

District I  
PO Box 1980, Hobbs, NM 88241-1980  
District II  
PO Drawer DD, Artesia, NM 88211-0719  
District III  
1000 Rio Brazos Rd., Aztec, NM 87410  
District IV  
PO Box 2088, Santa Fe, NM 87504-2088

State of New Mexico  
Energy, Minerals & Natural Resources Department

RECEIVED  
MAR 17 1995  
OIL CONSERVATION DIVISION  
DIST. 3

Form C-101  
Revised February 10, 1994  
Instructions on back  
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

Operator Name and Address. NORTHWEST PIPELINE CORPORATION c/o Walsh Engr. & Prod. Corp. 7415 E. Main Farmington, New Mexico 87402		505 327-4892	OGRID Number 16189
Property Code 008480		Property Name Rosa Unit	API Number 30-039-25493
		Well No. 148	

7 Surface Location

UL or lot no.	Section	Township	Range	Lot Ida	Feet from the	North/South line	Feet from the	East/West line	County
O	2	31N	6W		445	South	2460	East	Rio Arriba

8 Proposed Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Ida	Feet from the	North/South line	Feet from the	East/West line	County
72319		BLANCO MESA VERDE	5/356.26		71599	BASIN DAKOTA	5/356.26		

Work Type Code N	Well Type Code M	Cable/Rotary R	Lease Type Code S	Ground Level Elevation 6326'
Multiple Y	Proposed Depth 8090'	Formation Dakota	Contractor N/A	Spud Date 5/15/95

21 Proposed Casing and Cement Program

Hole Size	Casing Size	Casing weight/foot	Setting Depth	Sacks of Cement	Estimated TOC
13-3/4"	10-3/4"	32.75	500'	340 (405 cuft)	Surface
9-7/8"	7-5/8"	26.4	3595'	840 (1513 cuft)	Surface
6-3/4"	5-1/2"	17.0	8090'	440 (617 cuft)	3495

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.

NORTHWEST PIPELINE proposes to drill a vertical well to develop the Dakota and Mesa Verde formations at the above described location in accordance with the attached drilling plan. After surface pipe is set, a 3000# BOP will be installed for the remainder of the well. Please refer to the attached BOP and Choke Manifold Diagrams.

I hereby certify that the information given above is true and complete to the best of my knowledge and belief.

Signature: *Paul C. Thompson*

Printed name: Paul C. Thompson, P.E.

Title: Agent

Date: 3/16/95

Phone: 505 327-4892

OIL CONSERVATION DIVISION

Approved by: *Ernie Busch* 3-20-95

Title: DEPUTY OIL & GAS INSPECTOR, DIST. #3

Approval Date: MAR 20 1995 Expiration: MAR 20 1996

Conditions of Approval: Held C-109 For NSL  
Attached ☐

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☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-039-25493		Pool Code 72319	Pool Name BLANCO MESA VERDE
Property Code 008400	Property Name Rosa Unit Com		Well Number 148
OGRID No. 16189	Operator Name Northwest Pipeline Production		Elevation 6326'

10 Surface Location

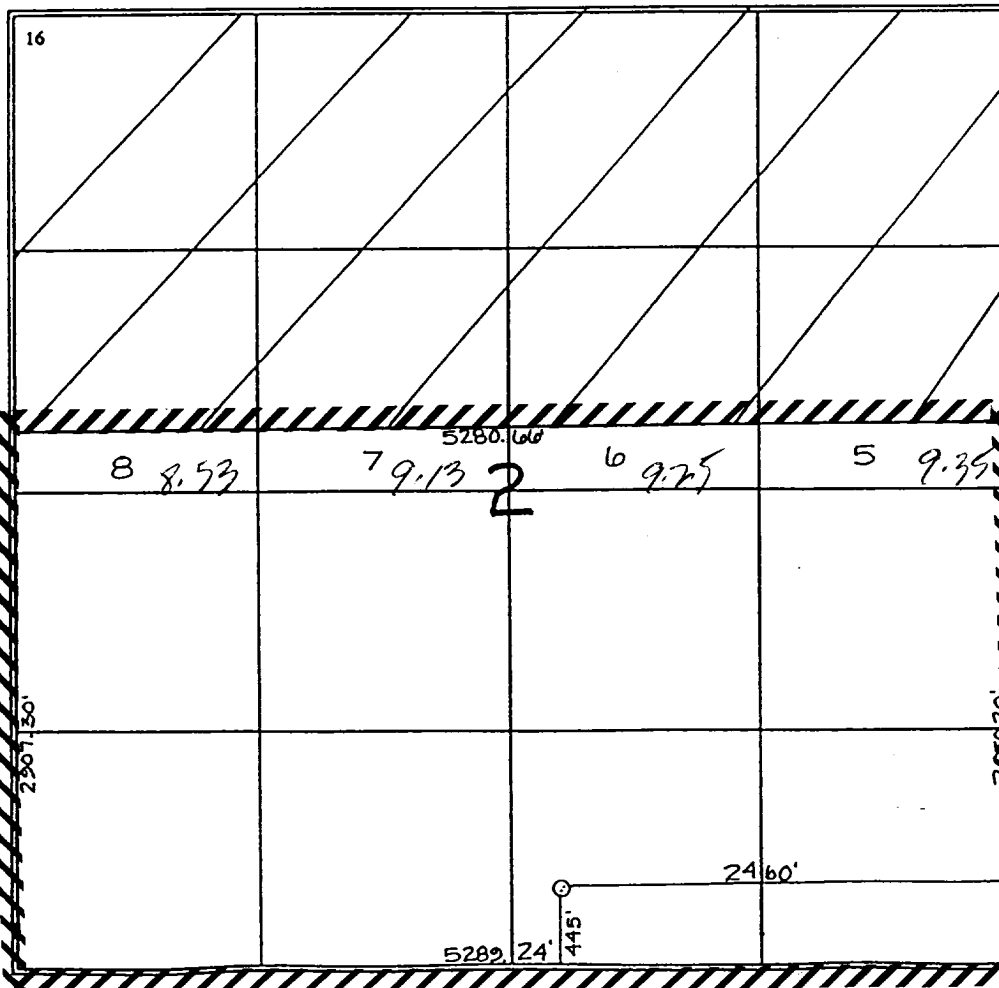
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
0	2	31 N	6 W		445	South	2460	East	R.A.

11 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 356.26	Joint or Infill Y	Consolidation Code U	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



17 OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief

Paul C. Thompson  
Signature  
Paul C. Thompson, PE (AGENT)  
Printed Name President  
Walsh Engr. & Prod. Corp.  
Title  
3/16/95  
Date

18 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.

3-14-95  
Date of Survey  
Signature and Professional Engineer  
NEALE C. EDWARDS  
8857  
Certificate Number

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### WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number <u>30-039-25493</u>		Pool Code 71599	Pool Name BASIN DAKOTA
Property Code 008400	Property Name Rosa Unit Com		Well Number 148
OGRID No. 16189	Operator Name Northwest Pipeline Production		Elevation 6326'

#### 10 Surface Location

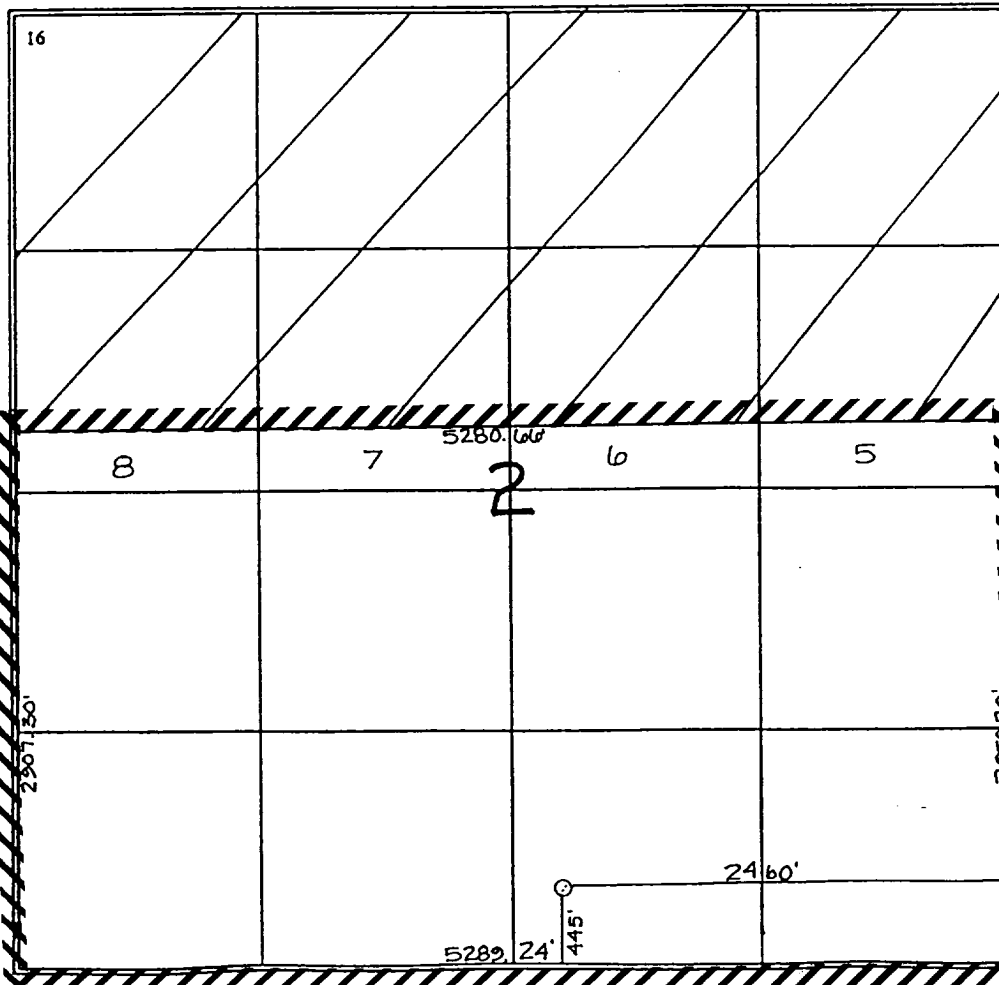
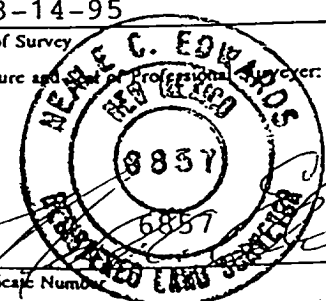
UL or lot no. O	Section 2	Township 31 N	Range 6 W	Lot Ida	Feet from the 445	North/South line South	Feet from the 2460	East/West line East	County R.A.
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#### 11 Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Ida	Feet from the	North/South line	Feet from the	East/West line	County
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Dedicated Acres 5/ 356.2	Joint or Infill Y	Consolidation Code U	Order No.
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OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

	<b>17 OPERATOR CERTIFICATION</b> I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.  <u>Paul C. Thompson</u> Signature Paul C. Thompson, PE (Agent) Printed Name President Walsh Engr. & Prod. Corp. Title 3/16/95 Date
	<b>18 SURVEYOR CERTIFICATION</b> 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.  3-14-95 Date of Survey Signature and Seal of Professional Surveyor:  Certificate Number

**NORTHWEST PIPELINE CORPORATION**  
**OPERATIONS PLAN**

**DATE:** 03/15/95

**WELLNAME:** Rosa Unit Com #148

**FIELD:** Blanco MV  
Basin DK

**LOCATION:** SW/4 SE/4 Sec. 2, T31N, R6W  
Rio Arriba Co., NM

**SURFACE:** State

**ELEVATION:** 6338' GR

**MINERALS:** State

**TOTAL DEPTH:** 8090'

**LEASE:** E-289

**I. GEOLOGY:** Surface formation - San Jose

**A. FORMATION TOPS:**

Ojo Alamo	2393'	Point Lookout	5615'
Kirtland	2508'	Mancos	5893'
Fruitland	2843'	Gallup	6758'
Pictured Cliffs	3158'	Greenhorn	7668'
Lewis	3445'	Graneros	7728'
Cliff House	5348'	Dakota	7838'
Menefee	5393'	Total Depth	8090'

**B. LOGGING PROGRAM:** IND/GR, CDL/SNL. Log the Dakota from 8090' to 300' above the top of the Greenhorn and the Mesa Verde from 6000' to 300' above the Cliff House Transition.

**C. NATURAL GAUGES:** Gauge any noticeable increases in gas flow. Gauge well @ 6000' and before TOH for logs at 8090'. Record all gauges in Tour book and on morning reports.

**II. DRILLING:**

**A. MUD PROGRAM:** Included in footage bid.

**B. BOP TESTING:** While drill pipe is in use, the pipe rams will be tested not less than once each day. The blind rams will be tested once each trip. The drum brakes will inspected and tested each tour. All tests and inspections will be recorded in the tour book as to time and results.

**III. MATERIALS:**

**A. CASING PROGRAM:**

<u>CASING TYPE</u>	<u>HOLE SIZE</u>	<u>DEPTH</u>	<u>CASING SIZE</u>	<u>WT. &amp; GRADE</u>
Surface	13-3/4"	500'	10-3/4"	32.75# H-40
Intermediate	9-7/8"	3595'	7-5/8"	26.40# K-55
Production	6-3/4"	8090'	5-1/2"	17.00# N-80

**B. FLOAT EQUIPMENT:**

1. SURFACE CASING: 10-3/4" notched regular pattern guide shoe.
2. INTERMEDIATE CASING: 7-5/8" cement nose guide shoe with a self- fill insert float. Place float one(1) joint above the shoe and five(5) centralizers, spaced every other joint, starting with the float collar. Place turbulent centralizers, at 120' intervals, starting at 2508' to the surface. Total centralizers: 5 regular & 21 turbulent.
3. PRODUCTION CASING: 5-1/2" cement nose "whirler" type guide with a float collar on top of bottom joint. Use a 20' shoe joint and place a 20' marker joint on top of the 10th joint.

**C. CEMENTING:**

1. SURFACE: Use 340 sx (405 cu.ft.) of class "B" with 3% CaCl<sub>2</sub> and 1/4# of cello-flake/sk (Yield = 1.19 cu.ft./sk, Weight = 15.6 #/gal.). Use 100% excess to circulate the surface. WOC 12 hours. Test to 1500#.
2. INTERMEDIATE: Lead - 600 sx (1230 cu.ft.) of class "B" 65/35 poz with 8% gel, 2% CaCl<sub>2</sub> and 1/4# cello-flake/sk (Yield = 2.05 cu.ft./sk, Weight = 12.1 #/gal.). Tail - 240 sx (283 cu.ft.) of class "B" with 2% CaCl<sub>2</sub> and 1/4# cello-flake/sk (Yield = 1.18 cu.ft./sk, Weight = 15.6 #/gal.). Use 100% excess in lead to circulate surface and 75% excess in tail to circulate top of Fruitland. Reciprocate pipe while cementing. Total volume = 1513 cu.ft. WOC 12 hours. Precede cement with 40 BBls of gel water (4 sx gel) and 20 BBls scavenger slurry. Run a temperature survey after 8 hours if cement is not circulated. Test to 1500#.
3. PRODUCTION CASING: Lead - 340 sx (473 cu.ft.) of class "B" 50/50 poz with 2% gel, 6-1/4# fine gilsonite/sk, .8% fluid loss (Yield = 1.35 cu.ft./sk, Weight = 13.4 #/gal.). Tail - 100 sx (144 cu.ft.) of class "H" with 35% silica flour, 1/4# cello-flake/sk, 1.0% fluid loss, .4% dispersant (Yield = 1.44 cu.ft./sk, Weight = 16.2 #/gal). Total cement volume = 617 cu.ft. Precede cement with 40 BBLS of chemical wash and 20 BBls scavenger slurry. Use 60% excess to circulate 100' into intermediate casing. Run a temperature survey after 8 hours to determine TOC behind the 5-1/2" casing.

file:#148oppl

  
Mark McCallister  
Sr. Engineer, Production & Drilling

**GENERAL ROSA UNIT DRILLING PLAN**  
Mesa Verde/Dakota

**ROSA UNIT BOUNDARIES:** T31N, R04W: All - Except sections 32-36; T31N, R05W: All - Except sections 1 & 2;  
T31N, R06W: All - Except sections 6,7, 18, 20, 27-36; T32N, R06W: Sections 32-36.

**FORMATION CHARACTERISTICS:**

FORMATION	LITHOLOGY	WATER	GAS	OIL	OVER PRES.	LOST CIRC.
NACIMIENTO	Interbedded shales, siltstones & sandstones	no	no	no	no	no
OJO ALAMO	Sandstone & conglomerates w/ lenses of shales	fresh	no	no	no	no
KIRTLAND	Shale w/ Interbedded sandstones	no	poss.	no	no	no
FRUITLAND	Inter. SS, SltSt, SH & Coals w/ Carb. SS, SltSt, SH	yes	yes	no	poss.	no
PICTURED CLIFFS	Massive Sandstone w/ thin interbedded Shales	poss.	yes	poss.	no	poss.
LEWIS	Shale w/ thin interbedded sandstones & siltstones	no	poss.	no	no	no
CLIFF HOUSE	Transgressive sandstone	poss.	yes	no	no	no
MENEFEE	Sandstones, Carb shales & coal	poss.	yes	no	no	no
POINT LOOKOUT	Regressive coastal barrier sandstone	poss.	yes	poss.	no	yes
MANCOS	Marine shale	no	no	no	no	no
GALLUP	Fine grained regressive sandstone & siltstone	yes	no	no	no	no
GREENHORN	Calcareous shale w/ argillaceous limestone	no	no	no	no	no
GRANEROS	Marine shale	no	no	no	no	no
DAKOTA	Marine SS, Carb SH, Impure coals & Conglomeratic SS	poss.	yes	no	no	no
MORRISON	Fluvial sandstone, lacustrine shales & thin limestone	yes	poss.	no	no	no

**DRILLING**

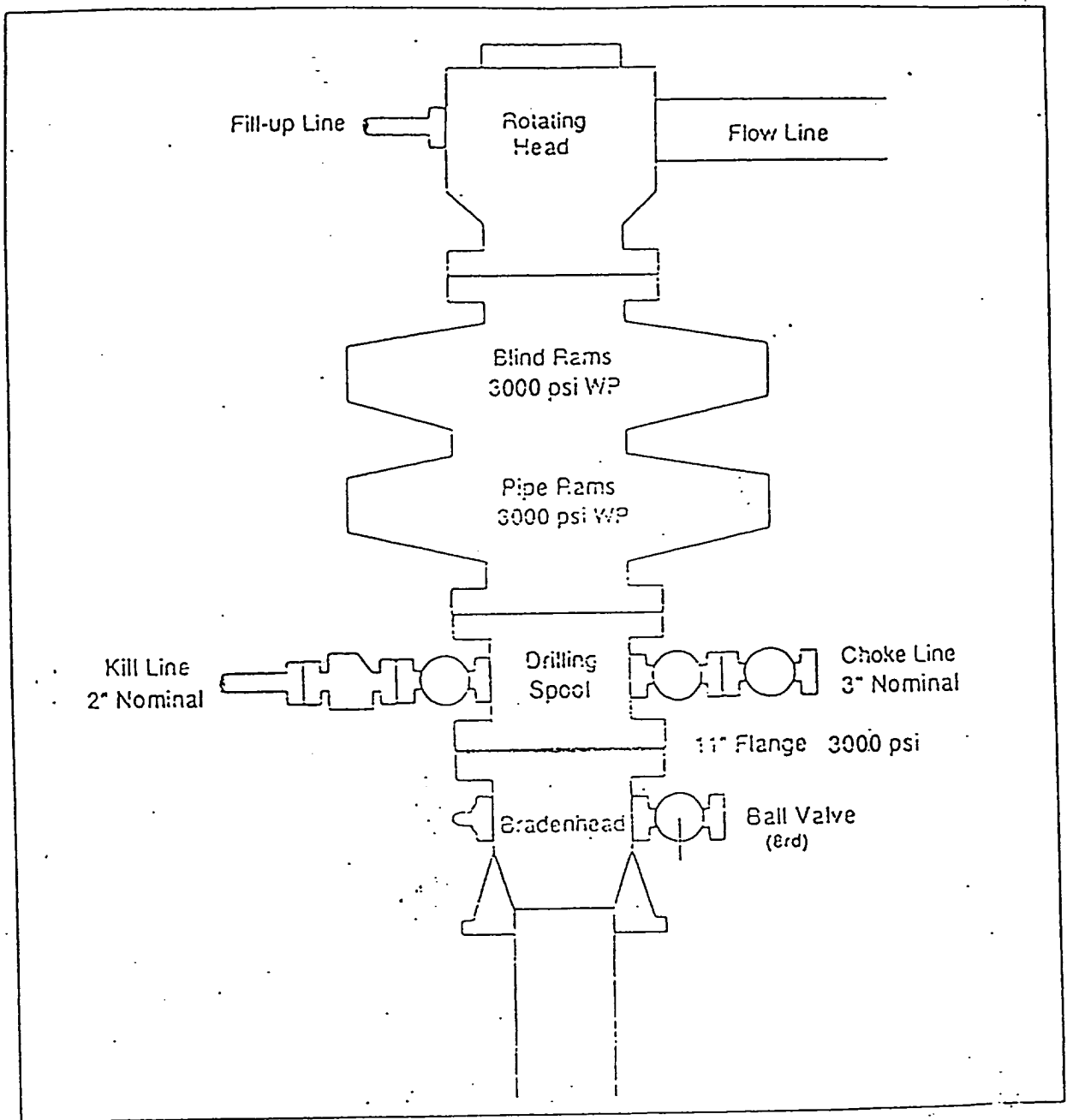
**Potential Hazards**

1. There are no overpressured zones expected in this well.
2. No H2S zones will be penetrated while drilling this well.

**Mud System**

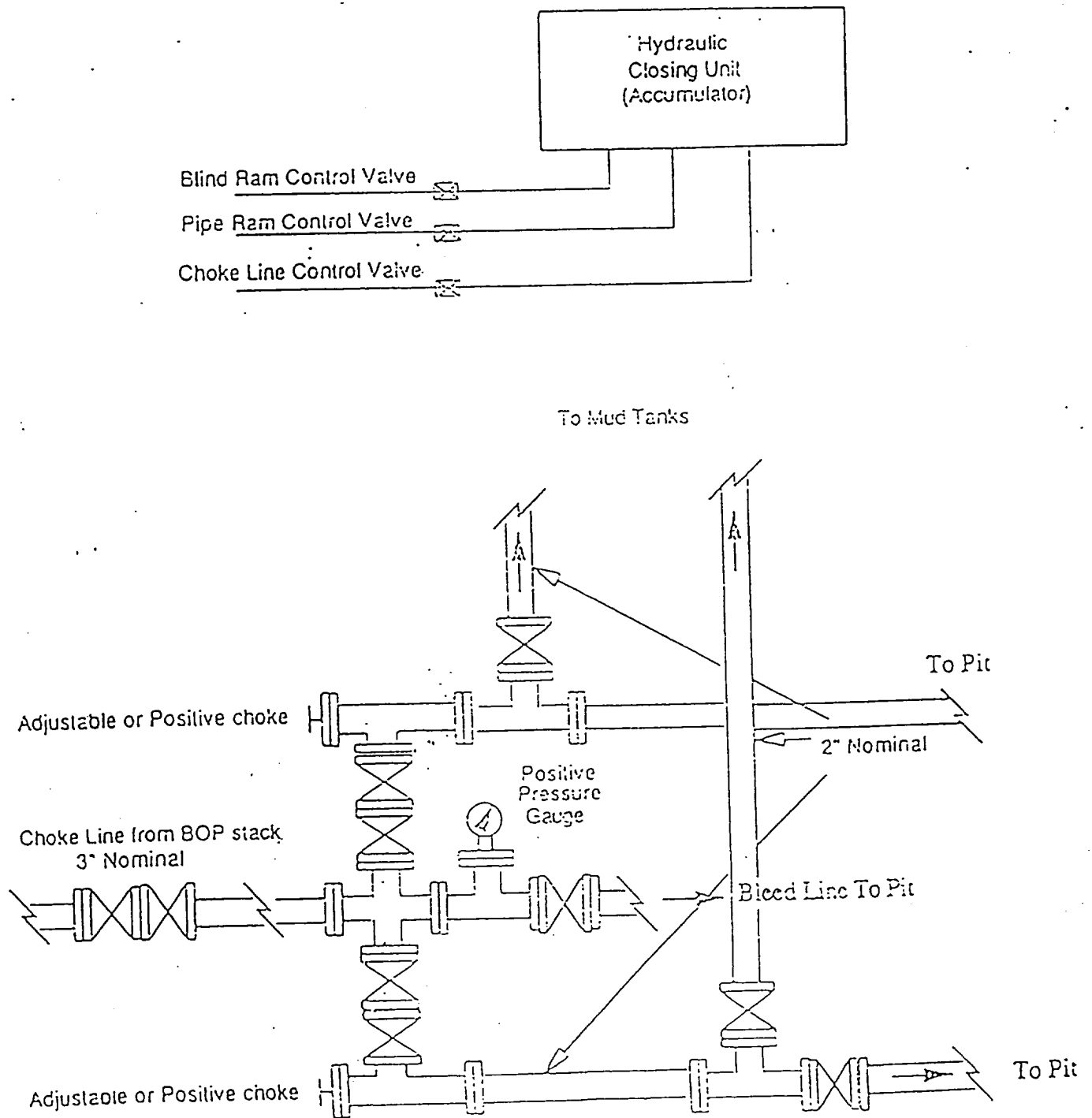
1. Surface: The surface hole will be drilled with a Low-solids Non-Dispersed system with starch and lost circulation material as needed. Expected mud weights will be in the 8.4 to 9.0 #/gal range. Viscosities will be in the 30 to 60 sec/qrt range as needed to remove drill cuttings.
2. Intermediate: The intermediate hole will be drilled with clear water and Benex to TD where the well will be mudded up to log and run casing. The mud system will be Low-solids Non-dispersed with mud weights in the 9 to 10 #/gal range as needed to control the well. Viscosities will be in the 45 to 55 range as needed to support any weight material. The weight material will consist of Barite.
3. Production: The well will be drilled using natural gas from the intermediate casing point to TD.

## BOP STACK ARRANGEMENT

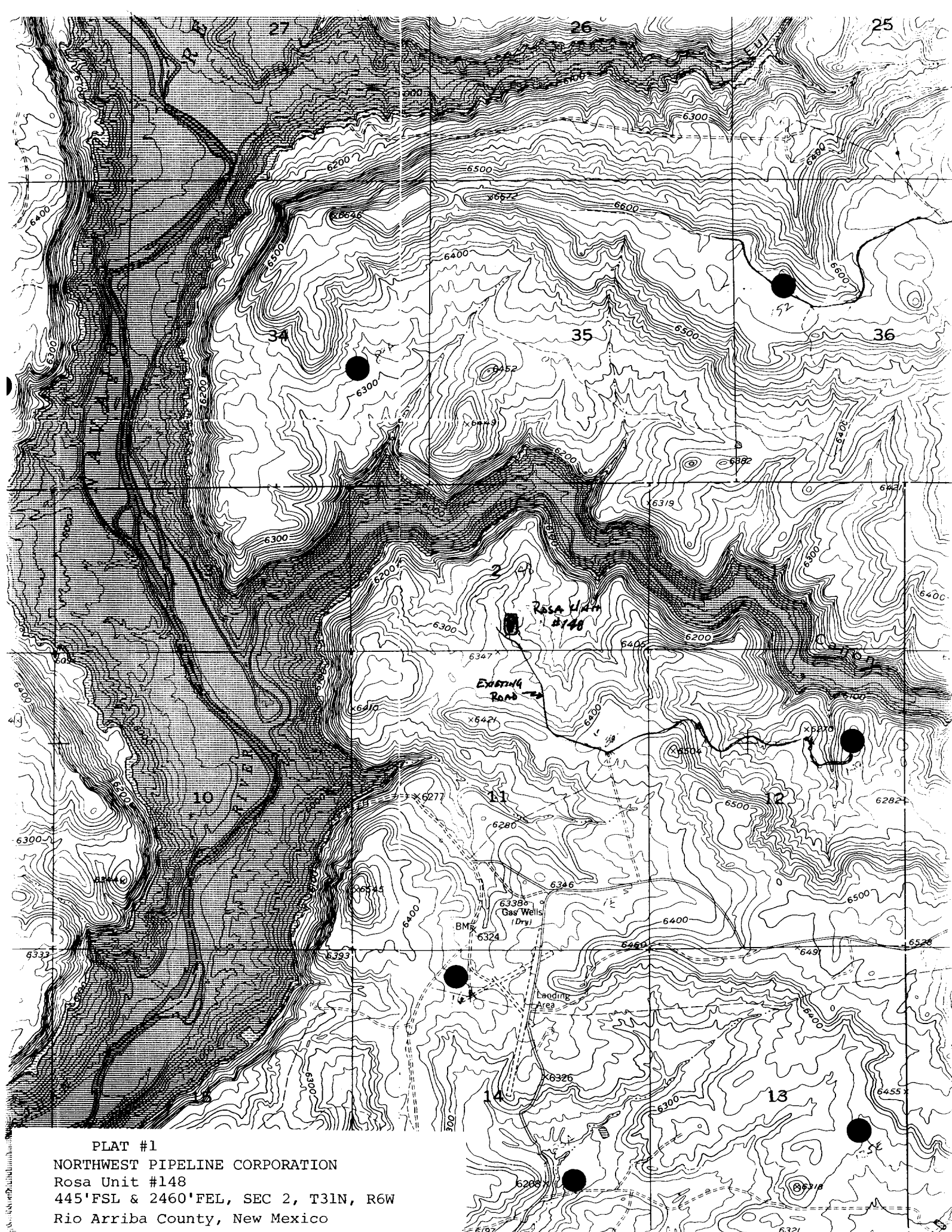


All ram type preventers and related equipment will be hydraulically tested at nipple-up and after any use under pressure to 1500 psi. The blind rams will be hydraulically activated and checked for operational readiness each time pipe is pulled out of the hole. All checks of the BOP stack and equipment will be noted on the daily drilling report. The BOP equipment will include a kelly cock with handle, floor safety valve with change overs for each tool joint in the string, and choke manifold all rated to

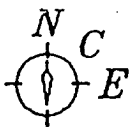
## Choke Manifold & Accumulator Schematic







PLAT #1  
NORTHWEST PIPELINE CORPORATION  
Rosa Unit #148  
445'FSL & 2460'FEL, SEC 2, T31N, R6W  
Rio Arriba County, New Mexico

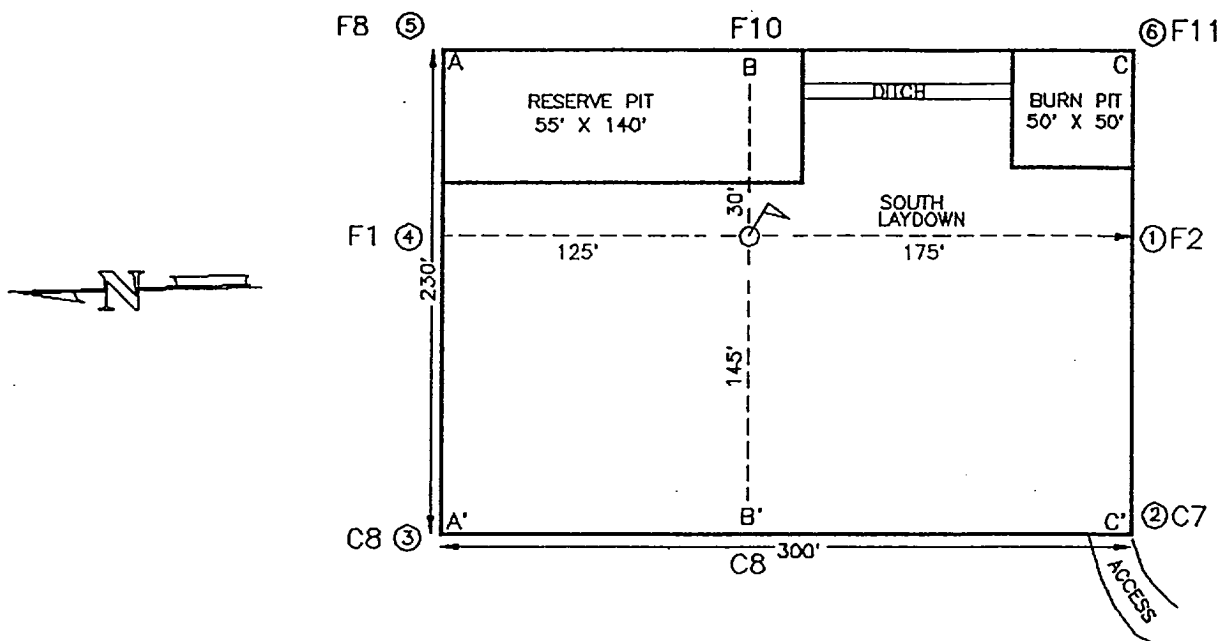


P.O. BOX 6612  
FARMINGTON, NEW MEXICO 87402  
(505) 325-2654

**SURVEYS, INC.**

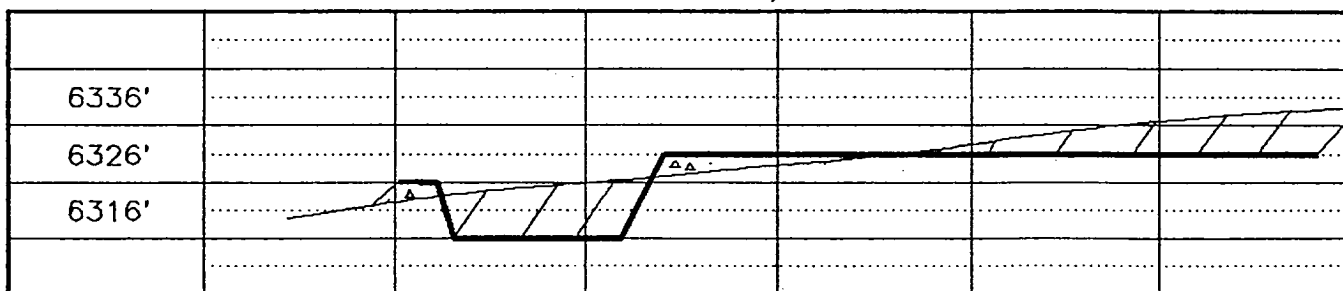
NAME: NW PIPELINE PROD. ROSA UNIT COM #148  
FOOTAGE: 445' FSL 2460' FEL  
SECTION: 2 T 31 N, R 6 W, NMPM  
COUNTY: RIO ARriba STATE: NEW MEXICO  
ELEVATION: 6326' DATE: 3/14/95

PLAT #2



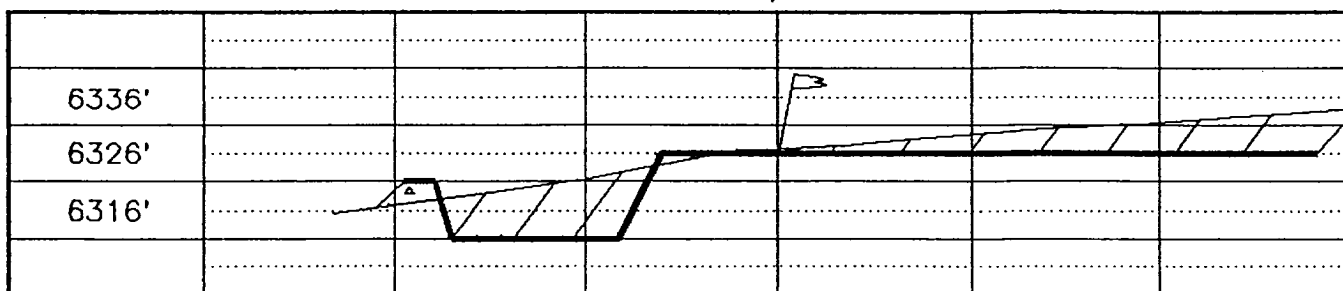
A-A'

C/L



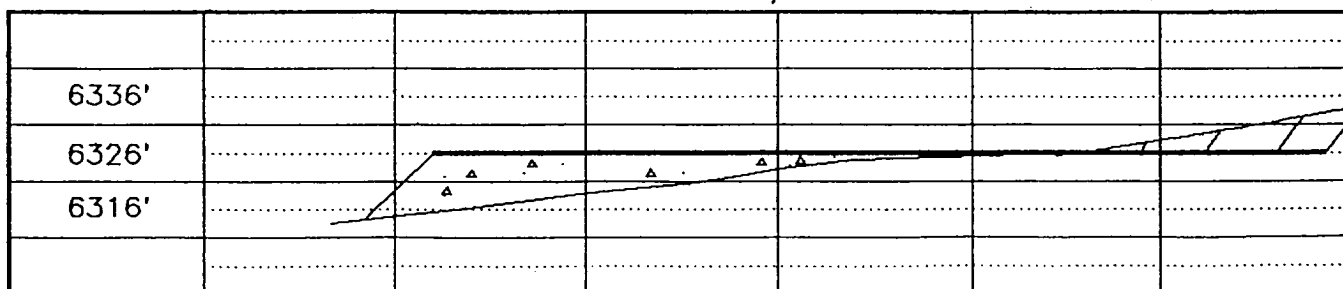
B-B'

C/L



C-C'

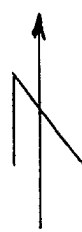
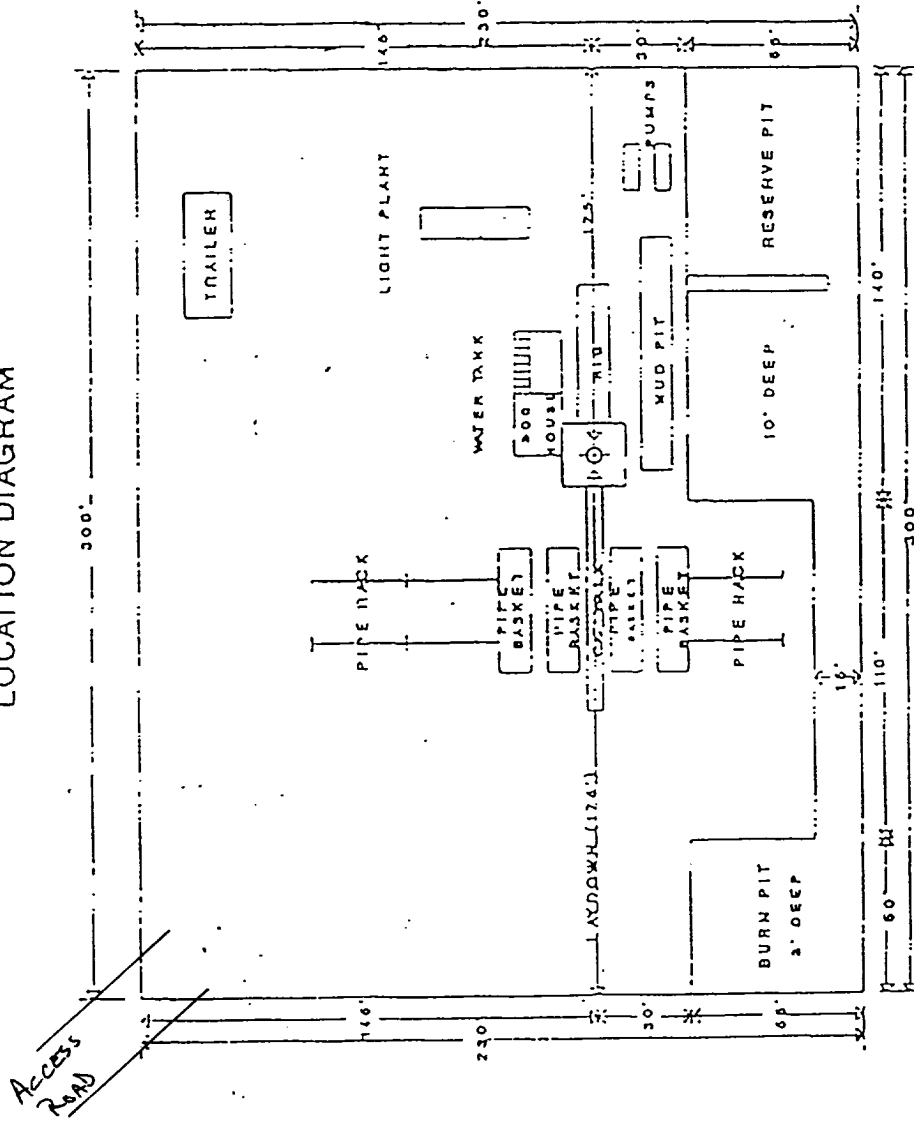
C/L



PLAT #3

# NORTHWEST PIPELINE CORPORATION

## LOCATION DIAGRAM



NORTHWEST PIPELINE CORPORATION

ROSA UNIT #148

445'FSL & 2460'FEL, SEC. 2, T31N, R6W

Rio Arriba County, New Mexico