ATS-08-667

OCD-ARTESIA AUG – 6 2008

OCD-ARTESIA

1001

Form 3160-3
(April 2004)

FORM APPROVED
OMB No 1004-0137
Expires March 31 2007

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5 Lease Serial No **NM-28172**	
6 If Indian Allotee or Tribe Name **N/A**	
7 If Unit or CA Agreement, Name and No **N/A**	
8 Lease Name and Well No 303852 **DELTA FEDERAL # 3**	
9 API Well No **30-015-34809** 36518	
10 Field and Pool, or Exploratory **CHOSA DRAW MORROW**	

1a Type of work ☑ DRILL ☐ REENTER

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

2 Name of Operator
ENCORE OPERATING, L.P. 189951

3a Address **777 MAIN STREET, STE. 1400 FORT WORTH, TX. 76102**

3b Phone No (include area code) **817-877-9955**

4 Location of Well (Report location clearly and in accordance with any State requirements *)
At surface **660 FNL & 660 FEL NE EN (A)**
At proposed prod zone **SAME**

Carlsbad Controlled Water Basin

11 Sec, T R M or Blk and Survey or Area
SEC. 7 -T25S-R26E

14 Distance in miles and direction from nearest town or post office*
3 MILES SOUTHWEST FROM WHITE CITY, NM

12 County or Parish **EDDY** 13 State **NM**

15 Distance from proposed* location to nearest property or lease line, ft (Also to nearest drig unit line if any) **660'**	16 No of acres in lease **320**	17 Spacing Unit dedicated to this well **320**
18 Distance from proposed location* to nearest well, drilling, completed applied for, on this lease, ft **3120'**	19 Proposed Depth **11900'**	20 BLM/BIA Bond No on file **MTB 000020**
21 Elevations (Show whether DF, KDB, RT, GL, etc) **3407' GL**	22 Approximate date work will start* **07/01/2008**	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) **ANN BURDETTE WILEY**	Date **05/05/2008**

Title **REGULATORY MANAGER**

Approved by (Signature) /s/ James Stovall	Name (Printed Typed) /s/ James Stovall	Date JUL 31 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 Sec ... to make to any department or agency of the United States any false, fictitious or fraudulent statement:

*(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.

SEE ATTACHED FOR CONDITIONS OF APPROVAL

APPROVAL SUBJECT TO GENERAL REQUIREMENTS AND SPECIAL STIPULATIONS ATTACHED

6/18/08
ocd
copy
BARRY
Delta Fed #3

Encore
Operating, L.P.
A Subsidiary of
Encore Acquisition Company

777 Main Street
Suite 1400
Fort Worth, Texas 76102
(817) 877-9955
fax (817) 877-1655

June 16, 2008

TO WHOM IT MAY CONCERN

Re: E/2 of Section 7, T25S-R26E
Eddy County, New Mexico

The surface owners of the captioned lands are David R. and Eva L. Maley, (hereinafter referred to as "Surface Owners") whose address is P.O. Box 519 Carlsbad, New Mexico 88221.

Encore Operating, L.P. ("Encore") entered into a Surface Use and Damage Agreement (the "Agreement") with the Surface Owners dated September 4, 2007. This agreement covers Encore's surface operations and access upon and across the captioned lands. The terms of the Agreement are confidential. Additionally, the Agreement may not be filed of record in Eddy County, New Mexico without the written consent of both Encore and the Surface Owners.

Should you have any questions regarding this matter please contact the undersigned at 817-339-0769.

Sincerely,

ENCORE OPERATING, L.P.

Zack B. Brittain

Zack B. Brittain
Senior Landman

DISTRICT I
1625 N. French Dr., Hobbs, NM 88240
DISTRICT II
1301 W. Grand Avenue, Artesia, NM 88210
DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410
DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department

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

Form C-102
Revised October 12, 2005

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
	74900	Chosa Draw Morrow

Property Code	Property Name	Well Number
~~25659~~ 303852	DELTA FEDERAL	3

OGRID No.	Operator Name	Elevation
189951	ENCORE OPERATING LP	3407

Surface Location

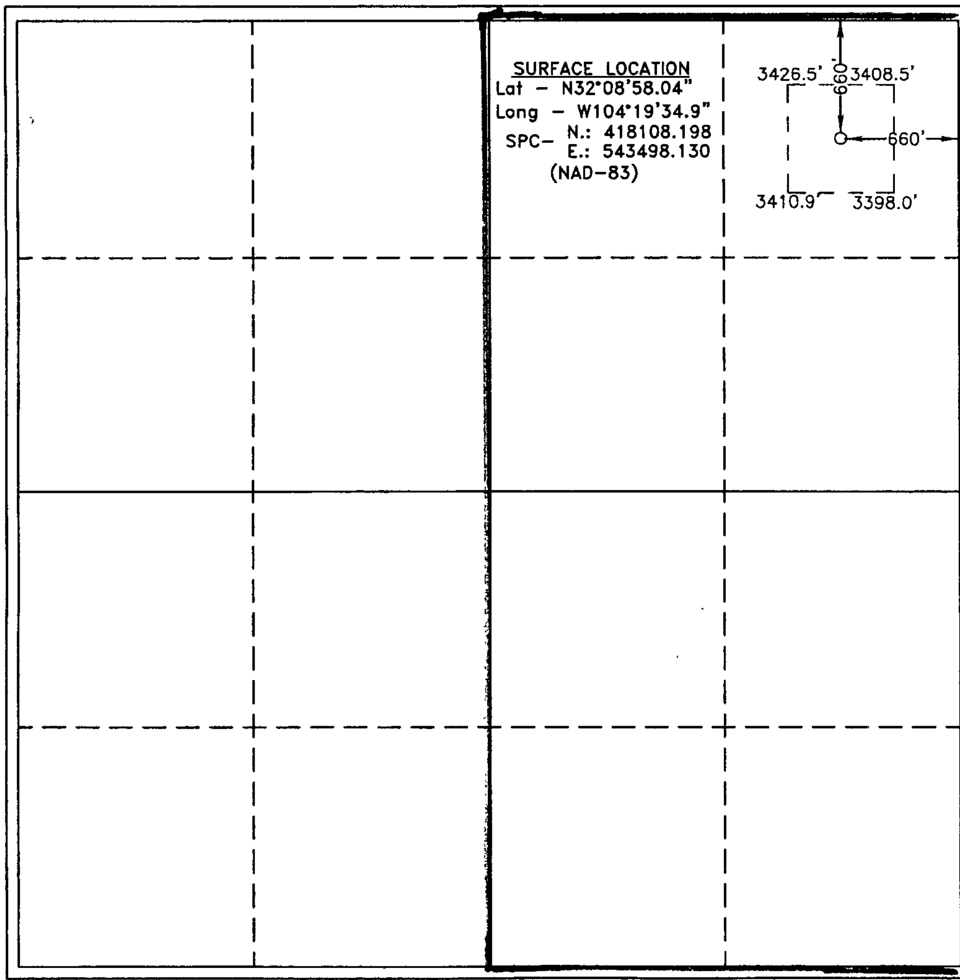
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	7	25 S	26 E		660	NORTH	660	EAST	EDDY

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	Y		

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



OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

[signature] 6/16/08
Signature Date

Ann Burdette Wiley
Printed Name

SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervison, and that the same is true and correct to the best of my belief.

JUNE 10, 2008
Date Surveyed
Signature & Seal of Professional Surveyor

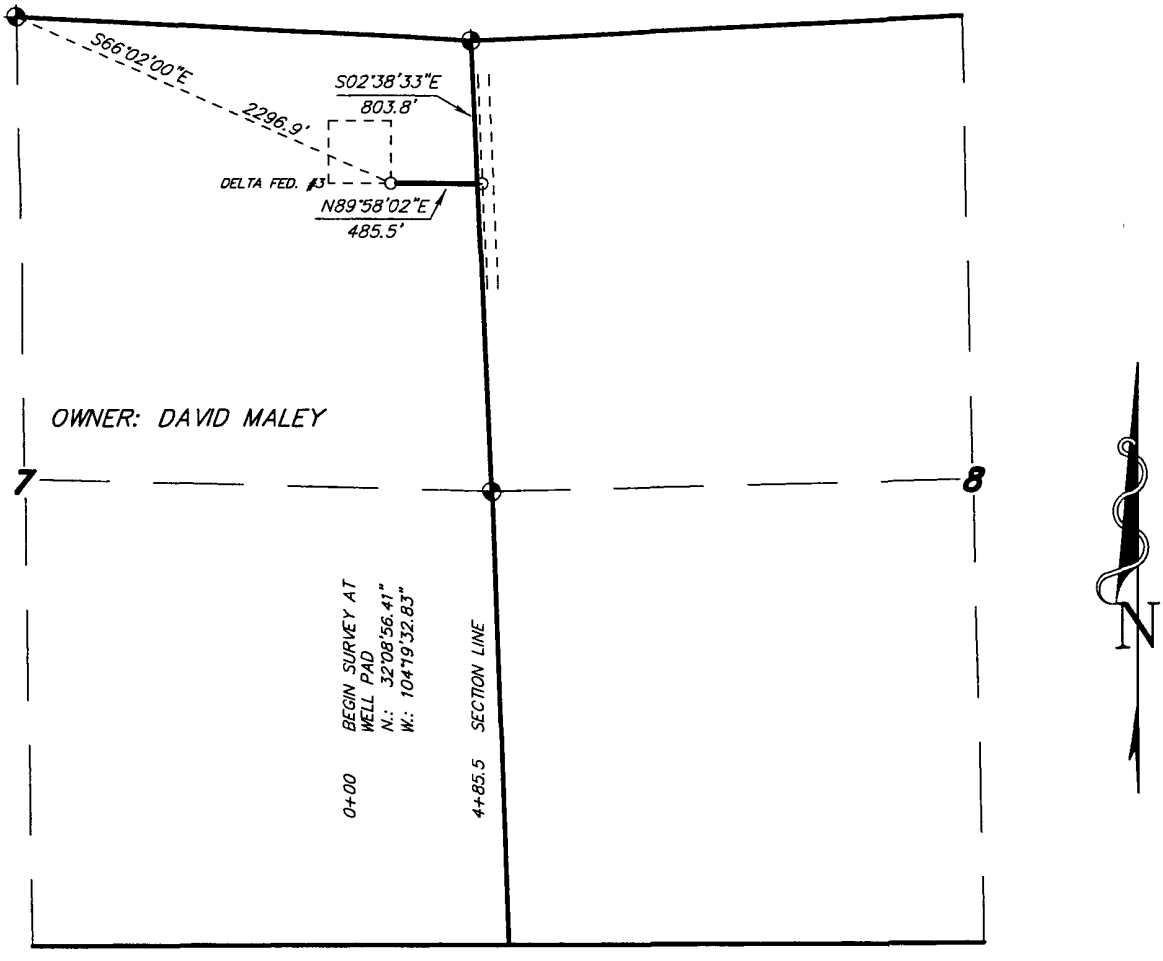
GARY L. JONES NEW MEXICO 7977 REGISTERED PROFESSIONAL LAND SURVEYOR

W.O. [illegible]3

Certificate No. Gary L. Jones 7977

BASIN SURVEYS

SECTION 7, TOWNSHIP 25 SOUTH, RANGE 26 EAST, N.M.P.M.,
EDDY COUNTY, **NEW MEXICO.**



LEGAL DESCRIPTION

A STRIP OF LAND 20.0 FEET WIDE, LOCATED IN SECTION 7, TOWNSHIP 25 SOUTH, RANGE 26 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 WHICH LIES S.66°02'00"E., 2296.9 FEET FROM THE NORTH QUARTER CORNER OF SAID SECTION 7; THENCE N.89°58'02"E., 485.5 FEET TO A POINT ON THE EAST SECTION LINE WHICH LIES S.02°38'33"E., 803.8 FEET FROM THE NORTHEAST CORNER OF SAID SECTION 7. SAID STRIP OF LAND BEING 485.5 FEET OR 29.42 RODS IN LENGTH.

1000 0 1000 2000 FEET

I HEREBY CERTIFY THAT THIS PLAT WAS PREPARED FROM FIELD NOTES OF AN ACTUAL SURVEY AND MEETS OR EXCEEDS ALL REQUIREMENTS FOR LAND SURVEYS IN SOUTHEASTERN NEW MEXICO.

NEW MEXICO 7977 REGISTERED PROFESSIONAL LAND SURVEYOR

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

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

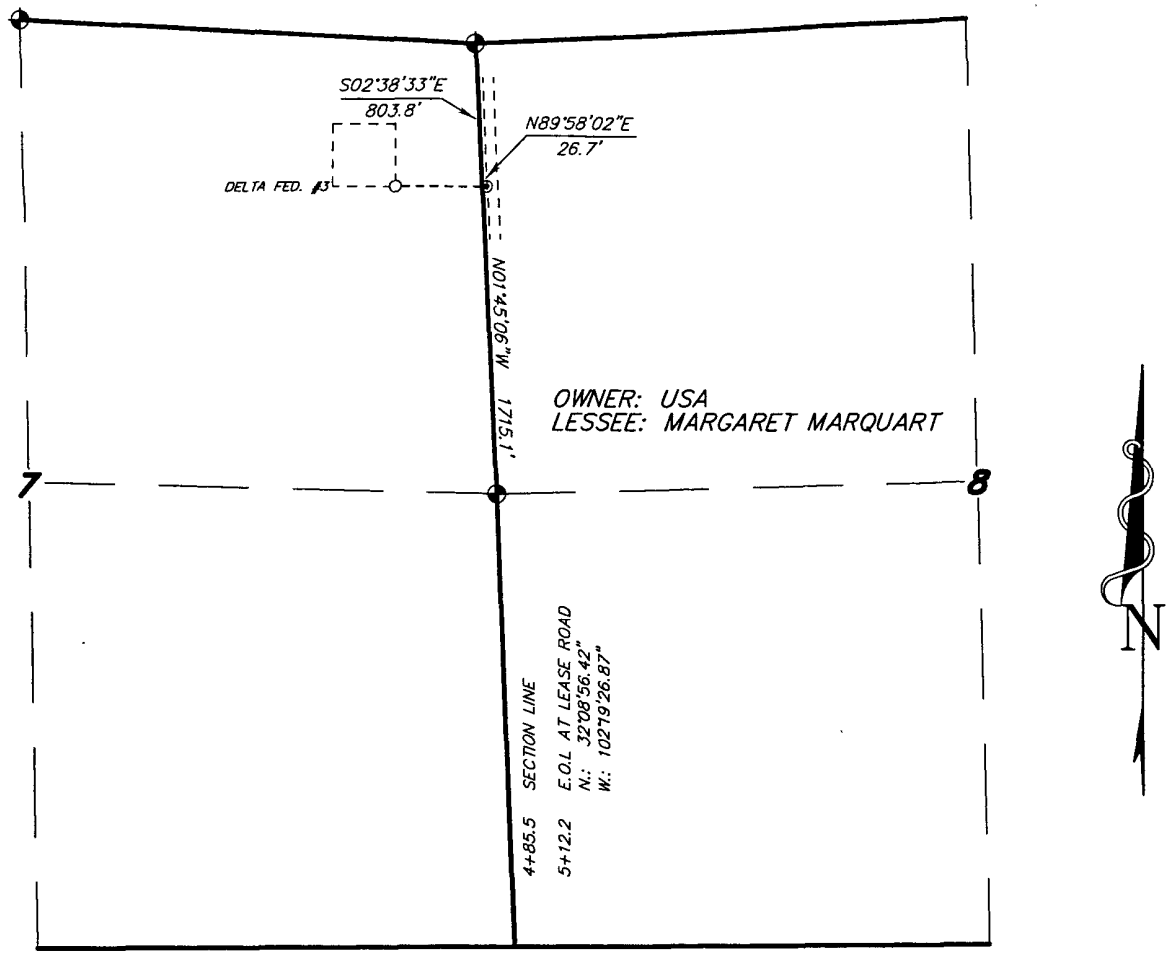
ENCORE OPERATING, L.P.

REF: PROPOSED LEASE ROAD TO THE ENCORE – DELTA FEDERAL #3

A LEASE ROAD CROSSING FEE LAND IN SECTION 7, TOWNSHIP 25 SOUTH, RANGE 26 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO.

W.O. Number: 19883	Drawn By: J. M. SMALL		
Date: 06-13-2008	Disk: JMS 19883	Survey Date: 06-10-2008	Sheet 1 of 2 Sheets

SECTION 8, TOWNSHIP 25 SOUTH, RANGE 26 EAST, N.M.P.M.,
EDDY COUNTY, **NEW MEXICO.**



LEGAL DESCRIPTION

A STRIP OF LAND 20.0 FEET WIDE, LOCATED IN SECTION 8, TOWNSHIP 25 SOUTH, RANGE 26 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO AND BEING 10.0 FEET LEFT AND RIGHT OF THE ABOVE PLATTED CENTERLINE SURVEY.

SECTION 8 = 26.7 FEET = 1.62 RODS = 0.01 MILES = 0.01 ACRES

1000 0 1000 2000 FEET

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 ADOPTED BY THIS STATE.

GARY L. JONES, NEW MEXICO P.L.S. No. 7977
TEXAS No. 5074

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

W.O. Number: 19883	Drawn By: J. M. SMALL
Date: 06-13-2008	Disk: JMS 19883

ENCORE OPERATING, L.P.

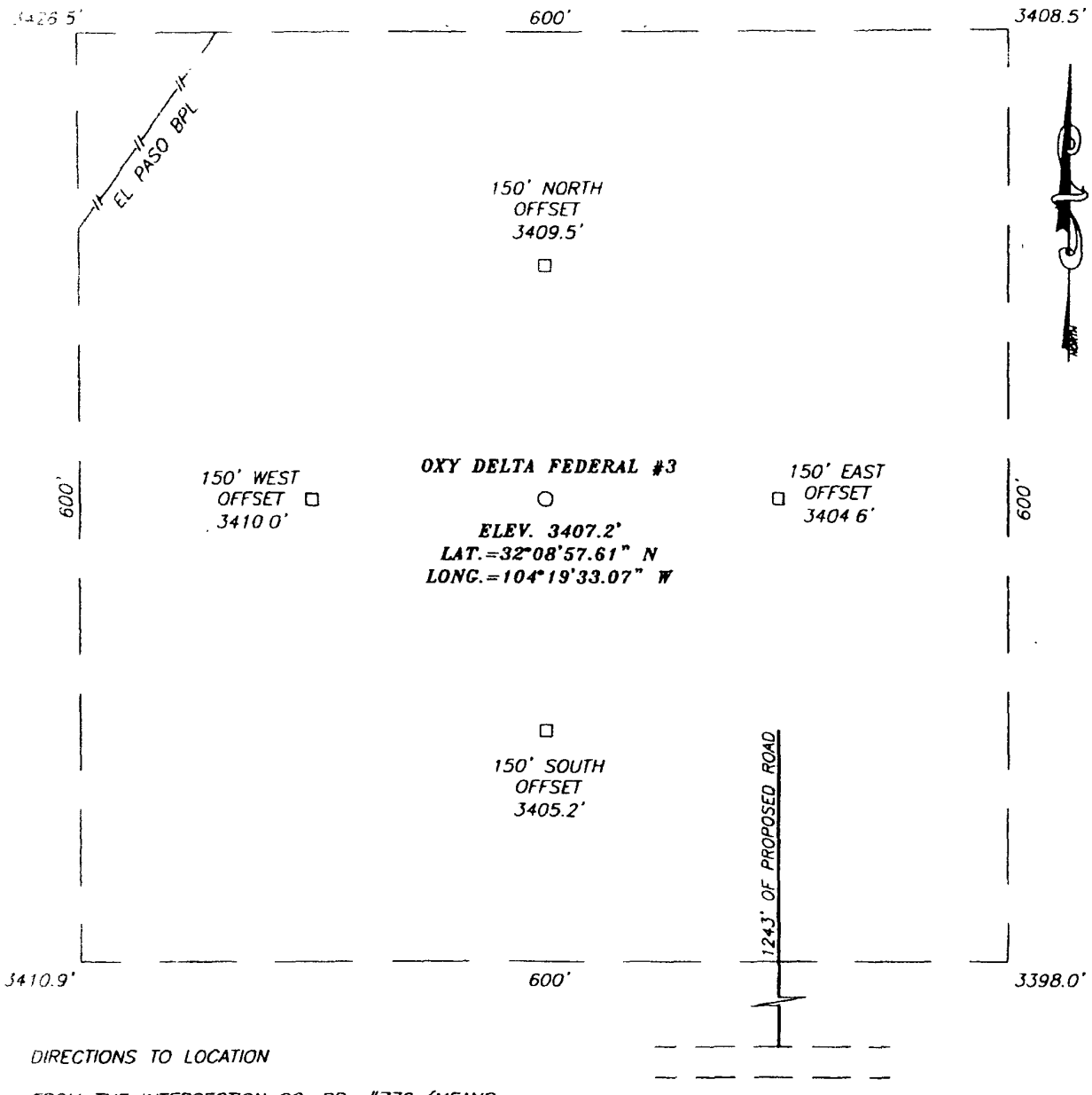
REF: PROPOSED LEASE ROAD TO THE ENCORE – DELTA FEDERAL #3

A LEASE ROAD CROSSING USA LAND IN SECTION 8, TOWNSHIP 25 SOUTH, RANGE 26 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO.

Survey Date: 06-10-2008	Sheet 2 of 2 Sheets

SECTION 7, TOWNSHIP 25 SOUTH, RANGE 26 EAST, N.M.P.M.,

EDDY COUNTY, NEW MEXICO



DIRECTIONS TO LOCATION

FROM THE INTERSECTION CO. RD. #772 (MEANS RD.) AND CO. RD. #426 (CREOSOTE RD.) GO SOUTH ON CO. RD. #772 FOR APPROX. 1.9 MILES, BEND SOUTH/SW APPROX. 0.2 MILES. TURN RIGHT (WEST) AND GO APPROX. 0.9 MILES TO A PROPOSED ROAD SURVEY. FOLLOW PROPOSED ROAD SURVEY NORTH APPROX. 1243' TO THIS LOCATION.

100 0 100 200 Feet

Scale: 1"=100'

PROVIDING SURVEYING SERVICES SINCE 1946

JOHN WEST SURVEYING COMPANY

412 N. DAL PASO

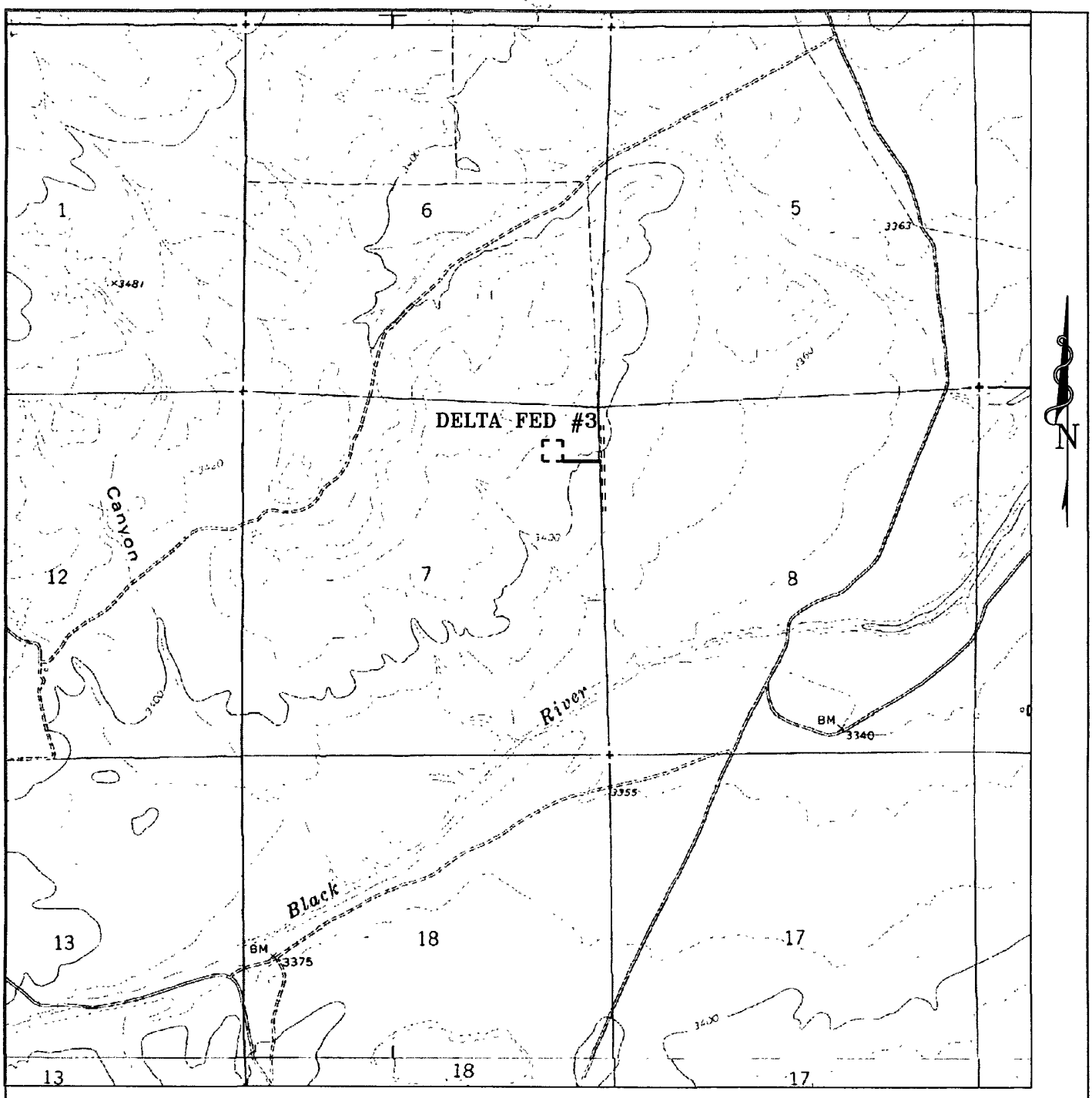
HOBBS, N.M. 88240

(505) 393-3117

Encore Operating, L.P.

DELTA FEDERAL #3 WELL
LOCATED 660 FEET FROM THE NORTH LINE
AND 660 FEET FROM THE EAST LINE OF SECTION 7,
TOWNSHIP 25 SOUTH, RANGE 26 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO.

Survey Date: 08/25/05	Sheet 1 of 1 Sheets		
W.O. Number: 05.11.1280	Dr By: J.R.	Rev 1: N/A	
Date: 08/26/05	Disk: CD#5	05111280	Scale: 1"=100'



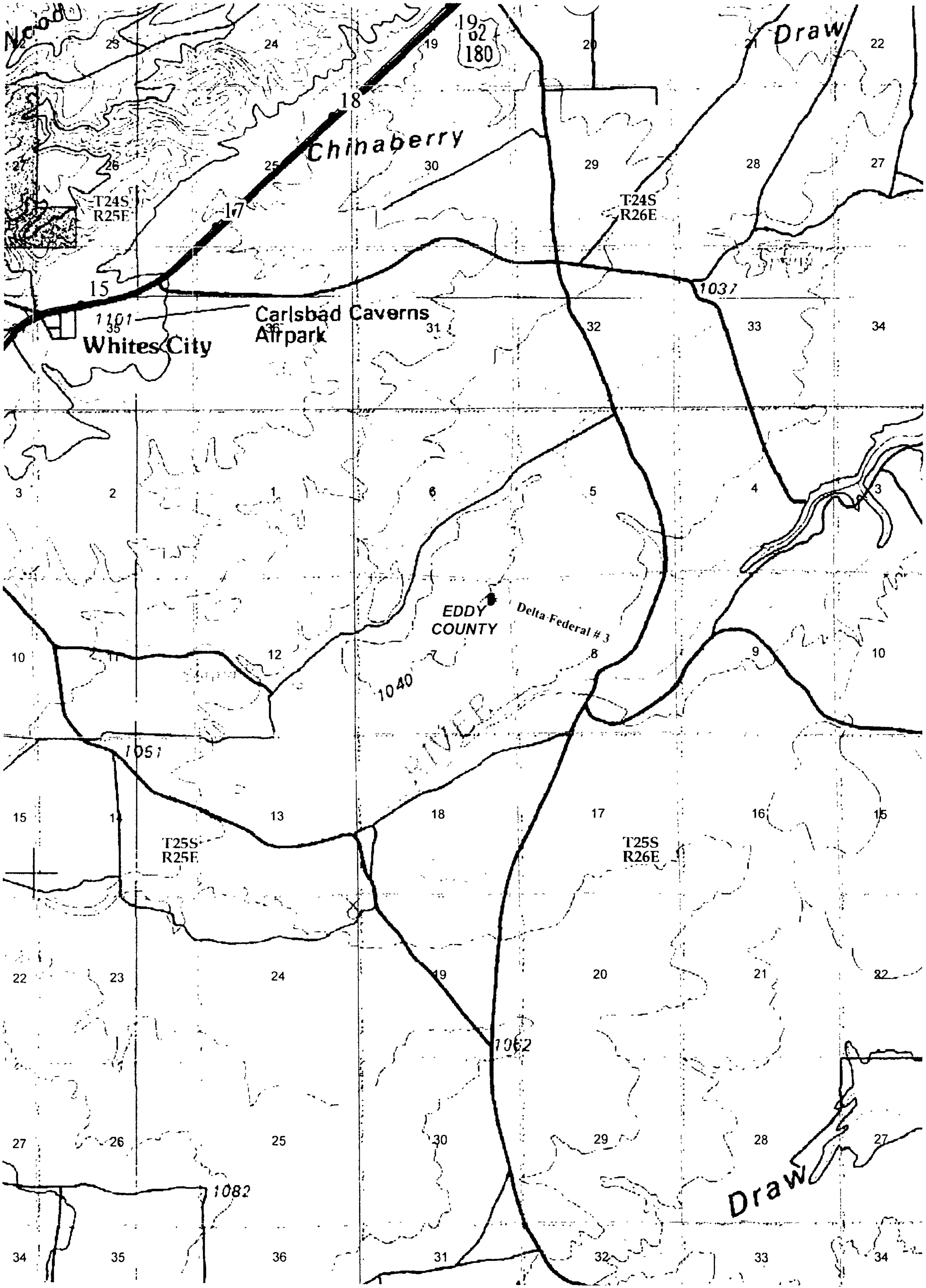
PROPOSED LEASE ROAD TO THE ENCORE – DELTA FEDERAL #3
Section 7, Township 25 South, Range 26 East,
N.M.P.M., Eddy County, New Mexico.

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:	18833
Survey Date:	06-10-2008
Scale:	1" = 2000'
Date:	06-13-2008

ENCORE OPERATING, L.P.



Draw
Chinaberry
62
180
T24S
R25E
T24S
R26E
1037
1101
Carlsbad Caverns
Airpark
Whites City
EDDY
COUNTY
Delta Federal # 3
1040
RIVER
1051
T25S
R25E
T25S
R26E
1062
1082
Draw

ENCORE OPERATING, L.P.
DELTA FEDERAL # 3
DRILL PROGRAM

1. Geologic Name of Surface Formation

a. Permian

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

a. Upper Permian Sands	310'	Water
b. Yates	561'	
c. Capitan	926'	
d. Delaware	1680'	Oil
e. Bone Spring	5190	Oil
f. Second Bone Spring Sand	6475'	Oil
g. Third Bone Spring Sand	7975'	Oil
h. Wolfcamp	8355'	Gas
i. Cisco	9700'	Gas
j. Strawn	10130'	Gas
k. Atoka	10690'	Gas
l. Morrow	11220'	Gas
m. Lower Morrow	11735'	Gas
n. Total Depth	11900'	

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 400' and circulating cement back to surface. Fresh water sands will be protected by setting 9 5/8" casing at 2000' and circulating cement to surface.

3. Casing Program:

Hole Size	Casing Size	Interval	Weight	Grade	Thread	Burst	Collapse	Jt. Str.
26"	20	0-40	94.0					
17 ½"	13-3/8"	0-400	48.0	H-40	STC	1730	740	322000
SF*	Surface					SF=1.7	SF=3.4	SF=16.8
12 ¼"	9-5/8"	0-2,000	40.0	J-55	BTC	3950	2570	**714000**
SF*	Inter 1					SF=2.6	SF=2.4	SF=8.9
8 ¾"	7	0-9,300	29.0	P-110	LTC	11,220	8,530	797000
SF*	Int 2					SF=1.32	SF=1.68	SF=2.96
6 1/8"	4-1/2"	9,000-11,900	11.6	P-110	LTC	10690	7580	279000
SF*	Liner					SF=1.26	SF=1 2	SF=8.3

Safety Factors are figured using the following "worst case" conditions.
Burst (surface). using 1000 psi casing test.

Burst (inter 1): using 1500 psi casing test
Burst (Int 2 & Liner): using 8500 psi max stimulation pressure
Collapse (all strings): using 10.5ppg annular fluid and complete internal evacuation
Joint Strength (all strings): with estimated string weight in air (with no buoyancy).

The drift through the 20" is 19.125 inches, through the 13-3/8" it is 12.559", the 9-5/8" casing drifts 8.75", the 7" drifts 6.125" and the 4-1/2" liner drifts 3.875 inches

4. Cement Program:

Casing Size	Cement Slurry	Properties	Property Values
20"	Redi-mix		

Casing Size	Cement Slurry	Properties	Property Values
	STAGE 1		
13-3/8"	Spacer : 20 bbls FW		
	Scavenger with 100 sacks Class H cement + 2% bwoc $CaCl_2$ + 10% A-10 + 63.9% freshwater	Fluid Weight:	14.60 lb/gal
		Fluid Yield:	1.51 cu ft/sk
		Amount of mix water:	7.20 gal/sk
		Top of Fluid:	0 ft
		Calculated Fill:	0ft
	Tail with 450 sacks Premium Plus "C" cement + 2% $CaCl_2$ + 56.4%	Fluid Weight:	14.80 lb/gal
		Fluid Yield:	1.34 cu ft/sk
		Amount of mix water:	6.36 gal/sk
		Top of Fluid:	surface
		Calculated Fill:	400ft

Cement will be circulated back to surface behind 13-3/8" casing.

Casing Size	Cement Slurry	Properties	Property Values
9-5/8"	Spacer: 20 bbls of FW		20.0 bbls
	Lead Slurry: 390 sacks 50:50 Poz (Fly Ash):Premium Plus C Cement + 5% bwow Sodium Chloride + 0.125 lbs/sack Cello Flake + 10% bwoc bentonite + 139.7%	Fluid Weight:	11.8 ppg

	freshwater		
		Fluid Yield:	2 44 cu ft/sk
		Amount of mix water:	14.07 gal/sk
		Top of Fluid:	Surface
		Calculated Fill:	1,600 ft.
	Tail Slurry: 220 sacks Premium C Cement + 1% $CaCl_2$ +56.3% freshwater	Fluid Weight:	14 8 ppg
		Fluid Yield:	1.34 cu ft/sk
		Amount of mix water.	6 34 gal/sk
		Top of Fluid:	1,600 ft.
		Calculated Fill	400 ft

Cement will be circulated back to surface behind 9-5/8" casing.

Casing Size	Cement Slurry	Properties	Property Values
	Stage 1		
7"	Spacer:500 gals Mud Flush II		11.9 bbls
	Lead Slurry: 175 sacks (50:50) Poz (Fly Ash): Premium Plus H Cement + 10% bwoc Bentonite + 5% bwow NaCl + 0.6% bwoc FL-52A + 5 lbs/sack LCM-1 + 134.7% freshwater	Fluid Weight:	11.8 ppg
		Fluid Yield:	2.46 cu ft/sk
		Amount of mix water:	13.57 gal/sk
		Top of Fluid:	7,000 ft.
		Calculated Fill:	1,900 ft.
	Tail Slurry: 100 sacks Class H Cement + 0.6% bwoc FL-25 + 46.1 freshwater	Fluid Weight:	15.6 ppg
		Fluid Yield:	1.18cu ft/sk
		Amount of mix water:	5.20 gal/sk
		Top of Fluid:	8,900 ft.
		Calculated Fill:	400 ft.
	DV tool @ ±7,000' TVD.		

	Stage 2		
	Spacer: 20 bbls FW		
	Lead Slurry: 580 sacks (50:50) Poz (Fly Ash): Premium Plus H Cement + 10% bwoc Bentonite + 5% bwow NaCl + 0.6% bwoc FL-52A + 5 lbs/sack LCM-1 + 134.7% freshwater	Fluid Weight:	11.80 ppg
		Fluid Yield:	2.46 cu ft/sk
		Amount of mix water:	13.57 gal/sk
		Top of Fluid:	0 ft.
		Calculated Fill:	6,600 ft.
	Tail Slurry: 80 sacks Class H Cement + 0.6% bwoc FL-25 + 46.1 freshwater	Fluid Weight:	15.60 ppg
		Fluid Yield:	1.18 cu ft/sk
		Amount of mix water:	5.20 gal/sk
		Top of Fluid:	6,600 ft.
		Calculated Fill:	400 ft.

Cement will be circulated back to surface behind 7" string.

Casing Size	Cement Slurry	Properties	Property Values
4-1/2"	Spacer: 500 gals Mud Flush II		8.34 ppg
	Stage 1 **Tail Slurry**: 265 sacks (15:61:11) Poz (Fly Ash): Premium Plus H Cement:CSE-2 + 0.5% bwoc BA-10A + 5% bwow NaCl + 5 lbs/sack LCM-1 + 0.6% bwoc FL-25 + 0.6% bwoc FL-52A + 74.9% freshwater	Fluid Weight:	13.2 ppg
		Fluid Yield:	1.64 cu ft/sk

		Amount of mix water	7.82 gal/sk
		Top of Fluid:	8,700 ft
		Calculated Fill	3,200 ft.

5. Pressure Control Equipment:

0- 400' None

400 – ~~2000'~~ 1500 13-3/8" 3M double stack ram preventer, with one set of pipe rams and one set of blind rams with rotating head on top.

~~2000~~ – 11900' 1500 11" 5000# ram type preventers with one set blind rams and one set pipe rams and a 5000# annular type preventer. A choke manifold and 120 gallon stations and auxiliary power system. Rotating head below 8500'. Exhibit A

After setting the 13 3/8" casing, the annular preventor (that is used as a divertor only) will be tested by the rig pump to 1000'.

A kelly cock will be installed and maintained in operable condition an a drill string safety valve in the open position will be available on the rig floor. After setting the 9 5/8" casing, the blow out preventers and related control equipment shall be pressure tested to 5000 psi. Any equipment failing to test satisfactorily shall be repaired or replaced. Results of the BOP test shall be recorded in the Driller's Log. The BOP's will be maintained ready for use until drilling operations are completed.BOP drills will be conducted as necessary to assure that equipment is operational and each crew is properly trained to carry out emergency duties.

Accumulator shall maintain a [pressure capacity reserve at all times to provide for the close-open- close sequence of the blind and pipe rams of the hydraulic preventers

6. Mud Program:

Spud with freshwater/bentonite/lime type mud having a 38-42 sec/qt viscosity and drill to 13-3/8" casing point at 400 feet. Drill out the 13-3/8" casing with 10.0-10.1 ~~brine~~ fresh water and drill to ~~2,000~~ 1500 feet. Set 9-5/8" casing at ~~2,000~~ 1500 feet. Drill out with 9.0 ppg cut brine and test 9-5/8" shoe to an 11.0 ppg EMW. Drill from 2,000' to 7" casing point at 9,300' with 9.0-9.8 ppg brine water. Set 7" casing at 9,300 feet. Drill out and test 7" shoe to an 11.0 equivalent mud weight. After a successful shoe test mud-up 9.8 ppg brine water

see COA

with Duo Vis, Poly Pac R and My-Lo-Jel mud system. Maintain a 9.8-10.5 ppg mud weight, 38-44 sec/qt viscosity, 8.0-6.0 cc fluid loss to TD. Lost circulation material will be added, as needed.

H_2S training and safety equipment will be operations from the drilling out of the 13-3/8" casing to TD.

Drilling Fluid Properties

Depth (MD)	MW (ppg.)	Viscosity	PV	YP	API FL	pH	Drill Solids
0-400	8 8-9 2	38-42			NC	9.5-10 0	4-5%
400-~~2,000~~ 500	~~10 0-10 1~~	28	1	1	NC	9 5-10 0	≤1 5%
~~500~~ 2,000-9,300	9.0-9.8	28-30	1-2	1-2	NC	9 5-10 0	≤1 5%
9,300-TD	9 8-10.5	38-44	10-12	10-15	8 0-6.0	9.5-10 5	≤5%

See COA

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. Testing, logging and Coring Program:

A. Testing Program: No DST's are anticipated.

B. Mud logging program: One-man unit from 6000' to TD.

C. Electric logging program: CNL/LDT/CAL/GR, DLL/CAL/GR

D. Coring program: none

9. Potential Hazards:

No abnormal temperatures, or H2S gas are anticipated. H2S Contingency Plan is attached per NMOCD requirements. The highest anticipated pressure gradient would be .55psi/ft. Adequate flare lines will be installed off the mud/gas separator where gas may be flared safely.

10. Anticipated Starting Date and Duration of Operations:

Anticipated starting date is August, 2008. It should take approximately 45 days to drill the well and another 10 days to complete.

McVay Drilling Rig No. 5

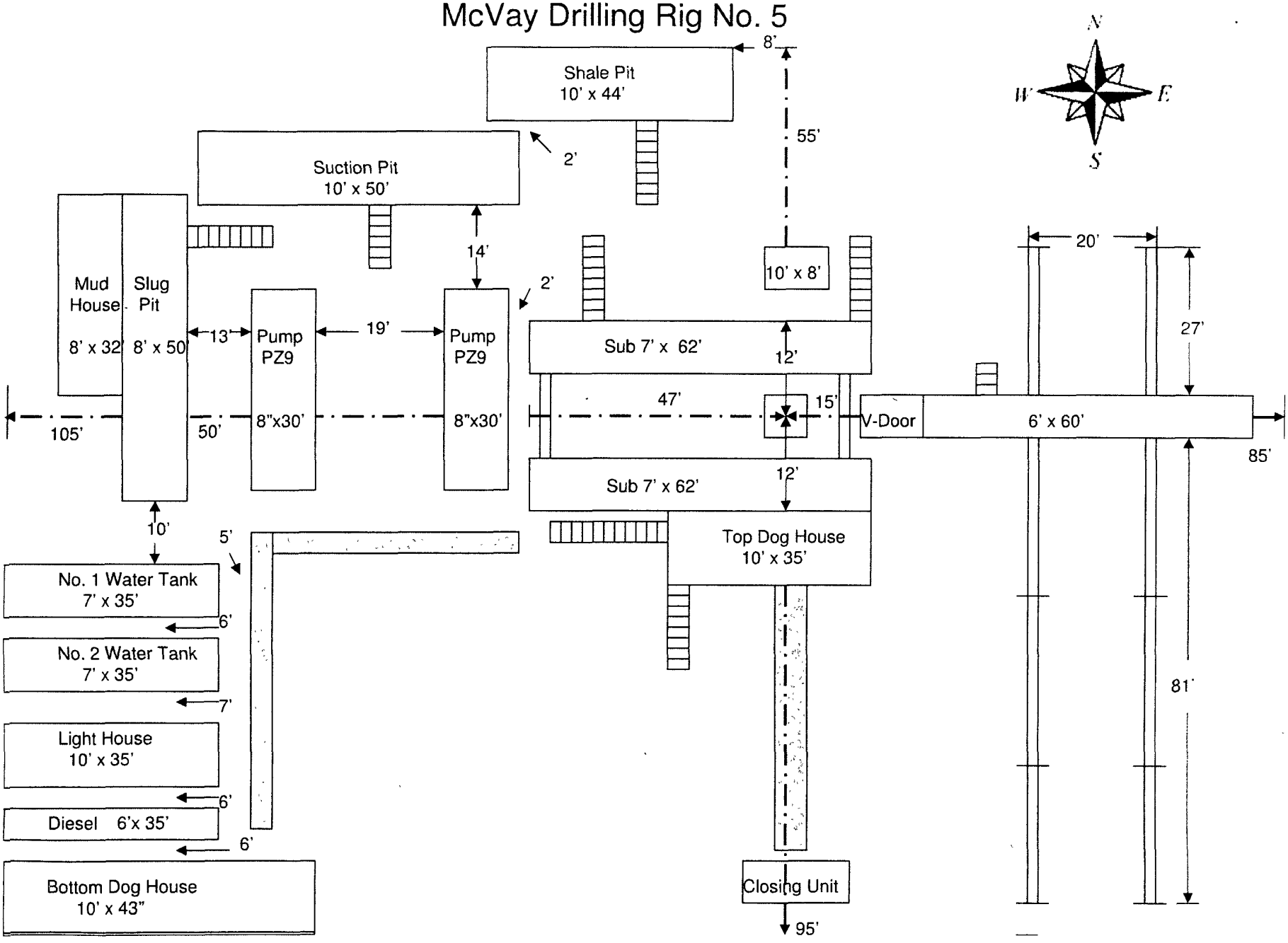


EXHIBIT A

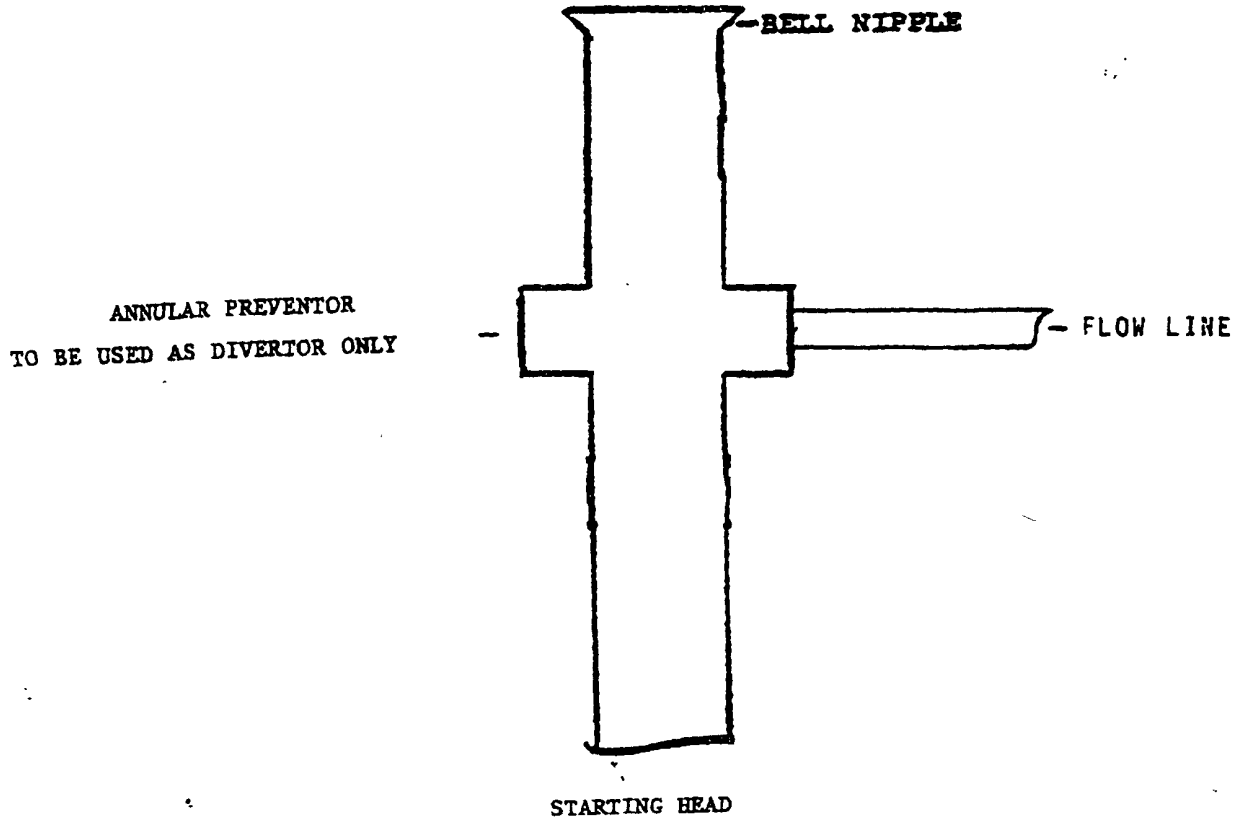
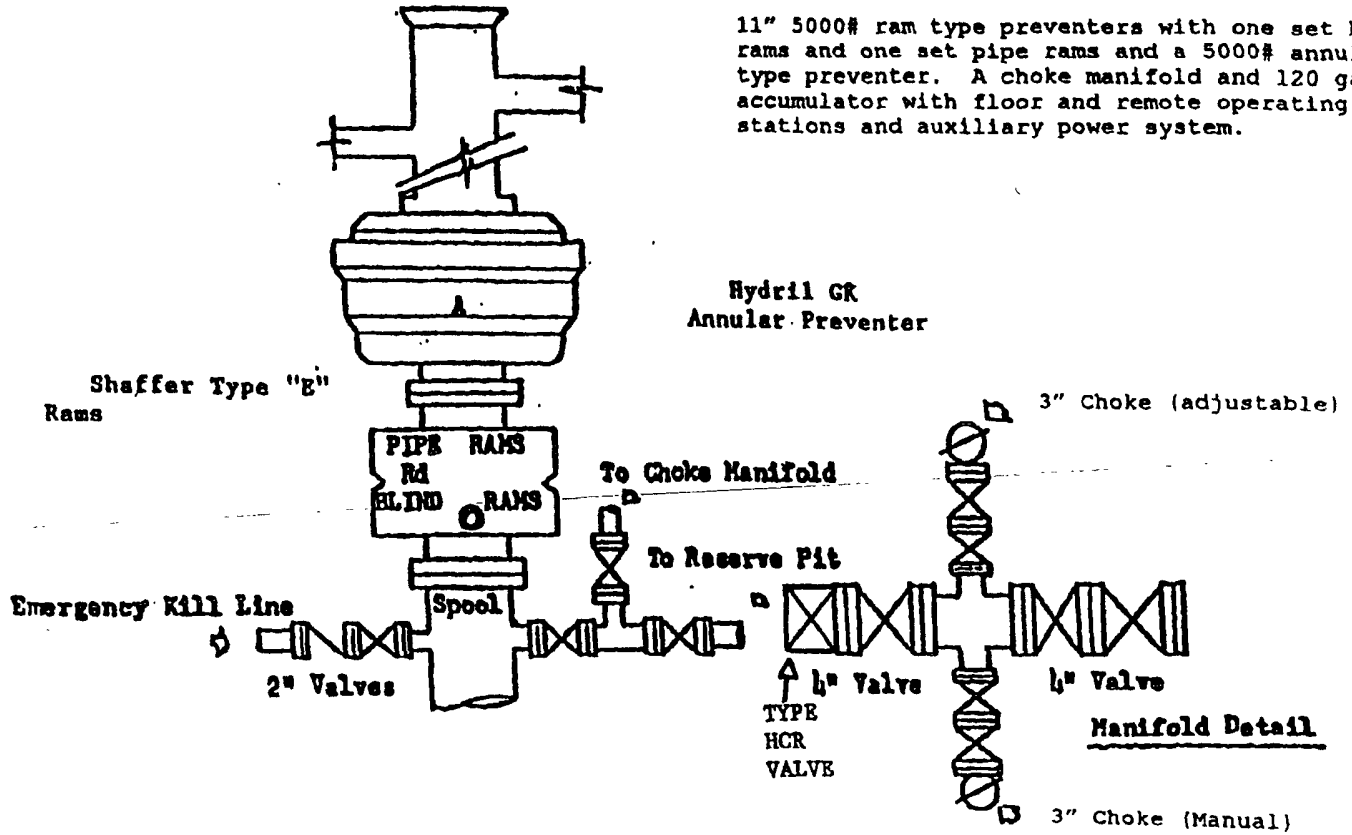

BELL NIPPLE
ANNULAR PREVENTOR
TO BE USED AS DIVERTOR ONLY
FLOW LINE
STARTING HEAD

EXHIBIT A

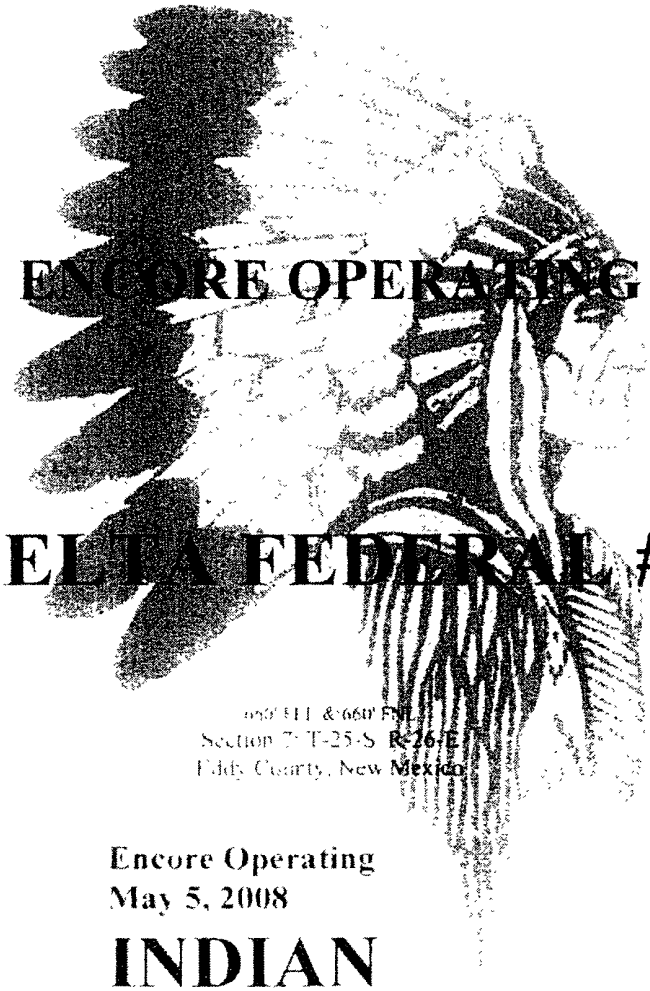
BLOWOUT PREVENTOR SCHEME



11" 5000# ram type preventers with one set blind rams and one set pipe rams and a 5000# annular type preventer. A choke manifold and 120 gallon accumulator with floor and remote operating stations and auxiliary power system.

Choke Manifold

CONTINGENCY PLAN



ENCORE OPERATING

DELTA FEDERAL #3

990' FEL & 660' FNL
Section 7, T-25-S, R-26-E
Eddy County, New Mexico

Prepared For: Encore Operating
Date Prepared: May 5, 2008

Prepared By: **INDIAN**
Fire & Safety, Inc.

TABLE OF CONTENTS

HYDROGEN SULFIDE CONTINGENCY PLAN

SCOPE

THIS CONTINGENCY PLAN ESTABLISHES GUIDELINES FOR THE PUBLIC, ALL COMPANY EMPLOYEES WHO'S WORK ACTIVITIES MAY INVOLVE EXPOSURE TO HYDROGEN SULFIDE (H2S) GAS.

OBJECTIVE

1. PREVENT ANY AND ALL ACCIDENTS, AND PREVENT THE UNCONTROLLED RELEASE OF HYDROGEN SULFIDE INTO THE ATMOSPHERE.

2. PROVIDE PROPER EVACUATION PROCEDURES TO COPE WITH EMERGENCIES.

3. PROVIDE IMMEDIATE AND ADEQUATE MEDICAL ATTENTION SHOULD AN INJURY OCCUR.

DISCUSSION

GEOLOGICAL PROGNOSIS	
IMPLEMENTATION:	THIS PLAN WITH ALL DETAILS IS TO BE FULLY IMPLEMENTED BEFORE DRILLING TO PRODUCTION CASING POINT.
EMERGENCY RESPONSE PROCEDURE:	THIS SECTION OUTLINES THE CONDITIONS AND DENOTES STEPS TO BE TAKEN IN THE EVENT OF AN EMERGENCY.
EMERGENCY EQUIPMENT PROCEDURE:	THIS SECTION OUTLINES THE SAFETY AND EMERGENCY EQUIPMENT THAT WILL BE REQUIRED FOR THE DRILLING OF THIS WELL.
TRAINING PROVISIONS	THIS SECTION OUTLINES THE TRAINING PROVISIONS THAT MUST BE ADHERED TO PRIOR TO DRILLING TO PRODUCTION CASING POINT.
DRILLING EMERGENCY CALL LISTS:	INCLUDED ARE THE TELEPHONE NUMBERS OF ALL PERSONS TO BE CONTACTED SHOULD AN EMERGENCY EXIST.
BRIEFING:	THIS SECTION DEALS WITH THE BRIEFING OF ALL PEOPLE INVOLVED IN THE DRILLING OPERATION.
PUBLIC SAFETY.	PUBLIC SAFETY PERSONNEL WILL BE MADE AWARE OF THE DRILLING OF THIS WELL.
CHECK LISTS:	STATUS CHECK LISTS AND PROCEDURAL CHECK LISTS HAVE BEEN INCLUDED TO INSURE ADHERENCE TO THE PLAN.
GENERAL INFORMATION:	A GENERAL INFORMATION SECTION HAS BEEN INCLUDED TO SUPPLY SUPPORT INFORMATION.

EMERGENCY PROCEDURES

A. IN THE EVENT OF ANY EVIDENCE OF H2S LEVEL ABOVE 10 PPM, TAKE THE FOLLOWING STEPS:

1. SECURE BREATHING EQUIPMENT.

2. ORDER NON-ESSENTIAL PERSONNEL OUT OF DANGER ZONE.

3. TAKE STEPS TO DETERMINE IF THE H2S LEVEL CAN BE CORRECTED OR SUPPRESSED AND, IF SO, PROCEED IN NORMAL OPERATION.

B. IF UNCONTROLLABLE CONDITIONS OCCUR:

1. TAKE STEPS TO PROTECT AND/OR REMOVE ANY PUBLIC IN THE DOWN-WIND AREA FROM THE RIG – PARTIAL EVACUATION AND ISOLATION. NOTIFY NECESSARY PUBLIC SAFETY PERSONNEL AND THE BUREAU OF LAND MANAGEMENT OF THE SITUATION.

2. REMOVE ALL PERSONNEL TO SAFE BREATHING AREA.

3. NOTIFY PUBLIC SAFETY PERSONNEL TO SAFE BREATHING AREA.

4. PROCEED WITH BEST PLAN (AT THE TIME) TO REGAIN CONTROL OF THE WELL. MAINTAIN TIGHT SECURITY AND SAFETY PROCEDURES.

C. RESPONSIBILITY:

1. DESIGNATED PERSONNEL.

a. SHALL BE RESPONSIBLE FOR THE TOTAL IMPLEMENTATION OF THIS PLAN.

b. SHALL BE IN COMPLETE COMMAND DURING ANY EMERGENCY

c. SHALL DESIGNATE A BACK-UP

EMERGENCY PROCEDURES

*(Procedures are the same for both Drilling and Tripping)

ALL PERSONNEL:	1.	ON ALARM, DON ESCAPE UNIT AND REPORT IN UP WIND BRIEFING AREA.
	2.	CHECK STATUS OF PERSONNEL (BUDDY SYSTEM).
	3.	SECURE BREATHING EQUIPMENT.
	4.	AWAIT ORDERS FROM SUPERVISOR
DRILLING FOREMAN:	1.	REPORT TO UP WIND BRIEFING AREA.
	2.	DON BREATHING EQUIPMENT AND RETURN TO POINT OF RELEASE WITH TOOL PUSHER OR DRILLER (BUDDY SYSTEM).
	3.	DETERMINE H2S CONCENTRATIONS.
	4.	ASSESS SITUATION AND TAKE CONTROL MEASURES.
TOOL PUSHER	1.	REPORT TO UP WIND BRIEFING AREA.
	2.	DON BREATHING EQUIPMENT AND RETURN TO POINT OF RELEASE WITH DRILLING FOREMAN OR DRILLER (BUDDY SYSTEM).
	3.	DETERMINE H2S CONCENTRATION.
	4.	ASSESS SITUATION AND TAKE CONTROL MEASURES.
DRILLER:	1.	DON ESCAPE UNIT.
	2	CHECK MONITOR FOR POINT OF RELEASE.
	3	REPORT TO BRIEFING AREA.
	4	CHECK STATUS OF PERSONNEL (IN AN ATTEMPT TO RESCUE, USE THE BUDDY SYSTEM).
	5	ASSIGNS LEAST ESSENTIAL PERSON TO NOTIFY DRILLING FOREMAN AND TOOL PUSHER BY QUICKEST MEANS IN CASE OF THEIR ABSENCE.
	6.	ASSUMES THE RESPONSIBILITIES OF THE DRILLING FORMAN AND TOOL PUSHER UNTIL THEY ARRIVE SHOULD THEY BE ABSENT

EMERGENCY PROCEDURES

DERRICK MAN FLOOR MAN #1 FLOOR MAN #2	1	WILL REMAIN IN BRIEFING AREA UNTIL INSTRUCTED BY SUPERVISOR
MUD ENGINEER	1 2	REPORT TO BRIEFING AREA. WHEN INSTRUCTED, BEGIN CHECK OF MUD FOR PH AND H2S LEVEL. (GARETT GAS TRAIN.)
SAFETY PERSONNEL:	1.	MASK UP AND CHECK STATUS OF ALL PERSONNEL AND SECURE OPERATIONS AS INSTRUCTED BY DRILLING FOREMAN AND REPORT TO BRIEFING AREA.

TAKING A KICK

WHEN TAKING A KICK DURING AN H2S EMERGENCY, ALL PERSONNEL WILL FOLLOW STANDARD BOP PROCEDURES AFTER REPORTING TO BRIEFING AREA AND MASKING UP.

OPEN-HOLE LOGGING

ALL UNNECESSARY PERSONNEL OFF FLOOR. DRILLING FOREMAN AND SAFETY PERSONNEL SHOULD MONITOR CONDITION, ADVISE STATUS AND DETERMINE NEED FOR USE OF AID EQUIPMENT.

RUNNING CASING OR PLUGGING

FOLLOWING THE SAME "TRIPPING" PROCEDURE AS ABOVE. DRILLING FOREMAN AND SAFETY PERSONNEL SHOULD DETERMINE IF ALL PERSONNEL HAVE ACCESS TO PROTECTIVE EQUIPMENT.

IGNITION PROCEDURES

THE DECISION TO IGNITE THE WELL IS THE RESPONSIBILITY OF COMPANY FOREMAN. IN THE EVENT HE IS INCAPACITATED, IT BECOMES THE RESPONSIBILITY OF THE CONTRACT RIG TOOL PUSHER. THE DECISION SHOULD BE MADE ONLY AS A LAST RESORT AND IN A SITUATION WHERE IT IS CLEAR THAT:

1. HUMAN LIFE AND PROPERTY ARE ENDANGERED.
2. THERE IS NO HOPE CONTROLLING THE BLOWOUT UNDER THE PREVAILING CONDITIONS AT THE WELL.

NOTIFY THE DISTRICT OFFICE IF TIME PERMITS, BUT DO NOT DELAY IF HUMAN LIFE IS IN DANGER.

INITIATE FIRST PHASE OF EVACUATION PLAN.

IGNITION PROCEDURES

INSTRUCTIONS FOR IGNITING THE WELL

1. TWO PEOPLE ARE REQUIRED FOR THE ACTUAL IGNITING OPERATION. THEY MUST WEAR SELF-CONTAINED BREATHING UNITS AND HAVE SAFETY ROPE ATTACHED. ONE MAN (TOOL PUSHER OR SAFETY ENGINEER) WILL CHECK THE ATMOSPHERE FOR EXPLOSIVE GASES WITH THE EXPLOSIMETER. THE OTHER MAN (DRILLING FOREMAN) IS RESPONSIBLE FOR IGNITING THE WELL.
2. PRIMARY METHOD TO IGNITE: 25 MM FLARE GUN WITH RANGE OF APPROXIMATELY 500 FEET.
3. IGNITE UP WIND AND DO NOT APPROACH ANY CLOSER THAN IS WARRANTED.
4. SELECT THE IGNITION SITE BEST FOR PROTECTION, AND WHICH OFFERS AN EASY ESCAPE ROUTE.
5. BEFORE FIRING, CHECK FOR PRESENCE OF COMBUSTIBLE GAS.
6. AFTER LIGHTING, CONTINUE EMERGENCY ACTION AND PROCEDURE AS BEFORE.
7. ALL UNASSIGNED PERSONNEL WILL LIMIT THEIR ACTIONS TO THOSE DIRECTED BY THE DRILLING FOREMAN.

REMEMBER: AFTER WELL IS IGNITED, BURNING HYDROGEN SULFIDE WILL CONVERT TO SULFUR DIOXIDE, WHICH IS ALSO HIGHLY TOXIC. DO NOT ASSUME THE AREA IS SAFE AFTER THE WELL IS IGNITED.

TRAINING REQUIREMENTS

WHEN WORKING IN AN AREA WHERE HYDROGEN SULFIDE GAS (H2S) MIGHT BE ENCOUNTERED, DEFINITE TRAINING REQUIREMENTS MUST BE CARRIED OUT. ALL COMPANIES WILL INSURE THAT ALL PERSONNEL AT THE WELL SITE WILL HAVE HAD ADEQUATE TRAINING IN THE FOLLOWING:

1. HAZARDS AND CHARACTERISTICS OF H2S.
2. PHYSICAL EFFECTS OF HYDROGEN SULFIDE ON THE HUMAN BODY.
3. TOXICITY OF HYDROGEN SULFIDE AND SULFUR DIOXIDE.
4. H2S DETECTION.
5. EMERGENCY RESCUE.
6. RESUSCITATORS.
7. FIRST AID AND ARTIFICIAL RESPIRATION.
8. EFFECTS OF H2S ON METALS.
9. LOCATION SAFETY.

SERVICE COMPANY AND VISITING PERSONNEL

A. EACH SERVICE COMPANY THAT WILL BE ON THIS WELL WILL BE NOTIFIED IF THE ZONE CONTAINS H2S.

B. EACH SERVICE COMPANY MUST PROVIDE FOR THE TRAINING AND EQUIPMENT OF THEIR EMPLOYEES BEFORE THEY ARRIVE AT THE WELL SITE.

C. EACH SERVICE COMPANY WILL BE EXPECTED TO ATTEND A WELL SITE BRIEFING.

EMERGENCY EQUIPMENT REQUIREMENTS

1. SIGNS

A. ONE SIGN LOCATED AT LOCATION ENTRANCE WITH THE FOLLOWING LANGUAGE:

(LEASE)
CAUTION – POTENTIAL POISON GAS
HYDROGEN SULFIDE
NO ADMITTANCE WITHOUT AUTHORIZATION

2 WIND SOCK – WIND STREAMERS

A. ONE 36" (IN LENGTH) WIND SOCK LOCATED AT PROTECTION CENTER, AT HEIGHT VISIBLE FROM RIG FLOOR.
B. ONE 36" (IN LENGTH) WIND SOCK LOCATED AT HEIGHT VISIBLE FROM PIT AREAS.

3. HYDROGEN SULFIDE DETECTOR AND ALARMS

A H2S MONITORS WITH ALARMS WILL BE LOCATED ON THE RIG FLOOR, AT THE BELL NIPPLE, AND AT THE FLOW LINE. THESE MONITORS WILL BE SET TO ALARM AT 10 PPM WITH RED LIGHT, AND TO ALARM AT 15 PPM WITH RED LIGHT AND AUDIBLE ALARM.
B. HAND OPERATED DETECTORS WITH TUBES.
C. H2S MONITOR TESTER.

4. CONDITION FLAGS

A. ONE EACH OF ORANGE, YELLOW, AND RED CONDITION FLAGS TO BE DISPLAYED TO DENOTE CONDITIONS.

GREEN – NORMAL CONDITIONS
YELLOW – POTENTIAL DANGER
RED – DANGER, H2S PRESENT

B CONDITION FLAG SHALL BE POSTED AT LOCATION SIGN ENTRANCE

EMERGENCY EQUIPMENT REQUIREMENTS

5. AUXILIARY RESCUE EQUIPMENT

A. STRETCHER
B. 100' LENGTH OF 5/8" NYLON ROPE.

6. MUD INSPECTION DEVICES

GARRETT GAS TRAIN OR HACH TESTER FOR INSPECTION OF SULFIDE CONCENTRATION IN MUD SYSTEM.

7. FIRE EXTINGUISHER

ADEQUATE FIRE EXTINGUISHERS SHALL BE LOCATED AT STRATEGIC LOCATIONS.

8 BLOW OUT PREVENTION EQUIPMENT

THE WELL SHALL HAVE HYDRAULIC BOP EQUIPMENT FOR THE ANTICIPATED BHP OF 1500 PSI. EQUIPMENT IS TO BE TESTED ON INSTALLATION.

9 COMBUSTIBLE GAS DETECTOR

THERE SHALL BE ONE COMBUSTIBLE GAS DETECTOR ON LOCATION AT ALL TIMES.

10 BOP TESTING

BOP AND CHOKE LINE AND KILL LINE WILL BE TESTED.

11. AUDIO SYSTEM

RADIO COMMUNICATION WILL BE AVAILABLE AT THE RIG.
A. RIG FLOOR OR TRAILER
B VEHICLE

12 SPECIAL CONTROL EQUIPMENT

A HYDRAULIC BOP EQUIPMENT WITH REMOTE CONTROL ON GROUND.
B ROTATING HEAD

EMERGENCY EQUIPMENT REQUIREMENTS

13. EVACUATION PLAN

EVACUATION ROUTES SHOULD BE ESTABLISHED PRIOR TO SPUDDING EACH WELL AND DISCUSSED WITH ALL RIG PERSONNEL.

14 DESIGNATED AREA

A. PARKING AND VISITOR AREA: ALL VEHICLES ARE TO BE PARKED AT A PREDETERMINED SAFE DISTANCE FROM THE WELLHEAD. THIS WILL BE THE DESIGNATED SMOKING AREA.
B. TWO BRIEFING AREAS ON EITHER SIDE OF THE LOCATION AT THE MAXIMUM ALLOWABLE DISTANCE FROM THE WELL BORE SO THEY OFFSET PREVAILING WINDS PERPENDICULARLY, OR AT A 45-DEGREE ANGLE IF WIND DIRECTION TENDS TO SHIFT IN THE AREA.
C. PROTECTION CENTERS OR IF A MOVABLE TRAILER IS USED, IT SHOULD BE DEPT UPWIND OF EXISTING WINDS. WHEN WIND IS FROM THE PREVAILING DIRECTIONS, BOTH PROTECTION CENTERS SHOULD BE ACCESSIBLE.

STATUS CHECK LIST

NOTE: ALL ITEMS ON THIS LIST MUST BE COMPLETED BEFORE DRILLING TO PRODUCTION CASING POINT

1. SIGN AT LOCATION ENTRANCE.
2. TWO (2) WIND SOCKS LOCATED AS REQUIRED.
3. TWO (2) 30-MINUTE PRESSURE DEMAND AIR PACKS ON LOCATION FOR ALL RIG PERSONNEL AND MUD LOGGERS.
4. AIR PACK INSPECTED FOR READY USE.
5. CASCADE SYSTEM AND HOSE LINE HOOK-UP.
6. CASCADE SYSTEM FOR REFILLING AIR BOTTLES.
7. SAFE BREATHING AREAS SET UP.
8. CONDITION FLAG ON LOCATION AND READY FOR USE.
9. H2S DETECTION SYSTEM HOOKED UP.
10. H2S ALARM SYSTEM HOOKED UP AND READY.
11. OXYGEN RESUSCITATOR ON LOCATION AND TESTED FOR USE.
12. STRETCHER ON LOCATION AT SAFETY TRAILER.
13. 1 - 100' LENGTH OF NYLON ROPE ON LOCATION.
14. ALL RIG CREW AND SUPERVISORS TRAINED AS REQUIRED.
15. ALL OUTSIDE SERVICE CONTRACTORS ADVISED OF POTENTIAL H2S HAZARD ON WELL.
16. NO SMOKING SIGN POSTED.
17. HAND OPERATED H2S DETECTOR WITH TUBES ON LOCATION.

CHECKED BY _____ DATE _____

PROCEDURAL CHECK LIST

PERFORM EACH TOUR:

1. CHECK FIRE EXTINGUISHERS TO SEE THAT THEY HAVE THE PROPER CHARGE.

2. CHECK BREATHING EQUIPMENT TO ENSURE THAT IT HAS NOT BEEN TAMPERED WITH.

3. MAKE SURE ALL THE H2S DETECTION SYSTEM IS OPERATIVE.

PERFORM EACH WEEK:

1. CHECK EACH PIECE OF BREATHING EQUIPMENT TO MAKE SURE THAT DEMAND REGULATOR IS WORKING. THIS REQUIRES THAT THE BOTTLE BE OPENED AND THE MASK ASSEMBLY BE PUT ON TIGHT ENOUGH SO THAT WHEN YOU INHALE, YOU RECEIVE AIR.

2. BLOW OUT PREVENTER SKILLS.

3. CHECK SUPPLY PRESSURE ON BOP ACCUMULATOR STAND BY SOURCE.

4. CHECK ALL SKA-PAC UNITS FOR OPERATION: DEMAND REGULATOR, ESCAPE BOTTLE AIR VOLUMES, SUPPLY BOTTLE OF AIR VOLUME.

5. CHECK BREATHING EQUIPMENT MASK ASSEMBLY TO SEE THAT STRAPS ARE LOOSENED AND TURNED BACK, READY TO PUT ON.

6. CHECK PRESSURE ON BREATHING EQUIPMENT AIR BOTTLES TO MAKE SURE THEY ARE CHARGED TO FULL VOLUME.

7. CONFIRM PRESSURE ON ALL SUPPLY AIR BOTTLES

8. PERFORM BREATHING EQUIPMENT DRILLS WITH ON-SITE PERSONNEL.

9. CHECK THE FOLLOWING SUPPLIES FOR AVAILABILITY.

   A. EMERGENCY TELEPHONE LIST.
   B. HAND OPERATED H2S DETECTORS AND TUBES

GENERAL EVACUATION PLAN

THE DIRECT LINES OF ACTION PREPARED BY **INDIAN FIRE & SAFETY, INC.** TO PROTECT THE PUBLIC FROM HAZARDOUS GAS SITUATIONS ARE AS FOLLOWS:

1. WHEN THE COMPANY APPROVED SUPERVISOR (DRILLING FOREMAN, CONSULTANT, RIG PUSHER, OR DRILLER) DETERMINES THE H2S GAS CANNOT BE LIMITED TO THE WELL LOCATION AND THE PUBLIC WILL BE INVOLVED, HE WILL ACTIVATE THE EVACUATION PLAN. ESCAPE ROUTES ARE NOTED ON AREA MAP.

2. "COMPANY MAN" OR DESIGNEE WILL NOTIFY LOCAL GOVERNMENT AGENCY THAT A HAZARDOUS CONDITION EXISTS AND EVACUATION NEEDS TO BE IMPLEMENTED.

3. COMPANY SAFETY PERSONNEL THAT HAVE BEEN TRAINED IN THE USE OF H2S DETECTION EQUIPMENT AND SELF-CONTAINED BREATHING EQUIPMENT WILL MONITOR H2S CONCENTRATIONS, WIND DIRECTIONS, AND AREA OF EXPOSURE. THEY WILL DELINEATE THE OUTER PERIMETER OF THE HAZARDOUS GAS AREA. EXTENSION TO THE EVACUATION AREA WILL BE DETERMINED FROM INFORMATION GATHERED.

4. LAW ENFORCEMENT PERSONNEL (STATE POLICE, POLICE DEPT., FIRE DEPT., AND SHERIFF'S DEPT.) WILL BE CALLED TO AID IN SETTING UP AND MAINTAINING ROAD BLOCKS. ALSO, THEY WILL AID IN EVACUATION OF THE PUBLIC IF NECESSARY.

IMPORTANT: LAW ENFORCEMENT PERSONNEL WILL NOT BE ASKED TO COME INTO A CONTAMINATED AREA. THEIR ASSISTANCE WILL BE LIMITED TO UNCONTAMINATED AREAS. CONSTANT RADIO CONTACT WILL BE MAINTAINED WITH THEM.

5. AFTER THE DISCHARGE OF GAS HAS BEEN CONTROLLED, COMPANY SAFETY PERSONNEL WILL DETERMINE WHEN THE AREA IS SAFE FOR RE-ENTRY.

EMERGENCY ACTIONS

WELL BLOWOUT – IF EMERGENCY

1. EVACUATE ALL PERSONNEL IF POSSIBLE.
2. IF SOUR GAS – EVACUATE RIG PERSONNEL.
3. IF SOUR GAS – EVACUATE PUBLIC WITHIN 3000 FT RADIUS OF EXPOSURE.
4. DON SCBA AND RESCUE.
5. CALL 911 FOR EMERGENCY HELP (FIRE DEPT AND AMBULANCE) AND NOTIFY SR. DRILLING FOREMAN AND DISTRICT FOREMAN.
6. GIVE FIRST AID.

PERSON DOWN LOCATION/FACILITY

1. IF IMMEDIATELY POSSIBLE, CONTACT 911. GIVE LOCATION AND WAIT FOR CONFIRMATION.
2. DON SCBA AND RESCUE

EMERGENCY PHONE LIST

GOVERNMENTAL AGENCIES

Eddy County Sheriff's Office		911
Non emergency	505-746-9888	
Fire Departments		911
Carlsbad – Non-emergency	505-885-2111	
BLM		
Carlsbad	505-361-2822	
State Police Department		911
Non-emergency	505-437-1313	
City of Carlsbad		
	505-885-2111	
Ambulance		911
Carlsbad – Non Emergency	505-885-2111	
Hospitals		
Carlsbad	505-887-4100	
AEROCARE	806-747-8923	
CHEMTREC	1-800-424-9300	
OSHA		
Lubbock TX	1-800-692-4204	

Emergency Contact List

Encore Operating

Kevin Bowker - Drilling Superintendent. 432-556-8680

Don Wood – Drilling Engineer: 817-239-7090

Joe Fleming - Drilling Manager: 432-425-6075

Dale Hinton - Safety Specialist: 817-339-0776; 817-905-0992

Rig #

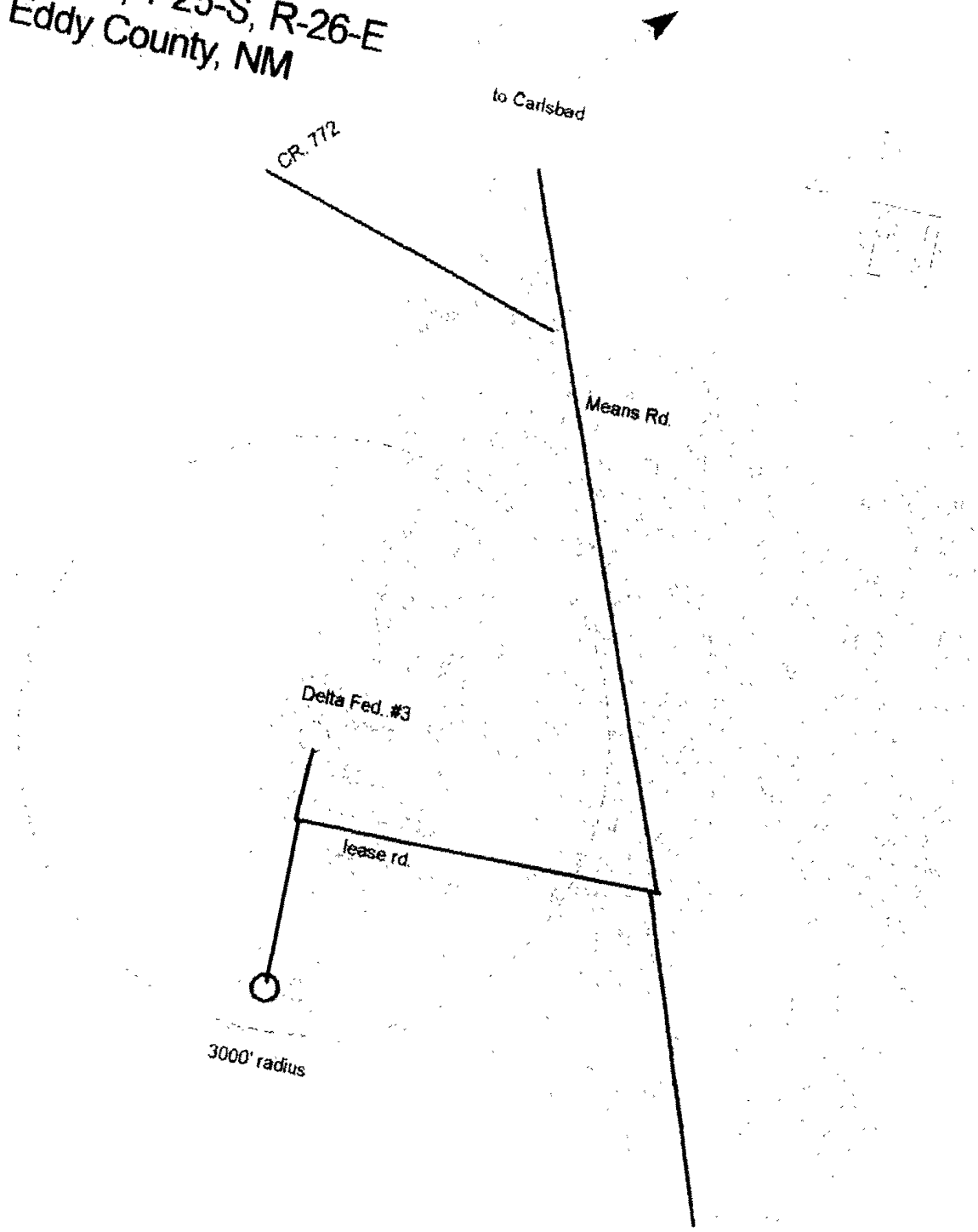
Rick Messager - 432-557-9632

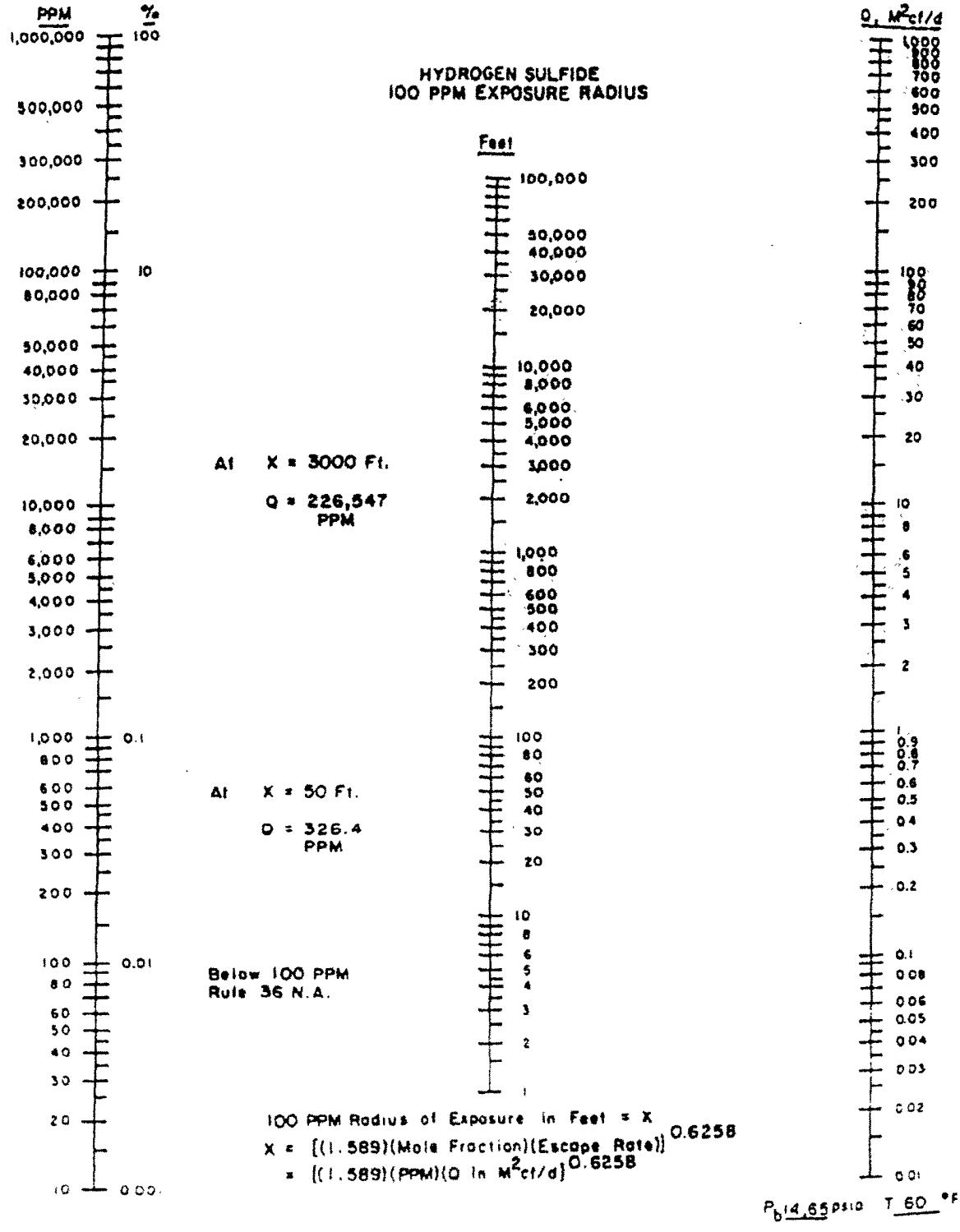
Indian Fire & Safety, Inc.
3317 W. County Road
505-393-3093 - office
800-530-8693 – toll free
505-392-6274 – fax

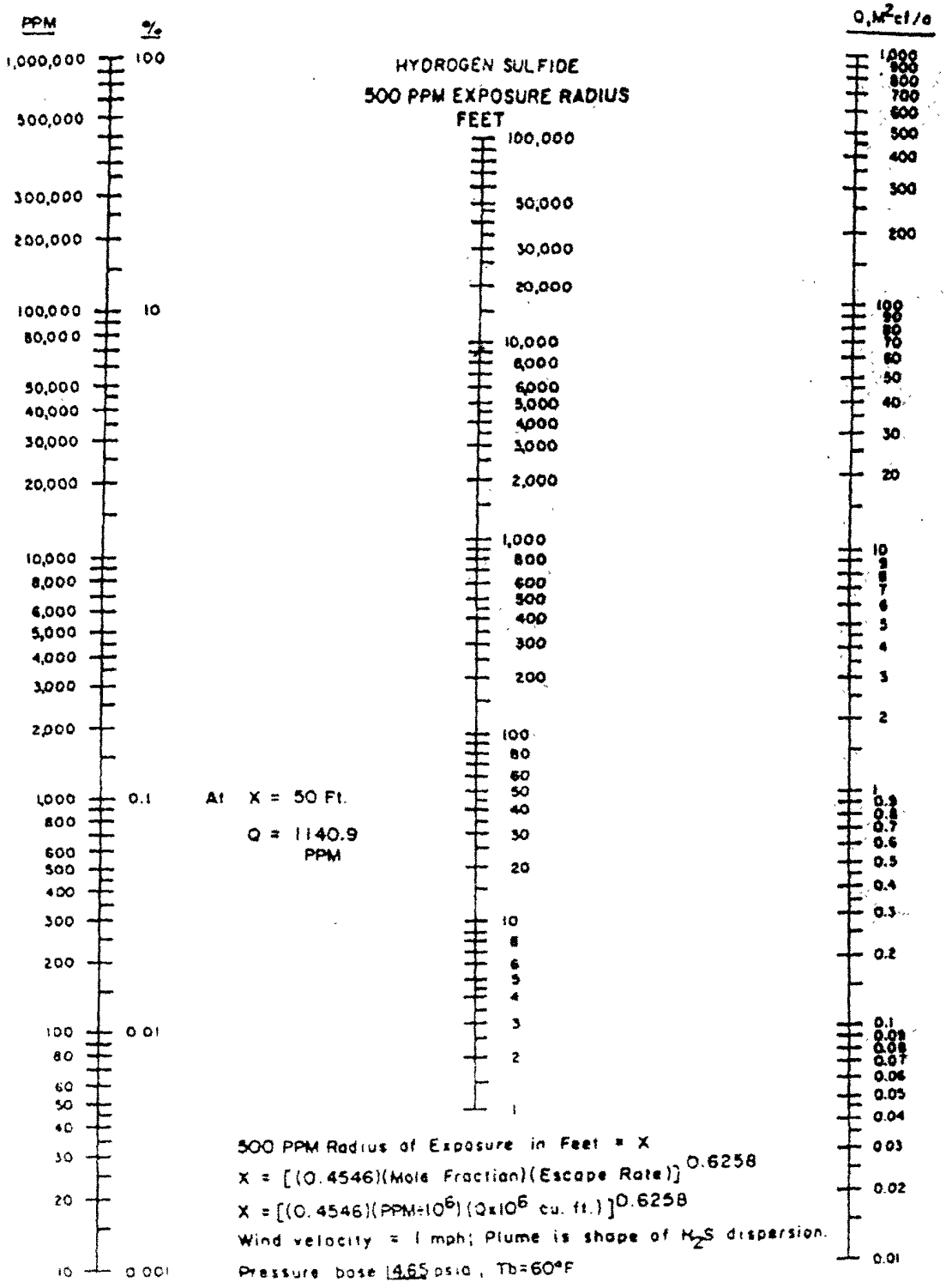
Personnel Contact List

	Cell Phone	Home Phone
James Spurgeon	390-8582	492-9354
Scott Dudenhoeffer	631-9753	392-4833
Sam Abney	631-9712	393-5427
Curtis Newton	631-1255	393-3762
Chris Spurgeon	806-215-1087	806-592-0079

ENCORE OPERATING
Delta Federal # 3
Sec. 7, T-25-S, R-26-E
Eddy County, NM




HYDROGEN SULFIDE
100 PPM EXPOSURE RADIUS
PPM
%
Feet
Q, M²cf/d
At X = 3000 Ft.
Q = 226,547 PPM
At X = 50 Ft.
Q = 326.4 PPM
Below 100 PPM
Rule 36 N.A.
100 PPM Radius of Exposure in Feet = X
X = [(1.589)(Mole Fraction)(Escape Rate)]^0.6258
= [(1.589)(PPM)(Q in M²cf/d]^0.6258
Pb 14.65 psia T 60 °F


PPM
%
1,000,000
500,000
300,000
200,000
100,000
80,000
50,000
40,000
30,000
20,000
10,000
8,000
6,000
5,000
4,000
3,000
2,000
1,000
800
600
500
400
300
200
100
80
60
50
40
30
20
10
100
10
0.1
0.01
0.001
HYDROGEN SULFIDE
500 PPM EXPOSURE RADIUS
FEET
100,000
50,000
30,000
20,000
10,000
8,000
6,000
5,000
4,000
3,000
2,000
1,000
800
600
500
400
300
200
100
80
60
50
40
30
20
10
8
6
5
4
3
2
1
At X = 50 Ft.
Q = 1140.9
PPM
Q, M³cf/a
1,000
900
800
700
600
500
400
300
200
100
90
80
70
60
50
40
30
20
10
9
8
7
6
5
4
3
2
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
500 PPM Radius of Exposure in Feet = X
X = [(0.4546)(Mole Fraction)(Escape Rate)]^0.6258
X = [(0.4546)(PPM÷10^6)(Q×10^6 cu. ft.)]^0.6258
Wind velocity = 1 mph; Plume is shape of H2S dispersion.
Pressure base 14.65 psia, Tb=60°F

TOXIC EFFECTS OF HYDROGEN SULFIDE

HYDROGEN SULFIDE IS EXTREMELY TOXIC. THE ACCEPTABLE CEILING CONCENTRATION FOR EIGHT-HOUR EXPOSURE IS 10 PPM, WHICH IS .001% BY VOLUME. HYDROGEN SULFIDE IS HEAVIER THAN AIR (SPECIFIC GRAVITY = 1.192) AND COLORLESS. IT FORMS AN EXPLOSIVE MIXTURE WITH AIR BETWEEN 4.3 AND 46.0 PERCENT BY VOLUME. HYDROGEN SULFIDE IS ALMOST AS TOXIC AS HYDROGEN CYANIDE AND IS BETWEEN FIVE AND SIX TIMES MORE TOXIC THAN CARBON MONOXIDE. TOXICITY DATA FOR HYDROGEN SULFIDE AND VARIOUS OTHER GASES ARE COMPARED IN TABLE I. PHYSICAL EFFECTS AT VARIOUS HYDROGEN SULFIDE EXPOSURE LEVELS ARE SHOWN IN TABLE II.

TABLE I
TOXICITY OF VARIOUS GASES

COMMON NAME	CHEMICAL FORMULA	SPECIFIC GRAVITY (SC=1)	THRESHOLD LIMIT (1)	HAZARDOUS LIMIT (2)	LETHAL CONCENTRATION (3)
HYDROGEN CYANIDE	HCN	0.94	10 PPM	150 PPM/HR	300 PPM
HYDROGEN SULFIDE	H2S	1.18	10 PPM	250 PPM/HR	600 PPM
SULFUR DIOXIDE	SO2	2.21	5 PPM	-	1000 PPM
CHLORINE	CL2	2.45	1 PPM	4 PPM/HR	1000 PPM
CARBON MONOXIDE	CO	0.97	50 PPM	400 PPM/HR	1000 PPM
CARBON DIOXIDE	CO2	1.52	5000 PPM	5%	10%
METHANE	CH4	0.55	90,000 PPM	COMBUSTIBLE ABOVE 5% IN AIR	

1) THRESHOLD LIMIT -- CONCENTRATION AT WHICH IT IS BELIEVED THAT ALL WORKERS MAY BE REPEATEDLY EXPOSED DAY AFTER DAY WITHOUT ADVERSE EFFECTS.

2) HAZARDOUS LIMIT - CONCENTRATION THAT WILL CAUSE DEATH WITH SHORT-TERM EXPOSURE

3) LETHAL CONCENTRATION - CONCENTRATION THAT WILL CAUSE DEATH WITH SHORT-TERM EXPOSURE.

TOXIC EFFECTS OF HYDROGEN SULFIDE

TABLE II
PHYSICAL EFFECTS OF HYDROGEN SULFIDE

PERCENT (%)	PPM	CONCENTRATION GRAINS 100 STD. FT3*	PHYSICAL EFFECTS
0.001	<10	00.65	Obvious and unpleasant odor.
0.002	10	01.30	Safe for 8 hours of exposure
0.010	100	06.48	Kill smell in 3 – 15 minutes May sting eyes and throat.
0.020	200	12.96	Kills smell shortly; Stings eyes and throat.
0.050	500	32.96	Dizziness; Breathing ceases in a few minutes; Needs prompt artificial respiration.
0.070	700	45.36	Unconscious quickly; Death will result if not rescued promptly.
0.100	1000	64.30	Unconscious at once; Followed by death within minutes.

*AT 15.00 PSIA AND 60°F.

USE OF SELF-CONTAINED BREATHING EQUIPMENT

1. WRITTEN PROCEDURES SHALL BE PREPARED COVERING SAFE USE OF SCBA'S IN DANGEROUS ATMOSPHERE, WHICH MIGHT BE ENCOUNTERED IN NORMAL OPERATIONS OR IN EMERGENCIES. PERSONNEL SHALL BE FAMILIAR WITH THESE PROCEDURES AND THE AVAILABLE SCBA.

2. SCBA'S SHALL BE INSPECTED FREQUENTLY AT RANDOM TO INSURE THAT THEY ARE PROPERLY USED, CLEANED, AND MAINTAINED.

3. ANYONE WHO MAY USE THE SCBA'S SHALL BE TRAINED IN HOW TO INSURE PROPER FACE-PIECE TO FACE SEAL. THEY SHALL WEAR SCBA'S IN NORMAL AIR AND THEN WEAR THEM IN A TEST ATMOSPHERE. (NOTE: SUCH ITEMS AS FACIAL HAIR {BEARD OR SIDEBURNS} AND EYEGLASSES WILL NOT ALLOW PROPER SEAL.) ANYONE THAT MAY BE REASONABLY EXPECTED TO WEAR SCBA'S SHOULD HAVE THESE ITEMS REMOVED BEFORE ENTERING A TOXIC ATMOSPHERE. A SPECIAL MASK MUST BE OBTAINED FOR ANYONE WHO MUST WEAR EYEGLASSES OR CONTACT LENSES.

4. MAINTENANCE AND CARE OF SCBA'S:

   A. A PROGRAM FOR MAINTENANCE AND CARE OF SCBA'S SHALL INCLUDE THE FOLLOWING:
      1. INSPECTION FOR DEFECTS, INCLUDING LEAK CHECKS.
      2. CLEANING AND DISINFECTING.
      3. REPAIR.
      4. STORAGE.

   B. INSPECTION; SELF-CONTAINED BREATHING APPARATUS FOR EMERGENCY USE SHALL BE INSPECTED MONTHLY FOR THE FOLLOWING PERMANENT RECORDS KEPT OF THESE INSPECTIONS.
      1. FULLY CHARGED CYLINDERS.
      2. REGULATOR AND WARNING DEVICE OPERATION.
      3. CONDITION OF FACE PIECE AND CONNECTIONS.
      4. ELASTOMER OR RUBBER PARTS SHALL BE STRETCHED OR MASSAGED TO KEEP THEM PLIABLE AND PREVENT DETERIORATION.

   C. ROUTINELY USED SCBA'S SHALL BE COLLECTED, CLEANED AND DISINFECTED AS FREQUENTLY AS NECESSARY TO INSURE PROPER PROTECTION IS PROVIDED (22)

USE OF SELF-CONTAINED BREATHING EQUIPMENT

5 PERSONS ASSIGNED TASKS THAT REQUIRES USE OF SELF-CONTAINED BREATHING EQUIPMENT SHALL BE CERTIFIED PHYSICALLY FIT FOR BREATHING EQUIPMENT USAGE BY THE LOCAL COMPANY PHYSICIAN AT LEAST ANNUALLY.

6. SCBA'S SHOULD BE WORN WHEN:

A. ANY EMPLOYEE WORKS NEAR THE TOP OR ON TOP OF ANY TANK UNLESS TEST REVEALS LESS THAN 10 PPM OF H2S.

B. WHEN BREAKING OUT ANY LINE WHERE H2S CAN REASONABLY BE EXPECTED.

C. WHEN SAMPLING AIR IN AREAS TO DETERMINE IF TOXIC CONCENTRATIONS OF H2S EXISTS.

D. WHEN WORKING IN AREAS WHERE OVER 10 PPM H2S HAS BEEN DETECTED.

E. AT ANY TIME THERE IS A DOUBT AS TO THE H2S LEVEL IN THE AREA TO BE ENTERED.

RESCUE
FIRST AID FOR H2S POISONING

DO NOT PANIC!

REMAIN CALM – THINK!

1. HOLD YOUR BREATH. (DO NOT INHALE FIRST; STOP BREATHING.)

2. PUT ON BREATHING APPARATUS.

3. REMOVE VICTIM(S) TO FRESH AIR AS QUICKLY AS POSSIBLE. (GO UP-WIND FROM SOURCE OR AT RIGHT ANGLE TO THE WIND. NOT DOWN WIND.)

4. BRIEFLY APPLY CHEST PRESSURE – ARM LIFT METHOD OF ARTIFICIAL RESPIRATION TO CLEAN THE VICTIM'S LUNGS AND TO AVOID INHALING ANY TOXIC GAS DIRECTLY FROM THE VICTIM'S LUNGS.

5. PROVIDE FOR PROMPT TRANSPORTATION TO THE HOSPITAL, AND CONTINUE GIVING ARTIFICIAL RESPIRATION IF NEEDED.

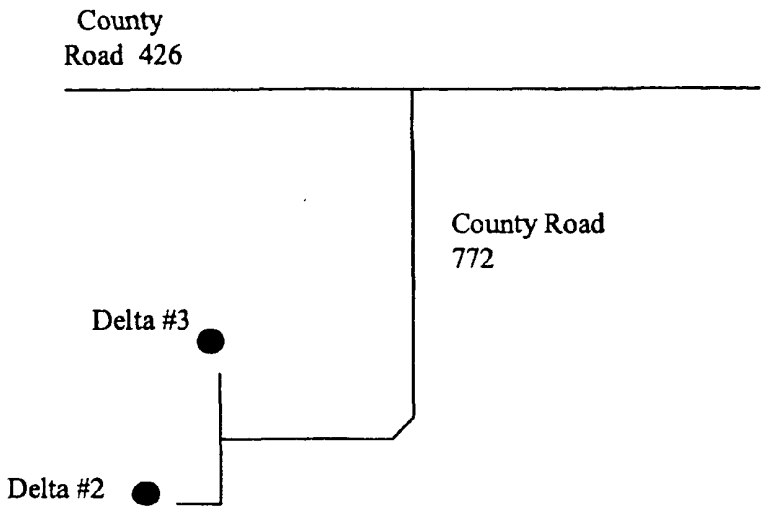
6 HOSPITAL(S) OR MEDICAL FACILITIES NEED TO BE INFORMED, BEFORE-HAND, OF THE POSSIBILITY OF H2S GAS POISONING – NO MATTER HOW REMOTE THE POSSIBILITY IS.

7. NOTIFY EMERGENCY ROOM PERSONNEL THAT THE VICTIM(S) HAS BEEN EXPOSED TO H2S GAS.

BESIDES BASIC FIRST AID, EVERYONE ON LOCATION SHOULD HAVE A GOOD WORKING KNOWLEDGE OF ARTIFICIAL RESPIRATION, AS WELL AS FIRST AID FOR EYES AND SKIN CONTACT WITH LIQUID H2S. EVERYONE NEEDS TO MASTER THESE NECESSARY SKILLS.

Delta Fed. #3
LAT. - 32°08'57.61"
LONG. - 104°19'33.07"W
Y = 418050.5
X = 502314.8 E

NORTH



DIRECTIONS TO LOCATION: From the intersection of CR 772 and CR 426, go south on CR 772 for approximately 1.9 miles, bend south/southwest for approx. 0.2 miles. Turn right (west) and go approx. 0.8 miles to a proposed road survey.
#2-Follow proposed road survey south then west approx. 2147' to location.
#3-Follow proposed road survey north approx. 1243' to location.

MULTI-POINT SURFACE USE AND OPERATIONS PLAN

Encore Operating, L P
Delta Federal #3
Eddy County, new Mexico
Lease No. NM-28172

This plan is submitted with the Application for Permit to Drill the above described well. The purpose of the plan is to identify the location of the proposed well, the proposed construction activities and operations plan, the magnitude of necessary surface disturbance involved and the procedures to be followed in rehabilitating the surface after completion of the operation so that the complete appraisal may be made of the environmental effects associated with operation.

The well, and work area have been staked by a registered New Mexico land surveyor. Boone Archaeological Services, LLC has been engaged to make an archeological reconnaissance of the work area. Their findings concerning cultural resources will be reported to the Bureau of Land Management.

1. Existing Roads

A copy of a topo map is attached showing the proposed location. The well location is spotted on this map, which also shows the existing road system. Exhibit B.

Directions to location:

From the intersection of CR 772 and CR 426, go south on CR 772 for approximately 1.9 miles, bend south/southwest for approx. 0.2 miles. Turn right (west) and go approx. 0.8 miles to a proposed road survey. Follow proposed road survey north approx. 1243' to location.

2. Planned Access Road

A. a new access road will be built. The access road will run approximately 1243' southwest from an existing road to the location. Exhibit B.

B. Surfacing material: Six inches of caliche and water, compacted and graded.

C. Maximum Grade: Less than 3%

D. Turnouts: None needed

E. Drainage design: N/A

F. Culverts: None Needed

G. Cuts and Fills: Leveling the location will require minimal cuts or fills.

H. Gates or Cattle guards: None required.

Multi-point Surface Use and Operations plan

3. Existing wells within a one mile radius of the proposed development well are shown on Exhibit C.

4. Location of Existing and/or Proposed facilities

   A. If the well is productive, production facilities will be constructed on the well pad. The facility will consist of a stack pack, one 300 bbl oil tank and one 300 bbl fiberglass water tank. All permanent above ground facilities will be painted in accordance with the BLM's painting guidelines simulating the color of sandstone brown.

   B. All site security guidelines identified in 43 CFR 3162.7 regulations will be adhered to and a site security plan will be submitted for the Delta Federal #3 tank battery. All product lines entering and leaving hydrocarbon storage tanks will be effectively sealed.

5. Location and Type of Water Supply

   Fresh water and brine water will be used to drill this well. It will be purchased from a supply in Loco Hills and transported to the well site.

6. Source of Construction Materials

   Caliche for surfacing the well pad will be obtained from onsite material.

7. Method of Handling Waste Disposal

   A. Drill cuttings will be disposed of in drilling pits.

   B. Drilling fluids will be allowed to evaporate in the drilling pita until pits are dry.

   C. Water produced during tests will be disposed of in the drilling pits. Oil produced during tests will be stored in the test tanks until sold.

   D. Current laws and regulations pertaining to the disposal of human waste will be complied with.

   E. Trash, waste paper, garbage, and junk will be collected in steel trash bins and removed after drilling and completion operations are completed. All waste material will be contained to prevent scattering by the wind.

   F. All trash and debris will be removed from the well site within 30 days after finishing drilling and/or completion operations.

Multi-point Surface Use and Operations plan

8 Ancillary Facilities

A. None Needed

9. Well site Layout

A. The location and dimensions of the well pad, mud pits, reserve pits and location of major rig components are shown on the well site layout sketch. The V-door will be to the east and the pits to the north. Exhibit D.

A. Leveling of the well site will be required with minimal cuts or fills anticipated.

B. The reserve pit will be plastic lined

C. While constructing the pits and material is encountered at a depth which would not allow the pits to meet the BLM stipulations with out blasting, Encore Operating, L.P. requests a variance. There will be an adequate amount of material to reclaim the pit per the stipulation.

D. The pad and pit area have been staked and flagged.

10. Plans for Restoration of the Surface

A. after completion of drilling and/or completion operations, all equipment and other materials not needed for operations will be removed.

B. pits will be filled and location cleaned of all trash and junk to leave the well site in as aesthetically pleasing condition as possible. Any plastic material used to line the pits or sumps will be cut off below ground level as far as possible and disposed of before the pits are covered. All unattended pits containing liquid will be fenced and the liquids portion allowed to evaporated before the pits are broken and backfilled.

C. after abandonment of the well, surface restoration will be in accordance with the land owner. This will be accomplished as expeditiously as possible. Barring unforeseen problems, all pits will be filled and leveled within 90 days after abandonment.

11. Surface Ownership

11. Surface Ownership See P30A

The well site is on privately ~~owned surface. The~~ surface is owned by: James G. & Linda L. Foster, ~~P.O. Box 2426~~, Ruidoso Downs, ~~NM 88346~~. Encore operating, L.P. is ~~currently attempting~~ to contact the surface owner and discuss ~~terms of a surface~~

Multi-point Surface Use and Operations plan

Agreement. Due to the private nature of the agreement, Encore Operating, L.P. request that it not be part of the application.

12. Other Information

A Topography: The location is a flat plain GL elevation is 3407'.

B. Soil: Sandy clay loams.

C. Flora and Fauna: the vegetative cover is generally sparse consisting of mesquite, yucca, shinnery oak, sandsage and perennial native range grasses. Wildlife in the area is also sparse consisting of coyotes, rabbits, rodents, reptiles, dove and quail.

D. Ponds and Streams: There are no rivers, streams, lakes or ponds in the area.

E. Residences and Other Structures: None within 2 miles

F. Archaeological, Historical and Cultural Sites: Cultural resources have been recorded in the area. Boone archaeological Services, LLC will be engaged to make an archaeological reconnaissance of the work area.

G. Land Use: cattle ranching.

H. The well site, if a producer, will be maintained and kept clean of all trash and litter which detracts from the surrounding environment. Equipment will be maintained in accordance with good operating practice,

I. After the wellsite is cleaned and pits and sumps backfilled, any obstruction to the natural drainage will be corrected by ditching or terracing. All disturbed areas, including any access road no longer needed, will be ripped. Those areas will be reseeded with grass if, in the opinion of the land owner, it is required.

13. Operator's Representatives and Certification

The field representative responsible for assuring compliance with the approved surface use and operations plan are as follows:

Tim Hauss
Engineering Advisor
777 Main St., Ste. 1400
Fort Worth, Texas 76102
Office Phone: 817-877-9955
Cellular Phone: 817- 657-7905

Charles Roberts
Operating Specialist
2626 JBS Parkway, Ste 205B
Odessa, Texas 79762
Office Phone: 432-362-209
Cellular Phone:

I hereby certify that I, or persons under my direct supervision, have inspected the proposed drill site and access route; that I am familiar with the conditions which presently exist; that the statements made in this plan are, to the best of my knowledge, true and correct; and , that the work associated with the operations proposed herein will be performed by Encore Operating, L.P. and its contractors and sub-contractors in conformity with this plan and the terms and conditions under which it is approved.

5/6/08
DATE

Ann Burdette Wiley
Regulatory Compliance Manager
817-877-9955
Encore Operating, L.P.

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	ENCORE OPERATING, L.P.
LEASE NO.:	NM-28172
WELL NAME & NO.:	Delta Federal No. 3
SURFACE HOLE FOOTAGE:	660' FNL & 660' FEL
BOTTOM HOLE FOOTAGE	
LOCATION:	Section 7, T. 25 S., R 26 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)

** 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.

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

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

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

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.

Fluorescent Dyes:
Nontoxic Fluorescent dyes will be added when the hole is spudded and be circulated to the bottom of the karst layers. These dyes will track the fluids, if lost circulation occurs. Arrangements need to be made to have BLM witness the dye being injected prior to spudding the hole.

Florescene Dye (Acid Yellow 73):

Thirty-two (32) ounces dry powder Florescene (Acid Yellow 73) dye will be added to the drilling fluid before the well is spudded AND to the pre-flush fluids of the surface interval of casing.

These dyes will track the fluids if lost circulation occurs.

Arrangements will be made to have BLM witness the dye being injected prior to spudding the hole and before the pre-flush of the surface casing. Contact the BLM drilling on call phone at (575) 361-2822 to make arrangements.

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.

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

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.

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

VI. CONSTRUCTION

A. NOTIFICATION

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

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

B. TOPSOIL

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

C. RESERVE PITS

Tanks are required for drilling operations: No Pits.

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

D. FEDERAL MINERAL MATERIALS PIT

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

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

E. WELL PAD SURFACING

Surfacing of the well pad is not required.

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

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

F. ON LEASE ACCESS ROADS

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

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

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

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

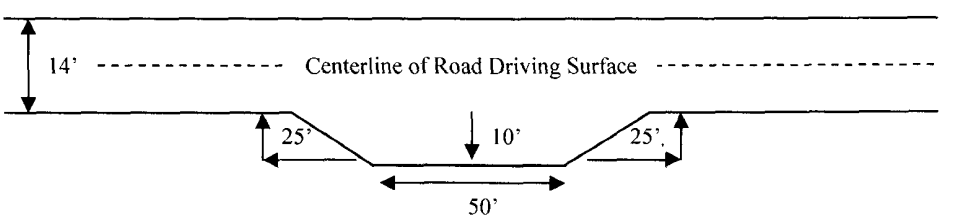
Crowning
Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

Ditching

Ditching shall be required on the uphill side 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

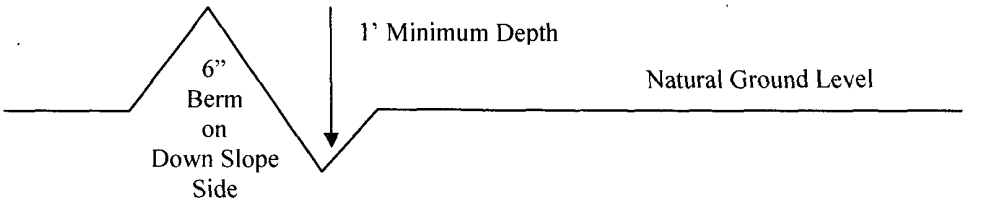


Drainage

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.

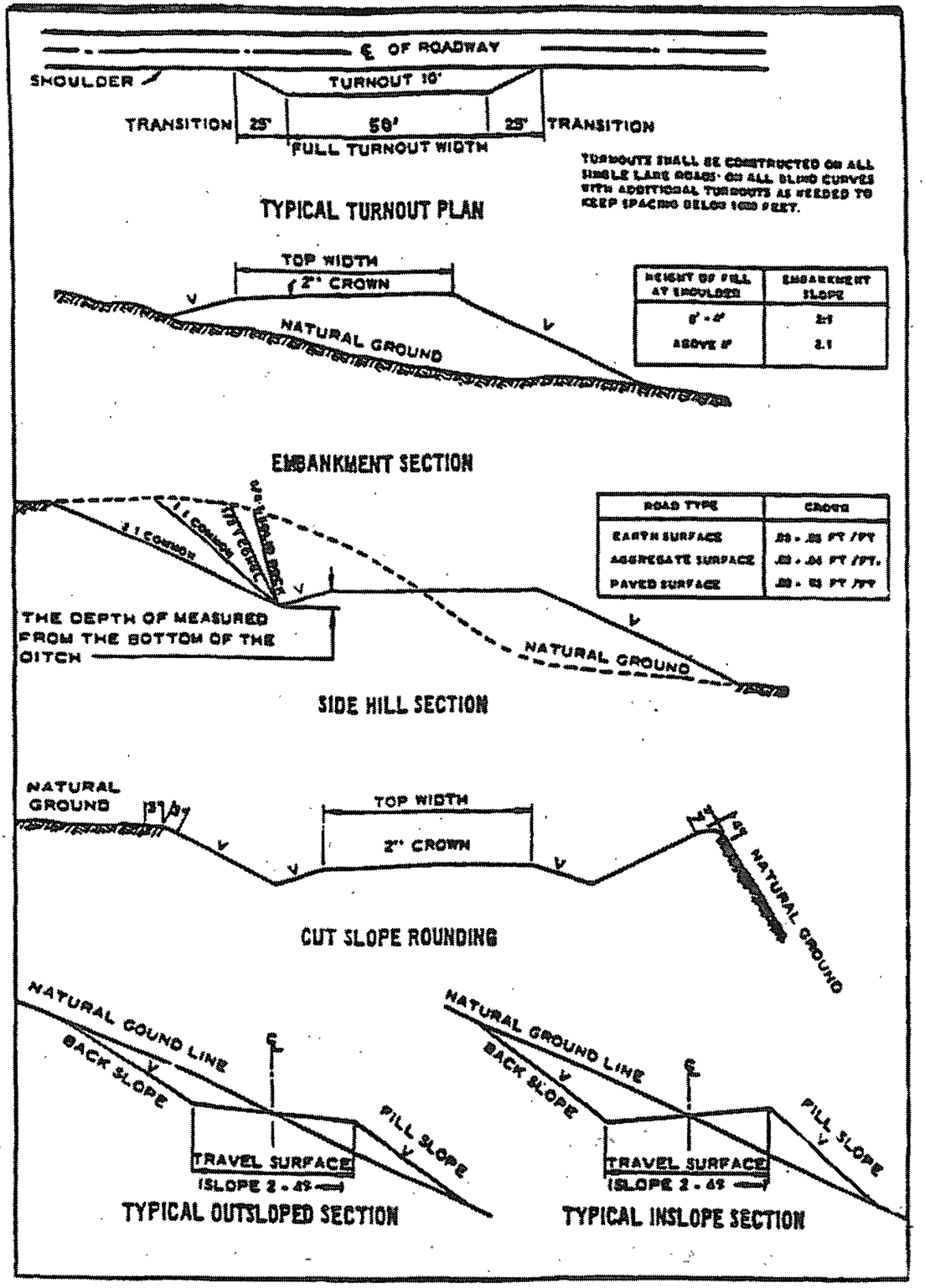
A gate shall be constructed and fastened securely to H-braces.

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 within the Township. 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 Delaware formation.
Possible high pressure gas bursts in the Wolfcamp formation.

1. The **13-3/8** inch surface casing shall be set **at approximately 400 feet in the Castile formation** 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 **9-5/8** inch intermediate casing is:

    ☒ Cement to surface. If cement does not circulate see B.1.a-d above.
    This casing is to be set at approximately 1500 feet in the base of the Capitan Reef and this segment to be drilled with fresh water.

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 **7** inch intermediate casing is:

    ☒ Cement to surface. If cement does not circulate see B.1.a-d above.

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

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

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

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

C. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.

2. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **2000 (2M)** psi. **Operator using a 3M annular preventer.**

3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **9-5/8"** intermediate casing shoe shall be **5000 (5M)** psi.

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. 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

Fresh water mud to be used to drill 12 ¼" hole.

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 072208

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 authorized officer.

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

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

Species		lb/acre
Plains Bristlegrass (*Setaria magrostachya*)	1.0	
Green Spangletop (*Leptochloa dubia*)		2.0
Side oats Grama (*Bouteloua curtipendula)*		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.