

AUG 15 2008
OCD-ARTESIA
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTFORM APPROVED
OMB No. 1004-0137
Expires March 31, 2007

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. NM-118107
1b. Type of Well: <input type="checkbox"/> Oil Well <input checked="" type="checkbox"/> Gas Well <input type="checkbox"/> Other <input checked="" type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		6. If Indian, Allottee or Tribe Name -----
2. Name of Operator CAZA OPERATING, LLC. 249099 (RICHARD WRIGHT 432-682-7424)		7. If Unit or CA Agreement, Name and No. -----
3a. Address 200 NORTH LARAIN SUITE 1500 MIDLAND, TEXAS 79701		8. Lease Name and Well No. 37334 CASTENEDA "33" FEDERAL COM. #1
3b. Phone No. (include area code) 432-556-7595		9. API Well No. 30-015-36556
4. Location of Well (Report location clearly and in accordance with any State requirements.) At surface 1980' FNL & 1980' FWL SECTION 33 T21S-R25E EDDY CO. At proposed prod. zone SAME		10. Field and Pool, or Exploratory Cut Clay Draw - Morrow
14. Distance in miles and direction from nearest town or post office* Approximately 10 miles Northwest of Carlsbad, New Mexico		11. Sec, T, R, M. or Blk. and Survey or Area SECTION 33 T21S-R25E
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)	16. No. of acres in lease 1280	12. County or Parish EDDY CO.
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.	19. Proposed Depth 12,350' 10900' per operator 6/21/08 WWT	13. State NM
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3518' GL	22. Approximate date work will start* WHEN APPROVED	23. Estimated duration 50 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. | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). |
| 2. A Drilling Plan. | 5. Operator certification |
| 3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO shall be filed with the appropriate Forest Service Office). | 6. Such other site specific information and/or plans as may be required by the authorized officer. |

25. Signature <i>Joe T. Janica</i>	Name (Printed/Typed) Joe T. Janica	Date 04/18/08
Title Permit Engineer		
Approved by (Signature) <i>/s/ James Stovall</i>	Name (Printed/Typed) <i>/s/ James Stovall</i>	Date AUG 13 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:

NOTE: NEW PIT RULE
19-15-17 NMAC PART 17

APPROVAL FOR TWO YEARS

Title 18 U.S.C. Section 1001 and Title States any false, fictitious or fraudulent

A form C-144 must be approved before starting drilling operations.

ingly and willfully to make to any department or agency of the United jurisdiction.

*(Instructions on page 2)

CARLSBAD CONTROLLED WATER BASIN

SEE ATTACHED FOR
CONDITIONS OF APPROVALAPPROVAL SUBJECT TO
GENERAL REQUIREMENTS
AND SPECIAL STIPULATIONS
ATTACHED

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTFORM APPROVED
OMB No. 1004-0137
Expires: March 31, 2007

OCD-ARTESIA

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 reverse side.

1. Type of Well
☐ Oil Well ☒ Gas Well ☐ Other

AUG 15 2008

2. Name of Operator CAZA OPERATING, LLC.

OCD-ARTESIA

3a. Address 200 NORTH LORAIN SUITE 1550
MIDLAND, TEXAS 797013b. Phone No. (include area code)
432-682-7424

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

1980' FNL & 1980' FWL SECTION 33 T21S-R25E EDDY CO.

License No.

NM-118107

6. If Indian, Allottee or Tribe Name

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

8. Well Name and No.

CASTENEDA "33" FEDERAL COM. # 1

9. API Well No.

30015 36556

10. Field and Pool, or Exploratory Area
CATCLAW DRAW-MORROW

11. County or Parish, State

EDDY CO. NEW MEXICO

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

TYPE OF SUBMISSION	TYPE OF ACTION			
<input checked="" type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production (Start/Resume)	<input type="checkbox"/> Water Shut-Off
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing	<input type="checkbox"/> Fracture Treat	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> New Construction	<input type="checkbox"/> Recomplete	<input type="checkbox"/> Other
	<input checked="" type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon	
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> 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 recompleat 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 shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

1. CAZA OPERATING, LLC. requests the approval to change the access road into their location for the CASTENEDA "33" FEDERAL COM. # 1 back to the original access road.
2. See attached topographic map showing proposed route of road. This also has a survey plat showing the road across private land ownership in the N/2 of NE/4 in section 33 on which an agreement has been made with the surface owner.

14 I hereby certify that the foregoing is true and correct

Name (Printed/Typed)

Joe T. Janica

Title Permit Eng.

Signature

Date 08/01/08

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by

/s/ James Stovall

FIELD MANAGER

Date

AUG 13 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

CARLSBAD FIELD 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)

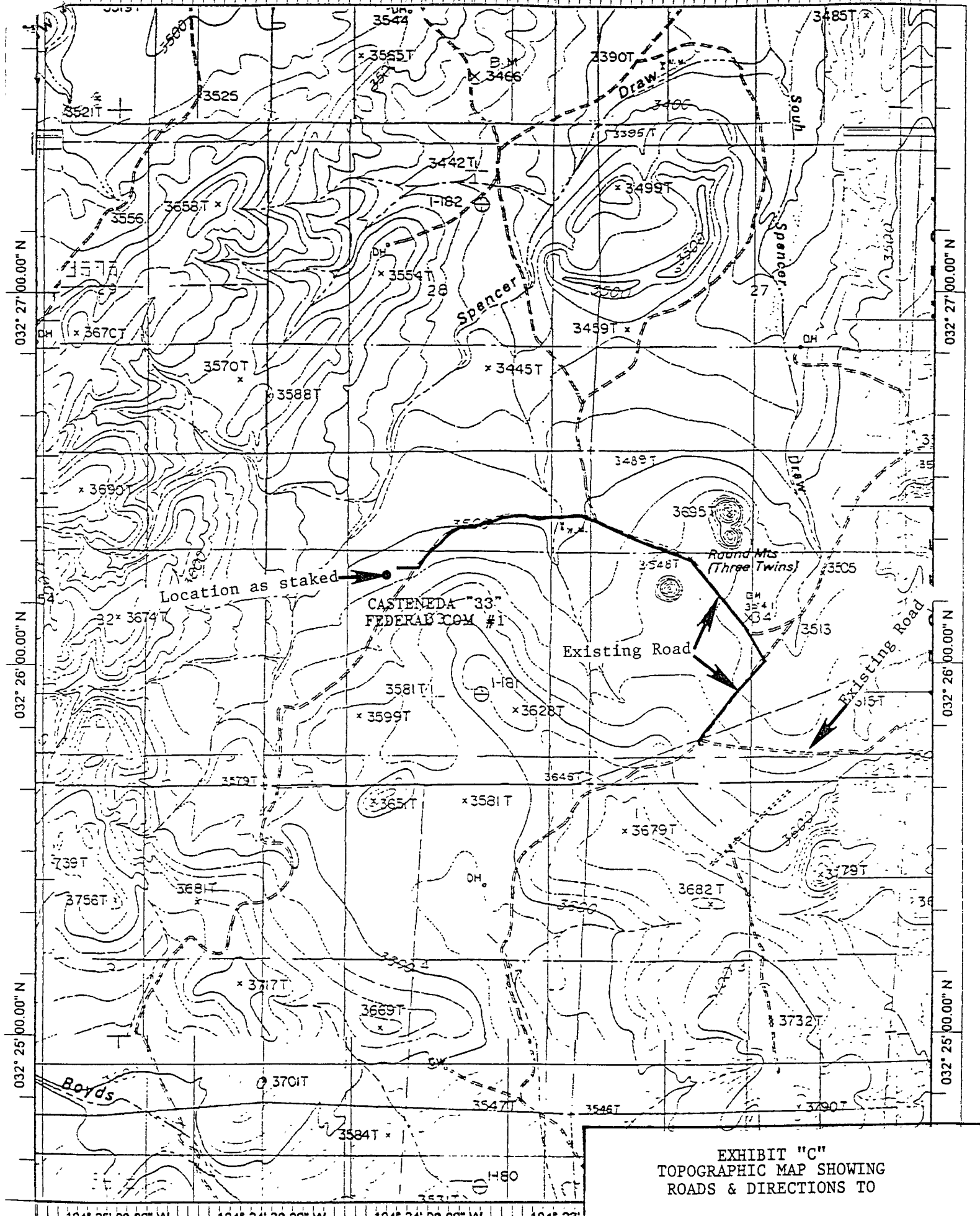


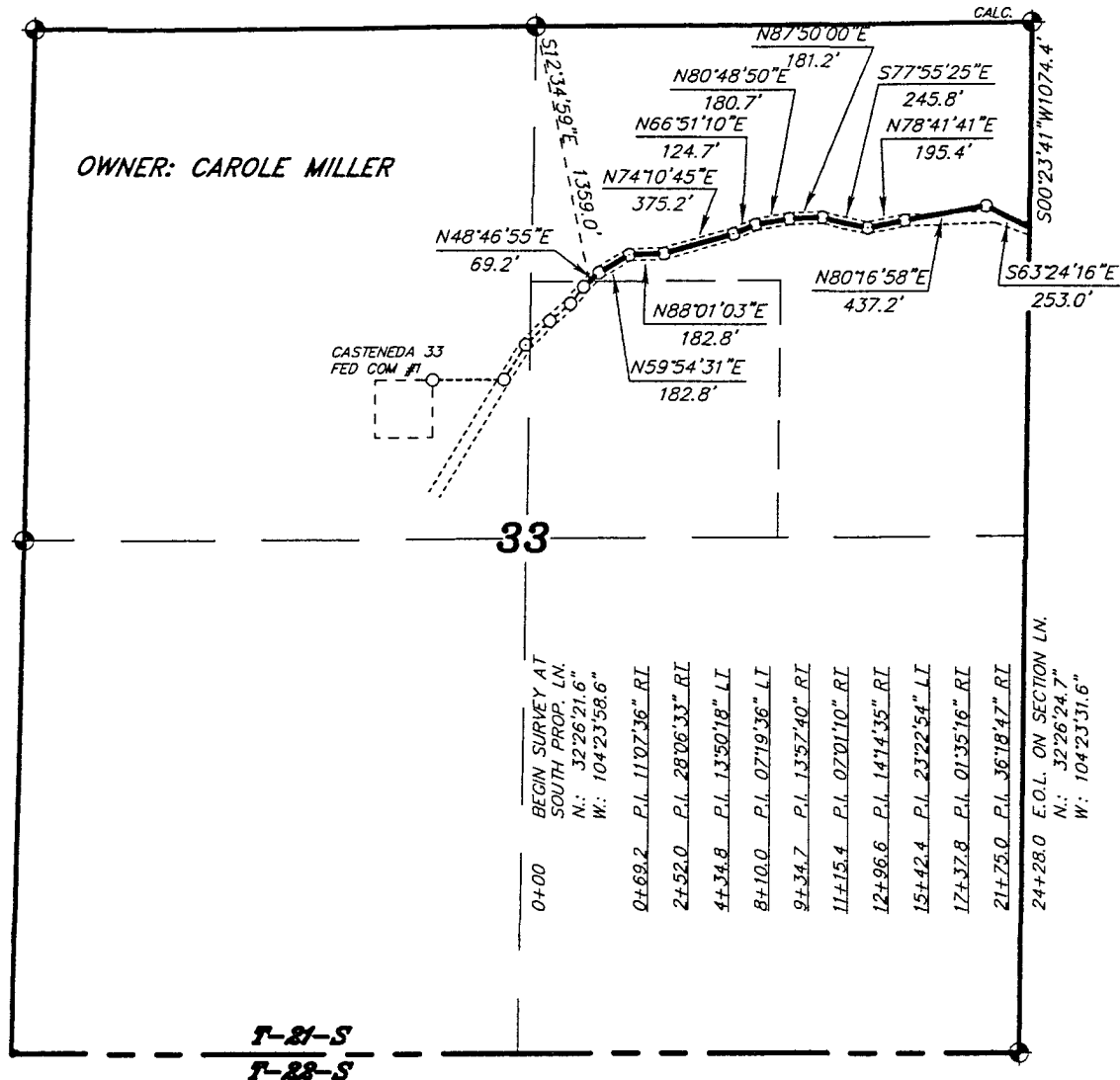
EXHIBIT "C"
TOPOGRAPHIC MAP SHOWING
ROADS & DIRECTIONS TO

CAZA OPERATING, LLC.
CASTENEDA "33" FEDERAL COM. #1
UNIT "F" SECTION 33
T21S-R25E EDDY CO. NM

Datum: NAD27

Copyright (C) 1999, Maptech, Inc.

SECTION 33, TOWNSHIP 21 SOUTH, RANGE 25 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO.



A STRIP OF LAND 20.0 FEET WIDE, LOCATED IN SECTION 33, TOWNSHIP 21 SOUTH, RANGE 25 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO AND BEING 10.0 FEET LEFT AND RIGHT OF THE FOLLOWING DESCRIBED CENTERLINE SURVEY. BEGINNING AT A POINT ON THE SOUTH PROPERTY LINE WHICH LIES S.12°34'59"E., 1359.0 FEET FROM THE NORTH QUARTER CORNER OF SAID SECTION 33, THENCE N.48°46'55"E., 69.2 FEET; THENCE N.59°54'31"E., 182.8 FEET; THENCE N.88°01'03"E., 182.8 FEET; THENCE N.74°10'45"E., 375.2 FEET; THENCE N.66°51'10"E., 124.7 FEET; THENCE N.80°48'50"E., 180.7 FEET; THENCE N.87°50'00"E., 181.2 FEET; THENCE S.77°55'25"E., 245.8 FEET; THENCE N.78°41'41"E., 194.4 FEET; THENCE N.80°16'58"E., 437.2 FEET; THENCE S.63°24'16"E., 253.0 FEET TO A POINT ON THE EAST SECTION LINE WHICH LIES S.00°23'41"W., 1074.4 FEET FROM THE NORTHEAST CORNER OF SAID SECTION 33. SAID STRIP OF LAND BEING 2428.0 FEET OR 147.15 RODS IN LENGTH.

I HEREBY CERTIFY THAT THIS PLAT WAS PREPARED FROM FIELD NOTES OF AN ACTUAL SURVEY AND MEETS OR EXCEEDS ALL REQUIREMENTS FOR LAND SURVEYS AS SPECIFIED BY THIS STATE.

GARY L. JONES N.M. P.S. No. 7977
TEXAS P.S. No. 5074

Basin Surveys P.O. BOX 1786 - HOBBS, NEW MEXICO

W.O. Number: 20115 Drawn By: J. M. SMALL

Date: 07-29-2008 Disk: JMS 20115

1000 0 1000 2000 FEET

CAZA PETROLEUM CORP.

REF: PROPOSED LEASE ROAD TO THE CASTENEDA 33 FEDERAL COM #1

A LEASE ROAD CROSSING FEE LAND IN
SECTIONS 33, TOWNSHIP 21 SOUTH, RANGE 25 EAST,
N.M.P.M., EDDY COUNTY, NEW MEXICO.

Survey Date: 07-28-2008 Sheet 1 of 1 Sheets

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 DepartmentForm C-102
Revised October 12, 2005Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 CopiesOIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, New Mexico 87505☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code 74320	Pool Name CATCLAW DRAW-MORROW
Property Code	Property Name CASTENEDA "33" FEDERAL COM	Well Number 1
GRID No. 249099	Operator Name CAZA PETROLEUM CORP.	Elevation 3518'

Surface Location

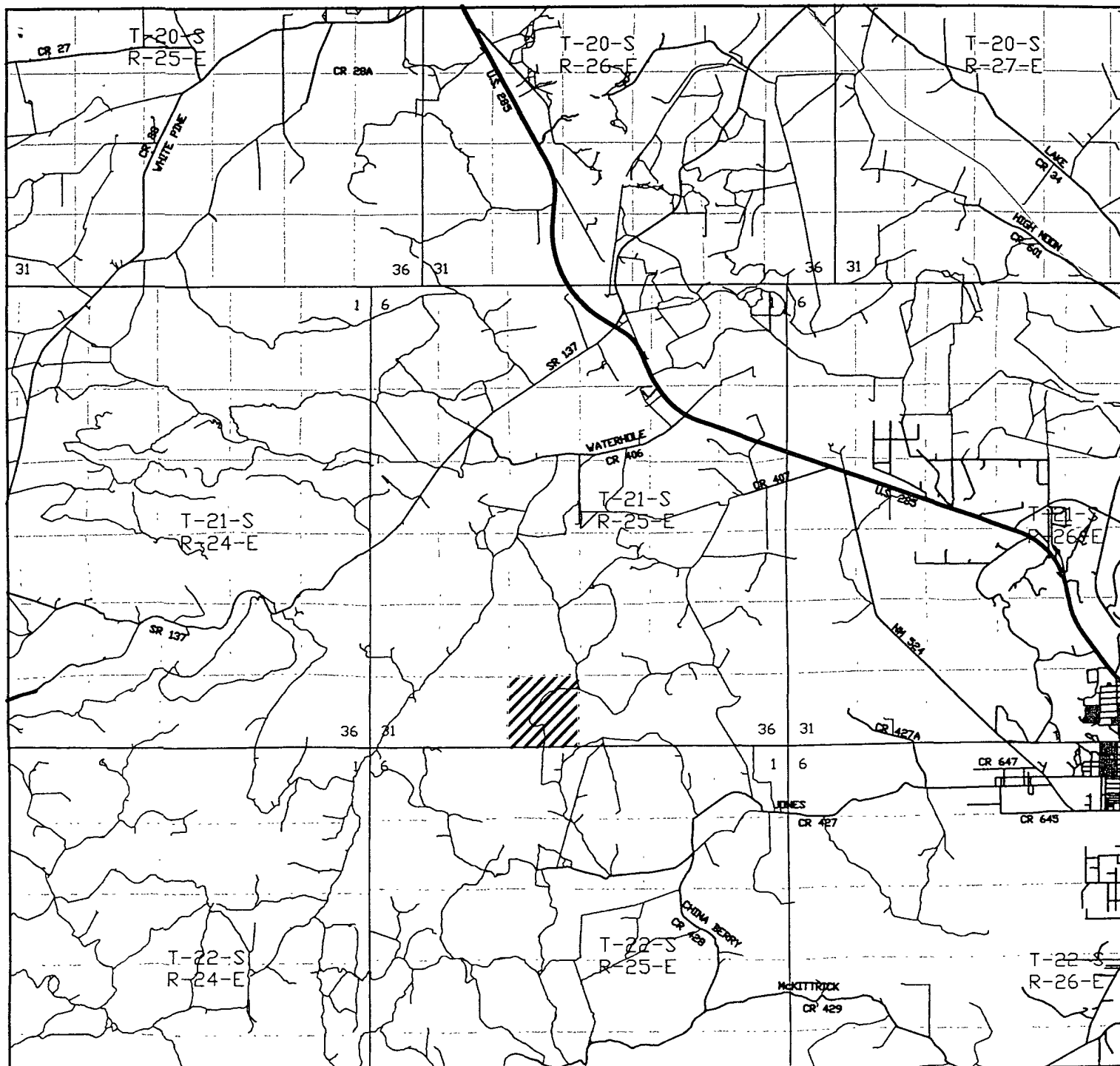
UL or lot No. F	Section 33	Township 21 S	Range 25 E	Lot Idn	Feet from the 1980	North/South line NORTH	Feet from the 1980	East/West line WEST	County EDDY
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Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
Dedicated Acres 640	Joint or Infill	Consolidation Code	Order No.						

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

	<p>OPERATOR CERTIFICATION</p> <p>I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.</p> <p><i>Joe T. Janica</i> Signature _____ Date 04/18/08 Joe T. Janica Printed Name</p>	
	<p>SURVEYOR CERTIFICATION</p> <p>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.</p> <p>JANUARY 10, 2008 Date Surveyed _____ Signature & Seal of Professional Surveyor _____ W.O. No. 19016 Certificate No. Gary L. Jones 7977 BASIN SURVEYS</p>	
	<p>NM-118107</p>	
	<p>EXHIBIT "A"</p>	



CASTENEDA "33" FEDERAL COM #1
 Located 1980' FNL and 1980' FWL
 Section 33, Township 21 South, Range 25 East,
 N.M.P.M., Eddy County, New Mexico.

basin
surveys
 focused on excellence
 in the oilfield.

P.O. Box 1786
 1120 N. West County Rd.
 Hobbs, New Mexico 88241
 (505) 393-7316 - Office
 (505) 392-3074 - Fax
 basinsurveys.com

W.O. Number: JMS 19016TR

Survey Date: 01-10-2008

Scale: 1" = 2 MILES

Date: 01-15-2008

CAZA
 PETROLEUM
 CORP.

1. Casteneda 33 Fed Com # 1

1980 FNL & 1980' FWL, SEC 33, T21S, R25E, EDDY COUNTY, NEW MEXICO.
TD ~~12,350~~ ft. "MORROW". 320 ACRE N1/2 LAY DOWN PRORATION UNIT
GAS WELL. 10900'

SURFACE CASING:

17 1/2" HOLE DRILLED W/ FRESH WATER. SET 13 3/8" 48 # H-40 CASING @ 350 ft. CMT'D W/ 250 SKS CAZA SLURRY # 1. FOLLOWED BY 200 SKS CAZA SLURRY # 2. CMT CIRCULATED TO SURFACE. HYDRAULIC DIAMETER OF ANNULUS .695 CU FT PER FT. VOLUME FIGURED @ 200% WASHOUT OR 3 TIMES HYDRAULIC DIAMETER OF ANNULUS.

INTERMEDIATE CASING:

NIPPLE UP 5K BOP EQUIPMENT. TEST SAME WITH RIG PUMP TO 3K SPECS. START R/U GAS EQUIPMENT WHILE DRILLING INTERMEDIATE HOLE. MONITOR H2S FOR SAFETY. H2S PLAN NOT REQUIRED EXCEPT FOR PRUDENT OPERATION. DRILL 11" HOLE WITH CUT BRINE WATER & SWEEPS TO 1700 FT. RUN FLUID CALIPER. SET 8 5/8" 32# J-55 & N-80 CASING @ ± 1700 FT. NO STAGE TOOL PLANNED. CEMENT 8 5/8" CASING AS PER VOLUME ADJUST AFTER RUNNING FLUID CALIPER. LEAD ± 300 SKS CAZA SLURRY # 3 FOLLOWED BY 200 SKS CAZA SLURRY # 4. CEMENT SHOULD BE CIRCULATED. TRUE HOLE HYDRAULIC VOLUME IS .254 CU FT PER FT. VOLUME FIGURED @ 100% WASH OUT OR 2 TIMES HYDRAULIC VOLUME OF ANNULUS. SLURRY LEAD ADJUSTED AFTER RUNNING FLUID CALIPER.

PRODUCTION CASING:

NIPPLE UP 5K BOP EQUIPMENT. TEST SAME WITH 3RD PARTY. 7 7/8" HOLE DRILLED TO ~~12,350~~ FT. MUD CONSIST OF FW TO 9.5 PPG CUT BRINE TO 9,700'. MUD UP @ 9,700 FT W/ DYNAZAN & STARCH WITH FLUID LOSS CONTROL OF 12-6 CC'S /30MIN AS NEEDED FOR SHALE CONTROL TO TD. WEIGHT ADJUSTED WITH BARITE ADDITION. CALCIUM CARBONATE COULD BE USED DEPENDING ON WEIGHT DESIRED. MAX WEIGHT ANTICIPATED 11 PPG. . SET 5 1/2" 17# P-110 CASING @ ~~10,750~~ ft. 10900' per cper. CMT 1ST STAGE W/ 1275 SKS CAZA SLURRY #5 ADJUSTED FOR BHT & FLUID LOSS. TOP OF SLURRY SHOULD BE ± 5000 FT. STAGE TOOL @ 5000 FT. 2ND STAGE 800 SKS SLURRY #7 ADJUSTED FOR BHT & FLUID LOSS. TOP OF SLURRY ± 1000' CALCULATED. HYDRAULIC DIAMETER OF TRUE HOLE ANNULUS = .173 CU FT PER FT. ADJUSTED FOR 50% WASHOUT OR 1.5 TIMES HYDRAULIC DIAMETER ON ALL CALCULATIONS. CEMENT VOLUMES WILL BE ADJUSTED AFTER REVIEWING LOG CALIPER.

APPLICATION TO DRILL

CAZA OPERATING, LLC.
 CASTENEDA "33" FEDERAL COM. #1
 UNIT "F" SECTION 33
 T21S-R25E EDDY CO. NM

In response to questions asked under Section II of Bulliten NTL-6, the following information on the above will be provided.

1. LOCATION: 1980' FNL & 1980' FWL SECTION 33 T21S-R25E EDDY CO. NEW MEXICO
2. ELEVATION ABOVE SEA LEVEL: 3518' GL.
3. GEOLOGICAL NAME OF SURFACE FORMATION: Quaternary Aeolian Deposits.
4. DRILLING TOOLS AND ASSOCIATED EQUIPMENT: Conventional rotary drilling rig using drilling mud as a circulating medium for solids removal from hole.
5. PROPOSED DRILLING DEPTH: 10,750'

6. ESTIMATED TOPS OF GEOLOGICAL FORMATIONS:

Bell Canyon	1700'	Atoka Clastics	9700'
Bone Spring	3700'	Middle Morrow	10,350'
Wolfcamp	8200'	Lower Morrow	10,600'
Strawn	9500'	Barnett Sh (TD)	10,750' 10,900'

7. POSSIBLE MINERAL BEARING FORMATIONS:

Wolfcamp	Gas	Atoka	Gas
Strawn	Gas	Morrow	Gas

8. CASING PROGRAM:

HOLE SIZE	INTERVAL	OD OF CASING	WEIGHT	THREAD	COLLAR	GRADE	
26"	0-40	20"	NA	NA	NA	Conductor	New
17½"	0-350'	13 3/8"	48#	8-R	ST&C	H-40	New
11"	0-1700'	8 5/8"	24#	8-R	ST&C	J-55	New
7 7/8"	0- 10,750' 10,900'	5½"	17#	8-R	LT&C	L-80 P-110	New

per cpester
6/3/88
[Signature]

APPLICATION TO DRILL

CAZA OPERATING, LLC.
 CASTENEDA "33" FEDERAL COM. #1
 UNIT "F" SECTION 33
 T21S-R25E EDDY CO. NM

9. CASING CEMENTING & SETTING DEPTHS:

20"	Conductor	Set 40' of 20" conductor pipe and cement to surface with Redi-mix.
13 3/8"	Surface	Set 350' of 13 3/8" 48# H-40 ST&C casing. Cement with 250 Sx. of 35/65 Class "C" POZ + 6% Gel, + 5# Salt/Sx. Yield 1.89, tail in with 200 Sx. of Class "C" cement + 2% CaCl, Yield 1.32 Circulate cement to surface.
8 5/8"	Intermediate	Set 1700' of 8 5/8" 24# J-55 ST&C casing. Cement with 300 Sx. of 35/65 Class "C" POZ + 6% Gel, + 5% Salt, Yield 2.09, tail in with 200 Sx. of Class "C" cement + 2% CaCl, Yield 1.32 circulate cement to surface.
5 1/2"	Production	Set ¹⁰⁹⁰⁰ 10,750' of 5 1/2" 17# LT&C casing as follows. 1650' of 5 1/2" 17# P-110 LT&C, ⁹¹⁰⁰ 9100' of 5 1/2" 17# L-80 LT&C casing. Cement in two stages with DV Tool at 5000'±. Cement 1st stage with 1275 Sx. of Class "H" cement + 1% FL-additives, + .3 % disp. + .15% SMS + .1% retarder, Yield 1.17, 2nd stage cement with 800 Sx. of 50/50 Class "H" POZ + .01% bentonite, + .6LAP-1, + 5# Gilsonite/Sx. + .3% CFR-3, + .25#/Sx. D-AIR-3000, + .125# Celo Flakes/Sx. + .25% econolite + .1% HR-7. Yield 1.3. Top of cement 1000' FS.

10. PRESSURE CONTROL EQUIPMENT: Exhibit "E" shows a 1500 Series 5000 PSI working pressure B.O.P. consisting of an annular bag type preventor, middle blind rams, and bottom pipe rams. The B.O.P. will be nipped up on the 13 3/8" casing and tested to API specifications. The B.O.P. will be operated at least once in each 24 hour period and the blind rams will be operated when the drill pipe is out of the hole on trips. Full opening stabbing valve and upper kelly cock will be utilized. Exhibit "E-1" shows a hydraulically operated closing unit and a 3" 5000 PSI working pressure choke manifold with dual adjustable chokes. No abnormal pressure or temperatures are expected while drilling this well.

11. PROPOSED MUD CIRCULATING SYSTEM:

DEPTH	MUD WT.	VISC.	FLUID LOSS	TYPE MUD SYSTEM
40-350'	8.4-8.7	29-34	NC	Fresh water Spud mud add paper to control seepage
350-1700'	8.4-8.6	29-36	NC	Fresh water add Gel and use paper to control seepage & clean hole.
1700-9700'	8.4-9.5	29-36	NC	Fresh water to cut Brine add paper to control seepage & high viscosity sweeps to clean hole.
9700- ¹⁰⁹⁰⁰ 10,750'	9.5-11.0	34-45	8-10 cc	Cut Brine add Dynanzen for viscosity, starch for fluid loss control and Barite for weight control if required.

per operator
6/2/08

Sufficient mud materials will be kept on location at all times in order to combat lost circulation, or unexpected kicks. In order to run DST's, open hole logs, and casing the viscosity and/or the water loss may have to be adjusted to meet these needs.

APPLICATION TO DRILL

CAZA OPERATING, LLC.
CASTENEDA "33" FEDERAL COM. #1
UNIT "F" SECTION 33
T21S-R25E EDDY CO. NM

12. LOGGING, COREING & TESTING PROGRAM:

- A. Open hole logs: Dual Laterolog, CNL, LDT, Gamma Ray, and Caliper from TD back back to 8 5/8" casing shoe.
- B. Gamma Ray Neutron from 8 5/8" casing shoe back to surface.
- C. Rig up mud logger on hole at 1500' and keep on the hole to TD.
- D. DST's may be run where shows occur (Wolfcamp, Cisco-Canyou, Atoka & Morrow)
- E. FMI in selected intervals in the Atoka-Morrow.

13. POTENTIAL HAZARDS:

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 6500 PSI, and Estimated BHT 195°.

14. ANTICIPATED STARTING DATE AND DURATION OF OPERATION:

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 operation and drilling is expected to take 55 days. If production casing is run then an additional 30 days will be needed to complete well and construct surface facilities and/or lay flowlines in order to place well on production.

15. OTHER FACETS OF OPERATIONS:

After running casing, cased hole Gamma Ray, Neutron Collar logs will be run from TD back to all possible productive zones. The Morrow formation will be perforated and stimulated in order to establish production. The well will be swab tested and potentialized as a gas well

Castaneda 33 Fed # 1

Well name:
 Operator: **Caza Operating LLC**
 String type: **Surface**
 Location: **Sec 33, T21S, R25E, New Mexico**

Design parameters:**Collapse**

Mud weight: **9.500 ppg**
 Design is based on evacuated pipe.

Minimum design factors:**Collapse:**

Design factor **1.125**

Burst:

Design factor **1.10**

Environment:

H₂S considered? **No**
 Surface temperature: **75 °F**
 Bottom hole temperature: **77 °F**
 Temperature gradient: **0.60 °F/100ft**
 Minimum section length: **350 ft**
 Minimum Drift: **2.250 in**
 Cement top: **Surface**

Burst

Max anticipated surface pressure: **227 psi**
 Internal gradient: **0.120 psi/ft**
 Calculated BHP: **269 psi**

No backup mud specified.

Tension:

8 Round BTC: **1.80 (J)**
 8 Round LTC: **1.80 (J)**
 Buttress: **1.80 (J)**
 Premium: **1.50 (J)**
 Body yield: **1.50 (B)**

Tension is based on buoyed weight.
 Neutral point: **301 ft**

Non-directional string.

Re subsequent strings:

Next setting depth: **1,700 ft**
 Next mud weight: **9.500 ppg**
 Next setting BHP: **839 psi**
 Fracture mud wt: **12.000 ppg**
 Fracture depth: **450 ft**
 Injection pressure: **281 psi**

Run Seq	Segment Length (ft)	Size (in)	Nominal Weight (lb/ft)	Grade	End Finish	True Vert Depth (ft)	Measured Depth (ft)	Drift Diameter (in)	Internal Capacity (ft ³)
1	350	13.375	48.00	H-40	BT&C	350	350	12.59	308.6
Run Seq	Collapse Load (psi)	Collapse Strength (psi)	Collapse Design Factor	Burst Load (psi)	Burst Strength (psi)	Burst Design Factor	Tension Load (Kips)	Tension Strength (Kips)	Tension Design Factor
1	173	740	4.284	269	1730	6.44	14	322	22.25 J

Prepared by: **Richard Wright**
 by: **Phillips**

Phone: **432 682 7424 Ext 6**
 FAX: **432 682 7425**

Date: **January 2, 2008**
 Midland, Texas

Remarks:

Collapse is based on a vertical depth of 350 ft, a mud weight of 9.5 ppg. The casing is considered to be evacuated for collapse purposes. Collapse strength is based on the Westcott, Dunlop & Karmar method of biaxial correction for tension.

Burst strength is not adjusted for tension.

Well name: Castaneda 33 Fed # 1	
Operator:	Caza Operating LLC
String type:	Intermediate
Location:	Sec 33, T21S, R35E, New Mexico

Design parameters:**Collapse**

Mud weight: 9.500 ppg
Design is based on evacuated pipe.

Minimum design factors:**Collapse:**

Design factor: 1.125

Environment:

H2S considered? No
Surface temperature: 75 °F
Bottom hole temperature: 85 °F
Temperature gradient: 0.60 °F/100ft
Minimum section length: 1,500 ft

Burst:

Design factor: 1.10

Cement top: Surface

Burst

Max anticipated surface pressure: 808 psi
Internal gradient: 0.120 psi/ft
Calculated BHP: 1,110 psi

No backup mud specified.

Tension:

8 Round BTC: 1.80 (J)
8 Round LTC: 1.80 (J)
Butress: 1.80 (J)
Premium: 1.50 (J)
Body yield: 1.50 (B)

Non-directional string.

Tension is based on buoyed weight.
Neutral point: 1,458 ft

Re subsequent strings:

Next setting depth: 10,750 ft
Next mud weight: 11.000 ppg
Next setting BHP: 8,143 psi
Fracture mud wt: 12.000 ppg
Fracture depth: 1,800 ft
Injection pressure: 1,122 psi

Run Seq	Segment Length (ft)	Size (in)	Nominal Weight (lb/ft)	Grade	End Finish	True Vert Depth (ft)	Measured Depth (ft)	Drift Diameter (in)	Internal Capacity (ft³)
1	1700	8.625	24.00	J-55	ST&C	1700	1700	7.972	807.9
Run Seq	Collapse Load (psi)	Collapse Strength (psi)	Collapse Design Factor	Burst Load (psi)	Burst Strength (psi)	Burst Design Factor	Tension Load (Kips)	Tension Strength (Kips)	Tension Design Factor
1	839	1370	1.633	1110	2950	2.66	35	244	6.97 J

Prepared by: Richard Wright
by: Philips

Phone: 432 882 7424 Ext 6
FAX: 432 882 7425

Date: January 2, 2008
Midland, Texas

Remarks:
Collapse is based on a vertical depth of 1700 ft, a mud weight of 9.5 ppg. The casing is considered to be evacuated for collapse purposes.
Collapse strength is based on the Westcott, Dunlop & Kemler method of lateral correction for tension.

Burst strength is not adjusted for tension.

Engineering responsibility for use of this design will be that of the purchaser.

Well name:	Castaneda 33 Fed # 1
Operator:	Caza Operating LLC
String type:	Production
Location:	Sec 33, T21S, R25E, New Mexico

Design parameters:**Collapse**

Mud weight: 11.000 ppq
Design is based on evacuated pipe.

Minimum design factors:**Collapse:**

Design factor 1.125

Environment:

H2S considered? No
Surface temperature: 75 °F
Bottom hole temperature: 140 °F
Temperature gradient: 0.80 °F/100ft
Minimum section length: 1,500 ft

Burst:

Design factor 1.10

Cement top: 700 ft

Burst

Max anticipated surface pressure: 4,853 psi
Internal gradient: 0.120 psi/ft
Calculated BHP: 6,143 psi

No backup mud specified.

Tension:

8 Round BTC: 1.80 (J)
8 Round LTC: 1.80 (J)
Buttress: 1.80 (J)
Premium: 1.50 (J)
Body yield: 1.60 (B)

Non-directional string.

Tension is based on buoyed weight.
Neutral point: 8,957 ft

Run Seq	Segment Length (ft)	Size (in)	Nominal Weight (lbf/ft)	Grade	End Finish	True Vert Depth (ft)	Measured Depth (ft)	Drift Diameter (in)	Internal Capacity (ft³)
2	9100	5.5	17.00	L-80	LT&C	9100	9100	4.767	1187.8
1	1650	5.5	17.00	P-110	LT&C	10750	10750	4.767	216.4
Run Seq	Collapse Load (psi)	Collapse Strength (psi)	Collapse Design Factor	Burst Load (psi)	Burst Strength (psi)	Burst Design Factor	Tension Load (Klps)	Tension Strength (Klps)	Tension Design Factor
2	5200	6290	1.210	6946	7740	1.30	162	338	2.22 J
1	6143	7480	1.218	6143	10640	1.73	-2	446	99.99 J

Prepared by: Richard Wright
by: Phillips

Phone: 432 682 7424 Ext 6
FAX: 432 682 7426

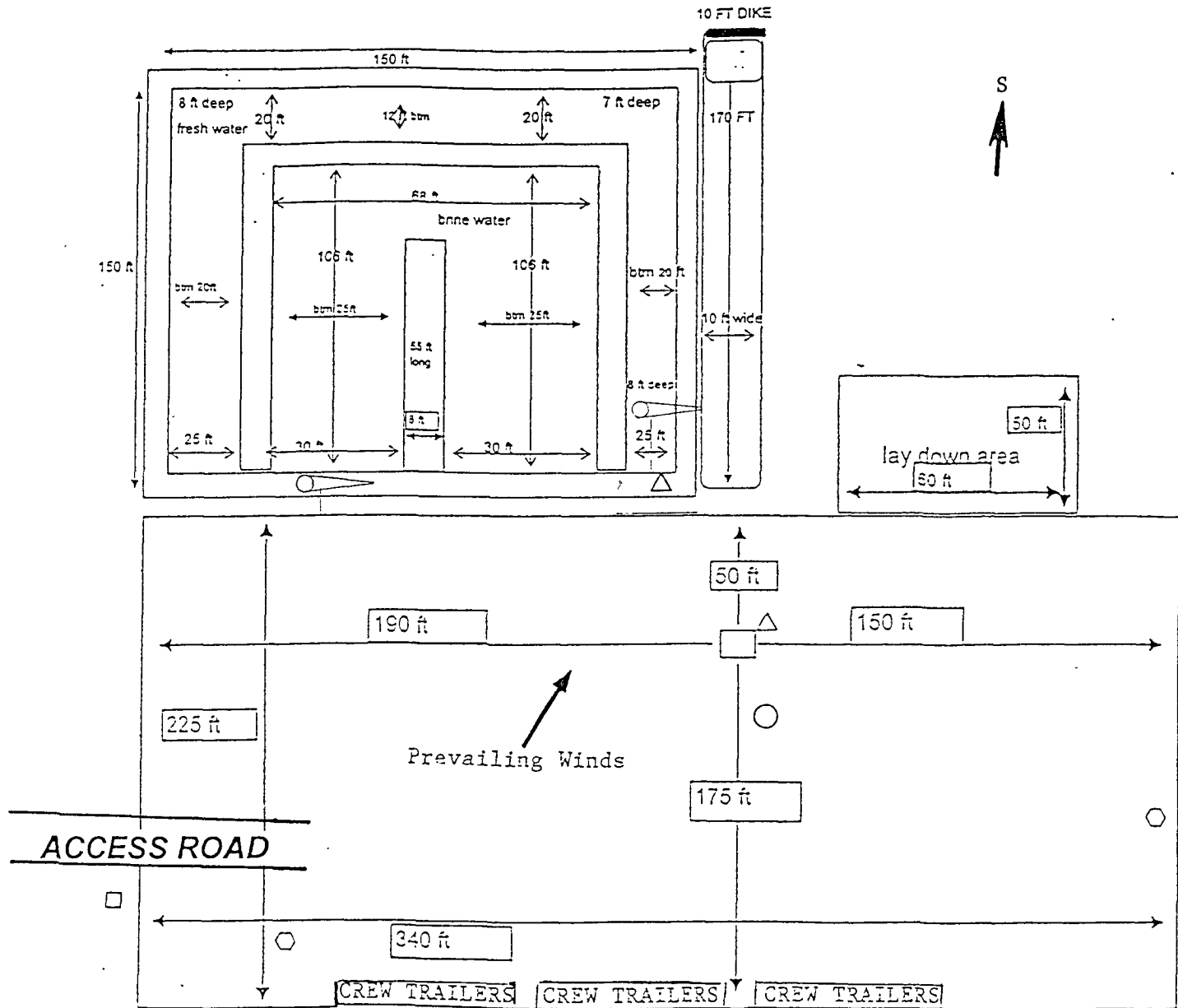
Date: January 2, 2008
Midland, Texas

Remarks:

Collapse is based on a vertical depth of 10750 ft, a mud weight of 11 ppq. The casing is considered to be evacuated for collapse purposes. Collapse strength is based on the Westcott, Dunlop & Kamler method of lateral correction for tension.

Burst strength is not adjusted for tension.

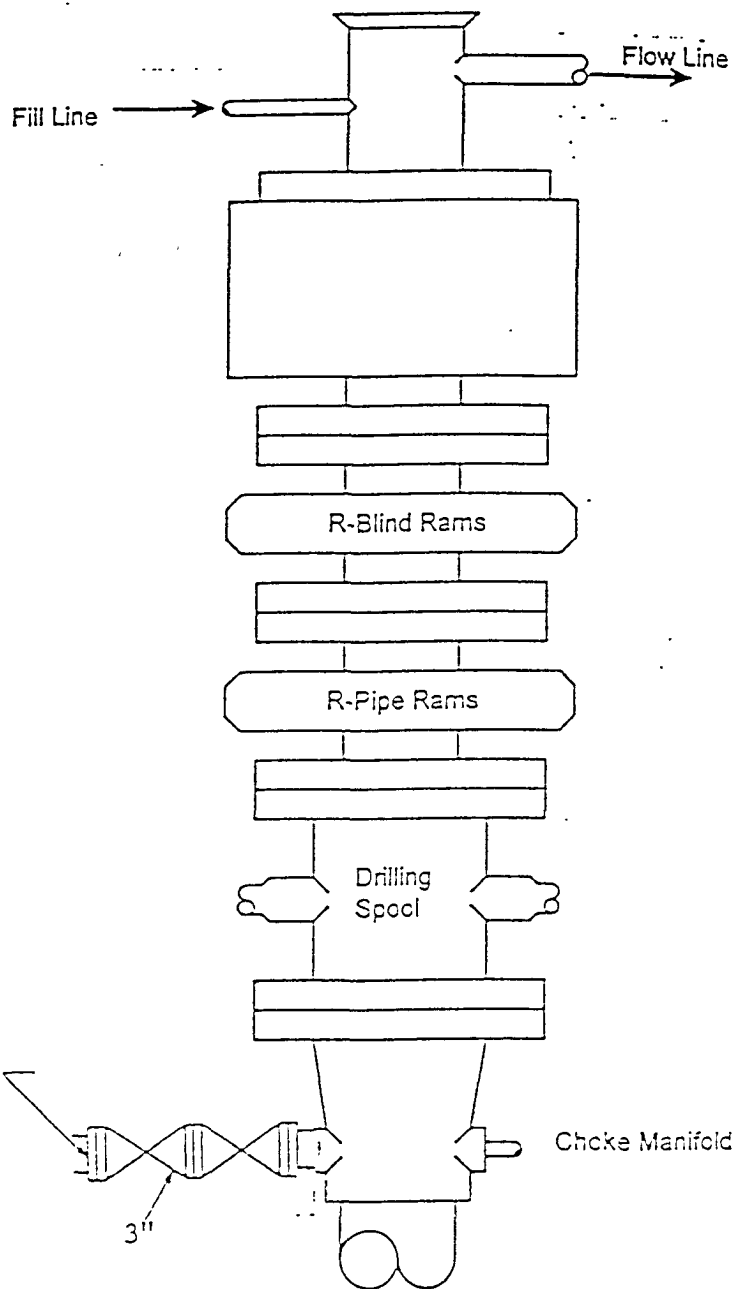
Engineering responsibility for use of this design will be that of the purchaser.



- Wind Direction Indicators (wind sock or streamers)
- H2S Monitors (alarms at bell nipple and shale shaker)
- Briefing Areas
- Remote BOP Closing Unit
- Sign and Condition Flags

EXHIBIT "D"
RIG LAY OUT PLAN

CAZA OPERATING, LLC.
CASTENEDA "33" FEDERAL COM. #1
UNIT "F" SECTION 33
T21S-R25E EDDY CO. NM



Type 1500 SERIES
5000 psi WP

EXHIBIT "E"
SKETCH OF B.O.P. TO BE USED ON

CAZA OPERATING, LLC.
CASTENEDA "33" FEDERAL COM. #1
UNIT "F" SECTION 33
T21S-R25E EDDY CO. NM

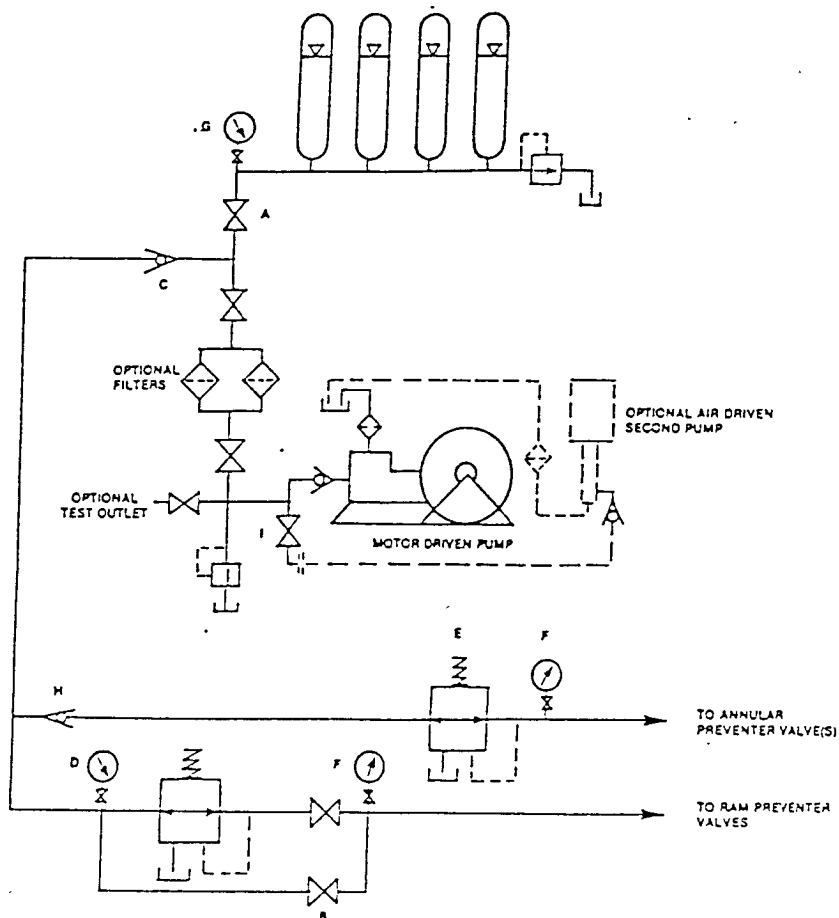


FIGURE K6-1. The schematic sketch of an accumulator system shows required and optional components.

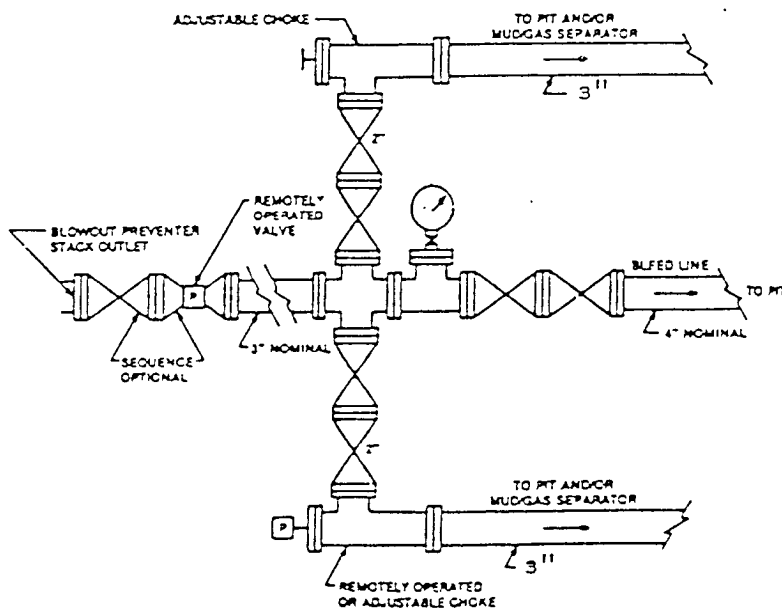


FIGURE K4-2. Typical choke manifold assembly for 5M rated pressure service — surface installation.

EXHIBIT "E-1"
CHOKE MANIFOLD & CLOSING UNIT

CAZA OPREATING, LLC.
CASTENEDA "33" FEDERAL COM. #1
UNIT "F" SECTION 33
T21S-R25E EDDY CO. NM.

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 procedure, routes and first aid.
 - F. Proper use of 30 minute pressure demand air pack.
2. H₂S Detection and Alarm Systems
 - A. H₂S detectors and audio alarm system to be located at bell nipple, end of bleed line (mud pit) and on derrick floor or doghouse.
3. Windsock and/or wind streamers
 - A. Windsock at mudpit 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"
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. Drillstem Testing
 - A. Exhausts will be watered.
 - B. Flare line will be equipped with an electric ignitor or a propane pilot light in case gas reaches the surface.
 - C. If location is near any dwelling a closed D.S.T. will be performed.

HYDROGEN SULFIDE DRILLING OPERATIONS PLAN

8. Drilling contractor supervisor will be required to be familiar with the effects H_2S has on tubular goods and other mechanical equipment.
9. If H_2S is encountered, mud system will be altered if necessary to maintain control of formation. A mud gas separator will be brought into service along with H_2S scavengers if necessary.

	OFFICE	MOBIL	HOME
CAZA OPERATING, LLC.	432-682-7424		
RICHARD WRIGHT	432-682-7424	432-556-7595	432-699-7108

EMERGENCY RESPONSE NUMBERS:

State Police:	Eddy County	505 748 9718
State Police:	Lea County	505 392 5588
Sheriff	Eddy County	505 746 2701
Sheriff	Lea County	
Emergency Medical Ser (Ambulance)	Eddy County	911 or 505 746 2701
	Lea County	911 or 505 394 3258
	Eunice	
Emergency Response	Eddy County SERC	505 476 9620
	Lea County	
Artesia Police Dept		505 746 5001
Artesia Fire Dept		505 746 5001
Carlsbad Police Dept		505 885 2111
Carlsbad Fire Dept		505 885 3125
Loco Hills Police Dept		505 677 2349
Jal Police Dept		505 395 2501
Jal Fire Dept		505 395 2221
Jal ambulance		505 395 2221
Eunice Police Dept		505 394 0112
Eunice Fire Dept		505 394 3258
Eunice Ambulance		505 394 3258
Hobbs Police Dept		
NMOCD	District 1 (Lea, Roosevelt, Curry)	505 393 6161
	District 2 (Eddy Chavez)	505 748 1283
Lea County Information		505 393 8203
Callaway Safety	Lea/Eddy County	505 392 2973
BJ Services	Artesia	505 746 3140
	Hobbs	505 392 5556
Halliburton	Artesia	1 800 523 2482
	Hobbs	1 800 523 2482
Wild Well Control	Midland	432 550 6202
	Mobile	432 553 1166

SURFACE USE PLAN

CAZA OPERATING, LLC.
CASTENEDA "33" FEDERAL COM. #1
UNIT "F" SECTION 33
T21S-R25E EDDY CO. NM

1. EXISTING AND PROPOSED ROADS:

- A. Exhibit "B" is a reproduction of a County General Hi-way map showing existing roads. Exhibit "C" is a reproduction of a USGS topographic map showing existing roads and proposed roads. All existing roads will be maintained in a condition equal to or better than current conditions. All new roads will be constructed to BLM specifications.
- B. Exhibit "A" shows the proposed well site as staked.
- C. Directions to location: From the junction of U. S. 285 and Lea street in Carlsbad, New Mexico take Lea street West 2.5± miles to Happy Valley Road (CR-524) bear Right go .5 miles to Jones Road (CR-427) turn Left go 5.3± miles to lease road on turn Right follow road 1.8 miles bear Left go .8± miles turn Right go .4 miles, turn right go .4 miles, turn Left and follow 2 track and pipeline .7 miles to Wind Mill tower bear Left on 2 track go .5 miles and location is on the West side of road 400'.
- D. Exhibit "C" is topographic map showing roads and route of proposed gas flow-line to existing gas sales line.

2. PLANNED ACCESS ROADS: Approximately 2 miles of new road will be constructed.

- A. The access roads will be crowned and sitched to a 14' wide travel surface, within a 30' R-O-W.
- B. Gradient of all roads will be less than 5%.
- C. Turn-outs will be constructed where necessary.
- D. If require new access roads will be surface with a minimum of 4-6" of caliche. this material will be obtained from a local source.
- E. Center line for new roads will be flagged, road construction will be done as field conditions require.
- F. Culverts will be placed in the access road as drainage conditions require. Roads will be constructed to use low water crossings for drainage as required by the topographic conditions.

3. LOCATION OF EXISTING WELLS WITHIN A ONE MILE RADIUS: EXHIBIT "A-1"

- A. Water wells - One approximately .5 miles East northeast of location
- B. Disposal wells - None known
- C. Drilling wells - None known
- D. Producing wells - As shown on Exhibit "A-1"
- E. Abandoned wells - As shown on Exhibit "A-1"

SURFACE USE PLAN

CAZA OPERATING, LLC.
CASTENEDA "33" FEDERAL COM. #1
UNIT "F" SECTION 33
T21S-R25E EDDY CO. NM

4. If on completion this well is a producer the operator will lay pipelines and construct powerlines along existing road R-O-W's or other existing R-O-W's. Exhibit "C" shows proposed roads , flowlines and powerlines.

5. LOCATION & TYPE OF WATER SUPPLY:

Water will be purchased locally from a commercial source and trucked over the location access roads or piped to location in flexible lines laid on top of the ground.

6. SOURCE OF CONSTRUCTION MATERIAL:

If possible construction material will be obtained from the excavation of the drill site, if additional material is required it will be obtained from a local source and transported over the location access roads as shown on Exhibit "C".

7. METHODS OF HANDLING WASTE:

- A. All trash, junk and other waste material will be contained in trash cages or trash bins in order to prevent scattering. When the job is completed all contents will be removed and disposed of in an approved sanitary land fill.
- B. Sewage from living quarters will be drained into holding tanks and will be cleaned out periodically. A Porta-John will be provided for the rig crews. This equipment will be properly maintained during the drilling operations and removed upon completion of well.
- C. 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 the pits will be broken out to speed drying. Water produced during completion will be stored in tanks and disposed of in State approved disposal site. Oil and condensate produced during completion will be put in storage tanks and sold.
- D. Drill cuttings will be disposed of in reserve pits or if necessary will be taken to a State approved landfarm and disposed of properly.
- E. Any remaining salts or mud additives will be collected by the supplier and to stock, this includes all broken bags.

8. ANCILLARY FACILITIES:

- A. No camps or air strips will be constructed on location.

SURFACE USE PLAN

CAZA OPERATING, LLC.
CASTENEDA "33" FEDERAL COM. #1
UNIT "F" SECTION 33
T21S-R25E EDDY CO. NM

9. WELL SITE LAYOUT:

- A. Exhibit "D" shows the proposed well site layout.
- B. This Exhibit shows the location of reserve pit, sump pits, and living facilities.
- C. Mud pits in the active circulating system will be steel pits and the reserve pits will be unlined unless subsurface conditions encountered during pit construction indicate that a plastic liner is required to contain lateral migration.
- D. If needed the reserve pits will be lined with polyethelene. The pit liner will be no less than 12 mils thick and the liner will be extended at least 3 feet over the top of the dikes and secured in place to keep edge of liner in place.
- E. The reserve pit will be fenced on three sides and fenced with four strands of barbed wire during drilling and completion phases. The 4th side will be fenced after drilling operations are complete and the drilling rig has moved out. If the well is a producer the mud pits will remain fenced in until the mud has dried up enough to break out the pits and reclaimed according to BLM requirements.

10. PLANS FOR RESTORATION OF SURFACE:

Rehabilitation of the location and reserve pits will be allowed to dry properly, fluids may be moved and disposed of in accordance with article 7-E as previously noted. The pit area will then be leveled and contoured to conform to the original and surrounding area. Drainage systems, if any will be reshaped to the original configuration with provisions made to alleviate future erosion. In case of the well completed as a producer the drilling pad will be necessary to construct production facilities. After the area has been shaped and contoured top soil from the spoil pile will be placed over the disturbed area to the extent possible so that revegetation procedures can be accomplished to comply with the BLM specifications.

If the well is a dry hole the pad and road area will be contoured to match the existing terrain. Top soil will be spread to the extent possible and revegetation will be carried out according to the BLM specifications.

Should the well be a producer the previously noted procedures will apply to those areas which are not required for production facilities.

CERTIFICATION

I HEREBY CERTIFY THAT I OR PERSONS UNDER MY SUPERVISION HAVE INSPECTED THE PROPOSED DRILL SITE AND THE ACCESS ROAD ROUTES, THAT I AM FAMILIAR WITH THE CONDITIONS THAT CURRENTLY EXIST, AND THAT THE STATEMENTS MADE IN THIS PLAN ARE TO THE BEST OF MY KNOWLEDGE ARE TRUE AND CORRECT, AND THAT THE WORK ASSOCIATED WITH THE OPERATIONS PROPOSED HEREIN WILL BE PERFORMED BY CAZA OPERATING, LLC. ITS CONTRACTORS OR ITS SUB-CONTRACTORS IS IN CONFORMANCE WITH THIS PLAN AND THE TERMS AND CONDITIONS UNDER WHICH IT IS APPROVED. THIS STATEMENT IS SUBJECT TO THE PROVISIONS OF U. S. C. 1001 FOR THE FILING OF A FALSE STATEMENT.

OPERATORS REPRESENTATIVES

BEFORE CONSTRUCTION

JOE JANICA
TIERRA EXPLORATION, INC.
PO BOX 2188
HOBBS, NEW MEXICO 88240
PHONE OFFICE 505-391-8503
CELL 505-390-1598

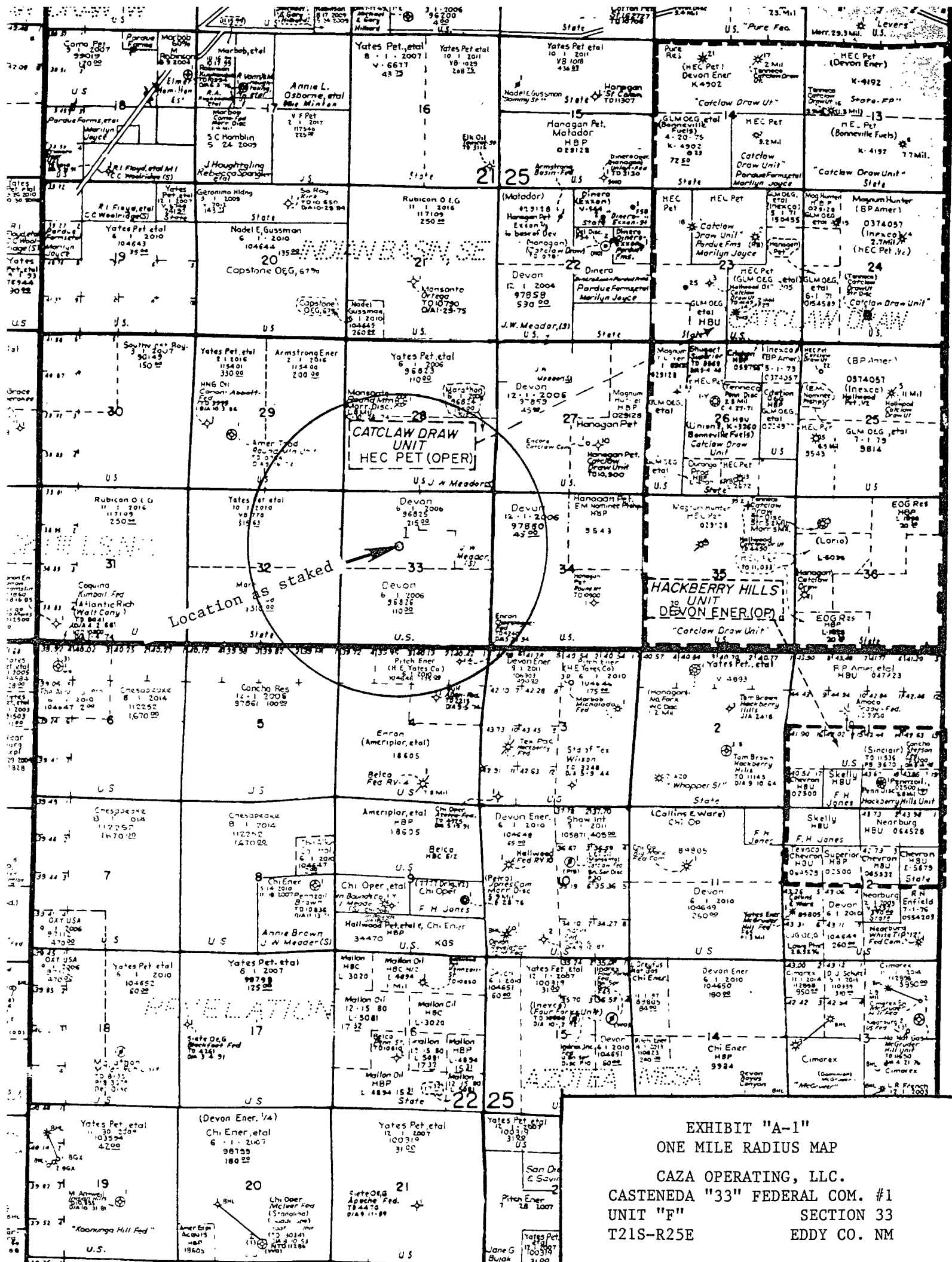
DURING & AFTER CONSTRUCTION

RICHARD WRIGHT
CAZA OPERATING, LLC.
200 N. LORAIN SUITE 1550
MIDLAND, TEXAS 79701
PHONE OFFICE 432-682-7424 EXT 1006
CELL 432-556-7595

NAME: JOE T. JANICA

TITLE: PERMIT ENGINEER

DATE: 04/18/08



PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME:	CAZA Operating, LLC
LEASE NO.:	NM118107
WELL NAME & NO.:	Casteneda 33 Federal Com. No. 1
SURFACE HOLE FOOTAGE:	1980' FNL & 1980' FWL
BOTTOM HOLE FOOTAGE	Same
LOCATION:	Section 33, T. 21 S., R 25 E., NMPM
COUNTY:	Eddy County, New Mexico

TABLE OF CONTENTS

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

- ☐ **General Provisions**
- ☐ **Permit Expiration**
- ☐ **Archaeology, Paleontology, and Historical Sites**
- ☐ **Noxious Weeds**
- ☒ **Special Requirements**
 - Cave/Karst
- ☐ **Construction**
 - Notification
 - Topsoil
 - Reserve Pit
 - Federal Mineral Material Pits
 - Well Pads
 - Roads
- ☐ **Road Section Diagram**
- ☒ **Drilling**
- ☐ **Production (Post Drilling)**
 - Well Structures & Facilities
- ☐ **Interim Reclamation**
- ☐ **Final Abandonment/Reclamation**

I. GENERAL PROVISIONS

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

II. PERMIT EXPIRATION

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

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

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

IV. NOXIOUS WEEDS

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

V. SPECIAL REQUIREMENT(S)

Conditions of Approval Cave and Karst

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

Cave/Karst Surface Mitigation

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

Berming:

Tank batteries will be bermed to contain 1 ½ times the content of the largest tank.

Bermed areas will be lined with a 4 oz. felt liner to prevent tears or punctures and a permanent 20 mil plastic liner.

Closed Mud System with steel tanks. No pits:

All fluids will be held in steel tanks. All fluids and cuttings will be hauled off site for disposal.

Roads will be routed around sinkholes and other karst features to avoid or lessen the possibility of encountering near surface voids and to minimize changes to runoff or possible leaks and spills from entering karst systems. Turnout ditches and drainage leadoffs will not be constructed in such a manner as to increase or decrease the natural flow of water into or out of cave or karst features. The BLM, Carlsbad Field Office, will be informed immediately if any subsurface drainage channels, cave passages, or voids are penetrated during construction and no further construction will be done until clearance has been issued by the Authorized Officer. Special restoration stipulations or realignment may be required.

Cave/Karst Subsurface Mitigation

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

Fresh Water Drilling:

The surface interval down to the bottom of the karst zone will be drilled with fresh water.

Lost Circulation:

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

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

Delayed Blasting:

Any blasting will be phased and time delayed.

Abandonment Cementing:

Upon well abandonment the well bore will be cemented completely from 100 feet below the bottom of the cave bearing zone to the surface.

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 to be stripped is approximately 6 inches in depth. The topsoil shall not be used to backfill the reserve pit and will be used for interim and final reclamation.

C. RESERVE PITS

Tanks are required for drilling operations: No Pits.

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

D. FEDERAL MINERAL MATERIALS PIT

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

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

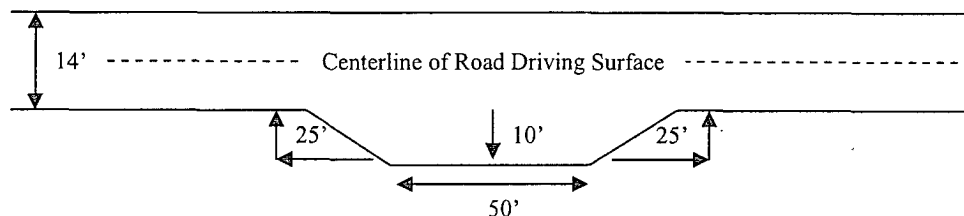
Ditching

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:

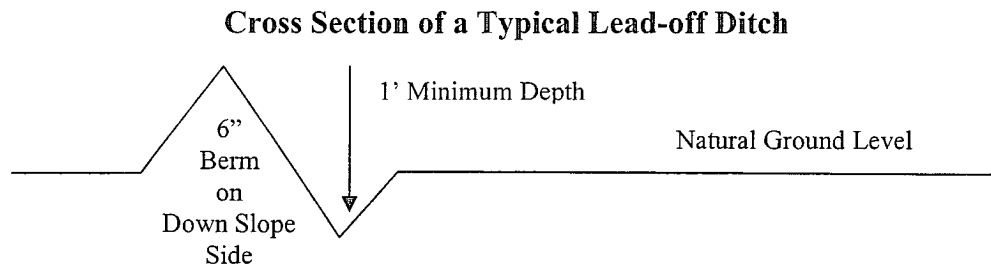
Standard Turnout – Plan View



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.



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:

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

Culvert Installations

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

Cattleguards

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

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

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

Fence Requirement

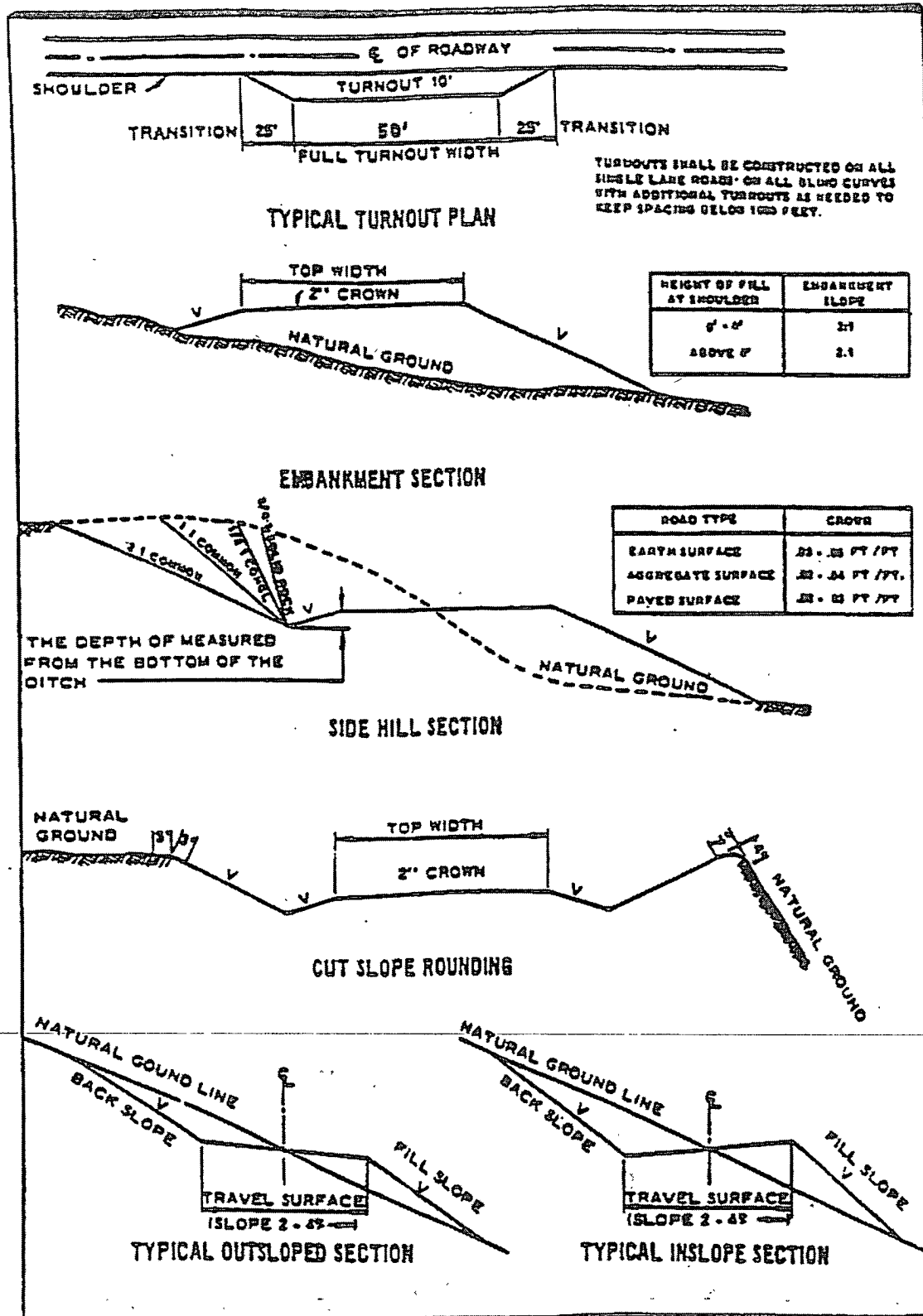
Where entry is required across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting.

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

Public Access

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

Figure 1 – Cross Sections and Plans For Typical Road Sections



VII. DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

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

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

☒ **Eddy County**

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

1. **Although Hydrogen Sulfide has not been reported in this section, it is always a potential hazard. 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

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.

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

High cave/karst.

**Possible lost circulation in the Capitan Reef, Delaware, and Bone Spring formations.
Possible high pressure gas bursts in the Wolfcamp and the Pennsylvanian section
may be over pressured.**

1. The 13-3/8 inch surface casing shall be set at approximately 350 feet and cemented to the surface.
 - 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. (This is to include the lead cement).
 - 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.
2. The minimum required fill of cement behind the 8-5/8 inch intermediate casing is:
☒ Cement to surface. If cement does not circulate see B.1.a-d above.

If 75% or greater lost circulation occurs while drilling the intermediate casing hole, the cement on the production casing must come to surface.

Formation below the 8-5/8" 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 200 feet into previous casing string. Operator shall provide method of verification.

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

C. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.
2. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **3000 (3M)** psi.
3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **8-5/8"** intermediate casing shoe shall be **5000 (5M)** psi.
4. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
 - a. The tests shall be done by an independent service company.
 - b. The results of the test shall be reported to the appropriate BLM office.
 - c. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.
 - d. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug.
 - e. 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. **No variance granted for BOP/BOPE test of 3000 psi on surface casing with rig pumps due to safety concerns.**

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.

If drill stem tests are performed, please provide formation pressure data to the BLM.

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VIII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

Placement of Production Facilities

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

Containment Structures

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

Painting Requirement

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

IX. INTERIM RECLAMATION & RESERVE PIT CLOSURE

A. INTERIM RECLAMATION

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

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

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

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

Seed Mixture 3, for Shallow 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 authorised officer.

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

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

<u>Species</u>	<u>lb/acre</u>
Plains Bristlegrass (<i>Setaria magrostachya</i>)	1.0
Green Spangletop (<i>Leptochloa dubia</i>)	2.0
Side oats Grama (<i>Bouteloua curtipendula</i>)	5.0

*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.