

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

RECEIVED

NOV 19 2004

OCB-ARTESIA

Form C-101
March 4, 2004

Submit to appropriate District Office
State Lease - 6 Copies
Fee Lease - 5 Copies

☐ AMENDED REPORT

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

¹ Operator Name and Address NADEL AND GUSSMAN PERMIAN, L.L.C. 601 N. MARIENFELD, SUITE 508 MIDLAND, TEXAS 79701		⁴ OGRID Number 155615
³ Property Name BIG CHIEF FEE		² AD# Number 30 - 015 - 33726
⁵ Property Code	⁶ Well No. 7	

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
L	21	22-S	28-E		1980'	SOUTH	1310'	WEST	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
⁹ Proposed Pool 1 DUBLIN RANCH					¹⁰ Proposed Pool 2 Morrow				

¹¹ Drilling Pit Location and Other Information									
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
L	21	22-S	28-E		1980'	SOUTH	1310'	WEST	EDDY
¹² Depth to ground water 50' TO 100'					¹³ Distance from nearest fresh water well MORE THAN 1000'		¹⁴ Distance from nearest surface water MORE THAN 1000'		
¹⁵ Work Type Code N		¹⁶ Well Type Code G		¹⁷ Cable/Rotary ROTARY		¹⁸ Lease Type Code P		¹⁹ Ground Level Elevation 3065'	
²⁰ Multiple NO		²¹ Proposed Depth 12,900'		²² Formation MORROW		²³ Contractor PATTERSON		²⁴ Spud Date +/- 12/03/04	

²⁵ 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#	300'	450 SX	CIRC. TO SURFACE
12-1/4"	9-5/8"	40#	6100'	1200 SX	CIRC. TO SURFACE
8-3/4"	5-1/2"	17# & 20#	12,900'	1000 SX	TOC +/- 7,000'

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.
DRILL AND COMPLETE WELL IN THE MORROW WITH A PROJECTED TD OF 12,900'.
NO H2S IS EXPECTED, BUT AN H2S CONTINGENCY LETTER 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: *Josh Fernau*

Printed name: JOSH FERNAU

Title: STAFF ENGINEER

E-mail Address: joshf@naguss.com

Date: 11/17/04

Phone: (432) 682-4429

OIL CONSERVATION DIVISION

Approved by:

TIM W. GUM

DISTRICT II SUPERVISOR

Title:

Approval Date: NOV 22 2004

Expiration Date: NOV 22 2005

Conditions of Approval:

Attached ☐

CEMENT TO COVER ALL OIL,
GAS AND WATER BEARING
ZONES

DISTRICT IV
2040 South Pacheco, Santa Fe, NM 87505

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Form C-144
March 12, 2004

For drilling and production facilities,
submit to appropriate NMOCD District
Office.
For downstream facilities, submit to Santa
Fe office

Pit or Below-Grade Tank Registration or Closure

Is pit or below-grade tank covered by a "general plan"? Yes ☐ No ☒

Type of action: Registration of a pit or below-grade tank ☒ Closure of a pit or below-grade tank ☐

Operator: NADEL AND GUSSMAN PERMIAN Telephone: (432) 682-4429 e-mail address: _____		
Address: 601 N. Marienfeld, Suite 508 Midland, TX 79701 _____		
Facility or well name: BIG CHIEF FEE #7 API #: 30-015- U/L or Qtr/Qtr: L Sec: 21 T: 22S R: 28E		
County: Eddy Latitude: N32° 22' 35.2" Longitude: W104° 05' 49.0" NAD: 1927 ☐ 1983 ☐ Surface Owner Federal ☐ State ☐ Private ☒ Indian ☐		
Pit Type: Drilling ☒ Production ☐ Disposal ☐ Workover ☐ Emergency ☐ Lined ☒ Unlined ☐ Liner type: Synthetic ☒ Thickness 12 mil Clay ☐ Volume 20,000 bbl	Below-grade tank Volume: _____ bbl Type of fluid: _____ Construction material: _____ Double-walled, with leak detection? Yes ☐ If not, explain why not: _____	
Depth to ground water (vertical distance from bottom of pit to seasonal high water elevation of ground water.)	Less than 50 feet	(20 points)
	50 feet or more, but less than 100 feet	(10 points) 10
	100 feet or more	(0 points)
Wellhead protection area: (Less than 200 feet from a private domestic water source, or less than 1000 feet from all other water sources.)	Yes	(20 points)
	No	(0 points) 0
Distance to surface water: (horizontal distance to all wetlands, playas, irrigation canals, ditches, and perennial and ephemeral watercourses.)	Less than 200 feet	(20 points)
	200 feet or more, but less than 1000 feet	(10 points) 0
	1000 feet or more	(0 points)
Ranking Score (Total Points)		10

If this is a pit closure: (1) attach a diagram of the facility showing the pit's relationship to other equipment and tanks. (2) Indicate disposal location:

onsite ☐ offsite ☐ If offsite, name of facility: _____. (3) Attach a general description of remedial action taken including remediation start date and end date. (4) Groundwater encountered: No ☐ Yes ☐ If yes, show depth below ground surface _____ ft. and attach sample results. (5) Attach soil sample results and a diagram of sample locations and excavations.

I hereby certify that the information above is true and complete to the best of my knowledge and belief. I further certify that the above-described pit or below-grade tank has been/will be constructed or closed according to NMOCD guidelines ☒, a general permit ☐ or an (attached) alternative OCD-approved plan ☐.

Date: 11/17/04

Printed Name/Title Josh Fernau, Staff Engineer

Signature

Your certification and NMOCD approval of this application/closure does not relieve the operator of liability should the contents of the pit or tank contaminate ground water or otherwise endanger public health or the environment. Nor does it relieve the operator of its responsibility for compliance with any other federal, state, or local laws and/or regulations.

Approval:

Date: _____

Printed Name/Title

Signature

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

11/17/04

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

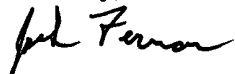
Re: Big Chief Fee #7
1980' FSL, 1310' FWL
Unit Letter L, Sec. 21-T22S-R28E
Eddy, NM
Rule 118 H2S Exposure

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.

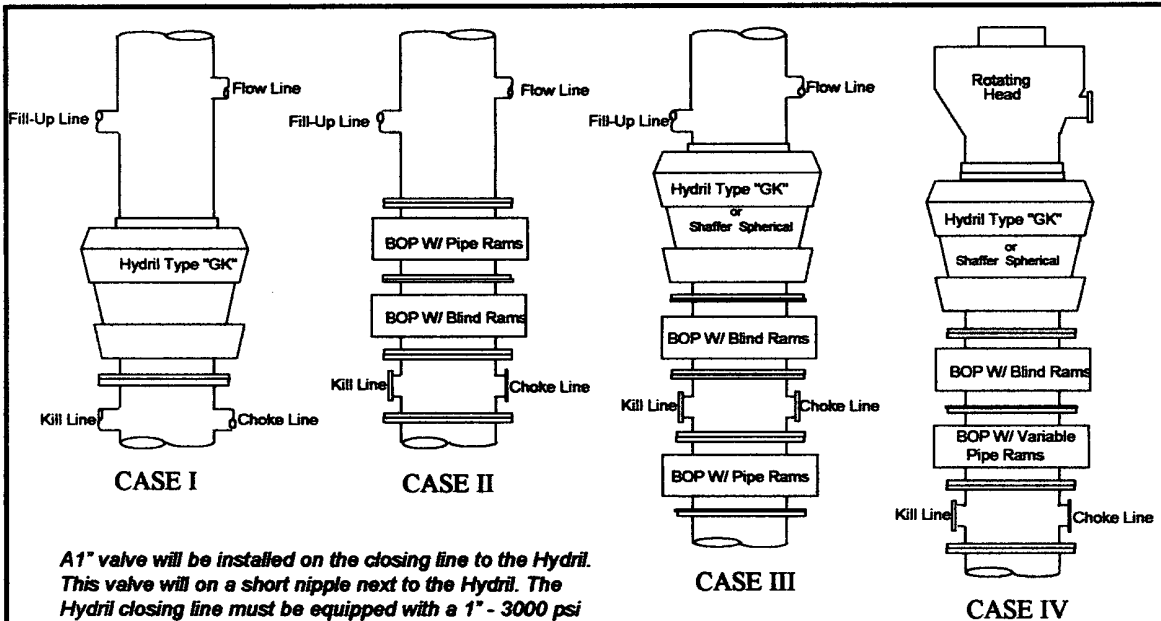
Please contact me if you have any additional questions.

Sincerely,

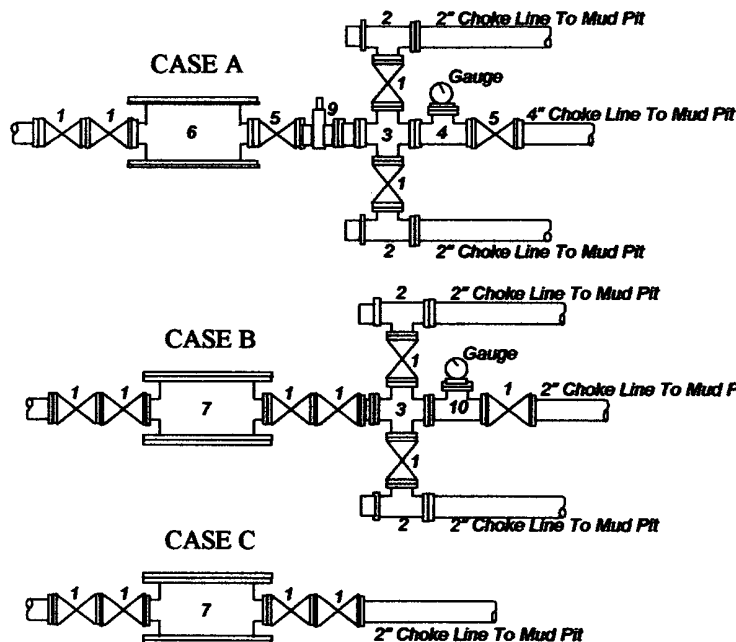


Josh Fernau
Staff Engineer

Nadel and Gussman Permian Big Chief Fac #7 MINIMUM BLOWOUT PREVENTER REQUIREMENTS



A1" valve will be installed on the closing line to the Hydril. This valve will be on a short nipple next to the Hydril. The Hydril closing line must be equipped with a 1" - 3000 psi WP plug valve on the nipple into the Hydril.



BOP SIZE	BOP CASE	WORKING PRESSURE	CHOKE CASE
13 3/4"	III	5000 #	A
8 1/2"	IV	5000 #	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	400'
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
400'	8.9- 9.2	32-34	No Control
Set 13 3/8" Surface Casing at 400'. 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 – 400'

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 400'-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

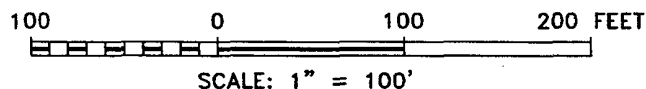
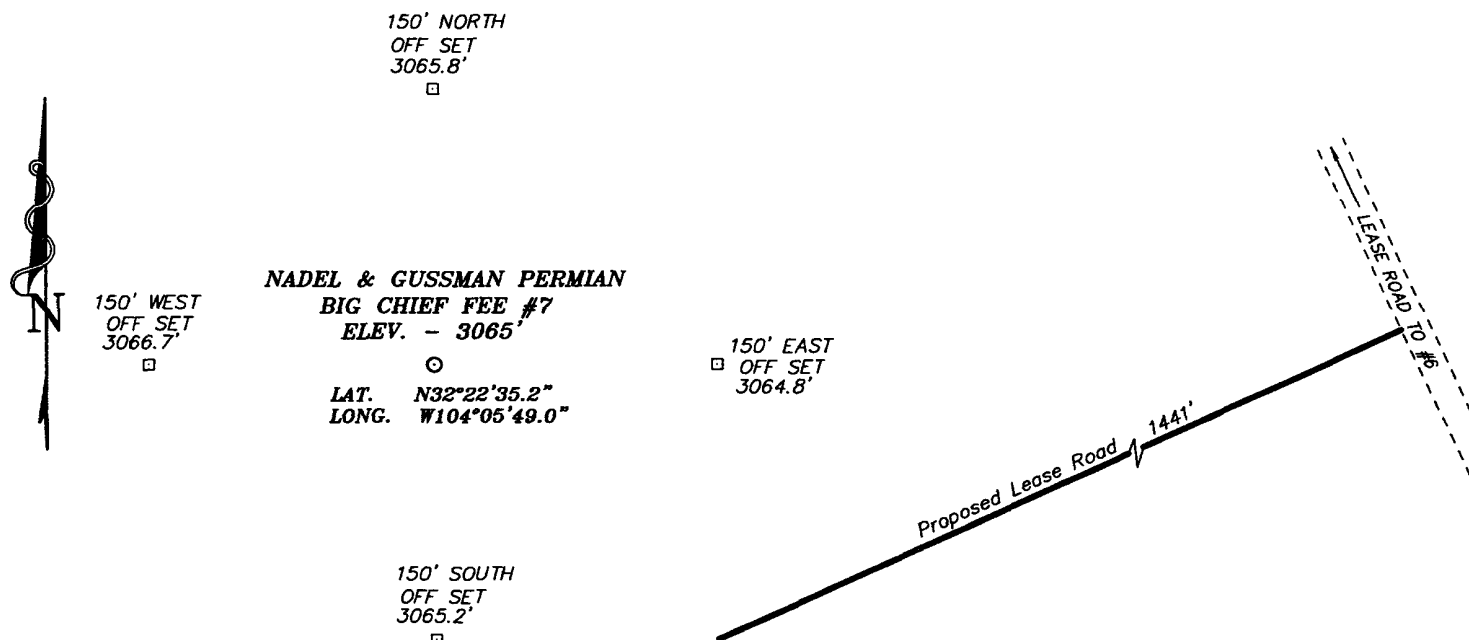
At **11,800'** or the top of the **Morrow**, we recommend increasing the concentration of **XC Polymer** to **1 3/4 to 2 ppb** to achieve low shear-rate viscosity (**LSRV**). This concentration of **XC Polymer** is necessary to accomplish the networking effect of the polymers. It is this networking effect 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 21, TOWNSHIP 22 SOUTH, RANGE 28 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO.



Directions to Location:

FROM THE JUNCTION OF US REFINERY ROAD AND
CO. OLD POST #607, GO NORTHEAST 0.9 MILE TO
LEASE ROAD; THENCE WEST FOR 0.1 MILE TO BIG
CHIEF #3; THENCE SOUTH ON LEASE ROAD TO THE
BIG CHIEF #6 AND PROPOSED LEASE ROAD.

NADEL AND GUSSMAN PERMIAN

REF: BIG CHIEF FEE No. 7 / Well Pad Topo

BIG CHIEF FEE No. 7 LOCATED 1980' FROM
THE SOUTH LINE AND 1310' FROM THE WEST LINE OF
SECTION 21, TOWNSHIP 22 SOUTH, RANGE 28 EAST,
N.M.P.M., EDDY COUNTY, NEW MEXICO.

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

W.O. Number: 4829

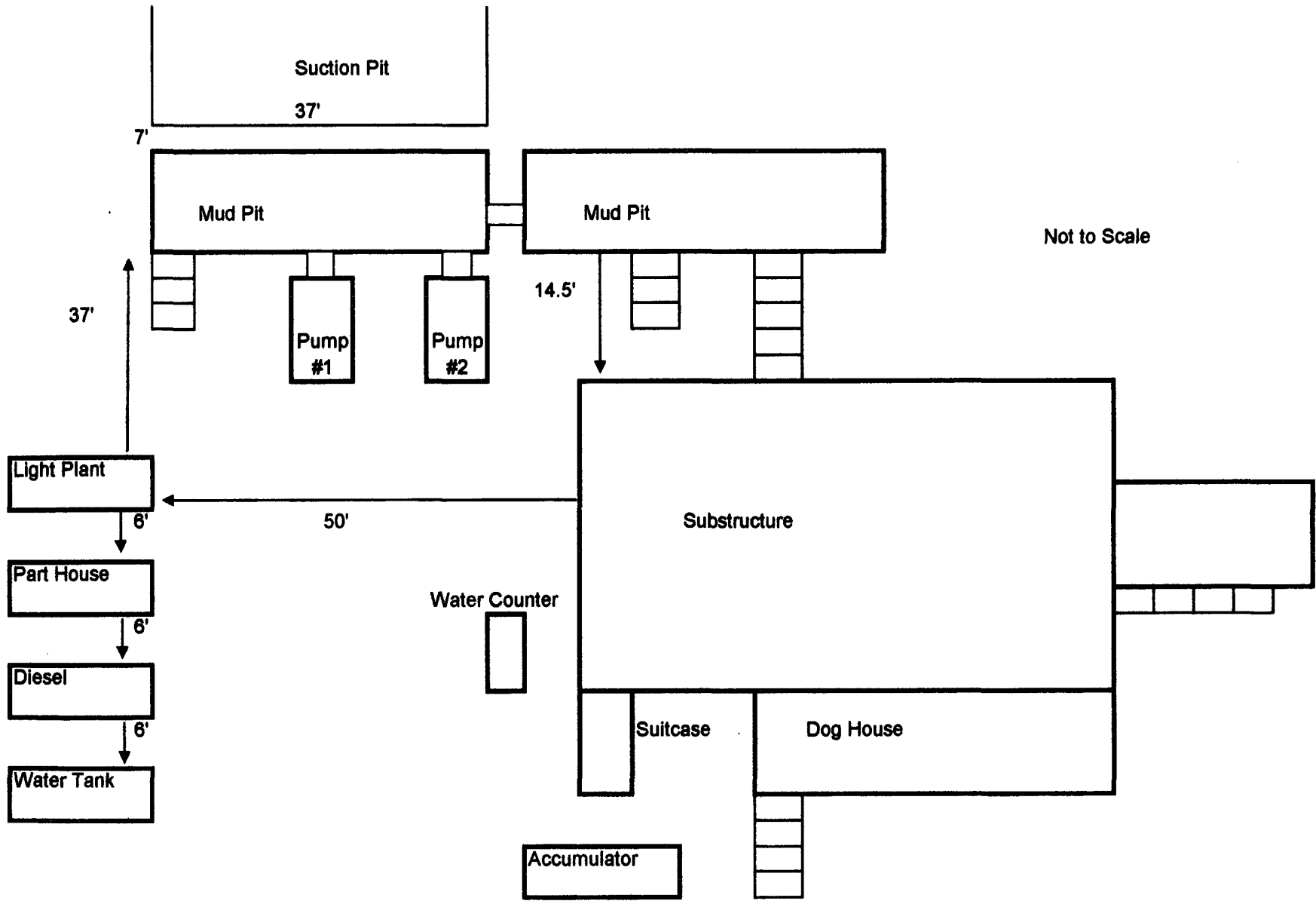
Drawn By: K. GOAD

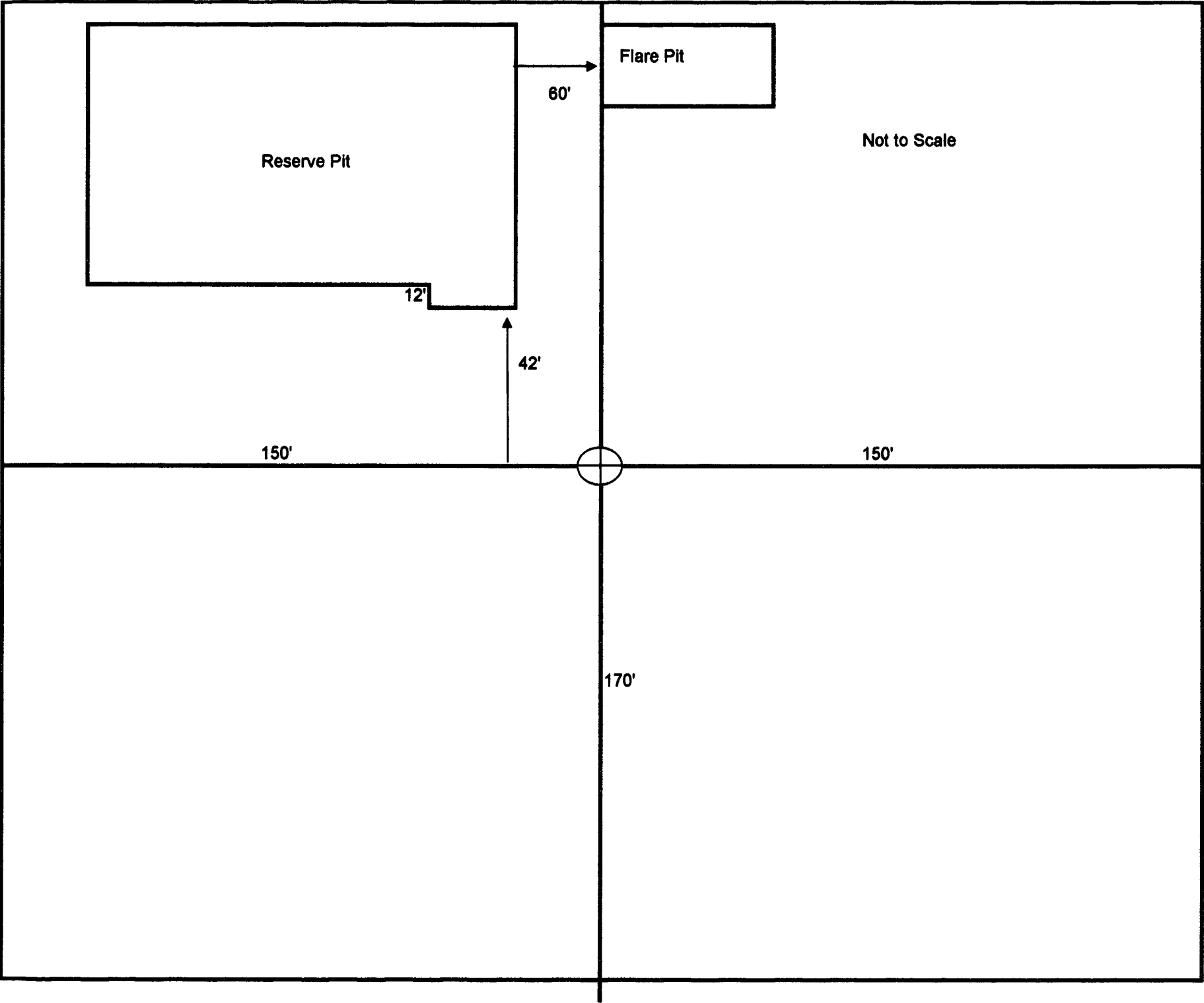
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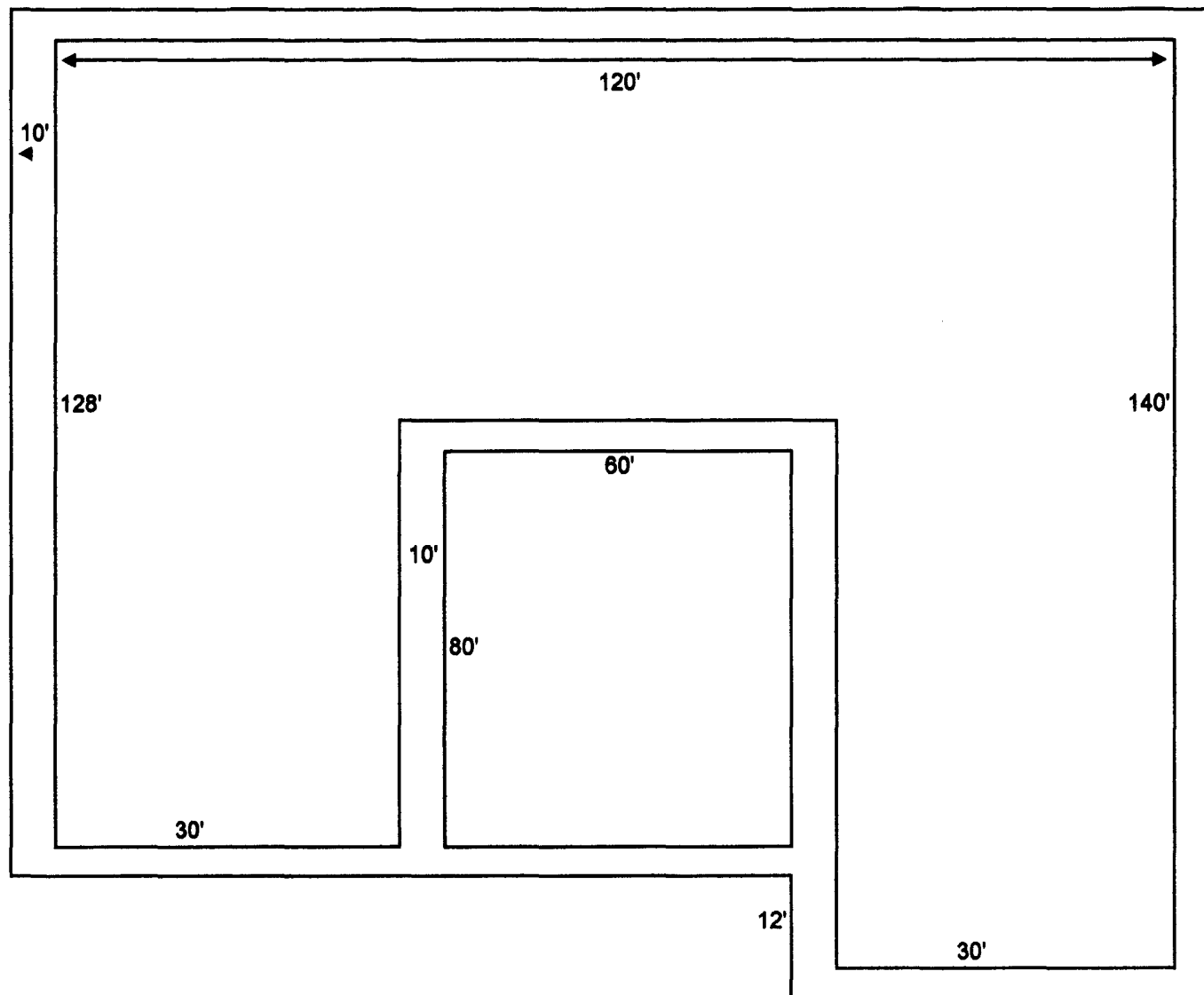
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Survey Date: 11-15-2004

Sheet 1 of 1 Sheets







Not to Scale

