

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

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-101
May 27, 2004

Submit to appropriate District Office

☐ AMENDED REPORT

APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE

¹ Operator Name and Address Nadel and Gussman Permian, LLC 601 N. Marienfeld Suite 508 Midland, TX 79701		² OGRID Number 155615
³ Property Code 34206	⁴ Property Name Big Chief Fee	⁵ API Number 30-015-35337
⁹ Proposed Pool 1 Dublin Ranch Morrow		¹⁰ Proposed Pool 2

7 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	22	22 S	28 E		990	North	990	East	Eddy

8 Proposed 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

Additional Well Information

¹¹ Work Type Code N	¹² Well Type Code G	¹³ Cable/Rotary R	¹⁴ Lease Type Code P	¹⁵ Ground Level Elevation 3,091'
¹⁶ Multiple No	¹⁷ Proposed Depth 12,900'	¹⁸ Formation Morrow	¹⁹ Contractor Patterson - UTI	²⁰ Spud Date 02/01/07
Depth to Groundwater: 50' or Less		Distance from nearest fresh water well: 200' or Less		Distance from nearest surface water: Less than 200'
Pit: Liner: Synthetic <input checked="" type="checkbox"/> 20_mils thick Clay <input type="checkbox"/> Pit Volume: 15,000_bbls Drilling Method: Closed-Loop System <input type="checkbox"/> Fresh Water <input checked="" type="checkbox"/> Brine <input checked="" type="checkbox"/> Diesel/Oil-based <input type="checkbox"/> Gas/Air <input type="checkbox"/>				

21 Proposed Casing and Cement Program

Hole Size	Casing Size	Casing weight/foot	Setting Depth	Sacks of Cement	Estimated TOC
17 1/2"	13 3/8"	48# H-40	300'	300sx	Circ. to Surf.
12 1/4"	9 5/8"	40# N-80, P-110	6,100'	1200sx	Circ. to Surf.
8 3/4"	5 1/2"	17#, 20# HCP-110	12,900'	1500sx	TOC @ +/-6000'

²² Describe the proposed program. If this application is to DEEPEN or PLUG BACK, give the data on the present productive zone and proposed new productive zone. Describe the blowout prevention program, if any. Use additional sheets if necessary.

Nadel and Gussman Permian, LLC proposes to drill the Big Chief Fee #10. A mud gas separator will be installed and tested prior to drilling the Wolfcamp. A BOP will be installed on the 9 5/8" and tested. Cement to cover all water, oil and gas producing zones. NGP will notify NMOCD of spud date and cementing times so the surface and intermediate casing strings can be witnessed. No H₂S is expected, but a contingency is attached.

²³ I hereby certify that the information given above is true and complete to the best of my knowledge and belief. I further certify that the drilling pit will be constructed according to NMOCD guidelines ☒, a general permit ☐, or an (attached) alternative OCD-approved plan ☐.

Signature:

Terry West

Printed name: Terry West

Title: Staff Engineer

E-mail Address: TerryW@naguss.com

Date: 12/26/06

Phone: 432-682-4429

OIL CONSERVATION DIVISION

Approved by:

BRYAN G. ARANT
DISTRICT II GEOLOGIST

Title:

Approval Date: **DEC 28 2006**

Expiration Date: **DEC 28 2007**

Conditions of Approval Attached ☐

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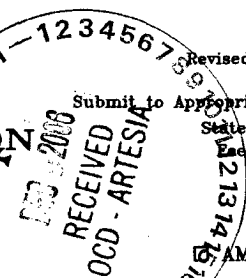
DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department

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

Form C-102
Revised October 12, 2005

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



AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code 7614C	Pool Name DUBLIN RANCH; MORROW
Property Code	Property Name BIG CHIEF FEE	Well Number 10
OGRID No.	Operator Name NADEL AND GUSSMAN PERMIAN	Elevation 3091'

Surface Location

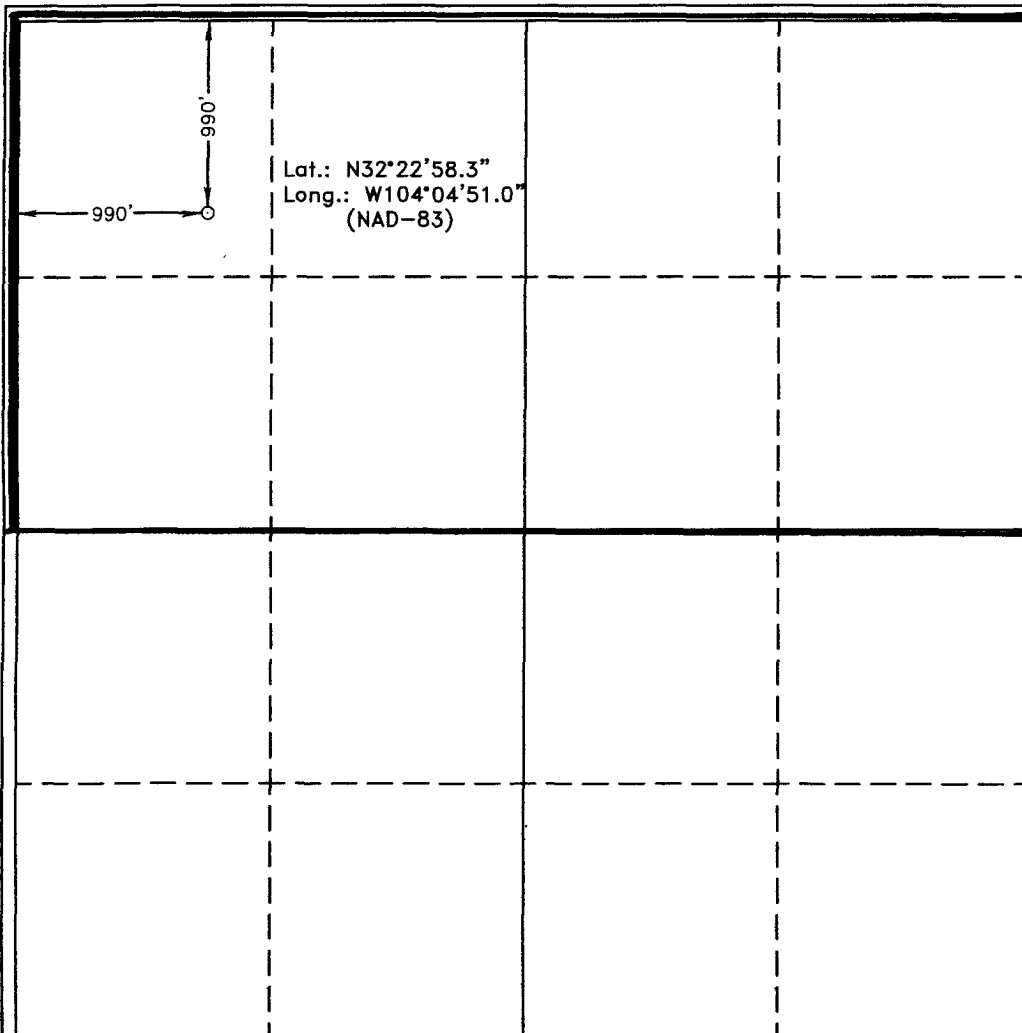
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	22	22 S	28 E		990	NORTH	990	WEST	EDDY

Bottom Hole Location If Different From Surface

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

Dedicated Acres 320	Joint or Infill	Consolidation Code	Order No.
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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.

Terry West 10-31-06
Signature Date

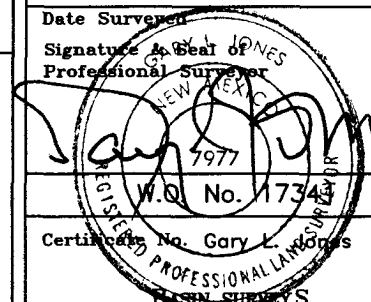
TERRY WEST
Printed Name

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 supervision and that the same is true and correct to the best of my belief.

OCTOBER 26, 2006

Date Surveyed
Signature & Seal of Professional Surveyor
W.O. No. 17343
Certification No. Gary L. Jones 7977



NADEL AND GUSSMAN PERMIAN, L.L.C.
601 N. Marienfeld, Suite 508
Midland, TX 79701
(432) 682-4429 (Office)
(432) 682-4325 (Fax)

012/26/06

Mr. Bryan Arrant
District 2 Geologist
New Mexico Oil and Gas Division
1301 West Grand Avenue
Artesia, NM 88210

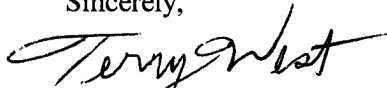
Re: Big Chief Fee #10
990' FNL & 990' FWL
Unit Letter D, Sec. 22-T22S-R28E
Eddy, NM
Rule 118 H2S Exposure

Dear Mr. Arrant,

Nadel and Gussman Permian have evaluated this well and we do not expect to encounter hydrogen sulfide. However, we will employ a third party monitoring system. We will begin monitoring prior to drilling out the intermediate casing and will continue monitoring the remainder of the well.

Please contact me if you have any additional questions.

Sincerely,



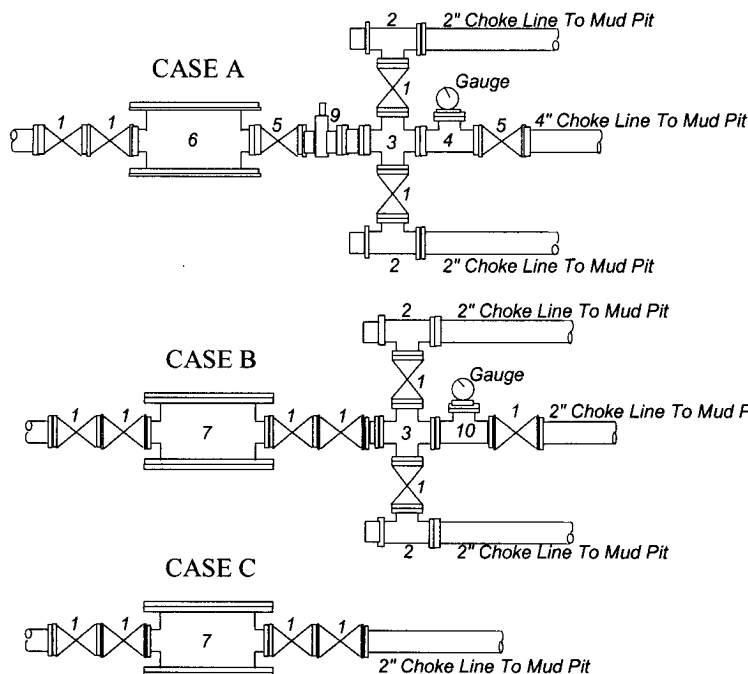
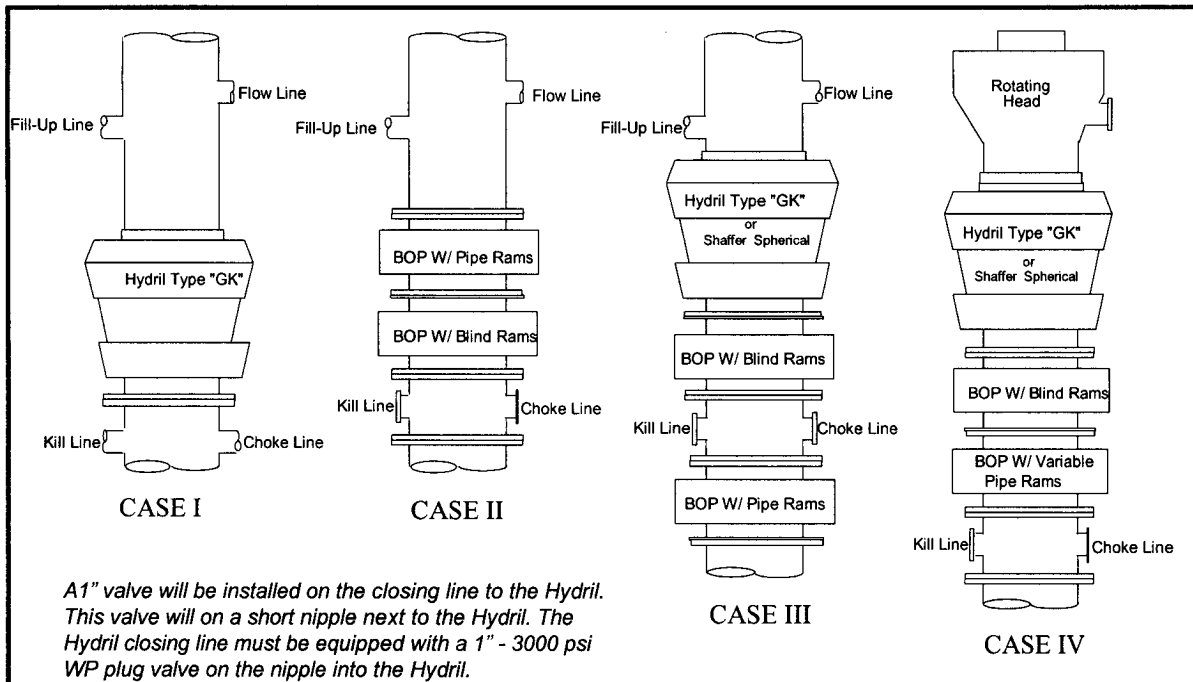
Terry West
Staff Engineer

Hydrogen Sulfide Drilling Operations Plan

1. Company and Contract personnel admitted on location should be trained by a qualified H₂S safety instructor to the following:
 - A. Characteristics of H₂S.
 - B. Physical Effects and Hazards.
 - C. Proper Use of Safety Equipment and Life Support Systems.
 - D. Principle and Operation of H₂S Detectors, Warning System and Briefing.
 - E. Evacuation Procedure, Routes and First Aid.
 - F. Proper Use of 30 minute Pressure Demand Air Pack.
2. H₂S Detection and Alarm Systems
 - A. H₂S Detectors and Audio Alarm System to be Located at Bell Nipple, End of Blooie Line (mud pit) and on Derrick floor or doghouse.
3. Windsock and/or Wind Streamers
 - A. Windsock at Mud Pit Area Should be High Enough to be Visible.
 - B. Windsock at Briefing Area Should be High Enough to be Visible.
 - C. There Should be a Windsock at Entrance to Location.
4. Condition Flags and Signs
 - A. Warning Sign on Access Road to Location.
 - B. Flags to be Displayed on Sign at Entrance to Location.
 1. Green Flag, Normal Safe Condition.
 2. Yellow Flag, Indicates Potential Pressure and Danger.
 3. Red Flag, Danger H₂S Present in Dangerous Concentration
Only Emergency Personnel Admitted to Location.
5. Well Control Equipment
 - A. See Attached Diagram.
6. Communication
 - A. While Working Under Masks Chalkboards Will be Used for Communication.
 - B. Hand Signals will be Used Where Chalk Board is Inappropriate.
 - C. Two Way Radio or Cell Phone will be Used to Communicate off Location in Case of Available at Most Drilling Foreman's Trailer or Living Quarters.
7. Drillstem Testing
 - A. Exhausts will be Watered.
 - B. Flare Line will be Equipped with an Electric Igniter or a propane pilot light in case gas reaches the surface.
 - C. If Location is near any Dwelling a Closed DST will be Performed.
8. Drilling Contractor Supervisor will be Required to be Familiar with the Effects H₂S has on tubular goods and other mechanical equipment.
9. If H₂S Encountered, Mud system will be Altered if Necessary to Maintain Control of Formation. A Mud Gas Separator will be Brought into Service Along with H₂S Scavengers if Necessary.

Nadel and Gussman Permian

MINIMUM BLOWOUT PREVENTER REQUIREMENTS



BOP SIZE	BOP CASE	WORKING PRESSURE	CHOKE CASE
13 5/8"	IV	5000 psi	A

***Rotating head required**

Bradenhead : _____

Mfr: _____

Size: _____ Type: _____

Legend

1. 2" flanged all steel valve must be either Cameron "F", Halliburton Low Torque or Shaffer Flo-Seal.
2. 2" flanged adjustable chokes, min. 1" full opening & equipped with hard trim.
3. 4" x 2" flanged steel cross.
4. 4" flanged steel tee.
5. 4" flanged all steel valve (Type as in no. 1).
6. Drilling Spool with 2" x 4" flanged outlet.
7. Drilling Spool with 2" x 2" flanged outlet.
8. 2" x 2" flanged steel cross.
9. 4" pressure operated gate valve.
10. 2" flanged steel tee.

Notes

Choke manifold may be located in any convenient position. Use all steel fittings throughout. Make 90° turns with bull plugged tees only. No field welding will be permitted on any of the components of the choke manifold and related equipment upstream of the chokes. The choke spool and all lines and fittings must be at least equivalent to the test pressure of the preventers required. Independent closing control unit with clearly marked controls to be located on derrick floor near driller's position.

(10-31-96) WTXBOPS.PPT

PROPOSED MUD PROGRAM

CASING DESIGN

13 3/8"	Surface Casing	at	300'
9 5/8"	Intermediate Casing	at	6,100'
8 3/4"	Open Hole	to	12,900'

RECOMMENDED MUD PROPERTIES

<u>DEPTH</u>	<u>MUD WEIGHT</u>	<u>VISCOSITY</u>	<u>FLUID LOSS</u>
Spud	8.6- 8.7	32-34	No Control
300'	8.9- 9.2	32-34	No Control
Set 13 3/8" Surface Casing at 300'. Drill out with Brine Water.			
500'	9.8-10.0	28-30	No Control
1,500'	10.0-10.1	28-30	No Control
3,000'	10.0-10.1	28-30	No Control
4,500'	10.0-10.1	28-30	No Control
6,100'	10.0-10.1	28-30	No Control
Set 9 5/8" Intermediate Casing at 6,100'. Drill out with Fresh Water.			
6,200'	8.4- 8.5	28-29	No Control
7,000'	8.4- 8.5	28-29	No Control
8,000'	8.4- 8.5	28-29	No Control
9,000'	8.4- 8.5	28-29	No Control
9,500'	9.2- 9.4	28-29	No Control
10,000'	9.4- 9.6	28-29	No Control

11,000'	9.8- 10.0	32-34	<12
11,400'	10.0-12.0	32-34	<12
11,800'	10.0-12.0	45-50	<12
12,300'	10.0-12.0	45-50	<12
12,900'	10.0-12.0	45-50	<12

RECOMMENDED MUD PROGRAM BY CASING INTERVAL

Surface Hole 0 – 300'

Spud with a Horizon Gel/Lime slurry, mixing one Lime per ten Gel for a 32-34 viscosity. Lost circulation is common in this area. Should lost circulation occur and cannot be re-gained with one LCM pill, dry drill to total depth.

Intermediate Hole 300'-6,100'

Drill out from under the surface casing with brine water, circulating through the reserve pit to allow maximum time for settling drilled-solids.

Severe lost circulation is possible while drilling this interval. Seepage can be controlled with additions of Paper. Should complete loss of returns occur while drilling, we recommend pulling up above the loss zone to avoid differential sticking and spotting a 100-200 barrel pill containing 15-25 lb/bbl lost circulation material. Spot the pill from above at a reduced pump rate before returning to bottom to commence drilling operations. If lost circulation is not regained with one or two LCM pills, some blind drilling may be required. . If partial returns are maintained, use only brine for volume to avoid severe washouts.

Crooked hole can be a problem in this area.

Allow hole conditions to dictate the need for any additional viscosity or hole sweeps at total depth to clean the hole and insure smooth casing operations.

Open Hole- 6,100'-12,900'

Drill out from under the intermediate casing with fresh water, circulating through the outer reserve pit to, once again, allow maximum time for settling drilled-solids. A flocculent (MF-1) can be used to aid in dropping solids, providing a clear fluid and maximum penetration rates.

We recommend that the surface pit system include the following:

- ⇒ **Flo-line Cleaner** – This will allow removal of a wider range of solids and will assist in optimizing the efficiency of the de-sander and de-silter (or scale shaker).

- ⇒ **Centrifuge**—This will allow for fine solids removal and barite recovery.
- ⇒ **Shale and settling pit by-pass Canal** – To reduce volumes when conditioning mud for DST's or added hole cleaning at total depth.
- ⇒ **Pit Volume Totalizers** – To more accurately monitor pit gains and losses.
- ⇒ **One 1000 sack Barite Bin**- For barite storage on location.

We recommend maintaining a 9.0 – 9.5 pH with **Caustic**.

As drilling progresses post 6,000', some loss of fluid should occur. Minor seepage can be controlled with additions of **Paper**. Complete lost circulation is also possible during this interval. Should complete loss of returns occur while drilling, we recommend following the same procedure described in the previous section.

Severe seepage in the **Delaware** and **Bone Springs** may require alternative methods of combating losses, such as:

- ⇒ **Heavy bentonite pills**
- ⇒ **Diesel/Loloss pills**
- ⇒ **Drill-out pills spotted or squeezed**

Crooked hole can also be a problem in this section past 8,000'.

Utilize **Horizon Poly-Vis II** and **Prehydrated Gel** for periodic sweeps while drilling, prior to mud-up.

At a depth of 9,500' or the top of the **Wolfcamp**, we recommend returning to the working pits and displacing with brine weighing 9.2 – 9.4 ppg.

By 11,000' or the top of the **Strawn**, we recommend displacing with brine and mudding-up with an **XC Polymer/MF-55** system to achieve the following properties:

Mud Weight	9.8–10.0
Viscosity	32 – 34
Fluid Loss	<12

It is also possible to encounter abnormal pressure in the **Atoka** formation. Drilling slightly under-balanced has proven successful at maximizing penetration rates, however, it may be necessary to increase the mud weight to 10.5 –12.0 ppg to control formation pressure. It may be possible to avoid increasing the weigh of the entire system by spotting heavy pills on bottom for trips.

If higher mud weights are required, 7" casing may be necessary to cover the **Bone Springs** formation.

XCD Polymer at higher concentrations has the unique ability to increase the "low-shear rate viscosity" of the fluid. This property has proven to minimize losses in the **Delaware** and **Bone Springs**. On two wells in the immediate area, this fluid has eliminated the need for 7" casing while formation pressures required as high as an 11.8 ppg mud weight to control.

We recommend adding **MF-55** to the system in this particular area to minimize potential sloughing shale. **MF-55** is a non-ionic emulsion polymer that will chemically tie up water. This "taking on of water" effect has proven to significantly minimize fluid invasion. **MF-55** also has the ability to inhibit through encapsulation, or coating of the wellbore.

Lost circulation could occur after mud-up. We recommend using fibrous-type **LCM** to control seepage. Should complete loss of returns occur, we recommend following the same procedure as described in the previous section.

REDUCED FORMATION DAMAGE WITH XC POLYMER

At 11,800' or the top of the **Morrow**, we recommend increasing the concentration of **XC Polymer** to 1 3/4 to 2 ppb to achieve low shear-rate viscosity (**LSRV**). This concentration of **XC Polymer** is necessary to accomplish the networking effect of the polymers. It is this networking effect of the **Zanthan Gum** polymer that gives it its unique ability to increase the **LSRV**.

By achieving elevated viscosity in the low shear region of the flow profile, lateral penetration of fluid into the formation is reduced. This will minimize damage to the **Morrow** formation caused by the migration of clays once the kaolinite booklets have been broken. Also, an additional benefit of reaching this flow profile is that hole cleaning is maximized.

LSRV is monitored by measuring the gel strength and the relaxation time of the fluid. Minimum gel strength values of 40 – 60 (.2 spring) and a relaxation measurement of 3 to 4 minutes are essential to provide the proper flow profile. The "relaxation measurement" directly measures the **LSRV** of the fluid. The **Brookfield Rheometer** is also used in the field to correlate with the relaxation measurement.

This fluid, adjusted as shown in the "**RECOMMENDED MUD PROPERTIES**" section, or as hole conditions dictate, should provide good hole conditions for any testing, logging and casing operations.

SECTION 22, TOWNSHIP 22 SOUTH, RANGE 28 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO.

150' NORTH
OFF SET
3092.1'
□

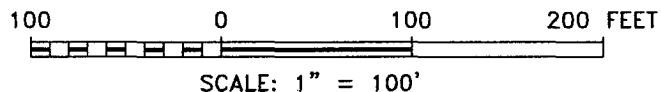
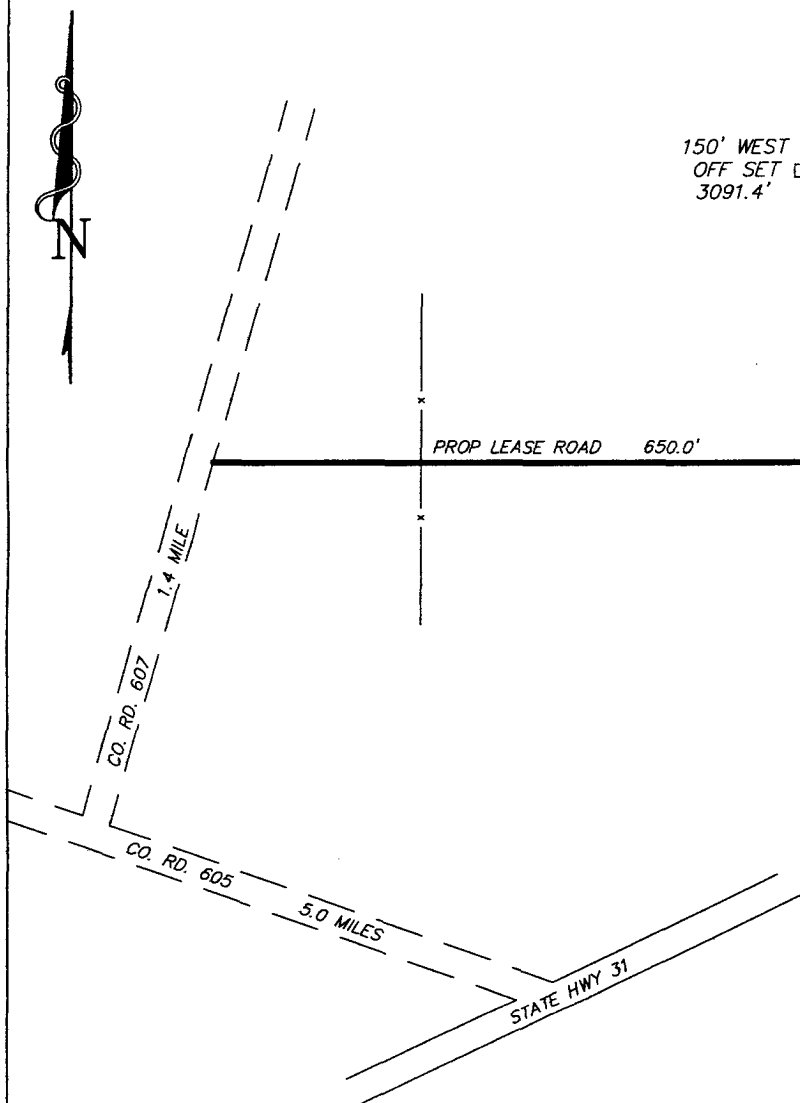
NADEL & GUSSMAN PERMIAN
BIG CHIEF #10
ELEV. - 3091'

150' WEST
OFF SET □
3091.4'

150' EAST
□ OFF SET
3092.0'

LAT. N32°22'58.3"
LONG. W104°04'51.0"
(NAD-83)

□
150' SOUTH
OFF SET
3092.7'



Directions to Location:

FROM THE JUNCTION OF CO. RD. 605 (U.S.
REFINERY) AND CO. RD. 607 (OLD POST), PROCEED
NORTHEAST 1.4 MILE TO PROPOSED LEASE ROAD.

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

W.O. Number: 17341 Drawn By: J. M. SMALL

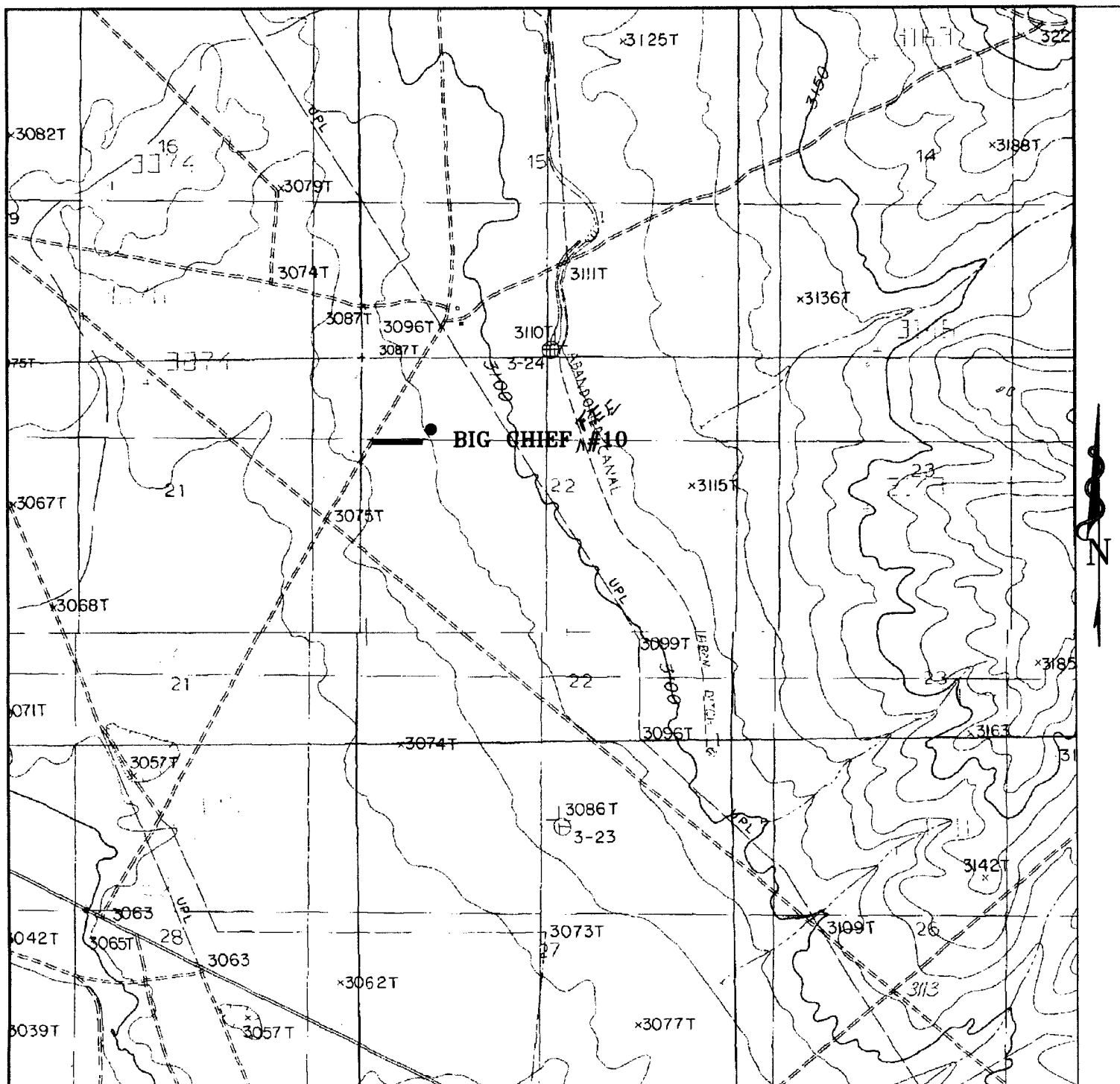
Date: 10-27-2006 Disk: JMS 17341W

NADEL AND GUSSMAN PERMIAN

REF: BIG CHIEF #10 / Well Pad Topo

BIG CHIEF No. 10 LOCATED 990' FROM
THE NORTH LINE AND 990' FROM THE WEST LINE OF
SECTION 22, TOWNSHIP 22 SOUTH, RANGE 28 EAST,
N.M.P.M., EDDY COUNTY, NEW MEXICO.

Survey Date: 10-26-2006 Sheet 1 of 1 Sheets



BIG CHIEF #10

Located at 990' FNL & 990' FWL
 Section 22, Township 22 South, Range 28 East,
 N.M.P.M., Eddy County, New Mexico.

**basin
surveys**

focused on excellence
in the oilfield

P.O. Box 1786
 1120 N. West County Rd.
 Hobbs, New Mexico 88241
 (505) 393-7316 - Office
 (505) 392-3074 - Fax
 basinsurveys.com

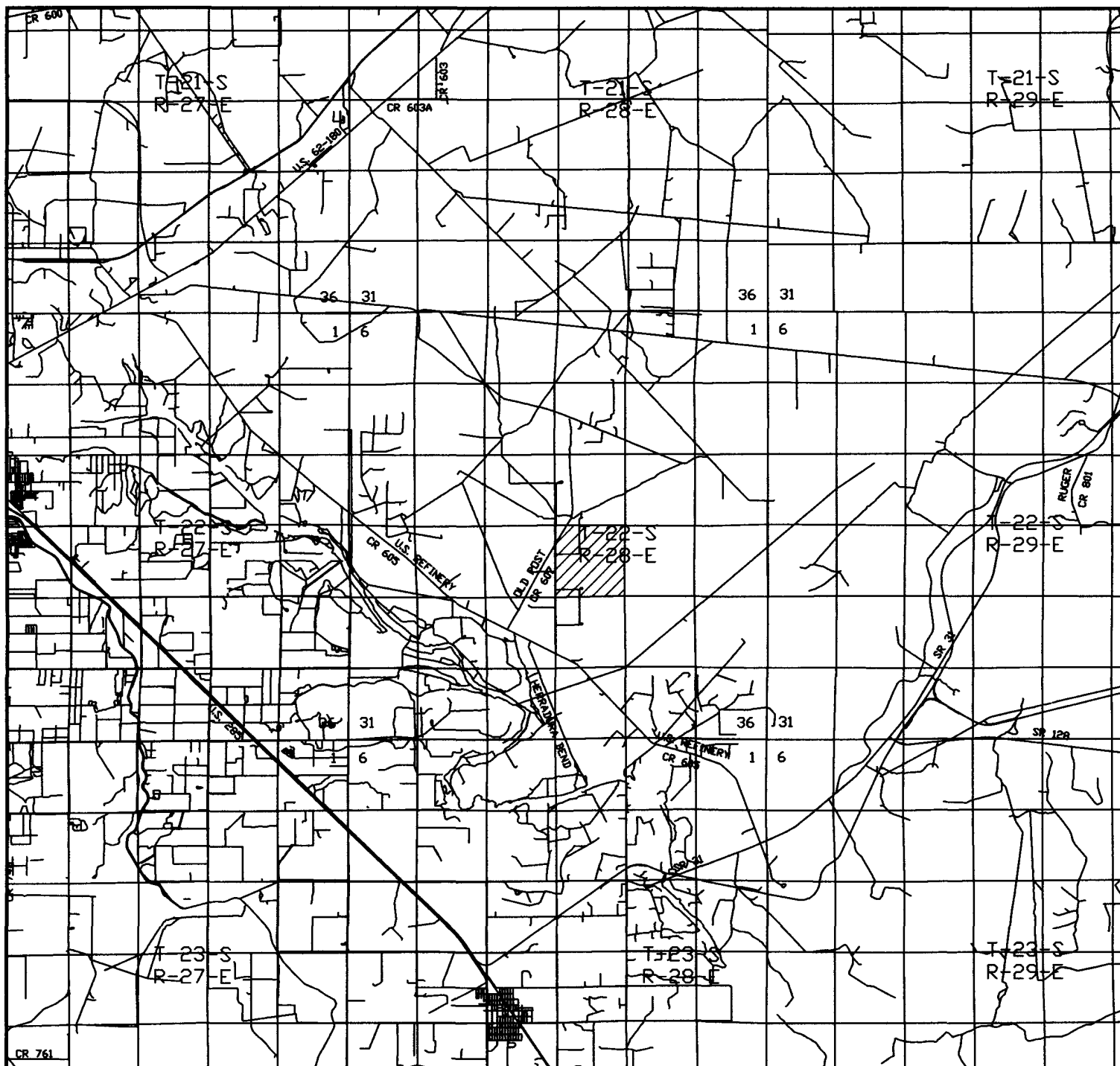
W.O. Number: JMS 17341T

Survey Date: 10-26-2006

Scale: 1" = 2000'

Date: 10-27-2006

**NADEL AND
GUSSMAN
PERMIAN**



BIG CHIEF #10
 Located at 990' FNL & 990' FWL
 Section 22, Township 22 South, Range 28 East,
 N.M.P.M., Eddy County, New Mexico.

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surveys

focused on excellence
 in the oilfield

P.O. Box 1786
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 (505) 392-3074 - Fax
 basinsurveys.com

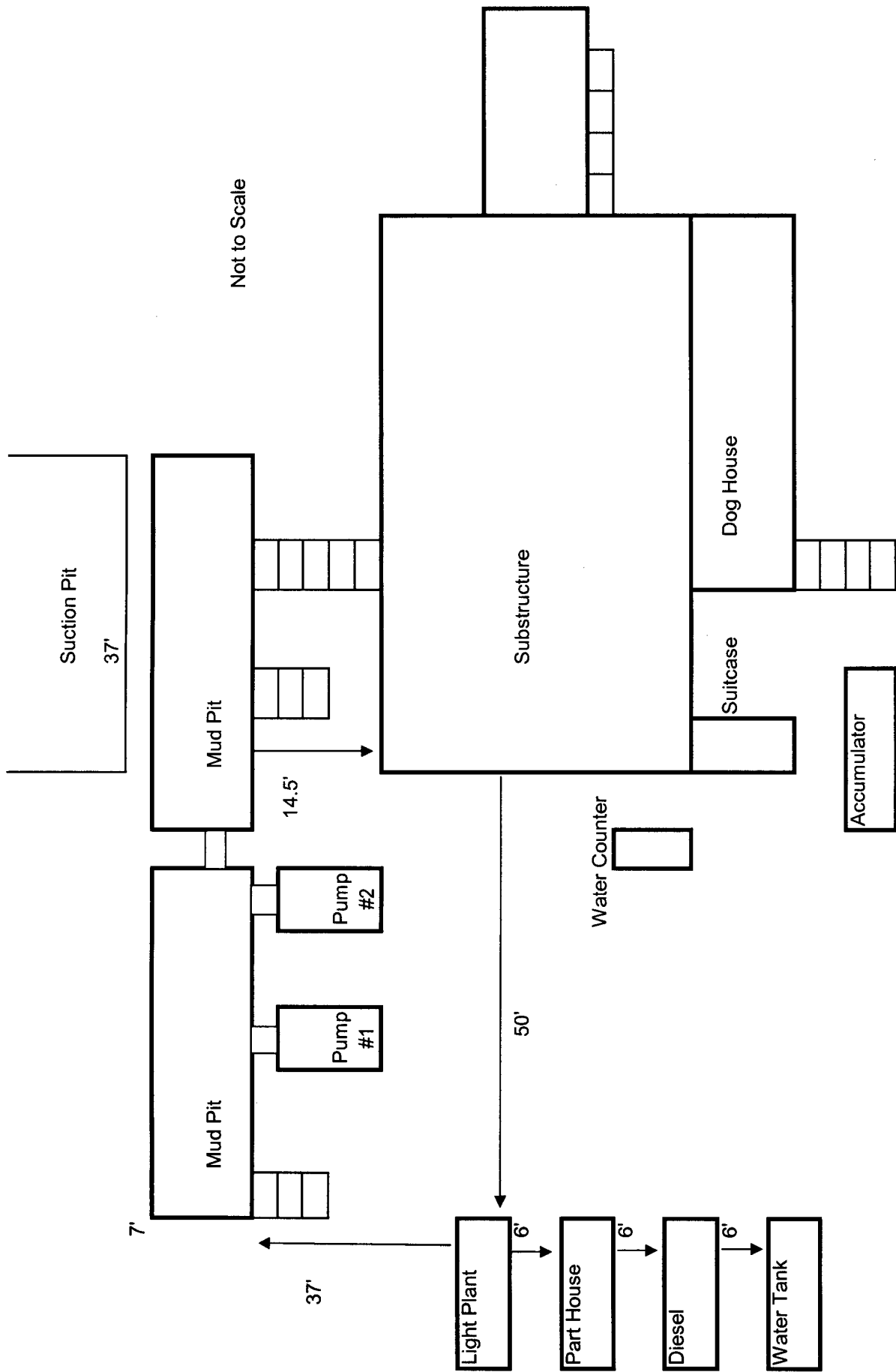
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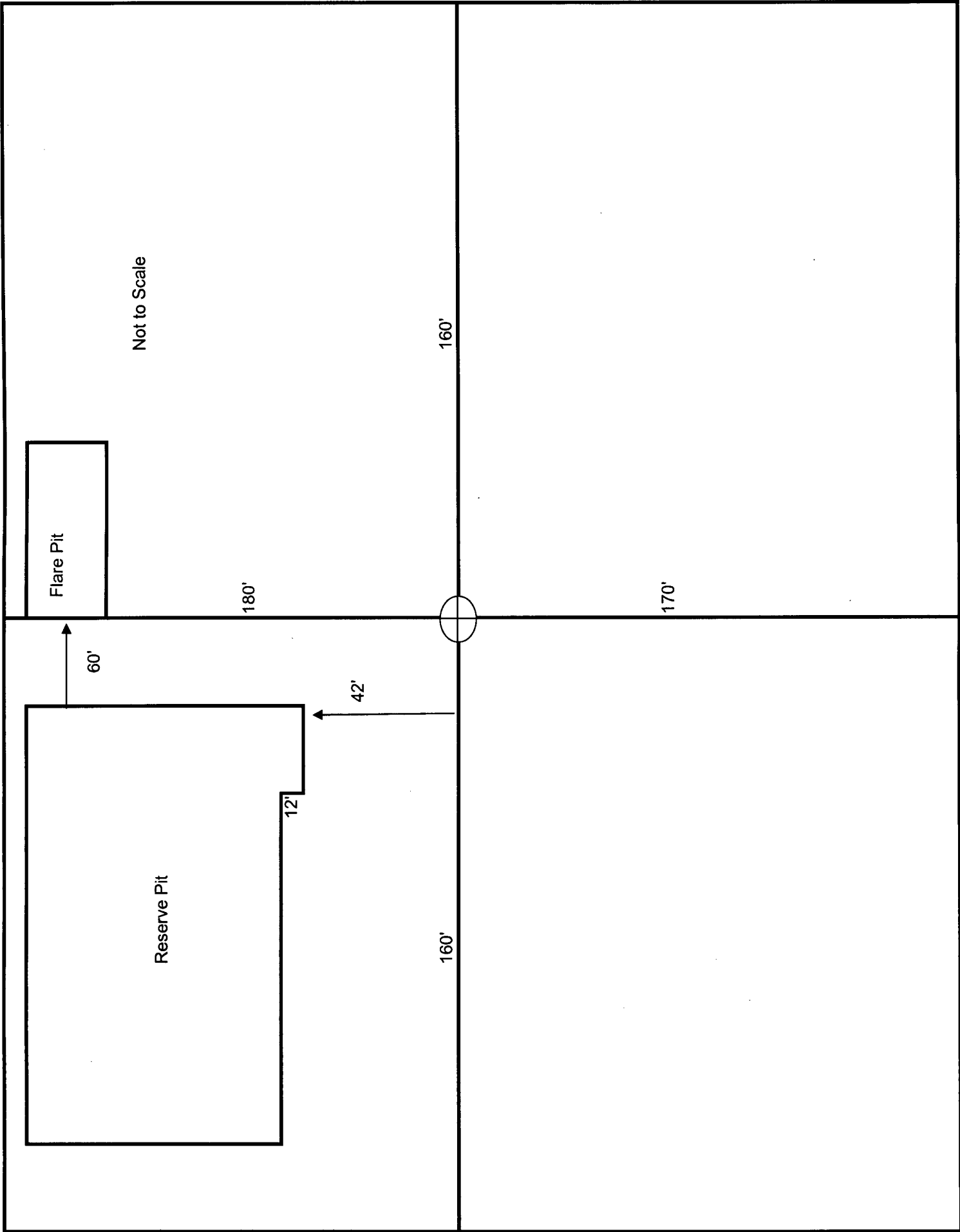
Survey Date: 10-26-2006

Scale: 1" = 2 MILES

Date: 10-27-2006

NADEL AND
GUSSMAN
PERMIAN





Not to Scale

Flare Pit

Reserve Pit

60'

42'

180'

160'

170'

160'

The diagram shows a rectangular lot with overall dimensions of 148' by 160'. The lot is divided into a 10' wide strip on the left and a 140' wide area on the right. The 140' area is further divided into a 100' wide section and a 40' wide section. The 100' section contains a 20' wide area and an 80' wide area. The 40' section contains a 10' wide area. The 20' and 80' areas are further divided into sections labeled '3' High' and '6' High'.

