ATS-08-829
EA-08-1164

OCD-ARTESIA

AUG 18 2008

OCD-ARTESIA

Form 3160-3
(April 2004)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

S

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

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work. ☑ DRILL ☐ REENTER	5 Lease Serial No. **NMNM-101113**
1b. Type of Well: ☐ Oil Well ☑ Gas Well ☐ Other ☑ Single Zone ☐ Multiple Zone	6 If Indian, Allotee or Tribe Name
2 Name of Operator **Devon Energy Production Company, LP** 6137	7 If Unit or CA Agreement, Name and No.
3a. Address **20 North Broadway Oklahoma City, Oklahoma City 73102-8260**	3b Phone No. *(include area code)* **405-552-7802**
4. Location of Well *(Report location clearly and in accordance with any State requirements *)* At surface **NWSE 1650' FSL & 1650' FEL** At proposed prod. zone **NWSE 1650' FSL & 1650' FEL**	8. Lease Name and Well No. 37337 **Cowpens 28 Fed Com 1**
	9. API Well No. **30-015-36560**
	10. Field and Pool, or Exploratory **Lusk; Morrow, West (Gas)**
	11. Sec., T. R. M. or Blk and Survey or Area **Sec 28 T19S R31E**
14 Distance in miles and direction from nearest town or post office* **Approximately 22 miles northeast of Carlsbad, 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) **1650'**	16 No. of acres in lease **240 acres**	17 Spacing Unit dedicated to this well **320 acres**
18 Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. **1400'**	19. Proposed Depth **12,700'**	20. BLM/BIA Bond No. on file **CO-1104**
21 Elevations (Show whether DF, KDB, RT, GL, etc.) **3490' GL**	22 Approximate date work will start* **07/15/2008**	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 **06/25/2008**
Title **Sr. Staff Engineering Technician**		
Approved by *(Signature)* /s/ James Stovall	Name *(Printed/Typed)*	Date AUG 14 2008
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)

NOTE: NEW PIT RULE
19-15-17 NMAC PART 17
A form C-144 must be approved
before starting drilling operations.

Capitan Controlled Water Basin

SEE ATTACHED FOR CONDITIONS OF APPROVAL

APPROVAL GENERAL R AND SPECI ATTACHED

I&E - CHO

PTS-08-829

Form 3160-5
(February 2005)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

AUG 18 2008
OCD-ARTESIA

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

5. Lease Serial No. NMNM-101113

6. If Indian, Allottee or Tribe Name

S

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 – *Other instructions on page 2.*

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

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

8. Well Name and No.
Cowpens 28 Fed Com 1

2. Name of Operator
Devon Energy Production Co., LP

9 API Well No.

3a Address
20 North Broadway
OKC, OK 73102

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

10. Field and Pool or Exploratory Area
Lusk; Morrow, West (Gas)

4. Location of Well *(Footage, Sec , T.,R.,M., or Survey Description)*
1650' FSL & 1650' FEL
Sec 28-T19S-R31E

11. Country or Parish, State
Eddy County, NM

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT OR OTHER DATA

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

13 Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations 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 must 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 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, 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 approval to implement Contingency Plan on the Cowpens 28 Fed Com 1 if lost circulation or problems arise below the Delaware or Bone Springs: 8 3/4"

* Run 7" 26# P-110 LT&C in ~~8 1/2"~~ hole; casing interval: 0' - 10,500', as contingency string.
* DV tool @ 8,500'; tie back to casing shoe @ approximately +/- 4,000'. ← See COA
* Run 4 1/2" liner 11.6# P-110 LT&C in 6 1/8" hole; casing interval: 10,200' - 12,700'. TOL @ approximately +/- 10,200'.
* Will notify BLM via telephone if contingency plan implemented.
* See attached drilling program, mud and cementing report.

Engr. reviewed 8/14/08

Request a variance on testing BOP/BOPE prior to entering the Wolfcamp per conditions of approval III D #5:

* If < 20 days no testing required
* If > 20 days, run Wolfcamp BOP test.

14 I hereby certify that the foregoing is true and correct
Name *(Printed/Typed)*
Stephanie A. Ysasaga

Title Sr. Staff Engineering Technician

Signature

Date 06/25/2008

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by **/s/ James Stovall**

Title

Date AUG 14 2008

Conditions of approval, if any, are attached. Approval of this notice 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

Office

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)

Form 3160-5
(February 2005)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

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 – Other instructions on page 2.

1. Type of Well ☐ Oil Well ☑ Gas Well ☐ Other	5. Lease Serial No. NMNM-101113
	6. If Indian, Allottee or Tribe Name
	7. If Unit of CA/Agreement, Name and/or No
	8. Well Name and No. Cowpens 28 Fed Com 1
2. Name of Operator Devon Energy Production Co , LP	9. API Well No.
3a. Address 20 North Broadway OKC, OK 73102 3b Phone No *(include area code)* (405)-552-7802	10. Field and Pool or Exploratory Area Lusk; Morrow, West (Gas)
4 Location of Well *(Footage, Sec , T ,R ,M , or Survey Description)* NWSE 1650' FSL & 1650' FEL Sec 28-T19S-R31E	11. Country or Parish, State Eddy County, NM

AUG 18 2008
OCD-ARTESIA

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT OR OTHER DATA

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

13. Describe Proposed or Completed Operation Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations 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 must 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 must be filed once testing has been completed Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection)

Devon Energy Production Company, LP respectfully provides the updated rig layout denoting rig layout with "closed loop system":

14 I hereby certify that the foregoing is true and correct Name *(Printed/Typed)* Stephanie A. Ysasaga	Title Sr. Staff Engineering Technician
Signature	Date 07/21/2008

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by /s/ James Stovall	Title	Date AUG 14 2008
Conditions of approval, if any, are attached Approval of this notice 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	Office	

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)

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

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number	Pool Code	Pool Name
	80840	LUSK; MORROW, WEST (GAS)

Property Code	Property Name	Well Number
	COWPENS 28 FED COM	1

OGRID No.	Operator Name	Elevation
6137	DEVON ENERGY PRODUCTION CO., LP	3490'

Surface Location

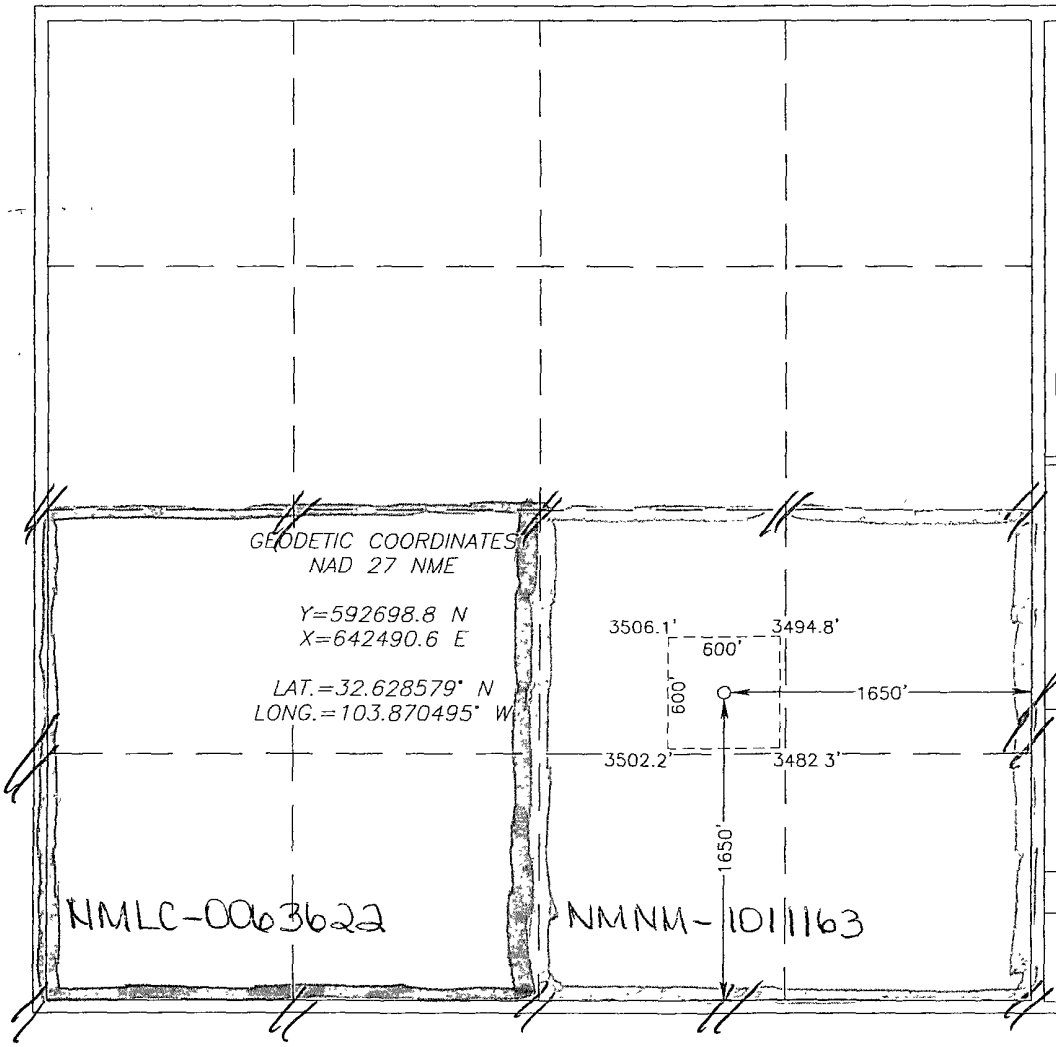
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
J	28	19-S	31-E		1650	SOUTH	1650	EAST	EDDY

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

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
320			

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 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 or has a right to drill this well at this location pursuant to a contract with an owner of such mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Signature 06/30/08 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 supervision, and that the same is true and correct to the best of my belief.

JUNE 20, 2008
Date Surveyed LA

Signature & Seal of Professional Surveyor

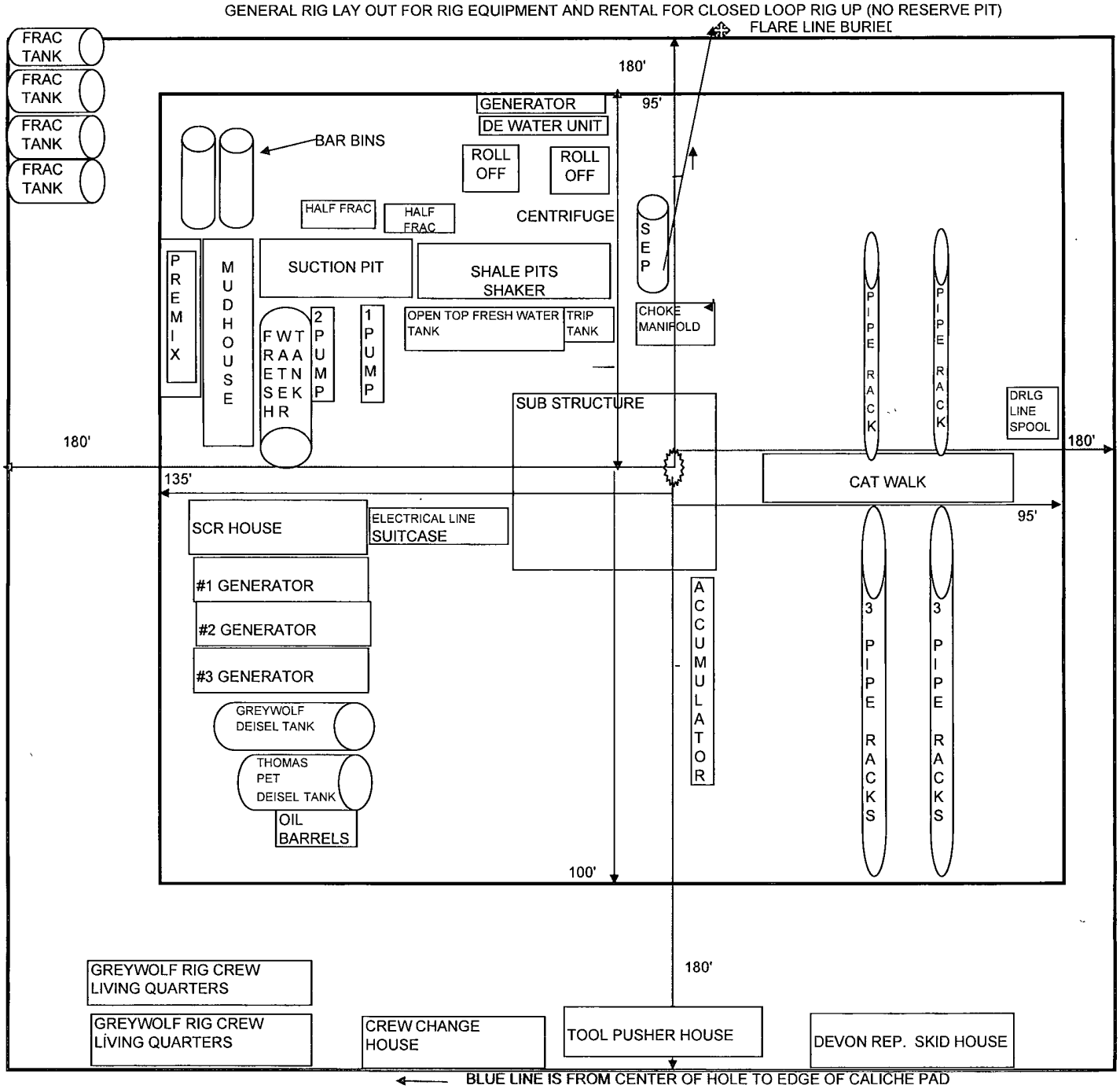
GARY L. EIDSON
NEW MEXICO
12641
REGISTERED PROFESSIONAL SURVEYOR

06.11.101 6/25/08

Certificate No. GARY EIDSON 12641
RONALD J. EIDSON 3239

GreyWolf RIG # 33

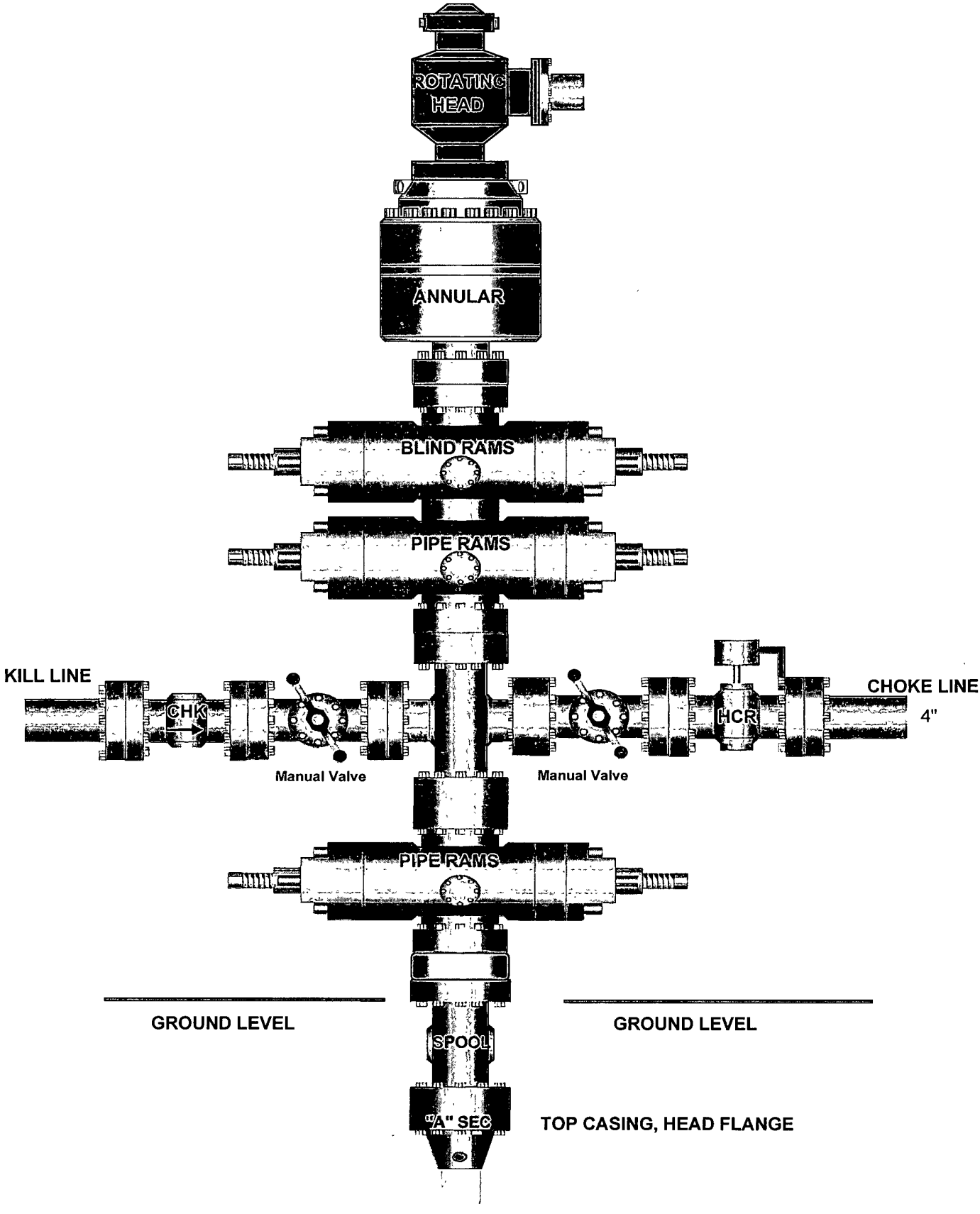
GENERAL RIG LAY OUT FOR RIG EQUIPMENT AND RENTAL FOR CLOSED LOOP RIG UP (NO RESERVE PIT)



BLUE LINE IS FROM CENTER OF HOLE TO EDGE OF CALICHE PAD

RED LINE IS FROM CENTER OF HOLE TO EDGE OF RIG EQUIPMENT

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



Cowpens 28 Fed Com 1
7" Contingency Plan with 4 ½ Liner:

1. **Casing Program:**

Hole Size	Hole Interval	OD Csg	Casing Interval	Weight	Collar	Grade
17 1/2"	0' – 550'	13 3/8"	0'-550'	48#/ft	ST&C	H-40
12 ¼"	550'–4000'	9 5/8"	0'-4000'	40#/ft	LT&C	K-55
12 ¼"	4000'-4400'	9 5/8"	4000'-4400'	40#/ft	LT&C	HCK-55
8¾"	4400'-10500'	7"	0'-10500'	26#/ft	LT&C	P-110
6 1/8"	10500'- 12700'	4 1/2"	10200'-12700'	11.6#ft	LT&C	P-110

see COA

per operator 8/14/08 mhb

Design Parameter Factors:

Casing Size	Collapse Design Factor	Burst Design Factor	Tension Design Factor
13 3/8"	2.39	2.33	6.73
9 5/8"	1.35	1.92	4.96
7"	2.44	3.56	2.75
4½"	1.52	10.2	10.00

2. **Cement Program:**

a. 13 3/8" Surface — Cement to surface with 285 sacks Premium Plus C Cement + 2% bwoc Calcium Chloride + 0.125 lbs/sack Cello Flake + 4% bwoc Bentonite + 81.4% Fresh Water. **Yield:** 1.75 cf/sack. Tail with 225 sacks Premium Plus C Cement + 2% bwoc Calcium Chloride + 0.125 lbs/sack Cello Flake + 56.3% Fresh Water. **Yield:** 1.35 cf/sack. **Displacement:** 80.1 bbls Mud @ 8.5 ppg.

b. 9 5/8" Intermediate — Cement to surface; with 2 Stage Intermediate with DV tool @ 2300'

Stage 1: Lead Slurry: 450 sacks (35:65) Poz (Fly Ash):Premium Plus C Cement + 5% bwow Sodium Chloride + 0.125 lbs/sack Cello Flake + 3 lbs/sack LCM-1 + 6% bwoc Bentonite + 104.9% Fresh Water. **Yield:** 2.04 cf/sack. Tail with 300 sacks (60:40) Poz (Fly Ash):Premium Plus C Cement + 5% bwow Sodium Chloride + 0.4% bwoc Sodium Metasilicate + 4% bwoc MPA-1 + 64.8% Fresh Water. **Yield:** 1.37 cf/sack. **Displacement:** 330.6 bbls Displacement Fluid @ 10 ppg.

		Stage 2: Lead Slurry: 570 sacks (35:65) Poz (Fly Ash):Premium Plus C Cement + 5% bwow Sodium Chloride + 0.125 lbs/sack Cello Flake + 3 lbs/sack LCM-1 + 6% bwoc Bentonite + 104.9% Fresh Water. **Yield:** 2.04 cf/sack. Tail with 100 sacks (60:40) Poz (Fly Ash):Premium Plus C Cement + 5% bwow Sodium Chloride + 0.4% bwoc Sodium Metasilicate + 4% bwoc MPA-1 + 64.8% Fresh Water. **Yield:** 1.37 cf/sack. **Displacement:** 174.4 bbls Displacement Fluid @ 10 ppg.
c. 7"	Intermediate	Cement with 2 Stage Long String w/DV tool @ 8,500' and TOC at 4000'. ← See Cop **Stage 1:** Lead Slurry: 340 sacks (60:40) Poz (Fly Ash):Class H Cement + 1% bwow Sodium Chloride + 0.2% bwoc R-3 + 0.125 lbs/sack Cello Flake + 2 lbs/sack Kol Seal + 0.75% bwoc BA-10A + 0.2% bwoc FL-52A + 4% bwoc MPA-5 + 61.9% Fresh Water. **Yield:** 1.35. **Displacement:** 398.7 bbls Displacement Fluid. **Stage 2:** Lead Slurry: 445 sacks (35:65) Poz (Fly Ash):Premium Plus C Cement + 0.125 lbs/sack Cello Flake + 6% bwoc Bentonite + 102.1% Fresh Water. **Yield:** 1.95. Tail with 190 sacks (60:40) Poz (Fly Ash):Premium Plus C Cement + 1% bwow Sodium Chloride + 0.1% bwoc R-3 + 0.125 lbs/sack Cello Flake + 0.75% bwoc BA-10A + 4% bwoc MPA-5 + 63.1% Fresh Water. **Yield:** 1.35. **Displacement:** 325.2 bbls Displacement Fluid.
d. 4 ½"	Production	Cement with 250 sacks (15:61:11) Poz (Fly Ash):Premium Plus C Cement:CSE-2 + 0.3% bwoc R-3 + 1% bwow Potassium Chloride + 0.75% bwoc EC-1 + 0.125 lbs/sack Cello Flake + 0.4% bwoc CD-32 + 2 lbs/sack LCM-1 + 0.6% bwoc FL-25 + 0.6% bwoc FL-52A + 73.2% Fresh Water. **Yield:** 1.57 cf/sack. **Displacement:** 113.3 bbls Displacement Fluid. TOC @ 10,200'.

3. **Proposed Mud Circulation System:**

Depth	Mud Wt.	Visc	Fluid Loss	Type System
0' – 550'	8.3	32-34	NC	Fresh
550'– 4000'	10.2	28-30	NC	Brine
4000'–4400'	10.2	28-30	NC	Brine
4400'-10500'	8.4-9.3	29	NC	Fresh Water
10500'-12700'	~~9.8-10.8~~ 9.3-9.8	32-38	6-8cc	Cut Brine

per operator
8/14/08
MM

Proposal No: 215854463A

Devon Energy Corp
Cowpens 28 Fed Com #1

Sec. 28-19S-31E
Eddy County, New Mexico
June 24, 2008

Well Recommendation

Prepared for:
Don Jennings
Drilling Engineer Supervisor
Oklahoma City, Oklahoma
Bus Phone: (405) 552-3309

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:
Michael Palmer
District Sales Supervisor
Artesia, New Mexico

Operator Name: Devon Energy Corp
Well Name: Cowpens 28 Fed Com #1
Job Description: 7" Intermediate Casing Option
Date: June 24, 2008

Proposal No: 215854463A

JOB AT A GLANCE

Depth (TVD)	10,500 ft
Depth (MD)	10,500 ft
Hole Size	8.5 in
Casing Size/Weight :	7in, 26 lbs/ft
Pump Via	7" O.D. (6.276" .I.D) 26
Total Mix Water Required	7,836 gals
Stage No: 1	**Float Collar set @** 10,420 ft
Spacer	
Turbo Flow III	40 bbls
Density	11.5 ppg
Spacer	
Fresh Water	5 bbls
Density	8.3 ppg
Cement Slurry	
60:40 Poz:Class H (MPA)	340 sacks
Density	13.8 ppg
Yield	1.35 cf/sack
Displacement	
Displacement Fluid	399 bbls

JOB AT A GLANCE (Continued)

Stage No: 2 **Stage Collar set @** 8,500 ft

Spacer	
Fresh Water	30 bbls
Density	8.3 ppg
Lead Slurry	
35:65:6 Poz:Class H:Gel	445 sacks
Density	12.5 ppg
Yield	1.95 cf/sack
Tail Slurry	
60:40 Poz:Class H (MPA)	190 sacks
Density	13.8 ppg
Yield	1.35 cf/sack
Displacement	
Displacement Fluid	325 bbls

Operator Name: Devon Energy Corp
Well Name: Cowpens 28 Fed Com #1
Job Description: 7" Intermediate Casing Option
Date: June 24, 2008

Proposal No: 215854463A

WELL DATA

ANNULAR GEOMETRY

ANNULAR I.D. (in)	DEPTH(ft)	
	MEASURED	TRUE VERTICAL
8.835 CASING	4,400	4,400
8.500 HOLE	10,500	10,500

SUSPENDED PIPES

DIAMETER (in)		WEIGHT	DEPTH(ft)	
O.D.	I.D.	(lbs/ft)	MEASURED	TRUE VERTICAL
7.000	6.276	26	10,500	10,500

STAGE: 1

Float Collar set @	10,420 ft
Mud Density	10.00 ppg
Est. Static Temp.	175 ° F
Est. Circ. Temp.	143 ° F

VOLUME CALCULATIONS

2,000 ft	x	0.1268 cf/ft	with	75 % excess	=	443.8 cf
80 ft	x	0.2148 cf/ft	with	0 % excess	=	17.2 cf (inside pipe)
				TOTAL SLURRY VOLUME	=	461.0 cf
					=	82 bbls

STAGE: 2

Stage Collar set @	8,500 ft
Mud Density	10.00 ppg
Est. Static Temp.	157 ° F
Est. Circ. Temp.	130 ° F

VOLUME CALCULATIONS

500 ft	x	0.1585 cf/ft	with	0 % excess	=	79.2 cf
3,100 ft	x	0.1268 cf/ft	with	100 % excess	=	786.2 cf
1,000 ft	x	0.1268 cf/ft	with	100 % excess	=	253.4 cf
				TOTAL SLURRY VOLUME	=	1118.8 cf
					=	199 bbls

Operator Name: Devon Energy Corp
Well Name: Cowpens 28 Fed Com #1
Job Description: 7" Intermediate Casing Option
Date: June 24, 2008

Proposal No: 215854463A

FLUID SPECIFICATIONS

STAGE NO.: 1

Spacer				40.0 bbls Turbo Flow III @ 11.5 ppg
Spacer				5.0 bbls Fresh Water @ 8.34 ppg
FLUID	**VOLUME CU-FT**	**VOLUME FACTOR**		**AMOUNT AND TYPE OF CEMENT**
Cement Slurry	461	/ 1.35	=	340 sacks (60:40) Poz (Fly Ash):Class H Cement + 1% bwow Sodium Chloride + 0.2% bwoc R-3 + 0.125 lbs/sack Cello Flake + 2 lbs/sack Kol Seal + 0.75% bwoc BA-10A + 0.2% bwoc FL-52A + 4% bwoc MPA-5 + 61.9% Fresh Water
Displacement				398.7 bbls Displacement Fluid

CEMENT PROPERTIES

	SLURRY NO. 1
Slurry Weight (ppg)	13.80
Slurry Yield (cf/sack)	1.35
Amount of Mix Water (gps)	6.09
Estimated Pumping Time - 70 BC (HH:MM)	4:00
COMPRESSIVE STRENGTH	
12 hrs @ 175 ° F (psi)	1100
24 hrs @ 175 ° F (psi)	2150
72 hrs @ 175 ° F (psi)	3000

Operator Name: Devon Energy Corp
Well Name: Cowpens 28 Fed Com #1
Job Description: 7" Intermediate Casing Option
Date: June 24, 2008

Proposal No: 215854463A

FLUID SPECIFICATIONS (Continued)

STAGE NO.: 2

Spacer				30.0 bbls Fresh Water @ 8.34 ppg
Lead Slurry	865	/ 1.95	=	445 sacks (35:65) Poz (Fly Ash):Class H Cement + 0.125 lbs/sack Cello Flake + 6% bwoc Bentonite + 0.4% bwoc FL-52A + 0.1% bwoc R-3 + 3 lbs/sack LCM-1 + 99.3% Fresh Water
Tail Slurry	253	/ 1.35	=	190 sacks (60:40) Poz (Fly Ash):Class H Cement + 1% bwow Sodium Chloride + 0.15% bwoc R-3 + 0.125 lbs/sack Cello Flake + 0.75% bwoc BA-10A + 4% bwoc MPA-5 + 2 lbs/sack Kol Seal + 62% Fresh Water
Displacement				325.2 bbls Displacement Fluid

CEMENT PROPERTIES

	SLURRY NO. 1	SLURRY NO. 2
Slurry Weight (ppg)	12.50	13.80
Slurry Yield (cf/sack)	1.95	1.35
Amount of Mix Water (gps)	10.36	6.09
Estimated Pumping Time - 70 BC (HH:MM)	4:00	3:30
COMPRESSIVE STRENGTH		
12 hrs @ 130 ° F (psi)	250	
24 hrs @ 130 ° F (psi)	500	
72 hrs @ 130 ° F (psi)	800	
12 hrs @ 157 ° F (psi)		1200
24 hrs @ 157 ° F (psi)		2000
72 hrs @ 157 ° F (psi)		2700

CEMENT VOLUMES MAY VARY BASED ON CALIPER.

Operator Name: Devon Energy Corp
Well Name: Cowpens 28 Fed Com #1
Job Description: 4 1/2" Liner Option
Date: June 24, 2008

Proposal No: 215854463A

JOB AT A GLANCE

Depth (TVD)	12,700 ft
Depth (MD)	12,700 ft
Hole Size	6.125 in
Liner Size/Weight :	4 1/2 in, 11.6 lbs/ft
Pump Via	Drill Pipe 3 1/2" O.D. (2.764" .I.D) 13.3 Casing 4 1/2" O.D. (4.000" .I.D) 11.6
Total Mix Water Required	1,909 gals
Spacer	
Turbo Flow III	20 bbls
Density	11.5 ppg
Spacer	
Fresh Water	5 bbls
Density	8.3 ppg
Spacer	
Surebond III	500 gals
Density	9.4 ppg
Spacer	
Fresh Water	10 bbls
Density	8.3 ppg
Cement Slurry	
Super C Modified	250 sacks
Density	13.3 ppg
Yield	1.57 cf/sack
Displacement	
Displacement Fluid	113 bbls

Operator Name: Devon Energy Corp
Well Name: Cowpens 28 Fed Com #1
Job Description: 4 1/2" Liner Option
Date: June 24, 2008

Proposal No: 215854463A

WELL DATA

ANNULAR GEOMETRY

ANNULAR I.D. (in)	DEPTH(ft)	
	MEASURED	TRUE VERTICAL
6.276 CASING	10,500	10,500
6.125 HOLE	12,700	12,700

SUSPENDED PIPES

DIAMETER (in)		WEIGHT	DEPTH(ft)	
O.D.	I.D.	(lbs/ft)	MEASURED	TRUE VERTICAL
4.500	4.000	11.6	12,700	12,700

Drill Pipe 3.5 (in) OD, 2.764 (in) ID, 13.3 (lbs/ft) set @	10,200 ft
Drill Pipe 4.5 (in) OD, 4.0 (in) ID, 11.6 (lbs/ft) set @	12,700 ft
Depth to Top of Liner	10,200 ft
Float Collar set @	12,620 ft
Mud Density	10.00 ppg
Est. Static Temp.	194 ° F
Est. Circ. Temp.	154 ° F

VOLUME CALCULATIONS

200 ft	x	0.2148 cf/ft	with	0 % excess	=	43 cf
300 ft	x	0.1044 cf/ft	with	0 % excess	=	31 cf
2,200 ft	x	0.0942 cf/ft	with	50 % excess	=	311 cf
80 ft	x	0.0873 cf/ft	with	0 % excess	=	7 cf (inside pipe)
				TOTAL SLURRY VOLUME	=	392 cf
					=	70 bbls

Operator Name: Devon Energy Corp
Well Name: Cowpens 28 Fed Com #1
Job Description: 4 1/2" Liner Option
Date: June 24, 2008

Proposal No: 215854463A

FLUID SPECIFICATIONS

Spacer	20.0 bbls Turbo Flow III @ 11.5 ppg
Spacer	5.0 bbls Fresh Water @ 8.34 ppg
Spacer	500.0 gals Surebond III @ 9.35 ppg
Spacer	10.0 bbls Fresh Water @ 8.34 ppg

FLUID	VOLUME CU-FT		VOLUME FACTOR		AMOUNT AND TYPE OF CEMENT
Cement Slurry	392	/	1.57	=	250 sacks (15:61:11) Poz (Fly Ash):Premium Plus C Cement:CSE-2 + 0.35% bwoc R-3 + 1% bwow Potassium Chloride + 0.75% bwoc EC-1 + 0.125 lbs/sack Cello Flake + 0.4% bwoc CD-32 + 2 lbs/sack LCM-1 + 0.6% bwoc FL-25 + 0.6% bwoc FL-52A + 73.2% Fresh Water
Displacement					113.3 bbls Displacement Fluid

CEMENT PROPERTIES

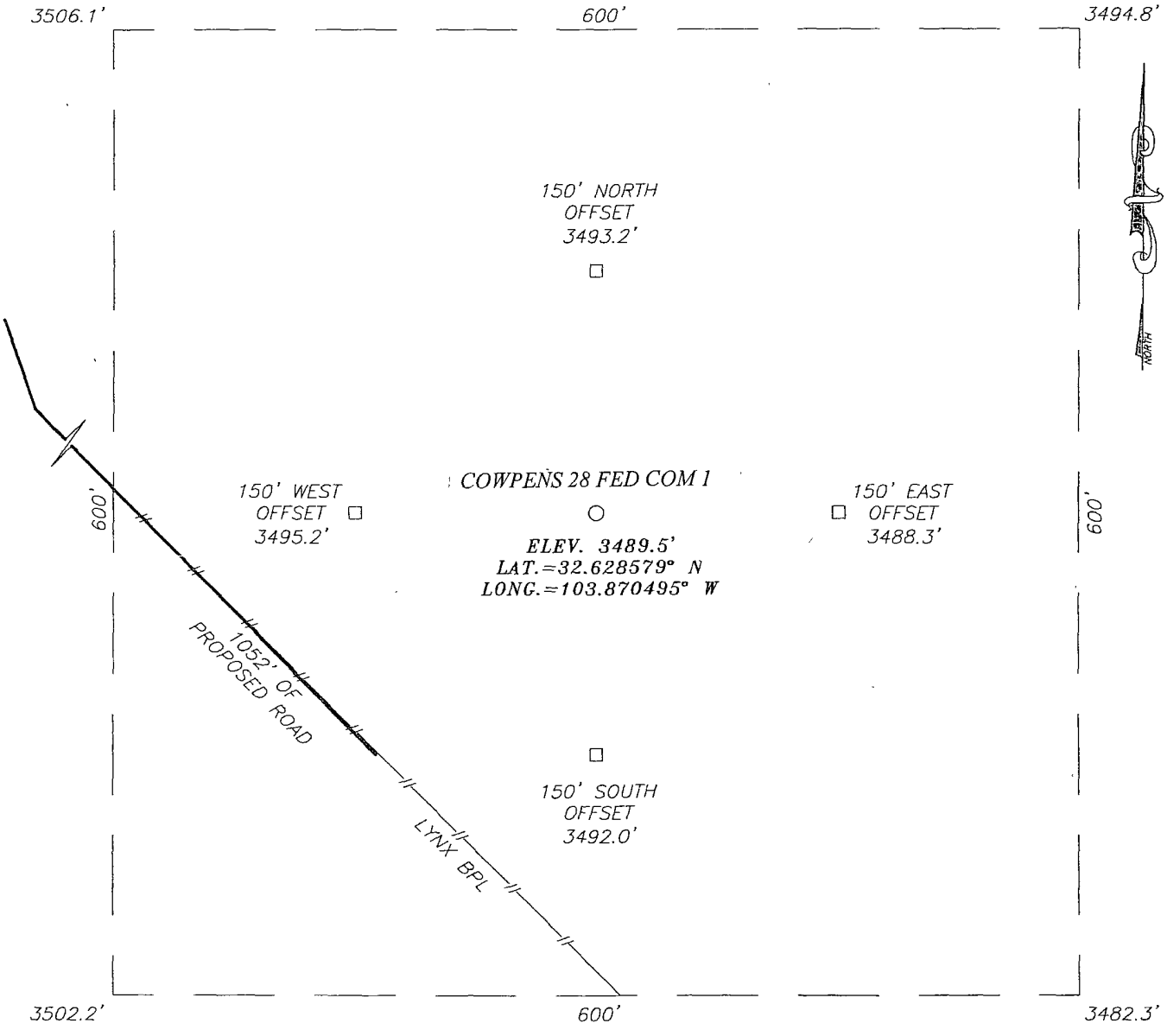
	SLURRY NO. 1
Slurry Weight (ppg)	13.30
Slurry Yield (cf/sack)	1.57
Amount of Mix Water (gps)	7.64
Estimated Pumping Time - 70 BC (HH:MM)	4:00
Free Water (mls) @ 145 ° F @ 90 ° angle	0.0
Fluid Loss (cc/30min) at 1000 psi and 145 ° F	50.0
COMPRESSIVE STRENGTH	
12 hrs @ 182 ° F (psi)	1400
24 hrs @ 182 ° F (psi)	2000
72 hrs @ 182 ° F (psi)	2500

ACTUAL CEMENT VOLUMES MAY VARY BASED ON CALIPER.

BATCH MIX THE SUPER C MODIFIED CEMENT SLURRY.

SECTION 28, TOWNSHIP 19 SOUTH, RANGE 31 EAST, N.M.P.M.,

EDDY COUNTY, NEW MEXICO



DIRECTIONS TO LOCATION

FROM THE INTERSECTION OF CO. RD. #222 (SHURGART RD.) AND CO. RD. #248 (LUSK PLANT RD.), GO SOUTH-SOUTHWEST ON SHURGART RD APPROX. 2.5 MILES TO A LYNX PETROLEUM PIPELINE AND PROPOSED ROAD SURVEY. FOLLOW ROAD SURVEY SOUTHEAST APPROX. 0.2 MILES TO THIS LOCATION.

100 0 100 200 Feet

Scale. 1"=100'

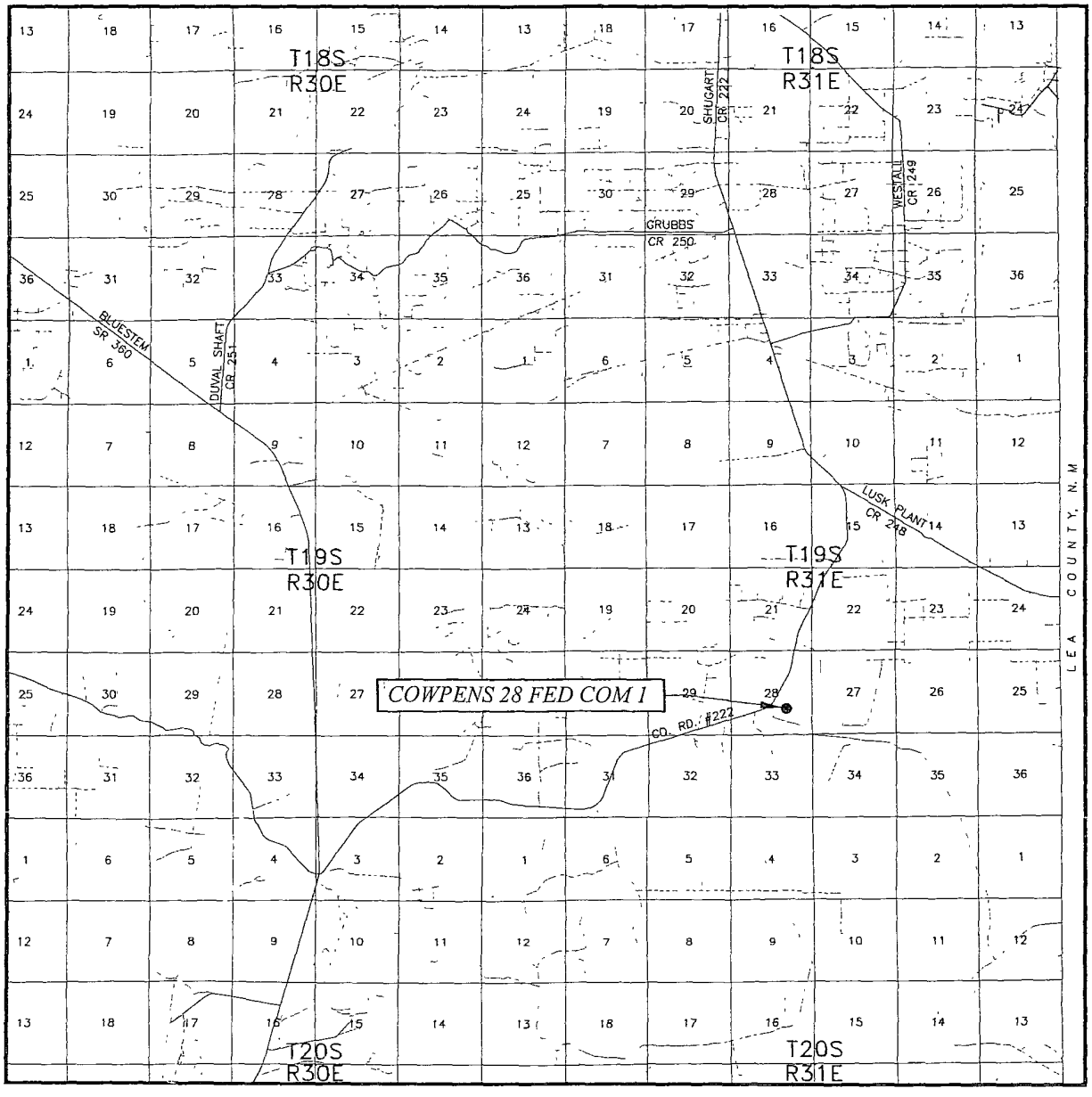
PROVIDING SURVEYING SERVICES
SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(505) 393-3117

DEVON ENERGY PRODUCTION CO., LP

COWPENS 28 FED COM 1 WELL
LOCATED 1650 FEET FROM THE SOUTH LINE
AND 1650 FEET FROM THE EAST LINE OF SECTION 28,
TOWNSHIP 19 SOUTH, RANGE 31 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO.

Survey Date: 6/20/08	Sheet 1 of 1 Sheets	
W.O. Number: 08.11.1017	Dr By: LA	Rev 1:N/A
Date: 6/26/08	08111017	Scale:1"=100'

VICINITY MAP



SCALE: 1" = 2 MILES

SEC. 28 TWP. 19-S RGE. 31-E

SURVEY N.M.P.M.

COUNTY EDDY STATE NEW MEXICO

DESCRIPTION 1650' FSL & 1650' FEL

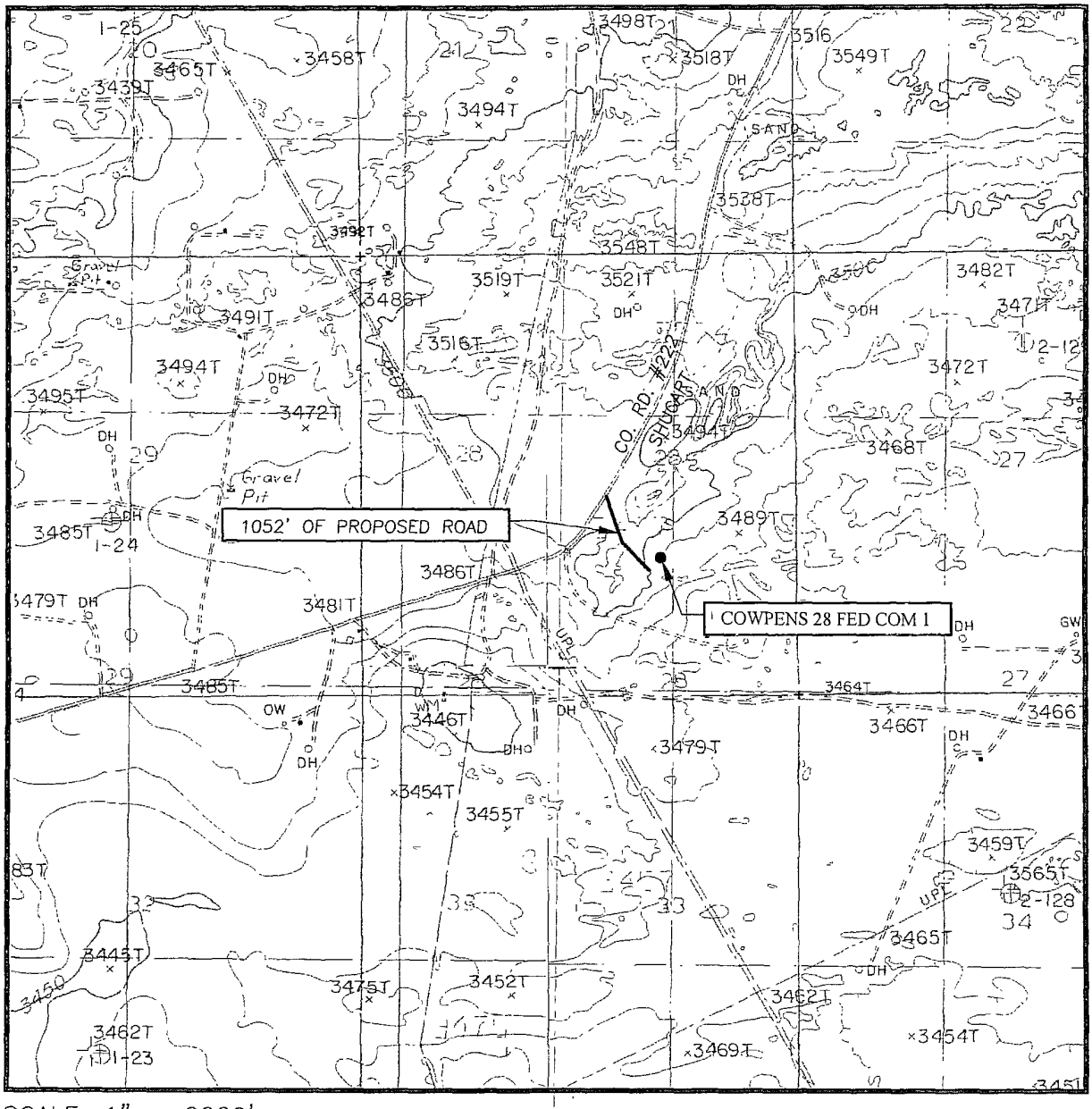
ELEVATION 3490'

OPERATOR DEVON ENERGY PRODUCTION CO., LP

LEASE COWPENS 28 FED COM 1

PROVIDING SURVEYING SERVICES
SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N DAL PASO
HOBBS, N.M. 88240
(505) 393-3117

LOCATION VERIFICATION MAP



SCALE: 1" = 2000'

CONTOUR INTERVAL: 10 FEET
TOWER HILL NORTH, N.M.
HACKBERRY LAKE, N.M.
GREENWOOD LAKE, N.M.
WILLIAMS SINK, N.M.

SEC. 28 TWP. 19-S RGE. 31-E

SURVEY N.M.P.M.

COUNTY EDDY STATE NEW MEXICO

DESCRIPTION 1650' FSL & 1650' FEL

ELEVATION 3490'

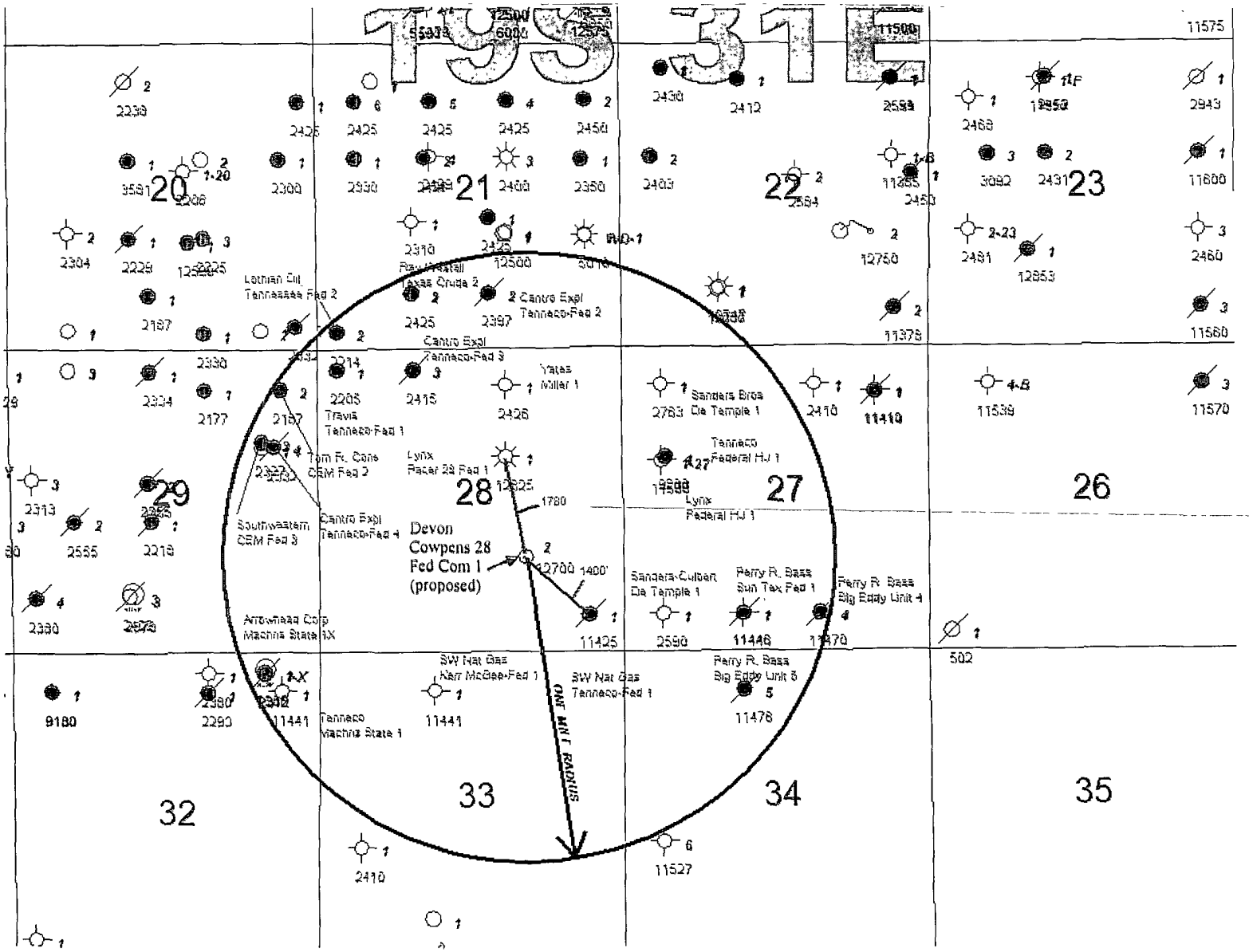
OPERATOR DEVON ENERGY PRODUCTION CO., LP

LEASE COWPENS 28 FED COM 1

U.S.G.S. TOPOGRAPHIC MAP
GREENWOOD LAKE, N.M.

PROVIDING SURVEYING SERVICES
SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(505) 393-3117

Cowpens 28 Fed Com 1 – One Mile Radius Plat



DRILLING PROGRAM

Devon Energy Production Company, LP
Cowpens 28 Fed Com 1
Surface Location: 1650' FSL & 1650' FEL, Unit J, Sec 28 T19S R31E, Eddy, NM
Bottom hole Location: 1650' FSL & 1650' FEL, Unit J, Sec 28 T19S R31E, Eddy, NM

1. Geologic Name of Surface Formation

a. Quaternary

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

a.	Quaternary Eolian Sand	Surface'	Fresh Water
b.	Rustler	550'	Fresh Water
c.	Salado Salt	730'	
d.	Tansil	2080'	
e.	Yates/Seven Rivers	2230'	Oil
f.	Capitan Reef	2430'	
g.	Queen	2810'	
h.	Grayburg	3250'	
i.	Base Capitan	3840'	
j.	Delaware	4350'	Oil
k.	Bone Springs Lm	6875'	Oil
l.	2nd Bone Springs Lm	8450'	Oil
m.	3rd Bone Springs Lm	9340'	Oil
n.	3rd Bone Springs Ss	9750'	Oil/Gas
o.	Wolfcamp Ls	10300'	Oil/Gas
p.	Penn	10600'	Gas
q.	Strawn	11200'	Gas
r.	Atoka	11575'	Gas
s.	Morrow Clastics	12225'	Gas
t.	Lower Morrow	12475'	Gas
u.	Total Depth	12700'	

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 550' and circulating cement back to surface. Fresh water sands will be protected by setting 9 5/8" casing at 4400' and circulating cement to surface. The Morrow intervals will be isolated by setting 5 ½" casing to total depth and circulating cement above the base of the 9 5/8" casing. All casing is new and API approved.

3. **Casing Program:**

Hole Size	Hole Interval	OD Csg	Casing Interval	Weight	Collar	Grade
17 1/2"	0' – 550'	13 3/8"	0'-550'	48#/ft	ST&C	H-40
12 ¼"	550'–4000'	9 5/8"	0-4000'	40#/ft	LT&C	K-55
12 ¼"	4000-4400'	9 5/8"	4000-4400'	40#/ft	LT&C	HCK-55
8 1/2"	4400'- 10500'	5 1/2"	0'-10500'	17#/ft	LT&C	P-110
8 1/2"	10500'- 12700'	5 1/2"	10500'-12700'	20#/ft	LT&C	P-110

Design Parameter Factors:

Casing Size	Collapse Design Factor	Burst Design Factor	Tension Design Factor
13 3/8"	2.39	2.33	6.73
9 5/8"	1.35	1.92	4.96
5 ½"	1.40	2.12	1.88

4. **Cement Program:**

a. 13 3/8" Surface — Cement to surface with 285 sacks Premium Plus C Cement + 2% bwoc Calcium Chloride + 0.125 lbs/sack Cello Flake + 4% bwoc Bentonite + 81.4% Fresh Water. **Yield:** 1.75 cf/sack. Tail with 225 sacks Premium Plus C Cement + 2% bwoc Calcium Chloride + 0.125 lbs/sack Cello Flake + 56.3% Fresh Water. **Yield:** 1.35 cf/sack. **Displacement:** 80.1 bbls Mud @ 8.5 ppg.

b. 9 5/8" Intermediate — Cement to surface; with 2 Stage Intermediate w/DV tool @ 2300'

Stage 1: Lead Slurry: 450 sacks (35:65) Poz (Fly Ash):Premium Plus C Cement + 5% bwow Sodium Chloride + 0.125 lbs/sack Cello Flake + 3 lbs/sack LCM-1 + 6% bwoc Bentonite + 104.9% Fresh Water. **Yield:** 2.04 cf/sack. Tail with 300 sacks (60:40) Poz (Fly Ash):Premium Plus C Cement + 5% bwow Sodium Chloride + 0.4% bwoc Sodium Metasilicate + 4% bwoc MPA-1 + 64.8% Fresh Water. **Yield:** 1.37 cf/sack. **Displacement:** 330.6 bbls Displacement Fluid @ 10 ppg.

Stage 2: Lead Slurry: 570 sacks (35:65) Poz (Fly Ash):Premium Plus C Cement + 5% bwow Sodium Chloride + 0.125 lbs/sack Cello Flake + 3 lbs/sack LCM-1 + 6% bwoc Bentonite + 104.9% Fresh Water. **Yield:** 2.04 cf/sack. Tail with 100 sacks (60:40) Poz (Fly Ash):Premium Plus C Cement + 5% bwow Sodium Chloride + 0.4% bwoc Sodium Metasilicate + 4% bwoc MPA-1 + 64.8% Fresh Water. **Yield:** 1.37 cf/sack. **Displacement:** 174.4 bbls Displacement Fluid @ 10 ppg.

c. 5 ½" Production — Cement with 2 Stage Long String w/DV tool @ 9,000' and TOC at 4000'.

Stage 1: Lead Slurry: 820 sacks (15:61:11) Poz (Fly Ash): Premium Plus C Cement:CSE-2 + 0.35% bwoc R-3 + 1% bwow Potassium Chloride + 0.75% bwoc EC-1 + 0.125 lbs/sack Cello Flake + 0.4% bwoc CD-32 + 2 lbs/sack LCM-1 + 0.6% bwoc FL-25 + 0.6% bwoc FL-52A + 73.2% Fresh Water. **Yield:** 1.57 cf/sack. **Displacement:** 293.4 bbls Displacement Fluid.

Stage 2:
Lead Slurry: 795 sacks (35:65) Poz (Fly Ash):Class H Cement + 0.125 lbs/sack Cello Flake + 3 lbs/sack LCM-1 + 6% bwoc Bentonite + 0.4% bwoc FL-52A + 99.3% Fresh Water. **Yield:** 1.95 cf/sack. Tail with 510 sacks (60:40) Poz (Fly Ash):Class H Cement + 1% bwow Sodium Chloride + 0.1% bwoc R-3 + 0.125 lbs/sack Cello Flake + 2 lbs/sack Kol Seal + 0.75% bwoc BA-10A + 4% bwoc MPA-1 + 61.3% Fresh Water. **Yield:** 1.35 cf/sack. **Displacement:** 209.2 bbls Displacement Fluid.

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

5. **Pressure Control Equipment:**
The blowout preventor equipment (BOP) shown in Exhibit #1 will consist of a (5M system) double ram type (5000 psi WP) preventor and a bag-type (Hydril) preventor (5000 psi WP) and rotating head. Both units will be hydraulically operated and the ram type preventor will be equipped with blind rams on top and 4 ½" drill pipe rams on bottom. The BOP will be installed on the 13 3/8" surface casing and utilized continuously until total depth is reached. All BOP's and associated equipment will be tested to **1200 psi with the rig pump 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.

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

6. **Proposed Mud Circulation System**

Depth	Mud Wt.	Visc	Fluid Loss	Type System
0' – 550'	8.3	32-34	NC	Fresh
550'– 4000'	10.2	28-30	NC	Brine
4000'–4400'	10.2	28-30	NC	Brine
4400'-8500'	8.4-8.5	29	NC	Fresh Water
10500'-12700'	9.3-9.8	32-38	6-8cc	Cut Brine

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.

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 5200 psi and Estimated BHT 170°. 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.

Proposal No: 215854463A

Devon Energy Corp
Cowpens 28 Fed Com #1

Sec. 28-19S-31E
Eddy County, New Mexico
June 24, 2008

Well Recommendation

Prepared for:
Don Jennings
Drilling Engineer Supervisor
Oklahoma City, Oklahoma
Bus Phone: (405) 552-3309

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:
Michael Palmer
District Sales Supervisor
Artesia, New Mexico

Operator Name: Devon Energy Corp
Well Name: Cowpens 28 Fed Com #1
Job Description: Surface Casing
Date: June 24, 2008

Proposal No: 215854463A

JOB AT A GLANCE

Depth (TVD)	550 ft
Depth (MD)	550 ft
Hole Size	17.5 in
Casing Size/Weight :	13 3/8in, 48 lbs/ft
Pump Via	13 3/8" O.D. (12.715" .I.D) 48
Total Mix Water Required	4,042 gals
Spacer	
Fresh Water	20 bbls
Density	8.3 ppg
Lead Slurry	
Class C	285 sacks
Density	13.5 ppg
Yield	1.75 cf/sack
Tail Slurry	
Class C	225 sacks
Density	14.8 ppg
Yield	1.35 cf/sack
Displacement	
Mud	80 bbls
Density	8.5 ppg

Operator Name: Devon Energy Corp
Well Name: Cowpens 28 Fed Com #1
Job Description: Surface Casing
Date: June 24, 2008

Proposal No: 215854463A

WELL DATA

ANNULAR GEOMETRY

ANNULAR I.D. (in)	DEPTH(ft)	
	MEASURED	TRUE VERTICAL
17.500 HOLE	550	550

SUSPENDED PIPES

DIAMETER (in)		WEIGHT (lbs/ft)	DEPTH(ft)	
O.D.	I.D.		MEASURED	TRUE VERTICAL
13.375	12.715	48	550	550

Float Collar set @	510 ft
Mud Density	8.50 ppg
Est. Static Temp.	85 ° F
Est. Circ. Temp.	80 ° F

VOLUME CALCULATIONS

357 ft	x	0.6946 cf/ft	with	100 % excess	=	497.4 cf
193 ft	x	0.6946 cf/ft	with	100 % excess	=	267.5 cf
40 ft	x	0.8818 cf/ft	with	0 % excess	=	35.3 cf (inside pipe)
				TOTAL SLURRY VOLUME	=	800.1 cf
					=	143 bbls

Operator Name: Devon Energy Corp
Well Name: Cowpens 28 Fed Com #1
Job Description: Surface Casing
Date: June 24, 2008

Proposal No: 215854463A

FLUID SPECIFICATIONS

Spacer 20.0 bbls Fresh Water @ 8.34 ppg

FLUID	VOLUME CU-FT	VOLUME FACTOR	AMOUNT AND TYPE OF CEMENT
Lead Slurry	497	/ 1.75	= 285 sacks Premium Plus C Cement + 2% bwoc Calcium Chloride + 0.125 lbs/sack Cello Flake + 4% bwoc Bentonite + 81.4% Fresh Water
Tail Slurry	303	/ 1.35	= 225 sacks Premium Plus C Cement + 2% bwoc Calcium Chloride + 0.125 lbs/sack Cello Flake + 56.3% Fresh Water

Displacement 80.1 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)	3:45	2:30
COMPRESSIVE STRENGTH		
8 hrs @ 80 ° F (psi)		500
12 hrs @ 80 ° F (psi)	500	1150
24 hrs @ 80 ° F (psi)	800	2100
72 hrs @ 80 ° F (psi)	1400	2700

Operator Name: Devon Energy Corp
Well Name: Cowpens 28 Fed Com #1
Job Description: Intermediate Casing - Two Stage
Date: June 24, 2008

Proposal No: 215854463A

JOB AT A GLANCE

Depth (TVD)	4,400 ft
Depth (MD)	4,400 ft
Hole Size	12.25 in
Casing Size/Weight :	9 5/8 in, 40 lbs/ft
Pump Via	9 5/8" O.D. (8.835" .I.D) 40
Total Mix Water Required	13,705 gals
Stage No: 1	**Float Collar set @** 4,360 ft
Spacer	
Fresh Water	20 bbls
Density	8.3 ppg
Lead Slurry	
35:65:6 Poz:Class C	450 sacks
Density	12.5 ppg
Yield	2.04 cf/sack
Tail Slurry	
60:40 Poz:Class C (MPA)	300 sacks
Density	13.8 ppg
Yield	1.37 cf/sack
Displacement	
Displacement Fluid	331 bbls
Density	10.0 ppg

JOB AT A GLANCE (Continued)

Stage No: 2	**Stage Collar set @** 2,300 ft
Spacer	
40# Gelled Water	500 gals
Density	8.3 ppg
Spacer	
Water	20 bbls
Density	8.3 ppg
Lead Slurry	
35:65:6 Poz:Class C	570 sacks
Density	12.5 ppg
Yield	2.04 cf/sack
Tail Slurry	
60:40 Poz:Class C (MPA)	100 sacks
Density	13.8 ppg
Yield	1.37 cf/sack
Displacement	
Displacement Fluid	174 bbls
Density	10.0 ppg

Operator Name: Devon Energy Corp
Well Name: Cowpens 28 Fed Com #1
Job Description: Intermediate Casing - Two Stage
Date: June 24, 2008

Proposal No: 215854463A

WELL DATA

ANNULAR GEOMETRY

ANNULAR I.D. (in)	DEPTH(ft)	
	MEASURED	TRUE VERTICAL
12.715 CASING	550	550
12.250 HOLE	4,400	4,400

SUSPENDED PIPES

DIAMETER (in)		WEIGHT	DEPTH(ft)	
O.D.	I.D.	(lbs/ft)	MEASURED	TRUE VERTICAL
9.625	8.835	40	4,400	4,400

STAGE: 1

Float Collar set @	4,360 ft
Mud Density	10.00 ppg
Est. Static Temp.	120 ° F
Est. Circ. Temp.	102 ° F

VOLUME CALCULATIONS

1,471 ft	x	0.3132 cf/ft	with	100 % excess	=	921.2 cf
629 ft	x	0.3132 cf/ft	with	100 % excess	=	393.8 cf
40 ft	x	0.4257 cf/ft	with	0 % excess	=	17.0 cf (inside pipe)
				TOTAL SLURRY VOLUME	=	1332.0 cf
					=	237 bbls

STAGE: 2

Stage Collar set @	2,300 ft
Mud Density	10.00 ppg
Est. Static Temp.	101 ° F
Est. Circ. Temp.	91 ° F

VOLUME CALCULATIONS

550 ft	x	0.3765 cf/ft	with	0 % excess	=	207.1 cf
1,531 ft	x	0.3132 cf/ft	with	100 % excess	=	959.2 cf
219 ft	x	0.3132 cf/ft	with	100 % excess	=	136.9 cf
				TOTAL SLURRY VOLUME	=	1303.2 cf
					=	232 bbls

Operator Name: Devon Energy Corp
Well Name: Cowpens 28 Fed Com #1
Job Description: Intermediate Casing - Two Stage
Date: June 24, 2008

Proposal No: 215854463A

FLUID SPECIFICATIONS

STAGE NO.: 1

Spacer — 20.0 bbls Fresh Water @ 8.34 ppg

FLUID	VOLUME CU-FT	VOLUME FACTOR	AMOUNT AND TYPE OF CEMENT
Lead Slurry	921	/ 2.04	= 450 sacks (35:65) Poz (Fly Ash):Premium Plus C Cement + 5% bwow Sodium Chloride + 0.125 lbs/sack Cello Flake + 3 lbs/sack LCM-1 + 6% bwoc Bentonite + 104.9% Fresh Water
Tail Slurry	411	/ 1.37	= 300 sacks (60:40) Poz (Fly Ash):Premium Plus C Cement + 5% bwow Sodium Chloride + 0.4% bwoc Sodium Metasilicate + 4% bwoc MPA-5 + 64.8% Fresh Water

Displacement — 330.6 bbls Displacement Fluid @ 10 ppg

CEMENT PROPERTIES

	SLURRY NO. 1	SLURRY NO. 2
Slurry Weight (ppg)	12.50	13.80
Slurry Yield (cf/sack)	2.04	1.37
Amount of Mix Water (gps)	10.94	6.37
Estimated Pumping Time - 70 BC (HH:MM)	4:00	2:30
COMPRESSIVE STRENGTH		
8 hrs @ 114 ° F (psi)		500
12 hrs @ 114 ° F (psi)	150	1000
24 hrs @ 114 ° F (psi)	350	2400
72 hrs @ 114 ° F (psi)	900	3000

FLUID SPECIFICATIONS (Continued)

STAGE NO.: 2

Spacer — 500.0 gals 40# Gelled Water + 10 gpt GW-3LDF @ 8.34 ppg

Spacer — 20.0 bbls Water @ 8.34 ppg

FLUID	VOLUME CU-FT		VOLUME FACTOR		AMOUNT AND TYPE OF CEMENT
Lead Slurry	1166	/	2.04	=	570 sacks (35:65) Poz (Fly Ash):Premium Plus C Cement + 5% bwow Sodium Chloride + 0.125 lbs/sack Cello Flake + 3 lbs/sack LCM-1 + 6% bwoc Bentonite + 104.9% Fresh Water
Tail Slurry	137	/	1.37	=	100 sacks (60:40) Poz (Fly Ash):Premium Plus C Cement + 5% bwow Sodium Chloride + 0.4% bwoc Sodium Metasilicate + 4% bwoc MPA-5 + 64.8% Fresh Water

Displacement — 174.4 bbls Displacement Fluid @ 10 ppg

CEMENT PROPERTIES

	SLURRY NO. 1	SLURRY NO. 2
Slurry Weight (ppg)	12.50	13.80
Slurry Yield (cf/sack)	2.04	1.37
Amount of Mix Water (gps)	10.94	6.37
Estimated Pumping Time - 70 BC (HH:MM)	5:00	3:45

CEMENT VOLUME WILL VARY BASED ON CALIPER

Operator Name: Devon Energy Corp
Well Name: Cowpens 28 Fed Com #1
Job Description: 2 Stage Long String Option
Date: June 24, 2008

Proposal No: 215854463A

JOB AT A GLANCE

Depth (TVD)	12,700 ft
Depth (MD)	12,700 ft
Hole Size	8.5 in
Casing Size/Weight :	5 1/2 in, 17 lbs/ft
Pump Via	5 1/2" O.D. (4.892" .I.D) 17
Total Mix Water Required	17,602 gals
Stage No: 1	**Float Collar set @** 12,620 ft
Spacer	
Turbo Flow III	40 bbls
Density	11.5 ppg
Spacer	
Fresh Water	5 bbls
Density	8.3 ppg
Spacer	
Surebond III	1,000 gals
Density	9.4 ppg
Spacer	
Fresh Water	10 bbls
Density	8.3 ppg
Cement Slurry	
Super C Modified	820 sacks
Density	13.3 ppg
Yield	1.57 cf/sack
Displacement	
Displacement Fluid	293 bbls

JOB AT A GLANCE (Continued)

Stage No: 2	**Stage Collar set @** 9,000 ft
Spacer	
Mud Clean II	1,000 gals
Density	8.5 ppg
Lead Slurry	
35:65 Poz:Class H	795 sacks
Density	12.5 ppg
Yield	1.95 cf/sack
Tail Slurry	
60:40 Poz:Class H (MPA)	510 sacks
Density	13.8 ppg
Yield	1.35 cf/sack
Displacement	
Displacement Fluid	209 bbls

Operator Name: Devon Energy Corp
Well Name: Cowpens 28 Fed Com #1
Job Description: 2 Stage Long String Option
Date: June 24, 2008

Proposal No: 215854463A

WELL DATA

ANNULAR GEOMETRY

ANNULAR I.D. (in)	DEPTH(ft)	
	MEASURED	TRUE VERTICAL
8.835 CASING	4,400	4,400
8.500 HOLE	12,700	12,700

SUSPENDED PIPES

DIAMETER (in)		WEIGHT	DEPTH(ft)	
O.D.	I.D.	(lbs/ft)	MEASURED	TRUE VERTICAL
5.500	4.892	17	12,700	12,700

STAGE: 1

Float Collar set @	12,620 ft
Mud Density	10.00 ppg
Est. Static Temp.	194 ° F
Est. Circ. Temp.	154 ° F

VOLUME CALCULATIONS

3,700 ft	x	0.2291 cf/ft	with	50 % excess	=	1271.4 cf
80 ft	x	0.1305 cf/ft	with	0 % excess	=	10.4 cf (inside pipe)
				TOTAL SLURRY VOLUME	=	1281.8 cf
					=	228 bbls

STAGE: 2

Stage Collar set @	9,000 ft
Mud Density	10.00 ppg
Est. Static Temp.	161 ° F
Est. Circ. Temp.	134 ° F

VOLUME CALCULATIONS

500 ft	x	0.2607 cf/ft	with	0 % excess	=	130.4 cf
3,100 ft	x	0.2291 cf/ft	with	100 % excess	=	1419.8 cf
1,500 ft	x	0.2291 cf/ft	with	100 % excess	=	687.2 cf
				TOTAL SLURRY VOLUME	=	2237.4 cf
					=	399 bbls

Operator Name: Devon Energy Corp
Well Name: Cowpens 28 Fed Com #1
Job Description: 2 Stage Long String Option
Date: June 24, 2008

Proposal No: 215854463A

FLUID SPECIFICATIONS

STAGE NO.: 1

Spacer	40.0 bbls Turbo Flow III @ 11.5 ppg
Spacer	5.0 bbls Fresh Water @ 8.34 ppg
Spacer	1,000.0 gals Surebond III @ 9.35 ppg
Spacer	10.0 bbls Fresh Water @ 8.34 ppg

FLUID	VOLUME CU-FT	VOLUME FACTOR	AMOUNT AND TYPE OF CEMENT
Cement Slurry	1282	/ 1.57	= 820 sacks (15:61:11) Poz (Fly Ash):Premium Plus C Cement:CSE-2 + 0.35% bwoc R-3 + 1% bwow Potassium Chloride + 0.75% bwoc EC-1 + 0.125 lbs/sack Cello Flake + 0.4% bwoc CD-32 + 2 lbs/sack LCM-1 + 0.6% bwoc FL-25 + 0.6% bwoc FL-52A + 73.2% Fresh Water
Displacement			293.4 bbls Displacement Fluid

CEMENT PROPERTIES

	SLURRY NO. 1
Slurry Weight (ppg)	13.30
Slurry Yield (cf/sack)	1.57
Amount of Mix Water (gps)	7.64
Estimated Pumping Time - 70 BC (HH:MM)	3:45
Free Water (mls) @ 147 ° F @ 90 ° angle	0.0
Fluid Loss (cc/30min) at 1000 psi and 147 ° F	50.0
COMPRESSIVE STRENGTH	
12 hrs @ 194 ° F (psi)	1400
24 hrs @ 194 ° F (psi)	2100
72 hrs @ 194 ° F (psi)	2600

Operator Name: Devon Energy Corp
Well Name: Cowpens 28 Fed Com #1
Job Description: 2 Stage Long String Option
Date: June 24, 2008

Proposal No: 215854463A

FLUID SPECIFICATIONS (Continued)

STAGE NO.: 2

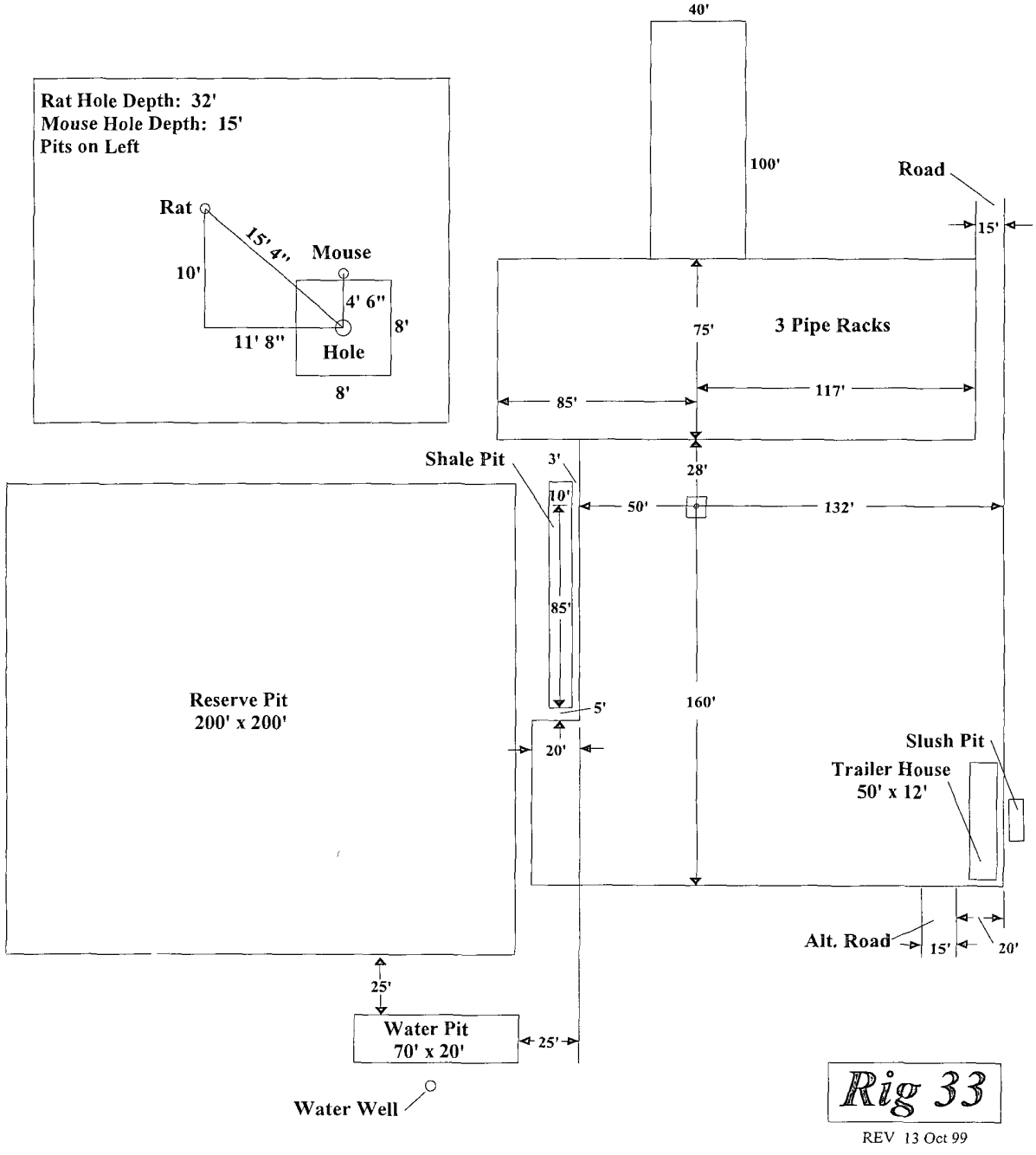
Spacer				1,000.0 gals Mud Clean II @ 8.45 ppg
Lead Slurry	1550	/	1.95	= 795 sacks (35:65) Poz (Fly Ash):Class H Cement + 0.125 lbs/sack Cello Flake + 3 lbs/sack LCM-1 + 6% bwoc Bentonite + 0.4% bwoc FL-52A + 0.1% bwoc R-3 + 99.3% Fresh Water
Tail Slurry	687	/	1.35	= 510 sacks (60:40) Poz (Fly Ash):Class H Cement + 1% bwow Sodium Chloride + 0.15% bwoc R-3 + 0.125 lbs/sack Cello Flake + 2 lbs/sack Kol Seal + 0.75% bwoc BA-10A + 4% bwoc MPA-5 + 62% Fresh Water
Displacement				209.2 bbls Displacement Fluid

CEMENT PROPERTIES

	SLURRY NO. 1	SLURRY NO. 2
Slurry Weight (ppg)	12.50	13.80
Slurry Yield (cf/sack)	1.95	1.35
Amount of Mix Water (gps)	10.36	6.09
Estimated Pumping Time - 70 BC (HH:MM)	4:00	3:30
Free Water (mls) @ ° F @ 90 ° angle		0.0
Fluid Loss (cc/30min) at 1000 psi and ° F		300.0
COMPRESSIVE STRENGTH		
12 hrs @ 161 ° F (psi)	250	1200
24 hrs @ 161 ° F (psi)	500	2000
72 hrs @ 161 ° F (psi)	800	2700

ACTUAL CEMENT VOLUMES MAY VARY BASED ON CALIPER.

IF FALCON CEMENT PUMP IS NOT AVAILABLE THEN BATCH MIX THE SUPER C MODIFIED CEMENT SLURRY.



Rig 33

REV 13 Oct 99

RIG 33

CLASSIFICATION: National 80-UE SCR

DRILLING DEPTH CAPACITY: 15,000'

POWER SYSTEM:
Three (3) Caterpillar D-398 engines with Kato 800 KW AC generators, and
Ross Hill SCR model 1650, three (3) bays to power pumps, drawworks and lighting plus hotel load

DRAWWORKS:
National 80-UE with Elmagco 6032 brake driven by two (2) 1,000 HP GE 752 DC traction motors

MAST:
Pyramid 136' x 21' base, and 800,000# static hook load

DRILL LINE:
1-1/4" EIPS

SUBSTRUCTURE:
Pyramid box on box 21' high, 600,000# rotary capacity with 350,000# set back capacity, 16.67' clear height from rotary beam to ground level

MUD PUMPS:
Two (2) National 9-P-100 triplex pump rated at 1,000 HP, each driven by one (1) 1,000 HP GE 752 DC traction motor

ROTARY:
National C-275, 27-1/2"

CROWN BLOCK:
Pyramid with six (6) sheaves

TRAVELING BLOCK AND HOOK:
National 545-G-350 ton block with BJ hook

SWIVEL:
Oilwell PC-425, 425 ton

DRILL PIPE:
4-1/2" OD

DRILL COLLARS:
As Required

KELLY:
5-1/4" Hex x 41'

ANNULAR PREVENTERS:
Shaffer 13-5/8" x 5,000 psi WP

RAM PREVENTERS:
Cameron Type U, double ram, 13-5/8" x 10,000 psi WP, H2S trim

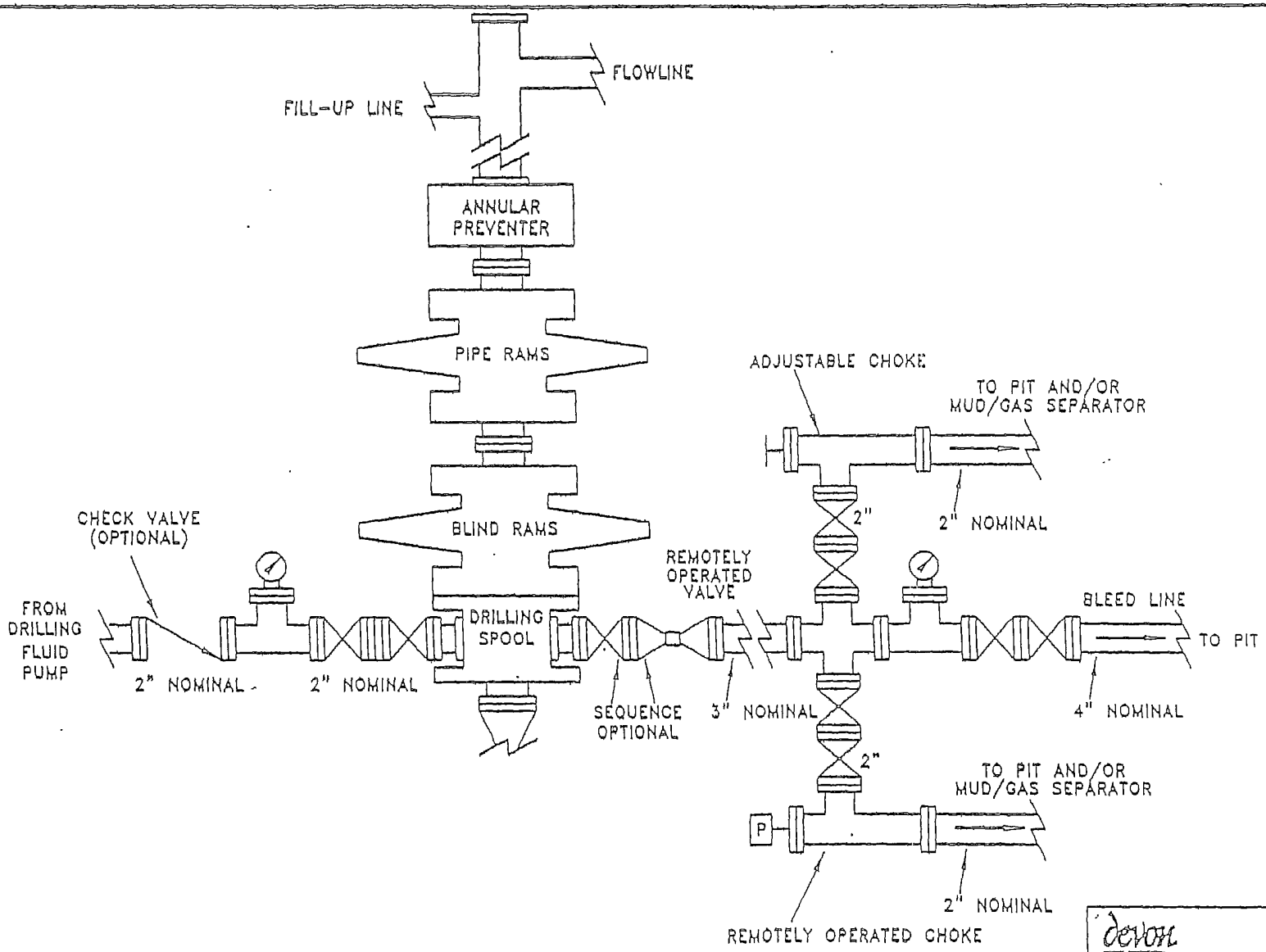
CHOKE MANIFOLD:
Cameron 4-1/16" x 3-1/16" 10,000 psi WP dual choke

ACCUMULATOR SYSTEM:
Koomey six (6) station Model T-20, 180 gal capacity with dual air pumps and one (1) electric pump

MUD TANK SYSTEM:
Two (2) tank 1124 BBL total
Two (2) Derrick Flow Line cleaner
Demco three (3) cone desander
Brandt, sixteen (16) cone desilter
Swaco vacuum degasser

MUD MIXING PUMPS:
Two (2) 6" x 8" centrifugal pumps each driven by a 75 HP electric motor

AUXILIARY EQUIPMENT:
Toolpusher and crew quarters
Two (2) 500 BBL water tank
One (1) 9,000 gal. fuel tank
Automatic driller
Two (2) air hoists
Kelly spinner
Pipe spinner
Electronic drilling recorder
0 - 7 degree drift indicator (standard only)



devon

EXHIBIT 1

PROPOSED 5-M BOPE AND CHOKE ARRANGEMENT

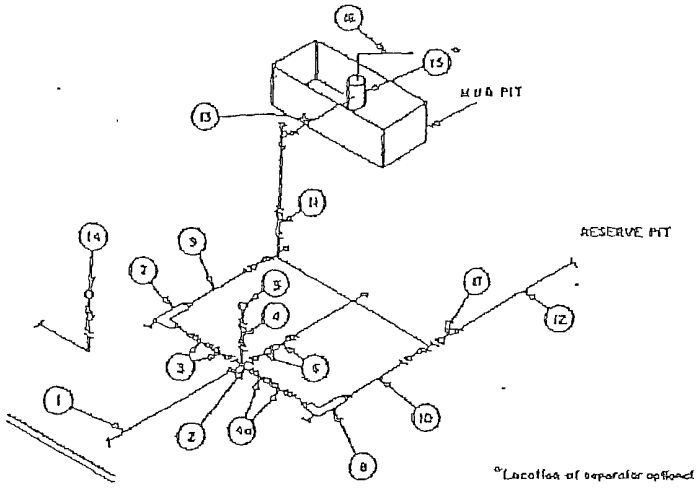
s:\..\nm\plots
5mbope.dwg

sc

Exhibit E

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

3 MWP - 5 MWP - 10 MWP



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

(1) Only one required in Class 3M.

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

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

EQUIPMENT SPECIFICATIONS AND INSTALLATION INSTRUCTIONS

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

Attachment to Exhibit #1
NOTES REGARDING BLOWOUT PREVENTERS
Devon Energy Production Company, LP
Cowpens 28 Fed Com 1
Surface Location: 1650' FSL & 1650' FEL, Unit J, Sec 28 T19S R31E, Eddy, NM
Bottom hole Location: 1650' FSL & 1650' FEL, Unit J, Sec 28 T19S R31E, Eddy, NM

1. Drilling nipple will be constructed so it can be removed mechanically without the aid of a welder. The minimum internal diameter will equal BOP bore.

2. Wear ring will be properly installed in head.

3. Blowout preventer and all associated fittings will be in operable condition to withstand a minimum 5000 psi working pressure.

4. All fittings will be flanged.

5. A full bore safety valve tested to a minimum 5000 psi WP with proper thread connections will be available on the rotary rig floor at all times.

6. All choke lines will be anchored to prevent movement.

7. All BOP equipment will be equal to or larger in bore than the internal diameter of the last casing string.

8. Will maintain a kelly cock attached to the kelly.

9. Hand wheels and wrenches will be properly installed and tested for safe operation.

10. Hydraulic floor control for blowout preventer will be located as near in proximity to driller's controls as possible.

11. All BOP equipment will meet API standards and include a minimum 40 gallon accumulator having two independent means of power to initiate closing operation.

HYDROGEN SULFIDE DRILLING OPERATIONS PLAN

1. All Company and Contract personnel admitted on location must be trained by a qualified H2S safety instructor to the following:
   a. Characteristics of H2S
   b. Physical effects and hazards
   c. Proper use of safety equipment and life support systems.
   d. Principle and operation of H2S detectors, warning system and briefing areas
   e. Evacuation procedures, routes and first aid.
   f. Proper use of 30-minute pressure demand air pack.

2. H2S Detection and Alarm System
   a. H2S detectors and audio alarm system to be located at bell nipple, end of blooie line (mud pit) and on derrick floor or doghouse.

3. Windsock and/or wind streamers
   a. Windsock at mud pit area should be high enough to be visible
   b. Windsock at briefing area should be high enough to be visible
   c. There should be a windsock at entrance to location

4. Condition Flags and Signs
   a. Warning Sign on access road to location
   b. Flags to be displayed on sign at entrance to location. Green flag, normal safe condition. Yellow flag indicates potential pressure and danger. Red flag, danger, H2S present in dangerous concentration. Only emergency personnel admitted to location.

5. Well Control Equipment
   a. See Exhibit "E" & "E-1"

6. Communication
   a. While working under masks chalkboards will be used for communication.
   b. Hand signals will be used where chalk board is inappropriate
   c. Two way radio will be used to communicate off location in case of emergency help is required. In most cases cellular telephones will be available at most drilling foreman's trailer or living quarters.

7. Drill stem Testing
   a. Exhausts will be watered
   b. Flare line will be equipped with an electric igniter or a propane pilot light in case gas reaches the surface.
   c. If the location is near to a dwelling a closed DST will be performed.

8. Drilling contractor supervisor will be required to be familiar with the effects H2S has on tubular goods and other mechanical equipment.
   If H2S is encountered, mud system will be altered if necessary to maintain control or formation. A mud gas separator will be brought into service along with H2S scavengers if necessary.

Emergency Procedures

In the case 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. Additionally the first responder(s) must evacuate any public places encompassed by the 100 ppm ROE. First responder(s) must take care not to injure themselves during this operation. Company and/or local officials must be contacted to aid in this operation. Evacuation of the public should be beyond the 100 ppm ROE.

All responders must have training in the detection of H_2S, measures for protection against the gas, equipment used for protection and emergency response. Additionally, responders must be equipped with H_2S monitors and air packs in order to control the release. Use the "buddy system' to ensure no injuries during the 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 – BJ Cathey	390-5893	748-0176	887-6026
Asst. Foreman – Bobby Jones	748-7447	748-0176	746-3194
Don Mayberry	748-7180	748-5235	746-4945
Montral Walker	(575) 390-5182	(575) 748-0193	
Linda Berryman	(575) 513-0534	(575) 748-0177	

Agency Call List

Lea County (505) — 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 (505) — 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)	(575) 476-9600
24 HR	(575) 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
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

Give GPS position:

SURFACE USE PLAN
Devon Energy Production Company, LP
Cowpens 28 Fed Com 1
Surface Location: 1650' FSL & 1650' FEL, Unit J, Sec 28 T19S R31E, Eddy, NM
Bottom hole Location: 1650' FSL & 1650' FEL, Unit J, Sec 28 T19S R31E, Eddy, NM

1. **Existing Roads:**
   a. The well site and elevation plat for the proposed well are reflected on the well site layout; Form C-102. The well was staked by Basin Surveys.
   b. All roads into the location are depicted on Exhibit 3.
   c. Directions to Location: From the intersection of Co. Rd #222 (Shugart Rd) and Co. Rd # 248 (Lusk Plant Rd), go south-southwest on Shugart Rd approximately 2.5 miles to a Lynx Petroleum pipeline and proposed road survey. Follow road survey southwest approximately 0.2 miles to this location.

2. **New or Reconstructed Access Roads:**
   a. The well site layout, Form C-102 shows the existing County Road. Approximately 1052' 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 1%.
   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 Cowpens 28 Federal Com 1 tank battery would be utilized 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. The reserve pit will be back-filled after the contents of the pit are dry (within 120 days after completion, weather permitting).
      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 the reserve pits.
   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 allowed to evaporate in the reserve pits until the pits are dry enough to be broken out for further drying. If the drilling fluids do not evaporate in a reasonable time they will be hauled off by transports to a state approved disposal site. Later pits will be broken out to speed dry. Water produced during completion will be put in reserve pits. 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 reserve and sump pits and living facilities.
   c. Mud pits in the active circulating system will be steel pits & the reserve pit will be lined.
   d. If needed, the reserve pit is to be lined with polyethylene. The pit liner will be 6 mils thick. Pit liner will extend a minimum 2'00" over the reserve pits dikes where the liner will be anchored down.
   e. The reserve pit will be fenced on three sides with four strands of barbed wire during drilling and completion phases. The fourth side will be fenced after all drilling operations have ceased to preclude endangering wildlife.

f. If a pit or closed loop system is utilized Devon will comply with the NMOCD requirements 19.15.17 and submit form C-144 to the appropriate NMOCD District Office. Copy to be provided to the BLM; processing and approval by the OCD.

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 reserve pit area will be broken out and leveled after drying to a condition where these efforts are feasible. The original top soil will again be returned to the pad and contoured, as close as possible, to the original topography. Will close the pits per OCD compliance regulations.
b. The pit lining will be buried or hauled away in order to return the location and road to their pristine nature. All pits will be filled and location leveled, weather permitting, within 120 days after abandonment.
c. The location and road will be rehabilitated as recommended by the BLM.
d. If the well is a producer, the reserve pit fence will be torn down after the pit contents have dried. The reserve pit and those areas of the location not essential to production facilities will be reclaimed and seeded per BLM requirements.
e. If the well is deemed commercially productive, the reserve pit will be restored as described in 10(A) within 120 days subsequent to the completion date. 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

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:

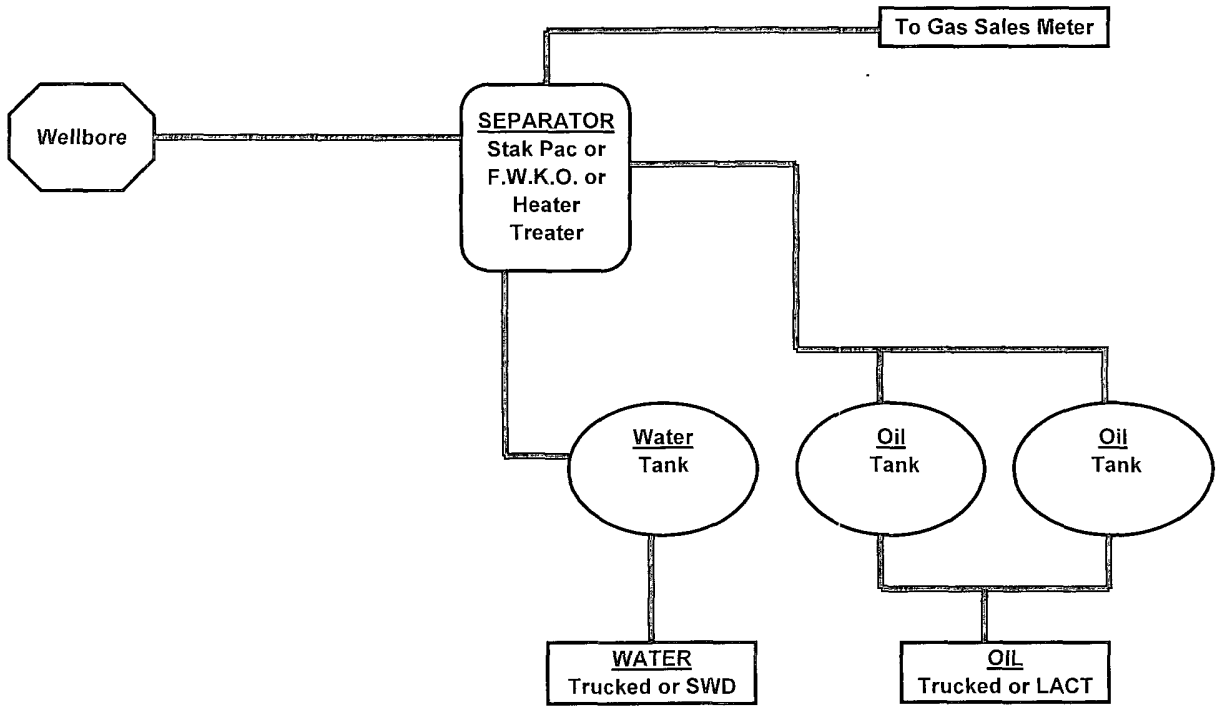
a. The area surrounding the well site is grassland. The topsoil is very sandy in nature. The vegetation is moderately sparse with native prairie grass, sagebush, yucca and miscellanous weeds. No wildlife was observed but it is likely that deer, rabbits, coyotes, and rodents traverse the area.
b. There 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

DEVON ENERGY PRODUCTION COMPANY LP

General Production Facilities Diagram



Operators Representative:

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

Marcos Ortiz
Operations Engineer Advisor

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

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

Don Mayberry
Superintendent

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

(575) 748-0164 (office)
(575) 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 25th day of June, 2008.
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):

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Devon Energy Production
LEASE NO.:	NM-101113
WELL NAME & NO.:	1-Cowpens 28 Fed Com
SURFACE HOLE FOOTAGE:	1650' FSL & 1650' FEL
BOTTOM HOLE FOOTAGE	' F L & ' F L
LOCATION:	Section 28, T. 19 S., R 31 E., NMPM
COUNTY:	Eddy County, New Mexico

TABLE OF CONTENTS

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

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)

Mitigation Measures: The mitigation measures include the Pecos District Conditions of Approval, the standard stipulations for the Lesser Prairie Chicken, the standard stipulation for permanent resource roads. The well location will have the standard stipulations for the Hackberry Lake OHV area being that it is located within the SMA area.

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

Hack Berry Lake – OHV Area
Surface Mitigation
The following mitigation will apply to minimize impacts during all phases of pipeline construction.
1. Devon Energy Production Company, LP will post signs at trail and pipeline intersects locations to warn OHV users in the area of pipeline construction.
2. At no time will ditches remain open unless temporary barricade fence is installed to protect OHV users in the area.
3. All pipelines associated with this project will be buried at minimum stipulations specifications when crossing or paralleling trails.
4. Upon completion of pipeline construction, the company will replace the affected trail portions to the quality they were before the project's start.

Cowpens Fed. Com. # 1: Closed Loop System V-Door northeast paralleling pad with buried pipeline.

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 (505) 234-5972 at least 3 working days prior to commencing construction of the access road and/or well pad.

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

B. TOPSOIL

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

C. Closed Loop System

Cowpens Fed. Com. # 1: Closed Loop System V-Door northeast paralleling pad with buried pipeline.

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 (505) 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.

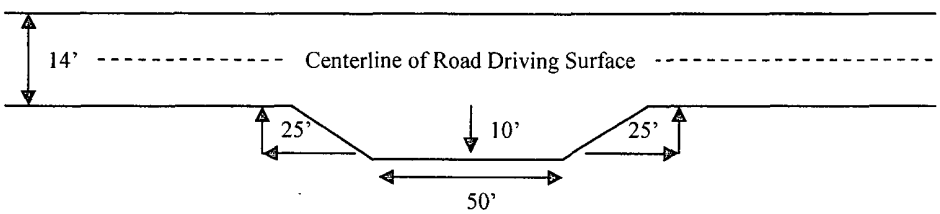
The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing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

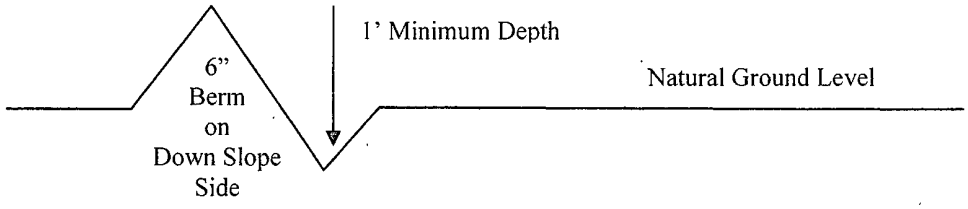
Standard Turnout – Plan View



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.

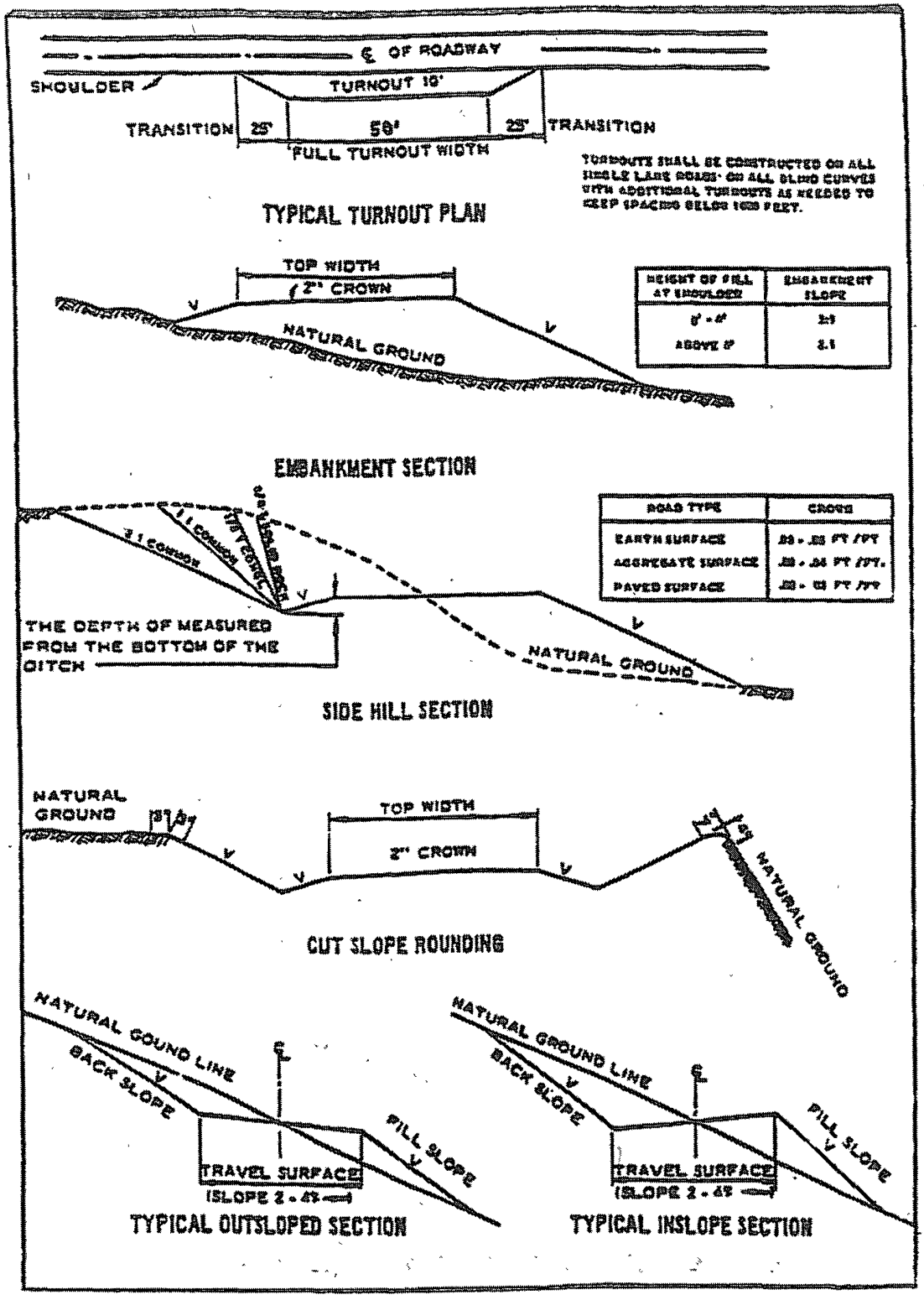
A gate shall be constructed and fastened securely to H-braces.

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 Hydrogen Sulfide has not been reported in this section, it is always a possible hazard. It has been reported in Section 21. If Hydrogen Sulfide is encountered, please report measured amounts 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 – Contingency casing program included

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.

Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Lead slurry does not have to reach 500 pounds, but information still required to show compressive strength within 18-24 hours depending on water basin or potash. WOC for water basin or potash applies to entire wellbore.

No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.

Possible lost circulation in the Artesia Group and the Capitan Reef.
Possible high pressure gas bursts in the Wolfcamp formation.
Pennsylvanian section may be over pressured.

1. The **13-3/8** inch surface casing shall be set **at approximately 720 feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt)** and cemented to the surface. **If the salt is encountered shallower than this depth, the casing is to be set 25' above the salt. Fresh water 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 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 will be a minimum 18 hours for a water basin, 24 hours in the potash area, or 500 pounds compressive strength, whichever is greater.

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

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

If circulation is lost while drilling the Capitan Reef, the mud will be switched to a fresh water mud and used until the intermediate casing is set.

2. The minimum required fill of cement behind the **9-5/8** inch intermediate casing is: **The intermediate casing is to be set in the base of the Capitan Reef.**

    a. First stage to DV tool, cement shall:

    ☒ Cement to circulate. If cement does not circulate, contact the appropriate BLM office, before proceeding with second stage cement job.

    b. Second stage above DV tool, cement shall:

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

Formation below the 9-5/8" shoe to be tested according to Onshore Order 2.III.B.1.i.

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

   a. First stage to DV tool, cement shall:

   ☒ Cement to circulate. If cement does not circulate, contact the appropriate BLM office, before proceeding with second stage cement job.

   b. Second stage above DV tool, cement shall:

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

Contingency Casing Program

4. The minimum required fill of cement behind the **7** inch intermediate casing is:

   a. First stage to DV tool, cement shall:

   ☒ Cement to circulate. If cement does not circulate, contact the appropriate BLM office, before proceeding with second stage cement job.

   b. Second stage above DV tool, cement shall:

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

Formation below the 7" shoe to be tested according to Onshore Order 2.III.B.1.i.

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

   ☒ Cement to come to top of liner. If cement does not circulate, contact the appropriate BLM office.

6. 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. 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. A variance to test the surface casing and BOP/BOPE **(entire system)** to the reduced pressure of **1000** psi with the rig pumps is approved.

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.

WWI 081308

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

C. ELECTRIC LINES

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 2, for Sandy Sites

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

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

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

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

*Pounds of pure live seed:

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

(Insert Seed Mixture Here)

X. FINAL ABANDONMENT & REHABILITATION REQUIREMENTS

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

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