

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
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 GUSMAN PERMIAN, L.L.C 601 N. MARIENFELD, SUITE 508 MIDLAND, TEXAS 79701		⁴ OGRID Number 155615
³ Property Name KURGAN STATE		⁵ API Number 30 - 015 -33741
² Property Code 34448	⁶ Well No. 1	

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
A	16	21-S	27-E		660'	NORTH	660'	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
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⁹ Proposed Pool 1

BURTON FLAT (MORROW) 73280

¹⁰ Proposed Pool 2

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
A	16	21-S	27-E		660'	NORTH	660'	EAST	EDDY
Depth to ground water 100' TO 150'			Distance from nearest fresh water well MORE THAN 1000'			Distance from nearest surface water MORE THAN 1000'			
¹¹ Work Type Code N		¹² Well Type Code G		¹³ Cable/Rotary ROTARY		¹⁴ Lease Type Code P		¹⁵ Ground Level Elevation 3279'	
¹⁶ Multiple NO		¹⁷ Proposed Depth 12,000'		¹⁸ Formation MORROW		¹⁹ Contractor PATTERSON		²⁰ Spud Date +/- 01/15/05	

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#	400'	450 SX	CIRC. TO SURFACE
12-1/4"	9-5/8"	40#	3000'	1200 SX	CIRC. TO SURFACE
8-3/4"	5-1/2"	17# & 20#	12,000'	1000 SX	TOC +/-4,000'

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 12,000'.
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 NMOC 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: 01/04/05

Phone: (432) 682-4429

OIL CONSERVATION DIVISION

Approved by:

TIM W. GUM
DISTRICT II SUPERVISOR

Title:

Approval Date: JAN 10 2005

Expiration Date: JAN 10 2006

Conditions of Approval:

Attached ☐

DISTRICT IV
2040 South Pacheco, Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-102
Revised March 17, 1999

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

OIL CONSERVATION DIVISION

2040 South Pacheco
Santa Fe, New Mexico 87504-2088

□ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number		Pool Code	Pool Name
Property Code	Property Name KURGAN STATE		Well Number 1
OGRID No.	Operator Name NADEL AND GUSSMAN PERMIAN		Elevation 3279'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	16	21 S	27 E		660	NORTH	660	EAST	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.					

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 the information contained herein is true and complete to the best of my knowledge and belief.

Signature

Josh Fernau

Printed Name

Staff Engineer

Title

01/04/05

Date

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.

December 14, 2004

Date Surveyed

Signature & Seal of
Professional Surveyor

Certificate No. 7977

JLP

BASIN-SURVEYS

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

RECEIVED
JAN 07 2005
OGB-ARTESIA

01/04/05

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

Re: Kurgan State #1
660' FNL, 660' FEL
Unit Letter A, Sec. 16-T21S-R27E
Eddy, NM

Application for Permit to Drill

Dear Mr. Arrant,

The Kurgan State #1 has already been approved and an API # given, but the BLM moved the location to 660' from the North Line and 660' from the East Line. The delta between the old location and the new location is only 130 feet due north. Attached you will find an original and 5 copies of an approved C-101, approved C-144, new C-101, new C-102, new C-144, H2S contingency letter, blowout preventer requirements, mud program, plats, maps, rig plat and reserve pit diagram for the referenced well. Drilling operations are scheduled to begin approximately on 01/15/05. (This document was resent per Tim Gums request.)

Please contact me if you have any additional questions.

Sincerely,



Josh Fernau
Staff Engineer

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

01/04/05

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

Re: Kurgan State #1
660' FNL, 660' FEL
Unit Letter A, Sec. 16-T21S-R27E
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.

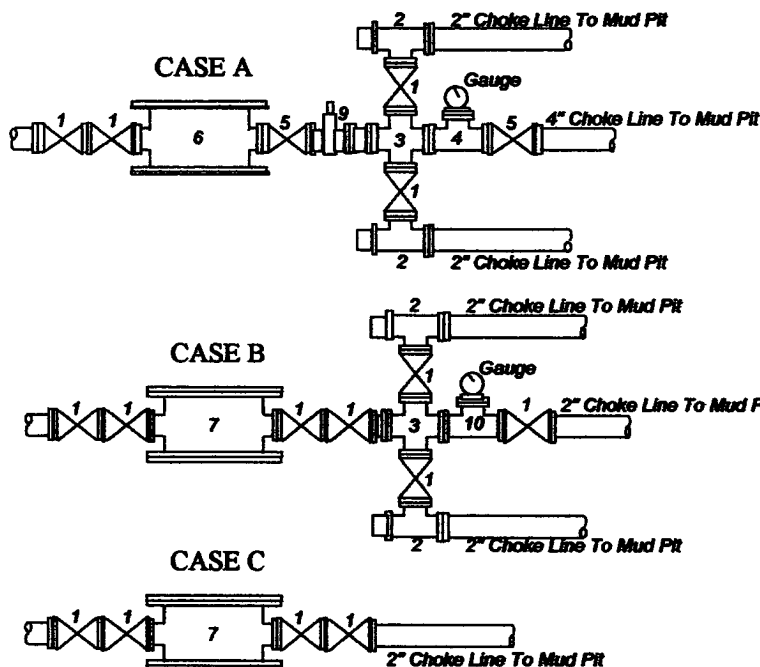
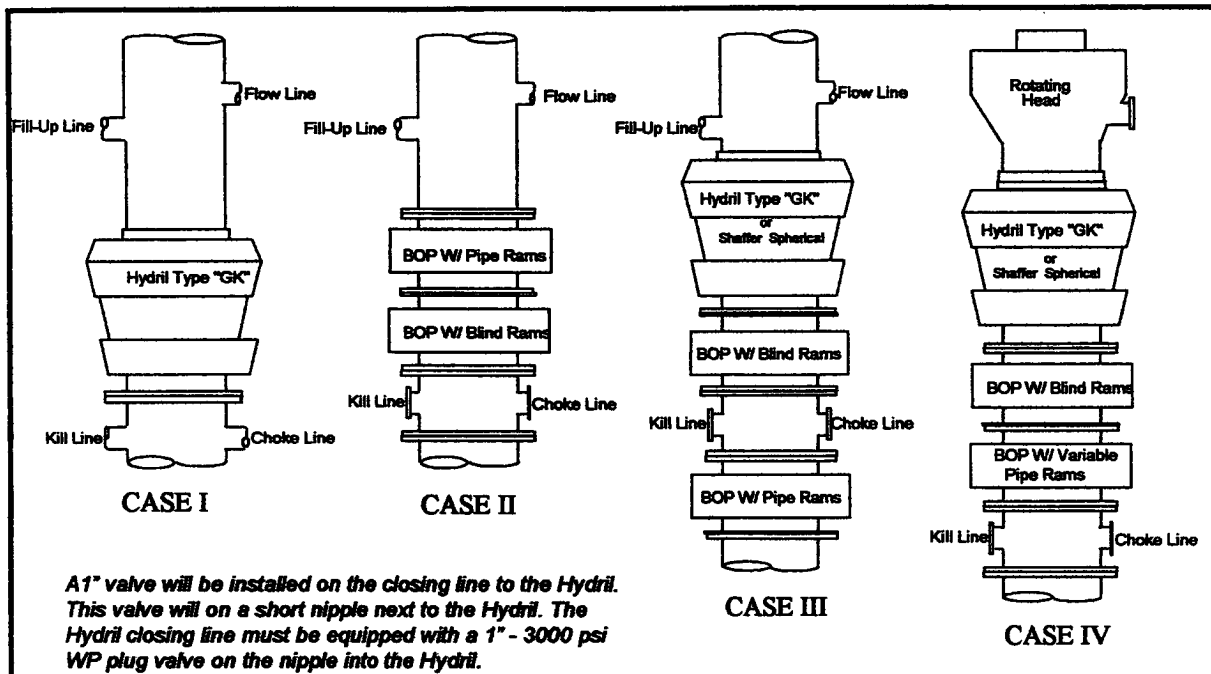
Please contact me if you have any additional questions.

Sincerely,



Josh Fernau
Staff Engineer

Nadel and Gussman Permian Kurgan State #1 MINIMUM BLOWOUT PREVENTER REQUIREMENTS



BOP SIZE	BOP CASE	WORKING PRESSURE	CHOKE CASE
13 1/2"	III	5000 #	A
11"	II	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	2,300'
8 3/4"	Open Hole	to	12,000'

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'	8.6- 8.7	32-34	No Control
Set 13 3/8" Surface Casing at 400'. Drill out with Fresh Water.			
500'	8.3- 8.4	28-29	No Control
1,000'	8.3- 8.4	28-29	No Control
1,800'	8.3- 8.4	28-29	No Control
2,300'	8.3- 8.4	28-29	No Control
Set 9 5/8" Intermediate Casing at 2,300'. Drill out with Fresh Water.			
2,400'	8.3- 8.4	28-29	No Control
4,000'	8.3- 8.4	28-29	No Control
5,000'	8.3- 8.4	28-29	No Control
6,500'	8.3- 8.4	28-29	No Control
8,000'	8.3- 8.4	28-29	No Control
8,700'	9.4- 9.5	28-29	No Control
9,500'	9.5- 9.6	28-29	No Control
10,000'	9.8-10.1	32-36	<20-22

10,500'	9.8-10.5	32-34	<10
11,000'	9.8-10.5	45-48	<8
12,000'	9.8-10.5	45-48	<8

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'-2,300'

Drill out from under the surface casing with fresh water, circulating through the reserve pit to allow maximum time for settling drilled-solids. Severe lost circulation is also common 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 circulation can not be regained after one or two attempts, we recommend blind drilling to total depth.

Attention should be paid to the possibility of crooked hole problems in this general 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– 2,300'-12,000'

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-55) can be used to aid in dropping solids, providing a clear fluid and maximum penetration rates.

Utilize DCS Surfactant to increase the penetration rate.

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 remove fine solids below 2 micron in size for the mud.
- ⇒ **One 1,000 sack Barite Bin**

⇒ **Pit Volume Totalizers** – To more accurately monitor pit gains and losses.

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

As drilling progresses post 4,000', 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 **Bone Springs** may require alternative methods of combating losses, such as:

⇒ **Heavy bentonite pills**

⇒ **Diesel/Loloss pills**

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

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

By a depth of 8,700' or the top of the **Wolfcamp**, we recommend returning to the working pits and displacing with cut brine weighing 9.4-9.5 ppg. Close attention should be paid to the possibility of abnormal pressure in the **Wolfcamp** and **Canyon** formations.

By 10,000' or the top of the **Strawn**, we recommend returning to the working pits and mudding up with a **White Starch/MF-55/Starpac II** system to achieve the following properties:

Mud Weight	9.8 – 10.1
Viscosity	32 – 36
Fluid Loss	<10

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 – 11.0 ppg to control formation pressure. It may be possible to avoid increasing the weight of the entire system by spotting heavy pills on bottom for trips. Pretreat the system with a silicone based **Defoamer** to avoid problems should gas be encountered.

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.

Several wells in this immediate area have had shale problems that resulted in stuck pipe.

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 XCD POLYMER

At 11,000' or the top of the Morrow, we recommend increasing the concentration of XCD Polymer to 1 3/4 to 2 ppb to achieve low shear-rate viscosity (LSRV). This concentration of XCD 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.

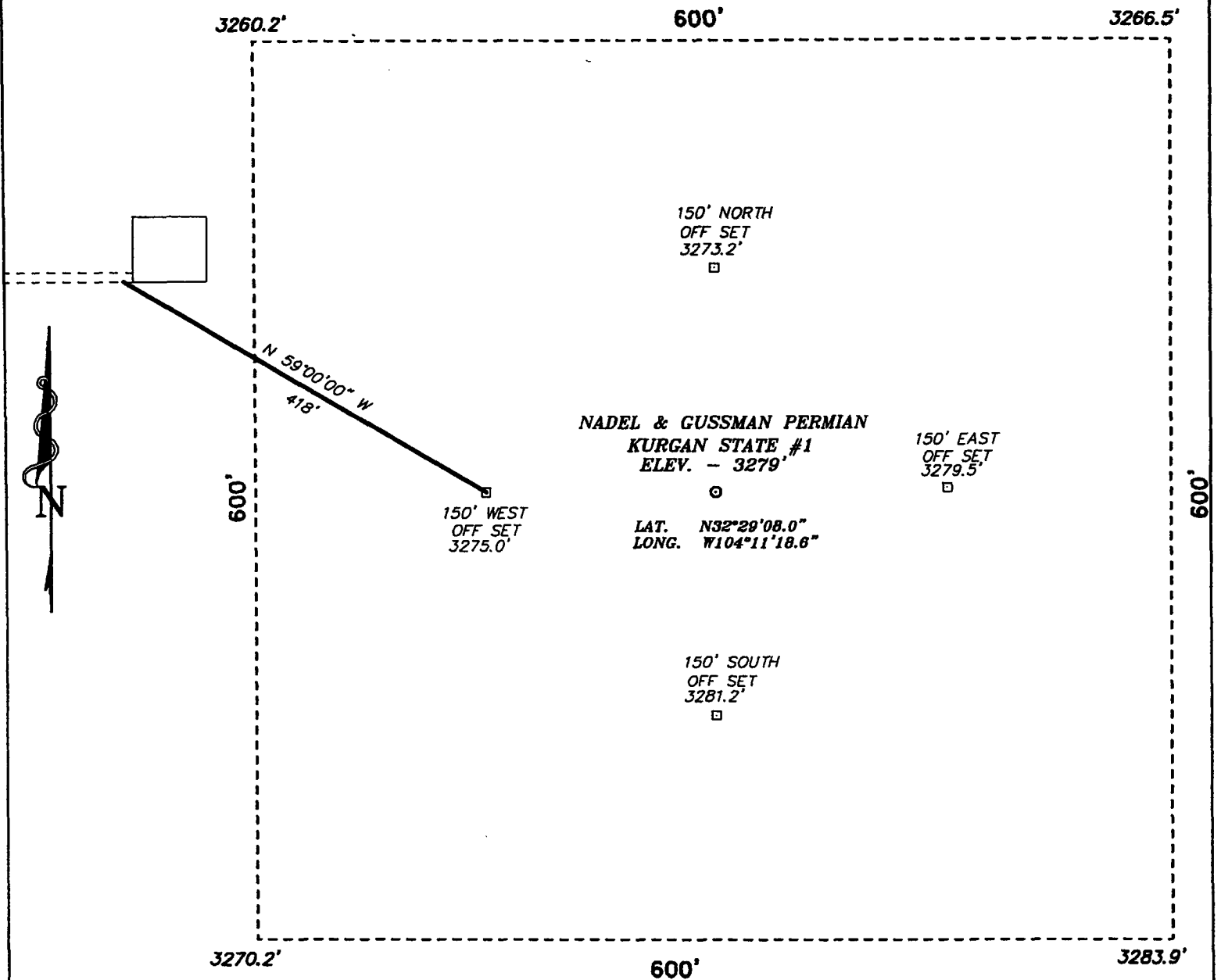
Also, add .5% Calcium Carbonate to further reduce fluid migration by plugging micro-fractures. These combined properties will reduce the initial spurt loss at the well-bore wall.

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.

We also recommend lowering the fluid loss to <8 cc's.

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 16, TOWNSHIP 21 SOUTH, RANGE 27 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO.**



100 0 100 200 FEET

SCALE: 1" = 100'

Directions to Location:

FROM THE JUNCTION OF CO. RD. 600 AND ILLINOIS
CAMP ROAD GO EAST 1.9 MILES TO LEASE ROAD
SOUTH, THEN SOUTH 0.6 MILES., THEN EAST 0.2
MILES TO PROPOSED ROAD.

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

W.O. Number: 4931

Drawn By: JAMES PRESLEY

Date: 12/15/04

Disk: JLP #1 - 4931A

NADEL AND GUSSMAN PERMIAN

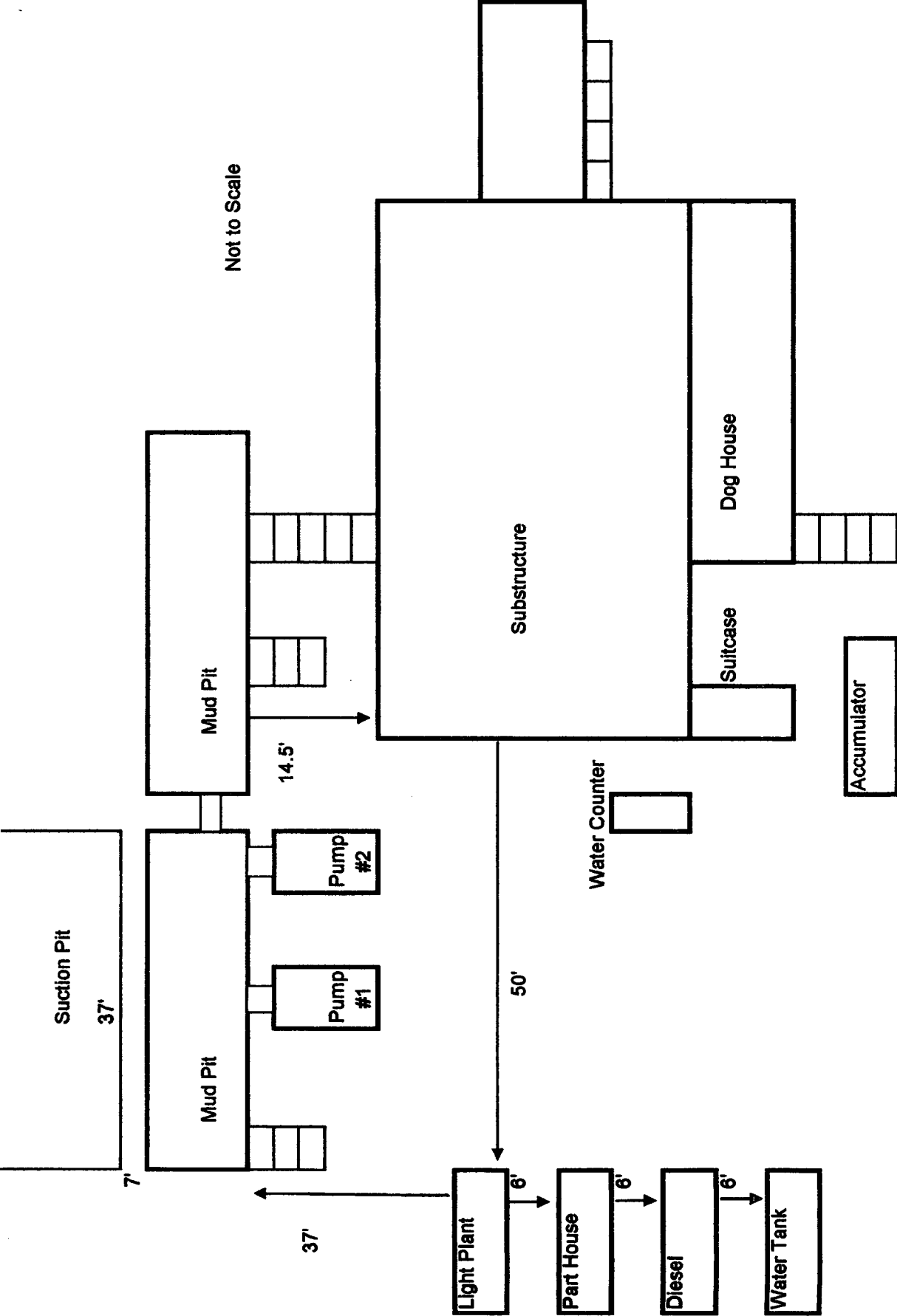
REF: KURGAN STATE #1 / Well Pad Topo

KUAGAN STATE #1 LOCATED 660' FROM THE
NORTH LINE AND 660' FROM THE EAST LINE OF
SECTION 16, TOWNSHIP 21 SOUTH, RANGE 27 EAST,
N.M.P.M., EDDY COUNTY, NEW MEXICO.

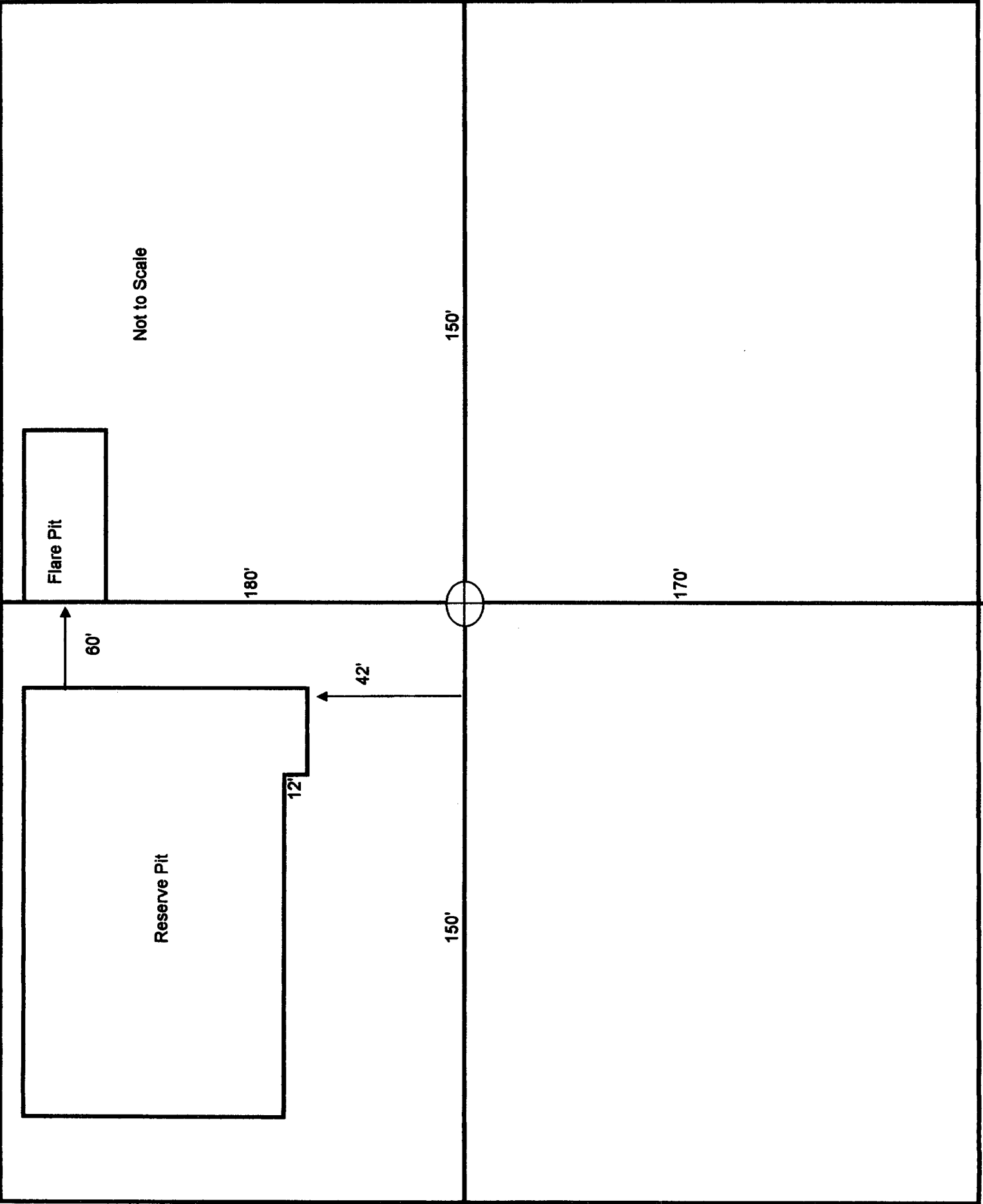
Survey Date: 12/14/04

Sheet 1 of 1 Sheets

**NADEL AND
GUSSMAN PERMIAN,
L.L.C.**



Not to Scale



Not to Scale

Flare Pit

Reserve Pit

60'

12'

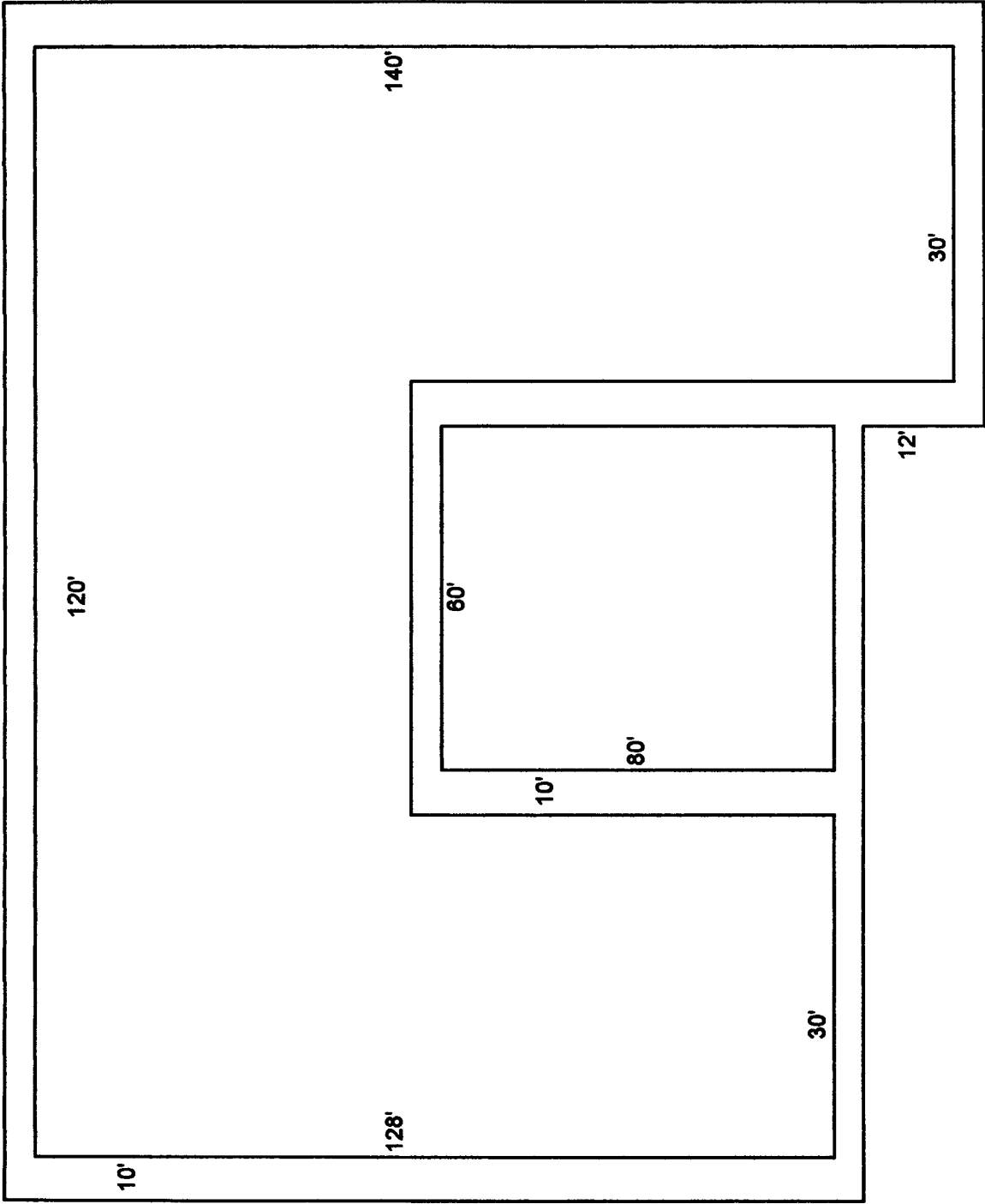
42'

180'

150'

150'

170'



Not to Scale

