Form 3160-3
(December 1990)

SUBMIT IN TRIPLICATE*
(Other instructions on reverse side)

Form approved.
Budget Bureau No. 1004-0136
Expires: December 31, 1991

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR DEEPEN

5. LEASE DESIGNATION AND SERIAL NO.: SF-078771

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

7. UNIT AGREEMENT NAME:

1a. TYPE OF WORK: DRILL [X] DEEPEN [ ]

b. TYPE OF WELL: OIL WELL [ ] GAS WELL [X] OTHER — SINGLE ZONE [X] MULTIPLE ZONE [ ]

8. FARM OR LEASE NAME, WELL NO.: (008480 Rosa Unit #20A

2. NAME OF OPERATOR: NORTHWEST PIPELINE CORPORATION OGRID 16189

9. API WELL NO.: 30-039-25495

3. ADDRESS AND TELEPHONE NO.: c/o Walsh Engr. & Prod. Corp. 7415 E. Main Farmington, N.M. 87402 505 327-4892

10. FIELD AND POOL, OR WILDCAT: BLANCO MESA VERDE 72319

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*)
At surface: 995'FSL & 1515'FEL
At proposed prod. zone: Same

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: Sec. 14, T31N, R6W

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*: 25 miles Northeast of Blanco, New Mexico

12. COUNTY OR PARISH: Rio Arriba

13. STATE: N.M.

15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any)	16. NO. OF ACRES IN LEASE	17. NO. OF ACRES ASSIGNED TO THIS WELL
995'	2560	E/320 MV
18. DISTANCE FROM PROPOSED LOCATION* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.	**19. PROPOSED DEPTH**	**20. ROTARY OR CABLE TOOLS**
800'	5920'	Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.): 6203'GR

22. APPROX. DATE WORK WILL START*: April 15, 1995

This action is subject to technical and procedural review pursuant to 43 CFR 3165.3 and appeal pursuant to 43 CFR 3165.4.

DRILLING OPERATIONS AUTHORIZED ARE SUBJECT TO COMPLIANCE WITH ATTACHED "GENERAL REQUIREMENTS"

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	GRADE, SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
12-1/4"	9-5/8", K-55	36.0	250'	161 cuft Cl "B" w/3% CaCl2
8-3/4"	7", K-55	20.0	3485'	830 cuft 65/35 Pos, 189 cuft Cl "B"
6-1/4"	4-1/2", K-55	10.5	3385-5920'	424 cuft Cl "B" w/4% gel & additives

NORTHWEST PIPELINE proposes to drill a vertical well to develop the Mesa Verde formation at the above described site in accordance with the attached drilling and surface use programs.

This location has been archaeologically surveyed by CRMC. Copies of the report will be submitted directly to your office.

This APD also is serving as an application to obtain BLM road right-of-way. The right-of-way will be an existing road crossing the SE/4 of Section 14, T31N, R6W where it connects to the main Rosa Road. The Rosa Road continues in a southwest direction for 13 miles where it connects to the Sims Mesa Highway.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

24

SIGNED Paul C Thompson TITLE Paul C. Thompson, Agent DATE 3/6/95

(This space for Federal or State office use)

RECEIVED
MAR 23 1995

PERMIT NO. _____ APPROVAL DATE _____

APPROVED AS AMENDED
MAR 20 1995
DISTRICT MANAGER

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

CONDITIONS OF APPROVAL, IF ANY:

OIL CON. DIV.
DIST. 3

APPROVED BY _____ TITLE _____ DATE _____

*See Instructions On Reverse Side

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

OIL CONSERVATION DIVISION
PO Box 2088
Santa Fe, NM 87504-2088

Form C-102
Revised February 21, 1994
Instructions on back
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1] API Number	[2] Pool Code	[3] Pool Name
	72319	BLANCO MESA VERDE

[4] Property Code	[5] Property Name	[6] Well Number
008480	Rosa Unit	020 A

[7] OGRID No.	[8] Operator Name	[9] Elevation
16189	Northwest Pipeline Production	6203'

[10] Surface Location

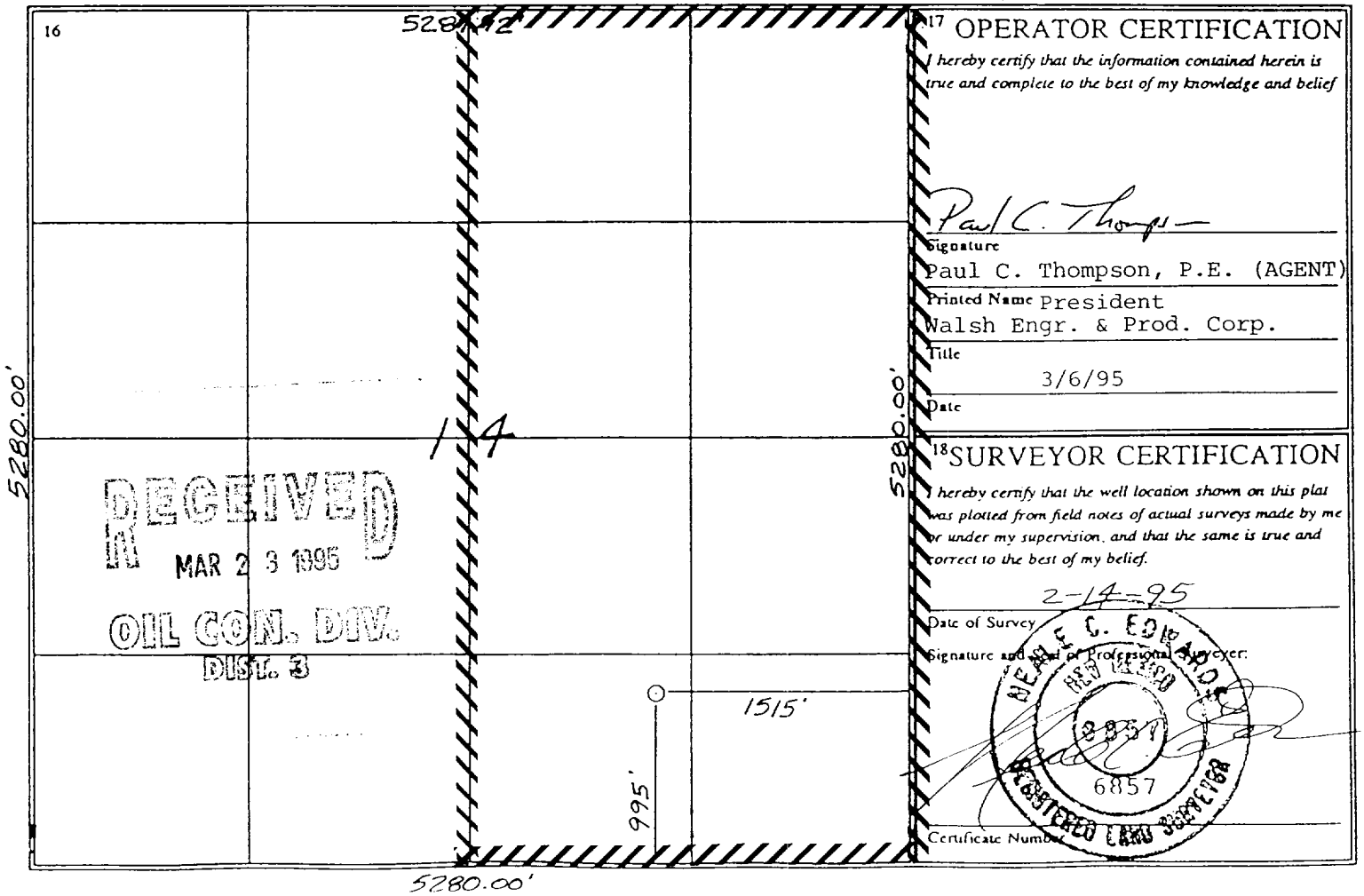
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
O	14	31 N	6 W		995	South	1515	East	Rio Arriba

[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

[12] Dedicated Acres	[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
320	Y	U	

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



RECEIVED
MAR 23 1995
OIL CON. DIV.
DIST. 3

[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, P.E. (AGENT)
Printed Name
President
Walsh Engr. & Prod. Corp.
Title
3/6/95
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.

2-14-95
Date of Survey

Signature and Seal of Professional Surveyor:

NEAL C. EDWARDS
NEW MEXICO
6857
REGISTERED LAND SURVEYOR

Certificate Number

GENERAL ROSA UNIT DRILLING PLAN
Mesa Verde

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

DRILLING

Potential Hazards

1. There are no overpressured zones expected in this well.

2. No H2S zones will be penetrated while drilling this well.

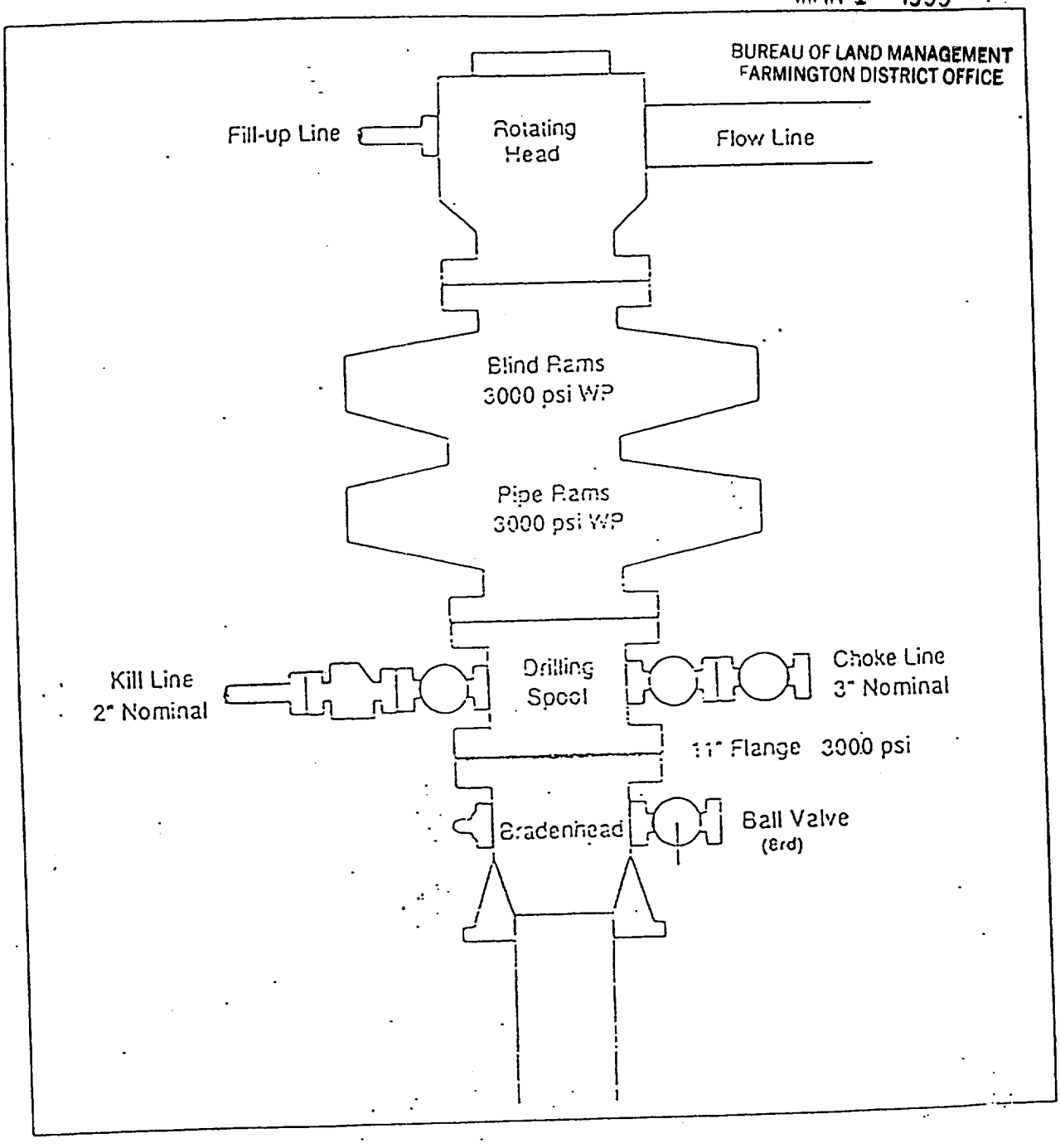
Mud System

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. Viscocities 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

NORTHWEST PIPELINE CORPORATION
OPERATIONS PLAN

DATE:	02/06/95		
WELLNAME:	ROSA UNIT #20A	FIELD:	Blanco MV
LOCATION:	SW/4 SE/4 Sec. 14, T31N, R6W San Juan Co., NM	SURFACE:	BLM
ELEVATION:	6203' GR	MINERALS:	Federal
TOTAL DEPTH:	5920'	LEASE #	SF-078771

I. GEOLOGY: Surface formation - San Jose

A. FORMATION TOPS:

Ojo Alamo	2270'	Cliff House	5245'
Kirtland	2370'	Menefee	5295'
Fruitland	2765'	Point Lookout	5520'
Pictured Cliffs	3030'	Mancos	5790'
Lewis	3335'	Total Depth	5920'

B. LOGGING PROGRAM: IND/GR, CDL/SNL. Log the Pictured Cliffs from TD to the Kirtland. Log the Mesa Verde from TD to 500' above the Cliff House.

C. NATURAL GAUGES: Gauge any noticeable increases in gas flow. Record all gauges in Tour book and on morning reports.

II. DRILLING

A. MUD PROGRAM: Clear water with benex to 7" casing point. LSND to log and run pipe.

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:

CASING TYPE	HOLE SIZE	DEPTH	CASING SIZE	WT. & GRADE
Surface	12-1/4"	250'	9-5/8"	36# K-55
Intermediate	8-3/4"	3485'	7"	20# K-55
Prod. Liner	6-1/4"	3385'-5920'	4-1/2"	10.5# K-55

B. FLOAT EQUIPMENT:

1. SURFACE CASING: 9-5/8" notched regular pattern guide shoe.

2. INTERMEDIATE CASING: 7" 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 2370' to the surface. Total centralizers: 5 regular & 20 turbulent.

3. PRODUCTION CASING: 4-1/2" whirler type cement nose guide shoe with a float collar and an insert float on top of bottom joint.

C. CEMENTING:

1. SURFACE: Use 135 sx (161 cu.ft.) of class "B" with 3% CaCl2 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#.

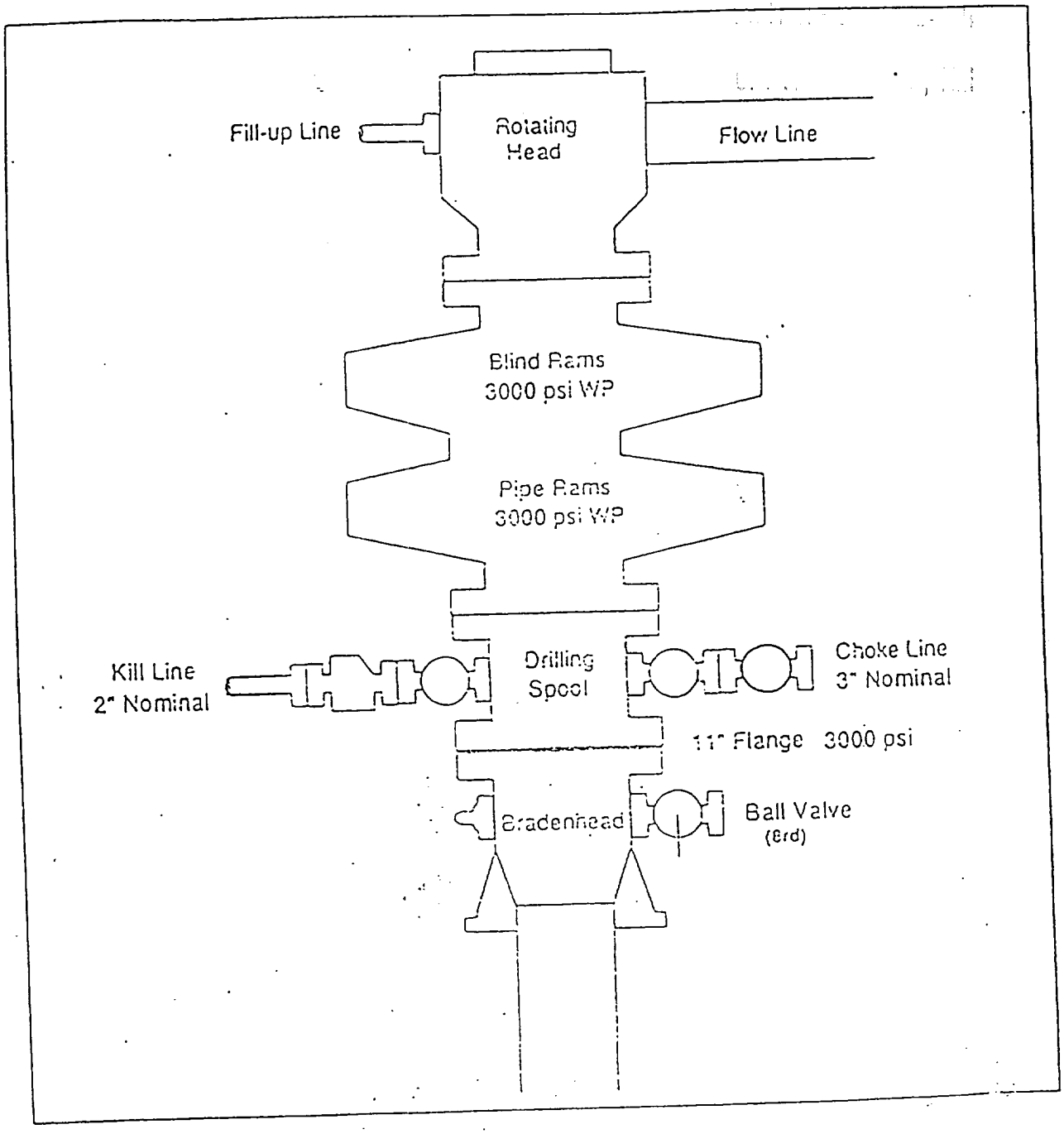
2. INTERMEDIATE: Lead - 405 sx (830 cu.ft.) of class "B" 65/35 poz with 2% CaCl2, 8% gel and 1/4# cello-flake/sk (Yield = 2.05 cu.ft./sk, Weight = 12.1 #/gal.). Tail - 160 sx (189 cu.ft.) of class "B", 1/4# cello-flake/sk and 2% CaCl2 (Yield = 1.18 cu.ft./sk, Weight = 15.6 #/gal.). Use 100% excess in lead to circulate surface and 75% excess in tail to circulate Fruitland. Reciprocate pipe while cementing. Precede cement with 40 BBls gel water and 20 BBls of scavanger slurry. Total volume = 1019 cu.ft. WOC 12 hours. Run a temperature survey after 8 hours if cement is not circulated. Test to 1500#.

3. PRODUCTION LINER: Use 245 sx (424 cu.ft.) of class "B" with 4% gel, 6-1/4# fine gilsonite/sk and CF14 (Yield = 1.73 cu.ft./sk, Weight = 13.5 #/gal.). Displace cement at a minimum of 10 BPM. Use 60% excess to cover liner top. WOC 12 hours. Run a temperature survey after 8 hours if liner top is not circulated. Test to 1500#.

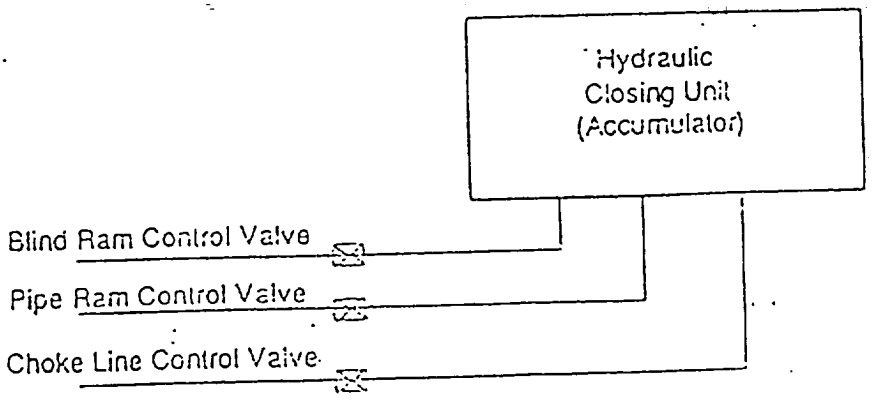
Mark McCallister
Sr. Engineer, Production & Drilling

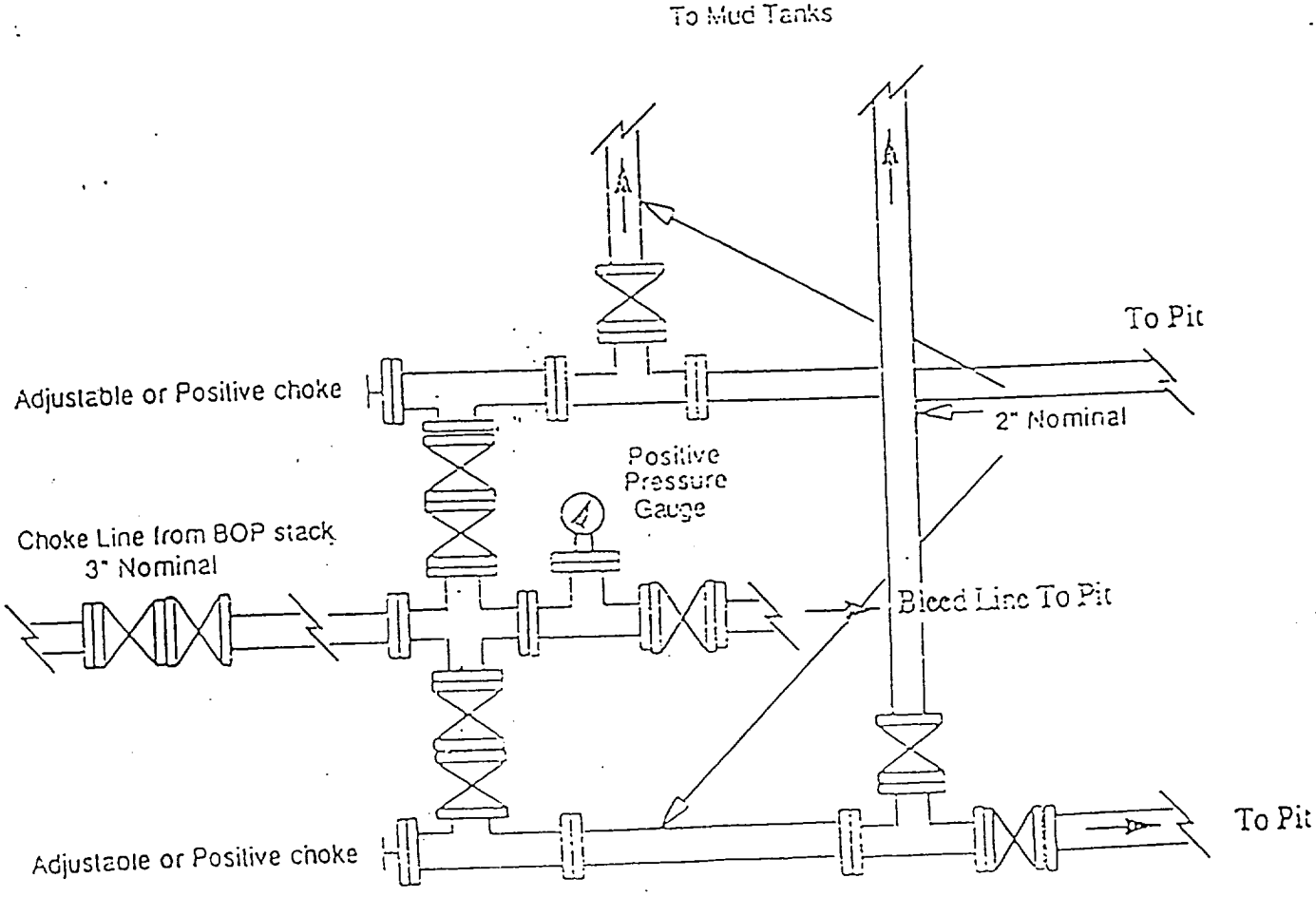
file:#20Aoppl

BOP STACK ARRANGEMENT



Choke Manifold & Accumulator Schematic





MULTI-POINT SURFACE USE PLAN
ROSA UNIT #20A

1. Existing Roads:

All existing roads used to access the proposed location are shown on attached Plat #1 and shall be maintained in the same or better condition than presently found.

2. Planned Access Roads:

Approximately 30' of new access road will be required for this location. The existing access road will be maintained in at least the current condition and will be upgraded where necessary to provide uninterrupted access to the proposed well.

3. Location of Existing Wells:

Attached map shows existing wells within a one mile radius of the proposed wells.

4. Location of Production Facilities:

In the event of production, production facilities will be located on the drill pad. The actual placement of this equipment will be determined when the well's production characteristics can be evaluated after completion.

To protect livestock and wildlife, the reserve pit will be fenced. Any tanks will be enclosed by a dike.

Upon completion of drilling, the location and surrounding area will be cleared of all debris.

5. Water Supply:

Water for drilling and completion operations will be hauled by truck from the La Jara Water Hole (SE Section 11, T30N, R6W).

6. Source of Construction Materials:

No additional construction materials will be required to build the proposed location.

7. Methods for Handling Waste Disposal:

a. The drill cuttings, fluids and completion fluids will be placed in the reserve pit. The reserve pit will be fenced on three sides away from the pad during drilling and the fourth side fenced as soon as the rig moves out. The reserve pit will be allowed to dry, and materials remaining in the reserve pit buried. The reserve pit will be backfilled, leveled and contoured so as to prevent any materials being carried into the watershed. Upon completion, the pad will be leveled, contoured and reseeded with the appropriate seed mixture.

b. All garbage and trash will be placed in a metal trash basket. It will be hauled off and dumped in an approved land fill upon completion of operations.

c. Portable toilets will be provided and maintained during drilling operations. See Plat 3 for location.

8. Ancillary Facilities:

Ancillary facilities are to be based on well productivity.

9. Well Site Layout:

A cross-section of the drill pad with approximate cuts, fills and pad orientation is attached as Plat #2. Location of drilling equipment, rig orientation, and access road approach is also attached as Plat #3.

10. Plans for Restoration of Surface:

When the well is abandoned, the location and access road will be cleaned and restored to the original topographical contours as much as possible. The area will be reseeded with the appropriate seed mixture.

If the well is productive, areas not used in production will be contoured and seeded with stipulated seed mixture. Production equipment will be painted the color designated by the surface managing agency.

11. Surface Ownership:

a. The surface ownership is Bureau of Land Management.

12. Other Information:

Refer to the archaeological report for a description of the topography, flora, fauna, soil characteristics, dwellings, historical and cultural sites.

13. Lessee's or Operator's Representative:

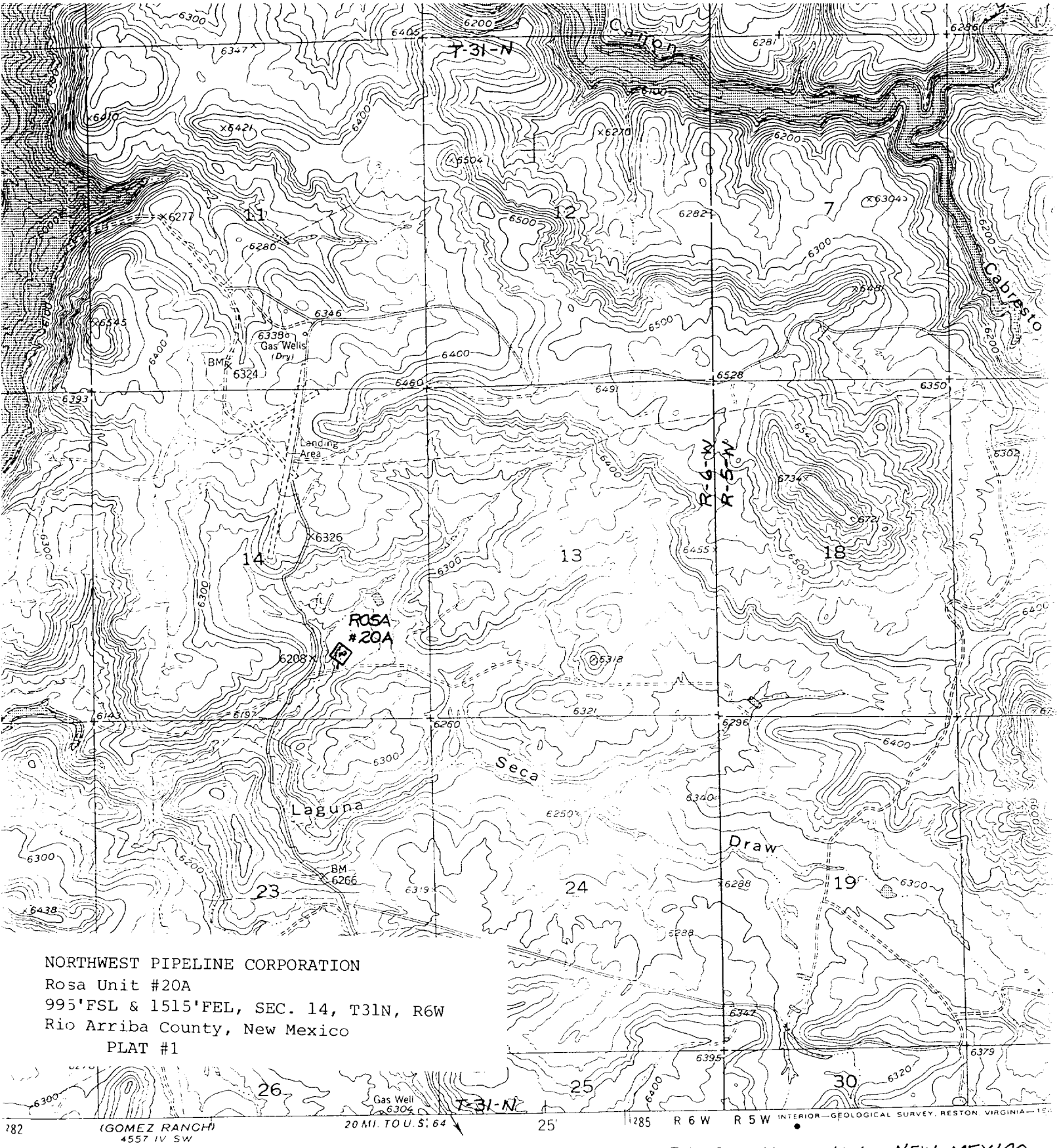
Paul C. Thompson, P.E.
Walsh Engineering & Production Corporation
7415 East Main
Farmington, New Mexico 87402
Phone: 505 327-4892

14. 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 Walsh Engineering and Production Corporation, and its contractors and subcontractors in conformity with this plan and the terms and conditions under which it is approved.

3/8/95
Date

Paul C. Thompson
Paul C. Thompson, P.E.
Walsh Engineering and
Production Corporation



NORTHWEST PIPELINE CORPORATION
Rosa Unit #20A
995'FSL & 1515'FEL, SEC. 14, T31N, R6W
Rio Arriba County, New Mexico
PLAT #1

SCALE 1:24000

1 MILE
1000 2000 3000 4000 5000 6000 7000 FEET
5 0 1 KILOMETER

CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

BANCOS MESA NW, NEW MEXICO
7.5 MIN. USGS QUAD

Light-duty

NEW MEXICO
QUADRANGLE LOCATION

BA

COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS

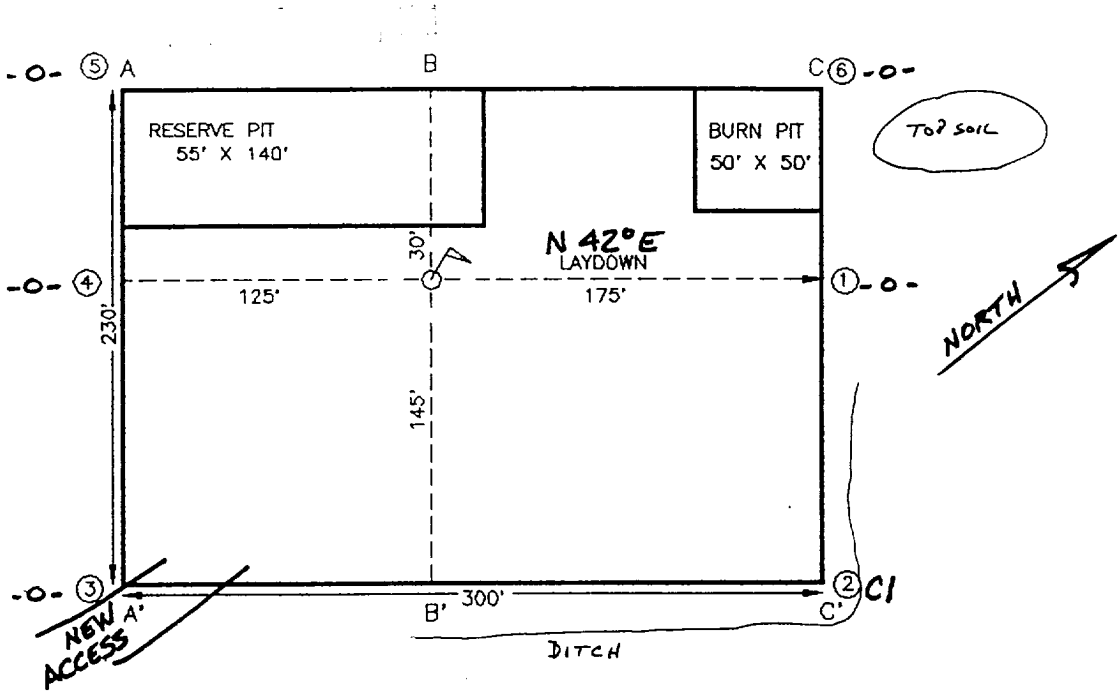
Revisions shown in purple and woodland compiled from

INTERIOR—GEOLOGICAL SURVEY, RESTON, VIRGINIA—19

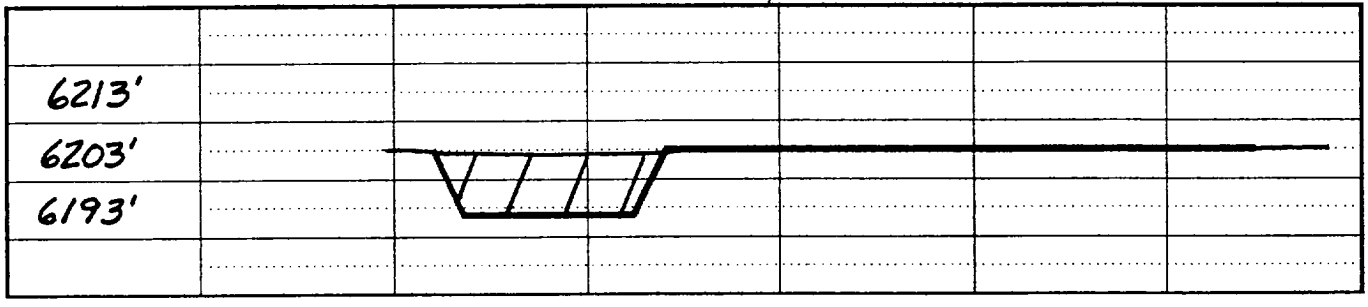
N C E
SURVEYS, INC.
P.O. BOX 6612
FARMINGTON, NEW MEXICO 87402
(505) 325-2654

PLAT #2

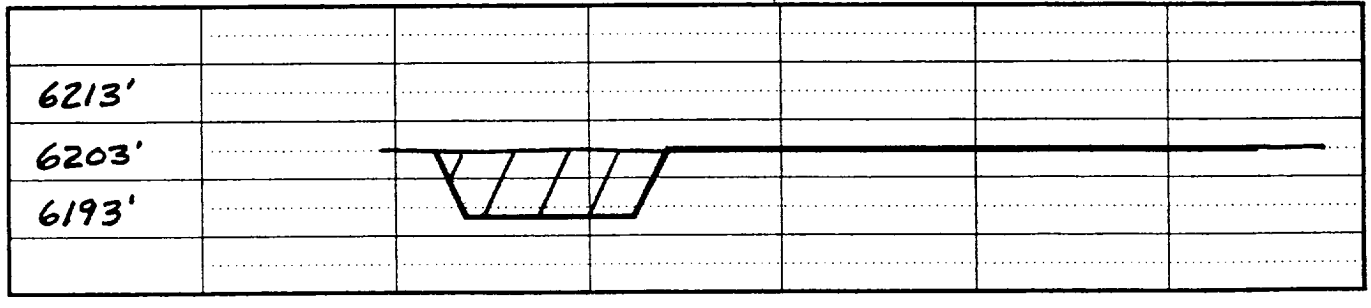
NAME: NORTHWEST PIPELINE PROD. ROSA UNIT #20A
FOOTAGE: 995' FSL 1515' FEL
SECTION: 14 T 31 N, R 6 W, NMPM
COUNTY: RIO ARRIBA STATE: NEW MEXICO
ELEVATION: 6203' DATE: 2/14/95



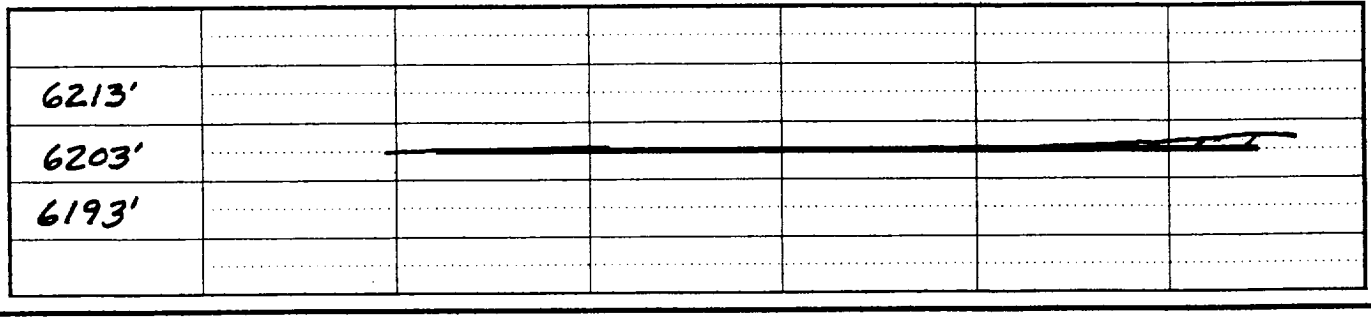
A–A'



B–B'



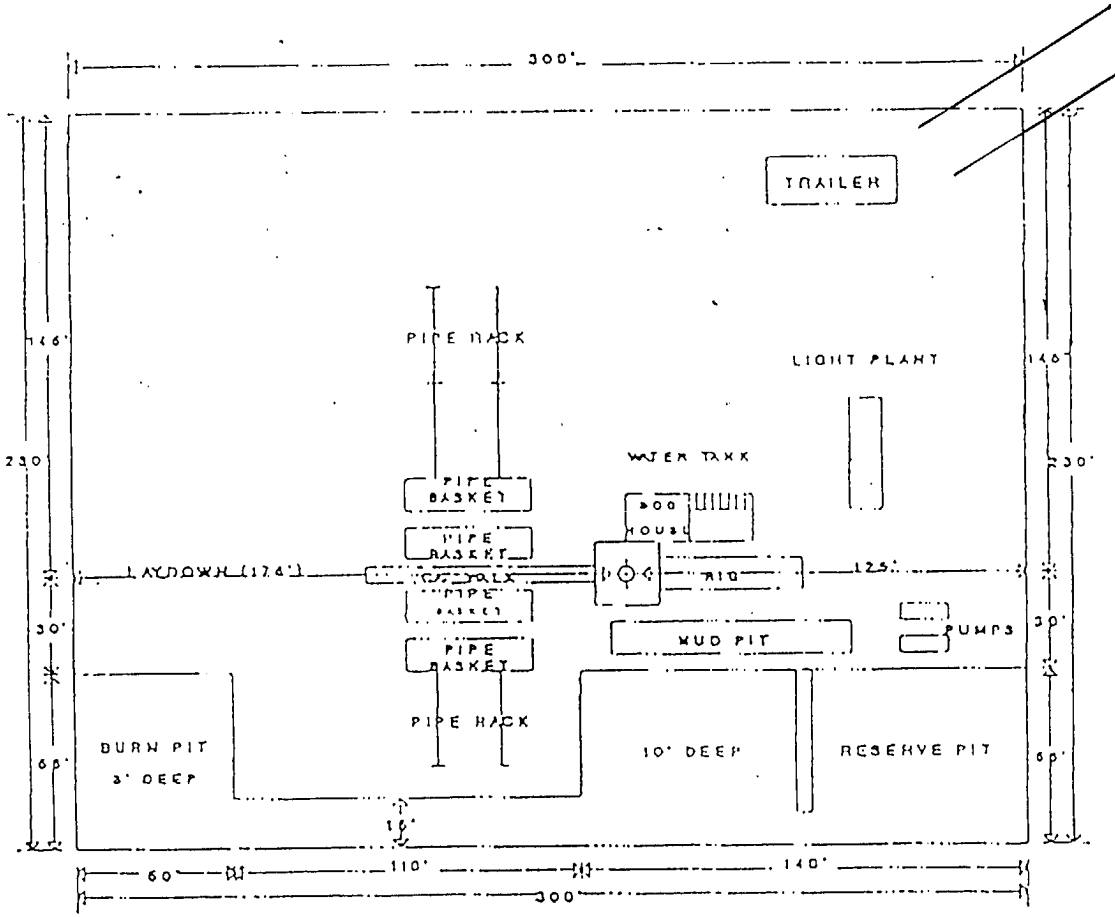
C–C'



PLAT #3

NORTHWEST PIPELINE CORPORATION

LOCATION DIAGRAM



NORTHWEST PIPELINE CORPORATION
ROSA UNIT #20A
995'FSL, 1515'FEL, SEC. 14, T31N, R6W
Rio Arriba County, New Mexico