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OCD-ARTESIA

Oil Cons.
N.M. DIV-Dist. 2
1301 W. Grand Avenue
Artesia, NM 88210

Form 3160-3
(September 2001)

FORM APPROVED
OMB No. 1004-0136
Expires January 31, 2004

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.: NM19848
6. If Indian, Allottee or Tribe Name:
7. If Unit or CA Agreement, Name and No.:
8. Lease Name and Well No.: Laguna Grande Federal #4
9. API Well No.: 30-015-33219
10. Field and Pool, or Exploratory: Atoka
11. Sec., T., R., M., or Blk. and Survey or Area: Sec. 29, T23S, R29E

1a. Type of Work: ☒ DRILL ☐ REENTER

1b. Type of Well: ☐ Oil Well ☒ Gas Well ☐ Other ☐ Single Zone ☐ Multiple Zone

2. Name of Operator: Tom Brown, Inc.

3a. Address: P O Box 2608 Midland, TX 79702

3b. Phone No. *(include area code)*: 432-682-9715

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*
At surface: 660' FNL & 660' FWL (Sec 29, T23S, R29E)
At proposed prod. zone: 660' FNL & 660' FWL (Sec 29, R23S, R29E)

14. Distance in miles and direction from nearest town or post office*: 5 miles East of Loving, 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.: 3500'

19. Proposed Depth: 12700'

20. BLM/BIA Bond No. on file: ES-0183

21. Elevations (Show whether DF, KDB, RT, GL, etc.): GR: 2968'

22. Approximate date work will start*: 2/17/04

23. Estimated duration: 45 Days

CARLSBAD CONTROLLED WATER BASIN

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: B E Franks — Name *(Printed/Typed)*: Brian Franks — Date: 12/18/03

Title: Drilling & Completion Engineer

Approved by *(Signature)*: /s/ Joe G. Lara — Name *(Printed/Typed)*: /s/ Joe G. Lara — Date: 28 JAN 2004

Title: FIELD MANAGER — Office: CARLSBAD FIELD OFFICE

Application approval does not warrant or certify the 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 1 YEAR

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 reverse)*

APPROVAL SUBJECT TO
GENERAL REQUIREMENTS
AND SPECIAL STIPULATIONS
ATTACHED

Witness Surface Casing

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 August 15, 2000
Submit to Appropriate District Office
State Lease - 4 copies
Fee Lease - 3 copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1] API Number	[2] Pool Code	[3] Pool Name
	079860	Laguna Salado Atoka (Gas)

[4] Property Code	[5] Property Name	[6] Well Number
	LAGUNA GRANDE FEDERAL	4

[7] OGRID No.	[8] Operator Name	[9] Elevation
023230	TOM BROWN, INC.	2968'

[10] Surface Location

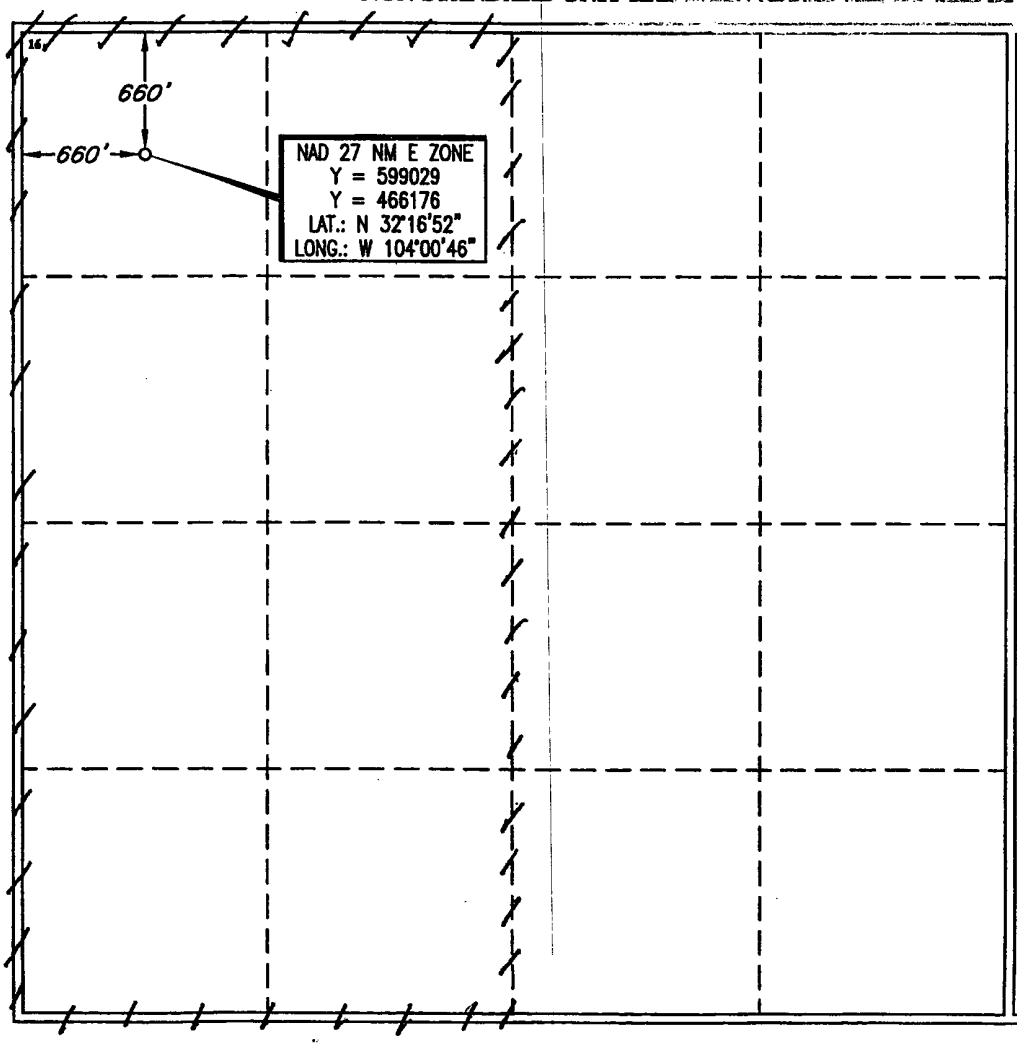
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	29	23 SOUTH	29 EAST, N.M.P.M.		660'	NORTH	660'	WEST	EDDY

[11] 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

[12] Dedicated Acres	[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
320			

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



[17] OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

Signature

Brian Franks
Printed Name

Drilling & Compl. Engineer
Title

12/31/03
Date

[18] SURVEYOR CERTIFICATION

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

NOVEMBER 13, 2003
Date of Survey

Signature and Seal of Professional Surveyor

11-24-03

Certificate Number
V. L. BEZNER R.P.S. #7920

JOB #91389 / 49 SE / J.C.P.

APPLICATION FOR PERMIT TO DRILL

TOM BROWN, INC.
Laguna Grande Federal #4
660' FNL & 660' FWL
Sec 29, T23S, R29E
Eddy County, New Mexico

In conjunction with Form 3160-3, Application for Permit to Drill, Tom Brown, Inc. submits the following items of pertinent information in accordance with Onshore Oil and Gas Order Nos. 1 & 2, and with all other applicable federal and state regulations.

1. Geological Name of Surface Formation: Permian

2. Estimated Tops of Important Geological Markers:

	MD	TVD	Subsea TVD	
Rustler	200'	200'	+2768'	
Bell Canyon	2825'	2825'	+143'	
Cherry Canyon	3725'	3725'	-757'	
Brushy Canyon	4885'	4885'	-1917'	
Bone Spring	6510'	6510'	-3542'	
1st Bone Spring SS	7515'	7515'	-4547'	+
2nd Bone Spring SS	8290'	8290'	-5322'	
3rd Bone Spring SS	9425'	9425'	-6457'	
Wolfcamp	9810'	9810'	-6842'	
Strawn	11710'	11710'	-8742'	+
Atoka	11920'	11920'	-8952'	+
Atoka Lime	12055'	12055'	-9087'	*
Morrow	12485'	12485'	-9517'	
PTD	12700'	12700'	-9732'	

* Primary Reservoir Target
\+ Secondary Reservoir Target

3. Estimated Depth of Anticipated Fresh Water, Oil or Gas:

	MD	TVD	
Upper Permian Sands	0-350'	0-350'	Possible Water Sands*
Bone Spring	7700	7900'	Oil & Gas
Wolfcamp	9810'	11400'	Gas
Strawn	11710'	11900	Gas **
Atoka	11920'	12100'	Gas

* Ground water will be protected by 13-3/8" surface casing with cement circulated to surface.

** Potentially productive horizons in the 8-3/4" hole section to be protected by the 5-1/2" casing with cement at least 500' above upper most zone.

4. Proposed Casing Program:

Hole Size	Interval(MD)	Casing OD	Description	
26"	0'-40'	20"	Conductor	
17-1/2"	0'-400'	13-3/8"	48# H-40, STC New, R-3	WITNESS
12-1/4"	0'-3000'	9-5/8"	36# J-55, STC, New, R-3	
8-3/4"	0'-10000'	5-1/2"	17# L-80, LTC, New, R-3	
8-3/4"	10000'-12700'	5-1/2"	17# P110, LTC, New, R-3	

Proposed Cementing Program:

20" Conductor: Ready-mix poured to surface.

13-3/8" Surface Casing: Cement w/220 sx Halliburton Light (12.5 ppg, 2.06 ft^3/sx). Tail w/ 200 sx Premium Plus + 2% CaCl2 (14.8 ppg, 1.34 ft^3/sx).
Float Equipment: Texas pattern shoe w/ insert float valve above shoe joint, 4 centralizers.

WITNESS

9-5/8" Intermediate Casing: Cement w/ 620 sx Interfill "C" (11.9 ppg, 2.45 ft^3/sx). Tail w/ 200 sx Class "C" (14.8 ppg, 1.32 ft^3/sx).
Float Equipment: Float shoe w/float collar above shoe joint, 12 centralizers.

5-1/2" Production Casing: Cement w/1000 sx Super "H" + .04% CFR-3 + 0.5% Halad-344 + 0.1% HR-7 + 1 pps salt (13.0 ppg, 1.65 ft^3/sx). Estimate TOC @ 11200'.

NOTE: If hydrocarbon shows above 9800' are encountered, a DV tool will be installed @ ± 9500' to allow a second cement stage to be pumped.

5. Pressure Control Equipment:

The blowout preventer equipment (BOPE) shown in Exhibit D will be utilized for the 12-1/4" and 8-3/4" hole sections as follows:

- 2000 psi WP rating for the 12-1/4" section
- 5000 psi WP rating for the 8-3/4" hole section

The 2M BOPE assembly will consist of a 13-5/8" annular preventer nippled up on the surface casing. The 5M BOPE assembly will consist of a 5000 psi WP double ram-type preventer (4-1/2" pipe and blind rams) and a 5000 psi WP annular preventer (API RP53 Fig. 2c.5), nippled up on the 9-5/8" intermediate casing and used continuously until setting the 5-1/2" casing at total depth of 12700'.

BOPE will be tested as follows:

- Prior to drilling out from surface casing- test all BOPE to 1000 psi using rig pump
- Prior to drilling out from 9-5/8" casing – test ram-type preventers and choke manifold to 5000 psi and annular to 50% of rated WP using independent tester and test plug.

A rotating head will be installed on top of the annular preventer after setting the 9-5/8" casing @ ± 3000'.

All BOP's will be hydraulically operated. Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of hole. The kill line will be 2" minimum and will include a remote connection. The choke line will be 3" minimum. A complete choke manifold schematic is shown in Exhibit E.

NOTE: Contractor choke manifold has 5000 psi rating. Hydraulic choke and remote choke line valve required for 8-3/4" hole section only.

6. Proposed Mud System:

The proposed mud system will be a combination of fresh water, brine, cut brine, and polymer gel. The depth and mud properties of the mud system are listed below.

Depth (MD)	Type	Weight (ppg)	Viscosity (sec)	Fluid Loss (cc)
0-400'	Fresh Water	8.3-8.8	28-30	Not Critical
400'-3000'	Fresh Water	8.4-8.6	28-30	Not Critical
3000'-9800'	FW/Cut Brine	8.4-9.0	28-30	Not Critical
9800'-12000'	Brine	10.0-10.1	28-32	Not Critical
12000'-12700'	Brine/XCD	10.0-10.5	34-38	<10

Sufficient mud materials to maintain the above mentioned mud properties and meet minimum lost circulation and weight increase requirements will be kept at the location at all times.

7. Auxiliary Well Control and Monitoring Equipment:

- A Kelly cock will be kept in the drill string at all times.
- A full opening drill pipe stabbing valve (inside BOP) with proper drill pipe connections will be on the rig floor at all times.
- A mud logging unit complete with H2S detector will be monitoring drilling penetration rate and hydrocarbon shows from 3000' to TD.
- PVT/FLO-sensor equipment will be rigged up and operating at 9500' TVD (prior to drilling into the Wolfcamp formation).

8. Drillstem Testing, Logging and Coring Programs:

- Drillstem tests: None planned
- Electric logs: CNL-LDL-DLL-MSFL-LSS: TD to 6000' (CNL-GR to surface).
- Optional logs: SFT, EMI
- Coring: None planned

9. Abnormal Conditions, Pressures, Temperatures, & Potential Hazards:

No abnormal pressures and/or temperatures are anticipated. Estimated BHP is 8000 psi. No hydrogen sulfide or other hazardous gases or fluids are expected on this location, but equipment will be rigged up as a precaution (see attached H2S operating plan).

10. Anticipated Starting Date and Duration of Operations:

The anticipated start date will be February 17, 2004. Once commenced, drilling operations should be completed in approximately 45 days. If the well is productive, another 20 days will be required for completion work and facility installation.

SURFACE USE PLAN
TOM BROWN, INC.
Laguna Grande Federal #4
660' FNL, 660' FWL
Sec 29, T23S, R29E
Eddy County, New Mexico

1. EXISTING ROADS – Area map, Exhibit "A", is a reproduction of the appropriate part of the U.S.G.S. New Mexico 7-1/2 minute quadrangle. Existing roads are shown on the exhibit and the road to be used on the referenced well is marked. All roads shall be maintained in a condition equal to that which existed prior to start of construction.

   A. Exhibit "A" shows the proposed well site as staked.

   B. Directions: From intersection of Hwy 128 & Hwy 31, go east 4.1 mile, thence South 3.4 mile, thence West 4.5 mile, thence South 0.4 mile to existing well ± 3500' southeast of the location.

2. PLANNED ACCESS ROADS – Existing lease roads with estimated 3500' new road construction directly adjacent to location.

3. LOCATION OF EXISTING WELLS ON A ONE-MILE RADIUS

   A. Water wells - NA.

   B. Disposal wells - NA.

   C. Drilling wells - NA.

   D. Producing wells – As shown on Exhibit "C".

   E. Abandoned wells- As shown on Exhibit "C".

4. If upon completion, the well is a producer, Tom Brown, Inc. will furnish maps or plats showing On Well Pad Facilities and Off Well Pad Facilities (if needed) on a Sundry Notice before construction of these facilities starts.

5. LOCATION AND TYPE OF WATER SUPPLY

Water will be purchased locally from a private source and trucked over the access road.

6. SOURCE OF CONSTRUCTION MATERIALS

If needed, construction materials will be obtained from the drill site's excavations, or from a local source. These materials will be transported over the access route as shown in Exhibit "A".

7. METHODS FOR HANDLING WASTE DISPOSAL.

A. 1. Drill cuttings will be disposed of in the reserve pit.

2. Trash, waste paper, and garbage will be contained in a fenced trash trailer to prevent wind-scattering during storage. When the rig moves out, all trash and debris will be hauled to an approved land-fill site.

3. Salts remaining after completion of the well will be picked up by the supplier, including broken sacks.

4. Sewage from trailer houses will drain into a self-cleansing holding tank, which is treated and the clean liquids will run onto the ground. A "porta-john" will be provided for the rig crews which is tied into the same self-cleansing holding tank. This will be properly maintained during the drilling operations and removed upon completion of the well.

5. Chemicals remaining after completion of the well will be stored in the manufacturer's containers and picked up by the supplier.

B. Remaining drilling fluids will be allowed to evaporate in the reserve pit until the pit is dry enough for back-filling. In the event drilling fluids will not be evaporated in a reasonable period of time, they will be transported by a tank truck to a state approved disposal site.

Water produced during testing of the well will be disposed of in the reserve pit. Oil produced during testing of the well will be stored in test tanks until sold and hauled from the site.

8. ANCILLARY FACILITIES

No camps or airstrips will be constructed.

9. WELL SITE LAYOUT

A. Exhibit "B" shows the proposed well site layout.

B. This exhibit indicates proposed location of the reserve pits and trash trailer.

C. Mud pits in the active circulating system will be steel pits.

D. The reserve pit is to be lined with a poly-ethylene liner. The pit liner will be a minimum of 6 mils thick. The pit liner will extend a minimum of 2'00" over the reserve pit dikes where the liner will be anchored down.

E. The reserve pit will be fenced on three sides with four strands of barbed wire during drilling and completion phases. The fourth side will be fenced after all drilling operations have ceased. If the well is a producer, the reserve pit fence will be torn down. The reserve pit and those areas of the location not essential to production facilities will be reclaimed and seeded per BLM requirements.

10. PLANS FOR RESTORATION OF SURFACE

Rehabilitation of the location and reserve pit will start in a timely manner after all drilling operations cease. The type of reclamation will depend on whether the well is a producer or dry hole.

In either event, the reserve pit will be allowed to dry properly, and fluid removed and disposed of in accordance with Article 7.B as previously noted. The pit area will then be leveled and contoured to conform to the original and surrounding area as closely as is possible. Drainage system, if any, will be reshaped to the original configuration with provisions made to alleviate erosion. These may need to be modified in certain circumstance to prevent inundation of the location pad and surface facilities. After the area had been shaped and contoured, topsoil from the soil pits will be placed over the disturbed area to the extent possible. Revegetation procedures will comply with BLM standards.

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

11. OTHER INFORMATION

A. The topography is of rolling sand dunes with vegetation consisting of native grasses. The soils are silty and very shallow.

B. The surface owner is the BLM, Roswell District Office, 2909 West Second Street, Roswell, NM 88202. There is a surface grazing lease. The surface tenant is Tyson & Leslie Mahaffey, P O Box 161, Loving, NM 88256.

C. An archaelogical study has been conducted for the location and road. Archeological survey submitted under separate cover.

D. There are no buildings in the area.

12. OPERATOR'S REPRESENTATIVE

Tom Brown, Inc.'s field representative for contact regarding compliance with the Surface Use Plan is:

Before, during, and after construction:
Brian Franks
P O Box 2608
Midland, TX 79702
Office: 432-688-9598
Mobile: 432-664-9134
Res: 432-683-6397

13. 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 currently 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 Tom Brown, Inc. and its contractors/ subcontractors in conformity with this plan and the terms and conditions under which it is approved. This statement is subject to the provisions of 18 U.S.C. 1001 for the filing of a false statement.

Name: _____
Brian Franks
Drilling & Completion Engineer

Date: 12/18/03

HYDROGEN SULFIDE DRILLING OPERATIONS PLAN

TOM BROWN, INC.
Laguna Grande Federal #4
660' FNL & 660' FWL
SEC. 29, T23S, R29E
Eddy County, NM

I. Hydrogen Sulfide Training.

All personnel, whether regularly assigned, contracted or employed on an unscheduled basis, will receive training from a qualified instructor in the following areas prior to commencing drilling operations on this well:

1. The hazards and characteristics of hydrogen sulfide (H2S).
2. The proper use and maintenance of personal protective equipment and life support systems.
3. The proper use of H2S detectors, alarms, warning systems, briefing areas, evacuation procedures, and prevailing winds.
4. The proper techniques of first aid and rescue procedures.

In addition the supervisory personnel will be trained in the following areas:

1. The effect of H2S on metal components. If high tensile tubulars are to be used, personnel will be trained in their special maintenance requirements.
2. Corrective action and shut-in procedures when drilling or reworking a well and blowout prevention and well control procedures.
3. The contents and requirements of the H2S Drilling Operations Plan.

There will be an initial training session just prior to encountering a known or probable H2S zone (within 3 days or 500 feet) and weekly H2S and well control drills for all personnel in each crew. The initial training session shall include a review of the site specific H2S Drilling Operations Plan. This plan shall be available at the well site. All personnel will be required to carry documentation that they have received the proper training.

II. H2S Safety Equipment and Systems.

NOTE: All H2S safety equipment and systems will be installed, tested, and operational when drilling reaches a depth of 500 feet above or three days prior to penetration the first zone containing or reasonable expected to contain H2S.

1. Well Control Equipment:

   A. Flare line.

   B. Choke manifold.

   C. Blind rams and pipe rams to accommodate all pipe sizes with properly sized closing unit.

   D. Auxiliary equipment to include: annular preventer

2. Protective equipment for essential personnel:

   A. 5-minute escape units located in the dog house and 30-minute air units at briefing areas, as indicated on well site diagram.

3. H2S detection and monitoring equipment.

   A. 3-portable H2S monitors positioned on location for best coverage and response. These units have warning lights and audible sirens when H2S levels of 20 PPM are reached.

   B. 1-portable SO2 monitor positioned near flare line during H2S flaring operations.

4. Visual warning systems:

   A. Wind direction indicators as shown on well site diagram.

   B. Caution/Danger signs shall be posted on roads providing direct access to location. Signs will be painted a high visibility yellow with black lettering of sufficient size to be a readable distance from the immediate location.

5. Mud Program:

The mud program has been designed to minimize the volume of H2S circulated to the surface. Proper mud weight safe drilling practices and the use of H2S scavengers when necessary will minimize hazards when penetrating H2S bearings.

6. Metallurgy:

A. All drill strings, casings, tubing, wellhead, blowout preventers, drilling spools kill lines, choke manifold and lines valves shall be suitable for H2S service.

B. All elastomers used for packing and seals shall be H2S trimmed.

7. Communications:

A. Radio communications will be available in company vehicles and rig dog house.

8. Well Testing:

A. Drill stem testing will be performed with a minimum number of personnel in the immediate vicinity, which are necessary to safely and adequately conduct the test. The drill stem testing of any known formation that contains H2S will be conducted during daylight hours.

United States Department of the Interior
BUREAU OF LAND MANAGEMENT
Roswell Office
2909 West Second Street
Roswell, New Mexico 88201

Statement Accepting Responsibility for Operations

Operator name:	Tom Brown, Inc.
Street or box:	P O Box 2608
City, State:	Midland, TX
Zip code:	79702

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

Lease No.: NM 19848

Legal Description of Land: W2 of Section 29, T23S, R29E

Formation(s) (if applicable):

Bond Coverage: (State if individually bonded or another's bond)
Statewide

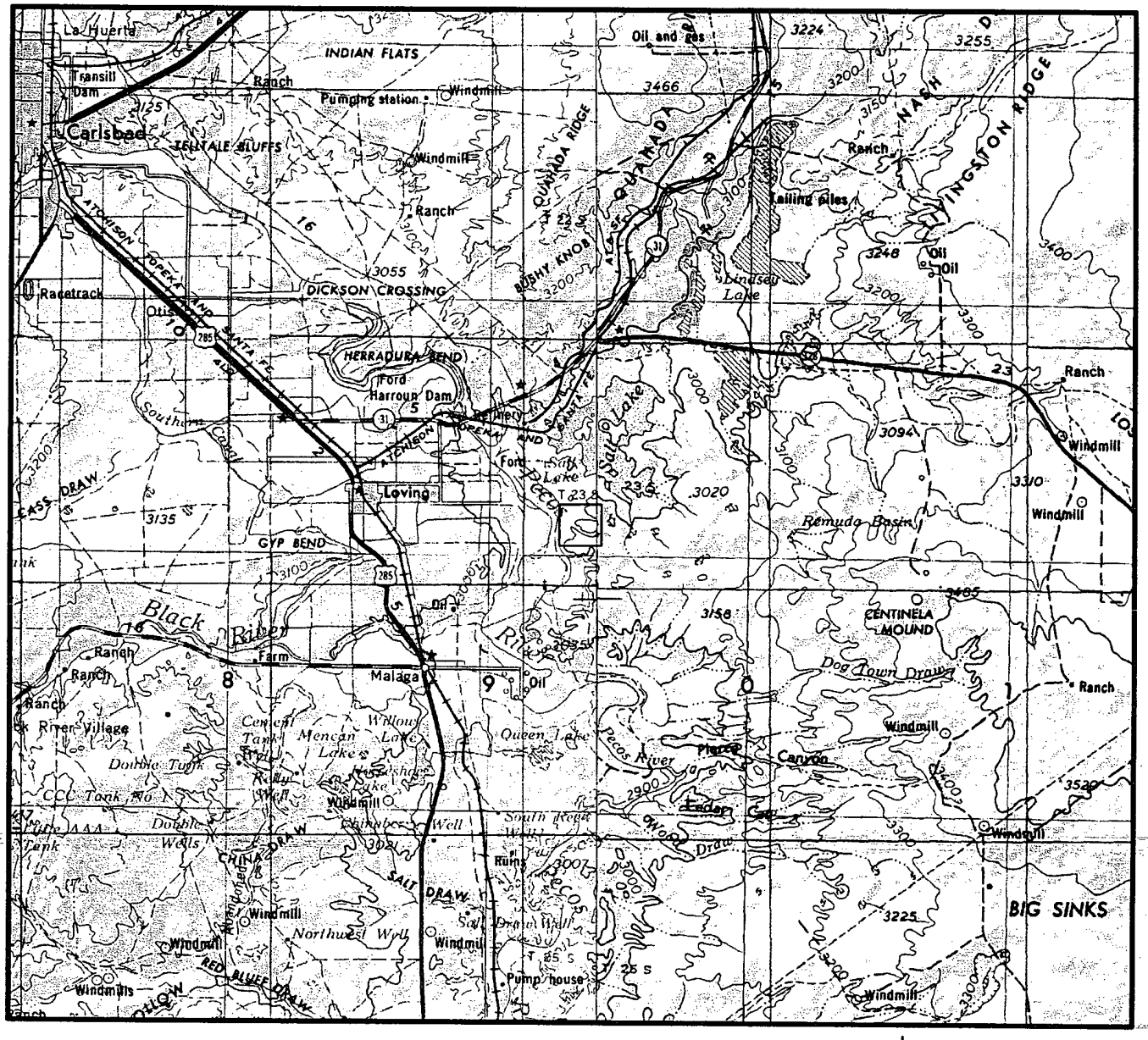
BLM Bond File No.: ES-0183

Authorized Signature: _____
Hal Lee

Title: Operations Manager

Date: 1/27/2004

VICINITY MAP



SECTION 29 TWP 23-S RGE 29-E

SURVEY NEW MEXICO PRINCIPAL MERIDIAN

COUNTY EDDY STATE NM

DESCRIPTION 660' FNL & 660' FWL

OPERATOR **TOM BROWN, INC.**

LEASE LAGUNA GRANDE FEDERAL #4

DISTANCE & DIRECTION FROM INT. OF HWY 128 & HWY. 31, GO EAST 4.1 MILE, THENCE SOUTH 3.4 MILE, THENCE WEST 4.5 MILE, THENCE SOUTH 0.4 MILE TO EXISTING WELL ±3500 SOUTHEAST OF THE LOCATION.

-N-

TOPOGRAPHIC LAND SURVEYORS

Surveying & Mapping for the Oil & Gas Industry

This location has been very carefully staked on the ground according to the best official survey records, maps, and other data available to us.

Review this plat and notify us immediately of any possible discrepancy.

TOM BROWN, INC.
Laguna Grande Federal #4

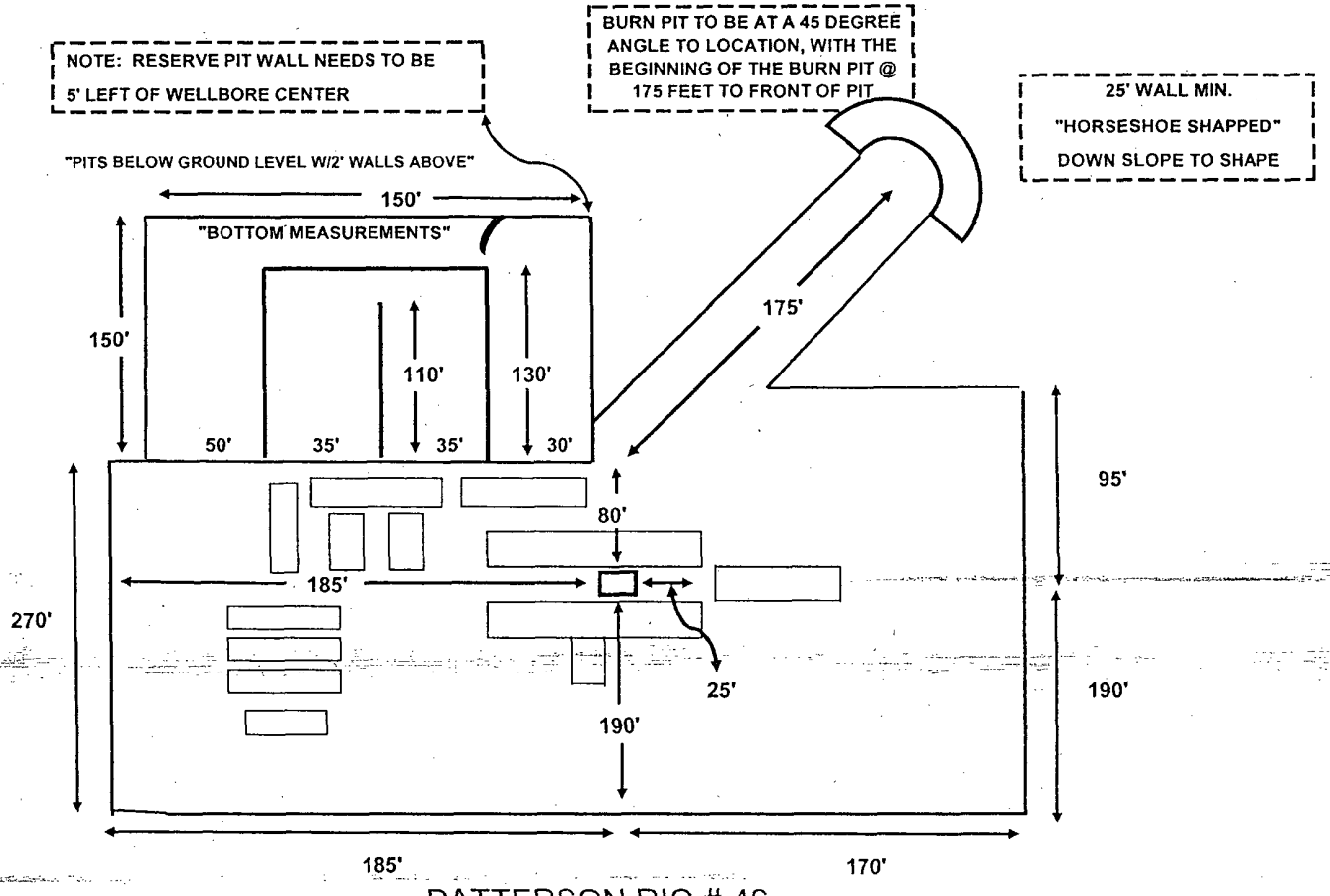
Exhibit A

6709 N. CLASSEN BLVD.
OKLAHOMA CITY, OK. 73116
(800) 654-3219

2903 N. BIG SPRING
MIDLAND, TX. 79705
(800) 767-1653

Laguna Grande Federal #4

660' FNL AND 660' FWL
SEC. 29, T23S, R29E
EDDY COUNTY, NEW MEXICO
PROPOSED DEPTH = 12,700'



PATTERSON RIG # 46

LOCATION:

- 6" COMPACTED CALICHE
- CELLAR - 8' x 8' x 8' "WITH BACKHOE"

ROAD:

- 14' WIDE - 6" COMPACTED CALICHE W/ TURNOUTS

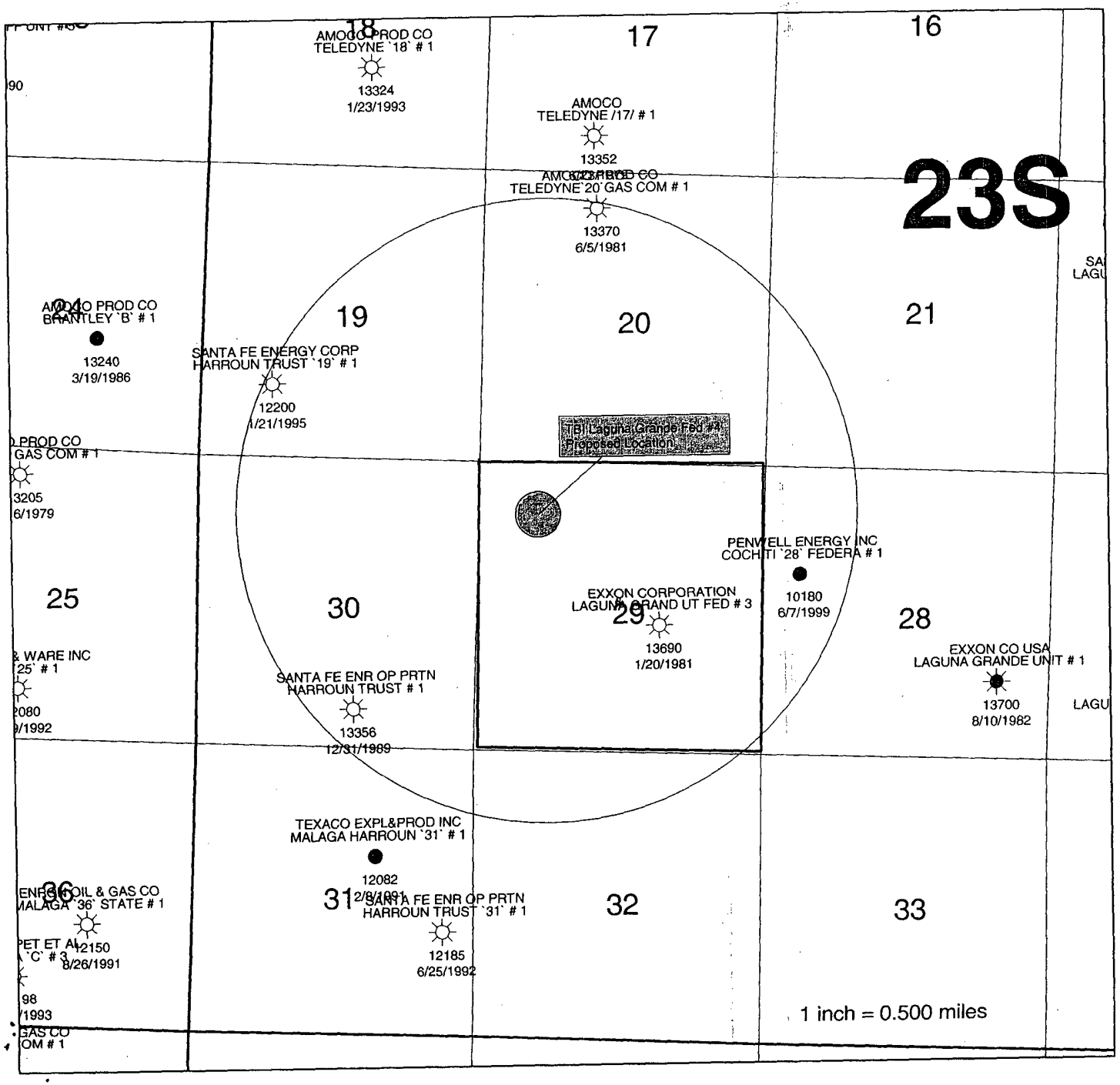
NOTES: _____

_____

_____

_____

TOM BROWN, INC.
Laguna Grande Federal #4
Exhibit B



TOM BROWN, INC.
Laguna Grande Federal #4

Exhibit C

Map showing proposed location and wells within 1 mile radius of proposed location.

TOM BROWN, INC.
LAGUNA GRANDE FEDERAL #4
660' FNL & 660' FWL
Sec 29, T23S, R29E
Eddy County, NM

EXHIBIT D
BOP SCHEMATIC

(2M Rated Working Pressure)

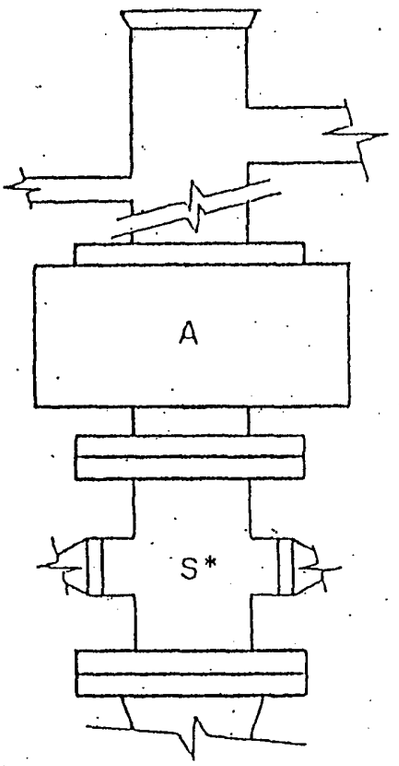


FIG. 2.C.1
ARRANGEMENT S*A

(5M Rated Working Pressure)

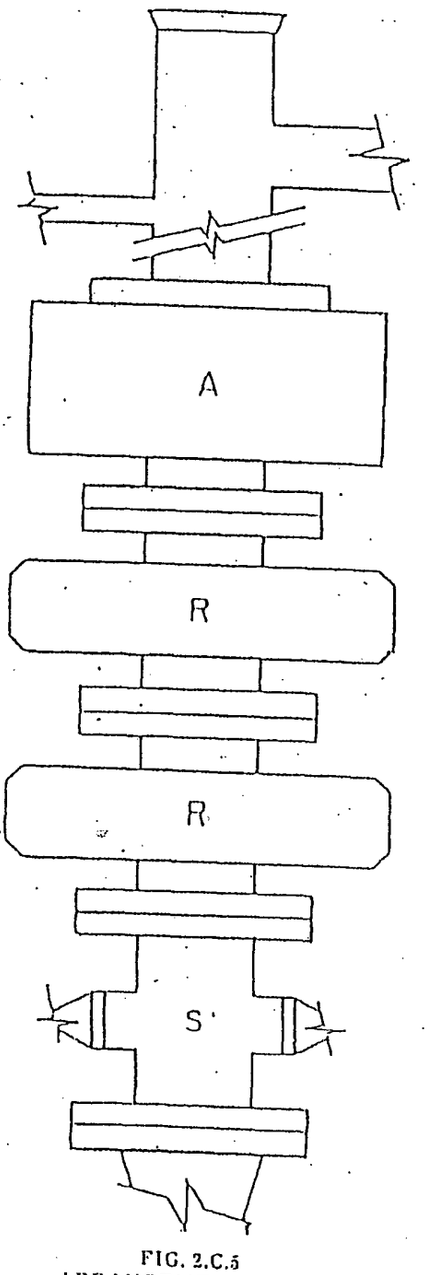
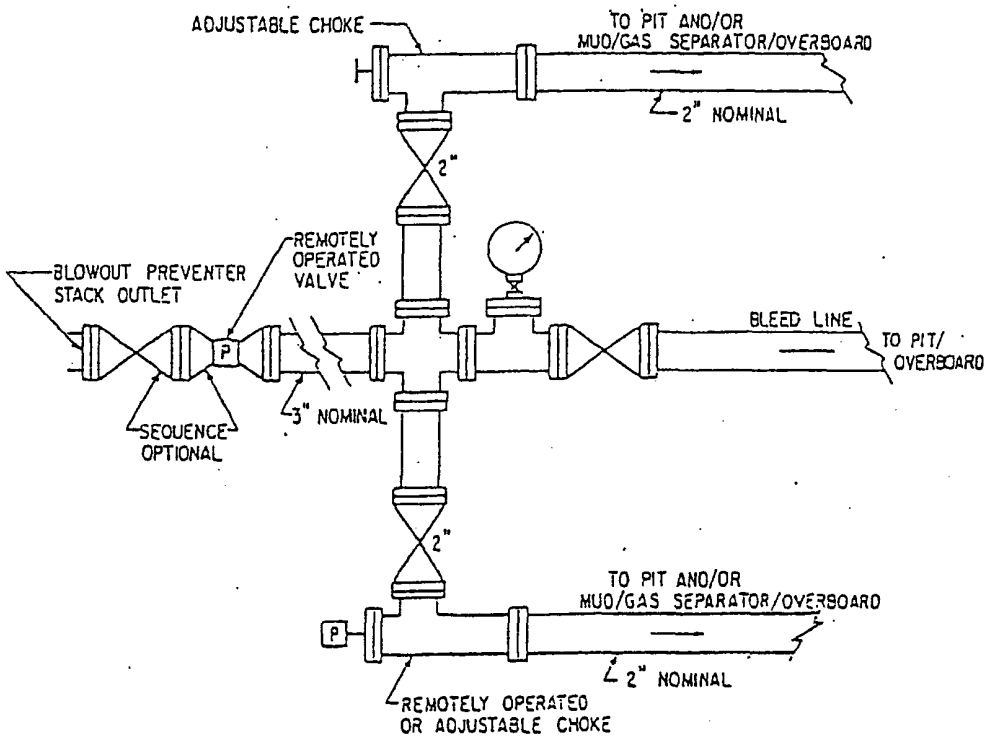


FIG. 2.C.5
ARRANGEMENT S-RRA
Double Ram Type Preventers, R_d, Optional

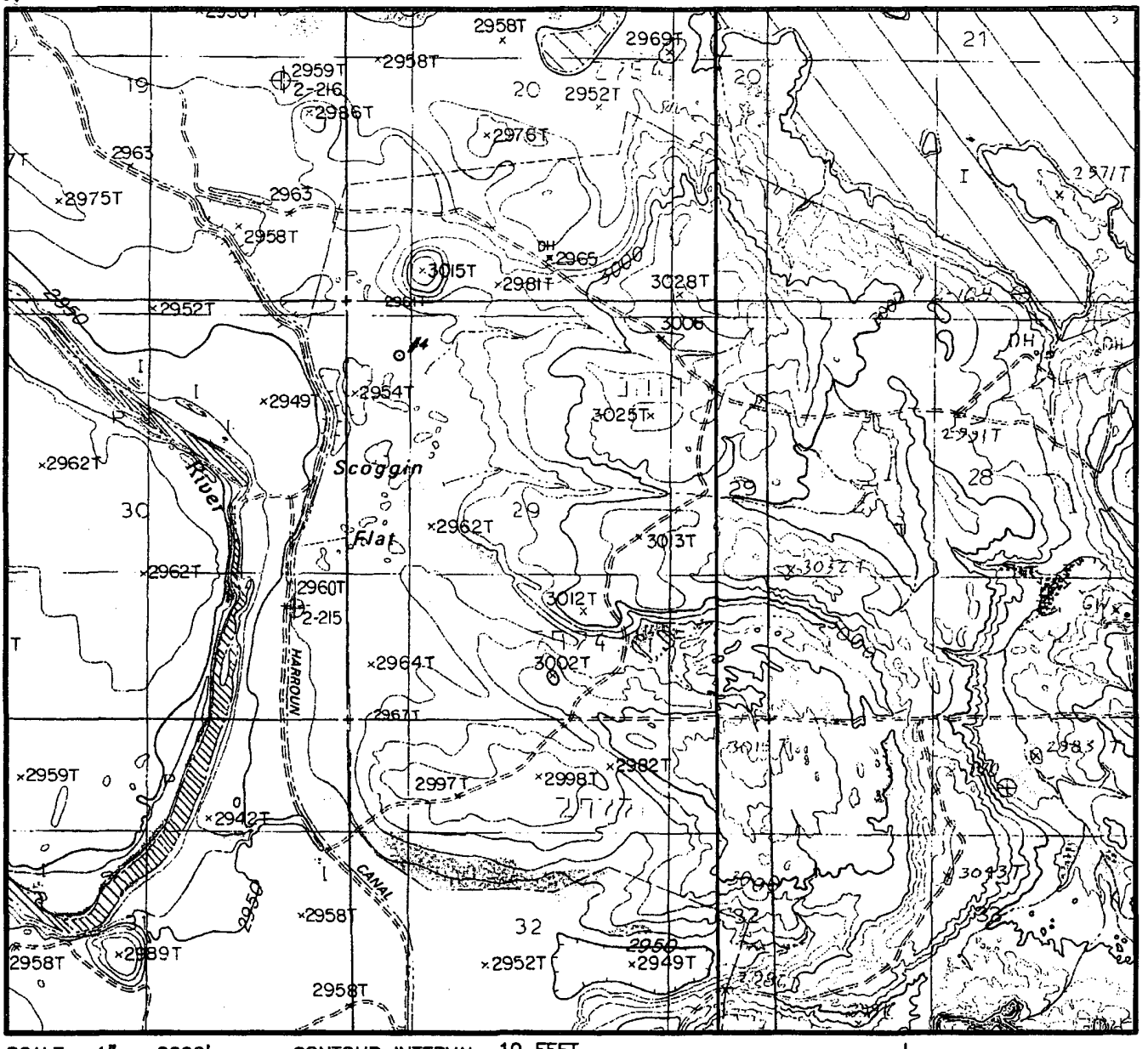
TOM BROWN, INC.
LAGUNA GRANDE FEDERAL #4
660' FNL & 660' FWL
Sec 29, T23S, R29E
Eddy County, NM

EXHIBIT E
CHOKE MANIFOLD

(5M Rated Working Pressure)



LOCATION & ELEVATION VERIFICATION MAP



SCALE : 1" = 2000' CONTOUR INTERVAL 10 FEET

SECTION 29 TWP 23-S RGE 29-E

SURVEY NEW MEXICO PRINCIPAL MERIDIAN

COUNTY EDDY STATE NM

DESCRIPTION 660' FNL & 660' FWL

ELEVATION 2968'

OPERATOR TOM BROWN, INC.

LEASE LAGUNA GRANDE FEDERAL #4

U.S.G.S. TOPOGRAPHIC MAP

LOVING, NEW MEXICO

LAT. N 32°16'52"

LONG. W 104°00'46"

-N-

TOPOGRAPHIC LAND SURVEYORS

Surveying & Mapping for the Oil & Gas Industry

This location has been very carefully staked on the ground according to the best official survey records, maps, and other data available to us.

Review this plat and notify us immediately of any possible discrepancy.

TOM BROWN, INC.
Laguna Grande Federal #4

Exhibit F

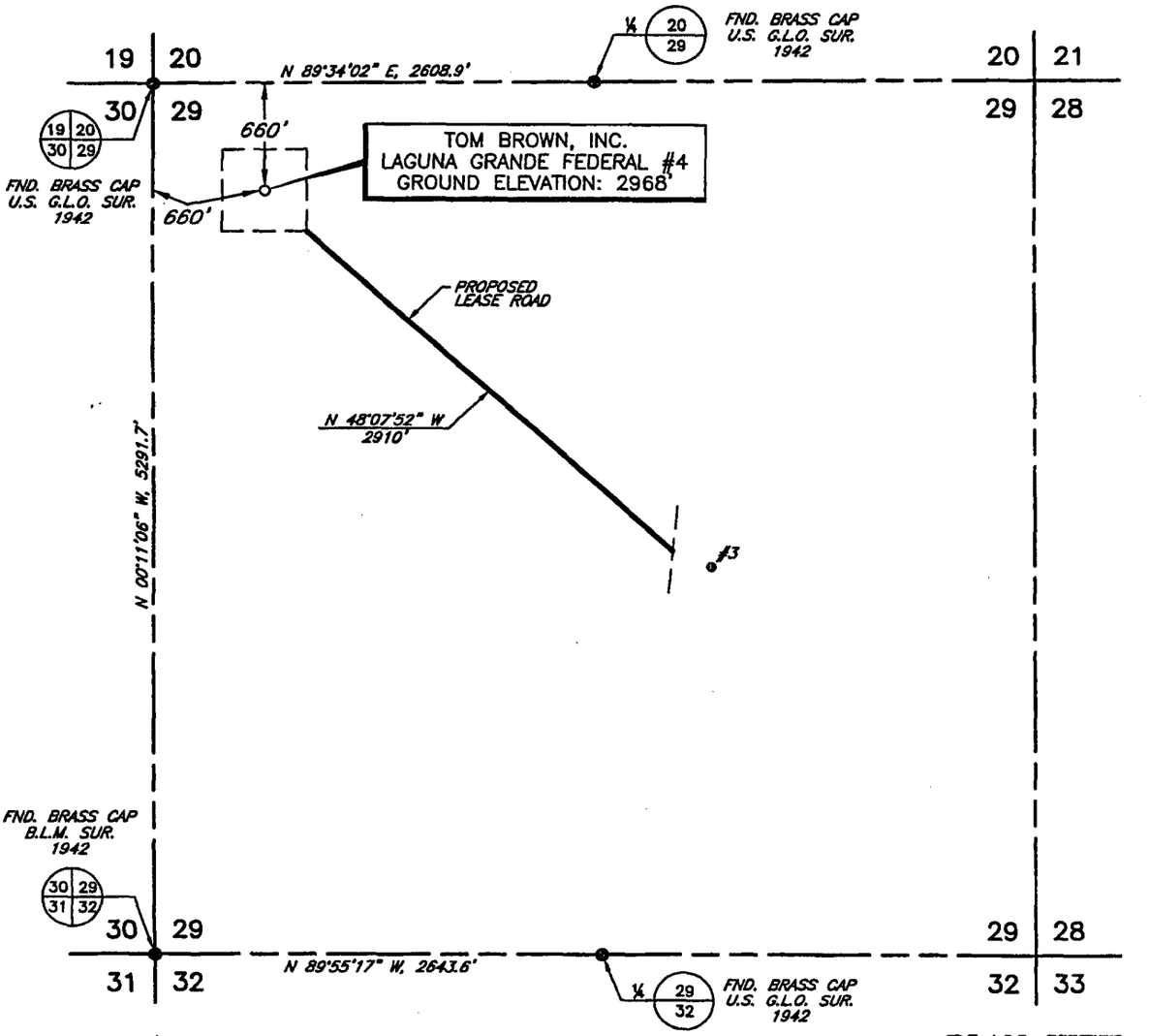
6709 N. CLASSEN BLVD.
OKLAHOMA CITY, OK. 73116
(800) 654-3219

2903 N. BIG SPRING
MIDLAND, TX. 79705
(800) 767-1653

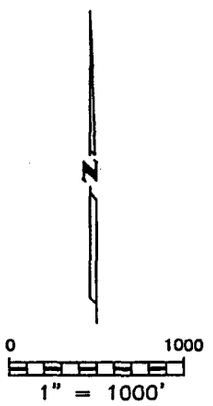
PLAT SHOWING PROPOSED
WELL LOCATION AND LEASE ROAD IN
SECTION 29, T-23-S, R-29-E, N.M.P.M.
EDDY COUNTY, NEW MEXICO

TOM BROWN, INC.
Laguna Grande Federal #4

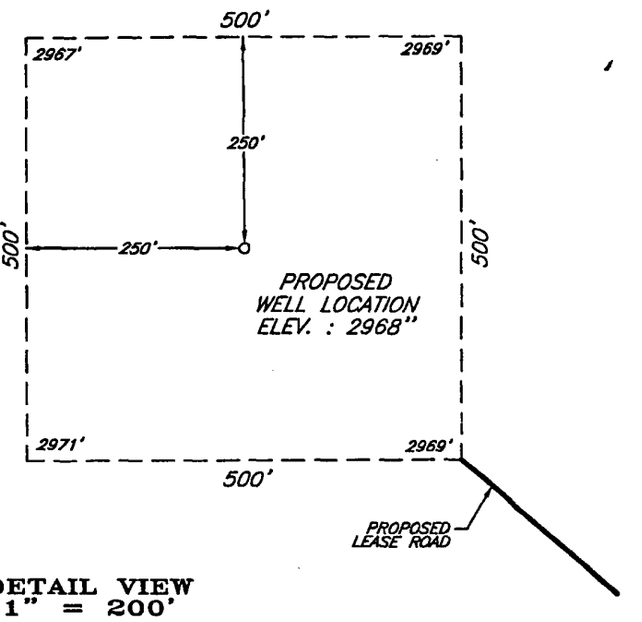
Exhibit G



PLAN VIEW
1" = 1000'



DATE OF FIELD WORK: NOVEMBER 13, 2003



DETAIL VIEW
1" = 200'

I, V. L. BEZNER, A PROFESSIONAL SURVEYOR IN THE STATE OF NEW MEXICO AND AUTHORIZED AGENT OF TOPOGRAPHIC LAND SURVEYORS, HEREBY CERTIFY THIS PLAT TO BE A TRUE REPRESENTATION OF A SURVEY PERFORMED IN THE FIELD UNDER MY SUPERVISION, THAT I AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND THAT THIS PLAT AND FIELD SURVEY UPON WHICH IT IS BASED MEET THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO. (RULE 500.6 EASEMENT SURVEYING)

V. L. BEZNER, P.S. NO. 7920

NO.	REVISION	DATE	BY

SURVEYED BY:	H.V.
DRAWN BY:	J.C.P.
APPROVED BY:	V.L.B.

TOM BROWN, INC.

SURVEYING AND MAPPING BY
TOPOGRAPHIC LAND SURVEYORS
MIDLAND, TEXAS

SCALE:	AS SHOWN
DATE:	NOVEMBER 13, 2003
JOB NO.:	91389-F
QUAD NO.:	49 SE
SHEET :	1 OF 1