AFS-10-437

OCD Artesia

Form 3160-3
(April 2004)

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

5. Lease Serial No. BHL: NM 012897
NMLC-028446-A

6. If Indian, Allotee or Tribe Name

1a. Type of work: ☑ DRILL ☐ REENTER

7. If Unit or CA Agreement, Name and No.

1b. Type of Well: ☑ Oil Well ☐ Gas Well ☐ Other ☑ Single Zone ☐ Multiple Zone

8. Lease Name and Well No. (37897)
Mark Twain 5 Federal Com 1H

2. Name of Operator
Devon Energy Production Company, LP (6137)

9. API Well No.
30-015-38280

3a. Address **20 North Broadway, Oklahoma City, Oklahoma 73102-8260**

3b. Phone No. *(include area code)*
405-552-7802

10. Field and Pool, or Exploratory
Dog Canyon; Wolfcamp (17970)

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*
At surface **SESE 990' FSL & 480' FEL**
At proposed prod. zone **SWSW 990' FSL & 330' FWL**

11. Sec., T. R. M. or Blk. and Survey or Area
Sec 5-T17S-R28E

14. Distance in miles and direction from nearest town or post office*
Approximately 10 miles east of Artesia, NM

12. County or Parish
Eddy County

13. State
NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) **330'**

16. No. of acres in lease
639.36

17. Spacing Unit dedicated to this well
160

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. **See 1 Mile Radius Plat**

19. Proposed Depth
TVD 6520' MD 10900'

20. BLM/BIA Bond No. on file
CO-1104

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
3572' GL

22. Approximate date work will start*
04/15/2010

23. Estimated duration
45 days

24. Attachments

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

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

25. Signature

Name *(Printed/Typed)*
Stephanie A. Ysasaga

Date
04/05/2010

Title
Sr. Staff Engineering Technician

Approved by *(Signature)* /s/ Don Peterson

Name *(Printed/Typed)* /s/ Don Peterson

Date NOV 03 2010

Title FIELD MANAGER

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

(Instructions on page 2)

SEE ATTACHED FOR CONDITIONS OF APPROVAL

ROSWELL CONTROLLED WATER BASIN

RECEIVED
NOV 04 2010
NMOCD ARTESIA

KZ 11/22/10

APPROVAL SUBJECT TO GENERAL REQUIREMENTS AND SPECIAL STIPULATIONS ATTACHED

DISTRICT I
1625 N. French Dr., Hobbs, NM 88240

DISTRICT II
1301 W. Grand Avenue, Artesia, NM 88210

DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

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

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION

1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

Form C-102
Revised October 12, 2005

Submit to Appropriate District Office
State Lease – 4 Copies
Fee Lease – 3 Copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
30-015-38280	17970	~~WOLFCAMP~~; DOG CANYON; WOLFCAMP

Property Code	Property Name	Well Number
37897	MARK TWAIN 5 FEDERAL COM	1H

OGRID No.	Operator Name	Elevation
6137	DEVON ENERGY PRODUCTION COMPANY LP	3572'

Surface Location

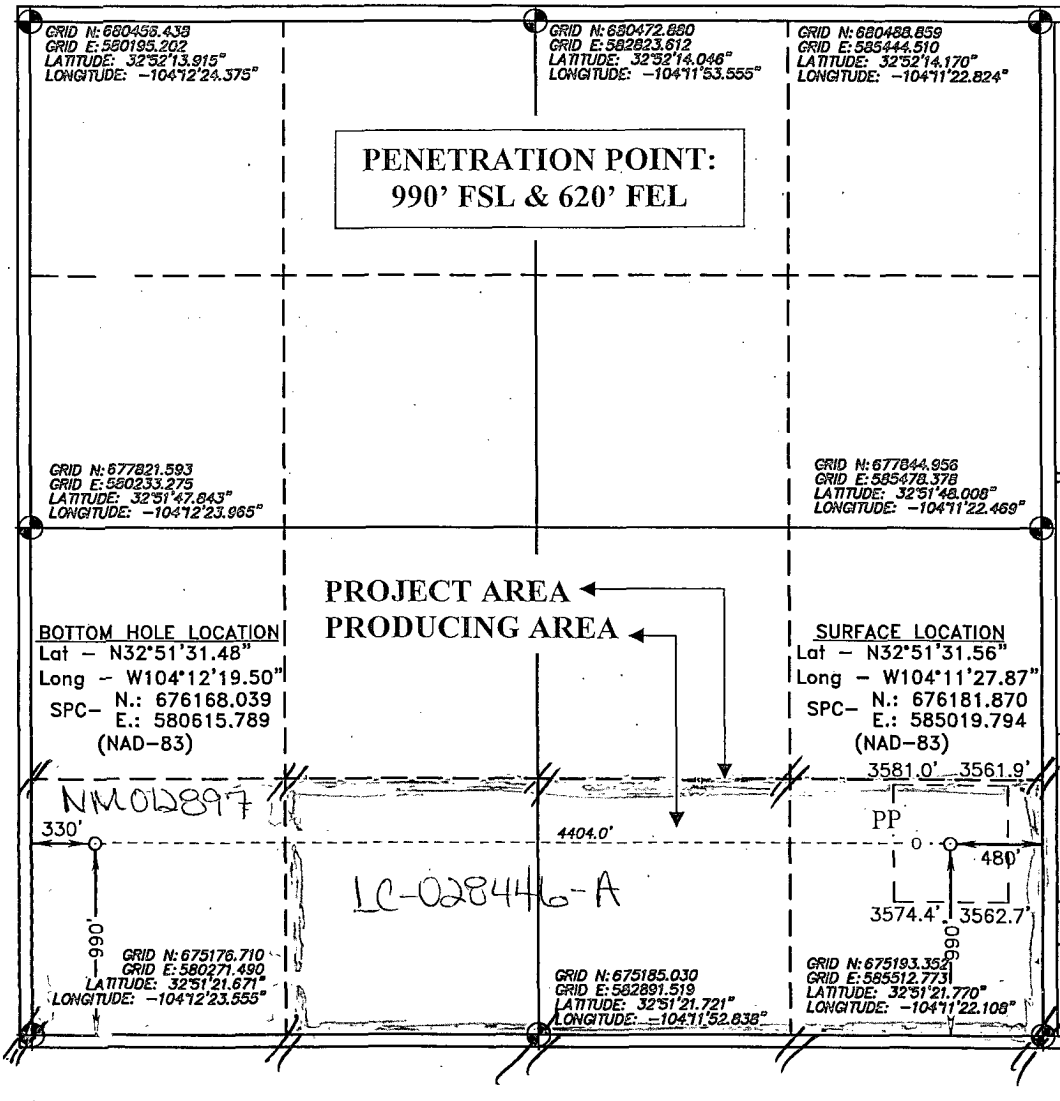
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	5	17 S	28 E		990	SOUTH	480	EAST	EDDY

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
M	5	17 S	28 E		990	SOUTH	330	WEST	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



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 4/16/10 Date

STEPHANIE A. YSASAGA
Printed Name

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 supervison, and that the same is true and correct to the best of my belief.

NOVEMBER 12, 2008
Date Surveyed

Signature & Seal of Professional Surveyor

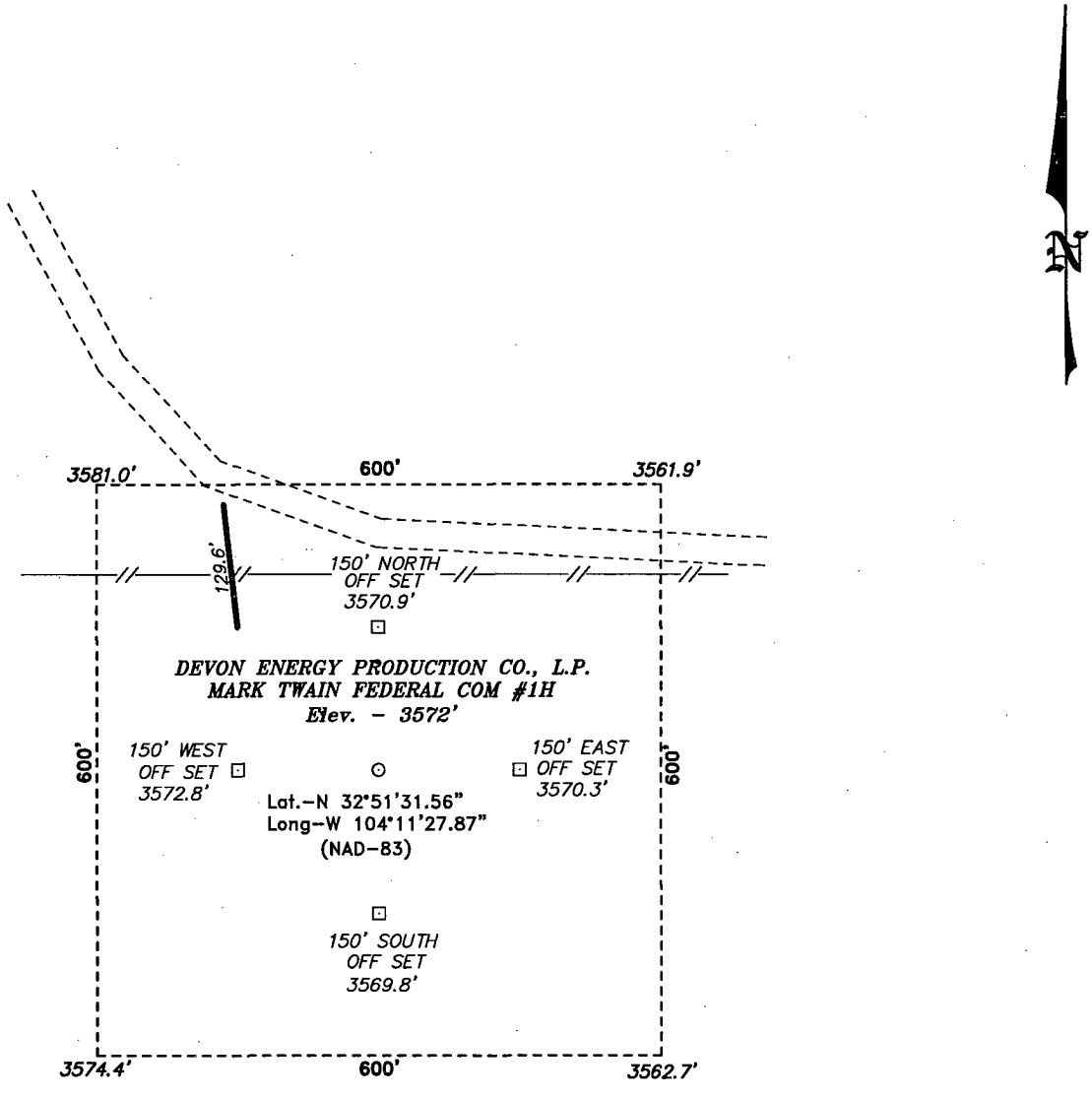
GARY L. JONES
NEW MEXICO
7977
REGISTERED PROFESSIONAL LAND SURVEYOR

W.O. 20838

Certificate No. Gary L. Jones 7977

BASIN SURVEYS

SECTION 5, TOWNSHIP 17 SOUTH, RANGE 28 EAST, N.M.P.M.,
EDDY COUNTY, **NEW MEXICO.**



200 0 200 400 FEET

SCALE: 1" = 200'

Directions to Location:

FROM THE JUNCTION OF HWY 82 AND CO. RD. 202, GO NORTH 4.2 MILES; THENCE NORTHEAST 1.0 MILES; THENCE EAST 0.2 MILES TO LEASE ROAD, ON LEASE ROAD GO SOUTH 1.2 MILES TO PROPOSED LEASE ROAD.

BASIN SURVEYS P.O. BOX 1786 – HOBBS, NEW MEXICO

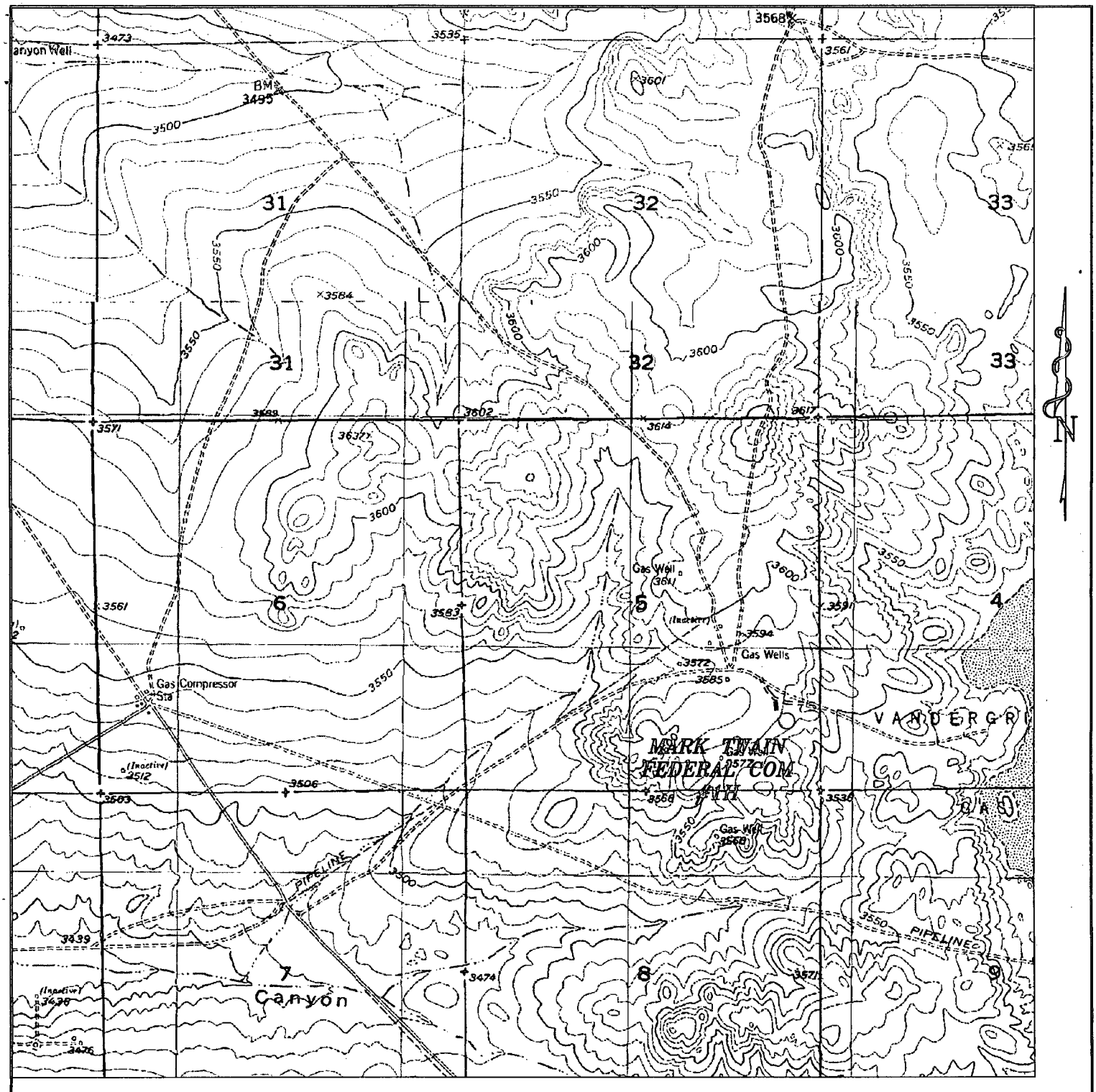
W.O. Number: 20838	Drawn By: J. M. SMALL
Date: 11-18-2008	Disk: 20838 JMS

DEVON ENERGY PROD. CO., L.P.

REF: MARK TWAIN FEDERAL COM #1H / WELL PAD TOPO

THE MARK TWAIN FEDERAL COM #1H LOCATED 990' FROM THE SOUTH LINE AND 480' FROM THE EAST LINE OF SECTION 5, TOWNSHIP 17 SOUTH, RANGE 28 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO.

Survey Date: 11-14-2008 | Sheet 1 of 1 Sheets



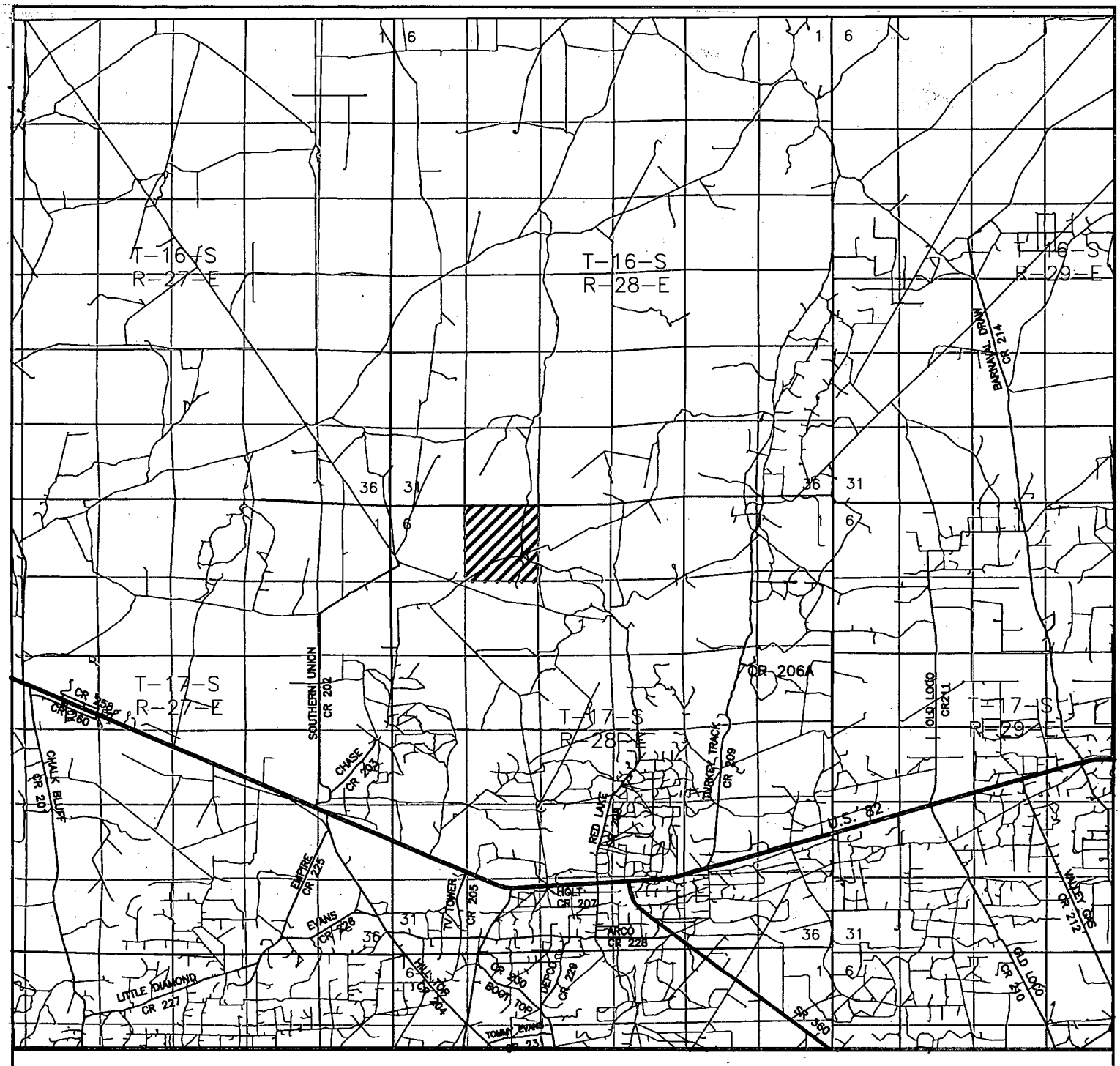
MARK TWAIN FEDERAL COM #1H
Located at 990' FSL AND 480' FEL
Section 5, Township 17 South, Range 28 East,
N.M.P.M., Eddy County, New Mexico.

basin surveys
focused on excellence in the oilfield

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 20838
Survey Date:	11-14-2008
Scale:	1" = 2000'
Date:	11-18-2008

DEVON ENERGY PROD. CO., L.P.



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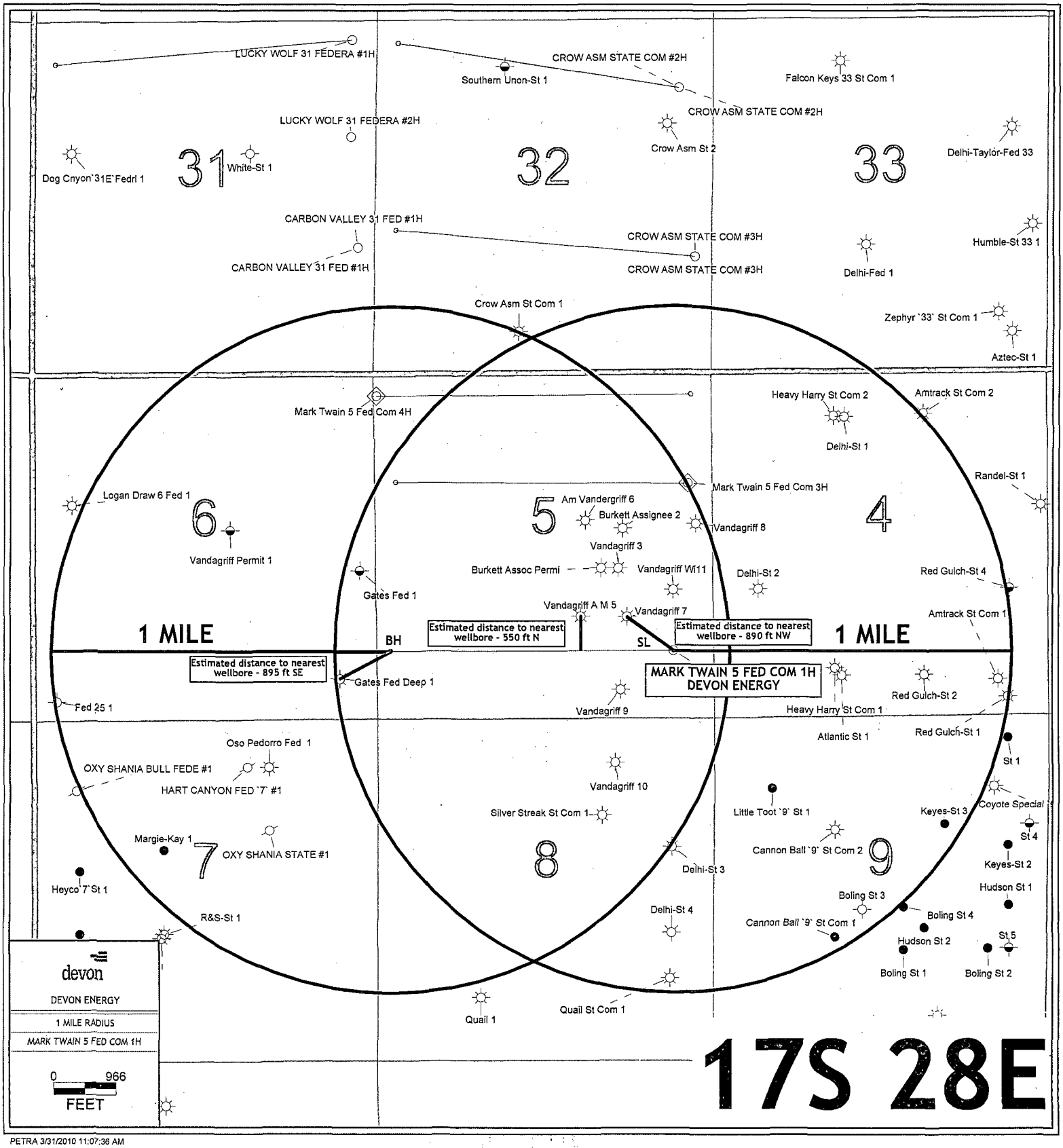
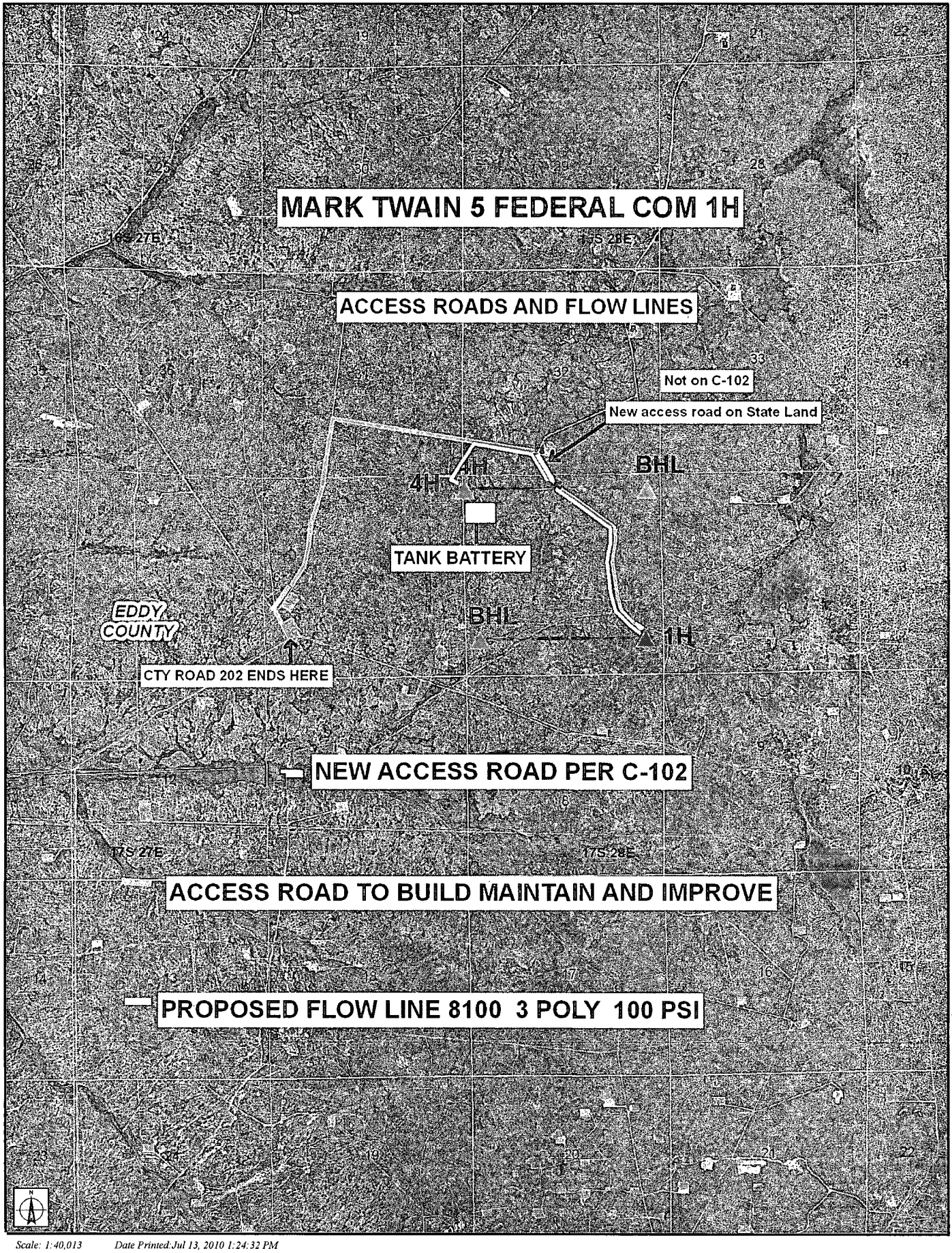


PETRA 3/31/2010 11:07:36 AM

Devon GIS Intranet Mapping

devon



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DRILLING PROGRAM

Devon Energy Production Company, LP
Mark Twain 5 Federal Com 1H
Surface Location: 990' FSL & 480' FEL, Unit P, Sec 5 T17S R28E, Eddy, NM
Bottom hole Location: 990' FSL & 330' FWL, Unit M, Sec 5 T17S R28E, 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.	Queen	1071'	
b.	San Andres	1881'	Oil
c.	Glorieta	3256'	Oil
d.	Abo	5341'	Oil
e.	Wolfcamp Mrkr	6371'	Oil
f.	Wolfcamp Pay	6491'	Oil
g.	Total Depth	TVD 6520' MD 10900'	

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 450' and circulating cement back to surface. The fresh water sands will be protected by setting 9 5/8" casing at 2600' and circulating cement to surface. The Abo interval will be isolated by setting 5 ½" casing to total depth and circulating cement to surface.

Please note the Abo is not a productive zone; therefore no downhole commingling behind pipe will occur in the Abo and Wolfcamp. Supporting geological cross section data has been provided on the offsetting Shakespeare 20 Fed 1H and 3H (API # 30-015-37193 & 30-015-37193), which is an offset to the Mark Twain 5 Fed Com 1H.

The Abo is not productive; as well as the majority of the Wolfcamp. The tops listed on the APD are **geologic markers,** not the specific pay or producing intervals; we will be landing the lateral in the Wolfcamp pay.

The system proposed is a general completion method (BLM approved) for this area to complete/produce with a Peak/Packer assembly which has no cement from the Peak top packer to the ECP.

NOTE: THIS WELL WILL BE DRILLED WITH A PILOT HOLE (PH)

3. Casing Program:

Hole Size	Hole Interval	OD Csg	Casing Interval	Weight	Collar	Grade
See COA — 17 ½"	0' – ~~450'~~ 580	13 3/8"	0'- 450'	48#/ft	ST&C	H-40
12 ¼"	~~450'~~ – 2600'	9 5/8"	0' – 2600'	36#/ft	LT&C	K-55
8 ¾"	2600'- 6900'PH	5 ½"	0'- 5900'	17#/ft	LT&C	HCP-110
8 ¾"	Curve &Lateral 2600'–10,900'	5 ½"	5900'10-900'	17#/ft	BT&C	HCP-110

Design Parameter Factors:

Casing Size	Collapse Design Factor	Burst Design Factor	Tension Design Factor
13 3/8"	3.65	9.38	14.21
9 5/8"	1.49	2.60	5.22
5 ½"	2.86	3.91	2.39

CEMENTING PROGRAM: This well will be drilled with a Pilot Hole to ~6900'. A cement plug will be pumped from 6900' to ~6100. The cement will be allowed to set/cure and directional tools will be run. The curve will be drilled and the lateral drilling will commence. An ECP with a Port Collar will be run in the 5 ½" casing. The ECP with the Port Collar will be set at ~5900'.

Plug Geometry: 400 sx Class H cement, no additives. Yield: .9 cuft/sk

4. Cement Program:

a. 13 3/8" Conductor

Cement with lead: 190 sacks (35:65) Poz (Fly Ash):Premium Plus 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. Yield: 1.75 cf/sack.

Tail: 250 sacks Premium Plus C Cement + 2% bwoc Calcium Chloride + 0.125 lbs/sack Cello Flake + 56.3% Fresh Water Yield: 1.35 cf/sack. TOC @ surface.

b. 9 5/8" Intermediate

Cement Lead 610 sacks (35:65) Poz (Fly Ash):Premium Plus C Cement + 5% bwow Sodium Chloride + 0.125 lbs/sack Cello Flake + 6% bwoc Bentonite + 107.8% Fresh Water. Yield: 1.97 cf/sack.

Tail: 250 sacks (60:40) Poz (Fly Ash):Premium Plus C Cement + 5% bwow Sodium Chloride + 0.125 lbs/sack Cello Flake + 0.4%

bwoc Sodium Metasilicate + 4% bwoc MPA-5 + 64.7% Fresh Water. Yield: 1.34 cf/sack. TOC @ surface.

c. 5 ½" Production ECP @ 5900'
Cement though Port Collar: 1215 sacks (35:65) Poz Class C + 1% Sodium Chloride + 6% Bentonite. Yield: 1.96 cuft/sk bwoc BA-10A + 4% bwoc MPA-5 + 63.1% Fresh Water. TOC to surface.

The above cement volumes could be revised pending the caliper measurement from the open hole logs. All casing is new and API approved.

5. **Pressure Control Equipment:**
BOP DESIGN: Will consist of a (5M system) double ram type (5000 psi WP) preventor and a bag-type (Hydril) preventor (5000 psi WP) and rotation head. Both units will be hydraulically operated and the ram type preventor will be equipped with blind rams on top and 4 ½" drill pipe rams on bottom. A 3M annular BOP will be installed on the 13 3/8" surface casing and utilized continuously until the total depth of the surface hole is reached. The 5M BOP previously mentioned will be installed on the 9 5/8' casing. All BOP's and associated equipment will be tested to 1200 psi with independent testers before drilling out the 13 3/8" casing shoe (70% of 48#, H-40 casing). 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. All BOPs will be tested with independent testers.

See COA

See COA

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 driller's 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**

Depth	Mud Wt.	Visc	Fluid Loss	Type System
0' – 450' 580	8.4-9.0	32-34	NC	FW/Gel
450' – 2600'	9.7-10.0	28-30	NC	Brine
2600'–10900'	8.3-9.0	28-40	NC	Fresh Water

See COA

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. A Kelly cock will be in the drill string at all times.
b. A full opening drill pipe stabbing valve having the appropriate connections will be on the rig floor at all times.
c. 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:**
   a. Drill stem tests will be based on geological sample shows.
   b. 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.
   c. 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.

See COA

9. **Potential Hazards:**
   a. No abnormal pressures or temperatures are expected. There is no known presence of H2S in this area. If H2S 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 2967 psi and Estimated BHT 90°. No H2S 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

Devon Energy

Eddy Co., New Mexico (Nad 83)
Mark Twain 5 Fed #1H
Mark Twain 5 Fed Com #1H

Lateral #1

Plan: Design #1

Standard Survey Report

09 March, 2010

CUDD
DRILLING & MEASUREMENT
SERVICES

Company:	Devon Energy	**Local Co-ordinate Reference:**	Site Mark Twain 5 Fed #1H
Project:	Eddy Co., New Mexico (Nad 83)	**TVD Reference:**	WELL @ 3591.00ft (Original Well Elev)
Site:	Mark Twain 5 Fed #1H	**MD Reference:**	WELL @ 3591.00ft (Original Well Elev)
Well:	Mark Twain 5 Fed Com #1H	**North Reference:**	Grid
Wellbore:	Lateral #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Design #1	**Database:**	EDM 2003.21 Single User Db

Project Eddy Co., New Mexico (Nad 83)

Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site Mark Twain 5 Fed #1H, Sec 5, T-17S, R-28E

Site Position:		**Northing:**	679,059.57 ft	**Latitude:**	32° 52' 0.000 N
From:	Lat/Long	**Easting:**	587,393.05 ft	**Longitude:**	104° 11' 0.000 W
Position Uncertainty:	0.00 ft	**Slot Radius:**	"	**Grid Convergence:**	0.08 °

Well Mark Twain 5 Fed Com #1H

Well Position	**+N/-S**	0.00 ft	**Northing:**	679,059.57 ft	**Latitude:**	32° 52' 0.000 N
	+E/-W	0.00 ft	**Easting:**	587,393.05 ft	**Longitude:**	104° 11' 0.000 W
Position Uncertainty		0.00 ft	**Wellhead Elevation:**	3,591.00 ft	**Ground Level:**	3,572.00 ft

Wellbore Lateral #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	03/09/10	8.06	60.72	49,092

Design Design #1

Audit Notes:

Version:		**Phase:**	PLAN	**Tie On Depth:**	0.00

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	270.00

Survey Tool Program **Date** 03/09/10

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.00	10,794.35	Design #1 (Lateral #1)	NS-GYRO-MS	North sensing gyrocompassing m/s

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)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,071.00	0.00	0.00	1,071.00	0.00	0.00	0.00	0.00	0.00	0.00
Queen									
1,881.00	0.00	0.00	1,881.00	0.00	0.00	0.00	0.00	0.00	0.00
San Andres									
1,950.00	0.00	0.00	1,950.00	0.00	0.00	0.00	0.00	0.00	0.00
9 5/8" Casing									
3,256.00	0.00	0.00	3,256.00	0.00	0.00	0.00	0.00	0.00	0.00
Glorieta									
5,341.00	0.00	0.00	5,341.00	0.00	0.00	0.00	0.00	0.00	0.00
Abo									
5,997.12	0.00	0.00	5,997.12	0.00	0.00	0.00	0.00	0.00	0.00

Company:	Devon Energy	**Local Co-ordinate Reference:**	Site Mark Twain 5 Fed #1H
Project:	Eddy Co., New Mexico (Nad 83)	**TVD Reference:**	WELL @ 3591.00ft (Original Well Elev)
Site:	Mark Twain 5 Fed #1H	**MD Reference:**	WELL @ 3591.00ft (Original Well Elev)
Well:	Mark Twain 5 Fed Com #1H	**North Reference:**	Grid
Wellbore:	Lateral #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Design #1	**Database:**	EDM 2003.21 Single User Db

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)
KOP - Build 10°/100'									
6,404.46	40.73	270.00	6,371.00	0.00	-138.79	138.79	10.00	10.00	0.00
Wolfcamp Mkr.									
6,592.51	59.54	270.00	6,491.00	0.00	-282.50	282.50	10.00	10.00	0.00
Wolfcamp Pay									
6,904.50	90.74	270.00	6,570.04	0.00	-580.33	580.33	10.00	10.00	0.00
EOC - Hold I:90.74° @ A:270°									
10,794.49	90.74	270.00	6,520.00	0.00	-4,470.00	4,470.00	0.00	0.00	0.00
PBHL - TD (MT5FC#1H)									

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
PBHL - TD (MT5FC#1H) - plan hits target center - Point	0.00	0.00	6,520.00	0.00	-4,470.00	679,059.57	582,923.06	32° 52' 0.060 N	104° 11' 52.410 W

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
1,950.00	1,950.00	9 5/8" Casing	9-5/8	12-1/4

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,071.00	1,071.00	Queen		0.00	
1,881.00	1,881.00	San Andres		0.00	
3,256.00	3,256.00	Glorieta		0.00	
5,341.00	5,341.00	Abo		0.00	
6,404.46	6,371.00	Wolfcamp Mkr.		0.00	
6,592.51	6,491.00	Wolfcamp Pay		0.00	

Plan Annotations

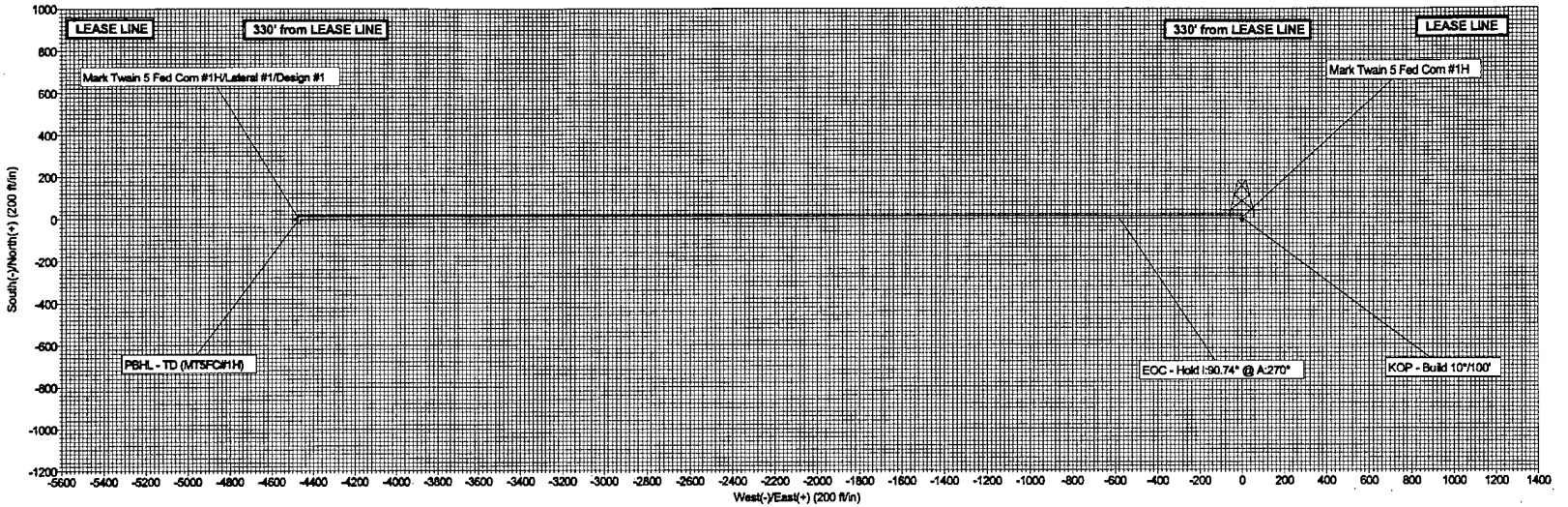
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
5,997.12	5,997.12	0.00	0.00	KOP - Build 10°/100'
6,904.50	6,570.04	0.00	-580.33	EOC - Hold I:90.74° @ A:270°

Checked By: _____ Approved By: _____ Date: _____

devon

Project: Eddy Co., New Mexico (Nad 83)
Site: Mark Twain 5 Fed #1H
Well: Mark Twain 5 Fed Com #1H
Wellbore: Lateral #1
Design: Design #1

CUDD DRILLING & MEASUREMENT SERVICES



WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
PBHL - TD (MT5FC#1H)	6520.00	0.00	-4470.00	679059.57	582923.06	32° 52' 0.060 N	104° 11' 52.410 W	Point

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	5997.12	0.00	0.00	5997.12	0.00	0.00	0.00	0.00	0.00	
3	6904.50	90.74	270.00	6570.04	0.00	-580.33	10.00	270.00	580.33	
4	10794.49	90.74	270.00	6520.00	0.00	-4470.00	0.00	0.00	4470.00	PBHL - TD (MT5FC#1H)

WELL DETAILS: Mark Twain 5 Fed Com #1H

Ground Level:
3572.00
WELL @ 3591.00ft (Original Well Elev)

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	679059.57	587393.05	32° 52' 0.000 N	104° 11' 0.000 W	

PROJECT DETAILS: Eddy Co., New Mexico (Nad 83)

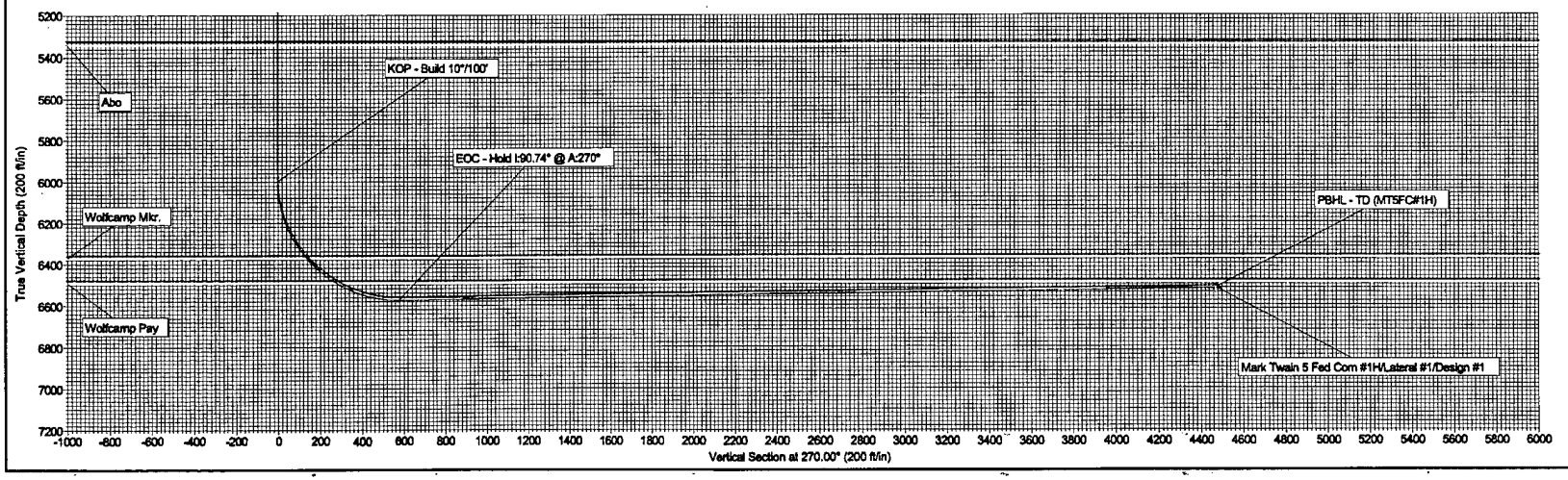
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone
System Datum: Mean Sea Level

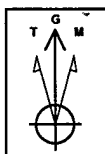
ANNOTATIONS

TVD	MD	Annotation
5997.12	5997.12	KOP - Build 10°/100'
6570.04	6904.50	EOC - Hold I:90.74° @ A:270°

Plan: Design #1 (Mark Twain 5 Fed Com #1H/Lateral #1)

Created By: Mike Starkey — Date: 14:17, March 09 2010
Checked: _____ Date: _____
Reviewed: _____ Date: _____
Approved: _____ Date: _____





Azimuths to Grid North
True North: -0.08°
Magnetic North: 7.98°

Magnetic Field
Strength: 49091.8snT
Dip Angle: 60.72°
Date: 03/09/2010
Model: IGRF200510

Devon Energy
Mark Twain 5 Fed Com #1H - Design #1

Eddy Co., New Mexico (Nad 83)
Mark Twain 5 Fed #1H

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00 N	0.00 E	0.00	0.00
5997.12	0.00	0.00	5997.12	0.00 N	0.00 E	0.00	0.00
6000.00	0.29	270.00	6000.00	0.00 S	0.01 W	0.01	10.00
6100.00	10.29	270.00	6099.45	0.00 S	9.21 W	9.21	10.00
6200.00	20.29	270.00	6195.79	0.00 S	35.54 W	35.54	10.00
6300.00	30.29	270.00	6286.09	0.00 S	78.21 W	78.21	10.00
6400.00	40.29	270.00	6367.61	0.00 S	135.90 W	135.90	10.00
6500.00	50.29	270.00	6437.88	0.00 S	206.87 W	206.87	10.00
6600.00	60.29	270.00	6494.75	0.00 S	288.97 W	288.97	10.00
6700.00	70.29	270.00	6536.51	0.00 S	379.70 W	379.70	10.00
6800.00	80.29	270.00	6561.87	0.00 S	476.30 W	476.30	10.00
6900.00	90.29	270.00	6570.08	0.00 S	575.83 W	575.83	10.00
6904.50	90.74	270.00	6570.04	0.00 N	580.33 W	580.33	10.00
7000.00	90.74	270.00	6568.81	0.00 S	675.82 W	675.82	0.00
7100.00	90.74	270.00	6567.52	0.00 S	775.82 W	775.82	0.00
7200.00	90.74	270.00	6566.23	0.00 S	875.81 W	875.81	0.00
7300.00	90.74	270.00	6564.95	0.00 S	975.80 W	975.80	0.00
7400.00	90.74	270.00	6563.66	0.00 S	1075.79 W	1075.79	0.00
7500.00	90.74	270.00	6562.38	0.00 S	1175.78 W	1175.78	0.00
7600.00	90.74	270.00	6561.09	0.00 S	1275.78 W	1275.78	0.00
7700.00	90.74	270.00	6559.80	0.00 S	1375.77 W	1375.77	0.00
7800.00	90.74	270.00	6558.52	0.00 S	1475.76 W	1475.76	0.00
7900.00	90.74	270.00	6557.23	0.00 S	1575.75 W	1575.75	0.00
8000.00	90.74	270.00	6555.94	0.00 S	1675.74 W	1675.74	0.00
8100.00	90.74	270.00	6554.66	0.00 S	1775.73 W	1775.73	0.00

8200.00	90.74	270.00	6553.37	0.00	S	1875.73	W	1875.73	0.00
8300.00	90.74	270.00	6552.09	0.00	S	1975.72	W	1975.72	0.00
8400.00	90.74	270.00	6550.80	0.00	S	2075.71	W	2075.71	0.00
8500.00	90.74	270.00	6549.51	0.00	S	2175.70	W	2175.70	0.00
8600.00	90.74	270.00	6548.23	0.00	S	2275.69	W	2275.69	0.00
8700.00	90.74	270.00	6546.94	0.00	S	2375.68	W	2375.68	0.00
8800.00	90.74	270.00	6545.65	0.00	S	2475.68	W	2475.68	0.00
8900.00	90.74	270.00	6544.37	0.00	S	2575.67	W	2575.67	0.00
9000.00	90.74	270.00	6543.08	0.00	S	2675.66	W	2675.66	0.00
9100.00	90.74	270.00	6541.80	0.00	S	2775.65	W	2775.65	0.00
9200.00	90.74	270.00	6540.51	0.00	S	2875.64	W	2875.64	0.00
9300.00	90.74	270.00	6539.22	0.00	S	2975.63	W	2975.63	0.00
9400.00	90.74	270.00	6537.94	0.00	S	3075.63	W	3075.63	0.00
9500.00	90.74	270.00	6536.65	0.00	S	3175.62	W	3175.62	0.00
9600.00	90.74	270.00	6535.36	0.00	S	3275.61	W	3275.61	0.00
9700.00	90.74	270.00	6534.08	0.00	S	3375.60	W	3375.60	0.00
9800.00	90.74	270.00	6532.79	0.00	S	3475.59	W	3475.59	0.00
9900.00	90.74	270.00	6531.51	0.00	S	3575.58	W	3575.58	0.00
10000.00	90.74	270.00	6530.22	0.00	S	3675.58	W	3675.58	0.00
10100.00	90.74	270.00	6528.93	0.00	S	3775.57	W	3775.57	0.00
10200.00	90.74	270.00	6527.65	0.00	S	3875.56	W	3875.56	0.00
10300.00	90.74	270.00	6526.36	0.00	S	3975.55	W	3975.55	0.00
10400.00	90.74	270.00	6525.07	0.00	S	4075.54	W	4075.54	0.00
10500.00	90.74	270.00	6523.79	0.00	S	4175.54	W	4175.54	0.00
10600.00	90.74	270.00	6522.50	0.00	S	4275.53	W	4275.53	0.00
10700.00	90.74	270.00	6521.22	0.00	S	4375.52	W	4375.52	0.00
10794.49	90.74	270.00	6520.00	0.00	N	4470.00	W	4470.00	0.00

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

The Dogleg Severity is in Degrees per 100 feet.
Vertical Section is from Slot and calculated along an Azimuth of 270.000° (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 0.081°.

Based upon Minimum Curvature type calculations, at a Measured Depth of 10794.49ft., the Bottom Hole Displacement is 4470.00ft., in the Direction of 270.000° (Grid).

Proposal No: 215855863A

Devon Energy Corp
Mark Twain Fed Com 1H

Sec. 5-17S-28E
Eddy County, New Mexico
March 10, 2010

Well Recommendation

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

Prepared by:
John Parks
Region Technical Rep.
Oklahoma City, Oklahoma
Bus Phone: (405) 228-4302

THE BLUE WELLBORE™
Makes better wells

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: Mark Twain Fed Com 1H
Job Description: Surface Casing
Date: March 10, 2010

Proposal No: 215855863A

JOB AT A GLANCE

Depth (TVD)	450 ft
Depth (MD)	450 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	3,330 gals
Spacer	
Fresh Water	20 bbls
Density	8.3 ppg
Lead Slurry	
Class C + Additives	190 sacks
Density	13.5 ppg
Yield	1.75 cf/sack
Tail Slurry	
Class C	250 sacks
Density	14.8 ppg
Yield	1.35 cf/sack
Displacement	
Mud	64 bbls
Density	8.5 ppg

Operator Name: Devon Energy Corp
Well Name: Mark Twain Fed Com 1H
Job Description: Surface Casing
Date: March 10, 2010

Proposal No: 215855863A

WELL DATA

ANNULAR GEOMETRY

ANNULAR I.D. (in)	DEPTH(ft)	
	MEASURED	TRUE VERTICAL
17.500 HOLE	450	450

SUSPENDED PIPES

DIAMETER (in)		WEIGHT (lbs/ft)	DEPTH(ft)	
O.D.	I.D.		MEASURED	TRUE VERTICAL
13.375	12.715	48	450	450

Float Collar set @	410 ft
Mud Density	8.50 ppg
Est. Static Temp.	80 ° F
Est. Circ. Temp.	80 ° F

VOLUME CALCULATIONS

233 ft	x	0.6946 cf/ft	with	100 % excess	=	324.1 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)
				TOTAL SLURRY VOLUME	=	660.4 cf
					=	118 bbls

Operator Name: Devon Energy Corp
Well Name: Mark Twain Fed Com 1H
Job Description: Surface Casing
Date: March 10, 2010

Proposal No: 215855863A

FLUID SPECIFICATIONS

Spacer 20.0 bbls Fresh Water @ 8.34 ppg

FLUID	VOLUME CU-FT	VOLUME FACTOR	AMOUNT AND TYPE OF CEMENT
Lead Slurry	324	/ 1.75	= 190 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 64.4 bbls Mud @ 8.5 ppg

CEMENT PROPERTIES

	SLURRY NO. 1	SLURRY NO. 2
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)		500
12 hrs @ 80 ° F (psi)	400	1150
15 hrs @ 80 ° F (psi)	500	
24 hrs @ 80 ° F (psi)	700	2100
72 hrs @ 80 ° F (psi)		2700

Operator Name: Devon Energy Corp
Well Name: Mark Twain Fed Com 1H
Job Description: Intermediate Casing
Date: March 10, 2010

Proposal No: 215855863A

JOB AT A GLANCE

Depth (TVD)	2,600 ft
Depth (MD)	2,600 ft
Hole Size	12.25 in
Casing Size/Weight :	9 5/8 in, 36 lbs/ft
Pump Via	9 5/8" O.D. (8.921" .I.D) 36 #
Total Mix Water Required	7,838 gals
Spacer	
Fresh Water	30 bbls
Density	8.3 ppg
Lead Slurry	
35:65:4 Poz:Class C:Gel	610 sacks
Density	12.8 ppg
Yield	1.97 cf/sack
Tail Slurry	
Class C	250 sacks
Density	14.8 ppg
Yield	1.34 cf/sack
Displacement	
Mud	198 bbls
Density	10.0 ppg

Operator Name: Devon Energy Corp
Well Name: Mark Twain Fed Com 1H
Job Description: Intermediate Casing
Date: March 10, 2010

Proposal No: 215855863A

WELL DATA

ANNULAR GEOMETRY

ANNULAR I.D. (in)	DEPTH(ft)	
	MEASURED	TRUE VERTICAL
12.715 CASING	450	450
12.250 HOLE	2,600	2,600

SUSPENDED PIPES

DIAMETER (in)		WEIGHT	DEPTH(ft)	
O.D.	I.D.	(lbs/ft)	MEASURED	TRUE VERTICAL
9.625	8.921	36	2,600	2,600

Float Collar set @	2,560 ft
Mud Density	10.00 ppg
Est. Static Temp.	100 ° F
Est. Circ. Temp.	92 ° F

VOLUME CALCULATIONS

450 ft	x	0.3765 cf/ft	with	0 % excess	=	169.4 cf
1,641 ft	x	0.3132 cf/ft	with	100 % excess	=	1028.6 cf
509 ft	x	0.3132 cf/ft	with	100 % excess	=	318.8 cf
40 ft	x	0.4341 cf/ft	with	0 % excess	=	17.4 cf (inside pipe)
				TOTAL SLURRY VOLUME	=	1534.2 cf
					=	273 bbls

Operator Name: Devon Energy Corp
Well Name: Mark Twain Fed Com 1H
Job Description: Intermediate Casing
Date: March 10, 2010

Proposal No: 215855863A

FLUID SPECIFICATIONS

Spacer 30.0 bbls Fresh Water @ 8.34 ppg

FLUID	VOLUME CU-FT	VOLUME FACTOR	AMOUNT AND TYPE OF CEMENT
Lead Slurry	1198	/ 1.97	= 610 sacks (35:65) Poz (Fly Ash):Class C Cement + 5% bwow Sodium Chloride + 0.125 lbs/sack Cello Flake + 3 lbs/sack LCM-1 + 4% bwoc Bentonite + 0.8% bwoc Sodium Metasilicate + 5% bwoc MPA-5 + 98.2% Fresh Water
Tail Slurry	336	/ 1.34	= 250 sacks Class C Cement + 2% bwoc Calcium Chloride + 56.4% Fresh Water

Displacement 197.9 bbls Mud @ 10 ppg

CEMENT PROPERTIES

	SLURRY NO. 1	SLURRY NO. 2
Slurry Weight (ppg)	12.80	14.80
Slurry Yield (cf/sack)	1.97	1.34
Amount of Mix Water (gps)	10.24	6.36
Estimated Pumping Time - 70 BC (HH:MM)	3:30	2:30
COMPRESSIVE STRENGTH		
12 hrs @ 94 ° F (psi)	300	
24 hrs @ 94 ° F (psi)	750	
72 hrs @ 94 ° F (psi)	1200	
8 hrs @ 100 ° F (psi)		500
12 hrs @ 100 ° F (psi)		1450
24 hrs @ 100 ° F (psi)		2400
72 hrs @ 100 ° F (psi)		3200

ACTUAL CEMENT VOLUMES MAY VARY BASED ON FLUID CALIPER.

Operator Name: Devon Energy Corp
Well Name: Mark Twain Fed Com 1H
Job Description: Long String - Cement Thru Port Collar
Date: March 10, 2010

Proposal No: 215855863A

JOB AT A GLANCE

Depth (TVD)	5,900 ft
Depth (MD)	5,900 ft
Hole Size	8.75 in
Casing Size/Weight :	5 1/2in, 17 lbs/ft
Pump Via	Casing 2 7/8" O.D. (2.441" .I.D) 6.5 #
Total Mix Water Required	13,077 gals
Spacer	
Water	10 bbls
Spacer	
Mud Clean II	1,500 gals
Density	8.5 ppg
Spacer	
Water	10 bbls
Cement Slurry	
35:65:6 Poz:Class C	1,215 sacks
Density	12.5 ppg
Yield	1.96 cf/sack
Displacement	
Water	34 bbls
Density	8.3 ppg

Operator Name: Devon Energy Corp
Well Name: Mark Twain Fed Com 1H
Job Description: Long String - Cement Thru Port Collar
Date: March 10, 2010

Proposal No: 215855863A

WELL DATA

ANNULAR GEOMETRY

ANNULAR I.D. (in)	DEPTH(ft)	
	MEASURED	TRUE VERTICAL
8.921 CASING	2,600	2,600
8.750 HOLE	5,900	5,900

SUSPENDED PIPES

DIAMETER (in)		WEIGHT	DEPTH(ft)	
O.D.	I.D.	(lbs/ft)	MEASURED	TRUE VERTICAL
5.500	4.892	17	5,900	5,900

Mud Density	9.50 ppg
Est. Static Temp.	133 ° F
Est. Circ. Temp.	111 ° F

VOLUME CALCULATIONS

2,600 ft	x	0.2691 cf/ft	with	0 % excess	=	699.6 cf
3,300 ft	x	0.2526 cf/ft	with	101 % excess	=	1679.6 cf
				TOTAL SLURRY VOLUME	=	2379.1 cf
					=	424 bbls

Operator Name: Devon Energy Corp
Well Name: Mark Twain Fed Com 1H
Job Description: Long String - Cement Thru Port Collar
Date: March 10, 2010

Proposal No: 215855863A

FLUID SPECIFICATIONS

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

FLUID	VOLUME CU-FT	VOLUME FACTOR	AMOUNT AND TYPE OF CEMENT
Cement Slurry	2379	/ 1.96	= 1215 sacks (35:65) Poz (Fly Ash):Class C Cement + 1% bwow Sodium Chloride + 0.125 lbs/sack Cello Flake + 6% bwoc Bentonite + 0.4% bwoc FL-52A + 103.2% Fresh Water
Displacement			34.2 bbls Water @ 8.34 ppg

CEMENT PROPERTIES

	SLURRY NO. 1
Slurry Weight (ppg)	12.50
Slurry Yield (cf/sack)	1.96
Amount of Mix Water (gps)	10.76
Estimated Pumping Time - 70 BC (HH:MM)	4:00
COMPRESSIVE STRENGTH	
12 hrs @ 137 ° F (psi)	250
24 hrs @ 137 ° F (psi)	500
72 hrs @ 137 ° F (psi)	800

CEMENT WILL BE PUMPED THROUGH PORT COLLAR AT 5900'.

Operator Name: Devon Energy Corp
Well Name: Mark Twain Fed Com 1H
Job Description: Plug Back and Whipstock Plug
Date: March 10, 2010

Proposal No: 215855863A

JOB AT A GLANCE

Depth (TVD)	6,900 ft
Depth (MD)	6,900 ft
Hole Size	8.75 in
Casing Size/Weight :	9 5/8 in, 36 lbs/ft
Pump Via	Casing 3 1/2" O.D. (2.992" .I.D) 9.3 #
Total Mix Water Required	1,498 gals

Plug No: 1

Spacer

Mud Clean II	10 bbls

Cement Slurry

Class H	125 sacks
Density	15.6 ppg
Yield	1.18 cf/sack

Plug No: 2

Spacer

Mud Clean II	10 bbls
Density	8.3 ppg

Cement Slurry

Class H	280 sacks
Density	18.0 ppg
Yield	0.90 cf/sack

Operator Name: Devon Energy Corp
Well Name: Mark Twain Fed Com 1H
Job Description: Plug Back and Whipstock Plug
Date: March 10, 2010

Proposal No: 215855863A

FLUID SPECIFICATIONS

Spacer = 10.0 bbls Mud Clean II

PLUG NO.	VOLUME CU-FT		VOLUME FACTOR	AMOUNT AND TYPE OF CEMENT
1	147	/	1.18	= 125 sacks Class H Cement
Spacer				= 10.0 bbls Mud Clean II @ 8.34 ppg
2	253	/	.9	= 280 sacks Class H Cement + 5% bwow Sodium Chloride + 1.2% bwoc CD-31 + 26.7% Fresh Water

CEMENT PROPERTIES

	PLUG NO. 1	PLUG NO. 2
Slurry Weight (ppg)	15.60	18.00
Slurry Yield (cf/sack)	1.18	0.90
Amount of Mix Water (gps)	5.23	3.01
Estimated Pumping Time - 70 BC (HH:MM)	1:45	2:30
COMPRESSIVE STRENGTH		
12 hrs @ 135 ° F (psi)		3300
24 hrs @ 135 ° F (psi)		5500
12 hrs @ 143 ° F (psi)	1500	
24 hrs @ 143 ° F (psi)	2700	
72 hrs @ 143 ° F (psi)	3500	

PLUG GEOMETRY

	PLUG TOP		PLUG BOTTOM	
1	6600 ft	to	6900 ft	with 8.75 inch Open Hole PDSqT = 122 ° F PDST = 142.1 ° F
2	6100 ft	to	6600 ft	with 8.75 inch Open Hole PDSqT = 119 ° F PDST = 139.4 ° F

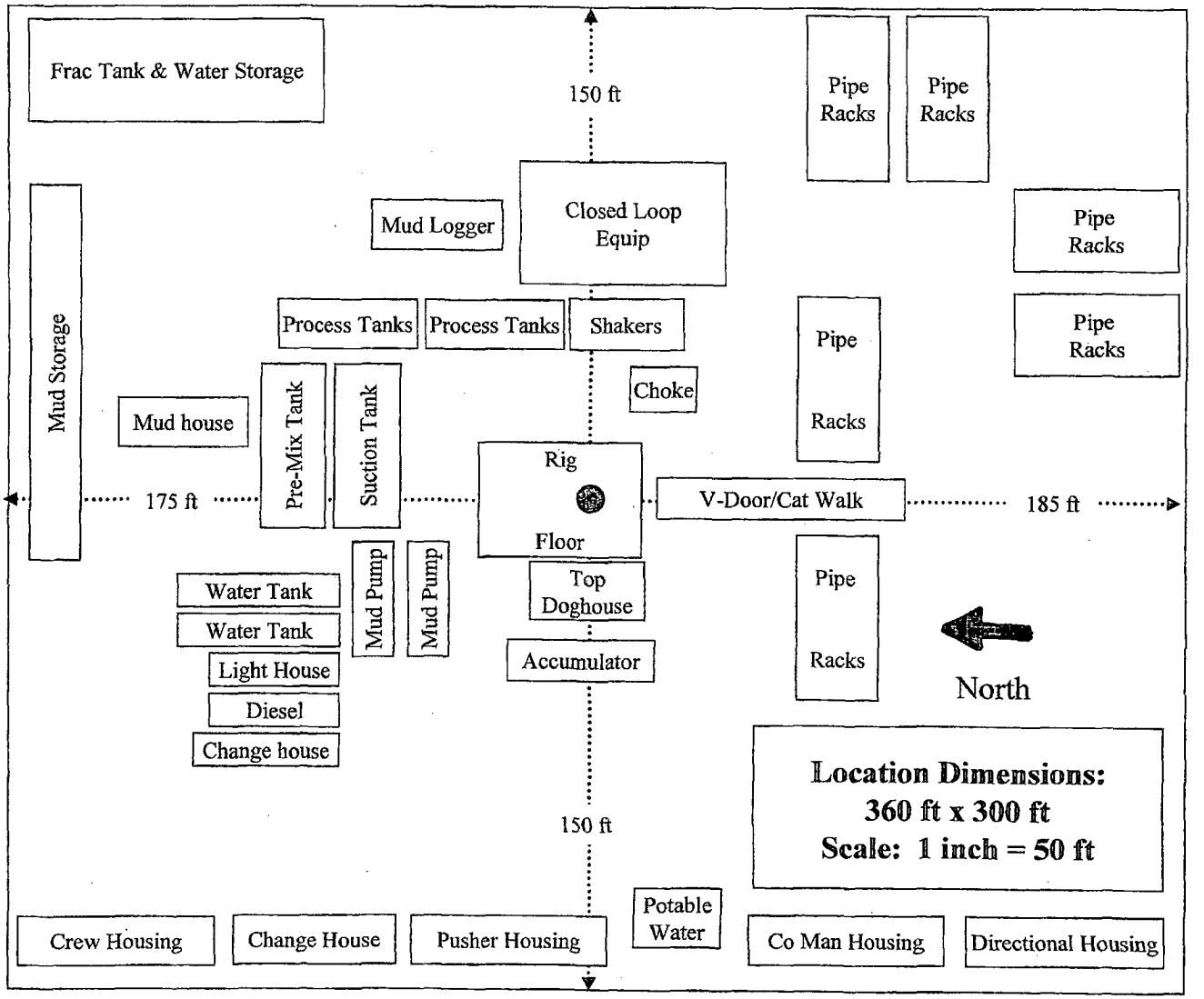
PLUG #1 - 6600' - 6900'

PUMP 125 SACK PLUG (20% EXCESS OVER TRUE HOLE).

PLUG #2 - 6100' - 6600'

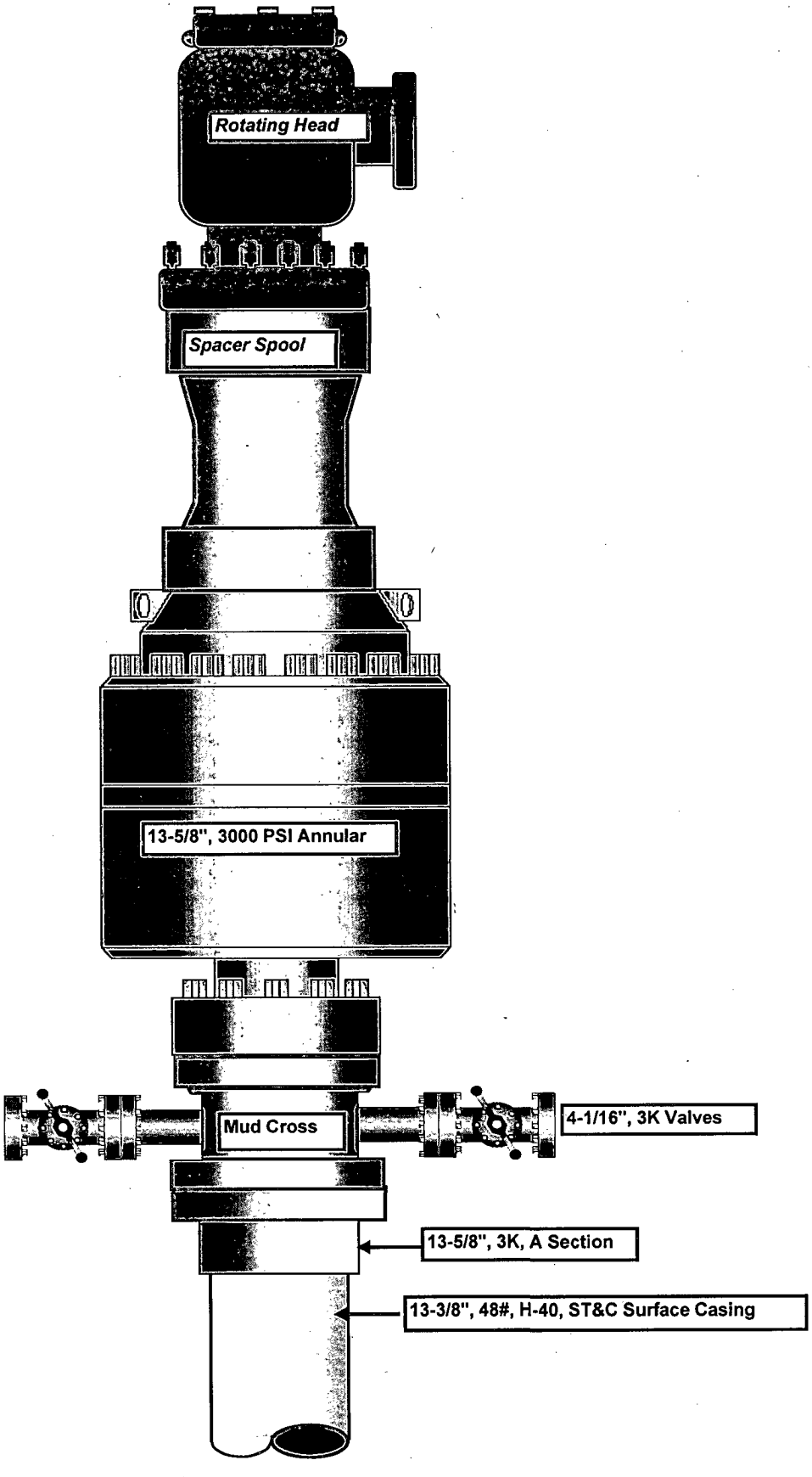
PUMP 280 SACKS FOR WHIPSTOCK PLUG (20% EXCESS OVER TRUE HOLE)

Conventional Rig Location Layout

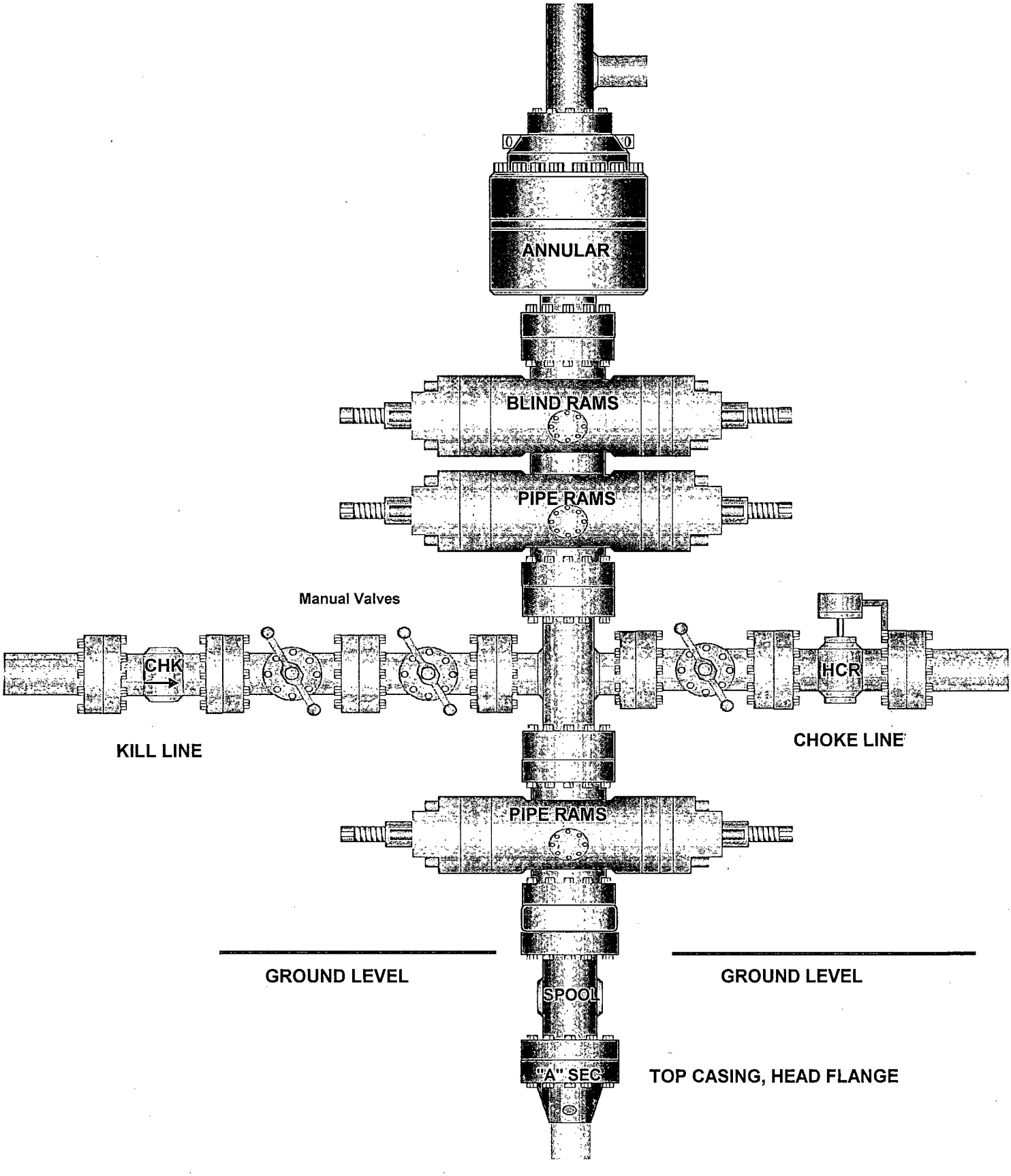


Received 4/5/10 TEN

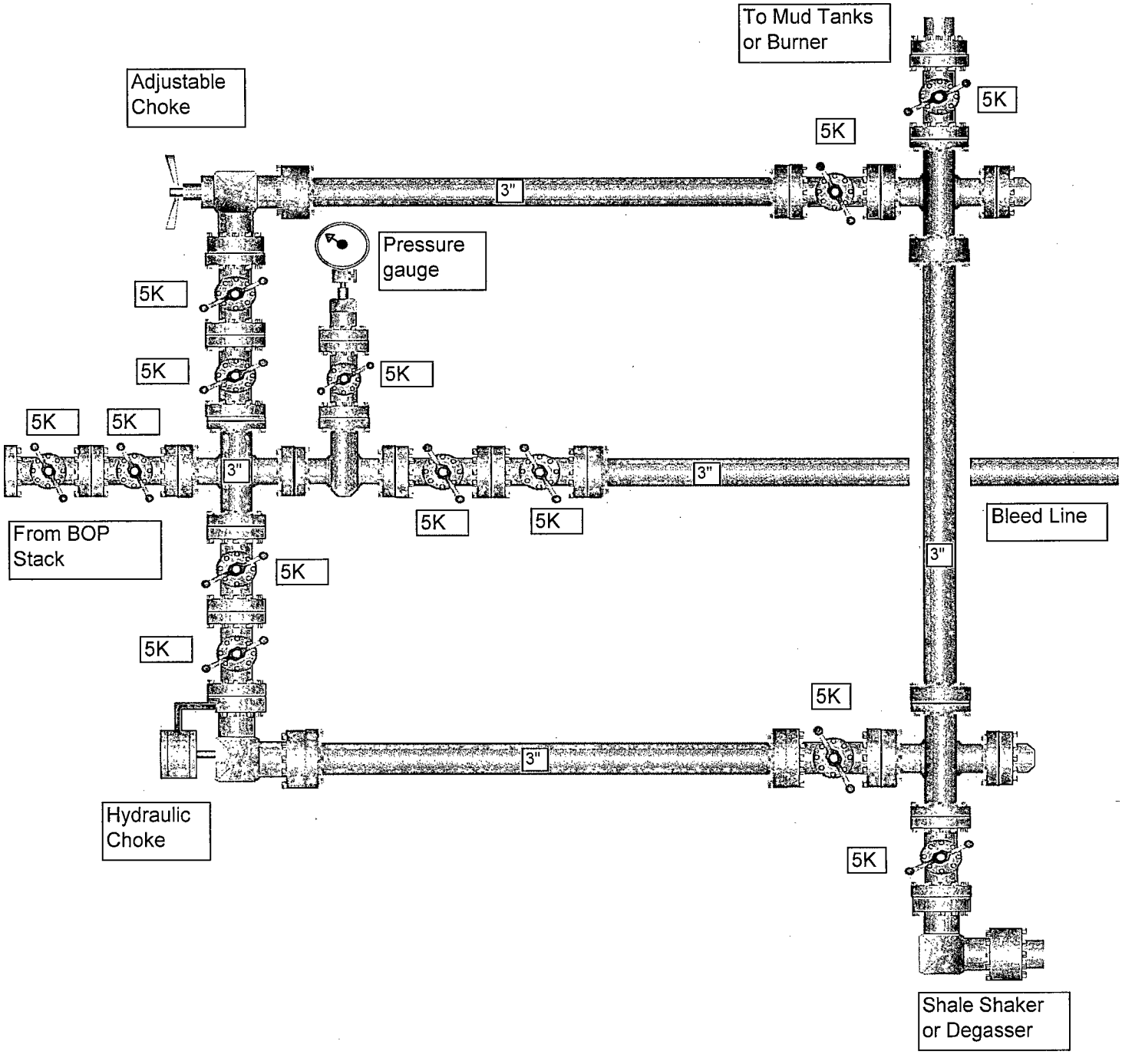
13-5/8" 3K Annular



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



5,000 PSI CHOKE MANIFOLD



Devon Energy Corporation
20 North Broadway
Oklahoma City, Oklahoma 73102-8260

Hydrogen Sulfide (H_2S) Contingency Plan

For

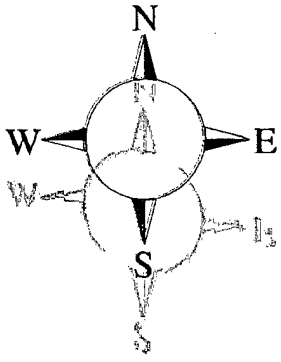
Mark Twain Federal Com # 1H

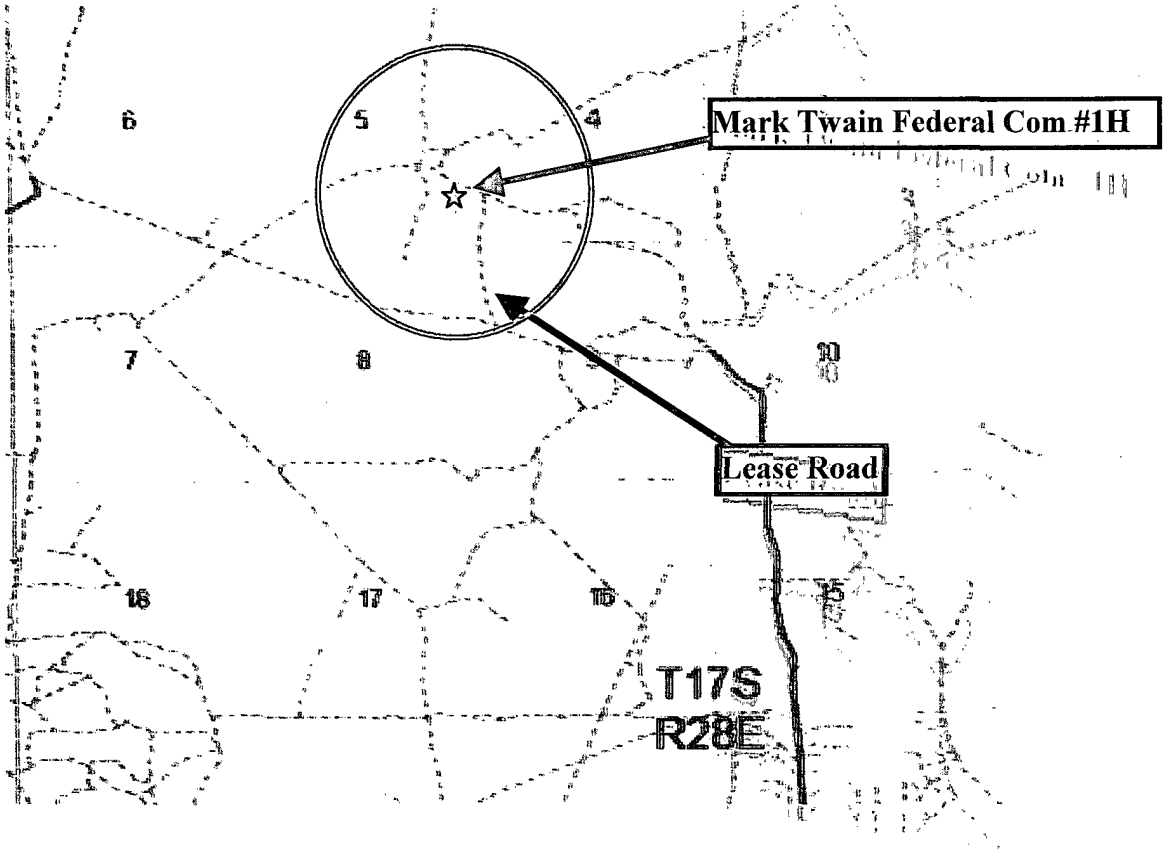
990'FSL & 480' FEL,
Sec-5, T-17S R-28E

Eddy County NM

Mark Twain Federal Com # 1H

This is an open drilling site. H_2S monitoring equipment and emergency response equipment will be used within 500' of zones known to contain H_2S, including warning signs, wind indicators and H_2S monitor.





Assumed 100 ppm ROE = 3000' (Radius of Exposure)
100 ppm H2S concentration shall trigger activation of this plan.

Escape

Crews shall escape upwind of escaping gas in the event of an emergency release of gas. Escape can be facilitated SouthEast then South on lease. Crews should then block entrance to the location from the lease road so as not to allow anyone traversing into a hazardous area. The blockade should be at a safe distance outside of the ROE There are no homes or buildings in or near the ROE.

Assumed 100 ppm ROE = 3000'

100 ppm H_2S concentration shall trigger activation of this plan.

Emergency Procedures

In the event of a release of gas containing H_2S, the first responder(s) must

- **Isolate the area and prevent entry by other persons into the 100 ppm ROE.**
- **Evacuate any public places encompassed by the 100 ppm ROE.**
- **Be equipped with H_2S monitors and air packs in order to control the release.**
- **Use the "buddy system" to ensure no injuries occur during the response**
- **Take precautions to avoid personal injury during this operation.**
- **Contact operator and/or local officials to aid in operation. See list of phone numbers attached.**
- **Have received training in the**
  - **Detection of H_2S, and**
  - **Measures for protection against the gas,**
  - **Equipment used for protection and emergency response.**

Ignition of Gas Source

Should control of the well be considered lost and ignition considered, take care to protect against exposure to Sulfur Dioxide (SO_2). Intentional ignition must be coordinated with the NMOCD and local officials. Additionally the NM State Police may become involved. NM State Police shall be the Incident Command on scene of any major release. Take care to protect downwind whenever there is an ignition of the gas

Characteristics of H_2S and SO_2

Common Name	Chemical Formula	Specific Gravity	Threshold Limit	Hazardous Limit	Lethal Concentration
Hydrogen Sulfide	H_2S	1.189 Air = 1	10 ppm	100 ppm/hr	600 ppm
Sulfur Dioxide	SO_2	2.21 Air = 1	2 ppm	N/A	1000 ppm

Contacting Authorities

Devon Energy Corp. personnel must liaison with local and state agencies to ensure a proper response to a major release. Additionally, the OCD must be notified of the release as soon as possible but no later than 4 hours. Agencies will ask for information such as type and volume of release, wind direction, location of release, etc. Be prepared with all information available. The following call list of essential and potential responders has been prepared for use during a release. Devon Energy Corp. Company response must be in coordination with the State of New Mexico's 'Hazardous Materials Emergency Response Plan' (HMER)

Devon Energy Corp. Company Call List

Artesia (575)	Cellular	Office	Home
Foreman – Robert Bell	748-7448	748-0178	746-2991
Asst. Foreman –Tommy Polly	748-5290	748-0165	748-2846
Don Mayberry	748-5235	748-0164	746-4945
Montral Walker	390-5182	748-0193	936-414-6246
Engineer – Marcos Ortiz	(405) 317-0666	(405) 552-8152	(405) 381-4350

Agency Call List

Lea County (575)

Hobbs

State Police	392-5588
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

Eddy County (575)

Carlsbad

State Police	885-3137
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)	(505)476-9600
24 HR	(505) 827-9126
National Emergency Response Center (Washington, DC)	(800) 424-8802

Emergency Services

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

Give GPS position:

Flight For Life - Lubbock, TX	(806) 743-9911
Aerocare - Lubbock, TX	(806) 747-8923
Med Flight Air Amb - Albuquerque, NM	(575) 842-4433
Lifeguard Air Med Svc. Albuquerque, NM	(575) 272-3115

Prepared in conjunction with
Wade Rohloff of;

Compliance Services

SURFACE USE PLAN
Devon Energy Production Company, LP
Mark Twain 5 Federal Com 1H
Surface Location: 990' FSL & 480' FEL, Unit P, Sec 5 T17S R28E, Eddy, NM
Bottom hole Location: 990' FSL & 330' FWL, Unit M, Sec 5 T17S R28E, 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 the junction of Hwy 82 and Co. Rd 202, go north 2.8 miles; thence northeast 1.0 miles, thence east 0.9 miles to lease road, on lease road go northeasterly 1.0 miles to proposed lease road.
   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.
   f. See plat for existing road that will be maintained and/or upgraded.

2. **New or Reconstructed Access Roads:**
   a. The well site layout, Form C-102 shows approximately 130' of new access road will be constructed as follows:
   b. The maximum width of the road will be 15'. 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 Mark Twain 5 Federal Com 4H 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. All flow lines will adhere to API standards. See attached plat for proposed pipe line to the Mark Twain 5 Federal 4H. We intend to lay approximately 8100' of 3" poly on surface from the Mark Twain 5 Federal 1H to the Mark Twain 5 Federal 4H battery.
   d. 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.

Greg McGowen
Operations Engineer Advisor

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

(405) 228-8965 (office)
(405) 464-9769 (cell)

Don Mayberry
Superintendent

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

(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 _05th_ day of _April_, 2010.
Printed Name: Stephanie A. Ysasaga
Signed Name: _____
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):

Attachment to Exhibit #1
NOTES REGARDING BLOWOUT PREVENTERS
Devon Energy Production Company, LP
Mark Twain 5 Federal Com 1H
Surface Location: 990' FSL & 480' FEL, Unit P, Sec 5 T17S R28E, Eddy, NM
Bottom hole Location: 990' FSL & 330' FWL, Unit M, Sec 5 T17S R28E, 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.

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Devon Energy Production Company, LP
LEASE NO.:	NM012897
WELL NAME & NO.:	Mark Twain 5 Federal Com 1H
SURFACE HOLE FOOTAGE:	990' FSL & 480' FEL
BOTTOM HOLE FOOTAGE	990' FSL & 330' FWL
LOCATION:	Section 5, T. 17 S., R 28 E., NMPM
COUNTY:	Eddy County, New Mexico

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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.

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☐ **Noxious Weeds**
☒ **Special Requirements**
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- Communitization Agreement

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- V-Door Direction
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- Well Structures & Facilities
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☐ **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)

Cave and Karst

** Depending on location, additional Drilling, Casing, and Cementing procedures may be required by engineering to protect critical karst groundwater recharge areas.

Cave/Karst Surface Mitigation

The following stipulations will be applied to minimize impacts during construction, drilling and production.

Construction:
In the advent that any underground voids are opened up during construction activities, construction activities will be halted and the BLM will be notified immediately.

No Blasting:
No blasting will be utilized for pad construction. The pad will be constructed and leveled by adding the necessary fill and caliche.

Pad Berming:
The pad will be bermed to prevent oil, salt, and other chemical contaminants from leaving the pad. All sides will be bermed.

Tank Battery Liners and Berms:
Tank battery locations will be lined and bermed. A 20 mil permanent liner will be installed with a 4 oz. felt backing to prevent tears or punctures. Tank battery berms must be large enough to contain 1 ½ times the content of the largest tank.

Leak Detection System:
A method of detecting leaks is required. The method could incorporate gauges to measure loss, situating values and lines so they can be visually inspected, or installing electronic sensors to alarm when a leak is present. Leak detection plan will be submitted to BLM for approval.

Automatic Shut-off Systems:
Automatic shut off, check values, or similar systems will be installed for pipelines and tanks to minimize the effects of catastrophic line failures used in production or drilling.

Cave/Karst Subsurface Mitigation

The following stipulations will be applied to protect cave/karst and ground water concerns:

Rotary Drilling with Fresh Water:
Fresh water will be used as a circulating medium in zones where caves or karst features are expected. SEE ALSO: Drilling COAs for this well.

Directional Drilling:
Kick off for directional drilling will occur at least 100 feet below the bottom of the cave occurrence zone. SEE ALSO: Drilling COAs for this well.

Lost Circulation:
ALL lost circulation zones from the surface to the base of the cave occurrence zone will be logged and reported in the drilling report.

Regardless of the type of drilling machinery used, if a void of four feet or more and circulation losses greater than 70 percent occur simultaneously while drilling in any cave-bearing zone, the BLM will be notified immediately by the operator. The BLM will assess the situation and work with the operator on corrective actions to resolve the problem.

Abandonment Cementing:
Upon well abandonment in high cave karst areas additional plugging conditions of approval may be required. The BLM will assess the situation and work with the operator to ensure proper plugging of the wellbore.

Pressure Testing:
Annual pressure monitoring will be performed by the operator on all casing annuli and reported in a sundry notice. If the test results indicated a casing failure has occurred, remedial action will be undertaken to correct the problem to the BLM's approval.

Communitization Agreement

A Communitization Agreement covering the acreage dedicated to this well must be filed for approval with the BLM. The effective date of the agreement shall be prior to any sales.

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 in a low profile manner in order to prevent wind/water erosion of the topsoil. The topsoil to be stripped is approximately 6 inches in depth. The topsoil will be used for interim and final reclamation.

C. CLOSED LOOP SYSTEM

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

Payment shall be made to the BLM prior to removal of any federal mineral materials. Call theCarlsbad 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.

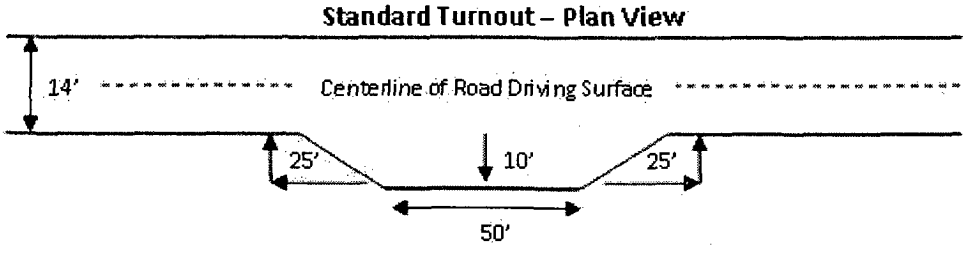
The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future

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.

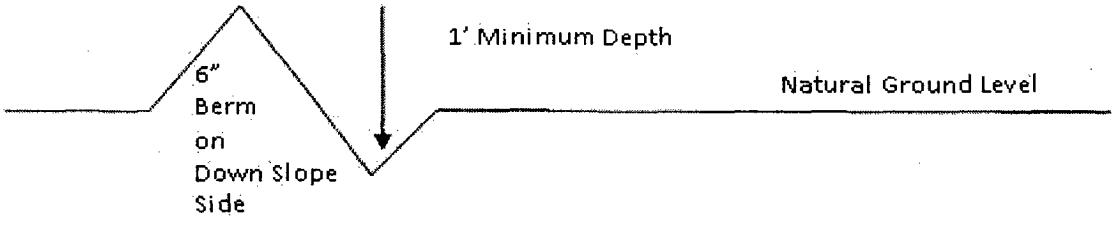
Turnouts
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall be constructed on all blind curves. Turnouts shall conform to the following diagram:



Drainage
Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outsloping 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.

Cross Section of a Typical 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.

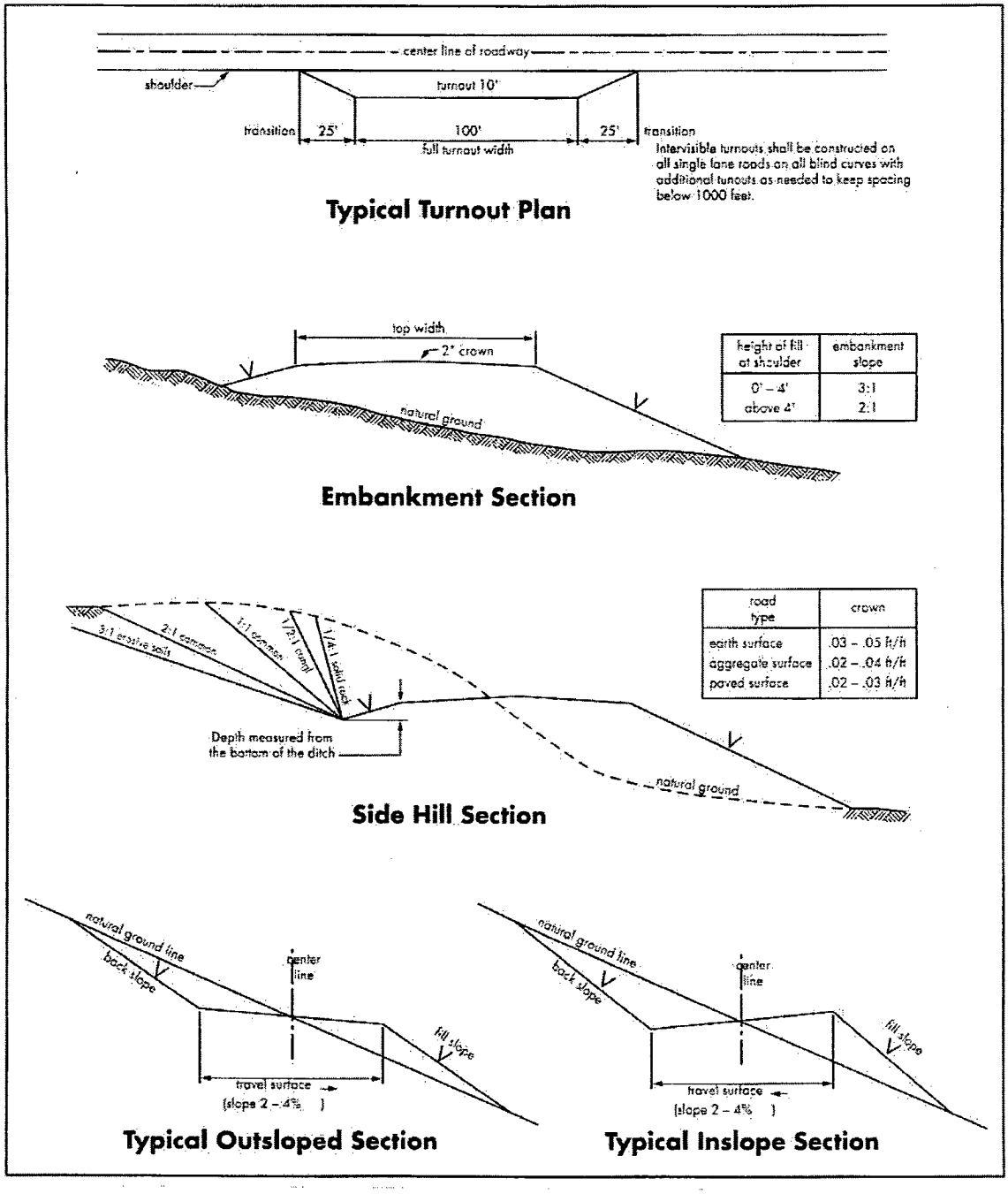
A gate shall be constructed and fastened securely to H-braces.

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.

Figure 1 – Cross Sections and Plans For Typical Road Sections



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. It is recommended that monitoring equipment be onsite for potential Hydrogen Sulfide. If Hydrogen Sulfide is encountered, please report measurements and formations to the BLM.**

2. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.

3. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works is located, this does not include the dog house or stairway area.

4. **The record of the drilling rate along with the CAL/GR/N well log run from TD to surface will be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top (if present) and top and bottom of Salt are to be recorded on the Completion Report.**

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.

High cave/karst.
Possible lost circulation in the Grayburg and San Andres formations.

1. The **13-3/8** inch surface casing shall be set at **approximately 580** feet and cemented to the surface. **Onshore Order II requires casing to be set across a competent bed, which may be difficult to find in the Seven Rivers. Freshwater mud to be used to setting depth.**

    a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.

    b. Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.

    c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.

    d. If cement falls back, remedial action will be done prior to drilling out that string.

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 high cave/karst.

Formation below the 9-5/8" shoe to be tested according to Onshore Order 2.III.B.1.i. Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe (not the mud weight required to prevent dissolving the salt formation) and the mud weight for the bottom of the hole. Report results to BLM office.

Pilot hole plug method is approved as written.

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

   a. First stage to DV tool:

   ☒ Cement not required – operator using an ECP/Peak completion system.

   b. Second stage above DV tool, cement shall:

   ☒ Cement to surface. If cement does not circulate, contact the appropriate BLM office.

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 **2000 (2M)** psi.

   a. **For surface casing only:** If the BOP/BOPE is to be tested against casing, the wait on cement (WOC) time for that casing is to be met (see WOC statement at start of casing section). Independent service company required.

3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **9-5/8** intermediate casing shoe shall be **5000 (5M)** psi. **5M system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.**

4. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.

    a. Casing cut-off and BOP installation will not be initiated until the cement has had a minimum of 8 hours setup time for a water basin. The casing shall remain stationary and under pressure for at least eight hours after the operator places the cement. In the potash area, the minimum time is 12 hours and the casing shall remain stationary and under pressure during this time period. Casing shall be under pressure if the operator uses some acceptable means of holding pressure or if the operator employs one or more float valves to hold the cement in place. Testing the BOP/BOPE against a plug can commence after meeting the above conditions plus the BOP installation time.

    b. The tests shall be done by an independent service company using a test plug.

    c. The results of the test shall be reported to the appropriate BLM office.

    d. 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.**

    e. 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.

    f. **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.

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E. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

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

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. The authorized right-of-way width will be **25** feet. 14 feet of the

right-of-way width will consist of existing disturbance (existing lease roads) and the remaining 11 feet will consist of area adjacent to the disturbance. All construction and maintenance activity will be confined to existing roads.

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 of duney areas, the pipeline will be "snaked" around hummocks and dunes rather then 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.

IX. 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.

Within six (6) months of well completion, operators should work with BLM surface management specialists (Jim Amos: 575-234-5909) to devise the best strategies to reduce the size of the location. Interim reclamation 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 that is free of contaminants 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.

All disturbed areas after they have been satisfactorily prepared need to be reseeded with the seed mixture provided below.

Upon completion of interim reclamation, the operator shall submit a Sundry Notices and Reports on Wells, Subsequent Report of Reclamation (Form 3160-5).

X. FINAL ABANDONMENT & RECLAMATION

At final abandonment, well locations, production facilities, and access roads must undergo "final" reclamation so that the character and productivity of the land are restored.

Earthwork for final reclamation must be completed within six (6) months of well plugging. All pads, pits, facility locations and roads must be reclaimed to a satisfactory revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact.

After all disturbed areas have been satisfactorily prepared; these areas need to be revegetated with the seed mixture provided below. Seeding should be accomplished by drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (Jim Amos: 575-234-5909).

Seed Mixture 1, for Loamy 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 regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (small/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:

Species	lb/acre
Plains lovegrass (Eragrostis intermedia)	0.5
Sand dropseed (Sporobolus cryptandrus)	1.0
Sideoats grama (Bouteloua curtipendula)	5.0

*Pounds of pure live seed:

Pounds of seed **x** percent purity **x** percent germination = pounds pure live seed