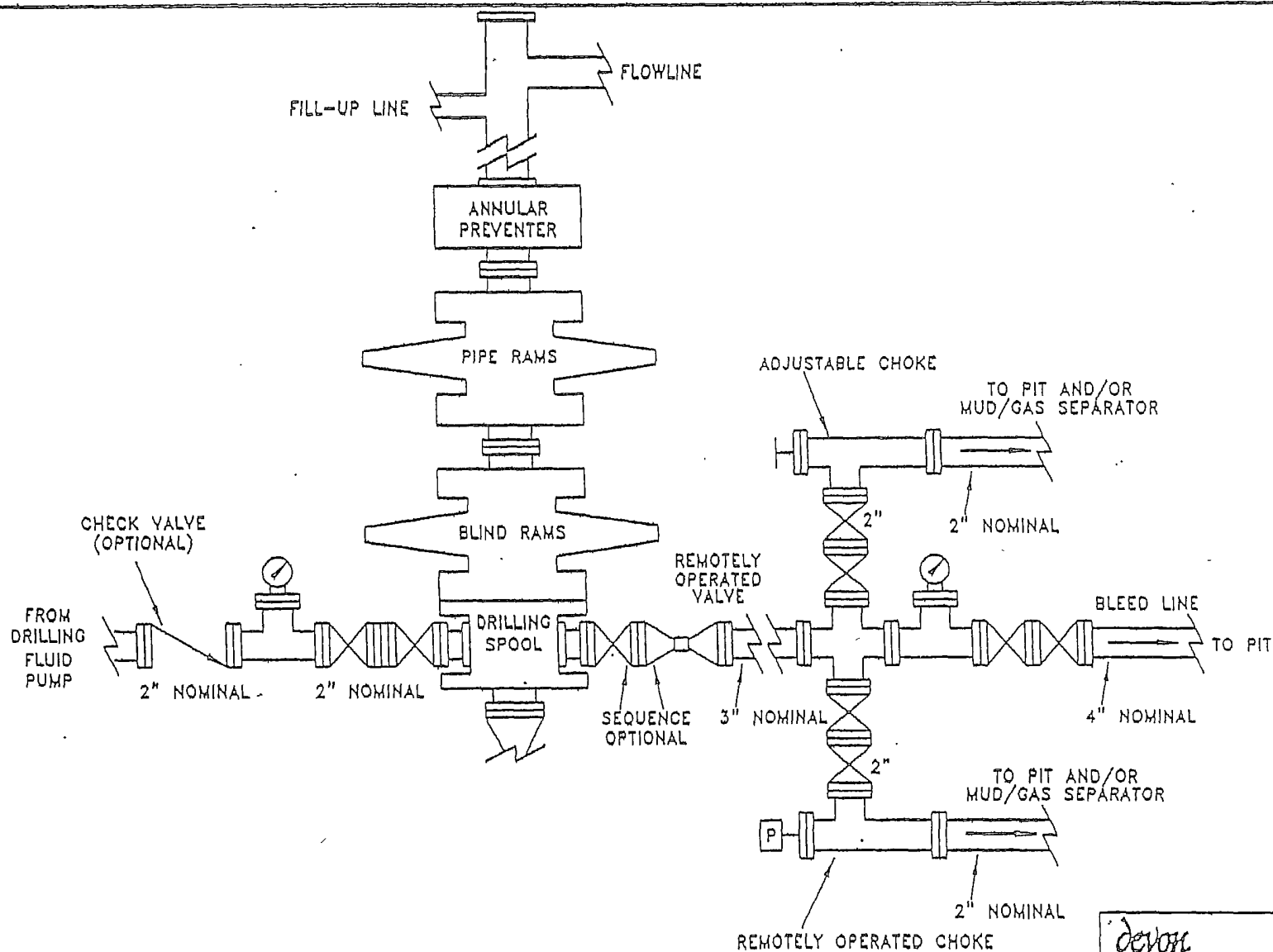
1. Drilling nipple will be constructed so it can be removed mechanically without the aid of a welder. The minimum internal diameter will equal BOP bore.
2. Wear ring will be properly installed in head.
3. Blowout preventer and all associated fittings will be in operable condition to withstand a minimum 5000 psi working pressure.
4. All fittings will be flanged.
5. A full bore safety valve tested to a minimum 5000 psi WP with proper thread connections will be available on the rotary rig floor at all times.
6. All choke lines will be anchored to prevent movement.
7. All BOP equipment will be equal to or larger in bore than the internal diameter of the last casing string.
8. Will maintain a kelly cock attached to the kelly.
9. Hand wheels and wrenches will be properly installed and tested for safe operation.
10. Hydraulic floor control for blowout preventer will be located as near in proximity to driller's controls as possible.
11. All BOP equipment will meet API standards and include a minimum 40 gallon accumulator having two independent means of power to initiate closing operation.

# 13-5/8" 3K Annular



# 13-5/8" x 5,000 psi BOP Stack





devon

EXHIBIT 1

PROPOSED 5-M BOPE  
AND CHOKE ARRANGEMENT

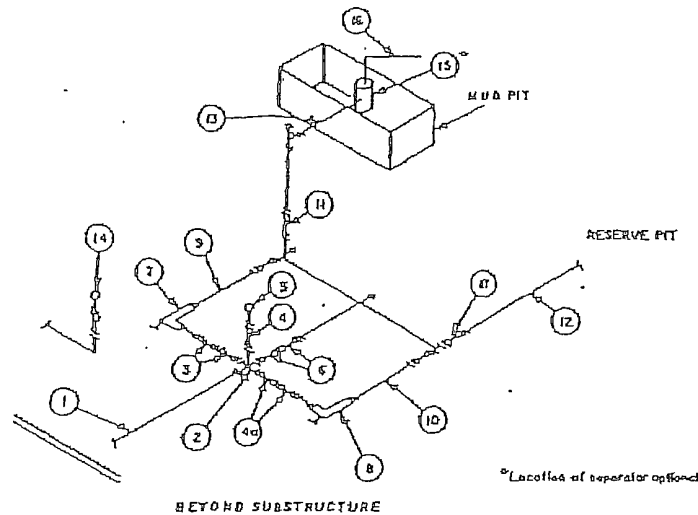
si\\m\plots  
5mbopa.dwg

sc

MINIMUM CHOKE MANIFOLD  
3,000, 5,000 and 10,000 PSI Working Pressure

3 MWP - 5 MWP - 10 MWP

Exhibit E



No.		MINIMUM REQUIREMENTS								
		3,000 MWP			5,000 MWP			10,000 MWP		
		LD.	NOMINAL	RATING	LD.	NOMINAL	RATING	LD.	NOMINAL	RATING
1	Line from drilling spool		3"	3,000		3"	5,000		3"	10,000
2	Cross 3"x3"x3"x2"			3,000			5,000			10,000
3	Valves (1) Gate <input type="checkbox"/> Plug <input type="checkbox"/> (2)	3-1/8"		3,000	3-1/8"		5,000	3-1/8"		10,000
4	Valve Gate <input type="checkbox"/> Plug <input type="checkbox"/> (2)	1-13/16"		3,000	1-13/16"		5,000	1-13/16"		10,000
4a	Valves (1)	2-1/16"		3,000	2-1/16"		5,000	3-1/8"		10,000
5	Pressure Gauge			3,000			5,000			10,000
6	Valves Gate <input type="checkbox"/> Plug <input type="checkbox"/> (2)	3-1/8"		3,000	3-1/8"		5,000	3-1/8"		10,000
7	Adjustable Choke (3)	2"		3,000	2"		5,000	2"		10,000
8	Adjustable Choke	1"		3,000	1"		5,000	2"		10,000
9	Line		3"	3,000		3"	5,000		3"	10,000
10	Line		2"	3,000		2"	5,000		3"	10,000
11	Valves Gate <input type="checkbox"/> Plug <input type="checkbox"/> (2)	3-1/8"		3,000	3-1/8"		5,000	3-1/8"		10,000
12	Lines		3"	1,000		3"	1,000		3"	2,000
13	Lines		3"	1,000		3"	1,000		3"	2,000
14	Remote reading compound standpipe pressure gauge			3,000			5,000			10,000
15	Gas Separator		2"x5"			2"x5"			2"x5"	
16	Line		4"	1,000		4"	1,000		4"	2,000
17	Valves Gate <input type="checkbox"/> Plug <input type="checkbox"/> (2)	3-1/8"		3,000	3-1/8"		5,000	3-1/8"		10,000

(1) Only one required in Class 3A.

(2) Gate valves only shall be used for Class 10M.

(3) Remote operated hydraulic choke required on 5,000 psi and 10,000 psi for drilling.

EQUIPMENT SPECIFICATIONS AND INSTALLATION INSTRUCTIONS

1. All connections in choke manifold shall be welded, studded, flanged or Cameron clamp of comparable rating.
2. All flanges shall be API 6B or 6BX and ring gaskets shall be API RX or BX. Use only BX for 10 MWP.
3. All lines shall be securely anchored.
4. Chokes shall be equipped with tungsten carbide seats and needles, and replacements shall be available.
5. Choke manifold pressure and standpipe pressure gauges shall be available at the choke manifold to assist in regulating chokes. As an alternate with automatic chokes, a choke manifold pressure gauge shall be located on the rig floor in conjunction with the standpipe pressure gauge.
6. Line from drilling spool to choke manifold should be as straight as possible. Lines downstream from chokes shall make turns by large bends or 90° bends using bull plugged tees.
7. Discharge lines from chokes, choke bypass and from top of gas separator should vent as far as practical from the well.

## **HYDROGEN SULFIDE DRILLING OPERATIONS PLAN**

1. All Company and Contract personnel admitted on location must be trained by a qualified H2S safety instructor to the following:
  - a. Characteristics of H2S
  - b. Physical effects and hazards
  - c. Proper use of safety equipment and life support systems.
  - d. Principle and operation of H2S detectors, warning system and briefing areas
  - e. Evacuation procedures, routes and first aid.
  - f. Proper use of 30-minute pressure demand air pack.
2. H2S Detection and Alarm System
  - a. H2S detectors and audio alarm system to be located at bell nipple, end of blooie line (mud pit) and on derrick floor or doghouse.
3. Windsock and/or wind streamers
  - a. Windsock at mud pit area should be high enough to be visible
  - b. Windsock at briefing area should be high enough to be visible
  - c. There should be a windsock at entrance to location
4. Condition Flags and Signs
  - a. Warning Sign on access road to location
  - b. Flags to be displayed on sign at entrance to location. Green flag, normal safe condition. Yellow flag indicates potential pressure and danger. Red flag, danger, H2S present in dangerous concentration. Only emergency personnel admitted to location.
5. Well Control Equipment
  - a. See Exhibit "E" & "E-1"
6. Communication
  - a. While working under masks chalkboards will be used for communication.
  - b. Hand signals will be used where chalk board is inappropriate
  - c. Two way radio will be used to communicate off location in case of emergency help is required. In most cases cellular telephones will be available at most drilling foreman's trailer or living quarters.
7. Drill stem Testing
  - a. Exhausts will be watered
  - b. Flare line will be equipped with an electric igniter or a propane pilot light in case gas reaches the surface.
  - c. If the location is near to a dwelling a closed DST will be performed.
8. Drilling contractor supervisor will be required to be familiar with the effects H2S has on tubular goods and other mechanical equipment.

If H2S is encountered, mud system will be altered if necessary to maintain control or formation. A mud gas separator will be brought into service along with H2S scavengers if necessary.



## Devon Energy Corp. Company Call List

<u>Artesia (575)</u>	<u>Cellular</u>	<u>Office</u>	<u>Home</u>
Foreman – BJ Cathey.....	390-5893 .....	748-0176 .....	887-6026
Asst. Foreman – Bobby Jones...	748-7447 .....	748-0176 .....	746-3194
Don Mayberry .....	748-7180 .....	748-5235 .....	746-4945
Montral Walker .....	(575) 390-5182 .....	(575) 748-0193	
Linda Berryman .....	(575) 513-0534 .....	(575) 748-0177	

### Agency Call List

<u>Lea</u>	<u>Hobbs</u>	
<u>County</u>	State Police.....	392-5588
<u>(505)</u>	City Police.....	397-9265
	Sheriff's Office.....	393-2515
	Ambulance.....	911
	Fire Department .....	397-9308
	LEPC (Local Emergency Planning Committee).....	393-2870
	NMOCD .....	393-6161
	US Bureau of Land Management.....	393-3612
<u>Eddy</u>	<u>Carlsbad</u>	
<u>County</u>	State Police .....	885-3137
<u>(505)</u>	City Police .....	885-2111
	Sheriff's Office .....	887-7551
	Ambulance .....	911
	Fire Department .....	885-2111
	LEPC (Local Emergency Planning Committee).....	887-3798
	US Bureau of Land Management .....	887-6544
	New Mexico Emergency Response Commission (Santa Fe)....	(575) 476-9600
	24 HR .....	(575) 827-9126
	National Emergency Response Center (Washington, DC) .....	(800) 424-8802
	<b>Emergency Services</b>	
	Boots & Coots IWC .....	1-800-256-9688 or (281) 931-8884
	Cudd Pressure Control.....	(915) 699-0139 or (915) 563-3356
	Halliburton .....	(575) 746-2757
	B. J. Services.....	(575) 746-3569
<i>Give</i>	Flight For Life - Lubbock, TX .....	(806) 743-9911
<i>GPS</i>	Aerocare - Lubbock, TX .....	(806) 747-8923
<i>position:</i>	Med Flight Air Amb - Albuquerque, NM .....	(575) 842-4433
	Lifeguard Air Med Svc. Albuquerque, NM .....	(575) 272-3115

## DRILLING PROGRAM

Devon Energy Production Company, LP

### **Strawberry 7 Federal Com 6H**

Surface Location: 340' FSL & 340' FEL, Unit P, Sec 7 T19S R31E, Eddy, NM

Bottom hole Location: 2310' FSL & 2310' FEL, Unit J, Sec 7 T19S R31E, Eddy, NM

#### 1. **Geologic Name of Surface Formation**

a. Quaternary

#### 2. **Estimated Tops of Geological Markers & Depths of Anticipated Fresh Water, Oil or Gas:**

a. Rustler	496'	
b. Salado Salt	643'	
c. Base of Salt	2036'	
d. Tansil Dol	2121'	
e. Yates	2257'	
f. Seven Rivers	2610'	Oil
g. Queen	3180'	Oil
h. San Andres	3769'	Oil
i. Delaware	4532'	Oil
j. 1 <sup>st</sup> Bone Springs Lm	6395'	Oil
k. 1 <sup>st</sup> Bone Springs Ss	7783'	Oil
l. 2 <sup>nd</sup> Bone Springs Lm	8028'	Oil
m. 2nd Bone Springs Ss	8571'	Oil
n. Total Depth	8838' TVD 11,351' MD	

No other formations are expected to yield oil, gas or fresh water in measurable volumes. The surface fresh water sands will be protected by setting 13 3/8" casing at 485' and circulating cement back to surface. Fresh water sands will be protected by setting 9 5/8" casing at 3150' and circulating cement to surface. The Morrow intervals will be isolated by setting 5 1/2" casing to total depth and circulating cement above the base of the 9 5/8" casing.

#### 3. **Casing Program:**

<u>Hole</u> <u>Size</u>	<u>Hole</u> <u>Interval</u>	<u>OD Csg</u>	<u>Casing</u> <u>Interval</u>	<u>Weight</u>	<u>Collar</u>	<u>Grade</u>
30"	0 - 40'	20"	0 - 40'	n/a	n/a	Conductor
17 1/2"	40' - 450'	13 3/8"	0 - 485'	48#/ft	ST&C	H-40
12 1/4"	485' - 3150'	9 5/8"	0-3150'	36#/ft	LT&C	J-55
8 3/4"	3150' - 11351'	5 1/2"	0'-11351'	20#/ft	BT&C	N-80

**Design Parameter Factors:**

<u>Casing Size</u>	<u>Collapse Design</u>	<u>Burst Design</u>	<u>Tension Design</u>
	<u>Factor</u>	<u>Factor</u>	<u>Factor</u>
13 3/8"	3.66	1.71	2.52
9 5/8"	1.24	1.87	2.55
5 1/2"	1.89	1.46	1.83

**4. Cement Program:**

- a. 20" Conductor Ready mix to surface
- b. 13 3/8" Surface  
**Cement Lead Slurry:** Lead with 165 sacks (35:65) Poz (Fly Ash):Premium Plus C Cement + 0.125 lbs/sack Cello Flake + 4% bwoc Bentonite + 1% bwoc Sodium Metasilicate + 5% bwoc MPA-5 + 5% bwow Sodium Chloride + 101.3% Fresh Water. Lead yields 1.97 cuft/sx. **Tail** with 250 sacks Premium Plus C Cement + 2% bwoc Calcium Chloride + 0.125 lbs/sack Cello Flake + 56.3% Fresh Water. Tail yields 1.35 cuft/sx. TOC to surface.
- c. 9 5/8" Intermediate  
**Cement Lead Slurry:** Lead with 710 sacks (35:65) Poz (Fly Ash):Premium Plus C Cement + 5% bwow Sodium Chloride + 0.125 lbs/sack Cello Flake + 6% bwoc Bentonite + 107.7% Fresh Water. Lead yields 2.04 cuft/sx. **Tail** with 300 sacks Premium Plus C Cement + 1% bwoc Calcium Chloride + 0.125 lbs/sack Cello Flake + 56.2% Fresh Water. Tail yields 1.34 cuft/sx. TOC to surface.
- d. 5 1/2" Production  
**2 Stage Cement Job - DV tool at 6500' MD**  
**Stage 1 (6,500'-TD):** Lead with 420 sacks (35:65) Poz (Fly Ash):Class H Cement + 0.125 lbs/sack Cello Flake + 6% bwoc Bentonite + 0.5% bwoc FL-52A + 102.1% Fresh Water. Lead yields 1.94 cuft/sx. Tail with 1460 sacks (50:50) Poz (Fly Ash):Class H Cement + 5% bwow Sodium Chloride + 0.4% bwoc CD-32 + 0.5% bwoc FL-25 + 2% bwoc Bentonite + 0.5% bwoc Sodium Metasilicate + 0.5% bwoc FL-52A + 58.3% Fresh Water. Tail yields 1.31 cuft/sx.  
**Stage 2 (2,600'-6,500'):** Lead with 850 sacks (35:65) Poz (Fly Ash):Premium Plus C Cement + 1% bwow Sodium Chloride + 0.125 lbs/sack Cello Flake + 6% bwoc Bentonite + 0.4% bwoc FL-52A + 103.2% Fresh Water. Lead yields 1.96 cuft/sx. Tail with 150 sacks (60:40) Poz (Fly Ash):Premium Plus C Cement + 2% bwow Sodium Chloride + 0.125 lbs/sack Cello Flake + 0.1% bwoc Sodium Metasilicate + 4% bwoc MPA-5 + 64% Fresh Water. Tail yields 1.35 cuft/sx. TOC ~2,600'. Designed for 500' into intermediate shoe.

The above cement volumes could be revised pending the caliper measurement from the open hole logs. The top of cement is designed to reach approximately 500' above the 9 5/8" casing shoe. All casing is new and API approved.

5. **Pressure Control Equipment:**

The blowout preventor equipment (BOP) shown in Exhibit #1 will consist of a (5M system) double ram type (5000 psi WP) preventor and a bag-type (Hydril) preventor (3000 psi WP) and rotating head. Both units will be hydraulically operated and the ram type preventor will be equipped with blind rams on top and 4 1/2" drill pipe rams on bottom. An annular and rotating head will be installed on the 13 3/8" surface casing and utilized to setting depth of the 9 5/8" intermediate casing. The annular and associated equipment will be tested to ~~1000 psi with the rig pump before drilling out the~~ ~~13 3/8" casing shoe.~~ The BOPE will be installed on the 9 5/8" intermediate casing and utilized continuously until total depth is reached. Prior to drilling out the 9-5/8" casing shoe, the BOP's and Hydril will be tested as per BLM Drilling Operations Order #2.

Pipe rams will be operated and checked each 24-hour period and each time the drill pipe is out of the hole. These functional tests will be documented on the daily drillers log. A 2" kill line and 3" choke line will be incorporated in the drilling spool below the ram-type BOP. Other accessory BOP equipment will include a Kelly cock, floor safety valve, choke lines and choke manifold having 5000 psi WP rating.

6. **Proposed Mud Circulation System**

	<u>Depth</u>	<u>Mud Wt.</u>	<u>Visc</u>	<u>Fluid Loss</u>	<u>Type System</u>
See COA	0'-450' 580'	8.4-9.7	32-34	NC	Fresh Water
	450'-3100' 3150'	10	28	NC	Brine <del>See COA</del>
	3100'-8265'	8.3-9.0	28	NC	Fresh Water
	8265'-11351'	9.0	29-38	10cc	Fresh Water

The necessary mud products for weight addition and fluid loss control will be on location at all times.

7. **Auxiliary Well Control and Monitoring Equipment:**

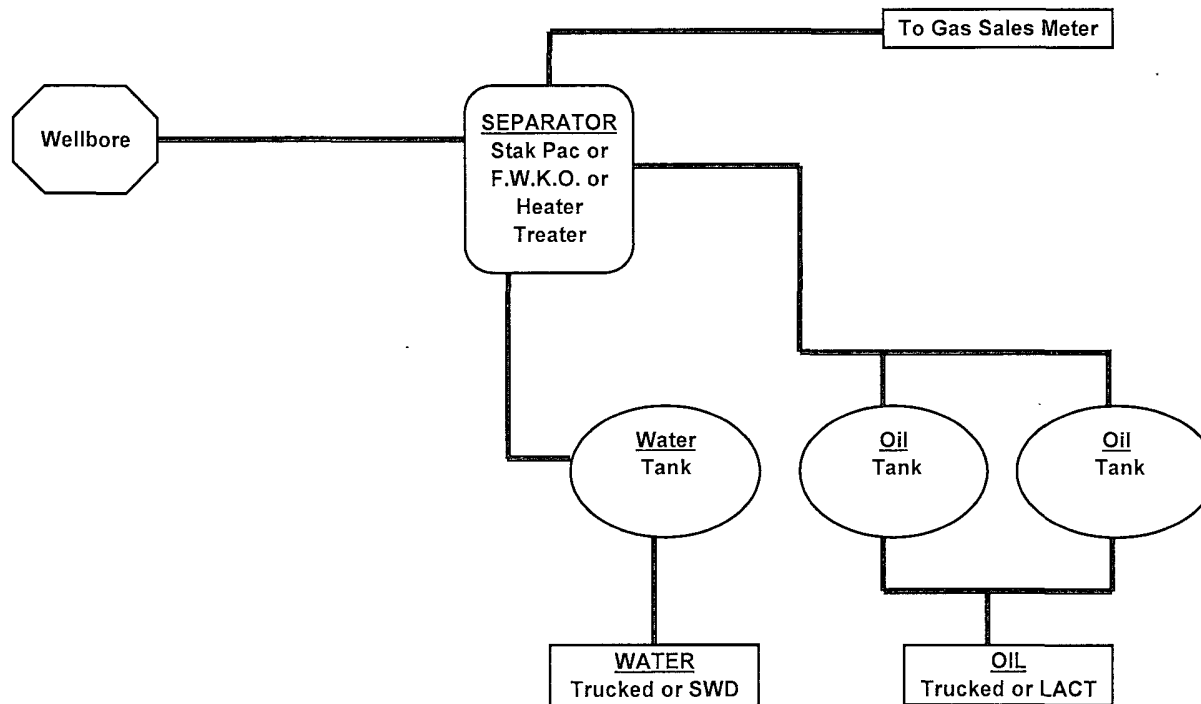
- A Kelly cock will be in the drill string at all times.
- A full opening drill pipe stabbing valve having the appropriate connections will be on the rig floor at all times.
- Hydrogen Sulfide detection equipment will be in operation after drilling out the 13 3/8" casing shoe until the 5 1/2" casing is cemented. Breathing equipment will be on location upon drilling the 13 3/8" shoe until total depth is reached.

8. **Logging, Coring, and Testing Program:**

- Drill stem tests will be based on geological sample shows.
- If a drill stem test is anticipated; a procedure, equipment to be used and safety measures will be provided via sundry notice to the BLM.
- The open hole electrical logging program will be:

DEVON ENERGY PRODUCTION COMPANY LP

General Production Facilities Diagram



**Operators Representative:**

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

Marcos Ortiz  
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) 552-8152 (office)  
(405) 317-0666 (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 15th day of February, 2009.

Printed Name: Stephanie A. Ysasaga

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):

# PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Devon Energy Prod
LEASE NO.:	NM54113
WELL NAME & NO.:	6H Strawberry 7 Federal
SURFACE HOLE FOOTAGE:	340' FSL & 340' FEL
BOTTOM HOLE FOOTAGE	2310' FSL & 2310' FEL
LOCATION:	Section 7, T. 19 S., R 31 E., NMPM
COUNTY:	Eddy County, New Mexico

## TABLE OF CONTENTS

Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

- ☐ **General Provisions**
- ☐ **Permit Expiration**
- ☐ **Archaeology, Paleontology, and Historical Sites**
- ☐ **Noxious Weeds**
- ☒ **Special Requirements**
  - Construction Start Notification – Range Improvement Project
  - Lesser Prairie Chicken
- ☒ **Construction**
  - Notification
  - Topsoil
  - Closed Loop System
  - Federal Mineral Material Pits
  - Well Pads
  - Roads
- ☒ **Road Section Diagram**
- ☒ **Drilling**
  - Secretary's Potash
- ☒ **Production (Post Drilling)**
  - Well Structures & Facilities
  - Pipelines
- ☒ **Closed Loop System/Interim Reclamation**
- ☐ **Final Abandonment/Reclamation**



## **I. GENERAL PROVISIONS**

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

## **II. PERMIT EXPIRATION**

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD. (Filing of a Sundry Notice is required for this 60 day extension.)

## **III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES**

Any cultural and/or paleontological resource discovered by the operator or by any person working on the operator's behalf shall immediately report such findings to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery shall be made by the Authorized Officer to determine the appropriate actions that shall be required to prevent the loss of significant cultural or scientific values of the discovery. The operator shall be held responsible for the cost of the proper mitigation measures that the Authorized Officer assesses after consultation with the operator on the evaluation and decisions of the discovery. Any unauthorized collection or disturbance of cultural or paleontological resources may result in a shutdown order by the Authorized Officer.

## **IV. NOXIOUS WEEDS**

The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

## **V. SPECIAL REQUIREMENT(S)**

**Strawberry 7 Federal Com. # 6H:** Closed loop system: V- Door East

### **Construction Start Notification:**

Prior to building both of the well locations and the access roads Devon Energy needs to contact the Range permittee as well as the BLM to ensure that they will not cut a buried water line used for livestock. The buried water line is going down the existing two track road which will be used by the company for their newly proposed access road. Devon Energy will place their access road on the existing two track road and will move the buried water pipeline and place it next to their newly caliched access road to the proposed location. Both the range permittee and the BLM must be contacted prior to construction of the access roads or well pads.

### **Timing Limitation Stipulation/Condition of Approval for Lesser Prairie-Chicken:**

Oil and gas activities including 3-D geophysical exploration, and drilling will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, geophysical exploration other than 3-D operations, and pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Additionally, no new drilling will be allowed within up to 200 meters of leks known at the time of permitting. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 ft. from the source of the noise.

**Ground-level Abandoned Well Marker to avoid raptor perching:** Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well. For more installation details, contact the Carlsbad Field Office at 575-234-5972.

## **VI. CONSTRUCTION**

### **A. NOTIFICATION**

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 234-5972 at least 3 working days prior to commencing construction of the access road and/or well pad.

When construction operations are being conducted on this well, the operator shall have the approved APD and Conditions of Approval (COA) on the well site and they shall be made available upon request by the Authorized Officer.

### **B. TOPSOIL**

The operator shall stockpile the topsoil of the well pad. The topsoil shall not be used to backfill the reserve pit and will be used for interim and final reclamation.

### **C. Closed Loop System**

**Strawberry 7 Federal Com. # 6H:** Closed loop system: V- Door East

Tanks are required for drilling operations: No Pits.

The operator shall properly dispose of drilling contents at an authorized disposal site.

### **D. FEDERAL MINERAL MATERIALS PIT**

If the operator elects to surface the access road and/or well pad, mineral materials extracted during construction of the reserve pit may be used for surfacing the well pad and access road and other facilities on the lease.

Payment shall be made to the BLM prior to removal of any additional federal mineral materials from any site other than the reserve pit. Call the Carlsbad Field Office at (575) 234-5972.

### **E. WELL PAD SURFACING**

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation.

The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

## **F. ON LEASE ACCESS ROADS**

### **Road Width**

The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed thirty (30) feet.

### **Surfacing**

Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

### **Crowning**

Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

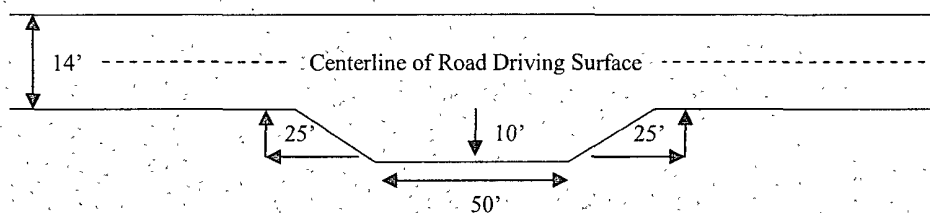
### **Ditching**

Ditching shall be required on both sides of the road.

### **Turnouts**

Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall be constructed on all blind curves. Turnouts shall conform to the following diagram:

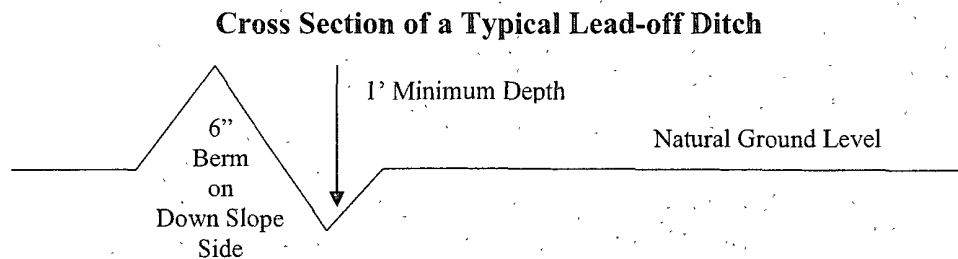
**Standard Turnout – Plan View**



### **Drainage**

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outslowing and insloping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

#### **Formula for Spacing Interval of Lead-off Ditches**

Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

$$\text{400 foot road with 4\% road slope: } \frac{400'}{4\%} + 100' = 200' \text{ lead-off ditch interval}$$

#### **Culvert Installations**

Appropriately sized culvert(s) shall be installed at the deep waterway channel flow crossing.

#### **Cattleguards**

An appropriately sized cattleguard(s) sufficient to carry out the project shall be installed and maintained at fence crossing(s).

Any existing cattleguard(s) on the access road shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattleguard(s) that are in place and are utilized during lease operations.

A gate shall be constructed and fastened securely to H-braces.

**Fence Requirement**

Where entry is required across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting.

The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fence(s).

**Public Access**

Public access on this road shall not be restricted by the operator without specific written approval granted by the Authorized Officer.

**OF ROADWAY**

**SHOULDER**

**TURNOUT 10'**

**TRANSITION 25'**

**50'**

**TRANSITION 25'**

**FULL TURNOUT WIDTH**

**TYPICAL TURNOUT PLAN**

TURNOUTS SHALL BE CONSTRUCTED ON ALL SINGLE LANE ROADS ON ALL BLIND CURVES WITH ADDITIONAL TURNOUTS AS NEEDED TO KEEP SPACINGS BELOW 1000 FEET.

HEIGHT OF PILL AT SHOULDER	EMBANKMENT SLOPE
0' - 0"	2:1
ABOVE 0'	2:1

**TOP WIDTH**

**12" CROWN**

**NATURAL GROUND**

**EMBANKMENT SECTION**

ROAD TYPE	CROWN
EARTH SURFACE	20 - 25 FT / 10'
AGGREGATE SURFACE	22 - 24 FT / 10'
PAVED SURFACE	23 - 25 FT / 10'

**THE DEPTH OF MEASURED FROM THE BOTTOM OF THE DITCH**

**2:1 SLOPE**

**1:1 SLOPE**

**1/2:1 SLOPE**

**1/4:1 SLOPE**

**NATURAL GROUND**

**SIDE HILL SECTION**

**NATURAL GROUND**

**TOP WIDTH**

**2" CROWN**

**CUT SLOPE ROUNDING**

**NATURAL GROUND LINE**

**BACK SLOPE**

**PILL SLOPE**

**TRAVEL SURFACE**

**SLOPE 2 - 0.5**

**TYPICAL OUTSLOPED SECTION**

**NATURAL GROUND LINE**

**BACK SLOPE**

**PILL SLOPE**

**TRAVEL SURFACE**

**SLOPE 2 - 0.5**

**TYPICAL INSLOPED SECTION**



## **VII. DRILLING**

### **A. DRILLING OPERATIONS REQUIREMENTS**

The BLM is to be notified a minimum of 4 hours in advance for a representative to witness:

- a. Spudding well
- b. Setting and/or Cementing of all casing strings
- c. BOPE tests

☒ **Eddy County**

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

1. **Although there are no measured amounts of Hydrogen Sulfide reported, it is always a potential hazard. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.**
2. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
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 are located, this does not include the dog house or stairway area.

### **B. CASING**

**Changes to the approved APD casing and cement program require submitting a sundry and receiving approval prior to work. Failure to obtain approval prior to work will result in an Incident of Non-Compliance being issued.**

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

**Wait on cement (WOC) time 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. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. 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.**

**Possible lost circulation in the Artesia Group and the Capitan Reef.**

**Possible water flows in the Artesia and Salado Groups.**

1. The 13-3/8 inch surface casing shall be set at **approximately 580 feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt)** and cemented to the surface. **If the salt is encountered shallower than this depth, the casing is to be set 25' above the salt. Freshwater mud is to be used to the setting depth of the surface casing.**
  - 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 a surface log readout will be used or a cement bond log shall be run to verify the top of the cement.
  - 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.

**If any lost circulation occurs below the Base of the Salt, the operator is to switch to fresh water mud to protect the Capitan Reef and use fresh water mud until setting the intermediate casing. The appropriate BLM office is to be notified for a PET to witness the switch to fresh water.**

2. The minimum required fill of cement behind the 9-5/8 inch intermediate casing is:

- ☒ Cement to surface. If cement does not circulate see B.1.a, c-d above.  
**Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to Secretary's Potash.**

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

- a. First stage to DV tool, cement shall:
  - ☒ Cement to circulate. If cement does not circulate, contact the appropriate BLM office, before proceeding with second stage cement job.

b. Second stage above DV tool, cement shall:

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

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

### C. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.
2. 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**.
3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **8-5/8"** intermediate casing shoe shall be **5000 (5M) psi. Annular must be rated as 5M not 3M.**
4. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
  - a. The tests shall be done by an independent service company.
  - b. The results of the test shall be reported to the appropriate BLM office.
  - c. 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.
  - d. 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.
  - e. **Effective November 1, 2008, no variances will be granted on reduced pressure tests on the surface casing and BOP/BOPE. Onshore Order 2 requirements will be in effect.**

**D. DRILL STEM TEST**

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

**RGH 042709**

## **VIII. PRODUCTION (POST DRILLING)**

### **A. WELL STRUCTURES & FACILITIES**

#### **Placement of Production Facilities**

Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location.

#### **Containment Structures**

The containment structure shall be constructed to hold the capacity of the entire contents of the largest tank, plus 24 hour production, unless more stringent protective requirements are deemed necessary by the Authorized Officer.

#### **Painting Requirement**

All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color Shale Green, Munsell Soil Color Chart # 5Y 4/2

### **B. PIPELINES**

BLM LEASE NUMBER:

COMPANY NAME:

WELL NO. & NAME:

#### **STANDARD STIPULATIONS FOR SURFACE INSTALLED PIPELINES**

**A copy of the APD and attachments, including stipulations, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.**

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. The holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.
2. The holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the

Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.

3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to activity of the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.

4. The holder shall be liable for damage or injury to the United States to the extent provided by 43 CFR Sec. 2883.1-4. The holder shall be held to a standard of strict liability for damage or injury to the United States resulting from pipe rupture, fire, or spills caused or substantially aggravated by any of the following within the right-of-way or permit area:

- a. Activities of the holder including, but not limited to construction, operation, maintenance, and termination of the facility.
- b. Activities of other parties including, but not limited to:
  - (1) Land clearing.
  - (2) Earth-disturbing and earth-moving work.
  - (3) Blasting.
  - (4) Vandalism and sabotage.
- c. Acts of God.

The maximum limitation for such strict liability damages shall not exceed one million dollars (\$1,000,000) for any one event, and any liability in excess of such amount shall be determined by the ordinary rules of negligence of the jurisdiction in which the damage or injury occurred.

This section shall not impose strict liability for damage or injury resulting primarily from an act of war or from the negligent acts or omissions of the United States.

5. If, during any phase of the construction, operation, maintenance, or termination of the pipeline, any oil, salt water, or other pollutant should be discharged from the pipeline system, impacting Federal lands, the control and total removal, disposal, and cleaning up of such oil, salt water, or other pollutant, wherever found, shall be the responsibility of

the holder, regardless of fault. Upon failure of the holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all damages resulting therefrom, on the Federal lands, the Authorized Officer may take such measures as he deems necessary to control and clean up the discharge and restore the area, including, where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of the holder. Such action by the Authorized Officer shall not relieve the holder of any responsibility as provided herein.

6. All construction and maintenance activity will be confined to the authorized right-of-way width of 25 feet.

7. No blading or clearing of any vegetation will be allowed unless approved in writing by the Authorized Officer.

8. The holder shall install the pipeline on the surface in such a manner that will minimize suspension of the pipeline across low areas in the terrain. In hummocky or dune areas, the pipeline will be "snaked" around hummocks and dunes rather than suspended across these features.

9. The pipeline shall be buried with a minimum of 24 inches under all roads, "two-tracks," and trails. Burial of the pipe will continue for 20 feet on each side of each crossing. The condition of the road, upon completion of construction, shall be returned to at least its former state with no bumps or dips remaining in the road surface.

10. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

11. In those areas where erosion control structures are required to stabilize soil conditions, the holder will install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound resource management practices.

12. Excluding the pipe, all above-ground structures not subject to safety requirement shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be a color which simulates "Standard Environmental Colors" – **Shale Green**, Munsell Soil Color No. 5Y 4/2; designated by the Rocky Mountain Five State Interagency Committee.

13. The pipeline will be identified by signs at the point of origin and completion of the right-of-way and at all road crossings. At a minimum, signs will state the holder's name, BLM serial number, and the product being transported. Signs will be maintained in a

legible condition for the life of the pipeline.

14. The holder shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the holder. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway.

15. Any cultural and/or paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the authorized officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the authorized officer. An evaluation of the discovery will be made by the authorized officer to determine appropriate cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the authorized officer after consulting with the holder.

(March 1989)



## **IX. INTERIM RECLAMATION & RESERVE PIT CLOSURE**

### **A. INTERIM RECLAMATION**

If the well is a producer, interim reclamation shall be conducted on the well site in accordance with the orders of the Authorized Officer. The operator shall submit a Sundry Notices and Reports on Wells (Notice of Intent), Form 3160-5, prior to conducting interim reclamation.

During the life of the development, all disturbed areas not needed for active support of production operations should undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses.

The operators should work with BLM surface management specialists to devise the best strategies to reduce the size of the location. Any reductions should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

BLM SERIAL #:  
COMPANY REFERENCE:  
WELL # & NAME:

Seed Mixture 2, for Sandy Sites

The holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)\* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State law (s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). The holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed\* per acre:

<u>Species</u>	<u>lb/acre</u>
Sand dropseed ( <i>Sporobolus cryptandrus</i> )	1.0
Sand love grass ( <i>Eragrostis trichodes</i> )	1.0
Plains bristlegrass ( <i>Setaria macrostachya</i> )	2.0

\*Pounds of pure live seed:

Pounds of seed x percent purity x percent germination = pounds pure live seed  
(Insert Seed Mixture Here)

## **X. FINAL ABANDONMENT & REHABILITATION REQUIREMENTS**

Upon abandonment of the well and/or when the access road is no longer in service the Authorized Officer shall issue instructions and/or orders for surface reclamation and restoration of all disturbed areas.

On private surface/federal mineral estate land the reclamation procedures on the road and well pad shall be accomplished in accordance with the private surface land owner agreement.