AD5-08-821

OCT 09 2008 OCD-HOBBS R-111-POTASH

Form 3160-3 (February 2005) HOBBS OIL

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

1212

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

APPLICATION FOR PERMIT TO DRILL OR REENTER

Split Estate

1a Type of work ☑ DRILL ☐ REENTER	5 Lease Serial No. NMNM 127572
	6 If Indian, Allotee or Tribe Name N/A
	7 If Unit or CA Agreement, Name and No N/A
1b Type of Well ☑ Oil Well ☐ Gas Well ☐ Other ☑ Single Zone ☐ Multiple Zone	8 Lease Name and Well No Laguna Deep Unit #22 37427
2 Name of Operator Murchison Oil & Gas Inc. - OGRID 15363	9 API Well No. 30-025-39204
3a Address 1100 Mira Vista Boulevard, Plano, TX 75093-4698 / 3b Phone No (include area code) 972-931-0700	10 Field and Pool, or Exploratory ~~Delaware Price~~/Bone Spring 58960
4 Location of Well (Report location clearly and in accordance with any State requirements *) At surface 1980' FSL & 1650' FEL, UNIT J; At proposed prod zone Capitan Controlled Water Basin	11 Sec, T R M or Blk and Survey or Area Section 35, T19S, R33E
14 Distance in miles and direction from nearest town or post office* approximately 25 miles SW of Hobbs, New Mexico	12 County or Parish Lea County / 13 State NM
15 Distance from proposed* location to nearest property or lease line, ft (Also to nearest drig unit line, if any) 1650' / 16 No of acres in lease 320 / 17 Spacing Unit dedicated to this well ~~40~~ 320	
18 Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft 330' / 19 Proposed Depth 9700' MD / 20 BLM/BIA Bond No on file NM2163	
21 Elevations (Show whether DF, KDB, RT, GL, etc) 3594' GL / 22 Approximate date work will start* 09/15/2008 / 23 Estimated duration 40-45 days	

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No 1, must 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 must 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 BLM.

25 Signature	Name (Printed Typed) Lee Ann Rollins	Date
Title Agent		
Approved by (Signature) /s/ Jesse J. Juen	Name (Printed Typed) /s/ Jesse J. Juen	Date OCT 07 2008
Title ACTING STATE DIRECTOR	Office NM STATE OFFICE	

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon
Conditions of approval, if any, are attached

APPROVAL FOR TWO YEARS

Title 18 U S C Section 1001 and Title 43 U S C Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction

*(Instructions on page 2)

KZ

SEE ATTACHED FOR CONDITIONS OF APPROVAL

APPROVAL SUBJECT TO GENERAL REQUIREMENTS AND SPECIAL STIPULATIONS ATTACHED

STATEMENT ACCEPTING RESPONSIBILITY FOR OPERATIONS

Murchison Oil & Gas Inc.
1100 Mira Vista Boulevard
Plano, Texas 75093-4698

The undersigned accepts all applicable terms, conditions, stipulations and restrictions covering operations conducted on the leased land or portion thereof, as described below:

Lease No:	NMNM #027572
Well Name:	Laguna Deep Unit #22
Legal Description of Land:	1980' FSL & 1650' FEL, Unit J Sec 35, T19S, R33E Lea County, New Mexico
Formation(s) (if applicable):	Delaware Price/Bone Spring
Bond Coverage:	$25,000 statewide bond of C.O.G. Operating, LLC
BLM Bond File No:	Personal Statewide Bond NM 2163

July 23, 2008
Date

Arnold Nall
VP, Operations
Murchison Oil & Gas Inc.

EXHIBIT "A"

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 TEAS; BONE SPRING

API Number	Pool Code	Pool Name
30-025-39204	58960	Delaware Price / Bone Spring

Property Code	Property Name	Well Number
37427	LAGUNA DEEP UNIT	22

OGRID No.	Operator Name	Elevation
15363	MURCHISON OIL & GAS, INC.	3594'

Surface Location

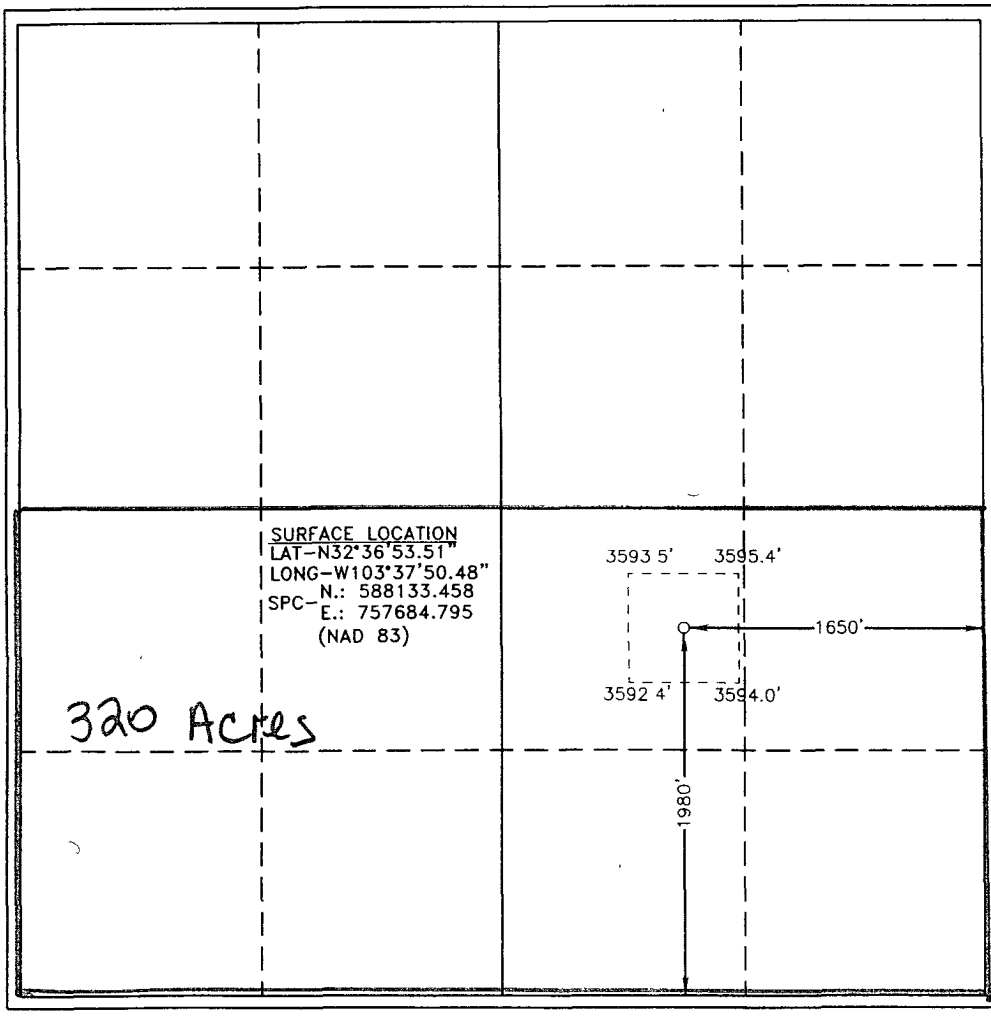
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
J	35	19 S	33 E		1980	SOUTH	1650	EAST	LEA

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
320			

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



OPERATOR CERTIFICATION

I hereby certify that the information 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.

Lee Rollins 7/28/2008
Signature Date

Lee Ann Rollins
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 18, 2008
Date Surveyed

Signature & Seal of Professional Surveyor

GARY L. JONES NEW MEXICO 7977 REGISTERED PROFESSIONAL LAND SURVEYOR

W.O. Number: LS-08-11

Certificate No. Gary L. Jones 7977

BASIN SURVEYS

ATTACHMENT TO FORM 3160-3
Murchison Oil & Gas, Inc.
Laguna Deep Unit #22
1980' FSL & 1650' FEL, UNIT J
Sec 35, T19S, R33E
Lea County, New Mexico

1. Proration Unit Spacing: 40 acres

2. Ground Elevation: 3594' Estimated RKB Elevation: 3609'

3. ESTIMATED TOPS OF IMPORTANT GEOLOGIC MARKERS

	DEPTH (KB)	SUBSURFACE (KB)
Yates	3210'	+399'
Seven Rivers	3453'	+156'
Capitan Reef	3540'	+69'
Delaware	5453'	-1844'
Delaware Price Sand Pay	6557'	-2948'
Bone Spring	8145'	-4536'
First Bone Spring Sand	9220'	-5611'
Bone Spring Dolomite Pay	9322'	-5713'
Total Depth	9700'	-6091'

Primary Objective	Bone Spring	9322'
Secondary Objective	Delaware Price	6557'

4. ESTIMATED DEPTHS OF ANTICIPATED FRESH WATER, OIL, OR GAS

Water	1660'	Dewey Lake
Oil	6557'	Delaware Brushy Canyon "Price Sand"
Oil	9220'	First Bone Spring Sandstone
Oil	9322'	Bone Spring Dolomite Pay

5. CASING AND CEMENTING PROGRAM

Casing Size	Hole Size	From To	Weight	Grade	Joint	Conditions
13-3/8"	17-1/2"	0' - 1000'	48.0#	H-40	ST&C	New
13-3/8"	17-1/2"	1000'-1700'	54.5#	J-55	ST&C	New
9-5/8"	12-1/4"	0' – 3500'	40.0#	J-55	ST&C	New
5-1/2"	8-3/4"	0 – 9700'	17.0#	L-80	LT&C	New

Casing Size	Burst Rating, psi	Safety Factor	Collapse Rating, psi	Safety Factor	Tension Rating, 1000 lbs.	Safety Factor
13-3/8"	1730/2730	1.4	740/1130	1.1	322/514	5.6
9-5/8"	3950	1.2	2570	3.2	452	3.8
5-1/2"	7740	1.9	6290	1.2	338	2.4

Equivalent or adequate grades and weights of casing may be substituted at time casing is run, depending on availability.

Replace #5
9-9-08

Note that in the "Original" case, I have now adjusted the 5-1/2" production casing lead cement volumes to accommodate circulation to surface as I now appreciate this is a requirement of drilling in an R-111-P potash area. The volumes increased from the originally submitted 380 *sacks of lead Interfill Class H + additives with yield=2.78 cu.ft./sack to the now represented* 650 *sacks of lead Interfill Class H + additives with yield= 2.78 cu.ft./sack.*

Please confirm receipt of this information as well as satisfaction with the supplemental information.

Regards,
Arnold Nall
VP Operations
Murchison Oil & Gas, Inc.
(O) 972/931-0700x110
(C) 214/415-3010

Murchison Oil & Gas, Inc.
Laguna Deep Unit #22
APD – Attachment

As originally submitted, it is proposed to set and cement the 9-5/8" First Intermediate Casing at 3500', or just above the Capitan Reef. This will insure the anhydrite sections are isolated prior to penetrating the Reef.

Should Murchison Oil & Gas, Inc. ("MOGI"), as operator of the subject well, drill the Capitan Reef section without encountering significant drilling fluid losses which would necessitate the below described Contingent Plan, then we plan to stay with the originally submitted casing and cementing plan which is summarized as follows:

5. A. CASING AND CEMENTING PROGRAM (**ORIGINAL PLAN**):

Casing Size	Hole Size	From	To	Weight	Grade	Type Conn	Condition
13.375"	17.500"	0'	1000'	48.0#	H-40	ST&C	New
13.375"	17.500"	1000'	1700'	54.5#	J-55	ST&C	New
9.625"	12.250"	0'	3500'	40.0#	J-55	ST&C	New
5.500"	8.750"	0'	9700'	17.0#	L-80	LT&C	New

Casing Size	Burst Rating, psi	Safety Factor	Collapse Rating, psi	Safety Factor	Tension Rating, 1000 lbs	Safety Factor
13.375"	1730/2730	1.4	740/1130	1.1	322/514	5.6
9.625"	3950	1.2	2570	3.2	452	3.8
5.500"	7740	1.9	6290	1.2	338	2.4

Equivalent or adequate grades and weights of casing may be substituted at time casing is run,

depending on availability.

6. A. CASING DEPTH AND CEMENTING PROGRAM (**ORIGINAL PLAN**):

13.375" Surface Casing – Cementing Program

Cement lead with 1000 sacks of Light Premium Plus + additives with yield=1.98 cu.ft./sack, tail with 220 sacks Premium Plus cement + additives with yield=1.34 cu.ft./sack; circulate cement to surface.

9-5/8" First Intermediate Casing – Cementing Program

Cement lead with 550 sacks of Interfill Class C + additives with yield=2.46 cu.ft./sack, tail with 200 sacks Premium Plus + additives with yield=1.33 cu.ft./sack; circulate cement to surface. If cement does not circulate, will run a temperature survey to find actual top then run 1" tubing into annulus and pump cement as necessary to achieve circulation to surface.

5-1/2" Production Casing – Cementing Program

Cement lead with 650 sacks of Interfill Class H + additives with yield=2.78 cu.ft./sack, tail with 440 sacks Super Class H + additives with yield=1.62 cu.ft./sack; circulate cement to surface as required in this R-111-P potash area. May perform a 2-stage job utilizing DV tool if determined to be necessary to raise cement to the above described height.

Contingency

MOGI proposes the below "Contingent Plan" for casing and cementing in the event actual fluid losses while drilling the Capital Reef section become excessive and prohibitive to the successful drilling of the originally planned 8-3/4" hole to total depth. The Contingent Plan calls for setting a 7-5/8" 2nd Intermediate Casing at ~5000', or just below the Capitan Reef, should actual conditions encountered dictate.

5. B. CASING AND CEMENTING PROGRAM (**CONTINGENT PLAN**):

Casing	Hole					Type	
Size	Size	From	To	Weight	Grade	Conn	Condition
13.375"	17.500"	0'	1000'	48.0#	H-40	ST&C	New
13.375"	17.500"	1000'	1700'	54.5#	J-55	ST&C	New
9.625"	12.250"	0'	3500'	40.0#	J-55	ST&C	New
7.625"	8.750"	0'	5000'	26.4#	N-80	ST-L	New
5.500"	6.500"	0'	9700'	17.0#	P-110	ST-L	New

Casing	Burst	Safety	Collapse	Safety	Tension	Safety
Size	Rating, psi	Factor	Rating, psi	Factor	Rating, 1000 lbs	Factor

13.375"	1730/2730	1.4	740/1130	1.1	322/514	5.6
9.625"	3950	1.2	2570	3.2	452	3.8
7.625"	6020	1.9	3400	2.9	350	3.1
5.500"	7740	1.9	6290	1.2	289	2.1

Equivalent or adequate grades and weights of casing may be substituted at time casing is run, depending on availability.

6. B. CASING DEPTH AND CEMENTING PROGRAM (**CONTINGENT PLAN**):

13.375" Surface Casing – Cementing Program

Cement lead with 1000 sacks of Light Premium Plus + additives with yield=1.98 cu.ft./sack, tail with 220 sacks Premium Plus cement + additives with yield=1.34 cu.ft./sack; circulate cement to surface.

9-5/8" First Intermediate Casing – Cementing Program

Cement lead with 550 sacks of Interfill Class C + additives with yield=2.46 cu.ft./sack, tail with 200 sacks Premium Plus + additives with yield=1.33 cu.ft./sack; circulate cement to surface. If cement does not circulate, will run a temperature survey to find actual top then run 1" tubing into annulus and pump cement as necessary to achieve circulation to surface.

7-5/8" Second Intermediate Casing – Cementing Program

Cement lead with 200 sacks of Interfill Class C + additives with yield=2.46 cu.ft./sack, tail with 200 sacks Premium Plus + additives with yield=1.33 cu.ft./sack; circulate cement to surface as required in this R-111-P potash area. If cement does not circulate, will run a temperature survey to find actual top then run 1" tubing into annulus and pump cement as necessary to achieve circulation to surface.

5-1/2" Production Casing – Cementing Program

Cement lead with 100 sacks of Interfill Class H + additives with yield=2.78 cu.ft./sack, tail with 150 sacks Super Class H + additives with yield=1.62 cu.ft./sack; circulate cement to minimum 500' overlap inside contingent 7-5/8" 2nd intermediate casing to be set at 5,000' for a top of cement of 4,500' or higher. May perform a 2-stage job utilizing DV tool if determined to be necessary to raise cement to the above described height.

All other aspects of our submitted APD should remain applicable regardless of whether the contingent plan develops as the well is actually drilled.

I respectfully submit this contingent plan in the event actual drilling conditions necessitate a change from our original plan.

Arnold Nall
VP Operations
Murchison Oil & Gas, Inc.
(O) 972/931-0700x110

6. CASING DEPTH AND CEMENTING PROGRAM:

13.375" Surface Casing - Cementing Program

Cement lead with 1000 sacks of Light Premium Plus + additives with yield=1.98 cu.ft./sack, tail with 220 sacks Premium Plus + additives with yield = 1.34 cu.ft./sack; circulate cement to surface.

9.625" Intermediate Casing - Cementing Program

Cement lead with 550 sacks of Interfill Class C + additives with yield=2.46 cu.ft./sack, tail with 200 sacks Premium Plus + additives with yield=1.33 cu.ft./sack; circulate cement to surface. If cement does not circulate, will run a temperature survey to find actual top of cement and then run 1" tubing into annulus & pump cement as necessary to achieve circulation.

5.5" Production Casing - Cementing Program

Cement lead with 380 sacks of Interfill Class H + additives with yield=2.78 cu.ft./sack, tail with 440 sacks Super Class H + additives with yield=1.62 cu.ft./sack; circulate cement to minimum 500' overlap inside 9-5/8" intermediate casing planned to be set at 3,500' for a top of cement of 3,000' or higher. May perform a 2-stage job utilizing DV tool if determined to be necessary to raise cement to the above described height.

Replace #6 9-9-08

7. PRESSURE CONTROL EQUIPMENT: Blowout Preventer

We respectfully request a variance for the 13-3/8" surface casing and BOP testing from Onshore Order No. 2, which states all casing strings below the conductor shall be pressure tested to 0.22 psi per foot or 1500 psi, whichever is greater, but not to exceed 70 percent of the minimum internal yield. During the running of the surface casing and the drilling of the intermediate hole, we do not anticipate pressures greater than 1000 psi, and we are requesting a variance to test the 13-3/8" casing and BOP system to 1000 psi and to use the rig pumps instead of an independent service company.

COA

0 – 1700' None

1700' – 3500' 13-3/8" 3000# ram type preventers with one set blind rams and one set pipe rams.

3500' – 9700' 11" 3000# ram type preventers with one set blind rams and one set pipe rams and a 3000# annular type preventer. A choke manifold and 120 gallon accumulator with floor and remote operating stations and auxiliary power system. Rotating head below 6000'. See attached Sketch of BOP Equipment.

A Kelly cock will be installed and maintained in operable condition and a drill string safety valve in the open position will be available on the rig floor.

After setting the 9 5/8" casing, the blowout preventers and related control equipment shall be pressure tested to 3000 psi and 1500 psi respectively. Any equipment failing to test satisfactorily shall be repaired or replaced. Results of the BOP test will be recorded in the Driller's Log.

The BOP's will be maintained ready for use until drilling operations are completed. Pipe and blind rams shall be activated each trip. Annular preventer shall be functionally operated at least weekly.

BOP drills will be conducted as necessary to assure that equipment is operational and each crew is properly trained to carry out emergency duties.

7. PRESSURE CONTROL EQUIPMENT: Blowout Preventer - continued

   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.

8. MUD PROGRAM

0 – 1700'	Fresh water / native mud. Wt. 8.4 to 8.6 ppg, vis 28-34 sec, Lime for pH control. Paper for seepage. Lost circulation may be encountered.
1700 – 3500'	Brine water. Wt. 9.9 to 10.1 ppg, vis 28-30 sec, caustic for pH control. Paper for seepage.
3500' – 4800'	Fresh/Cut brine. Wt. 8.4 – 8.8 ppg, vis 28-29 sec, No control water loss, caustic for pH control.
4800' – 9700'	Mud up with XCD Polymer mud system. Wt. 8.6 – 9.4 ppg, Vis 32-40 sec, WL 15-20 cc, caustic for pH control.

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

   Mud system monitoring equipment with derrick floor indicators and visual / audio alarms shall be installed and operative prior to drilling into the Delaware formation. This equipment will remain in use until the production casing is run and cemented. Monitoring equipment shall consist of the following:

   A recording pit level indicator.
   A pit volume totalizer.
   A flowline sensor.

9. TESTING, LOGGING AND CORING PROGRAM

   A. Testing program: None planned.
   B. Mud logging program. Two man unit from 4800' to TD.
   C. Electric logging program: CNL/LDT/CAL/GR, MSFL/HALS/GR.
   D. Coring program: Rotary side-wall cores may be obtained pending electric log interpretation.

10. ABNORMAL CONDITIONS, PRESSURES, TEMPERATURES AND POTENTIAL HAZARDS
    No abnormal pressures or temperatures are anticipated. Lost circulation may be encountered; however, the severity can only be determined if this condition is present. An H2S plan is attached to the Drilling Program. Estimated BHP of 4000 psi and BHST of 160 degrees Fahrenheit.

11. Anticipated starting date is September 15, 2008. It should take approximately 25 – 30 days to drill the well and another 10 days to complete.

12. A statement accepting responsibility for operations is attached.

13. The Multi-Point Surface Use & Operation Plan is attached.

14. If the Bureau of Land Management needs additional information to evaluate this application, please advise.

EXHIBIT F

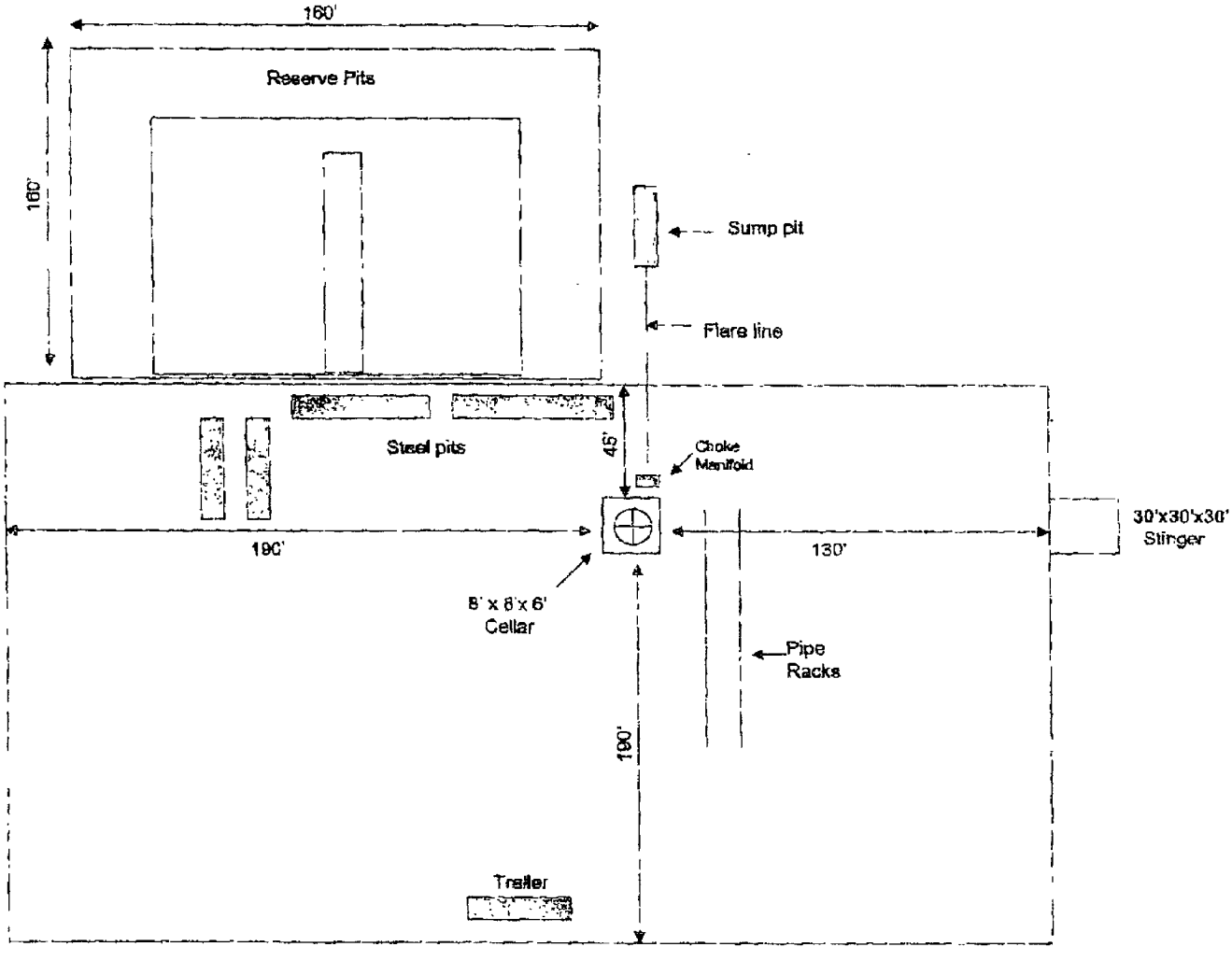

160'
Reserve Pits
160'
Sump pit
Flare line
Steel pits
45'
Choke
Manifold
190'
130'
30'x30'x30'
Stinger
8' x 8' x 6'
Cellar
Pipe
Racks
190'
Trailer

EXHIBIT G

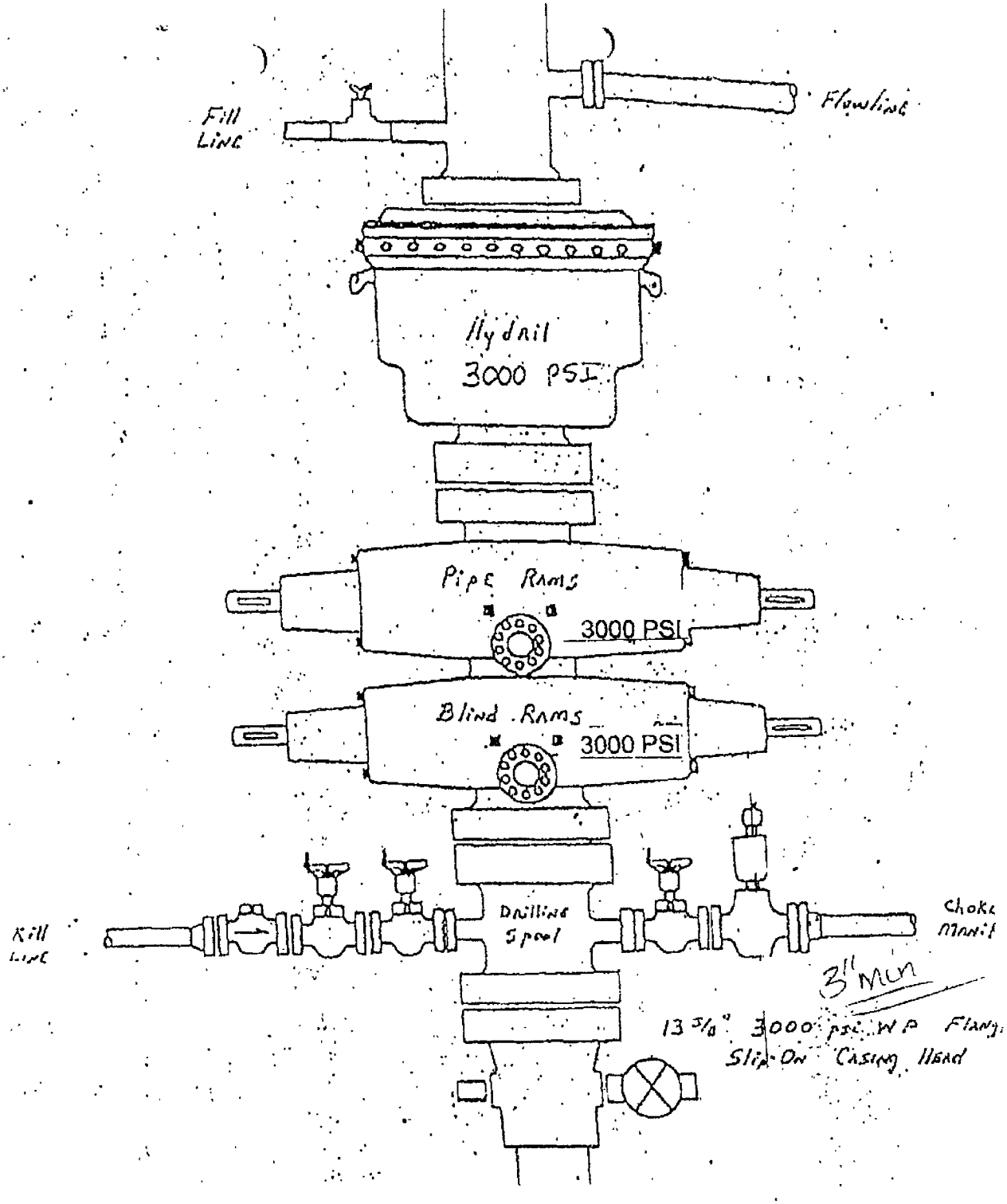
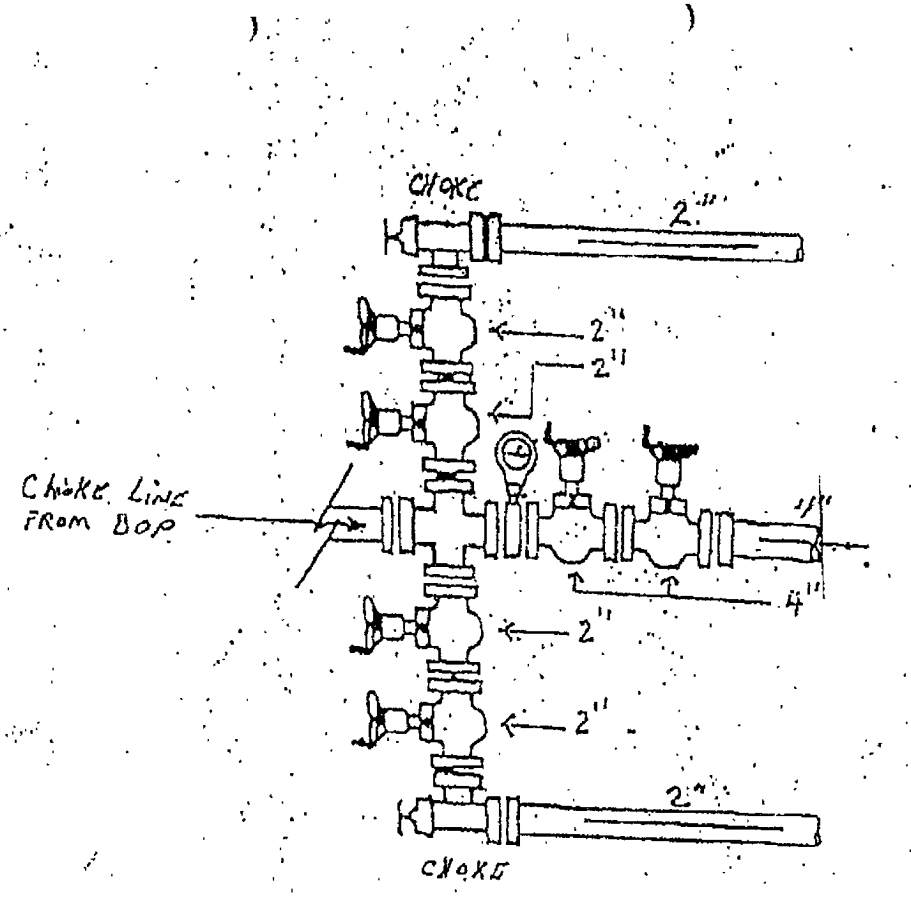

Fill Line
Flowline
Hydril
3000 PSI
Pipe Rams
3000 PSI
Blind Rams
3000 PSI
Kill Line
Drilling Spool
Choke Manif
3' Min
13 5/8" 3000 psi W.P Flang.
Slip-On Casing Head

EXHIBIT H



MURCHISON OIL & GAS, INC.

HYDROGEN SULFIDE (H2S) CONTINGENCY PLAN FOR DRILLING / COMPLETING / WORKOVER / FACILITY WITH THE EXPECTATION OF H2S IN EXCESS OF 100 PPM

Murchison Oil & Gas, Inc.
NEW DRILL WELL
Laguna Deep Unit #22
SL: 1980' FSL & 1650' FEL, Unit J
Sec 35, T19S, R33E
Lea County, New Mexico

This well/facility is not expected to have H2S, but the following is submitted as requested.

TABLE OF CONTENTS

GENERAL H2S EMERGENCY ACTIONS

In the event of any evidence of H2S emergency, the following plan will be initiated:

1. All personnel will immediately evacuate to an upwind and if possible uphill "safe area".
2. If for any reason a person must enter the hazardous area, they must wear a SCBA (self-contained breathing apparatus).
3. Always use the "buddy system."
4. Isolate the well/problem if possible.
5. Account for all personnel.
6. Display the proper colors warning all unsuspecting personnel of the danger at hand.
7. Contact the company representative as soon as possible if not at the location (use the enclosed call list as instructed).

At this point the company representative will evaluate the situation and coordinate the necessary duties to bring the situation under control, and if necessary, the notification of emergency response agencies and residents.

EMERGENCY PROCEDURES FOR AN UNCONTROLLABLE RELEASE OF H2S

1. All personnel will don the self-contained breathing apparatus.
2. Remove all personnel to the "safe area": (always use the "buddy system").
3. Contact company representative if not on location.
4. Set in motion the steps to protect and/or remove the general public to any upwind "safe area." Maintain strict security and safety procedures while dealing with the source.
5. No entry to any unauthorized personnel.
6. Notify the appropriate agencies:
   City Police - City streets
   State Police - State Roads
   County Sheriff - County Roads
7. Call the NMOCD.

If at this time the supervising person determines the release of H2S cannot be contained to the site location and the general public is in harm's way, he will immediately notify public safety personnel.

EMERGENCY CALL LIST

	Office	Cell	Home
Arnold Nall	972-931-0700	214-415-3010	972-596-8504
Tommy Folsom	575-628-3932	575-706-0667	575-885-3474
Randy Ford	432-682-0440	432-599-2222	432-684-4334

EMERGENCY RESPONSE NUMBERS
Lea County, New Mexico

State Police - Hobbs	**575-392-5588**
Lea County Sheriff - Hobbs	**575-393-2515**
Lea County Emergency Management - Hobbs	**575-397-9231**
State Emergency Response Center (SERC)	**575-476-9620**
Hobbs Police / Fire / Ambulance Department	**575-397-9340**
New Mexico Oil Conservation Division - Hobbs	**575-393-6161**
Callaway Safety Equipment, Inc.	**575-392-2973**

PROTECTION OF THE GENERAL (ROE) RADIUS OF EXPOSURE

In the event greater than 100 ppm H2S is present, the ROE calculations will be done to determine if the following conditions exist and whether the Plan must be activated:

* 100 ppm at any public area (any place not associated with this site)

* 500 ppm at any public road (any road which the general public may travel).

* 100 ppm radius of 3000' will be assumed if there is insufficient data to do the calculations, and there is a reasonable expectation that H2S could be present in concentrations greater than 100 ppm in the gas mixture.

Calculation for the 100 ppm ROE: (H2S concentrations in decimal form)

ROE = [(1.589)(H2S concentration)(Q)] (^0.6258) 10,000 ppm + = .01
1,000 ppm + = .001

Calculation for the 500 ppm ROE: 100 ppm + = .0001
10 ppm + = .00001

ROE = [(0.4546)(H2S concentration)(Q)] (^0.6258)

EXAMPLE: If a well/facility has been determined to have 650 ppm H2S in the gas mixture and the well/facility is producing at a gas rate of 200 MCFD then:

ROE for 100 ppm ROE=[(1.589)(.00065)(200,000)] ^0.6258
ROE=28.1'

ROE for 500 ppm ROE=[(.4546)(.00065)(200,000)] ^0.6258
ROE=12.8'

These calculations will be forwarded to the appropriate NMOCD district office when applicable.

PUBLIC EVACUATION PLAN

When the supervisor has determined that the general public will be involved, the following plan will be implemented.

1. Notification of the emergency response agencies of the hazardous condition and implement evacuation procedures.
2. A trained person in H2S safety shall monitor with detection equipment the H2S concentration, wind and area of exposure. This person will determine the outer perimeter of the hazardous area. The extent of the evacuation area will be determined from the data being collected. Monitoring shall continue until the situation has been resolved. All monitoring equipment shall be UL approved for use in Class I Groups A, B, C & D, Division I hazardous locations. All monitors will have a minimum capability of measuring H2S, oxygen, and flammable values.
3. Law enforcement shall be notified to set up necessary barriers and maintain such for the duration of the situation as well as aid in the evacuation procedure.
4. The company representative shall stay in communication with all agencies throughout the duration of the situation and inform such agencies when the situation has been contained and the affected area is safe to enter.

PROCEDURE FOR IGNITING AN UNCONTROLLABLE CONDITION

The decision to ignite a well should be a last resort with one, if not both, of the following conditions:

1. Human life and/or property are endangered.
2. There is no hope of bringing the situation under control with the prevailing conditions at the site.

Instructions for Igniting the Well:

1. Two people are required. They must be equipped with positive pressure, self-contained breathing apparatus and "D"-ring style, full body, OSHA approved safety harness. Non-flammable rope will be attached.
2. One of the people will be a qualified safety person who will test the atmosphere for H2S, oxygen and LFL. The other person will be the designated company representative.
3. Ignite upwind from a distance no closer than necessary. Make sure that the ignition site has the maximum escape avenue available. A 25mm flare gun with a range of approximately +/- 500 feet shall be used to ignite the gas.
4. Before igniting, check for the presence of combustible gases.
5. After igniting, continue emergency actions and procedures as before.

REQUIRED EMERGENCY EQUIPMENT

1. Breathing Apparatus

- Rescue Packs (SCBA) – 1 unit shall be placed at each breathing area, 2 shall be stored in the safety trailer.
- Work / Escape Packs – 4 packs shall be stored on the rig floor with sufficient air hose not to restrict work activity.
- Emergency Escape Packs – 4 packs shall be stored in the doghouse for emergency evacuation.

2. Signage and Flagging

- One Color Code Condition Sign will be placed at the entrance to the site reflecting the possible conditions at the site.
- A Colored Condition flag will be on display reflecting the condition at the site at that time.

3. Briefing Area

- Two perpendicular areas will be designated by signs and readily accessible.

4. Windsocks

- Two windsocks will be placed in strategic locations, visible from all angles.

5. H2S Detectors and Alarms

- The stationary detector with three (3) sensors will be placed in the upper dog house if equipped, set to visually alarm @ 10 ppm and audible alarm @ 15 ppm. Calibrate a minimum of every 30 days or as needed. The three sensors will be placed in the following places: (Gas sample tubes will be stored in the safety trailer):
    - Rig Floor
    - Bell Nipple
    - End of flow line or where well bore fluid is being discharged

6. Auxiliary Rescue Equipment

- Stretcher
- Two OSHA full body harnesses
- 100' of 5/8" OSHA approved rope
- One 20 lb. Class ABC fire extinguisher
- Communication via cell phones on location and vehicles on location

USING SELF-CONTAINED BREATHING AIR EQUIPMENT (SCBA)

1. SCBA should be worn when any of the following are performed:

   - Working near the top or on top of a tank
   - Disconnecting any line where H2S can reasonably be expected.
   - Sampling air in the area to determine if toxic concentrations of H2S exist.
   - Working in areas where over 10 ppm of H2S has been detected.
   - At any time there is a doubt of the level of H2S in the area.

2. All personnel shall be trained in the use of SCBA prior to working in a potentially hazardous location.

3. Facial hair and standard eyeglasses are not allowed with SCBA.

4. Contact lenses are never allowed with SCBA.

5. When breaking out any line where H2S can reasonably be expected.

6. After each use, the SCBA unit shall be cleaned, disinfected, serviced and inspected.

7. All SCBA shall be inspected monthly.

RESCUE & FIRST AID FOR VICTIMS OF H2S POISONING

- Do not panic.
- Remain calm and think.
- Put on the breathing apparatus.
- Remove the victim to the safe breathing area as quickly as possible, upwind and uphill from source or crosswind to achieve upwind.
- Notify emergency response personnel.
- Provide artificial respiration and/or CPR as necessary.
- Remove all contaminated clothing to avoid further exposure.
- A minimum of two (2) personnel on location shall be trained in CPR and First Aid.

TOXIC EFFECTS OF H2S POISONING

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 is colorless and transparent. Hydrogen Sulfide is almost as toxic as Hydrogen Cyanide and is 5-6 times more toxic that Carbon Monoxide. Occupational exposure limits for Hydrogen sulfide and other gasses are compared below in Table I. Toxicity table for H2S and physical effects are shown in Table II.

Table I

Permissible Exposure Limits of Various Gasses

Common Name	Symbol	Sp. Gravity	TLV	STEL	IDLH
Hydrogen Cyanide	HCN	.94	4.7 ppm	C	
Hydrogen Sulfide	H2S	1.192	10 ppm	15 ppm	100 ppm
Sulfide Dioxide	SO2	2.21	2 ppm	5 ppm	
Chlorine	CL	2.45	.5 ppm	1 ppm	
Carbon Monoxide	CO	.97	25 ppm	200 ppm	
Carbon Dioxide	CO2	1.52	5000 ppm	30,000 ppm	
Methane	CH4	.55	4.7% LEL	14% UEL	

Definitions

A. TLV – Threshold Limit Value is the concentration employees may be exposed to based on a TWA (time weighted average) for eight (8) hours in one day for 40 hours in one (1) week. This is set by ACGIH (American Conference of Governmental Hygienists and regulated by OSHA.

B. STEL – Short Term Exposure Limit is the 15 minute average concentration an employee may be exposed to providing that the highest exposure never exceeds the OEL (Occupational Exposure Limit). The OEL for H2S is 19 PPM.

C. IDLH – Immediately Dangerous to Life and Health is the concentration that has been determined by the ACGIH to cause serious health problems or death if exposed to this level. The IDLH for H2S is 100 PPM.

D. TWA – Time Weighted Average is the average concentration of any chemical or gas for an eight (8) hour period. This is the concentration that any employee may be exposed to based on an TWA.

TABLE II

Toxicity Table of H2S

Percent %	PPM	Physical Effects
.0001	1	Can smell less than 1 ppm.
.001	10	TLV for 8 hours of exposure
.0015	15	STEL for 15 minutes of exposure
.01	100	Immediately Dangerous to Life & Health. Kills sense of smell in 3 to 5 minutes.
.02	200	Kills sense of smell quickly, may burn eyes and throat.
.05	500	Dizziness, cessation of breathing begins in a few minutes.
.07	700	Unconscious quickly, death will result if not rescued promptly.
.10	1000	Death will result unless rescued promptly. Artificial resuscitation may be necessary.

PHYSICAL PROPERTIES OF H2S

The properties of all gases are usually described in the context of seven major categories:

COLOR
ODOR
VAPOR DENSITY
EXPLOSIVE LIMITS
FLAMMABILITY
SOLUBILITY (IN WATER)
BOILING POINT

Hydrogen Sulfide is no exception. Information from these categories should be considered in order to provide a fairly complete picture of the properties of the gas.

COLOR – TRANSPARENT
Hydrogen Sulfide is colorless so it is invisible. This fact simply means that you can't rely on your eyes to detect its presence, a fact that makes the gas extremely dangerous to be around.

ODOR – ROTTEN EGGS
Hydrogen Sulfide has a distinctive offensive smell, similar to "rotten eggs." For this reason it earned its common name "sour gas." However, H2S, even in low concentrations, is so toxic that it attacks and quickly impairs a victim's sense of smell, so it could be fatal to rely on your nose as a detection device.

VAPOR DENSITY – SPECIFIC GRAVITY OF 1.192
Hydrogen Sulfide is heavier than air so it tends to settle in low-lying areas like pits, cellars or tanks. If you find yourself in a location where H2S is known to exist, protect yourself. Whenever possible, work in an area upwind and keep to higher ground.

EXPLOSIVE LIMITS – 4.3% TO 46%
Mixed with the right proportion of air or oxygen, H2S will ignite and burn or explode, producing another alarming element of danger besides poisoning.

FLAMMABILITY
Hydrogen Sulfide will burn readily with a distinctive clear blue flame, producing Sulfur Dioxide (SO2), another hazardous gas that irritates the eyes and lungs.

SOLUBILITY – 4 TO 1 RATIO WITH WATER
Hydrogen Sulfide can be dissolved in liquids, which means that it can be present in any container or vessel used to carry or hold well fluids including oil, water, emulsion and sludge. The solubility of H2S is dependent on temperature and pressure, but if conditions are right, simply agitating a fluid containing H2S may release the gas into the air.
BOILING POINT – (-76 degrees Fahrenheit)

Liquefied Hydrogen Sulfide boils at a very low temperature, so it is usually found as a gas.

SURFACE USE AND OPERATIONS PLAN FOR
DRILLING, COMPLETION, AND PRODUCING

Murchison Oil & Gas, Inc.
Laguna Deep Unit #22
SL: 1980' FSL & 1650' FEL, UNIT J
Sec 35, T19S, R33E
Lea County, New Mexico

LOCATED
Approximately 25 miles SW of Hobbs, New Mexico.

OIL & GAS LEASE
NMNM 027572

BOND COVERAGE
NM 2163

POOL
Delaware Price/Bone Spring

OIL & GAS RECORD LESSEE
Lessee: Magnum Hunter Production, Inc., 508 W. Wall, #500, Midland, Texas 79701
Operating Rights: Murchison Oil & Gas, Inc., 1100 Mira Vista Blvd, Plano, Texas 75093

SURFACE OWNER
Kenneth Smith, 267 Smith Ranch Road, Hobbs, NM 88230 (575) 433-3500
An Agreement with surface owner and Murchison Oil & Gas, Inc. has been reached.

MINERAL OWNER
Bureau of Land Management

GRAZING TENANT
N/A

EXHIBITS

A.	Well Location & Acreage Dedication Map
B.	Area Road Map
C-1 thru C-5	Vicinity Oil & Gas Map
D.	Topographic & Location Verification Map
E-1 and E-2	Proposed Lease Road and Pad Layout Map
F.	Drilling Rig Layout
G.	BOPE Schematic
H.	Choke Manifold Schematic

This well will be drilled to a depth of approximately 9700' MD.

EXISTING ROADS

Exhibit A is a portion of a section map showing the location of the proposed well as staked.

Exhibit B is a map showing existing roads in the vicinity of the proposed well site.

Directions to well location: From the junction of Highway 62-180 and Smith Ranch (H-55), go North 1.6 miles to proposed lease road.

ACCESS ROADS

Length and Width

Proposed access road is 5891.7' (1.1 miles) long and 30' wide (Exhibits E-1 and E-2). Murchison Oil & Gas, Inc. has a right-of-way agreement with Mr. Kenneth Smith for the proposed lease road to the well.

Surface Material

Six inches of caliche and water, compacted and graded.

Maximum Grade

Less than three percent

Turnouts

None needed

Drainage Design

N/A

Culverts

None needed

Gates and Cattle Guards

None required

LOCATION OF EXISITING WELLS

The locations of existing wells in Section 35 are shown on Exhibits C-1, C-2, and C-3. The locations of Laguna Deep Unit Wells in the surrounding sections are shown on Exhibits C-4 and C-5.

LOCATION OF EXISTING AND/OR PROPOSED FACILITIES

Necessary production facilities for this well will be located on the well pad.

LOCATION AND TYPE OF WATER SUPPLY

It is planned to drill the proposed well with a cut-brine water system or with produced water. The water will be obtained from either a private water well owner or a commercial source and will either be piped to location from a nearby water well or will be hauled to location by truck over existing and proposed lease roads as shown on Exhibits E-1 and E-2.

SOURCE OF CONSTRUCTION MATERIALS

Caliche required for the construction of the location pad and access road will be obtained from caliche on the location or from the nearest BLM-approved pit.

METHODS OF HANDLING WASTE DISPOSAL

Drill Cuttings will be disposed of in drilling pits. A NMOCD Form C-144 Pit Permit has been sent to the NMOCD further describing reserve pit construction and location of ground water, waterways and water wells.

Drilling fluids will be allowed to evaporate in the reserve pits until the pits are dry. The reserve pits will be fenced on three sides, and will be completely isolated upon removal of the rig.

Water produced during operations will be collected in steel tanks or a reserve pit if volumes prove excessive. After placing the well on production, all water will be collected in tanks.

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

Trash, waste paper, garbage and junk will be kept in a trailer and disposed of at an approved landfill. All waste material will be contained to prevent scattering by the wind.

All trash and debris will be removed from the well site within 30 days after finishing drilling and/or completion operations are terminated. At the point the reserve pit is dry, it will be backfilled and reclaimed as outlined by BLM specifications. Only the portion of the drilling pad used by production equipment will remain in use. If deemed dry, only a dry hole marker will remain.

ANCILLARY FACILITIES

None required.

WELL SITE LAYOUT

Exhibit F shows the relative location and dimensions of the well pad, mud pits, reserve pit, and trash pit, and the location of major rig components. The V-door will be to the East, and the reserve pit located to the North.

The ground surface at the drilling location is essentially flat.

The reserve pits will be plastic lined.

The pad and pit area have been staked and flagged.

PLANS FOR RESTORATION OF THE SURFACE

After finishing drilling and/or completion operations, all equipment and other material not needed for further operations will be removed. The location will be cleared of all trash and junk to leave the site in an as aesthetically pleasing condition as possible.

Any unguarded pits containing fluids will be fenced until they are filled.

If the proposed well is non productive, all rehabilitation and/or vegetation requirements of the Bureau of Land Management and the United States Geological Survey will be complied with and will be accomplished as expeditiously as possible. All pits will be filled and leveled within 90 days after abandonment.

OTHER INFORMATION

Topography

The land surface at the well site is relatively flat.

Soil

The topsoil at the well site is caliche.

Flora and Fauna

The vegetation consists of mesquite, grasses, prickly pear, desert flowers and various grasses/forbs. Wildlife in the area is sparse, consisting of coyotes, rabbits, rodents, reptiles, dove and quail.

Ponds and Streams

There are no rivers, lakes, ponds, or streams in the area.

Residences and Other Structures

There are no residences within one mile of the proposed well site.

Archaeological, Historical, and Cultural sites

An Archaeological Survey has been sent to the BLM Office.

Land Use

The land is used mainly for farming, cattle ranching, and oil and gas production.

OPERATOR'S REPRESENTATIVES

Arnold Nall
1100 Mira Vista Blvd.
Plano, TX 75093-4698
Office Phone: (972) 931-0700
Cell Phone: (214) 415-3010

Randy Ford
415 W. Wall Street, Suite 1700
Midland, TX 79701
Office Phone: (432) 682-0440
Cell Phone: (432) 559-2222

Murchison Oil & Gas, Inc.
Laguna Deep Unit #22
SL: 1980' FSL & 1650' FEL, UNIT J
Sec 35, T19S, R33E
Lea County, New Mexico

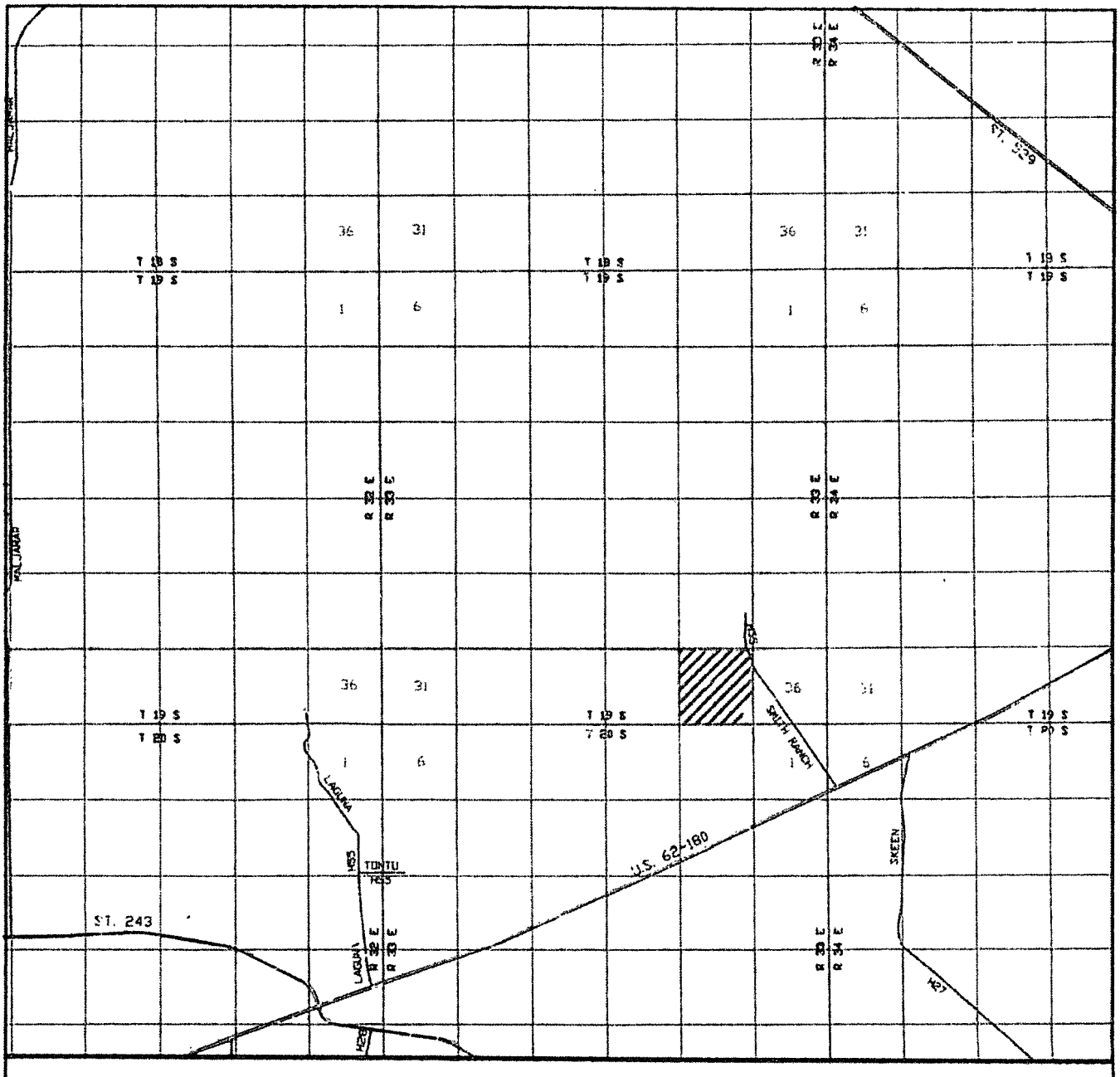
CERTIFICATION

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 Murchison Oil & Gas, Inc. and its contractors and subcontractors in conformity with this plan and the terms and conditions under which it is approved.

July 23, 2008
Date

Arnold Nall
VP, Operations
Murchison Oil & Gas, Inc.

EXHIBIT B



LAGUNA DEEP UNIT #22
Located at 1980' FSL and 1650' FEL
Section 35, Township 19 South, Range 33 East,
N.M.P.M., Lea County, New Mexico.

basin surveys
focussed 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:	19911
Survey Date:	06-18-2008
Scale:	1" = 2 MILES
Date:	06-20-2008

MURCHISON OIL & GAS, INC.

EXHIBIT C-1

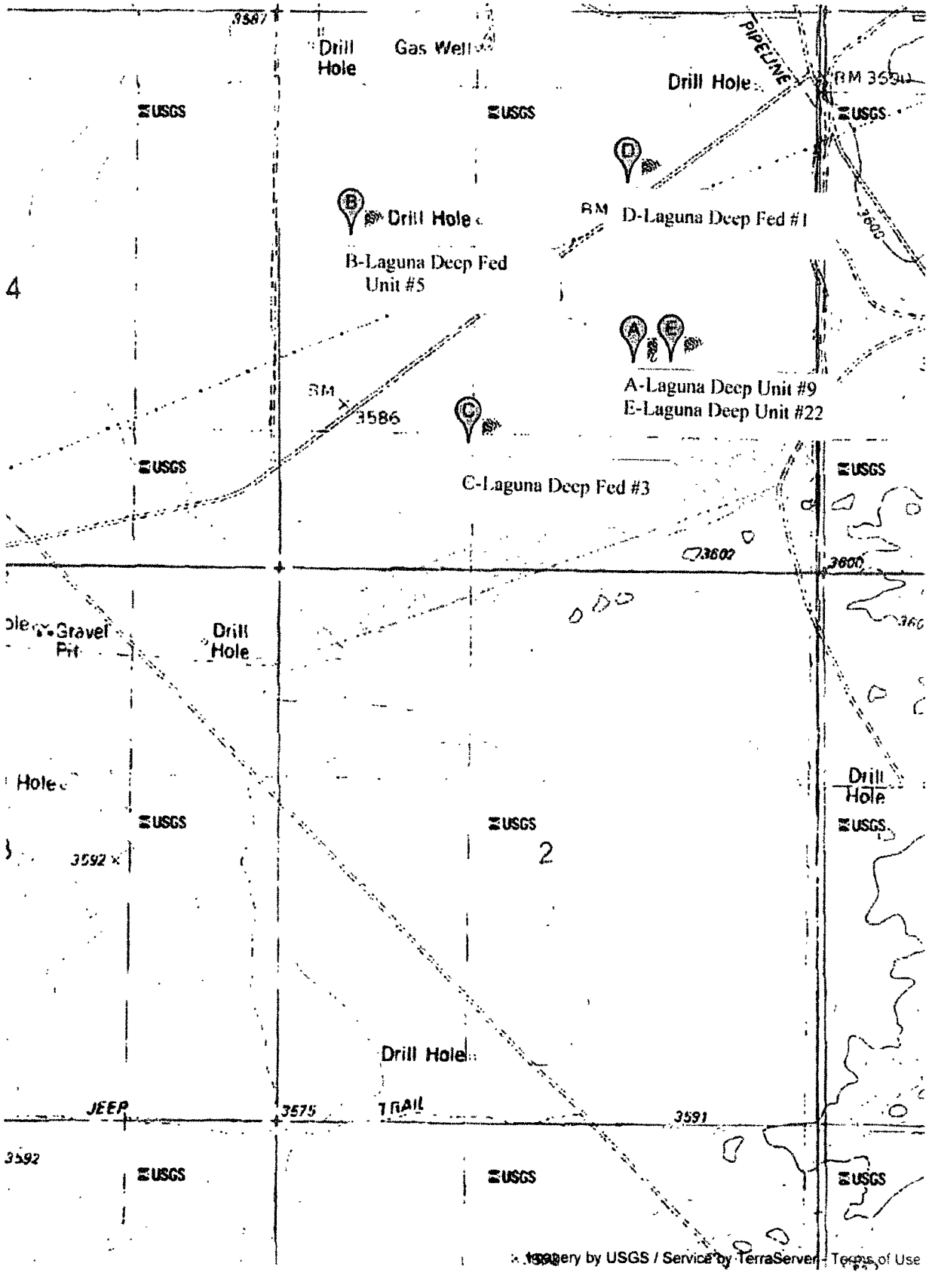

Drill Hole
Gas Well
Drill Hole
PIPELINE
BM 3590
USGS
D
D-Laguna Deep Fed #1
B
Drill Hole
B-Laguna Deep Fed Unit #5
4
A
E
A-Laguna Deep Unit #9
E-Laguna Deep Unit #22
BM
3586
C
C-Laguna Deep Fed #3
3602
3600
Gravel Pit
Drill Hole
Drill Hole
Drill Hole
3592
2
Drill Hole
JEEP
TRAIL
3575
3591
3592
Imagery by USGS / Service by TerraServer - Terms of Use

EXHIBIT C-2

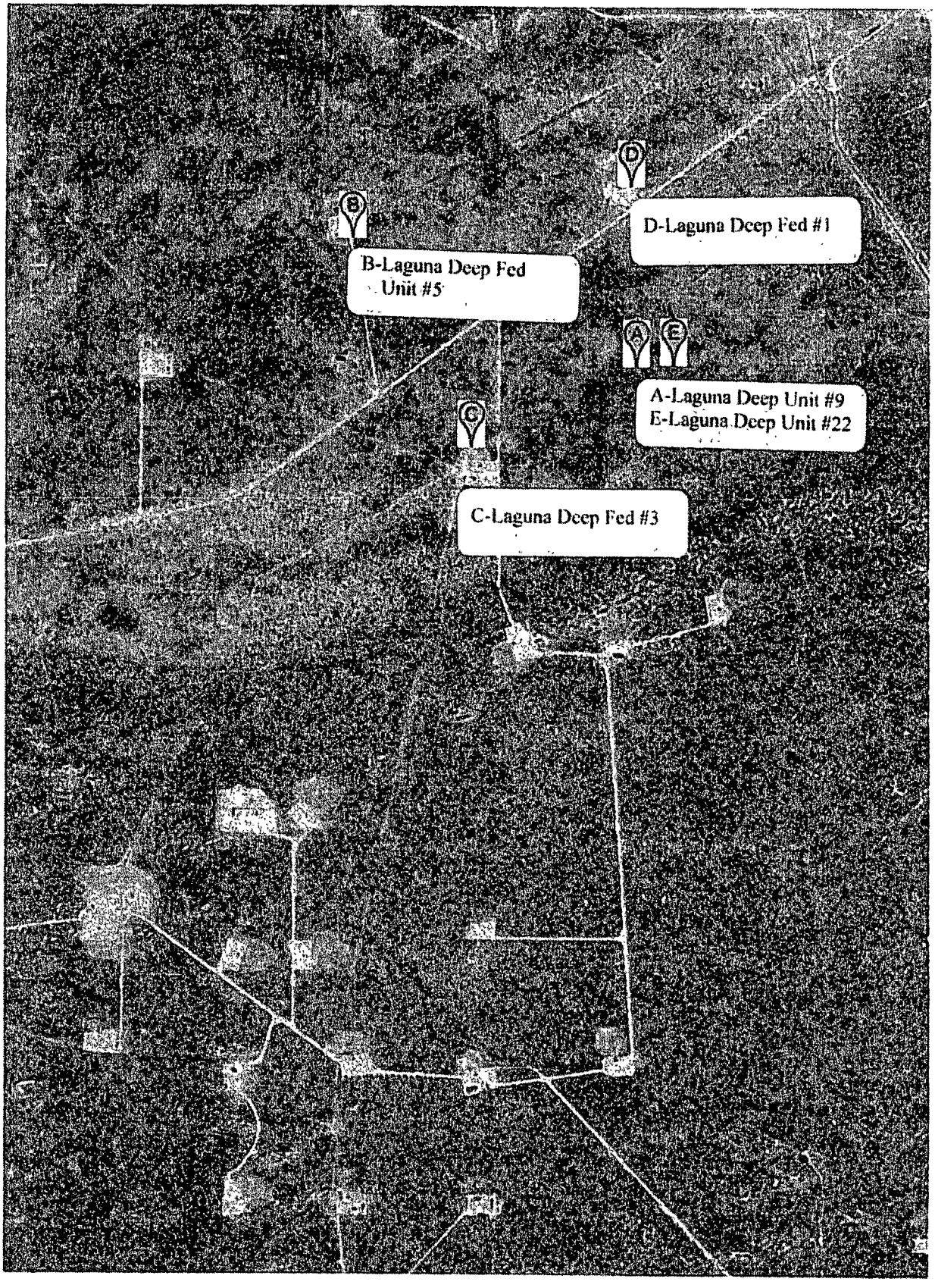
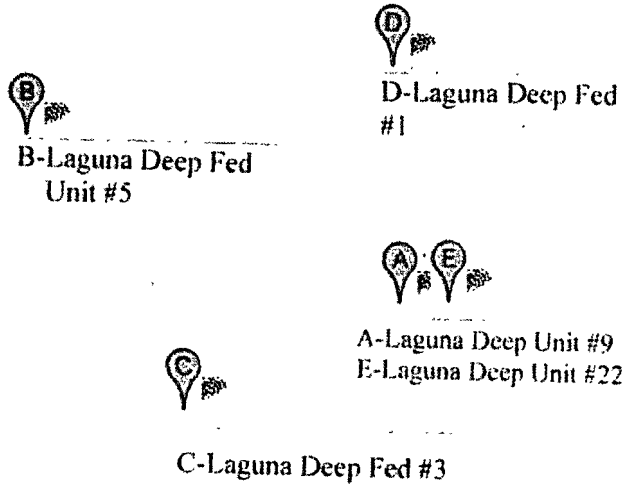
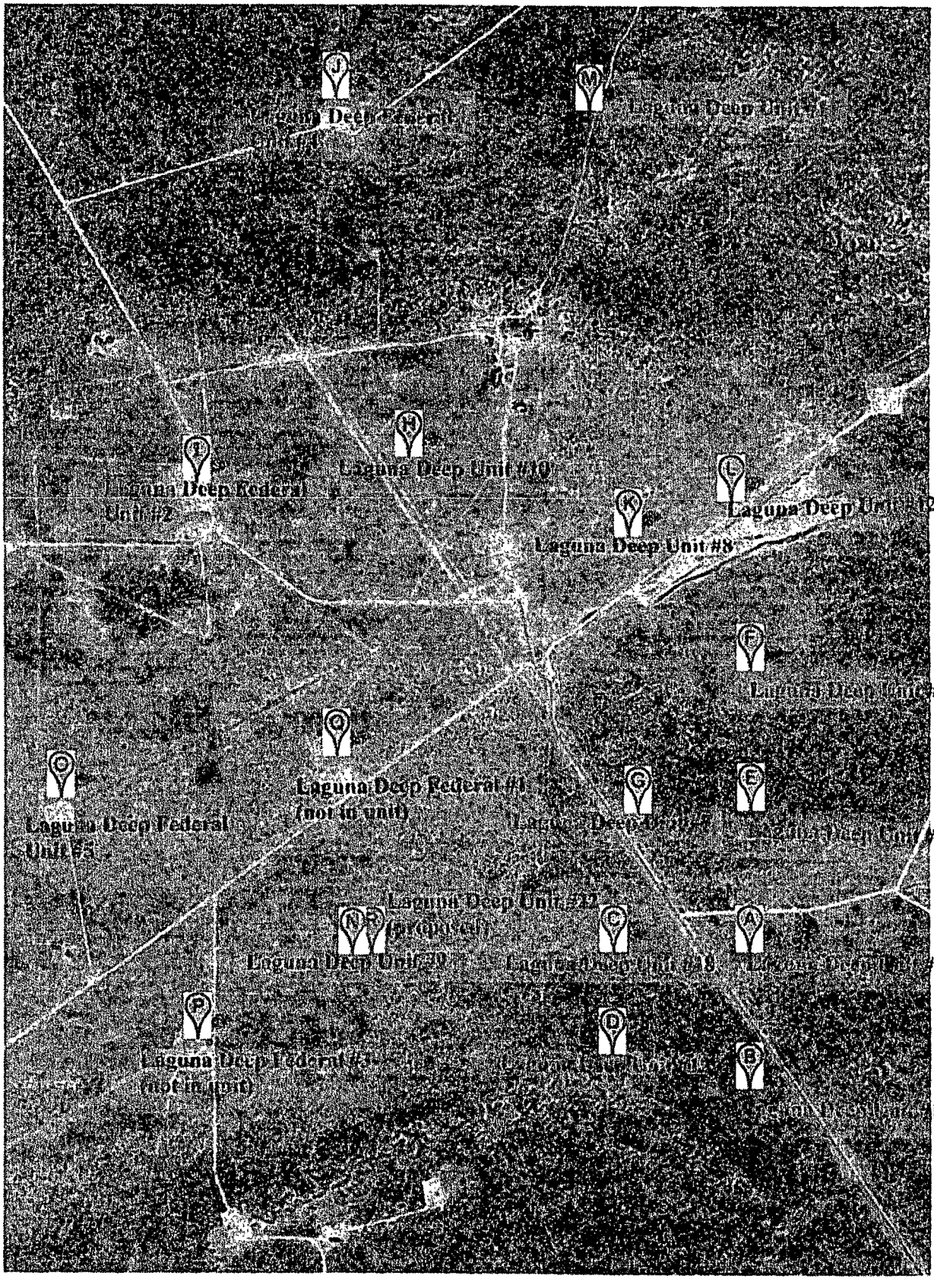

D
B
D-Laguna Deep Fed #1
B-Laguna Deep Fed Unit #5
A
E
A-Laguna Deep Unit #9
E-Laguna Deep Unit #22
C
C-Laguna Deep Fed #3

EXHIBIT C-3



LAGUNA DEEP WELLS
SEC 25, 26, 35, 36 T19S R33E – Lea County, New Mexico



LAGUNA DEEP WELLS
SEC 25, 26, 35, 36 T19S R33E – Lea County, New Mexico

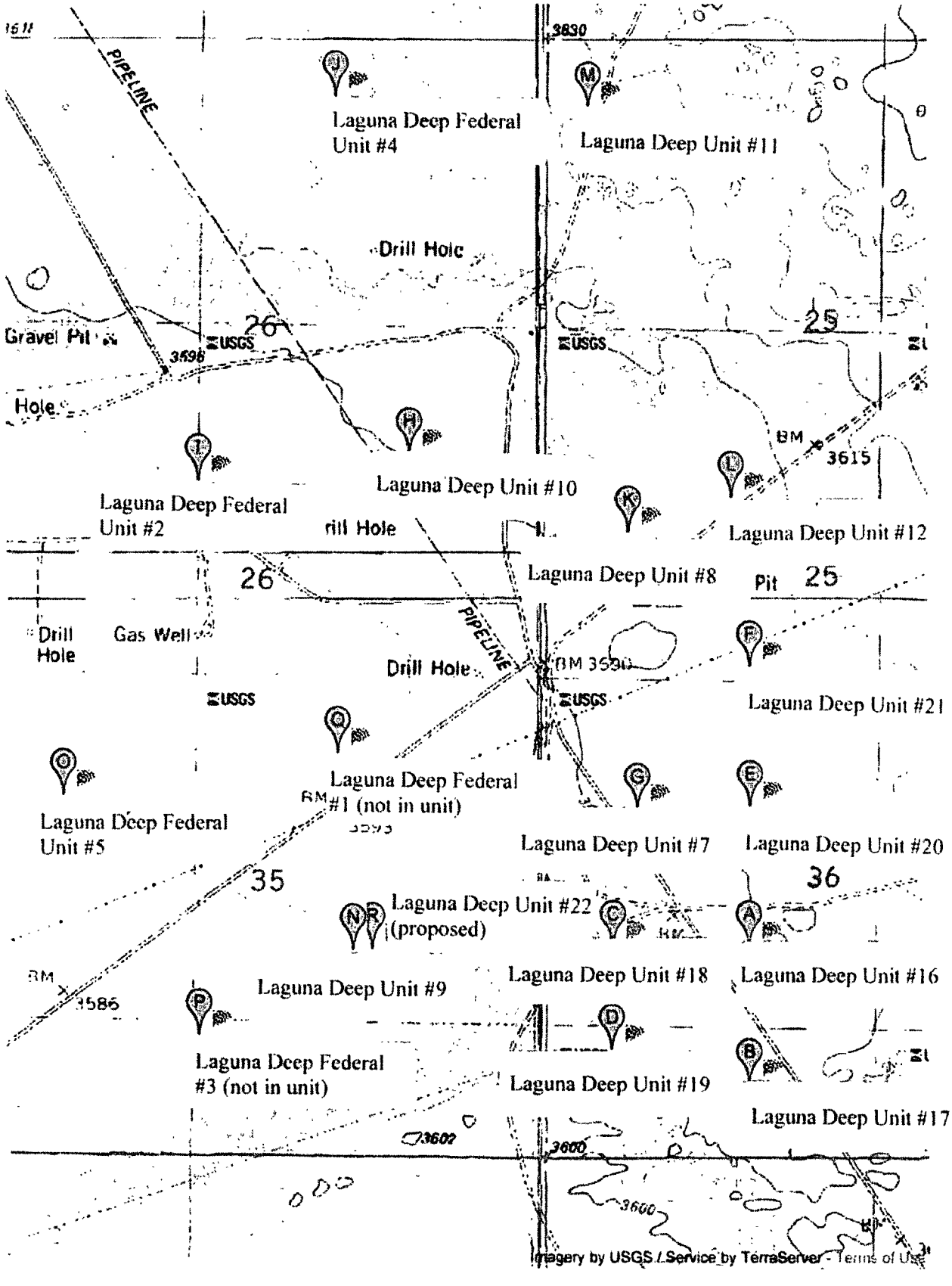
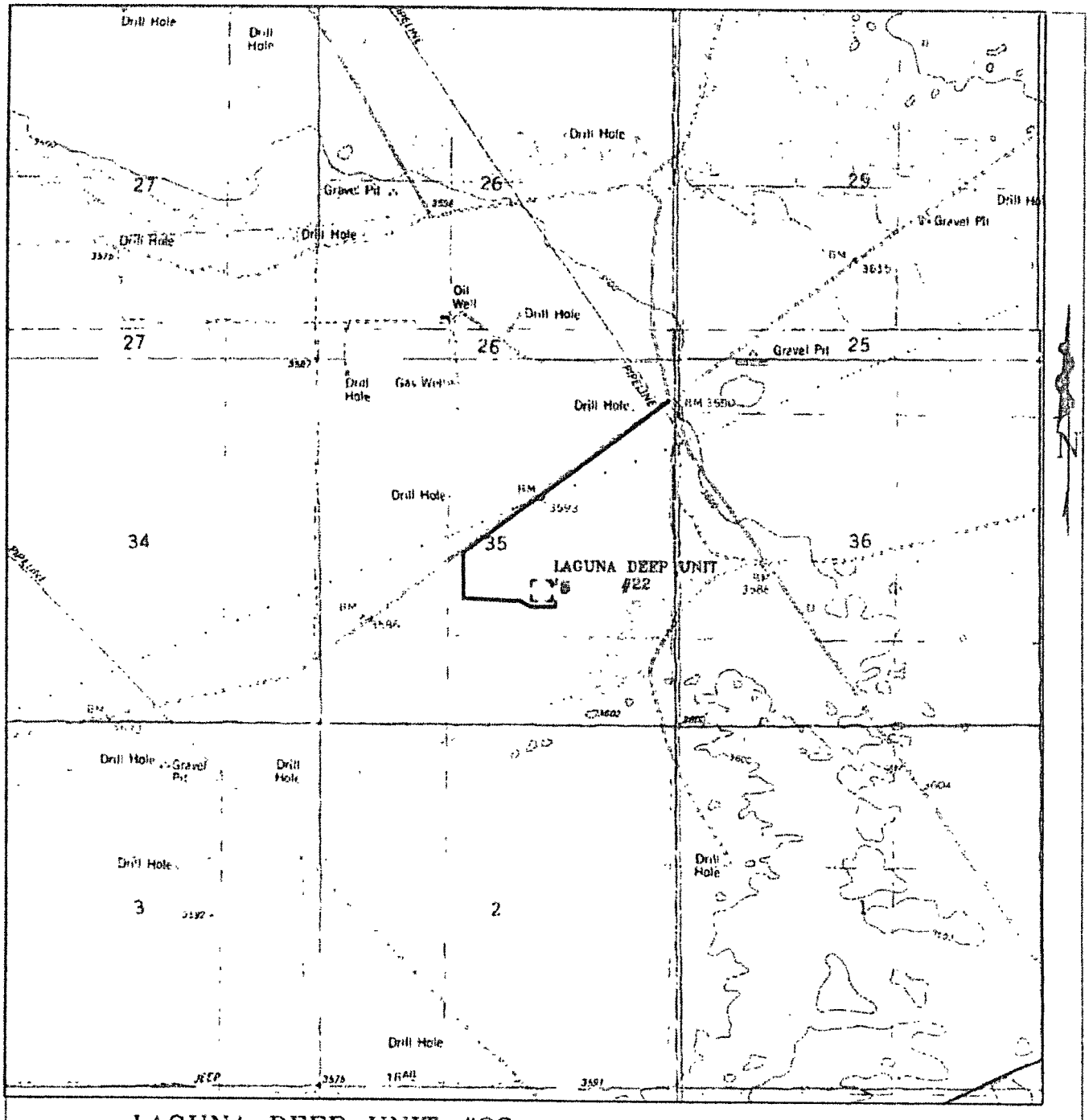


EXHIBIT D



LAGUNA DEEP UNIT #22
Located at 1980' FSL and 1650' FEL
Section 35, Township 19 South, Range 33 East,
N.M.P.M., Lea County, New Mexico.

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Hobbs, New Mexico 88241
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(505) 392-3074 - Fax
basinsurveys.com

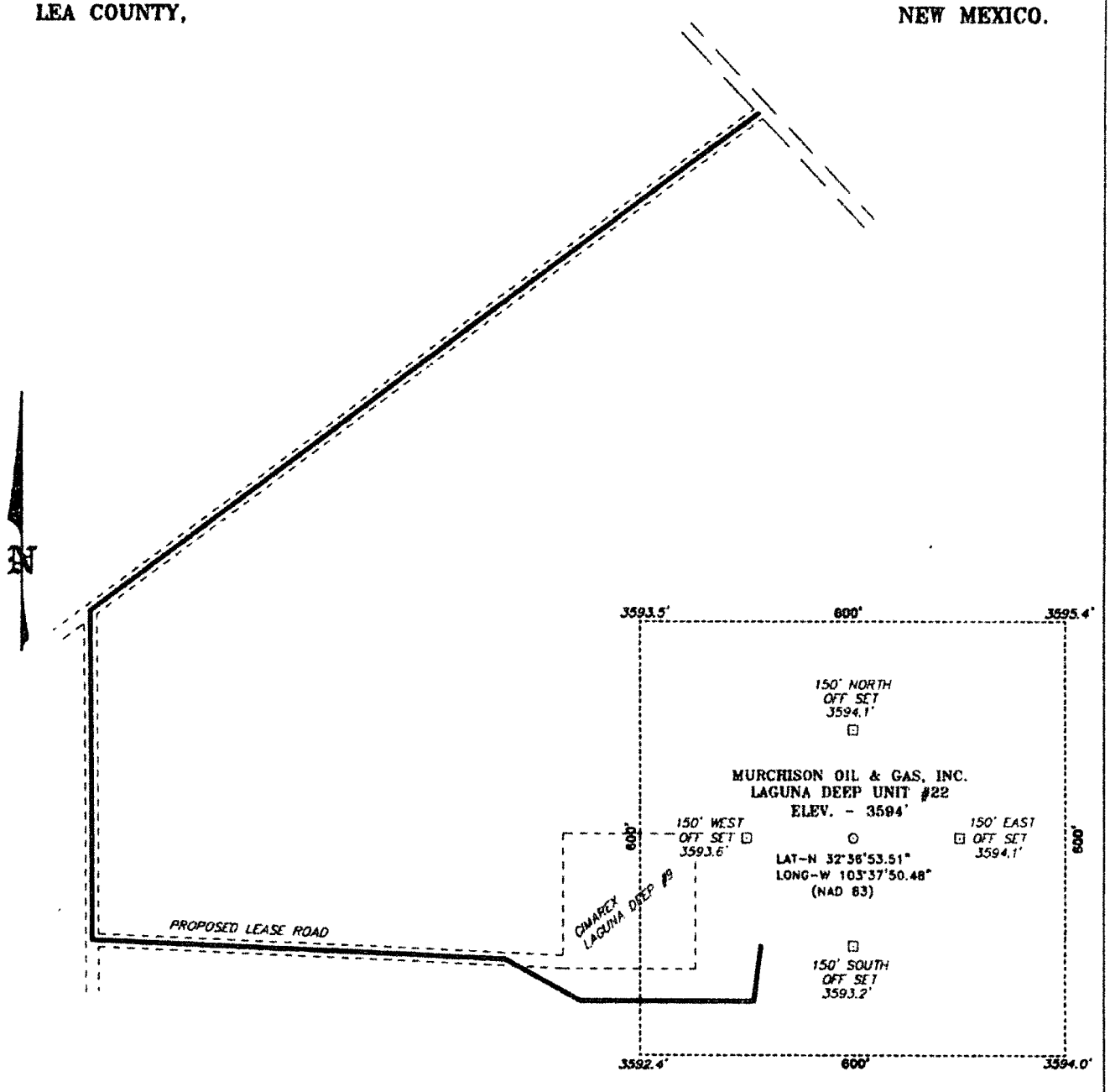
W.O. Number: 19911
Survey Date: 05-18-2008
Scale: 1" = 2000'
Date: 05-20-2008

MURCHISON OIL & GAS, INC.

EXHIBIT E-1

SECTION 35, TOWNSHIP 19 SOUTH, RANGE 33 EAST, N.M.P.M.,

LEA COUNTY, NEW MEXICO.



SCALE: 1" = 200'

DIRECTIONS TO LOCATION:

FROM THE JUNCTION OF HWY 62-180 AND SMITH RANCH (H-55), GO NORTH 1.6 MILES TO PROPOSED LEASE ROAD.

MURCHISON OIL & GAS, INC.

REF: LAGUNA DEEP UNIT #22 / Well Pad Topo

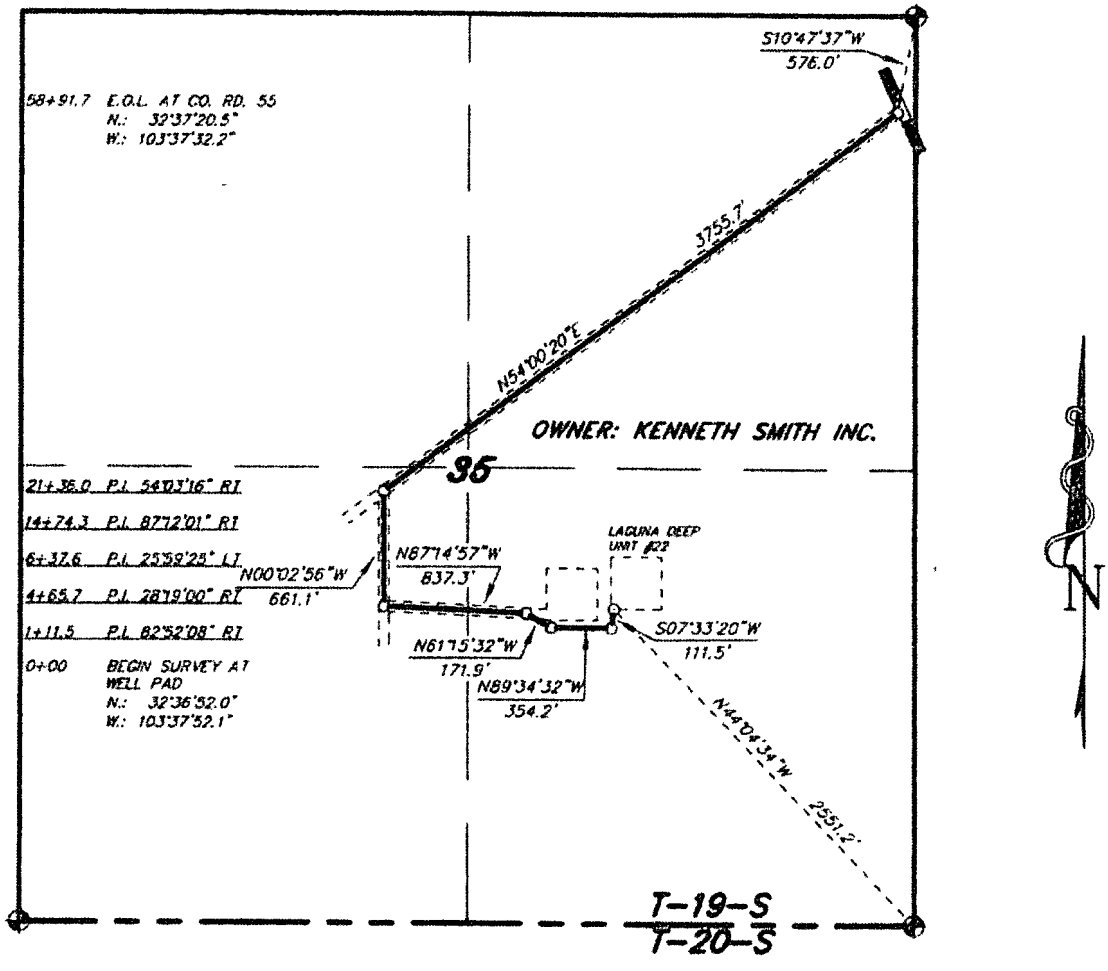
THE LAGUNA DEEP UNIT #22 LOCATED 1980' FROM THE SOUTH LINE AND 1650' FROM THE EAST LINE OF SECTION 35, TOWNSHIP 19 SOUTH, RANGE 33 EAST, N.M.P.M., LEA COUNTY, NEW MEXICO.

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

W.O. Number: 19911	Drawn By: J. SMALL		
Date: 06-20-2008	Disk: JMS 19911	Survey Date: 06-18-2008	Sheet 1 of 1 Sheets

EXHIBIT E-2

SECTION 35, TOWNSHIP 19 SOUTH, RANGE 33 EAST, N.M.P.M., LEA COUNTY, NEW MEXICO.



LEGAL DESCRIPTION

A STRIP OF LAND 20.0 FEET WIDE, LOCATED IN SECTION 35, TOWNSHIP 19 SOUTH, RANGE 33 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 N.44°04'34"W., 2551.2 FEET FROM THE SOUTHEAST CORNER OF SAID SECTION 35; THENCE S.07°33'20"W., 111.5 FEET; THENCE N.89°34'32"W., 354.2 FEET; THENCE N.61°15'32"W., 171.9 FEET; THENCE N.87°14'57"W., 837.3 FEET; THENCE N.00°02'56"W., 661.1 FEET; THENCE N 54°00'20"E., 3755.7 FEET TO THE END OF THIS LINE WHICH LIES S.10°47'37"W., 576.0 FEET FROM THE NORTHEAST CORNER OF SAID SECTION 35. SAID STRIP OF LAND BEING 5891.7 FEET OR 357.07 RODS IN LENGTH.

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

GARY L. JONES No. 7977
No. 5074

1000 0 1000 2000 FEET

MURCHISON OIL & GAS, INC.

REF: PROPOSED ROAD TO THE LAGUNA DEEP UNIT #22

A ROAD CROSSING FEE LAND IN

SECTION 35, TOWNSHIP 19 SOUTH, RANGE 33 EAST,

N.M.P.M., LEA COUNTY, NEW MEXICO.

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

W.O. Number: 19911	Drawn By: J. M. SMALL		
Date: 06-20-2007	Disk: JMS 19911	Survey Date: 06-18-2008	Sheet 1 of 1 Sheets

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	MURCHISON OIL & GAS INC.
LEASE NO.:	NM27572
WELL NAME & NO.:	LAGUNA DEEP UNIT #22
SURFACE HOLE FOOTAGE:	1980' FSL & 1650' FEL
BOTTOM HOLE FOOTAGE	
LOCATION:	Section 35, T. 19 S., R 33 E., NMPM
COUNTY:	Lea 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)

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

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 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

The reserve pit shall be constructed and closed in accordance with the NMOCD rules.

The reserve pit shall be constructed 160' X 160' on the North side of the well pad.

The reserve pit shall be constructed, so that upon completion of drilling operations, the dried pit contents shall be buried a minimum depth of three feet below ground level. Should the pit content level not meet the three foot minimum depth requirement, the excess contents shall be removed until the required minimum depth of three feet below ground level has been met. The operator shall properly dispose of the excess contents at an authorized disposal site.

The reserve pit shall be constructed and maintained so that runoff water from outside the location is not allowed to enter the pit. The berms surrounding the entire perimeter of the pit shall extend a minimum of two (2) feet above ground level. At no time will standing fluids in the pit be allowed to rise above ground level.

The reserve pit shall be fenced on three (3) sides during drilling operations. The fourth side shall be fenced immediately upon rig release.

D. FEDERAL MINERAL MATERIALS PIT

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

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

E. WELL PAD SURFACING

Surfacing of the well pad is not required.

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

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

F. ON LEASE ACCESS ROADS

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

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

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

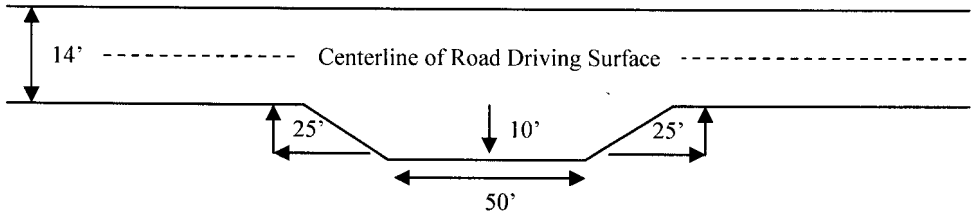
The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing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

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

Ditching
Ditching shall be required on both sides of the road.

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

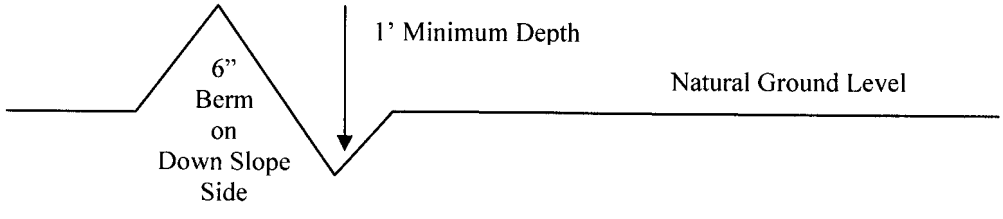
Standard Turnout – Plan View



Drainage
Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outsloping and insloping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.

Cross Section of a Typical Lead-off Ditch



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

Formula for Spacing Interval of Lead-off Ditches

Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

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

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

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

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

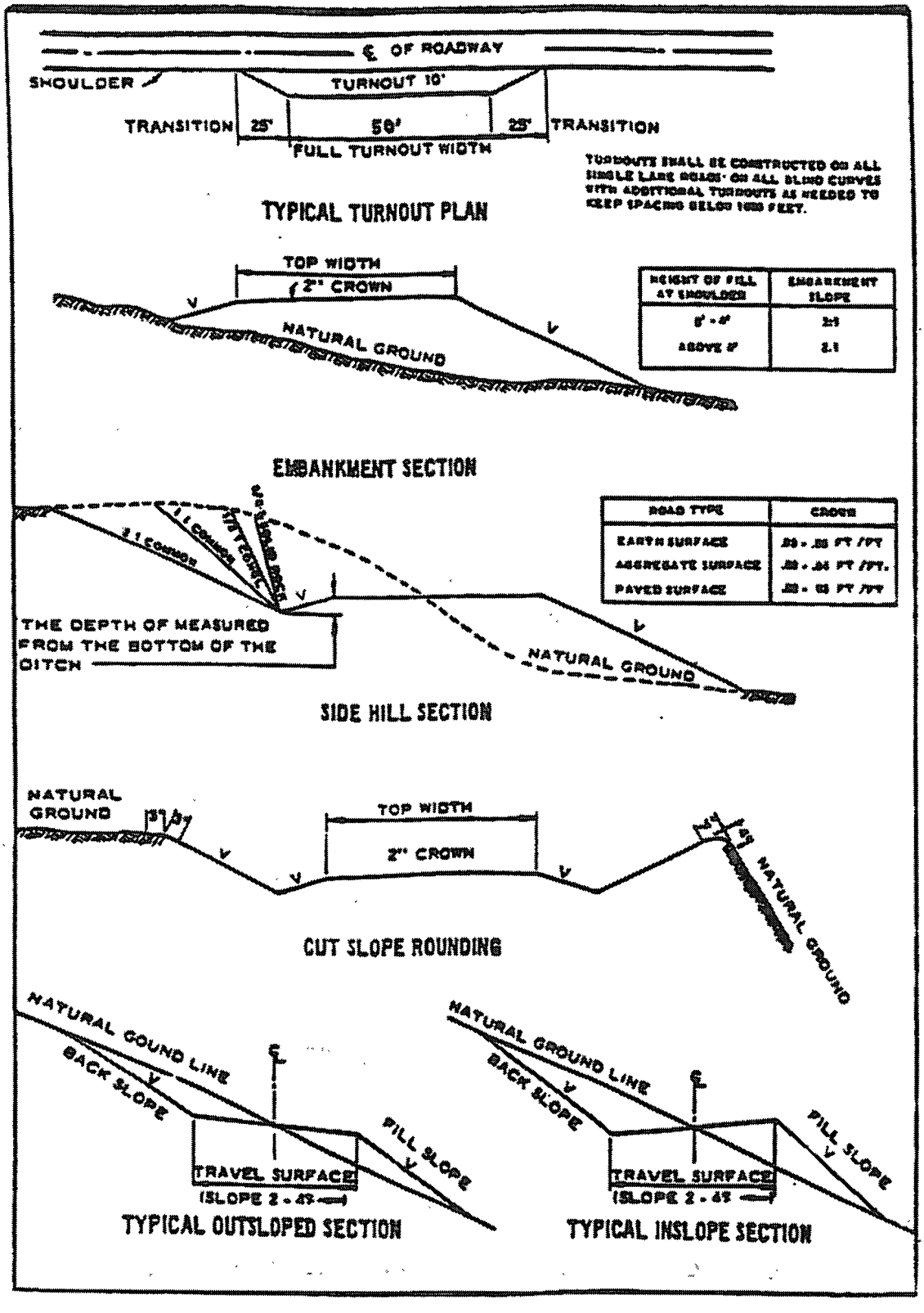
A gate shall be constructed and fastened securely to H-braces.

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

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

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

Figure 1 – Cross Sections and Plans For Typical Road Sections



VII. DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

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

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

☒ **Lea County**
Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240,
(575) 393-3612

1. A Hydrogen Sulfide (H2S) Drilling Plan should be activated 500 feet prior to drilling into the **Yates** formation. **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.

4. Gamma-Ray/Neutron logs shall be run from the base of the Salado formation to the surface. The logs shall be run at a speed which allows the logs to be legible and no faster than manufactures of the logging tools recommended speed.

B. CASING

Changes to the approved APD casing and cement program require submitting a sundry and receiving approval prior to work. Failure to obtain approval prior to work will result in an Incident of Non-Compliance being issued.

Centralizers required on surface casing per Onshore Order 2.III.B.1.f.

Wait on cement (WOC) time for a primary cement job will be a minimum 18 hours for a water basin, 24 hours in the potash area, or 500 pounds compressive strength, whichever is greater for all casing strings. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. See individual casing strings for details regarding lead cement slurry requirements.

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

R-111-P Potash requirements to be followed.
Possible lost circulation in the Grayburg and Bone Spring formations.

1. The **13-3/8** inch surface casing shall be set at **approximately 1700 feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt)** 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 is to include the lead cement slurry.

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

    d. If cement falls back, remedial 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, c-d above.
    Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to R-111-P potash.

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

    ☒ **Cement to surface.** If cement does not circulate, contact the appropriate BLM office. **If two stage cement job is performed, both stages to circulate. If first stage does not circulate, contact the BLM prior to pumping the second stage. Additional cement will be required as excess cement calculates to approximately 1%.**

CONTINGENCY CASING PROGRAM:

Should excessive drilling fluid losses occur below 3500', 7-5/8" casing will be set at approximately 5000' (below Capitan Reef).

4. The minimum required fill of cement behind the **7-5/8** inch intermediate casing **(ST-L)** is:

   ☒ Cement to surface. If cement does not circulate see B.1.a, c-d above. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to R-111-P potash.**

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

   ☒ Cement should tie-back at least 500 feet into previous casing string. Operator shall provide method of verification. **If two stage cement job is performed, first stage to circulate. If first stage does not circulate, contact the BLM prior to pumping the second stage.**

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

7. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

C. PRESSURE CONTROL

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

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

   a. The tests shall be done by an independent service company.

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

   c. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.

d. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug.

e. 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. DRILL STEM TEST

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

WWI 091208

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.

At the time reserve pits are to be reclaimed, 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.

B. RESERVE PIT CLOSURE

The reserve pit, when dried and closed, shall be recontoured, all trash removed, and reseeded as follows:

Seed Mixture 2, for Sandy Sites

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

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

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

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

*Pounds of pure live seed:

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

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.