OCD-ARTESIA

JUL 29 2009

ATS-09-68

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.
SL: NM103873 BHL: NM~~103873~~ 54856

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.
Shakespeare 20 Federal Com 3H

2 Name of Operator
Devon Energy Production Company, LP

9. API Well No
30-015-37193

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

3b Phone No *(include area code)*
405-552-8198

10 Field and Pool, or Exploratory
Wolfcamp

4 Location of Well *(Report location clearly and in accordance with any State requirements.*)*
At surface ~~2310' FNL~~ ~~2440~~ FNL & ~~330 FEL~~ SE/NE 2140 FNL & 660 FWL
At proposed prod zone 2240 FNL & 330 FEL SW/NW

Split Estate

11 Sec., T R. M or Blk. and Survey or Area
Sec 20, T16S R28E

14 Distance in miles and direction from nearest town or post office*
Approximately 13 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)
Surf: 100' BHL: 330'

16 No of acres in lease
SL: 320 BHL: 160

17. Spacing Unit dedicated to this well
160 acres, S/2 S/2

18 Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.
3382' and 1610'

19 Proposed Depth
TVD 6325' TMD 10,870'

20 BLM/BIA Bond No on file
CO-1104

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
3593' GL

22. Approximate date work will start*
12/01/2008

23. Estimated duration
55 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)* **Norvella Adams** — Date **10/27/2008**

Title **Sr. Staff Eng. Tech**

Approved by *(Signature)* **/s/ Don Peterson** — Name *(Printed/Typed)* **/s/ Don Peterson** — Date **JUL 27 2009**

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)

Roswell Controlled Water Basin

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

Approval Subject to General Requirements & Special Stipulations Attached

OCD Artesia

Form 3160-5
(August 1999)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APROVED
OMB NO. 1004-0135
EXPIRES: NOVEMBER 30, 2000

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals

SUBMIT IN TRIPLICATE

5. Lease Serial No.: **NM103872**

6. If Indian, Allottee or Tribe Name:

7. Unit or CA Agreement Name and No.:

1a Type of Well: ☑ Oil Well ☐ Gas Well ☐ Other

8 Well Name and No.: **Shakespeare 20 Federal Com 3H**

2 Name of Operator: **DEVON ENERGY PRODUCTION COMPANY, LP**

9. API Well No:

3 Address and Telephone No.: **20 North Broadway, Oklahoma City, OK 73102** **405-552-8198**

10 Field and Pool, or Exploratory: **Wolfcamp**

4. Location of Well (Report location clearly and in accordance with Federal requirements)*
~~2240'~~ **FNL ~~330'~~ FEL E Sec 20 16S 28E**
BHL: 2240' FNL 330' FEL L Sec 20 16S 28E

12 County or Parish: **Eddy** 13. State: **NM**

CHECK APPROPRIATE BOX(s) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OS SUBMISSION	TYPE OF ACTION			
☑ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Fracture Treat	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☐ Other
	☑ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

13 Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work and approximate duration thereof. If the proposal deepen directionally or recomplete horizontally, give subsurface location and measured and true vertical depths of all pertinent markers and zones Attach the Bond under which the work will be performed or provide the Bond No on file with BLM/BIA Required subsequent reports shall be filed within 30 days following completion of the involved operations If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 shall be filed once testing has been completed Final Abandonment Notices shall be filed only after all requirement, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection)

Devon Energy Production Co., LP respectfully requests permission to move the surface location to meet requirements specified by the BLM.

Old Surface Location: ~~2240' FNL & 330' FEL~~
New Surface Location: 2140' FNL & 660' FWL E, Sec 20-1+A626S-28E

14. I hereby certify that the foregoing is true and correct

Signed _____ Name **Norvella Adams** Title Sr. Staff Eng. Tech Date 16-Jul-09

(This space for Federal or State Office use)

Approved by /s/ Don Peterson Title FIELD MANAGER Date JUL 27 2009

Conditions of approval, if any:

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make any department or agency of the United States any false, fictitious or fraudulent statements or representations to any matter within its jurisdiction

***See Instruction on Reverse Side**

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
30-015-37193	17970	Dog Canyon; WOLFCAMP

Property Code	Property Name	Well Number
37207	SHAKESPEARE "20" FEDERAL Com	3H

OGRID No.	Operator Name	Elevation
6137	DEVON ENERGY PRODUCTION COMPANY, L.P.	3599'

Surface Location

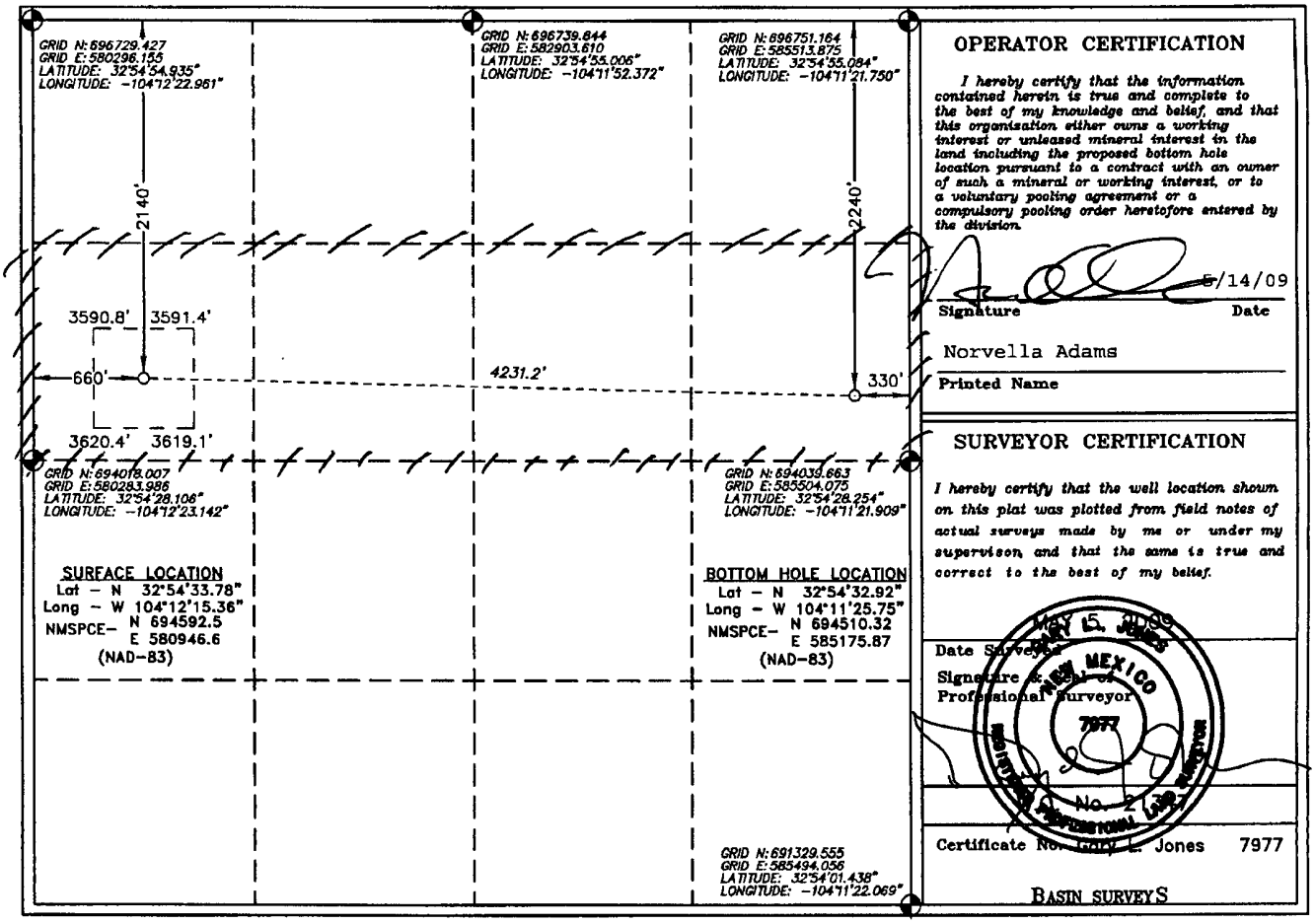
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
E	20	16 S	28 E		2140	NORTH	660	WEST	EDDY

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
H	20	16 S	28 E		2240	NORTH	330	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



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.

5/14/09
Signature Date

Norvella Adams
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.

MAY 15, 2008
Date Surveyed
Signature & Seal of Professional Surveyor
NEW MEXICO 7977 PROFESSIONAL

Certificate No. Gary L. Jones 7977

BASIN SURVEYS

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

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

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☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name

Property Code	Property Name	Well Number
	SHAKESPEARE "20" FEDERAL	3H
OGRID No.	**Operator Name**	**Elevation**
	DEVON ENERGY PRODUCTION COMPANY, L.P.	3599'

Surface Location

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H	20	16 S	28 E		2240	NORTH	330	EAST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.

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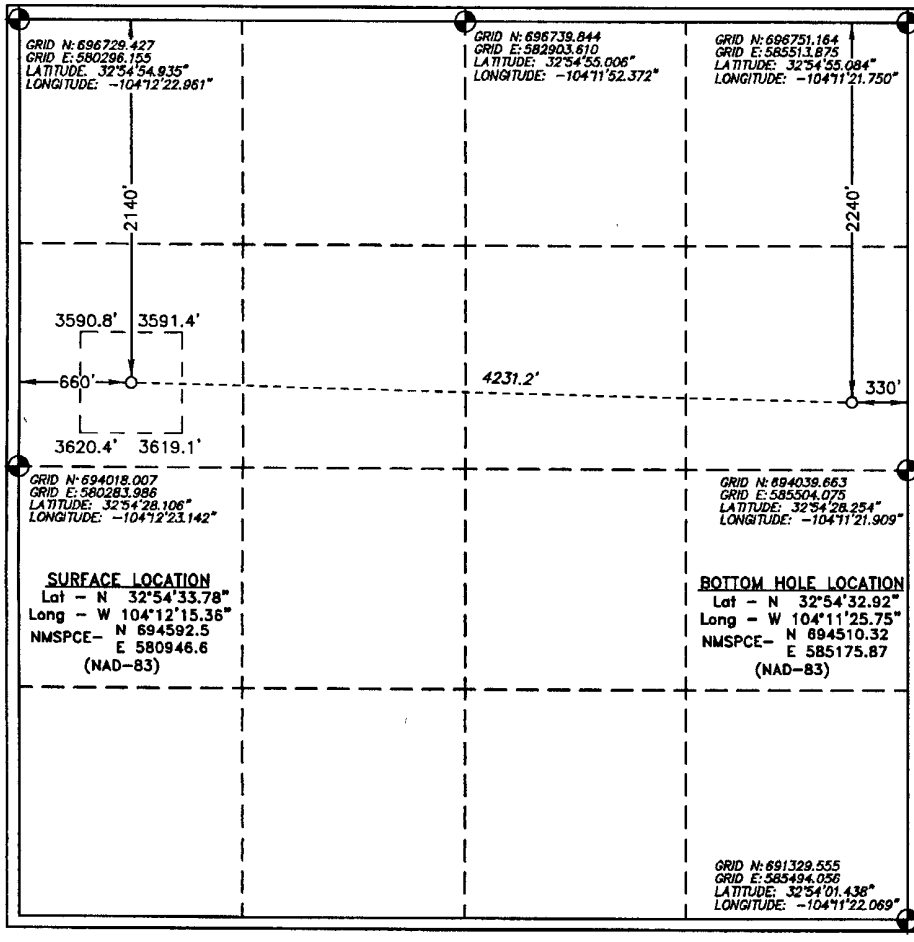

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Signature Date

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.

MAY 5, 2009

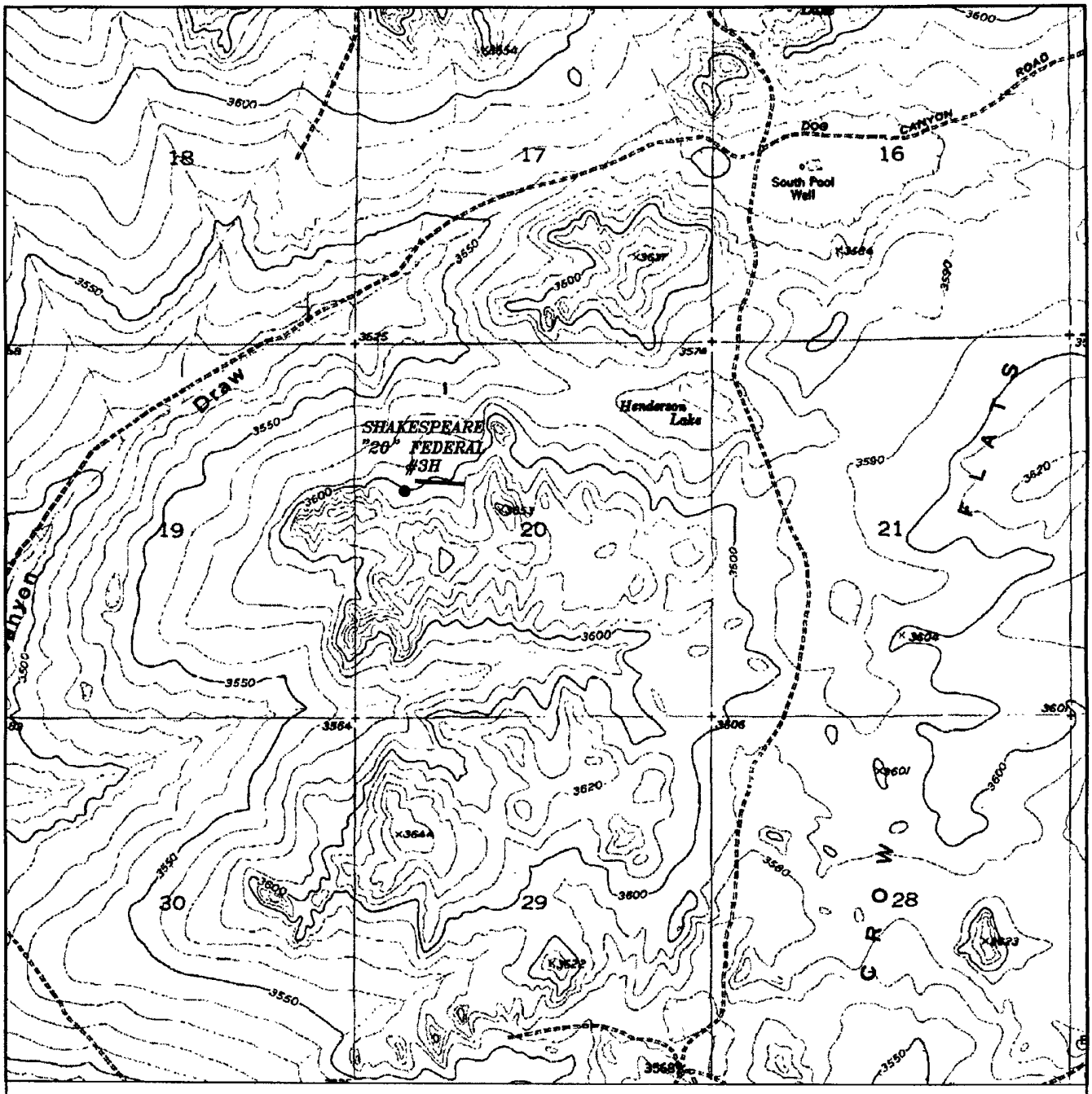
Date Surveyed

Signature & Seal of Professional Surveyor

W.O. No. 21347

Certificate No. Gary L. Jones 7977

BASIN SURVEYS



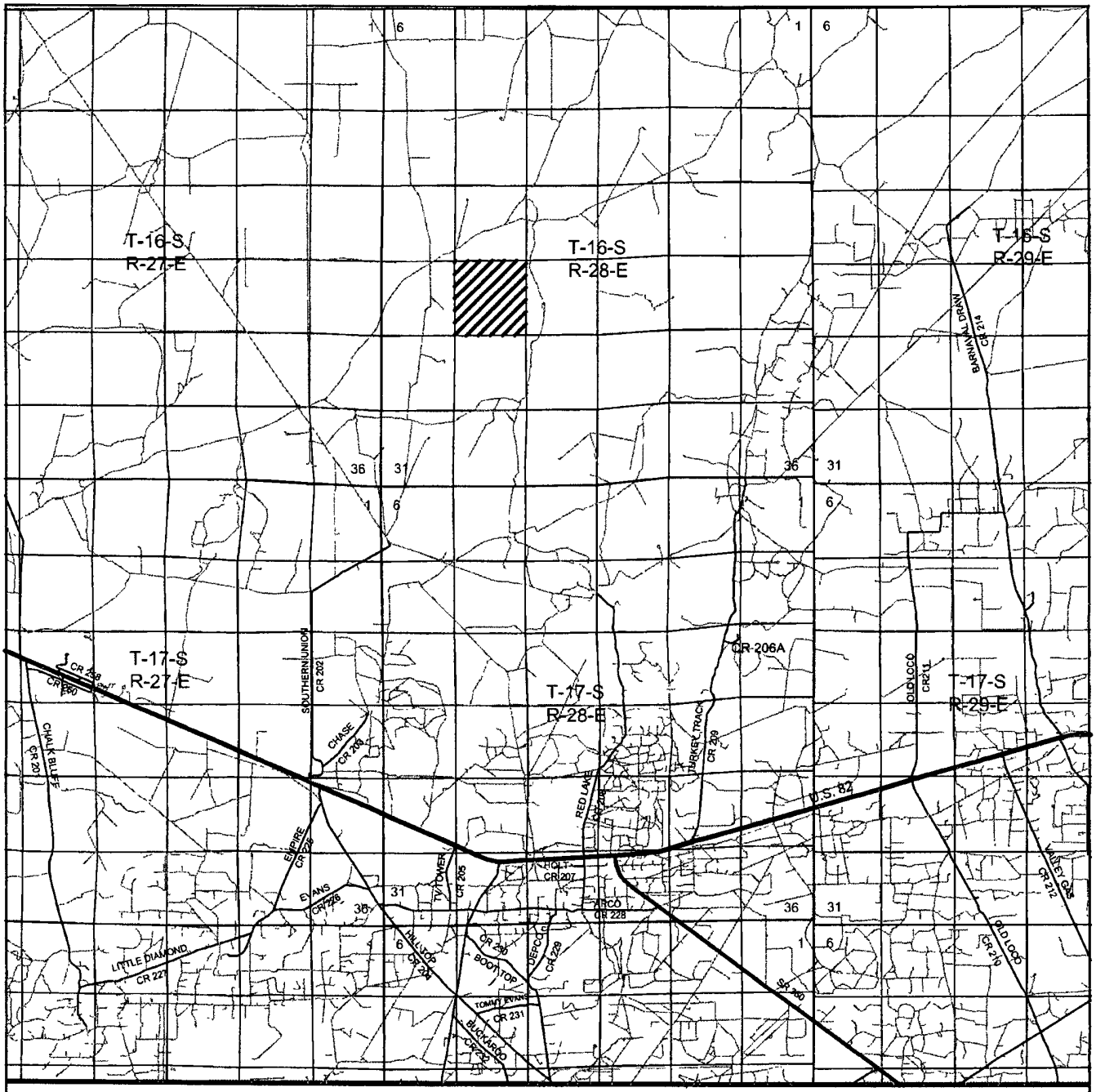
SHAKESPEARE "20" FEDERAL #3H
Located 2140' FNL and 660' FWL
Section 20, Township 16 South, Range 28 East,
N.M.P.M., Eddy County, New Mexico.

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 21347
Survey Date:	05-05-2009
Scale:	1" = 2000'
Date:	03-16-2008

N

DEVON ENERGY PRODUCTION COMPANY, L.P.



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basinsurveys.com

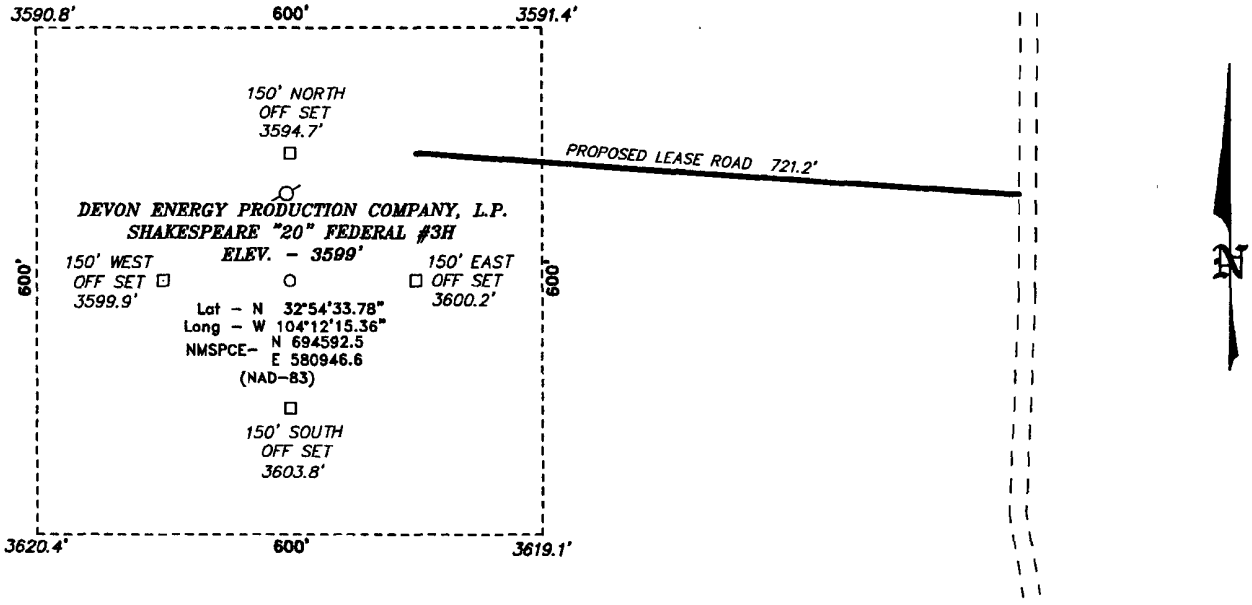
W.O. Number:	JMS 21347
Survey Date:	05-05-2009
Scale:	1" = 2 Miles
Date:	03-16-2008

N

DEVON ENERGY PRODUCTION COMPANY, L.P.

SECTION 20, TOWNSHIP 16 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 CO. RD. 202 AND HWY 82, GO NORTH ON HWY 202 FOR 4.1 MILES TO LEASE ROAD, ON LEASE ROAD GO NORTHERLY FOR 4.2 MILES TO PROPOSED LEASE ROAD.

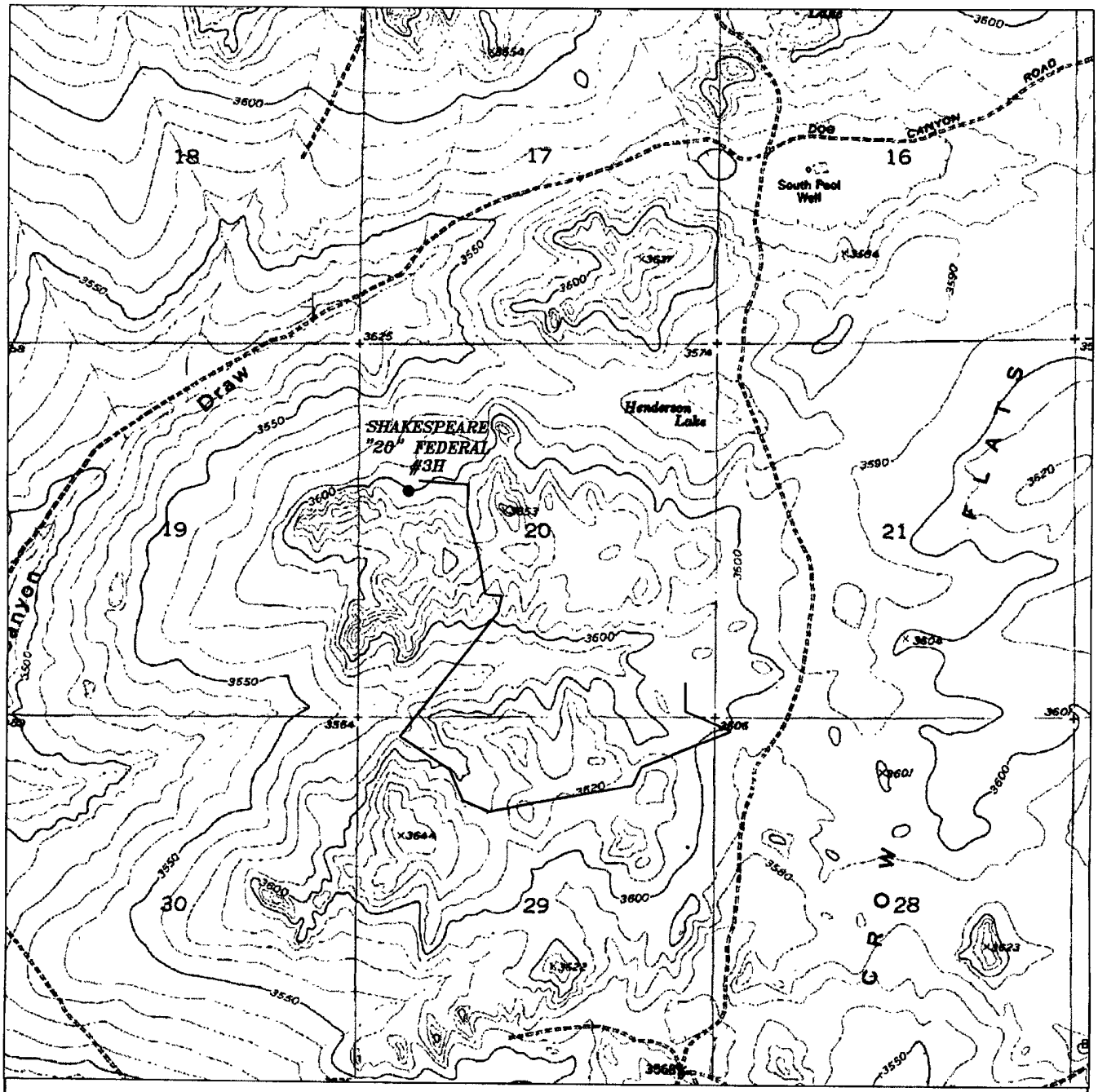
DEVON ENERGY PRODUCTION COMPANY, L.P.

REF: SHAKESPEARE "20" FEDERAL #3H / WELL PAD TOPO

THE SHAKESPEARE "20" FEDERAL #3H LOCATED 2140' FROM THE NORTH LINE AND 660' FROM THE WEST LINE OF SECTION 20, TOWNSHIP 16 SOUTH, RANGE 28 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO.

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

W.O. Number: 21347	Drawn By: J. SMALL		
Date: 05-07-2009	Disk: JMS 21347	Survey Date: 05-05-2009	Sheet 1 of 1 Sheets



PROPOSED PIPELINE TO THE SHAKESPEARE "20" FEDERAL #3H
Section 20, Township 16 South, Range 28 East,
N.M.P.M., Eddy County, New Mexico.

basin surveys
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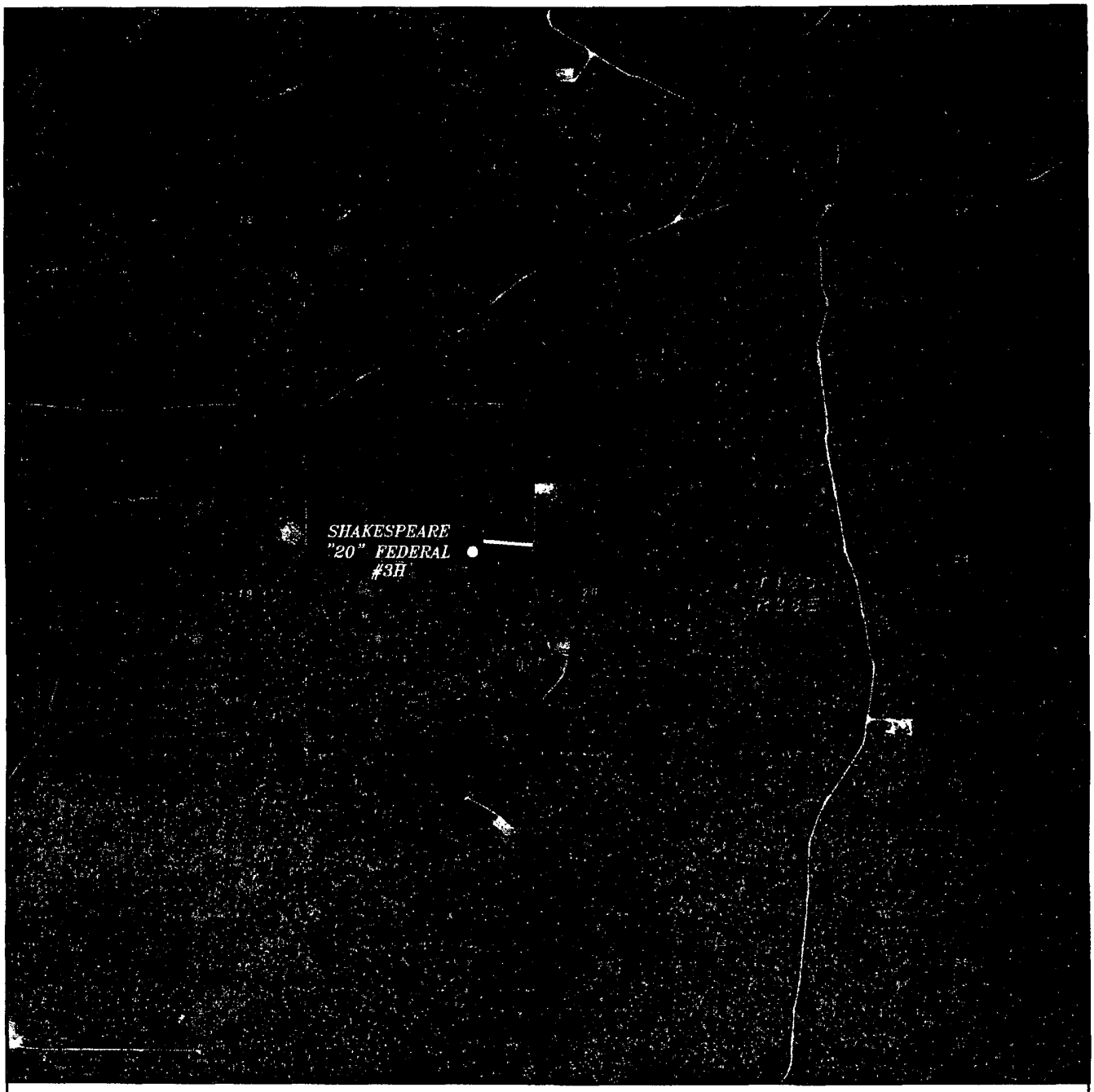
DEVON ENERGY PRODUCTION COMPANY, L.P.



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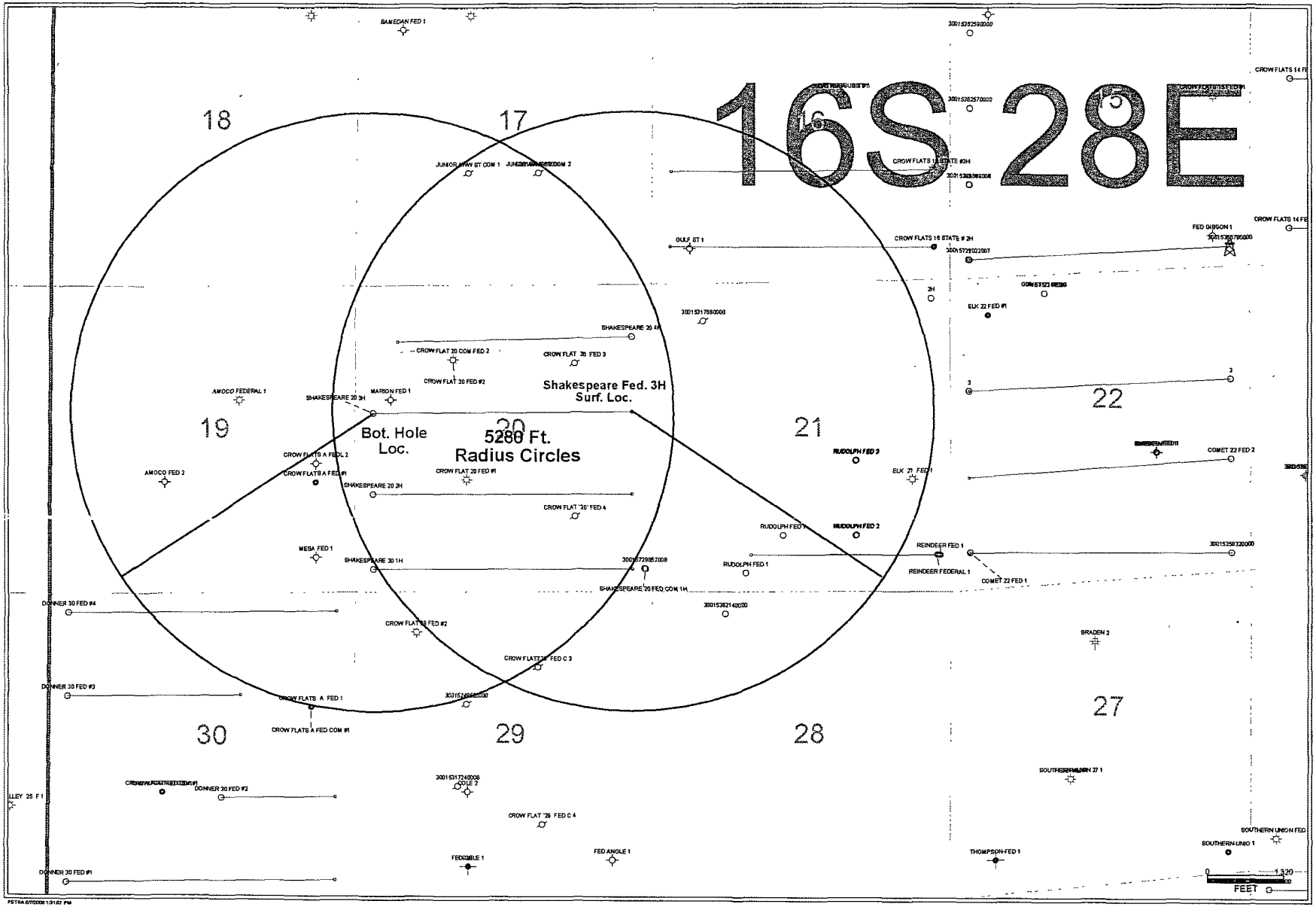
Scale: 1" = 2000'

YELLOW TINT - USA LAND
BLUE TINT - STATE LAND
NATURAL COLOR - FEE LAND

GN

DEVON ENERGY PRODUCTION COMPANY, L.P.


16S 28E
18
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29
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Shakespeare Fed. 3H
Surf. Loc.
Bot. Hole
Loc.
5280 Ft.
Radius Circles
BAMEDAN FED 1
JUNIOR-HWY ST COM 1
GULF ST 1
CROW FLATS 16 STATE #3H
CROW FLATS 16 STATE # 2H
FED GIBSON 1
ELK 22 FED #1
SHAKESPEARE 20 4H
CROW FLAT 20 COM FED 2
CROW FLAT 20 FED 3
CROW FLAT 20 FED #2
AMOCO FEDERAL 1
SHAKESPEARE 20 3H
MARION FED 1
AMOCO FED 2
CROW FLATS A FED 2
CROW FLATS A FED #1
CROW FLAT 20 FED #1
SHAKESPEARE 20 2H
CROW FLAT 20 FED 4
RUDOLPH FED 3
ELK 21 FED 1
COMET 22 FED 2
MESA FED 1
SHAKESPEARE 20 1H
RUDOLPH FED 1
RUDOLPH FED 2
REINDEER FED 1
REINDEER FEDERAL 1
COMET 22 FED 1
SHAKESPEARE 20 FED COM 1H
DONNER 30 FED #4
CROW FLATS 29 FED #2
CROW FLAT 29 FED C 3
BRADEN 2
DONNER 30 FED #3
CROW FLATS A FED 1
CROW FLATS A FED COM #1
DONNER 30 FED #2
CROW FLAT 29 FED C 4
SOUTHERN UNION 27 1
SOUTHERN UNIO 1
FEDDIBLE 1
FED ANGLE 1
THOMPSON-FED 1
DONNER 30 FED #1
0
1,320
FEET

DRILLING PROGRAM

Devon Energy Production Company, LP
Shakespeare 20 Federal Com 3H
Surface Location: 2240' FNL & 330' FEL, Unit H, Sec 20 T16S R28E, Eddy, NM
Bottom Hole Location: 2240' FNL & 330' FWL, Unit E, Sec 20 T16S 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	1,044'	
b.	San Andres	1,844'	
c.	Glorieta	3,319'	
d.	Abo	5,314'	
e.	Wolfcamp	6,379'	Oil and Gas

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 9 5/8" casing at 1900' and circulating cement back to surface. Potash / fresh water sands will be protected by setting 7" casing at 6875' and circulating cement to surface. The Wolfcamp intervals will be isolated by setting 4 1/2" liner to total measured depth.

Casing Program:

Hole Size	Hole Interval	OD Csg	Casing Interval	Weight	Collar	Grade
17 ½"	0-300'	13 3/8"	0-300'	48#	ST&C	H-40
12 1/4"	300'–1900'	9 5/8"	0-1900'	36#	LT&C	J/K-55
~~8 1/2~~ 8.75 per operator 11/24/08	1900'- 6,875'	7"	0- 6875'	26#	BT&C	P-110
6 1/8"	6875'-10,935'	4 ½"	6755'-10,935'	11.6#	BT&C	P-110

Pilot Hole:

8 ½" hole from 1900' - +/- 6750'

Kick Off Point:

A 500' open hole cement kick off plug will be set from +/- 5700' to +/- 6200'. (Plug KOP is 5970' – log results pending).

The well will be directionally drilled in 8 1/2" hole to 7" casing point at +/- 6,875'. The 7", 26#, P-110, BT&C casing will be set with cement to circulate. The curve and lateral will be finished in a 6 1/8" open hole to a TD at 10,935' (6875' TVD).

6545 TVD

The liner will be comprised of 4 ½" P-110, 11.6#, BT&C casing to be hung off +/- 120' inside the 7" at +/- 6,755'. The liner will consist of a 7 stage open hole isolation tool (Peak) and will not be cemented. It will be TD'd at 10,935' (6875' TVD). The length of the liner will be +/- 4,165'. This liner will be run in a 6 1/8" hole.

6545 TVD per horizontal plan

Design Parameter Factors:

Casing Size	Collapse Design Factor	Burst Design Factor	Tension Design Factor
13 3/8"	4.71	1.68	2.51
9 5/8"	2.44	2.09	2.86
7"	2.06	3.16	2.60
4 ½"	1.42	2.49	2.39

3. Cement Program: ← see COA

a. 13 3/8" Surface — Cement Lead with 100 sx 35:65 Poz: Premium Plus C Cement + 5% NaCl + .0125 lbs/sx Cello Flake + + 4% Bentonite + 5% MPA-5 + 0.8% Sodium Metasilicate + 101.1% Fresh Water. Yield: 1.96 cf/sx. Tail with 200 sacks Premium Plus C Cement + 2% $CaCl_2$ + 0.125 lbs/sx Cello Flake + 56.3% Fresh Water. Yield: 1.35 cf/sx . Displacement: 40.8 bbls Mud @ 8.5 ppg.

b. 9 5/8 1st Intermediate — Cement to surface with Lead: 405 sx 35:65 Poz: Premium Plus C Cement + 5% NaCl + 0.125 lbs/sx Celloflake + 3 #/sx LCM-1 + 4% Bentonite + 0.8% Sodium Metasilicate + 5% MPA-5 + 98.2% Fresh Water. Yield: 1.97 cf/sx. Tail with 250 sx Premium Plus C Cement + 2% $CaCl_2$ + 56.4% Fresh Water. Yield: 1.34 cf/sx Displacement: 143.8 bbls Mud @ 10 ppg.

c. 7" 2nd Intermediate — Cement to surface with Lead: 560 sx 35:65 Poz: Premium Plus C Cement + 1% NaCl + 0.125 lbs/sx Celloflake + 6% Bentonite + 0.4% FL-52A + 103.2% Fresh Water. Yield: 1.96 cf/sx. Tail with 200 sx 60:40 Premium Plus C Cement + 1% NaCl + 0.125 lbs/sx Celloflake + 0.75% BA-10A + 0.2% FL-52A + 4% MPA-5 + 63.1% Fresh Water. Yield: 1.34 cf/sx Displacement: 260.6 bbls Mud @ 8.34 ppg.

d. KOP Plug see COA — Plug 1 (6200'-6750'): 220 sacks Class H Cement. Yield 1.18 cf/sx Spacer: 10.0 bbls Mud Clean II at 8.34 ppg. Plug 2 (5700'-6200'): 265 sacks Class H Cement + 1.2% CD-31 + 0.5% NaCl + 26.7% Fresh Water. Yield 0.90 cf/sx.

The above cement volumes could be revised pending the caliper measurement from the open hole logs. The top of cement is designed to reach surface. All casing is new and API approved.

4. **Pressure Control Equipment:**

Prior to the intermediate, the blowout preventor equipment (BOP) will consist of a 5M system. A 5000 working pressure double and a 5000 annular preventor. **The equipment will be tested to 1000 psi (high) and 250 psi (low) with a rig pump.** The 9 5/8" casing will have a 5M double and a 5M annular preventor. The 9 5/8" casing and the 7" casing will have a 5M double, single and a 5M annular preventor. Full opening stabbing valve and upper Kelly cock will be utilized. Prior to drilling out the 7" casing shoe, the BOP's and Hydril will be tested as per BLM Drilling Operations Order #2. 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.

5. **Proposed Mud Circulation System**

Depth	Mud Wt.	Visc	Fluid Loss	Type System
0' – 300'	8.5-8.9	32-34	N/C	Fresh Water
300'-1900'	10.0	28	N/C	Brine Water
1900'- 6750' Pilot hole	8.5-8.7	28	N/C	Fresh Water/Cut Brine
5970' (KOP) – 6875'	8.5-8.7	29-30	N/C	Fresh Water/Cut Brine
6875'- 10,935' MD	8.7-8.9	29-34	N/C – 12cc	Fresh Water/Cut Brine

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

6. **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 9 5/8" casing shoe until the 7" casing is cemented. Breathing equipment will be on location upon drilling the 9 5/8" shoe until total depth is reached.

7. 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 4 ½" liner. Specific intervals will be targeted based on log evaluation, geological sample shows and drill stem tests.

8. 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 2800 psi and Estimated BHT 111°. No H2S is anticipated to be encountered.

9. 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 30 days. If production casing is run then an additional 45 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)
Shakespeare 20 Fed #3H
Shakespeare 20 Fed #3H

Lateral #1

Plan: Design #1

Standard Planning Report

20 July, 2009

CUDD
DRILLING & MEASUREMENT
SERVICES

Database:	EDM 2003 21 Single User Db	**Local Co-ordinate Reference:**	Well Shakespeare 20 Fed #3H
Company:	Devon Energy	**TVD Reference:**	WELL @ 3624 00ft (Original Well Elev)
Project:	Eddy Co , New Mexico (Nad 83)	**MD Reference:**	WELL @ 3624 00ft (Original Well Elev)
Site:	Shakespeare 20 Fed #3H	**North Reference:**	Grid
Well:	Shakespeare 20 Fed #3H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Lateral #1		
Design:	Design #1		

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 Shakespeare 20 Fed #3H, Sec 20, T-16S, R-28E

Site Position:		**Northing:**	694,592 50 ft	**Latitude:**	32° 54' 33 782 N
From:	Map	**Easting:**	580,946 60 ft	**Longitude:**	104° 12' 15 361 W
Position Uncertainty:	0 00 ft	**Slot Radius:**	"	**Grid Convergence:**	0 07 °

Well Shakespeare 20 Fed #3H

Well Position	**+N/-S**	0.00 ft	**Northing:**	694,592 50 ft	**Latitude:**	32° 54' 33 782 N
	+E/-W	0 00 ft	**Easting:**	580,946 60 ft	**Longitude:**	104° 12' 15.361 W
Position Uncertainty		0 00 ft	**Wellhead Elevation:**	3,624.00 ft	**Ground Level:**	3,599 00 ft

Wellbore Lateral #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	7/20/2009	8.15	60.77	49,176

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	91.11

Plan Sections

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0 00	0 00	0.00	0.00	0 00	0 00	0 00	0 00	0.00	0 00	
5,977 04	0 00	0 00	5,977 04	0 00	0 00	0.00	0 00	0 00	0 00	
6,877 04	90 00	91 11	6,550.00	-11 13	572 85	10.00	10 00	0 00	91 11	
10,534 16	90 00	91 11	6,550 00	-82 18	4,229 28	0 00	0.00	0 00	0 00	PBHL - TD (S20F#3H

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
5,977 04	0 00	0 00	5,977.04	0.00	0.00	0.00	0.00	0.00	0.00
KOP - Build 10°/100'									
6,877.04	90 00	91 11	6,550 00	-11 13	572 85	572 96	10 00	10 00	0.00
EOC - Hold 90°									
10,534 16	90 00	91.11	6,550.00	-82 18	4,229 28	4,230 08	0 00	0.00	0 00
PBHL - TD (S20F#3H)									

Database:	EDM 2003 21 Single User Db	**Local Co-ordinate Reference:**	Well Shakespeare 20 Fed #3H
Company:	Devon Energy	**TVD Reference:**	WELL @ 3624 00ft (Original Well Elev)
Project:	Eddy Co., New Mexico (Nad 83)	**MD Reference:**	WELL @ 3624 00ft (Original Well Elev)
Site:	Shakespeare 20 Fed #3H	**North Reference:**	Grid
Well:	Shakespeare 20 Fed #3H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Lateral #1		
Design:	Design #1		

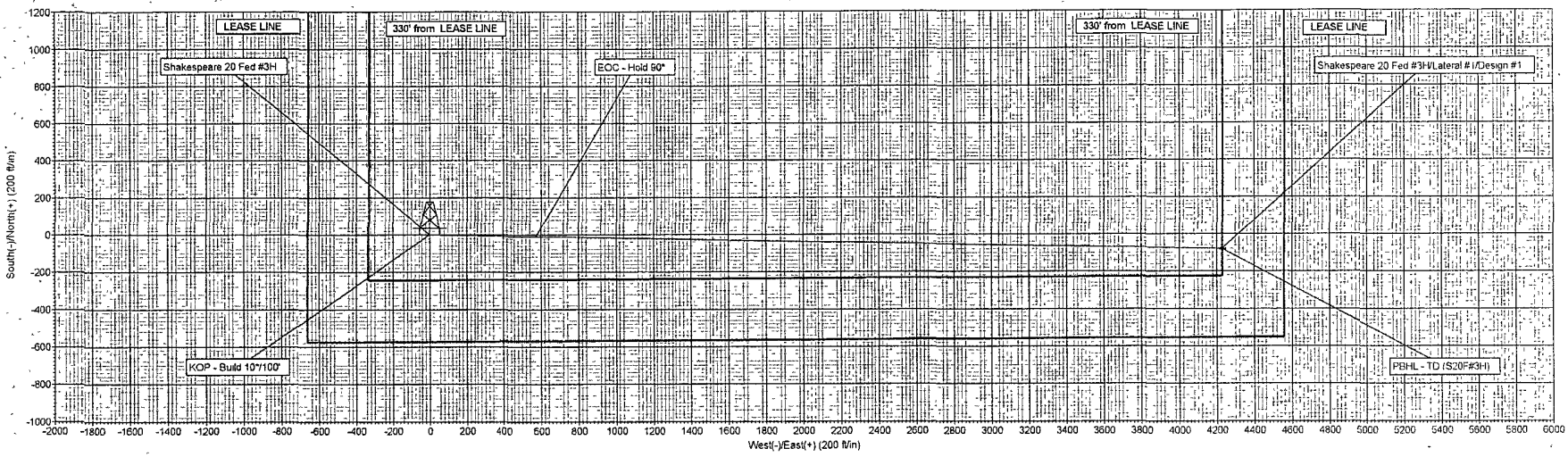
Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	+E/-W (ft)	Comment
5,977 04	5,977 04	0 00	0 00	KOP - Build 10*/100'
6,877 04	6,550.00	-11 13	572 85	EOC - Hold 90*

devon

Project Eddy Co , New Mexico (Nad 83)
Site Shakespeare 20 Fed #3H
Well Shakespeare 20 Fed #3H
Wellbore Lateral #1
Design Design #1

DRILLING & MEASUREMENT SERVICES



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	5977 04	0 00	0 00	5977 04	0 00	0 00	0 00	0 00	0 00	
3	6877 04	90 00	91 11	6550 00	-11 13	572 85	10 00	91 11	572 96	
4	10534 16	90 00	91 11	6550 00	-82 18	4229 28	0 00	0 00	4230 08	PBHL - TD (S20F#3H)

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

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
PBHL - TD (S20F#3H)	6550.00	-82 18	4229 28	694510 32	585175 87	32° 54' 32 915 N	104° 11' 25 751 W	Point

ANNOTATIONS

TVD	MD	Annotation
5977 04	5977 04	KOP - Build 10°/100'
6550 00	6877 04	EOC - Hold 90°

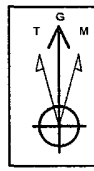
WELL DETAILS Shakespeare 20 Fed #3H

Ground Level
3599 00
WELL @ 3624 00ft (Original Well Elev)

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0 00	0 00	694592 50	580946 60	32° 54' 33 782 N	104° 12' 15 361 W	

Plan Design #1 (Shakespeare 20 Fed #3H/Lateral #1)

Created By Mike Starkey Date 17 10 July 20 2009
Checked _____ Date _____
Reviewed _____ Date _____
Approved _____ Date _____

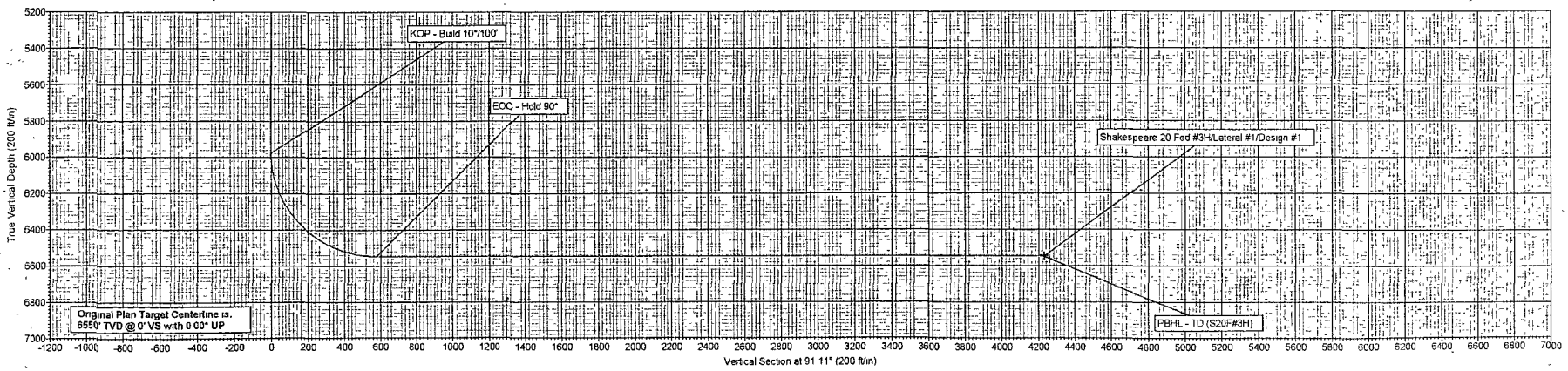


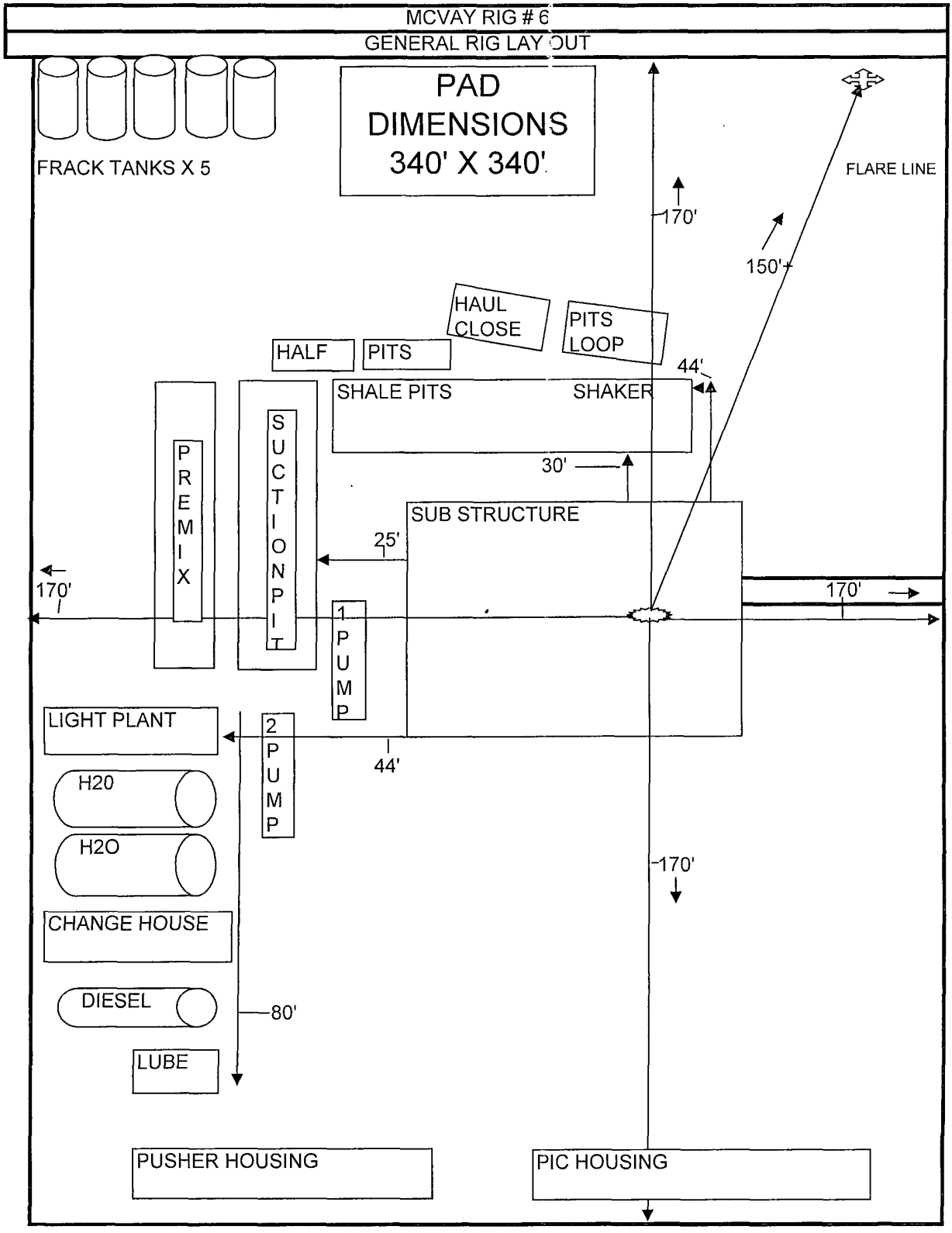
Azimuths to Grid North
True North -0 07°
Magnetic North 8 08°

Magnetic Field
Strength 49175 8snT
Dip Angle 60 77°
Date 7/20/2009
Model IGRF200510

PROJECT DETAILS Eddy Co New Mexico (Nad 83)

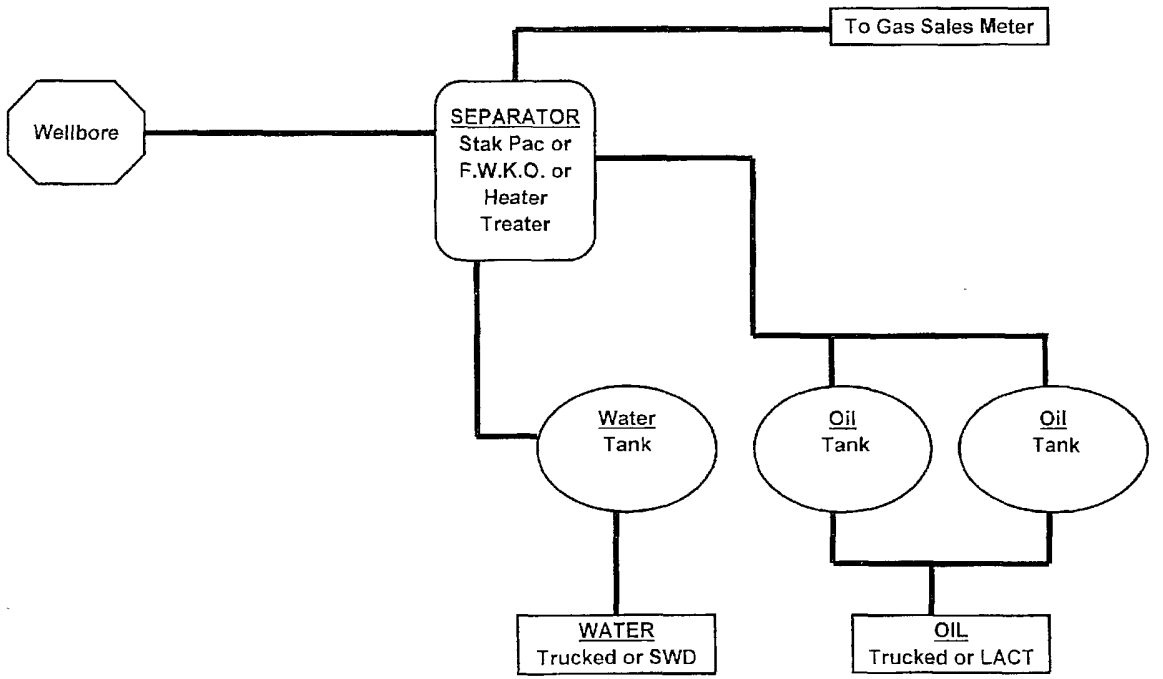
Geodetic System US State Plane 1983
Datum North American Datum 1983
Ellipsoid GRS 1980
Zone New Mexico Eastern Zone
System Datum Mean Sea Level



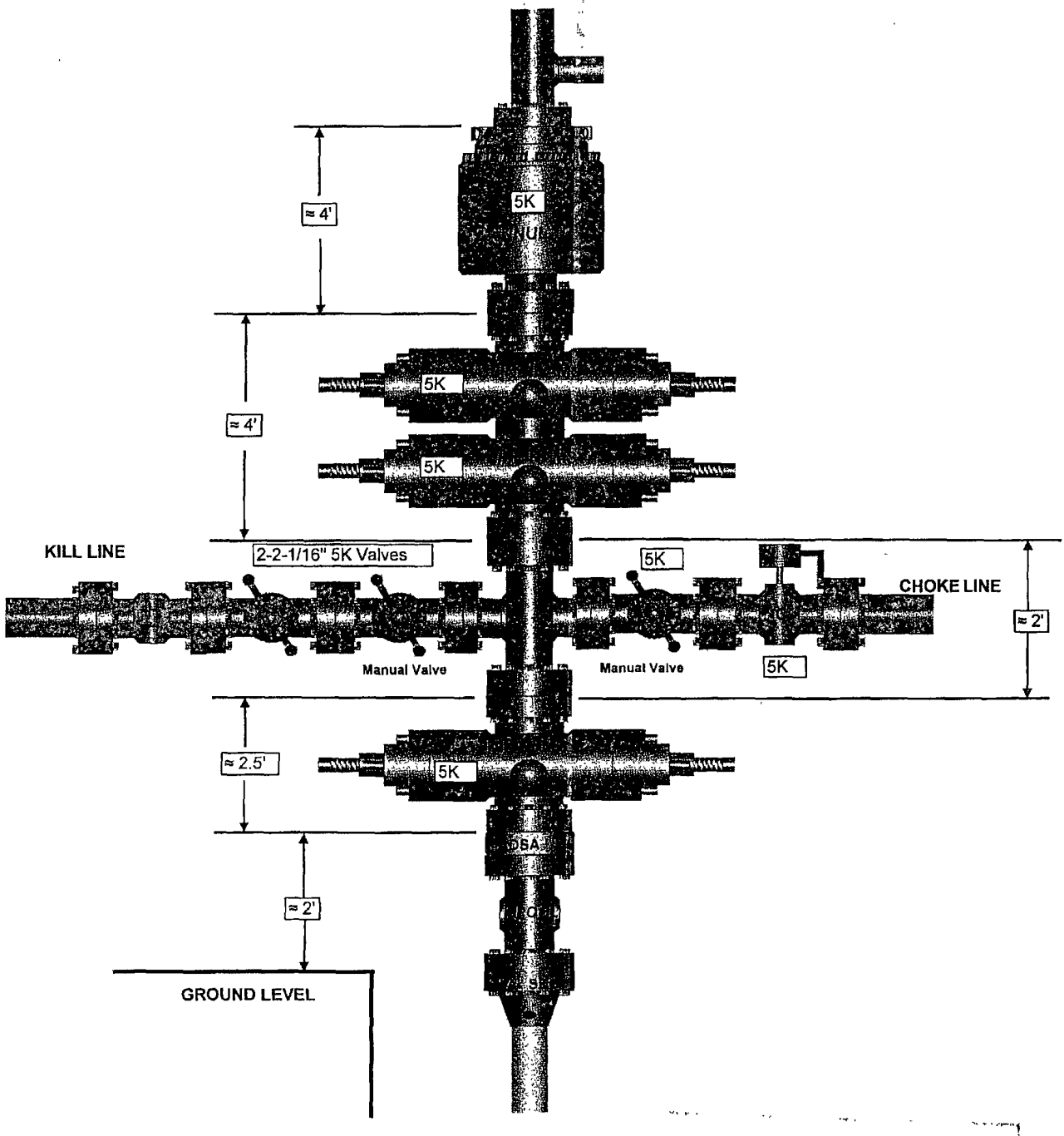

MCVAY RIG # 6
GENERAL RIG LAY OUT
PAD DIMENSIONS 340' X 340'
FRACK TANKS X 5
FLARE LINE
170'
150'
HAUL CLOSE
PITS LOOP
HALF
PITS
44'
SHALE PITS
SHAKER
30'
PREMIX
SUCTION PIT
SUB STRUCTURE
25'
170'
170'
1 PUMP
LIGHT PLANT
2 PUMP
44'
H20
H2O
170'
CHANGE HOUSE
DIESEL
80'
LUBE
PUSHER HOUSING
PIC HOUSING

DEVON ENERGY PRODUCTION COMPANY LP

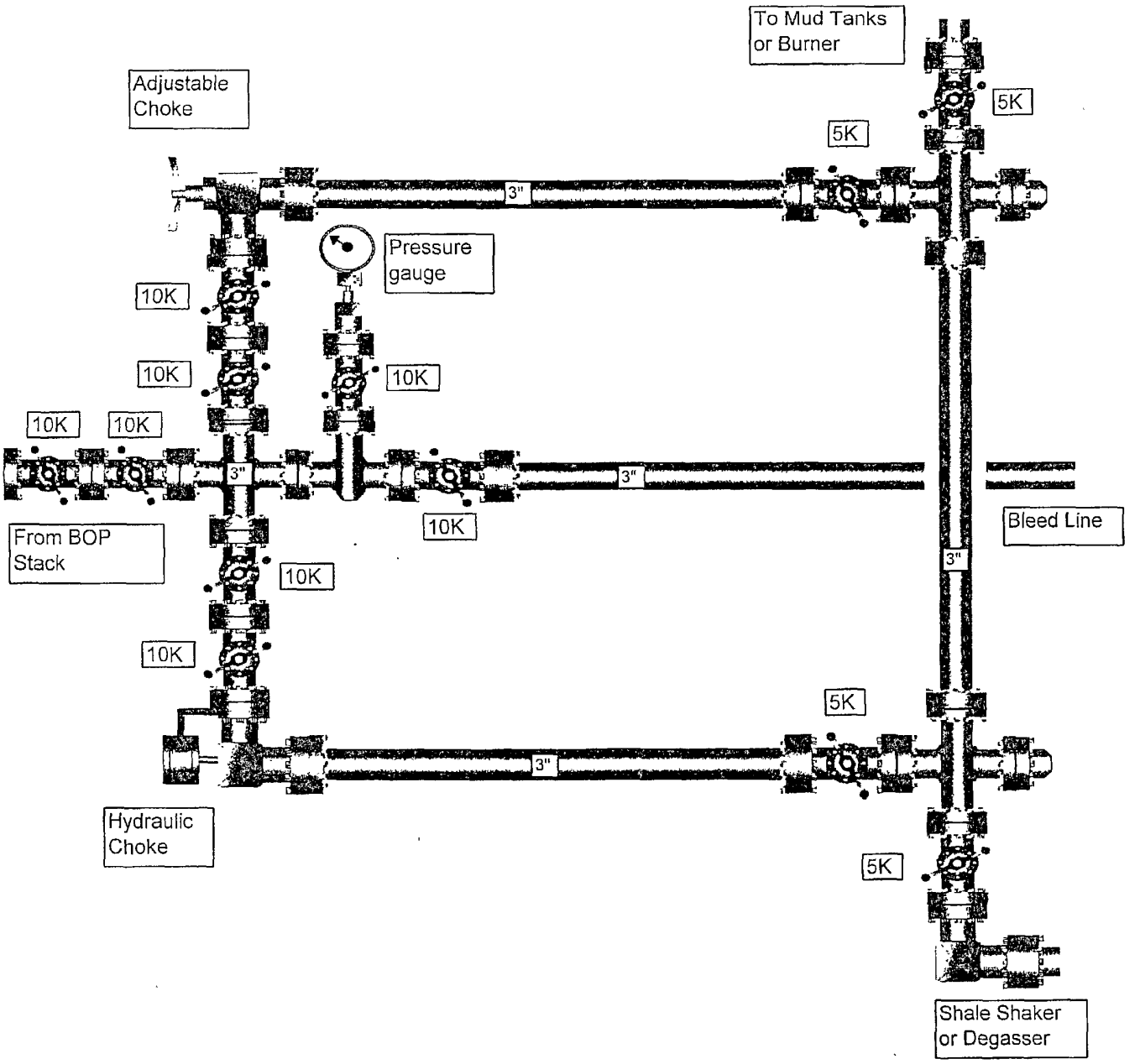
General Production Facilities Diagram



BOP STACK
SIZE: 13-5/8" x 5,000#



10,000 PSI CHOKE MANIFOLD



SURFACE USE PLAN

Devon Energy Production Company, LP

Shakespeare 20 Federal Com 3H

Surface Location: 2440' FNL & 330' FEL, Unit H, Sec 20 T16S R28E, Eddy, NM

Bottom Hole Location: 2440' FNL & 330' FWL, Unit E, Sec 20 T16S 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 Exhibit 3.
   c. Directions to Location: From the junction of US Hwy 82 and Southern Union, go north on Southern Union for 3.5 miles to lease road, on lease road go north 2.0 miles to lease road, go west on lease road thence immediately north for approximately 4 miles to lease road, on lease road go east 1.7 miles to lease road, on lease road go south to proposed lease road.

2. **New or Reconstructed Access Roads:**
   a. The well site layout, Form C-102 shows the existing County Road. The proposed access road comes in from the east to the west 1053.5 feet to proposed well pad. Attached is a plat of the proposed lease.
   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 1%.
   d. No cattle guards, grates or fence cuts will be required. No turnouts are planned.

3. **Location of Existing Wells:**
   One 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, production will be sent to the battery located at the Shakespeare 20 Federal Com 1 well and the necessary production equipment will be installed at the well site. See Production Facilities Layout diagram.
   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.
   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.

5. **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.

6. **Construction Materials:**
All caliche utilized for the drilling pad and proposed access road will be obtained from an existing BLM approved pit or from prevailing deposits found under the location. All roads will be constructed of 6" rolled and compacted caliche. Will use BLM recommended use of extra caliche from other locations close by for roads, if available.

7. **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 in 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

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

9. **Well Site Layout**
   a. Exhibit D shows the proposed well site layout with dimensions of the pad layout.
   b. This exhibit indicated proposed location of the closed loop system and living facilities.
   c. A closed loop system will be used.

10. **Plans for Surface Reclamation:**
   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 transported to the original caliche pit or used for other drilling locations. 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.

11. Surface Ownership (Use the appropriate A-C option; delete other two)

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.

12. 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, sagebrush, 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.

Marcos Ortiz
Operations Engineer

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

(405) 552-8152 (office)
(405) 317-0666 (cellular)

Don Mayberry
Superintendent

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

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

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 24th day of October, 2008.
Printed Name: Norvella Adams
Signed Name:
Position Title: Senior Staff Engineering Technician
Address: 20 North Broadway, OKC OK 73102
Telephone: (405)-552-8198
Field Representative (if not above signatory): Robert Bell
Address (if different from above): Artesia, NM
Telephone (if different from above): 505-748-0178
E-mail: norvella.adams@dvn.com

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Devon Energy Production Company, LP
LEASE NO.:	NM103873
WELL NAME & NO.:	Shakespeare 20 Federal Com # 3H
SURFACE HOLE FOOTAGE:	2140' FNL & 660' FWL
BOTTOM HOLE FOOTAGE	2240' FNL & 330' FEL
LOCATION:	Section 20, T. 16 S., R 28 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.

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)

PIPELINE, FROM THE SHAKESPEARE 20 #3H to the 20 #1H, CROSSES LEASE BOUNDARIES AND WILL REQUIRE A ROW PERMIT, AND IS NOT AUTHORIZED UNDER THE APD PERMIT.

Condition of Approval for Raptors
Surface disturbance will not be allowed within up to 200 meters of active heronries or by delaying activity for up to 120 days, or a combination of both. Raptor nests on special, natural habitat features, such as trees, large brush, cliff faces and escarpments, will be protected by not allowing surface disturbance within up to 200 meters of nests or by delaying activity for up to 90 days, or a combination of both. Exceptions to this requirement for raptor nests will be considered if the nests expected to be disturbed are inactive, the proposed activity is of short duration (e.g. habitat enhancement projects, fences, pipelines), and will not result in continuing activity in proximity to the nest. 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.

Conditions of Approval
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.

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

Closed Mud System Using Steel Tanks with All Fluids and Cuttings Hauled Off.
A closed mud system using steel tanks for all cuttings and fluids is required. All fluids and cuttings will be hauled off site for disposal. No pits are allowed.

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. Operator to supply NMOCD order or description of pool which details the vertical and horizontal extent of pool to verify that requested communitization is within an approved and established pool.

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 to be stripped is approximately 4 inches in depth. The topsoil shall not be used to backfill the reserve pit and will be used for interim and final reclamation.

C. RESERVE PITS

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.

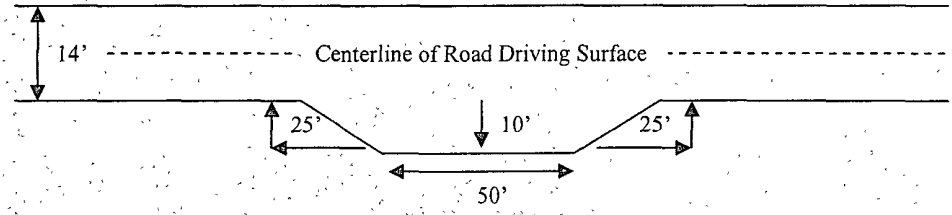
Crowning
Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

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

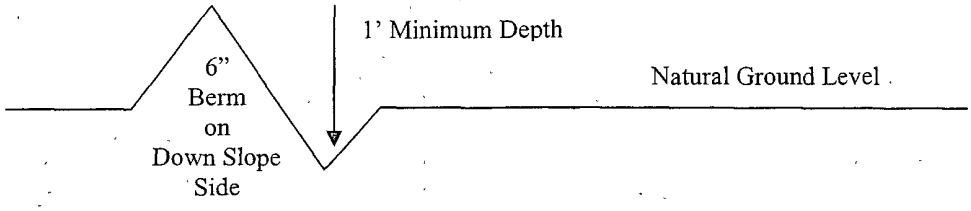


Drainage

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

400 foot road with 4% road slope: $\frac{400'}{4\%} + 100' = 200'$ 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.

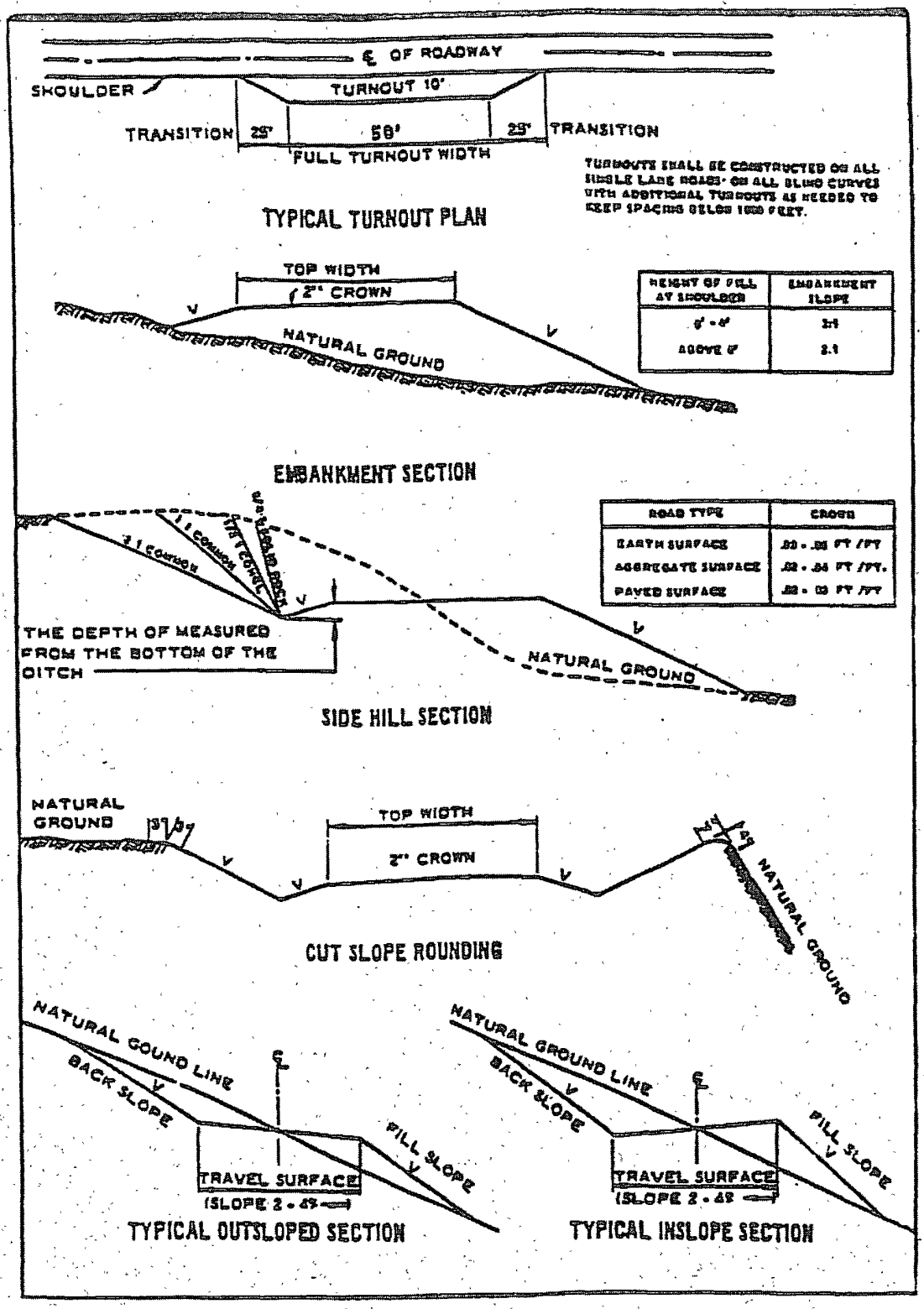
A gate shall be constructed and fastened securely to H-braces.

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. 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.

High cave/karst.
Possible lost circulation in the Grayburg and San Andres formations.
Possible high pressure gas bursts in the Wolfcamp.

1. The **13-3/8** inch surface casing shall be set at **approximately 300** 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.**

    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 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.

Pilot hole plug method is approved with note that first plug is to be tagged prior to setting second plug. Report tag depth on subsequent report.

3. The minimum required fill of cement behind the **7** inch second 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.

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

    ☒ Cement not required – operator using Peak System Iso-pack liner.

5. 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 **5000 (5M)** psi.

3. 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. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the **Wolfcamp** formation **if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days**. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

    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. DRILLING MUD

Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the **Wolfcamp** formation, and shall be used until production casing is run and cemented.

E. DRILL STEM TEST

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

NOTE: All potential hydrocarbon zones are to be listed, not just the target.

WWI 112208

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

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.

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 gemination = 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.