

COG OPERATING LLC
MULTI-POINT SURFACE USE AND OPERATIONS PLAN

HOBBS OCD

JUN 19 2012

RECEIVED

Warhawk 3 Federal Com #1H
SHL: 780' FNL & 170' FWL
BHL: 380' FNL & 330' FEL
Section 3 T19S R32E
Eddy County, New Mexico
Lea

This plan is submitted with Form 3160-3, Application for Permit to Drill, covering the above described well. The purpose of this plan is to describe the location of the proposed well, the proposed construction activities and operations plan, the magnitude of the surface disturbance involved and the procedures to be followed in rehabilitating the surface after completion of the operations, so that a complete appraisal can be made of the environmental effect associated with the operations.

1. EXISTING ROADS:

- a. The well site and elevation plat for the proposed well are reflected on the well site layout; Form C-102. The well was staked by John West Surveying Company.
- b. Exhibit 2 is a portion of a topo map showing the well and roads in the vicinity of the proposed location. The proposed wellsite and the access route to the location are indicated in red on Exhibit 2. Right of way using this proposed route is being requested if necessary.
- c. Routine grading and maintenance of existing roads will be conducted as necessary to maintain their condition as long as any operations continue on this lease.

DIRECTIONS:

From paved CR L126 (Maljamar Rd) and paved CR 248 (Lusk Plant Rd.) go north on L126 2.2 miles, turn right on caliche lease road and go east-northeast 2.25 miles, bend left and go north 0.15 miles, turn left and go northeast 0.4 miles, turn left on old caliche road and go southwest 700' and location is 150' north.

PLANNED ACCESS ROAD:

COG will be using the existing caliche roads to access the well.

2. LOCATION OF EXISTING AND/OR PROPOSED FACILITIES:

- A. The northwest 1/2 and the entire east side of location will be fenced prior to pad construction.
- B. In the event the well is found productive, the Warhawk 3 Federal Com #1H tank battery would be utilized and the necessary production equipment will be installed at the well site. See Exhibit #3.
- C. All flowlines will adhere to API standards
- D. If electricity is needed, power will be obtained from Central Valley Electric. Central Valley Electric will apply for ROW for their power lines.

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- i. The original topsoil from the well site will be returned to the location. The drill site will then be contoured as close as possible to the original state.

3. LOCATION AND TYPES OF WATER SUPPLY:

This location will be drilled using a combination of water mud systems (outlined in the Drilling Program). The water will be obtained from commercial water stations in the area and hauled to location by transport truck using the existing and proposed roads shown in Exhibit #2. On occasion, water will be obtained from a pre-existing water well, running a pump directly to the drill rig. In these cases where a poly pipeline is used to transport water for drilling purposes, the existing and proposed road shown in Exhibit "2" will be utilized.

4 X **5. CONSTRUCTION MATERIALS:**

All Caliche utilized for the drilling pad and proposed access road will be obtained from an existing BLM approved pit or from prevailing deposits found under the location. All roads will be constructed of 6" rolled and compacted caliche. Will use BLM recommended use of extra caliche from other locations close by for roads, if available.

5 X **6. METHODS OF HANDLING WASTE MATERIAL:**

- a. All trash, junk and other waste material will be removed from the wellsite within 30 days after finishing drilling and/or completion operations. All waste material will be contained in trash cages or trash bins to prevent scattering. When the job is completed, all contents will be removed and disposed of in an approved sanitary landfill.
- b. The supplier, including broken sacks, will pick up slats remaining after completion of well.
- c. A porto-john will be provided for the rig crews. This equipment will be properly maintained during the drilling and completion operations and will be removed when all operations are complete.
- d. Disposal of fluids to be transported by an approved disposal company.

6. ANCILLARY FACILITIES:

No campsite or other facilities will be constructed as a result of this well.

7. WELLSITE LAYOUT:

- a. Exhibit 1 shows the proposed well site layout with dimensions of the pad layout.
- b. This exhibit indicates proposed location of reserve and sump pits if utilized and living facilities.
- c. Mud pits in the active circulating system will be steel pits and a closed loop system will be utilized.

8. PLANS FOR SURFACE RECLAMATION:

- a. After finishing drilling and/or completion operations, if the well is found non-commercial, the caliche will be removed from the pad and transported to the

- a. original caliche pit or used for other drilling locations. The road will be reclaimed as directed by the BLM. The original top soil will again be returned to the pad and contoured, as close as possible, to the original state.
- b. The location and road will be rehabilitated as recommended by the BLM.
- c. Caliche from areas of the pad site not required for operations will be reclaimed. The original top soil will be returned to the area of the drill pad not necessary to operate the well. These unused areas of the drill pad will be contoured, as close as possible, to match the original topography.

SURFACE OWNERSHIP:

The surface is owned by the US Government and is administered by the Bureau of Land Management. The surface is multiple use with the primary uses of the region for the grazing of livestock and the production of oil and gas. The proposed road routes and the surface location will be restored as directed by the BLM.

OTHER INFORMATION:

- a. The area surrounding the well site is grassland. The vegetation is moderately sparse with native prairie grass and mesquite bushes. No wildlife was observed but it is likely that deer, rabbits, coyotes, and rodents traverse the area.
- b. There is no permanent or live water in the general proximity of the location.
- c. If the well is deemed commercially productive, caliche from areas of the pad site not required for operations will be reclaimed. The original top soil will be returned to the area of the drill pad not necessary to operate the well. These unused areas of the drill pad will be contoured, as close as possible, to match the original topography. Reserve pit will not be used on this location therefore no reclamation is needed.
- d. Topsoil will be stockpiled on the SOUTH WEST & the NORTH WEST SIDE ¼ of location, but need to avoid power line, and also avoid dunal complexes until it is needed for interim reclamation described in paragraph above.
- e. A temporary fence will be constructed on the edges of the location to minimize impacts to dunal complexes during the development of this well.

12. OPERATOR'S REPRESENTATIVE:

A. Through A.P.D. Approval:

Rand French, Regulatory Supervisor
COG Operating LLC
Artesia, NM 88210
Phone (575)748-6940
Cell (432) 254-5556

B. Through Drilling Operations

Sheryl Baker, Drilling Supervisor
COG Operating LLC
Artesia, NM 88210
Phone (575)748-6940
Cell (432)934-7873

operator -
watch
number in
order in
future ~~###~~ 6/17/12

CERTIFICATION:

I hereby certify that I, or persons under my direct supervision, have inspected the proposed drillsite 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 COG Operating LLC and its contractors and 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.

2-27-12
Date

COG OPERATING LLC

Melanie Parker
Melanie Parker
Regulatory Supervisor



United States Department of the Interior
Bureau of Land Management
Carlsbad Field Office



Refer To: 3160-3

COPY

To: AFM, Lands & Minerals, CFO

From: Geologist, CFO

Subject: Geologic Review of Application for Permit to Drill

Operator: **COG Operating LLC**

Well Name and Number: **Warhawk 3 Federal Com 1H**

Location: SHL: T19S, R32E, Sec. 03; 780' FNL & 170' FWL (Unit D)

BHL: T19S, R32E, Sec. 03; 380' FNL & 330' FEL (Unit A)

County: Lea

State: NM

Lease No.: NMNM-112932

Date Received: 28 February 2012

1. Surface Elevation: **3684' GR** Surface Geology: **Quat. Eolian/Piedmont Alluvium**

2. Geologic Marker Tops (from reports on surrounding wells):

Well:	Keel A Federal 2	Landsdale D Federal 2	Gulf McKay Federal 1	Lusk Seven Rivers Unit 3	Warhawk 3 Federal Com 1H
	3002533339 T18S R32E Sec 33 660 FSL 1980 FEL GL 3692	3002534081 T19S R32E Sec 04 2055 FSL 611 FEL GL 3677	3002525471 T18S R32E Sec 34 660 FSL 1980 FWL GR 3697	3002520415 T19S R32E Sec 03 660 FNL 660 FWL GL 3662	PROPOSED WELL T19S R32E Sec 03 780 FNL 170 FWL GR 3684
Geologic Marker	Depth*	Depth*	Depth	Depth	Estimated Depth†
Rustler	1230	1254	1270	1275	1270
Top of Salt	1506	1540		1550	1545
Tansill	2744	2830		2777	2770
Yates	2890	2967	2897	2933	2930
Seven Rivers	3320	3412		3286	
San Andres	4398	4442	4458		4480
Cherry Canyon	4786		5312		
Bone Spring			7109		7130
2 nd Bone Spring			9242		9200
3 rd Bone Spring			10032		9965

*Depths primarily from IHS database.

†Determined primarily from IHS contouring

3. Fresh Water Information: According to well data from the New Mexico Office of the State Engineer's Water Rights Reporting System, there are five wells within a six-mile radius of the proposed well with water level depths of 65 to 460 feet from the surface.

Deepest Expected Fresh Water: above 1350'.

Does Surface Casing cover all anticipated usable fresh water zones? No; ensure casing is set below the Magenta Dolomite Member of the Rustler Formation, the base of which is approximately at 1350 feet. If salt is encountered, set casing at least 25 feet above the salt.

Operator has proposed to set intermediate casing at approximately 2900 feet within the Tansill Formation is acceptable.

Controlled Water Basin: Yes

Capitan ☒ Carlsbad ☐ Roswell ☐ Lea ☐ No basin ☐

4. Geologic Hazards? Yes

H₂S ☒ Karst ☐ Abnormal Pressures ☐ Other ☒

Remarks: H₂S has been reported within 40 acre proration unit of proposed project measuring 250 ppm in the gas stream from the Lusk Pool.

There is a possibility of lost circulation in the Artesia Group. There is also a possibility of water flows in the Artesia and Salado Groups.

5. Other Mineral Deposits: Potash minerals may be present in the Salado Group.

6. Potash:

Secretary's Oil-Potash Area ☐ R-111-P Area ☐ Not Applicable ☒

7. Other References:

GIS H₂S List.

IHS Enerdeq® Well Data.

New Mexico Office of the State Engineer::New Mexico Water Rights Reporting System, 28 May 2012,
<<http://nmwrrs.ose.state.nm.us/nmwrrs/waterColumn.html>>.

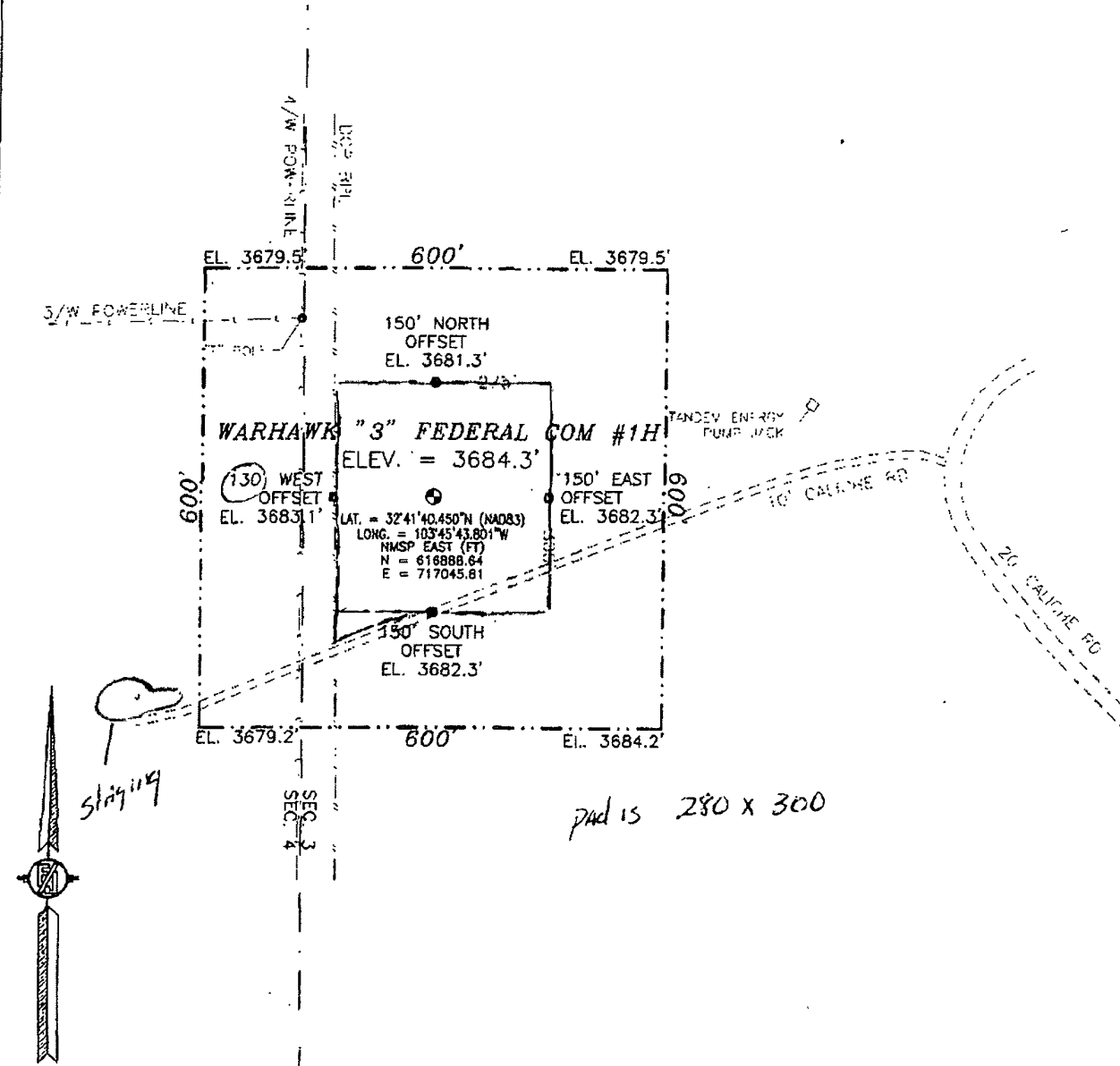
Oil Conservation Division of the New Mexico Energy, Minerals and Natural Resources Department well log and well file imaging website, 28 May 2012,
<<http://ocdimage.emnrd.state.nm.us/imaging/>>.

8. No active mining claims are located in this vicinity.

Geologist Signature: James Rutley

Date: 28 May 2012

SECTION 3, TOWNSHIP 19 SOUTH, RANGE 32 EAST, N.M.P.M.
LEA COUNTY, STATE OF NEW MEXICO



0 20 100 200 400

SCALE 1" = 200'

DIRECTIONS TO LOCATION

FROM PAVED CR L126 (MALJAMAR RD) AND PAVED CR 248 (LUSK PLANT RD.) GO NORTH ON L126 2.2 MILES, TURN RIGHT ON CALICHE LEASE ROAD AND GO EAST-NORTHEAST 2.25 MILES, BEND LEFT AND GO NORTH 0.15 MILES, TURN LEFT AND GO NORTHWEST 0.4 MILES, TURN LEFT ON OLD CALICHE ROAD AND GO SOUTHWEST 700', AND LOCATION IS 150' NORTH.

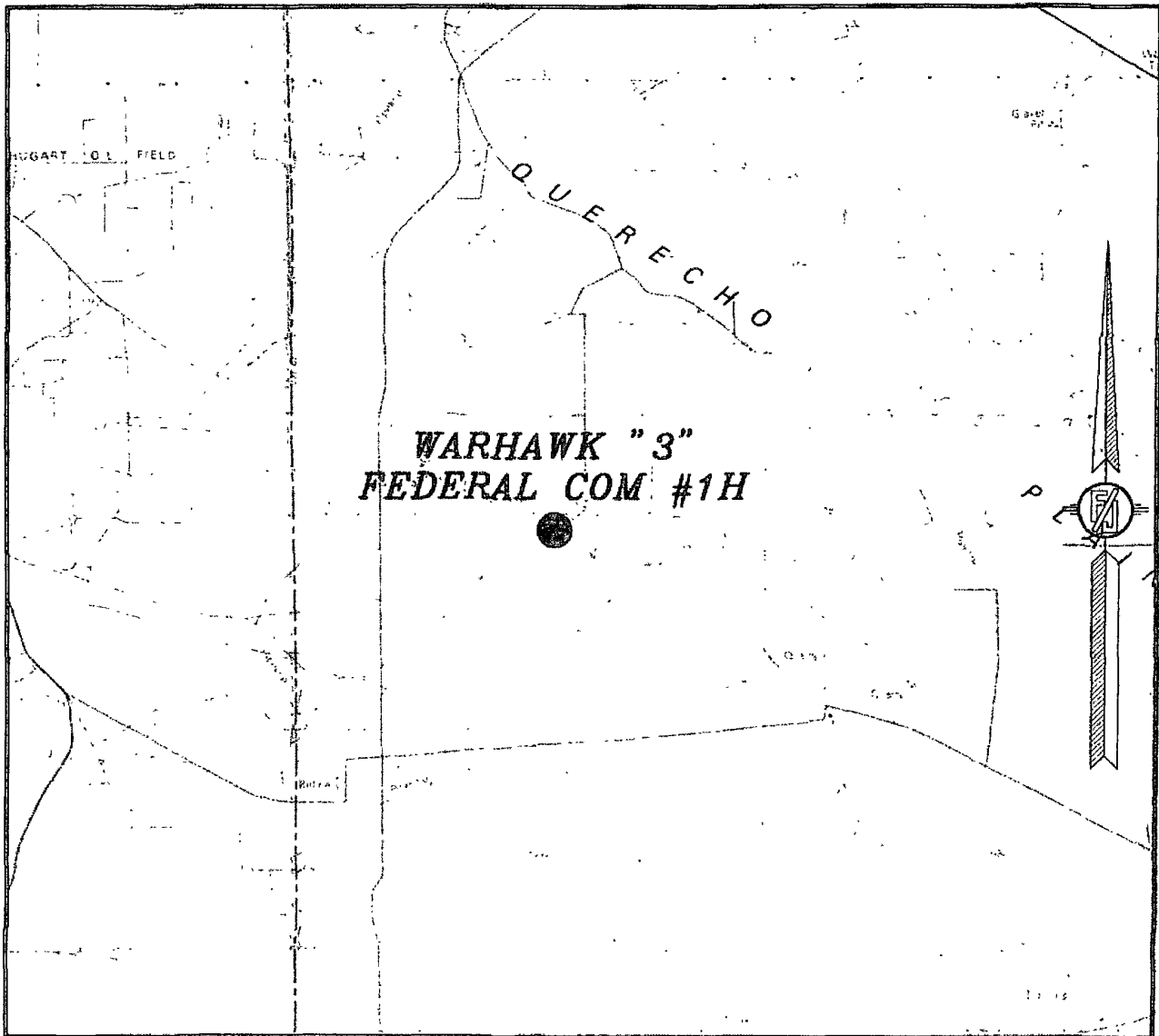
COG OPERATING, LLC
WARHAWK "3" FEDERAL COM #1H
LOCATED 780 FT. FROM THE NORTH LINE
AND 170 FT. FROM THE WEST LINE OF
SECTION 3, TOWNSHIP 19 SOUTH,
RANGE 32 EAST, N.M.P.M.
LEA COUNTY, STATE OF NEW MEXICO

SURVEY NO. 537A

NOVEMBER 15, 2011

MADRON SURVEYING, INC. CARLSBAD, NEW MEXICO

SECTION 3, TOWNSHIP 19 SOUTH, RANGE 32 EAST, N.M.P.M.
LEA COUNTY, STATE OF NEW MEXICO
VICINITY MAP



NOT TO SCALE

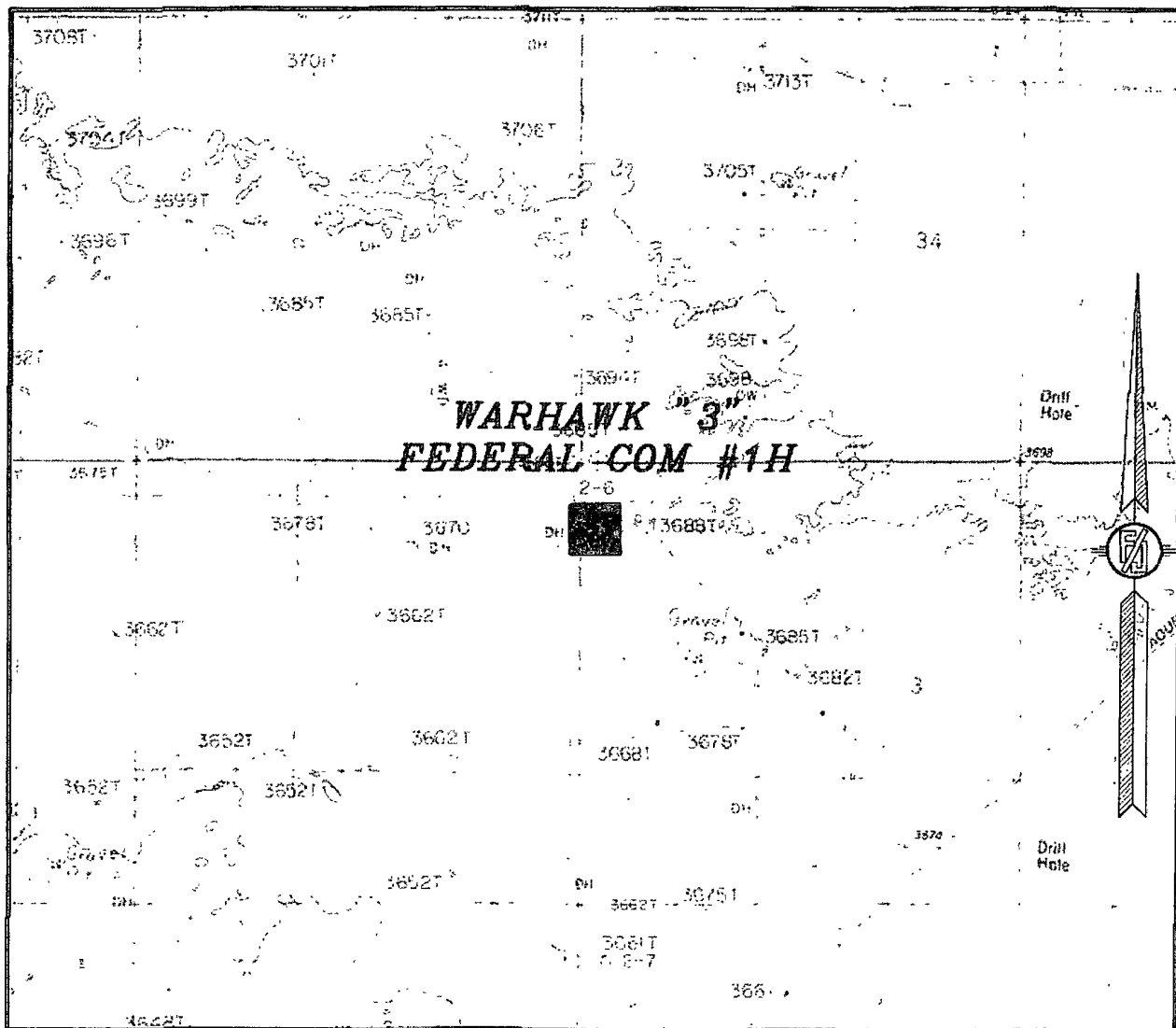
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NOVEMBER 15, 2011

SURVEY NO. 537A

MADRON SURVEYING, INC. 501 SOUTH 21ST AVE. CARLSBAD, NEW MEXICO

SECTION 3, TOWNSHIP 19 SOUTH, RANGE 32 EAST, N.M.P.M.
LEA COUNTY, STATE OF NEW MEXICO
LOCATION VERIFICATION MAP



CONTOUR INTERVAL:
GREENWOOD LAKE

NOT TO SCALE

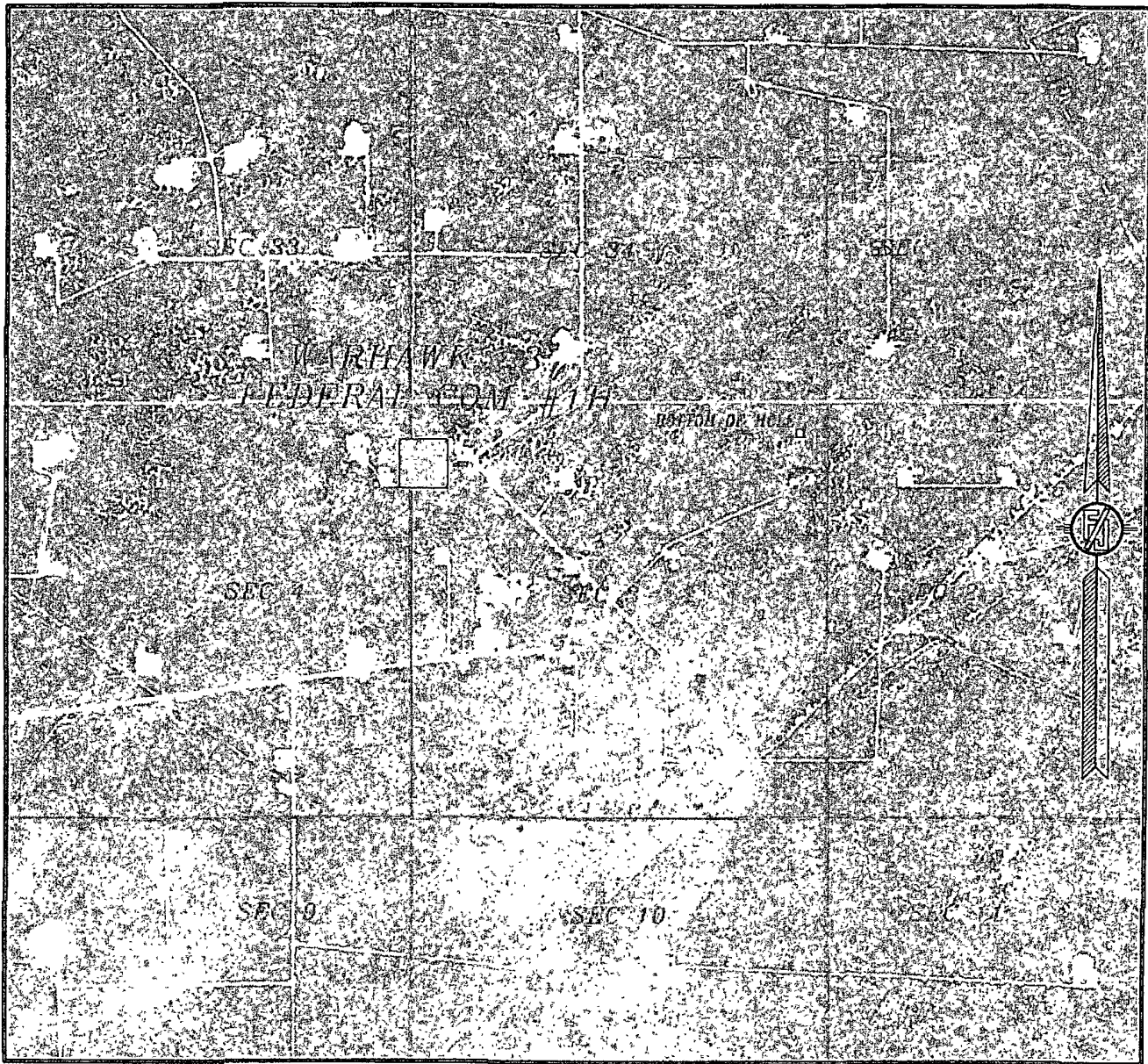
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SECTION 3, TOWNSHIP 19 SOUTH, RANGE 32 EAST, N.M.P.M.
LEA COUNTY, STATE OF NEW MEXICO
AERIAL PHOTO



NOT TO SCALE
AERIAL PHOTO:
GOOGLE EARTH
USDA - AUG, 2009

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