

30-025-39946

HYDROGEN SULFIDE DRILLING OPERATIONS PLAN PERMIAN BASIN

This Hydrogen Sulfide Drilling Operations Plan shall be implemented prior to drilling out from under casing (surface or intermediate) set above potential H₂S bearing formations.

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 for first aid and rescue procedures.

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

1. The effects 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 and the Public Protection Plan.

All personnel entering a location posted with the potential of Hydrogen Sulfide shall be required to carry documentation that they have received the proper training. (Training certificate typically valid for 1 year after training)

II. Site Specific Information:

Upon installation of H₂S Safety Equipment and Systems on a well, and prior to drilling out of casing above potential Hydrogen Sulfide bearing formations a briefing with all personnel on location shall be held. The briefing should include a review of H₂S Drilling Operations Plan and the Public Protection Plan. This briefing should include site specific elements such as;

- Identification of the briefing areas.
- Discussion of rig orientation and prevailing wind direction.

- Identification of access roads, including secondary egress.
- Confirmation that all personnel have current training.
- Formation tops of potential H₂S bearing formations.

The H₂S Drilling Operations Plan and the Public Protection Plan shall be available at the well site.

III. H₂S Safety Equipment and Systems

1. Well Control Equipment that will be installed prior to drilling out of casing above potential Hydrogen Sulfide bearing formations:
 - A. Choke manifold with a minimum of one adjustable choke.
 - B. At least one choke line must be directed away from the drilling unit and secured at the end. (For closed-loop operations this should be directed to containment bin at the back edge of the location.)
 - C. Blind rams and pipe rams to accommodate all pipe sizes
 - D. Annular preventor
 - E. Properly sized closing unit.
- 1.1 Well control equipment to be available to install as needed should H₂S be encountered:
 - A. Flare line with electronic igniter or continuous pilot.
 - B. Mud gas separator
 - C. Flare gun with flares.
 - D. One portable S₀2 monitor positioned near flare line.
2. Protective equipment for essential personnel:
 - A. 30-minute air pack units located in the dog house and at briefing areas.
3. H₂S detection and monitoring equipment:
 - A. Two 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.
4. Visual warning systems:
 - A. Wind direction indicators.
 - 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 readable at a reasonable distance from the immediate location. Bilingual signs will be used when appropriate.

5. Mud program:
 - A. The mud program shall be designed to minimize the volume of H₂S circulated to the surface. Proper mud weight, safe drilling practices, and the use of H₂S scavengers will minimize hazards when penetrating H₂S-bearing zones.
 - B. A mud-gas separator and an H₂S gas buster will be utilized as required if H₂S is encountered.

6. Metallurgy:
 - A. All drill strings, casings, tubing, wellhead, blowout preventers, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H₂S service.
 - B. All elastomers used for packing and seals shall be H₂S trim.

7. Communication:
 - A. Communications shall be available on the rig site and in company vehicles. Communications equipment may include one or more of the following: land lines, satellite phones, cellular telephone and 2-way radios.

H2S Emergency Procedures

In the case of a release of gas containing H2S, the first responder(s) must isolate the area and prevent entry by other persons into the 100 ppm ROE. Additionally the first responder(s) must evacuate any public places encompassed by the 100 ppm ROE. First responder(s) must take care not to injure themselves during this operation. Marshall and Winston Inc. and/or local officials must be contacted to aid in this operation. Evacuation of the public should be beyond the 100 ppm ROE.

All responders must have training in the detection of H2S, measures for protection against the gas, equipment used for protection and emergency response. Additionally, responders must be equipped with H2S monitors and air packs in order to control the release. Use the "buddy system" to ensure no injuries during the response.

Ignition of Gas Source

Should control of the well be considered lost and ignition considered, take care to protect against exposure to Sulfur Dioxide (SO2). Intentional ignition must be coordinated with the NMOCD and local officials. Additionally the NM State Police may become involved, NM State Police shall be the Incident Command on scene of any major release. Take care to protect downwind whenever there is an ignition of the gas

Characteristics of H2S and SO2:

Common Name	Chemical Formula	Specific Gravity	Threshold Limit	Hazardous Limit	Lethal Concentration
Hydrogen Sulfide	H ₂ S	1.189 Air = 1.0	10 ppm	100 ppm/hr	600 ppm
Sulfur Dioxide	SO ₂	2.21 Air = 1.0	2 ppm	N/A	1000 ppm

Contacting Authorities

Marshall and Winston Inc.'s personnel must liaison with local and state agencies to ensure a proper response to a major release. Additionally, the OCD must be notified of the release as soon as possible but no later than 4 hours. Agencies will ask for information such as type and volume of release, wind direction, location of release, etc. Be prepared with all information available. The following call list of essential and potential responders has been prepared for use during a release. Marshall and Winston Inc.'s response must be in coordination with the State of New Mexico's Hazardous Materials Emergency Response Plan (HMER)

Marshall & Winston, Incorporated.
P.O. Box 50880 Midland, TX., 79710-0880
OFFICE 1-(432)-684-6373, Fax 1-(432)-687-2684

<u>COMPANY PERSONNEL:</u>	<u>Cell Phone #</u>
Otis Holt (Wellsite Supervisor)	1-(325)-206-1528
Gabe Herrera (Marshall & Winston - Engineer)	1-(432)-260-8650
Tom Brandt (Marshall & Winston - Operations)	1-(432)-553-9747
George Watters (Marshall & Winston - Geologist)	1-(432)-631-2051

Emergency Phone Numbers

Artesia	State Police	(575) 746 -2703
Artesia	City Police	(575) 746 -2703
Artesia	Sheriff's Office	(575) 746 -9888
Artesia	Ambulance	911
Artesia	Fire Department	(575) 746 -2701
Artesia	LEPC (Local Emergency Planning Committee)	(575) 746 -2122
Artesia	NMOCD	(575) 748 -1283

Carlsbad	State Police	(575) 885 -3137
Carlsbad	City Police	(575) 885 -2111
Carlsbad	Sheriff's Office	(575) 887 -7551
Carlsbad	AMBULANCE	911
Carlsbad	Fire Department	(575) 885 - 2111
Carlsbad	LEPC (Local Emergency Planning Committee)	(575) 887 - 3798
Carlsbad	US Bureau of Land Management	(575) 887 - 6544

Santa Fe	N.M. Emergency Response Commission	(505) 476 -9600
24 Hr.	" " " "	(505) 827 -9126
Santa Fe	N.M. State Emergency Operations Center	(505) 476 -9635
Washington D.C.	National Emergency Response Center	1-(800) 424 -8802

Other Services :

Houston	Boots & Coots IWC	1-800-256-9688 or (281) 931 -8884
Odessa	Cudd Pressure Control	(915) 699-0139 or (915) 563 -3356
Artesia	Halliburton	(575) 746-2757
Artesia	B.J. Services	(575) 746-3669

Air Ambulance

Lubbock, Tx	Flight For Life, 4000 24th St.	(806) 743 - 9911
Lubbock, TX	Aerocare, Rt 3 Box49-F	(806) 747 - 8923
Albuquerque, NM	Med Flight Air Amb, 2301 Yale Blvd SE #D3,	(505) 842 - 4433
Albuquerque, NM	S B Air Med Svc, 2505 Clark Carr Loop SE,	(505) 842 - 4949

SURFACE USE PLAN A surface use agreement has been made in conjunction with the private surface owner agreement. The private surface owner is Kenneth Smith, 267 Smith Road, Carlsbad Hwy, Hobbs, NM 88240, (575) 390-1247.

SURFACE USE PLAN

1. Existing Roads:

Ex A is the OCD Form C-102, Survey Plat, shows the proposed well site as staked

Ex B-1 is a reproduction of Lea County, New Mexico, General Highway map. County Road H-55, (Smith Road), leads NW off of HWY #62-180 and into the well location. It shows the proposed road.

Ex B-2 is a survey of the anticipated Access Road to the well location. The survey has directions to location. All existing roads will be maintained in a condition to or better than the current conditions. Any new roads will be constructed to BLM specifications.

Ex C is the Vicinity Map.

Ex D is an indication of a 1 Mile Radius map and ½ Mile radius for Potash review in relation to a horizontal wellbore.

2. Planned Access Roads: There is 1,363 feet of proposed access road onto the arched location. This extends from an existing location, the Laguna Deep 09. The surface land access from US Highway No. 62/180 is privately owned by Kenneth Smith.

3. Locations of Existing Wells in a One-mile radius – Exhibit 'D'

1. Water Wells – None known.
2. Disposal wells – None known.
3. Drilling wells – None known.
4. Producing wells- See Exhibit. D.
5. Abandoned wells – See Exhibit D.

4. If a completion on this well is a producer, Marshall & Winston will furnish maps or plats showing on site facilities or off site facilities if needed. This will be accompanied by a Sundry Notice.

5. Location and Type of Water Supply:

Water will be purchased from the rancher's water wells trucked over the access roads. Other sources of water may be needed, if so, the route access roads will be used.

6. Source of Construction Material:

If possible, construction will be obtained from the Smith Ranch. If additional material is needed, it will be purchased from a local source. Material will be transported over the access route as shown on **Exhibit `B-1 and B-2.**

7. Methods of Handling Waste Material:

A. Drill cuttings will be separated by a series of solids removal equipment and stored in steel containment pits and then hauled to a state- approved disposal facility.

B. All trash, junk and other waste material will be contained in trash cages or bins to prevent scattering. When the job is completed all contents will be removed and disposed of in an approved sanitary land fill.

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

D. Sewage from any living quarters will drain into holding tanks and be cleaned out periodically. A Porta-John will be provided for the rig crews. This equipment will be properly maintained during the drilling operations and removed upon completion of the well.

E. Drilling fluids will be contained in the steel pits in a closed circulating system. Fluids will be cleaned and reused. Water produced during testing will be contained in the steel pits and disposed of at a state approved disposal facility. The primary anticipated disposal site is Control Recovery Inc., located at Halfway on HWY 62-180. Any oil or condensate produced will be stored in test tanks until sold and hauled from the site.

8. Ancillary Facilities:

A. No camps or airstrips to be constructed.

9. Well Site Layout:

A. Exhibit 'E ', Rig Layout.

B. Mud pits in the closed circulating system will be steel pits and the cuttings will be stored in steel containment pits.

C. Cuttings will be stored in steel pits until they are hauled to a state-approved disposal facility

D. If the well is a producer, those areas of the location not essential top production facilities will be reclaimed and seeded per BLM requirements.

10. Plans for Restoration of Surface:

Rehabilitation of the location 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 a dry hole.

Drainage systems, if any, will be reshaped to the original configuration with provisions made to alleviate erosion. These may need to be notified in certain circumstances to prevent inundation of the location's pad and surface facilities.

After the area has been shaped and contoured, topsoil from the spoil pile will be loaced overt the disturbed area to the extent possible. Re-vegetation. Procedures will comply with BLM standards.

If the well is a dry hole, the pad and road area will be re-contoured to match the existing terrain. Topsoil will be spread to the extent possible. Re-vegetation will comply with BLM standards.

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

11. Other Information:

- A. Topography consists of a sloping plane with loose tan sands. Vegetation is mainly Yucca, Mesquite and Shin Oak.
- B. The well site is on the surface owned by Kenneth Smith. The land is used mainly for cattle ranching, horse grazing and oil and gas production.
- C. An Archaeological survey will be conducted on the location and proposed roads, and this report will be filed with the Bureau of Land Management in the Carlsbad BLM office.
- D. There is a residential dwelling within 1 ½ miles of this location. It is to the north approximately one mile.

12. Surface and Mineral Ownership: Separate page for Private Surface. The surface is owned by Kenneth Smith, 267 Smith Road, Hobbs, NM 88240, (575) 390-1247.

DESIGNATION OF AGENT

The undersigned is, on the records of the Bureau of Land Management, Unit Operator under the Laguna Deep Unit Agreement, Lea County, New Mexico, No. 14-08-0001-16905, approved and effective on February 9, 1984 and hereby designates:

Marshall & Winston, Inc.
P. O. Box 50880
Midland, Texas 79710-0880

as its agent, with full authority to act on its behalf in complying with the terms of the unit agreement and regulations applicable thereto and on whom the Authorized Officer or (is) representative may serve written or oral instructions in securing compliance with the Oil and Gas Operating Regulations with respect to drilling, testing, and completing Unit Well No. 35-LH in the S/2 of Section 35, Township 19 South, Range 33 East, Lea County, New Mexico. Bond coverage will be provided under ~~Plugging~~ Bond No. ~~RFB0012641~~ *NA 0877*

It is understood that this Designation of Agent does not relieve the Unit Operator of responsibility for compliance with the terms of the unit agreement and the oil and gas operating regulations. It is also understood that this Designation of Agent does not constitute an assignment of any interest under the unit agreement or any lease committed thereto. *per Vernon Dyer 9/1/2010*

In case of default on the part of the designated agent, the Unit Operator will make full and prompt compliance with all regulations, lease terms or orders of the Secretary of the Interior or his duly authorized representative.

The Unit Operator agrees promptly to notify the Authorized Officer of any change in the designated agent.

This Designation of Agent is deemed to be temporary and in no manner a permanent arrangement and a designated agent may not designate another party as agent.

This designation is given only to enable the agent herein designated to drill the above specified well. It is understood that this Designation of Agent is limited to the field operations performed while drilling and completing the specified well and does not include administrative actions requiring specific authorization of the Unit Operator. This designation in no way will serve as authorization for the agent to conduct field operations for the specified well after it has been completed for production. Unless sooner terminated, this designation shall terminate when there is filed in the appropriate office of the Bureau of Land Management all reports and a Well

Completion Report and Log (Form 3160-4) as required by the approved Application for Permit to Drill for the specified well.

In the event the above specified well is completed as a non-paying unit well, the authority for the designated agent to operate this well shall be established by completion of the Delegation of Authority to Operate Non-Paying Unit Well form and submittal of the form to the appropriate office of the Authorized Officer.

Date: 8/30/2010

CIMAREX ENERGY COMPANY OF COLORADO

By:  MW
JA
Roger Alexander
Attorney-in-Fact



January 7, 2010

U. S. Department of the Interior
Bureau of Land Management
620 E. Greene St.
Carlsbad, NM 88229-6292

Re: OGRID No. 14187
Laguna Deep
S/2 of Sec. 35, T19S, R33E
Lea County, New Mexico

Gentlemen:

Vernon D. Dyer is hereby authorized to act on the behalf of Marshall & Winston, Inc., in partnership with Shackelford Oil Company in all regulatory matters relating to approval of and the drilling and completion of the above captioned lease. Should there be any questions regarding this matter, you are welcome to contact me or Gabriel Herrera at (432) 684-6373.

Very truly yours,

A handwritten signature in black ink that reads 'Tom M Brandt'. The signature is written in a cursive style with a large, prominent 'T' and 'M'.

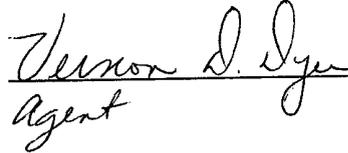
Tom M. Brandt
President

TMB/sr

OPERATOR CERTIFICATION

I HEREBY CERTIFY THAT I, OR SOMEONE UNDER MY DIRECT SUPERVISION, HAVE INSPECTED THE DRILL SITE AND ACCESS ROUTE PROPOSED HEREIN; THAT I AM FAMILIAR WITH THE CONDITIONS WHICH CURRENTLY EXIST; THAT I HAVE FULL KNOWLEDGE OF STATE AND Federal laws applicable to this operation; that the statements made in the APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements.

Executed this 14 day of JUNE, 2010


Agent

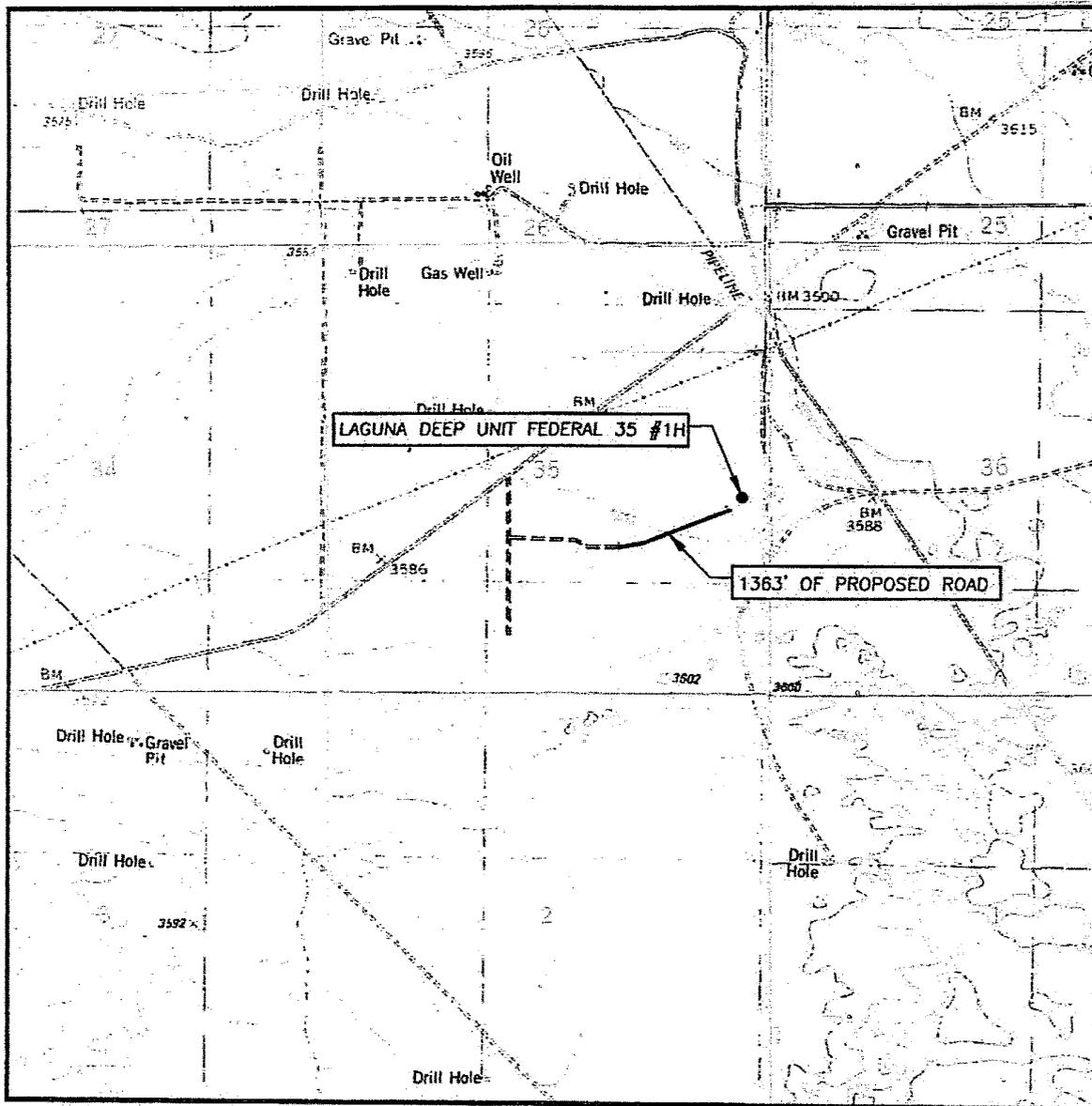
Name
Address
Telephone
Field representative (if not above signatory)
Address (if different from above)
Telephone (if different from above)
E-mail (optional)

Agents not directly employed by the operator must submit a letter from the operator authorizing that agent to act or file this application on their behalf.

COMPANY PERSONNEL:

Shorty Sweeden (Wellsite Supervisor) (432) 634-8722 (c)
Gabe Herrera (Marshall & Winston – Engineer) (432) 684-6373 (o)
(432) 260-8650 (c)
Tom Brandt (Marshall & Winston – Operations) (432) 684-6373 (o)*
(432) 553-9747 (c)
George Watters (Marshall & Winston – Geologist) (432) 684-6373 (o)
(432) 631-2051 (c)
Marshall & Winston, Inc.
P.O. Box 50880
Midland, Tx. 79710-0880
(432) 684-6373 Office
(432) 687-2684 Fax

LOCATION VERIFICATION MAP



SCALE: 1" = 2000'

SEC. 35 TWP. 19-S RGE. 33-E

SURVEY _____ N.M.P.M.

COUNTY LEA STATE NEW MEXICO

DESCRIPTION 2310' FSL & 330' FEL

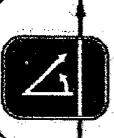
ELEVATION 3597'

OPERATOR MARSHALL & WINSTON, INC.

LEASE LAGUNA DEEP UNIT FEDERAL 35

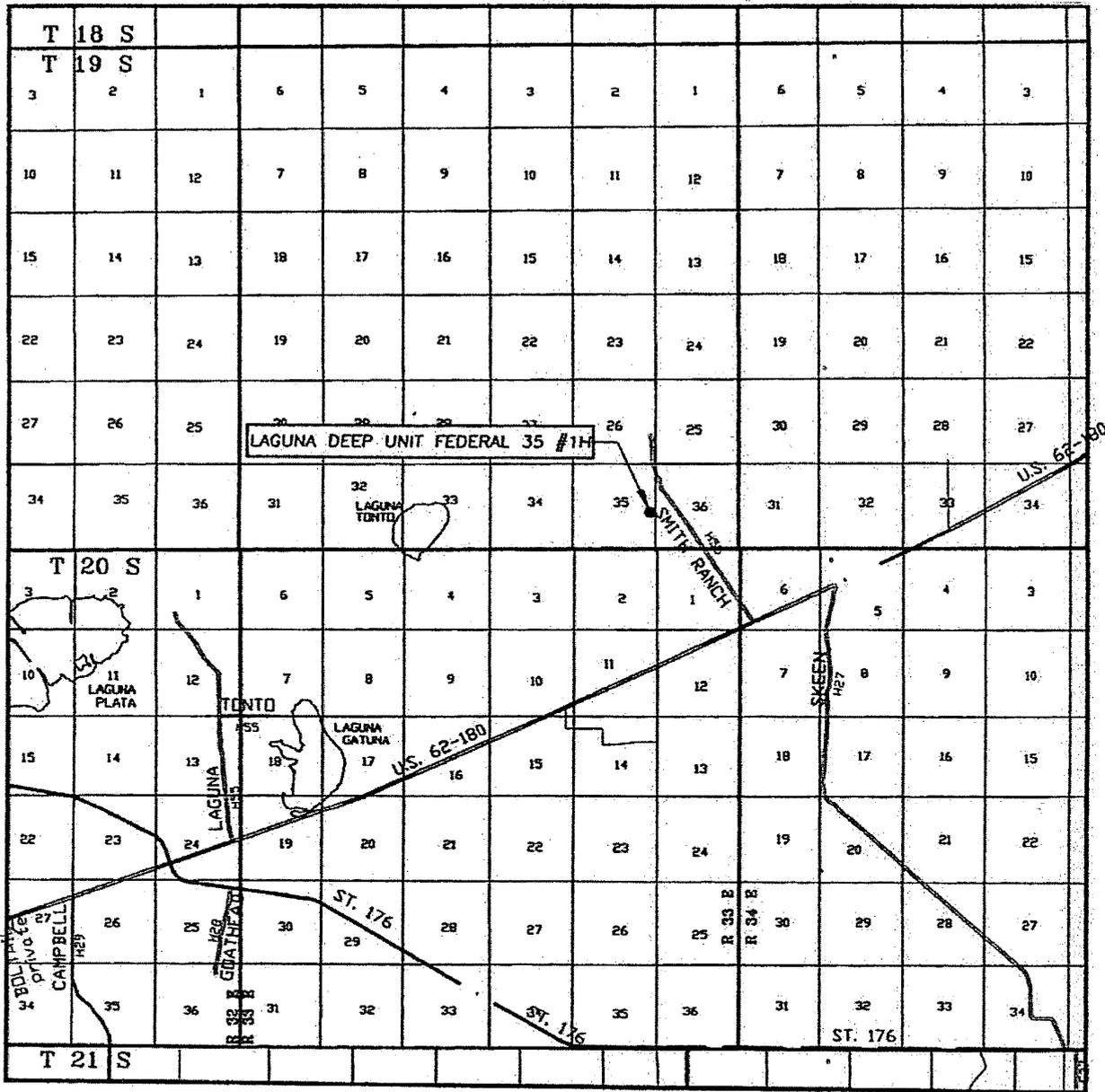
U.S.G.S. TOPOGRAPHIC MAP
LAGUNA GATUNA, N.M.

CONTOUR INTERVAL:
LAGUNA GATUNA, N.M. - 10'
LAGUNA GATUNA NW, N.M. - 10'
IRONHOUSE WELL, N.M. - 10'
LEA, N.M. - 10'



PROVIDING SURVEYING SERVICES
SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

VICINITY MAP



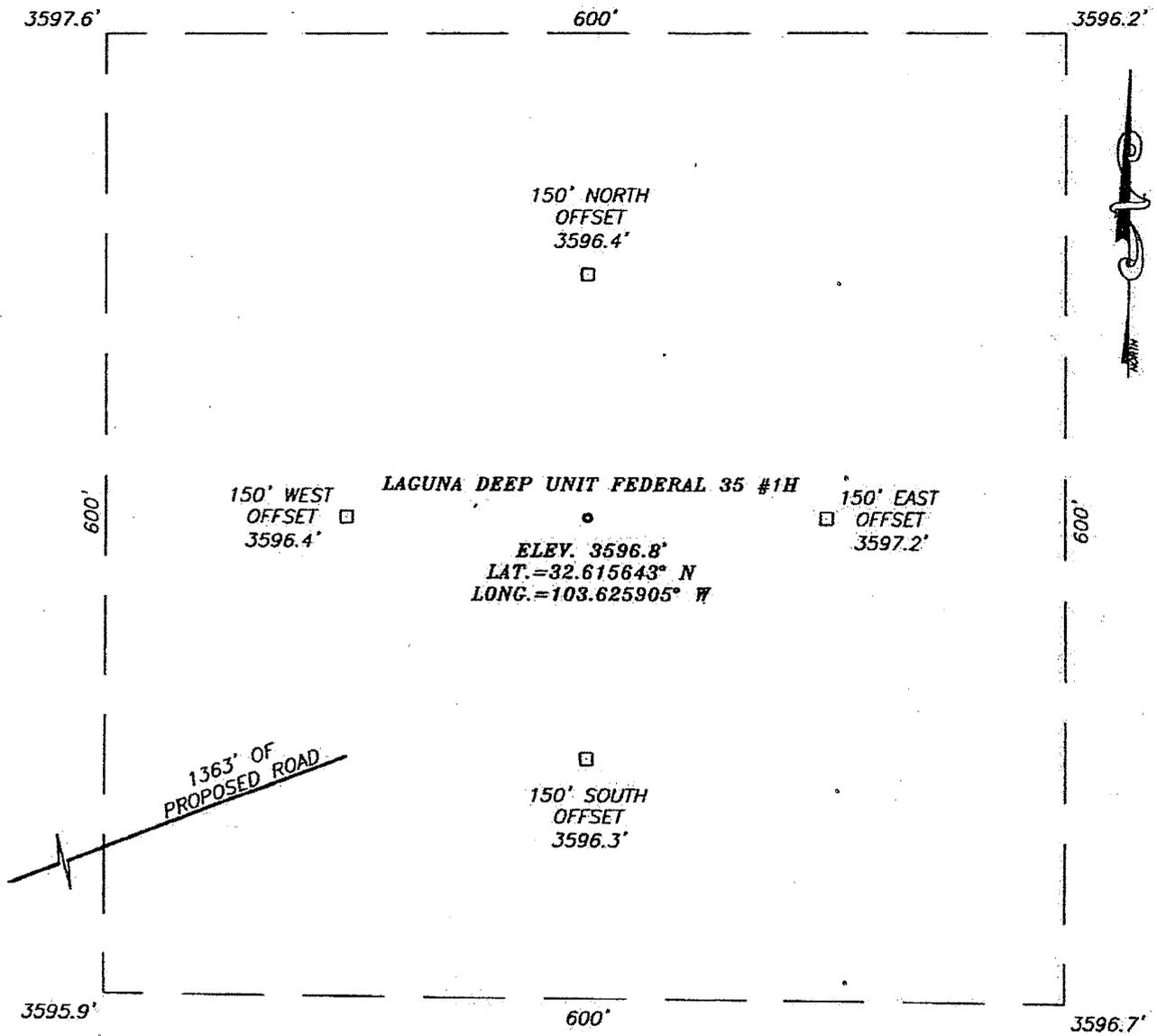
SCALE: 1" = 2 MILES

SEC. 35 TWP. 19-S RGE. 33-E
 SURVEY _____ N.M.P.M.
 COUNTY LEA STATE NEW MEXICO
 DESCRIPTION 2310' FSL & 330' FEL
 ELEVATION 3597'
 OPERATOR MARSHALL & WINSTON, INC.
 LEASE LAGUNA DEEP UNIT FED 35



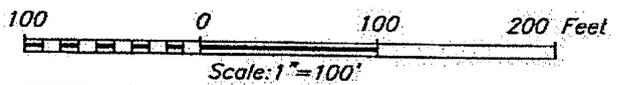
PROVIDING SURVEYING SERVICES
 SINCE 1946
JOHN WEST SURVEYING COMPANY
 412 N. DAL PASO
 HOBBS, N.M. 88240
 (575) 393-3117

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



DIRECTIONS TO LOCATION

FROM THE INTERSECTION OF US. HWY. #62-180 AND CO. RD. H55 (SMITH RANCH), GO NORTHWEST ON CO. RD. H55 FOR APPROX. 2.1 MILES TO A CALICHE LEASE ROAD, TURN LEFT AND GO SOUTHWEST APPROX. 0.7 MILES TO A CALICHE LEASE ROAD, TURN LEFT AND GO SOUTH APPROX. 0.1 MILE. TURN LEFT AND GO EAST APPROX. 0.15 MILES TO A "Y" INTERSECTION; TURN RIGHT AND GO APPROX. 150 FEET SOUTHEAST. VEER LEFT AND GO EAST APPROX. 350 FEET TO A PROPOSED ROAD. FOLLOW PROPOSED ROAD SURVEY NORTHEAST 0.25 MILES TO THIS LOCATION.

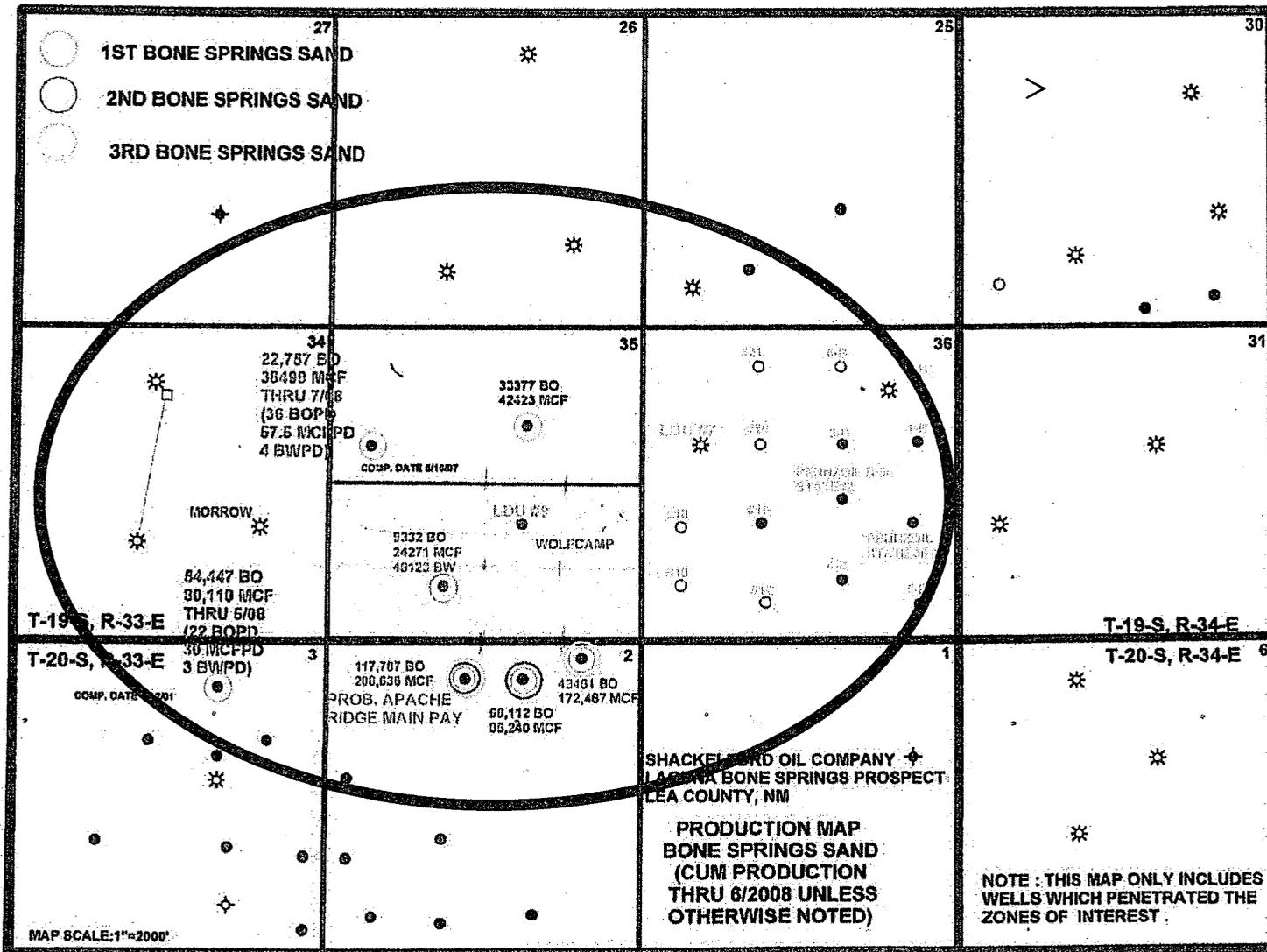


MARSHALL & WINSTON, INC.

LAGUNA DEEP UNIT FEDERAL 35 #1H WELL
 LOCATED 2310 FEET FROM THE SOUTH LINE
 AND 330 FEET FROM THE EAST LINE OF SECTION 35,
 TOWNSHIP 19 SOUTH, RANGE 33 EAST, N.M.P.M.,
 LEA COUNTY, NEW MEXICO.

Survey Date: 1/11/10	Sheet 1 of 1 Sheets	
W.O. Number: 10.11.0052	Dr. By: LA	Rev 1: N/A
Date: 1/12/10	10110052	Scale: 1"=100'

PROVIDING SURVEYING SERVICES
 SINCE 1946
JOHN WEST SURVEYING COMPANY
 412 N. DAL PASO
 HOBBS, N.M. 88240
 (575) 393-3117



Propose 350' H2O UL

1 Mile Radius concerning a Horizontal well bore, N2S2 of Section 35
1/2 Mile Radius concerning Potash clearance.

35-195-34E