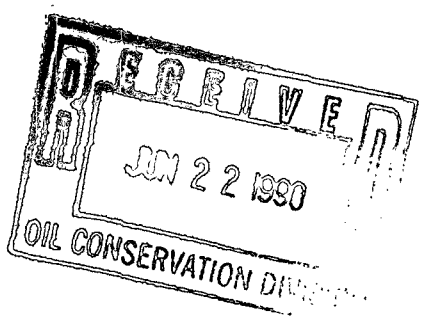
MERIDIAN OIL



June 21, 1990

Mr. William LeMay
New Mexico Oil Conservation Division
Post Office Box 2088
Santa Fe, New Mexico 87501

Re: Request for Administrative Approval of Non-Standard Location
Meridian Oil Inc. Rosa Unit #241
2090'S, 790'E, Section 6, T-31-N, R-5-W,
Rio Arriba County, New Mexico
NSP-1578 (L)

Dear Mr. LeMay:

As per your memorandum to Operators dated March 21, 1990, Meridian Oil Inc. is applying for administrative approval of a non-standard location for the above well. As detailed in the attached well chronology, this is an application for revision to NSP-1578 (L) due to the relocation of the wellsite at the referenced footages.

This well was originally staked and permitted by Northwest Pipeline at 535'S, 685'E, Section 6, T-31-N, R-5-W on September 21, 1988. The well was resurveyed by Meridian Oil Inc. at 1475'S, 465'E, Section 6, T-31-N, R-5-W after assuming operatorship on October 20, 1989. The Bureau of Land Management requested a reinventory of this wellsite and the wellsite was moved to the referenced location on December 22, 1989.

The following attachments are for your review:

1. Wellsite chronology.

2. Approved Application for Permit to Drill - submitted by Northwest Pipeline at 535'S, 685'E, Sec.6,T-31-N,R-5-W.

3. Completed C-102 at referenced footages, attached to sundry notice for moved location.

4. Offset operators/owners plat, with topography and orthodox windows for the southwest quarter shown.

5. 7.5 minute topographic map with referenced location.

6. Enlargement of topographic map showing surveyed archaeological sites, along with terrain, and abandoned well pad survey area. No existing pads are in the well location area.

7. Copy of archaeological survey LAC Report 89141 by LaPlata Archaeological Consultants, January 23, 1990, for 1475'S, 465'E. Location not recommended.

   Copy of archaeological survey Technical Report #1803 by Division of Conservation Archaeology, January 25, 1990, for 2090'S, 790'E. Location recommended.

8. Due to the "test" nature of this well, to propose a directionally drilled hole would incrementally increase costs approximately $90,000 and be economically unfeasible at this time.

9. Copy of NSP-1578 (L).

Please let me know if you require any other information.

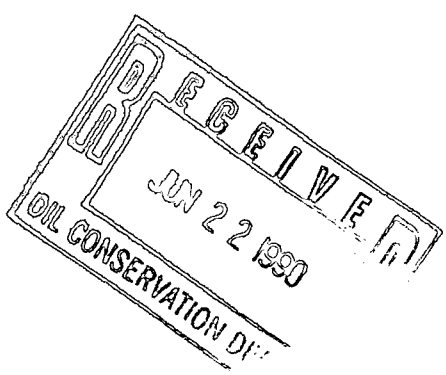
Sincerely,

MERIDIAN OIL INC.

Peggy Bradfield

Peggy Bradfield

xc: Bureau of Land Management, Farmington District
New Mexico Oil Conservation Division - Aztec District



La Plata Archaeological Consultants

P.O. Box 783
Dolores, Colorado 81323
(303) 882-4933

Mr. David Kayser
Compliance Archaeologist
Bureau of Land Management
1235 La Plata Highway
Farmington, NM 87401

January 23, 1989

Dear Dave:

Please find enclosed two copies of the archaeological survey report and three copies of the four site forms for Meridian's abandoned Rosa 241 well pad and access road. Meridian had DCA survey another location for the Rosa 241 well pad and archaeological clearance is not recommended for this abandoned project location.

If you have any questions or comments, please let me know.

Sincerely,

Steven L. Fuller

Enclosures

cc: Charles Werner, Meridian Oil

ARCHAEOLOGICAL SURVEY OF MERIDIAN OIL INCORPORATED'S ABANDONED ROSA UNIT 241 WELL PAD AND ACCESS ROAD RIO ARRIBA COUNTY, NEW MEXICO

14 25 S 4 6 E

LAC REPORT 89141

By
Steven L. Fuller

LA PLATA ARCHAEOLOGICAL CONSULTANTS
P.O. Box 783
Dolores, Colorado 81323

(303) 882-4933

New Mexico Cultural Resource Use Permit No. 19-2920-89-F

January 23, 1990

Prepared For:
Meridian Oil Incorporated
P.O. Box 4289
Farmington, New Mexico 87499-4289

INTRODUCTION

The archaeological survey of Meridian Oil Incorporated's abandoned Rosa Unit 241 well pad and access road near Bancos Canyon east of Navajo Reservoir was conducted by personnel of La Plata Archaeological Consultants on December 1, 1989. The field work was conducted by Steven L. Fuller, Maureen Cavanaugh, and Rich Fleming; Fuller also acted as administrator for the project. The well pad had been previously staked by personnel of Northwest pipeline and restaked recently by Meridian Oil personnel. The survey was conducted at the request of Mr. Charles Werner of Meridian Oil.

The project is located entirely on lands administered by the Farmington Resource Area of the Bureau of Land Management's Albuquerque District and is within Rio Arriba County, New Mexico (Figure 1). The survey was conducted under the authority of Cultural Resource Use Permit No. 19-2920-89-F issued to La Plata Archaeological Consultants.

The area was surveyed for a well pad and access road which was originally proposed by Meridian Oil. A 10 acre block was surveyed around the well pad and a corridor measuring 150 feet by 2100 feet was surveyed for the access road alignment. Four archaeological sites were encountered on the well pad or along the access road. Due to the difficulty in moving this well because of well spacing requirements and topographical constraints, the location was abandoned and an alternate location was subsequently surveyed by Division of Conservation Archaeology. Archaeological clearance is not recommended for the abandoned Rosa Unit 241 well pad and access road.

PREFIELD RECORDS SEARCH

On November 30, 1989, the records located in the Farmington Resource Area Office were reviewed. Previous survey work that has been conducted in the vicinity of the project area includes only two or three well pad surveys and pipeline segments. In 1989, La Plata surveyed Meridian's MA Extension Pipeline (part of the Val Verde System) which crosses about 0.5 mile northeast of the project area (Fuller 1989). The access road and well pad for the Rosa 241 was probably surveyed in 1988 by Archaeological Consultants for Northwest Pipeline (Karlson 1989) and no sites were recorded then. A total of 11 previously recorded sites are within one mile of the proposed well pad and access road and the nearest is about 1500 feet north of the access road. No portions of any of the previously recorded sites will be impacted by this proposed action. These 11 sites are shown on Figure 1a which are included only with BLM copies of this report. The 11 sites are described as follows:

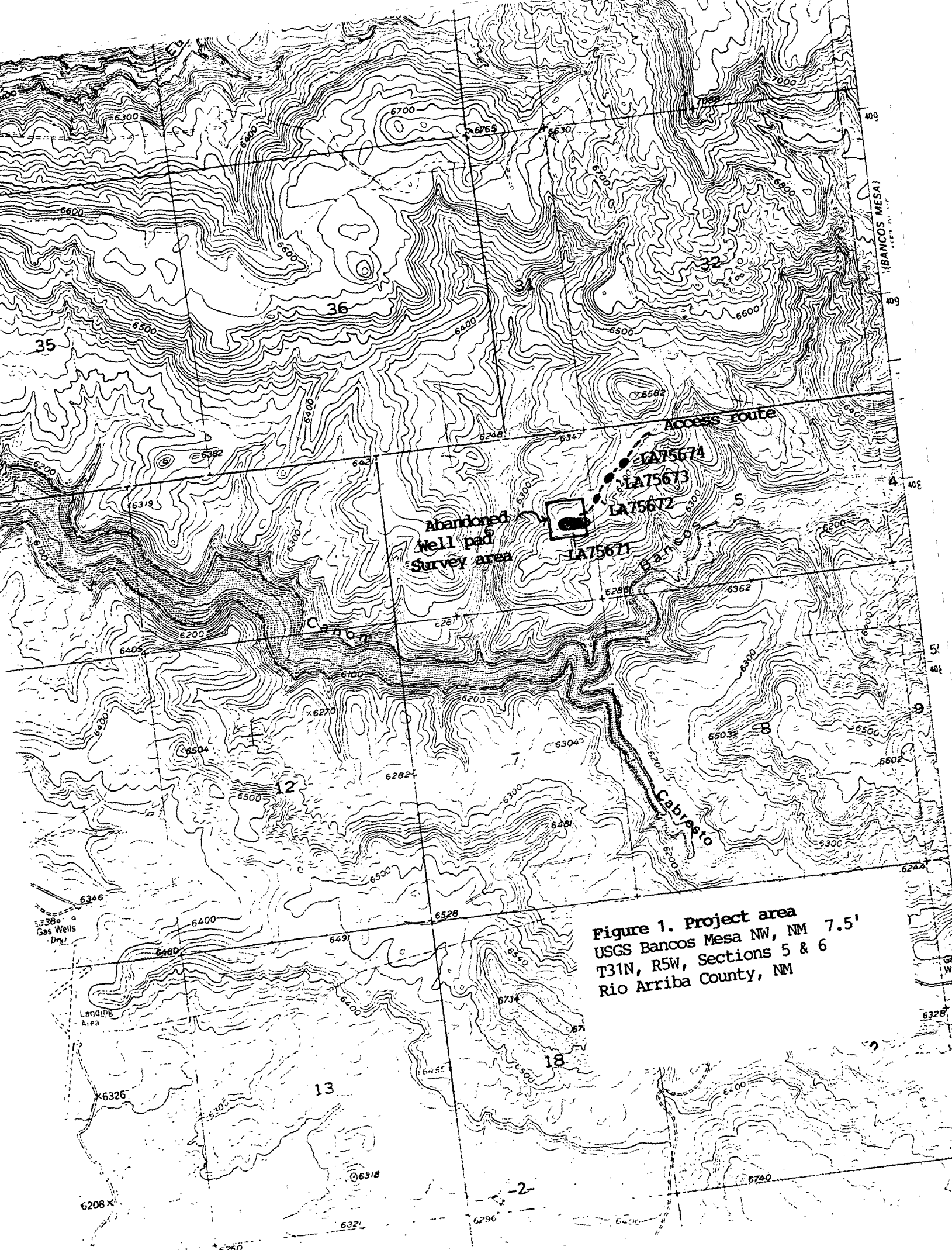


Figure 1. Project area
USGS Bancos Mesa NW, NM 7.5'
T31N, R5W, Sections 5 & 6
Rio Arriba County, NM

LA6529 - Gobernador Phase Navajo habitation
LA6530 - Gobernador Phase Navajo habitation
BLM33609 - Anasazi Pueblo I habitation/Navajo Gobernador Phase habitation
BLM35422 - Anasazi Rosa Piedra Phase sherd and lithic scatter
BLM35988 - Unknown activity locus
BLM36089 - Navajo Gobernador Phase activity locus
BLM35990 - Navajo Gobernador Phase camp
BLM35991 - Navajo Gobernador Phase camp
BLM35992 - Anasazi Pueblo I possible habitation
BLM35993 - Navajo Gobernador Phase camp
BLM35994 - Anasazi BMIII-PI activity locus/Navajo Dinetah Phase camp

FIELD METHODS

Prior to the survey, the proposed well pad was staked at the center and the four corners. Off pad construction areas were not delimited but will not extend beyond 50 feet from the edge of the staked pad. A 10 acre block (660 by 660 feet) was surveyed centered on the well pad center stake, which was more than sufficient to cover the 220 by 300 foot well pad, construction zones, and at least a 100 foot buffer for cultural resources. The 10 acre block was surveyed by pedestrian transects which were no further than 15 m or 50 feet apart. The extent of the 10 acre block is illustrated on Figure 1.

The access road extends about 2100 feet southwest from an existing, bladed oil field road. The access road corridor was surveyed by the three archaeologists who walked parallel transects down the flagged centerline covering 50 feet per transect, for a total width of 150 feet. The three archaeologists returned down the same alignment, covering the access road corridor twice.

The four archaeological sites were recorded on a Laboratory of Anthropology site forms, mapped, and photographed.

ENVIRONMENT

The abandoned well pad and access route are located on a narrow mesa just north of Bancos Canyon in the area east of Navajo Reservoir. The mesa extends southwest between Bancos Canyon and an unnamed tributary to the west and forms a point that overlooks the confluence of Bancos Canyon and Cabresto Canyon to the south. The mesa is 500 to 1000 feet wide and a narrow ridge follows the crest of the mesa. The access road starts on the northeast end of the mesa where there is a higher mesa that separates Bancos Canyon from Eul Canyon to the north. Quintana Mesa dominates the skyline to the northeast.

Soils are variable due to the changing topography and range from nonexistent on the edge of the mesa where sandstone bedrock is exposed to fairly deep along the crest of the mesa where sandy loam aeolian deposits are well preserved.

All portions of the project area are covered by a dense pinyon-juniper woodland. Water sources are probably present in the bottom of Bancos Canyon several thousand feet south of the well pad. The area is currently used for livestock grazing with a moderate amount of oil and gas development in the immediate vicinity.

PROJECT LOCATION AND DESCRIPTION

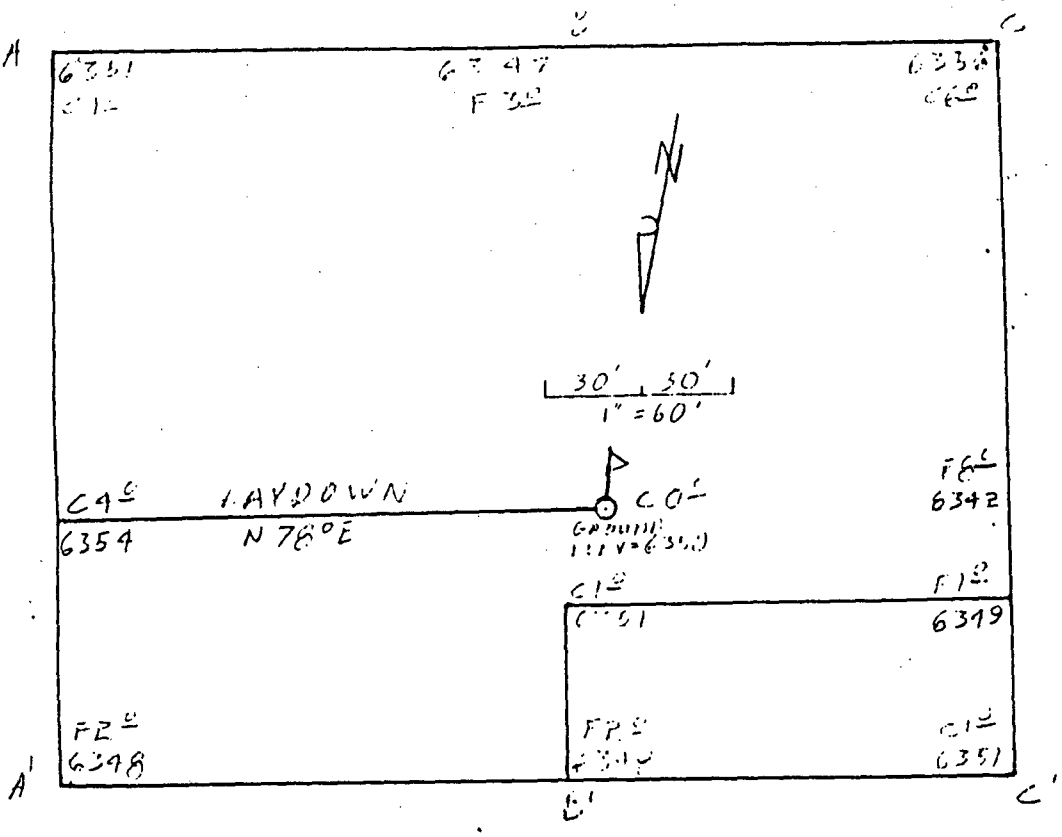
Abandoned Rosa 241 well Pad and access road

Legal Description:	Well pad is within T31N, R5W, Section 6, SE 1/4 NE 1/4 SE 1/4, NMPM; 1475 FSL, 465 FEL, Rio Arriba County, New Mexico (See Figure 2, well location plat); Access road will cross through T31N, R5W, Section 5 W 1/4 W 1/4.
Elevation:	6420 to 6440 feet
Map Reference:	USGS Bancos Mesa NW, New Mexico 7.5' 1954 (photorevised 1982)
Land Jurisdiction:	Bureau of Land Management, Farmington Resource Area
Project Area:	Abandoned well pad measured 300 by 220 feet. Access road measured 2100 feet in length by 20 feet in width
Surveyed Area:	A 660 by 660 foot block surrounding the well center stake (10.0 acres) was surveyed to cover the original location and the construction and buffer zones. Access road survey covered a 2100 by 150 foot corridor (7.25 acres). Total survey area includes 17.25 acres.
Results:	Site LA75671 is located on the south half of the abandoned well pad. Sites LA75672, LA75673, and LA75674 are located along the abandoned access route.

CULTURAL RESOURCES

Four new archaeological sites were recorded during this survey. All four sites appear to represent camps or activity loci and each appears to contain features that may contribute data on the prehistory or protohistory of this area. Therefore, each of the four

Figure 2



Northwest Pipeline Cor
OPERATOR

Rosa Unit 241
WELL NAME & NO.

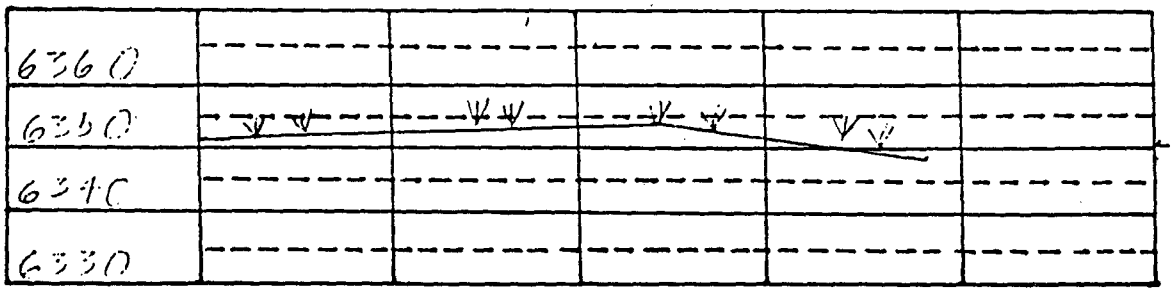
1475 F/SL 465 F/EL
FOOTAGES

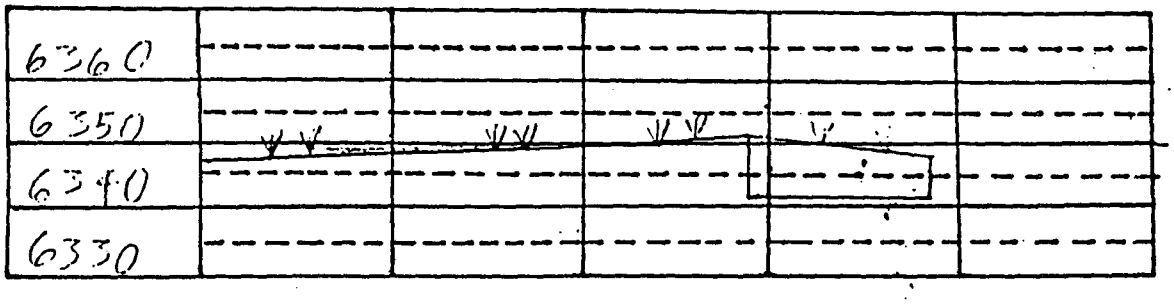
6 31N 5W
SEC. TWP. RGE.

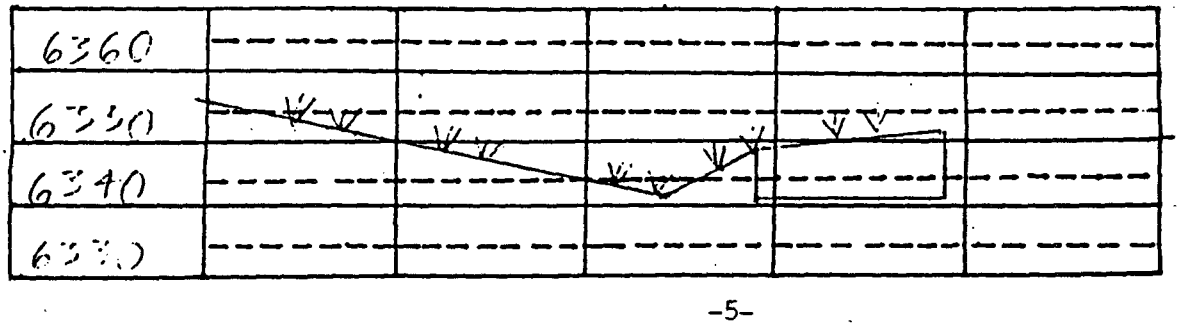
Rio Arriba, New Mexic
COUNTY

September 21, 1988
DATE

SCALES:
HORIZ = 1" = 60'
VERT = 1' = 30'







sites should be considered a Category 2 site until further evaluation determines that important data are not present. They are described as follows:

Site Number: LA75671

Description: LA75671 is a large, extensive, complex multicomponent site that is located on a narrow mesa that extends southwest between Bancos Canyon and a tributary of Bancos Canyon (Figure 3). The location overlooks the confluence of Bancos Canyon and Cabresto Canyon about 2000 feet to the south. At least two components were identified, representing an early Pueblo (Basketmaker III-Pueblo I) and protohistoric Navajo (Dinetah or Gobernador Phase) use of the site. A total of 18 features were recorded, although more would be identified with further examination throughout this 38,000 square meter site area. Most of the features represent processing features and no structures or middens were identified, leading to the inference that the site functioned as a camp or activity repeatedly through several periods of prehistory.

Feature 1 is a large, unusual burned sandstone features that is 11 m in diameter and mounded up to 30 cm in height. The central 5 m contains a very black soil matrix and the feature appears to represent a burned rock midden of unknown function. All of the rock is sandstone which has been highly oxidized. No artifacts were noted in association with the feature.

Feature 2 is on the southeast edge of the abandoned well pad and consists of a scatter of oxidized sandstone slabs with a dark, stained soil matrix in the center. The feature is 5 m in diameter and is associated with a one-hand mano.

Feature 3 is a 10 m diameter fire-cracked sandstone scatter with several cracked river cobbles and a quartzite one-hand mano.

Feature 4 is a 2 m diameter soil stain that has several small chunks of burned adobe present. No artifacts are associated with Feature 4. Feature 4 may represent a small structure that is partially buried.

Feature 5 is a 5 m diameter of fire-cracked sandstone associated with two small obsidian tertiary flakes and a quartzite one-hand mano.

Feature 6 is a small FCR scatter that is 2 m in diameter and is associated with a quartzite mano fragment.

Feature 7 consists of several pieces of oxidized sandstone associated with a shallow basin metate and one chalcedony flake.

Feature 8 is an 8 m diameter fire-cracked sandstone scatter with no associated artifacts.

Feature 9 is a light FCR scatter exposed in a shallow wash. No artifacts were noted in association with F9.

Feature 10 is another fire-cracked sandstone scatter that is about 10 m in diameter and is associated with a small metate fragment, a chalcedony flake, and a corner-notched projectile point fragment made from fine-grained light chert.

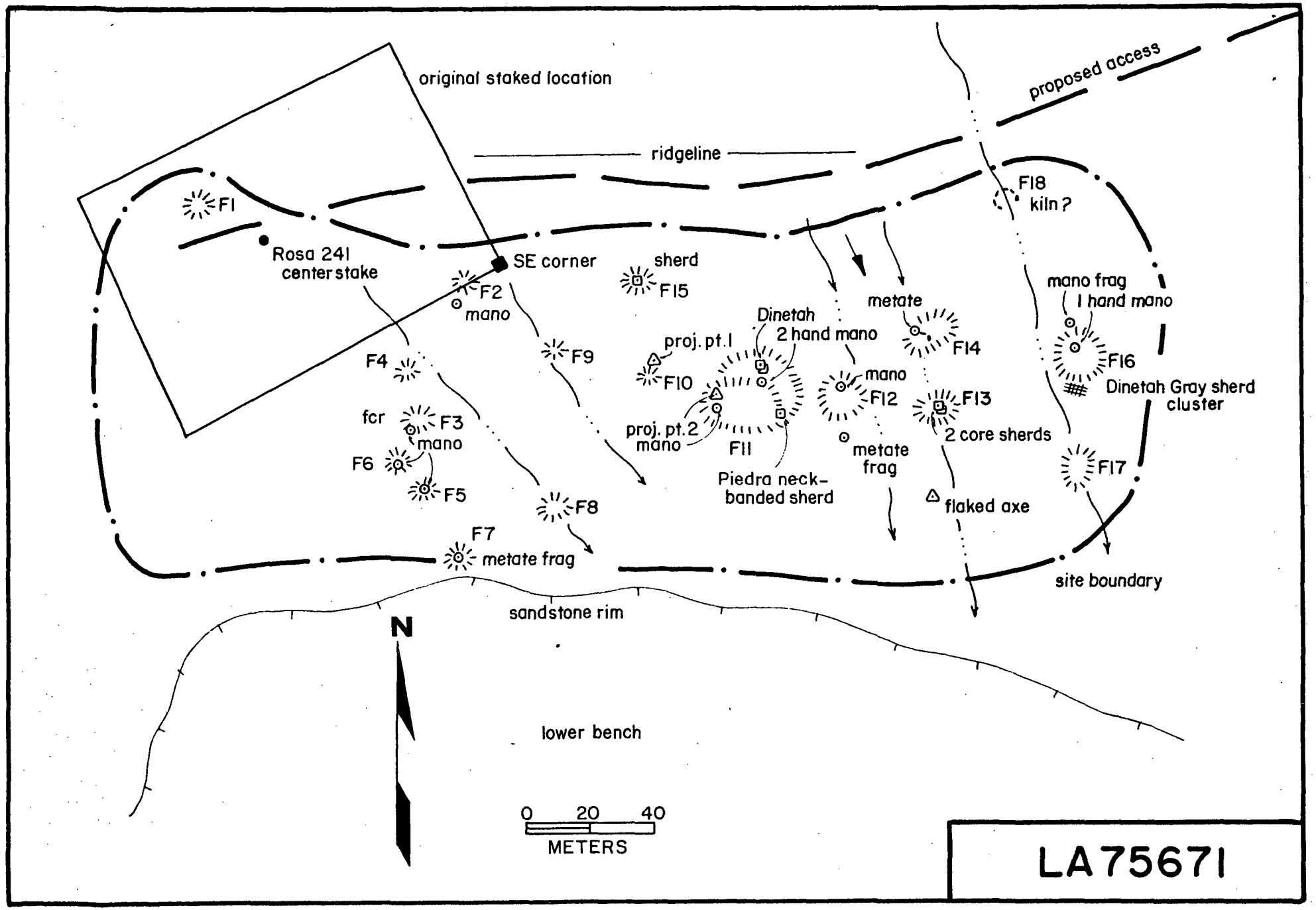

original staked location
proposed access
ridgeline
F1
Rosa 241
center stake
SE corner
F2
mano
sherd
F15
F18
kiln ?
mano frag
1 hand mano
F16
Dinetah Gray sherd
cluster
metate
F14
Dinetah
2 hand mano
proj. pt. 1
F10
F4
F9
mano
F12
F13
2 core sherds
fcr
F3
mano
F6
F5
proj. pt. 2
mano
F11
Piedra neck-
banded sherd
metate
frag
flaked axe
F17
F8
F7
metate frag
site boundary
sandstone rim
N
lower bench
0 20 40
METERS
LA75671

Figure 3

Feature 11 is large and possibly represents limited activity loci dating to at least two cultural periods. F11 is a large FCR scatter 20 m in diameter. Within the FCR scatter were a one-hand quartzite mano, a triangular, quartzite, corner-notched projectile point, a Piedra neckbanded sherd, three Dinetah Gray sherds, a large, unifacial two-hand mano, and about 10 chalcedony flakes.

Feature 12 is a 6 m diameter FCR scatter associated with several quartzite and chalcedony flakes, a one-hand mano fragment (quartzite), and a small sandstone slab metate fragment.

This FCR scatter (Feature 13) is 5 m in diameter and is associated with two early pueblo gray body sherds with crushed igneous rock temper.

Feature 14 is a 15 m diameter fire-cracked sandstone scatter that is associated with one sandstone metate fragment that appears to represent a shallow basin type.

Feature 15 is an 8 m diameter FCR scatter associated with one small obsidian tertiary flake and two Dinetah Gray sherds.

Feature 16 is a large fire-cracked sandstone scatter that is 17 m in diameter and is associated with a cluster of 10 Dinetah Gray sherds (possible reconstructible vessel) a quartzite mano fragment that has been utilized as a core, and a one-hand bifacially utilized mano.

Feature 17 is another FCR scatter, 10 m in diameter, that is associated with chert and quartzite flakes.

Feature 18 consists of an upright slab feature situated in a drainage bottom that measures about 1.5 by 0.5 m. The slabs are highly oxidized and slant outward. Associated with the feature are 10 early Pueblo gray sherds of which three are oxidized and slightly bloated. A dense concentration of oxidized sandstone extends down the wash to the southeast. Upslope about 3 m is a second possible slab feature. The main slab feature has an ashy soil matrix and appears to be rectangular. Feature 18 is interpreted to represent an early Anasazi pottery kiln based on morphological, topographical, and contextual similarities to late Anasazi pottery kilns well documented in the Four Corner Region.

Site Number: LA75672

Description: This probable Navajo camp or activity locus is located along the crest of a narrow mesa that extends southwest between Bancos Canyon and an unnamed tributary to the west (Figure 4). The site overlooks the confluence of Bancos and Cabresto Canyons about 2000 feet to the south. Two features were recorded within this 35 by 35 m site.

Feature 1 is a scatter of oxidized sandstone slabs that measures about 15 by 5 m. Within the feature area or in close proximity are about 50 Dinetah Gray sherds located mostly in two concentrations. Other artifacts associated with Feature 1 are a cobble hammerstone, a flaked cobble with a highly polished facet, a large basalt cobble flaked tool. and several

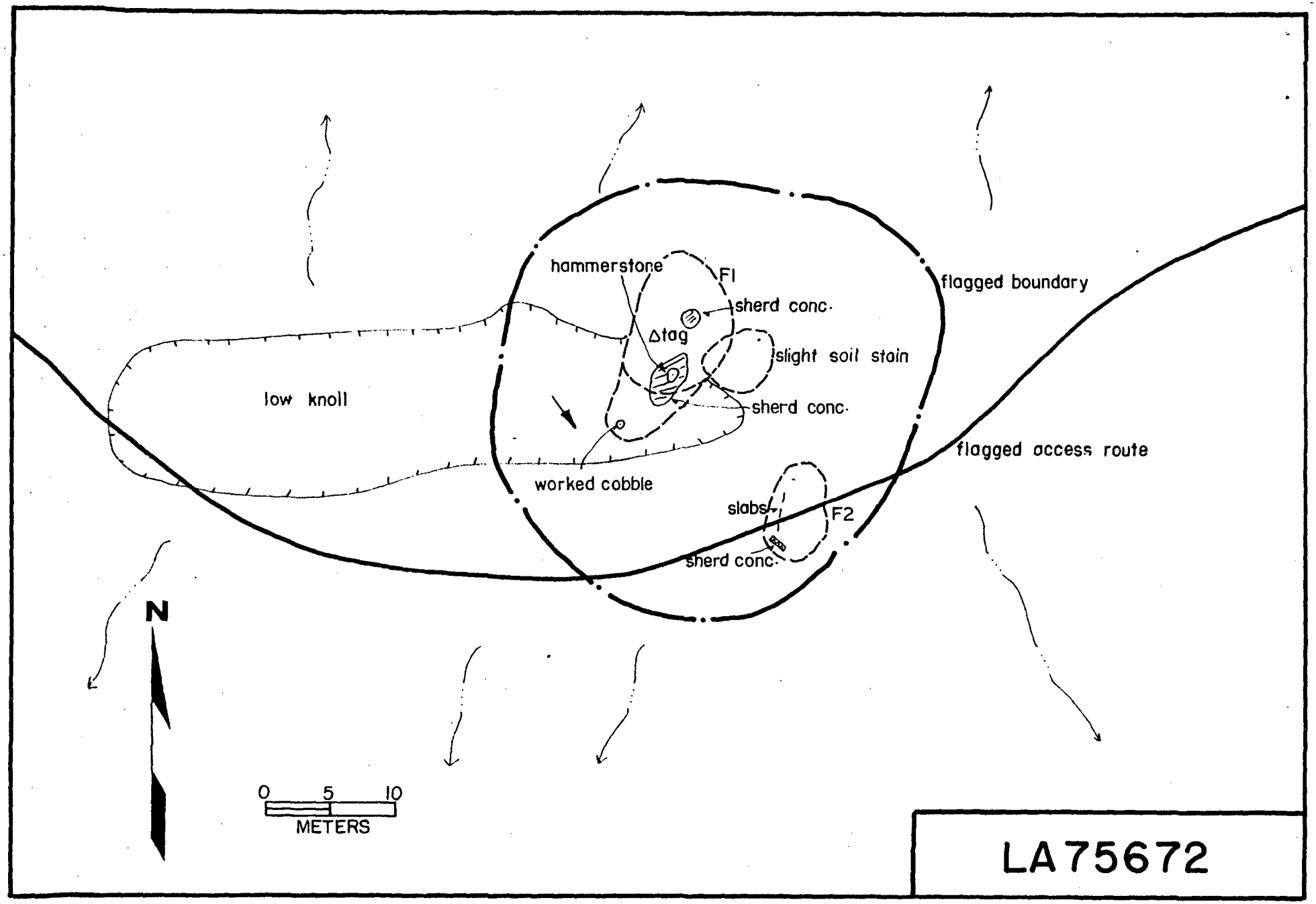

hammerstone
F1
sherd conc.
Δtag
slight soil stain
low knoll
sherd conc.
flagged boundary
flagged access route
worked cobble
slabs
F2
sherd conc.
N
0 5 10
METERS
LA75672

Figure 4

chalcedony flakes. A slight soil stain extends to the southeast. Feature 1 may represent a structural area or perhaps an activity locus.

Feature 2 is located to the southeast of the crest of the ridge and consists of a line of three upright slabs with slabs scattered to the east. Associated with the feature was a concentration of 20 or more Dinetah Gray sherds and several quartzite flakes.

Based on the artifact scatter, the site probably dates to the Dinetah or Gobernador Phases, or between A.D. 1450 and 1750. The site may represent a camp, although an activity locus or possible permanent habitation may also be defined.

Site Number: LA75673

Description: This small activity locus (Figure 5) is located along a narrow mesa that separates Bancos Canyon from an unnamed tributary to the west. The site consists of two small features located to the north and south of the crest of the ridge. Feature 1 is a small (30 cm diameter soil stain that is exposed on an eroded slope and may or may not be cultural. Feature 2 is on the southeast facing slope and consists of a light fire-cracked rock scatter which measures 10 by 20 m. Artifacts associated with the scatter include a small obsidian tertiary flake, a green quartzite flake, and a Rosa Gray rim sherd. A cluster of three early Pueblo gray body sherds was noted near the crest of the mesa in the center of the site.

The site probably dates to the Basketmaker III-Pueblo I Rosa Phase and appears to represent a limited activity locus. With material exposed on each side of the ridge crest, buried materials may extend through the center of the site.

Site Number: LA75674

Description: This site is situated on a south-facing slope just below the crest of a narrow mesa that extends southwest between Bancos Canyon and an unnamed tributary to the west. The site consists of a light artifact scatter and two small features (Figure 6).

Feature 1 is a small (25 by 20 cm) upright slab features with two in situ slabs placed at a 90 degree angle. 1.5 m down the slope to the south is a light scatter of oxidized sandstone fragments.

Feature 2 is 6 m to the east and is comprised of a 3 m diameter of oxidized tabular sandstone fragments with one thin upright slab in the center of the features. Both Feature 1 and 2 are probable hearths.

The artifact assemblage on the site only consists of one Rosa Gray rim sherd, one small obsidian tertiary flake, and several chert interior flakes.

The site probably represents an activity locus or short-term camp used during the Rosa Phase.

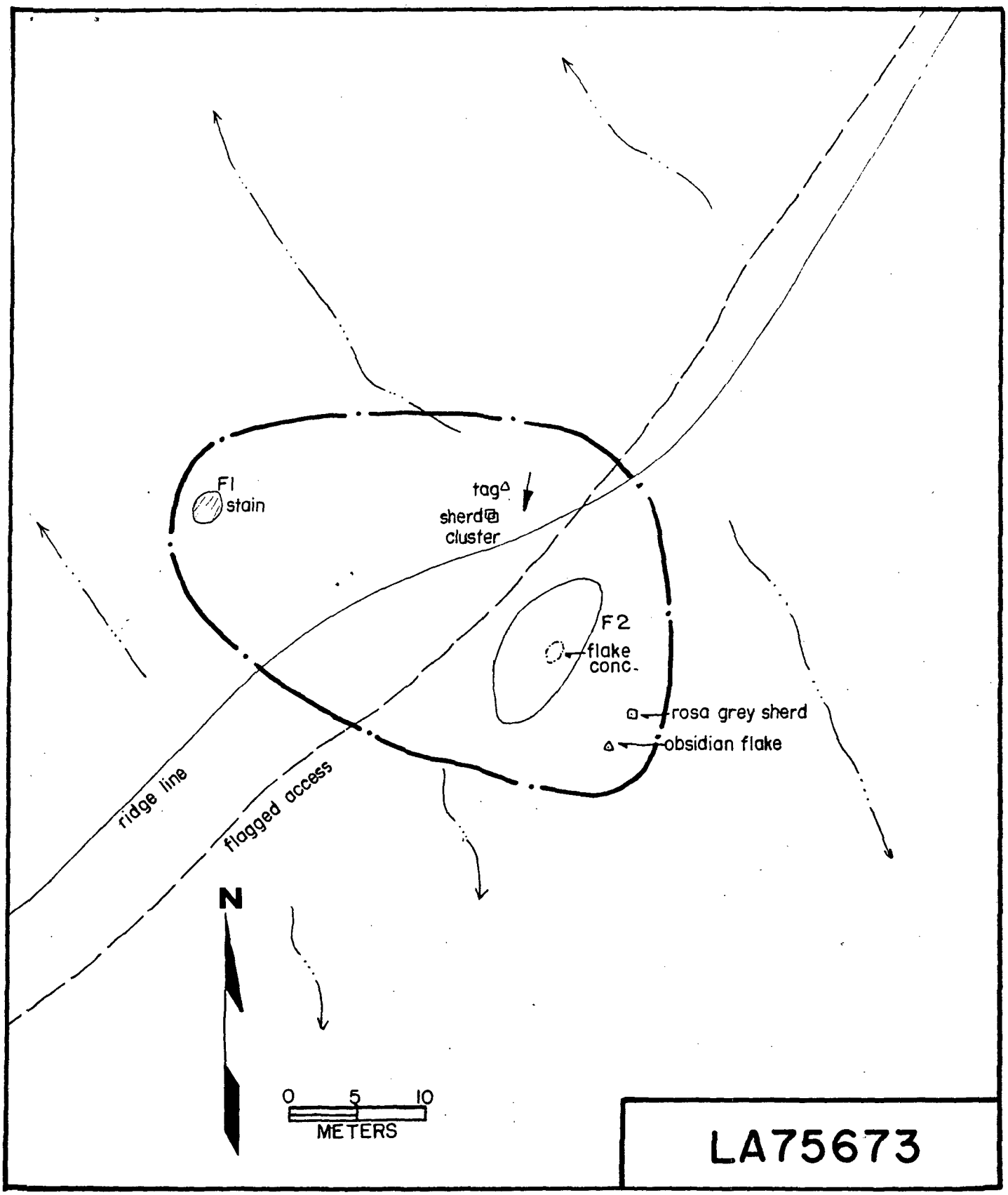

F1
stain
tag
sherd
cluster
F2
flake
conc.
rosa grey sherd
obsidian flake
ridge line
flagged access
N
0
5
10
METERS
LA75673

Figure 5

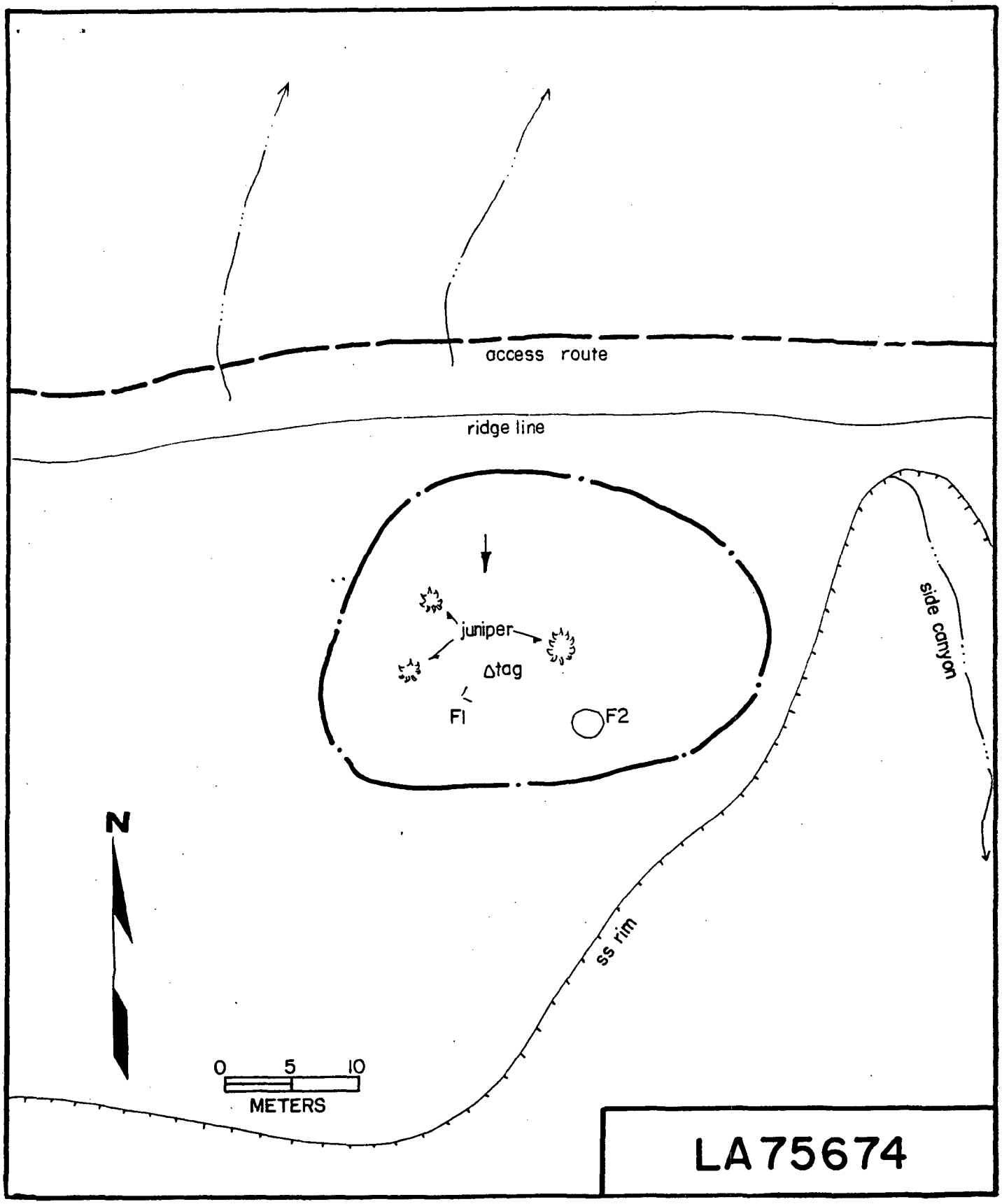

access route
ridge line
juniper
Δtag
F1
F2
side canyon
ss rim
N
0 5 10
METERS
LA75674

Figure 6

RECOMMENDATIONS

There was no attempt made to avoid the four sites encountered along the abandoned access route or the abandoned well pad due to topographic constraints and well spacing requirements. Archaeological clearance is not recommended for the abandoned Rosa 241 well pad and access road.

REFERENCES

Fuller, Steven L.

1989 An archaeological survey of Meridian Oil Incorporated's Val Verde Gathering System: Trunk MC Pipeline System, Allison Unit Pipeline System, and Trunk MA Extension Pipeline System. LAC Report 8911/8918/8932. La Plata Archaeological Consultants, Dolores.

Karlson, Jamie A.

1989 Survey of cultural resources for 39 proposed Northwest Pipeline Corporation Rosa Unit well sites and access roads. AC Project Report 634. Durango.

DIVISION OF CONSERVATION ARCHAEOLOGY

San Juan County
Museum Association

January 25, 1990

Mr. Charles Werner
Meridian Oil
P.O. Box 4289
Farmington, New Mexico 87499

Dear Mr. Werner:

Our report on the archaeological survey of proposed well pad Rosa Unit No. 241 and access road in the Navajo Reservoir District, Rio Arriba County, New Mexico is enclosed. Four isolated loci were found; two isolates are located in the northern archaeological buffer zone and two are located on the access road.

Field recording of the isolates is considered sufficient information to recommend archaeological clearance for Rosa Unit No. 241 and its access road.

The Bureau of Land Management will review this report and make the final decision on archaeological clearance for your project.

An invoice for our services has been sent directly to your accounts payable department. Please contact us if you have any questions concerning the report or invoice.

Sincerely,

Patricia M. Hancock

Patricia M. Hancock
Supervisory Archaeologist

cc: Resource Area Manager, BLM, Farmington (2)
Mr. Leonard Lord, EPNG, Farmington

975 U.S. Highway 64 • Farmington, New Mexico 87401 • (505) 632-2733 or 632-2779

Project No. 378-89-C

Cultural Resource Use Permit
7-2920-89-I (NM BLM)

An Archaeological Survey of Proposed Well Pad Rosa Unit No. 241 and Access Road (2090' F/SL, 790' F/EL) in the Navajo Reservoir District, Rio Arriba County, New Mexico

for

Meridian Oil

by

Patricia M. Hancock
Supervisory Archaeologist

Submitted by

Byron P. Johnson
Director

DIVISION OF CONSERVATION ARCHAEOLOGY

Technical Report No. 1803
San Juan County Archaeological Research Center and Library

January 25, 1990

ABSTRACT

On January 2, 1990, the Division of Conservation Archaeology of the Rio Arriba County Museum Association completed an archaeological survey of proposed well pad Rosa Unit No. 241 and access road for Meridian Oil. The survey area is located in the Navajo Reservoir District, Rio Arriba County, New Mexico and is under the jurisdiction of the Bureau of Land Management. Approximately 12.77 acres were intensively inventoried.

Four isolated loci were found; two isolates are located in the northern archaeological buffer zone and two are located on the access road.

Field recording of the isolates is considered sufficient information to recommend archaeological clearance for Rosa Unit No. 241 and its access road.

INTRODUCTION

On January 2, 1990, the Division of Conservation Archaeology (DCA) of the San Juan County Museum Association conducted an archaeological survey for Meridian Oil of Farmington, New Mexico. Charles Werner of Meridian Oil requested the survey on December 28, 1989 and administered the project for Meridian Oil. Byron P. Johnson administered the project for DCA.

In recognition of the limited, nonrenewable nature of archaeological remains, the federal government has enacted legislation that is designed to conserve and protect these resources. The principal legislation includes the Antiquities Act of 1906 (PL 52-209), the Historic Preservation Act of 1966 (PL 89-665) and as amended (PL 96-515), the National Environmental Act of 1969 (PL 91-852), the 1971 Executive Order No. 11593, the Archaeological and Historical Conservation Act of 1974 (PL 93-291), and the Archaeological Resources Protection Act of 1979 (PL 96-95). In addition, the Navajo Nation and the states of Arizona, New Mexico, Utah, and Colorado have enacted laws to ensure compliance with federal legislation and to protect archaeological resources within their jurisdiction. Work undertaken in the course of this project is intended to comply with these statutes and is governed by the stipulations of Cultural Resource Use Permit 7-2920-89-I (NM BLM).

Patricia M. Hancock, Joell Goff, and Brenda Randolph, DCA archaeologists, surveyed the project area for cultural remains.

METHODS

The area was surveyed by walking a series of straight line transects spaced 8 to 10 m apart on the well pad. The access road was surveyed by walking six straight line transects spaced about 6 to 8 m apart, three on each side of the flagged centerline. A 50 ft wide construction zone was added to each side of the well pad. A buffer zone 100 ft wide was added to each side of the well pad/construction zone and a 50 ft wide buffer was added to each side of the access road. In addition, a 200 x 200 ft "T" intersection was surveyed at the junction of the new access road and the existing road. The archaeologists recorded all cultural remains. Those whose information potential exceeded what could be extracted during the survey phase were assigned site status. Other cultural remains were documented as isolated loci (IL). Pertinent environmental data were also recorded.

In addition to field inspection, the archaeologists conducted a search of the records at the Bureau of Land Management (BLM) Farmington Resource Area office and at DCA to determine if any sites had been recorded in the project area. Site and project records required by the BLM and the New Mexico Historic Preservation Division were completed.

PREVIOUSLY RECORDED SITES

The records check revealed 14 previously recorded sites within one mile of the proposed project area. Those sites are shown on BLM Supplement 1A which is provided to the BLM only. None of the sites are within 1000 ft of the project.

PROJECT DESCRIPTION

Proposed Well Pad Rosa Unit No. 241 and Access Road
(Figures 1 and 2)

Legal Description:
T31N, R5W, Section 6, 2090' F/SL, 790' F/EL
CENTER NE ¼ NE ¼* (well pad)
E ½ NE ¼ NE ¼* (access road)
Section 5, N ½ NW ¼ NW ¼* " "
N.M.P.M., Rio Arriba County, New Mexico
*off-sized section, template anchored in northeast corner

Map Source: U.S.G.S. 7.5' Bancos Mesa, New Mexico - 1954 (photorevised 1982)

Land Jurisdiction: Bureau of Land Management

Project Area: 420' x 310' (well pad and construction zone)
1800' x 25' (access road)

Surveyed Area: 620' x 510' (well pad and construction zone with buffer)
1600' x 125' (access road with buffer)
200' x 200' ("T" intersection)
12.77 Acres

Description: The proposed well pad Rosa Unit No. 241 and access road are located near a mesa edge which overlooks a tributary canyon of Cañon Bancos. Cañon Bancos is to the south. The San Juan River is to the west and Quintana Mesa is to the north. The well pad is in a lightly wooded area which slopes to the northwest. The southern construction zone and buffer zone are on a steeper slope. There is a drainage in the northern archaeological buffer zone. This area also appears to have had a lot of recent erosion either in the form of sheet wash or an avalanche. There are sandstone clasts and boulder outcrop throughout the area.

Snow cover on the slope in the southern buffer zone is 2 to 10%. On the rest of the well pad and the access road, the snow cover was 2 to 3%.

The woodland ground cover is roughly 50%. Predominant species are pinyon (Pinus edulis), juniper (Juniperus sp.), and sagebrush (Artemisia tridentata). Ponderosa pine (Pinus ponderosa) are scattered throughout the area. Scrub oak (Quercus sp.), snakeweed (Gutierrezia sarothrae), grasses, and grama grass (Bouteloua sp.) are also present.

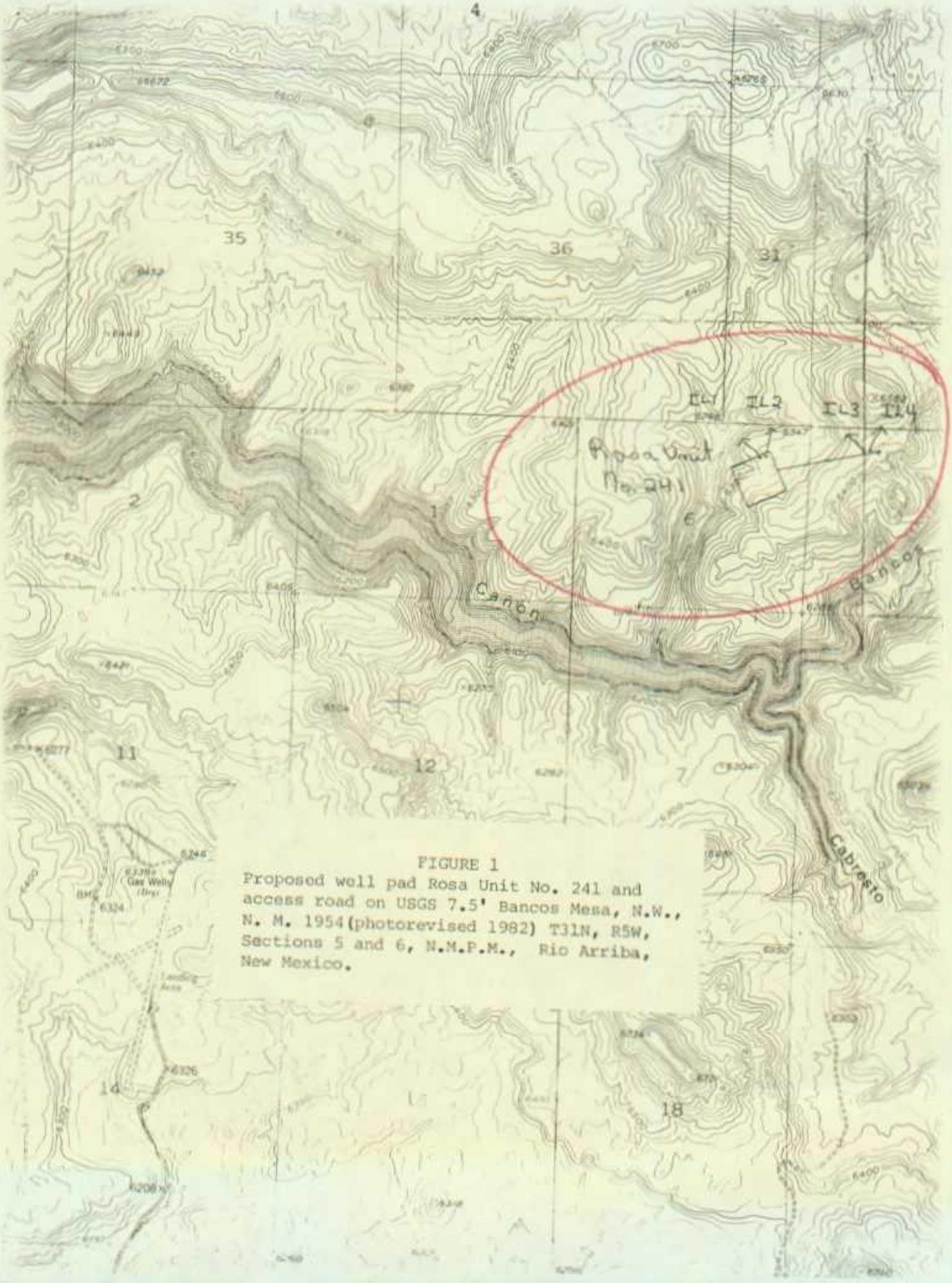
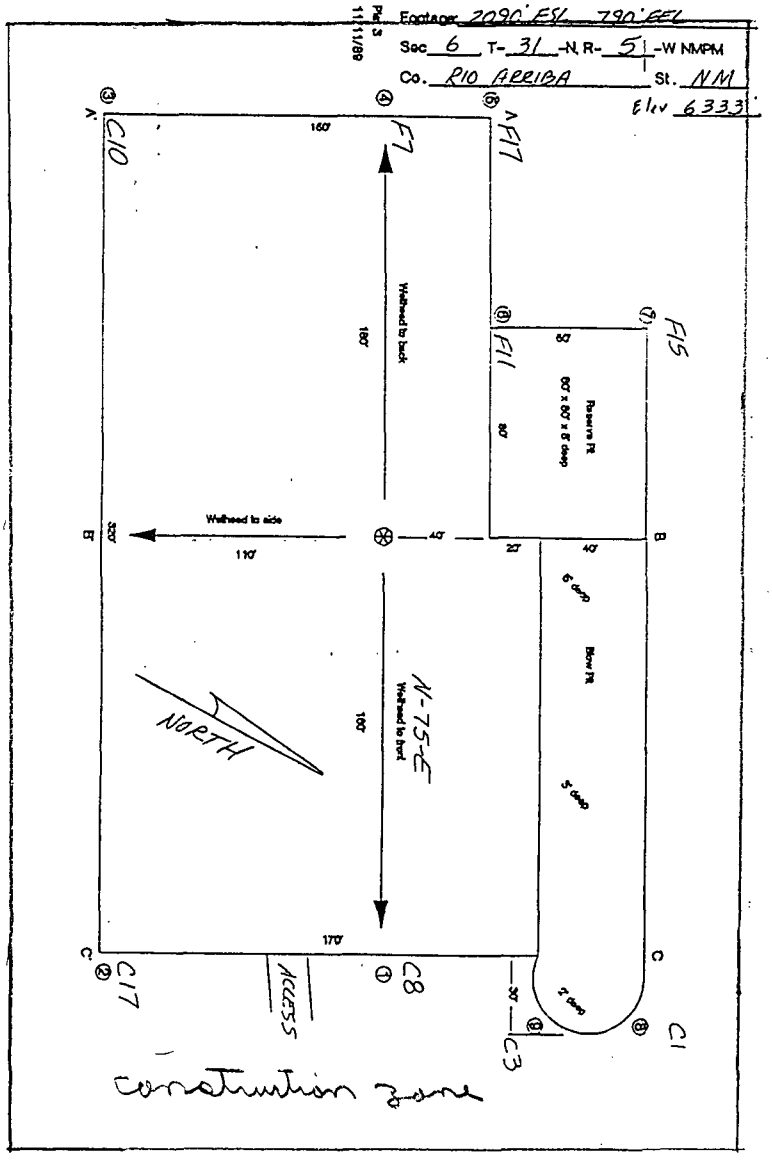


FIGURE 1
Proposed well pad Rosa Unit No. 241 and access road on USGS 7.5' Bancos Mesa, N.W., N. M. 1954 (photorevised 1982) T31N, R5W, Sections 5 and 6, N.M.P.M., Rio Arriba, New Mexico.

FIGURE 2 Plat of Rosa Unit No. 241



The access road will begin at an existing north/south-trending road. It will head basically west, dropping off a fairly steep slope and entering the eastern center pad boundary. Evidence of a forest fire could be seen at the beginning of the access road as well as recent camp fires and woodchopping activities.

Cultural Resources: Four isolated loci were found (Table 1). IL Nos. 1 and 2 are in the northeastern corner of the well pad's archaeological buffer zone. IL No. 1 is an obsidian tertiary flake. IL No. 2 is two pieces of purple glass associated with a woodcutting area. IL Nos. 3 and 4 are in the northern buffer zone of the access road near the "T" intersection. IL No. 3 is a tan orthoquartzite flake and IL No. 4 is a siltstone secondary flake. Both isolates are near the forest fire area.

Recommendations: Field recording of the isolates is sufficient information to recommend archaeological clearance. Archaeological clearance is recommended for proposed well pad Rosa Unit No. 241 and its access road.

Table 1. Isolated Loci

IL#	Legal Description T	R	Sec.	¼	¼	¼	UTM Coordinates (Zone 12)	Description
1	31N	5W	6*	NW	NE	NE	4089360N, 286480E	obsidian tertiary flake, 1.5 x 1.5 x 0.1 cm
2	31N	5W	6	NW	NE	NE	4089360N, 286520E	two pieces of purple glass near woodchopping area
3	31N	5W	5*	NE	NW	NW	4089370N, 287000E	tan orthoquartzite tertiary flake, 5 x 5 x 0.1 cm
4	31N	5W	5	NE	NW	NW	4089380N, 287020E	siltstone secondary flake, 5 x 4 x 1 cm

*template anchored on northeast corner

Map Source: U.S.G.S. 7.5' Bancos Mesa, New Mexico - 1954 (photorevised 1982)

Vegetation Zone: Woodland

Landform: Mesa

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

Rosa #241
TR#14

GARREY CARRUTHERS
GOVERNOR

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

July 18, 1989

Northwest Pipeline Corporation
3539 East 30th Street
Farmington, NM 87401

Attention: Mike Turnbaugh
Senior Engineer

Administrative Order NSP-1578(L)

Dear Mr. Turnbaugh:

Reference is made to your applications of February 20, 1989 for a 264.56-acre non-standard gas proration unit consisting of the following acreage in the Basin-Fruitland Coal (Gas) Pool:

RIO ARRIBA COUNTY, NEW MEXICO
TOWNSHIP 31 NORTH, RANGE 5 WEST, NMPM
Section 6: All

It is my understanding that this unit is to be dedicated to your Rosa Unit Well No. 241 to be drilled at an unorthodox coal gas well location 535 feet from the South line and 685 feet from the East line (Unit P) of said Section 6, hereby approved under provisions of Rule 8 of the Special Rules and Regulations for this pool as promulgated by Division Order No. R-8768.

Also, by authority granted me under the provisions of Rule 6 of said Order No. R-8768, the above non-standard gas proration unit is hereby approved.

Sincerely,

William J. LeMay
Director

WJL/MES/ag

cc: Oil Conservation Division - Aztec
NM Oil and Gas Engineering Committee - Hobbs
US Bureau of Land Management - Farmington

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

4/27
CAJ -
Pls co-ordinate w/ CEW, DAB this "new" filing procedure.
Joe

GARREY CARRUTHERS
GOVERNOR

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

MERIDIAN OIL
APR 27 1990
FARMINGTON, NEW MEXICO
REGULATORY

April 25, 1990

Meridian Oil, Inc.
P.O. Box 4289
Farmington, NM 87499-4289

Attention: Peggy Bradfield

RE: Application to Amend Division Administrative Order NSP-1578(L), proposed Rosa Unit Well No. 241

Dear Ms. Bradfield:

Per our telephone conversation today concerning the subject application dated April 10, 1990, I was under the impression that this filing was necessitated because of a "survey error" by Northwest Pipeline Corporation who filed the original APD on this well and not for topographical reasons as you stated.

I have enclosed a copy of our "Guidelines for Administrative Approval of Non-Standard Location Applications." So that I may properly process this filing, please refile following these provisions.

Thank you.

Sincerely,

Michael E. Stogner
Petroleum Engineer

MES/ag

cc: Oil Conservation Division - Aztec
US Bureau of Land Management - Farmington
US Bureau of Reclamation - Durango

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

GARREY CARRUTHERS
GOVERNOR

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

No. 1-90

MEMORANDUM

TO: **All Operators**

FROM: **William J. LeMay, Director**

SUBJECT: **Administrative Applications for Unorthodox Locations**

DATE: **March 21, 1990**

Division Memorandum No. 3-89, dated March 24, 1989, advised the industry that the OCD would no longer automatically approve unopposed unorthodox location applications. Unorthodox locations can be approved administratively in accordance with the Rules and Regulations or applicable special pool rules if surface conditions truly prevent the use of a legal location and if directional drilling to a legal location is not feasible.

Topographic conditions which will be considered to justify an unorthodox location include such traditional factors as terrain features (steep slopes, arroyos, etc.) which make drilling impractical. In addition, approval may be given to avoid archeological sites which may not be disturbed without substantial mitigation, incompatible surface uses such as buildings, recreation areas, etc. Applications should fully document the reason an unorthodox location is required.

The attached guidelines state the minimum information which should be submitted with applications for administrative approval of unorthodox locations. Failure to provide the necessary information will probably result in processing delays.

If the surface of the proration unit or proposed drill site is controlled by a Federal Surface Management Agency, a copy of the application must be sent to the appropriate agency office.

If there are legal locations within the proration unit which are drillable, but the operator choses not to drill those locations for geological reasons the application cannot be approved administratively and a hearing will be required.

NEW MEXICO OIL CONSERVATION DIVISION

SUBMITTAL GUIDELINES FOR ADMINISTRATIVE APPROVAL OF NON-STANDARD LOCATION APPLICATIONS

I. If the well is located on Federal or Indian Lands, the Federal Surface Management Agency must be notified and an on-site inspection conducted prior to filing the application. If an Application for Permit to drill or a Notice of Staking has been prepared, a copy must be submitted.

II. Completed C-102 showing the well location, proration unit, leases within the unit and other required information.

III. Land plat showing offset operators and working interest owners and any offsetting wells producing from the same pool or formation.

A. This information may be shown on the topo map if it does not impair the readability of the map.

B. The operator should certify that the information is current and correct.

IV. Original or clear copy of topographic map, preferably 7.5 minute quad, showing contours and other mapped features impacting the location, with the following information marked thereon (In order to be able to adequately show all of the necessary surface conditions it may be necessary to enlarge the relevant portion of the topo map to provide room for detail):

A. The proposed well location and proration unit;

B. An outline of the orthodox drilling windows as provided in the applicable rules for the subject application;

C. The location of any wells to any formation within the area of the proration unit and a statement as to whether an existing pad can be used to drill the proposed well;

V. An enlargement of the topo map showing the subject area with the applicable additional information:

A. Terrain features not shown on the map which make an orthodox location unusable;

B. Proposed access roads and pipelines if they affect the location selection;

C. The location of any surface uses which prevent use of a legal location;

D. The location of any archeological sites identified in the archeological survey;

E. The location and nature of any other surface conditions which prevent the use of an orthodox location.

VI. If archeological sites are a reason for the unorthodox location request, a copy of the archeological survey, or a summary, identifing sites which cannot be disturbed or which must have any disturbance mitigated. In addition, the location of such areas should be marked on the enlarged topo so they can be clearly identified.

VII. A narrative report of any on-site inspection of the potential locations. If such on-site has resulted in elimination of legal locations due to surface conditions, such information should also be noted on the enlarged topo.

VIII. A statement of why directional drilling to reach a legal bottom-hole location is not feasible.

IX. An affidavit that notice has been sent to all parties entitled thereto, under the Divisions Rules and Regulations with return receipt cards showing date of receipt of notice.

Rosa Unit #241

535'S, 685'E Section 6, T-31-N, R-5-W, Rio Arriba County, NM

09-21-88 NWP staked.
12-19-88 NWP applied for APD.
2-20-89 NWP applied for NSP & NSL
07-18-89 NWP received NSP-1578 (L)
07-24-89 APD approved by BLM

09-21-89 BLM wrote NWP requesting site be reinventoried for archaeological purposes.

10-20-89 MOI assumed operatorship of Rosa Unit Fruitland Coal formation.

1475'S, 465'E, Section 6, T-31-N, R-5-W, Rio Arriba County, NM

11-27-89 MOI resurveyed site and found at 1475'S, 465'E (stake did not move)

12-01-89 Reinventoried w/BLM archaeologist. BLM requested moving to avoid sites.

2090'S, 790'E, Section 6, T-31-N, R-5-W, Rio Arriba County, NM

12-22-89 MOI resurveyed and restaked to avoid archaeological sites.

01-02-90 Archaeological inspection by DCA

01-25-90 Archaeological report received from DCA w/clearance

02-09-90 MOI filed sundry notice to BLM for moved location.

03-27-90 BLM approved sundry notice.

04-10-90 MOI filed application for revision to NSP-1578 (L) with NMOCD.

04-25-90 Called Stogner requesting verbal approval
1. Needs to know why we moved location (stated on sundry notice attached to application)
2. Needs new arch report
3. Assumed it had been drilled
4. Stated NMOCD taking legal action on Rosa wells - not free to talk about it.

operator

BLM ENVIRONMENTAL STIPULATIONS

Operator NORTHWEST PIPELINE CORP. Well Name 241 ROSA UNIT

Legal Location 535'FSL/ 685'FEL Sec. 6 T. 31 N. R. 5 W.

Lease Number SF-078767 Field Inspection Date 10/13/88

The following stipulations will apply to this well unless a particular Surface Managing Agency has supplied to the BLM and the operator a contradictory environmental stipulation. Failure of the operator to comply with these requirements may result in the assessment of liquidated damages or penalties pursuant to 43 CFR 3163.3 or 3163.4.

An agreement between the operator and fee land owner will take precedence over BLM surface stipulations unless 1) the BLM determines that the operator's actions will affect adjacent Federal or Indian surface (43 CFR Part 3160), or 2) the operator does not maintain the well area and lease premises in a workmanlike manner with due regard for safety, conservation and appearance (43 CFR Part 3162.7-4), or 3) no such agreement exists (43 CFR Part 3160), or 4) in the event of well abandonment, minimal Federal restoration requirements will be required (43 CFR Part 3162.7-2).

* No construction or drilling activities shall be conducted between November 1 and March 31 because of eagle wintering habitat.

* No construction or drilling activities shall be conducted between December 1 and March 31 because of deer/elk wintering habitat. Contact BLM Wildlife Biologist at 327-5344 with any questions.

* A ~~(ft.)~~ tree screen will be left on the North side of the location.

* Pits will be lined with an impervious material at least 8 mils thick.

* The final cut slope shall not exceed a 3:1 ratio. The final fill slope shall not exceed a 3:1 ratio. Construction slopes can be much steeper, but will be contoured to the above final slopes upon pit reclamation. Hyrdo mulching or netting is not required on the slopes.

* Paint color GREEN seed mix 1
Recommended Seed Mixtures. *Species to be planted in pounds pure-live-seed per acre: Pure Live Seed = Germination x Purity.

Seed Mix No. 1--BLM	
Crested Wheatgrass	1
Smooth Brome	1/2
Fourwing Saltbush (dewinged)	1/2
Nomad Alfalfa	1
Indian Ricegrass	1/2
Western Wheatgrass	1

LOCATION AND ACCESS ROAD

A. Well area and lease premises will be maintained in a workman-like manner with due regard to safety, conservation and appearance. All waste, completion fluids and drilling products associated with oil and gas operations will be contained and then buried in place, or removed and deposited in an approved disposal site. If burial on site is used, waste must be buried at least 2' deep and metal containers will be crushed prior to burial. Trash pit must be secured during drilling activities, so as to keep the trash from spreading outside of the pit. Trash pits for drilling operations will be covered once the drilling rig leaves the location.

B. Pinyon and juniper trees will be uprooted from road rights-of-way and well pad locations and distributed beside rights-of-way and well pads for fuelwood salvage. Care will be taken to keep the trees as undamaged as practically possible. Large vegetation such as sagebrush, juniper and pinyon will not be incorporated into pit walls. Sagebrush removed during clearing operations will be placed in drainages and "walked down" by a crawler - type tractor. If no drainages are nearby, sagebrush will be buried in the reserve pit when it is filled in. All uprooted vegetation not subsequently buried will be scattered so it does not detract from the natural appearance of the area and does not accelerate erosion.

C. Surface disturbance and vehicular traffic will be limited to the approved location and approved access road.

D. Mud pits and blow pits will be constructed so as not to leak, break, or allow discharge of liquids or produced solids. The bottom of the reserve pit shall not be in fill material. Pits are not to be located in natural drainages. Any plastic material used to line pits must be removed to below-ground level before pits are covered. Pit walls are to be "walked down" by a crawler-type tractor following construction and prior to usage.

E. All unguarded pits containing liquids will be fenced. Drilling pits will be fenced on three sides and once the rig leaves the location, the fourth side will be fenced. Fencing must be a legal fence in accordance with New Mexico State Law. Liquids in pits will be allowed to evaporate, or be properly disposed of, before pits are filled and recontoured. (This office will be notified 24 hours prior to fluid hauling). Under no circumstances will pits be cut and drained.

F. Unless otherwise approved, the driving surface on all access roads must be limited to ____ feet in width, and total disturbance will be limited to 35 feet excluding turnouts.

G. No gravel or other related minerals from new or existing pits on Federal land will be used in construction of roads, well sites, etc., without prior approval from the Surface Managing Agency.

H. Water bars will be constructed on the access road to the well location and conform to surface management specifications. The maximum slope distance between water bars will be:

% Slope	Slope Distance
Less than 1%	400 feet
1% - 5%	300 feet
5% - 15%	200 feet
15% - 25%	100 feet
Greater than 25%	50 feet

When the access road is graded, water bars will be left in the road or replaced immediately upon completion of grading.

J. Berms or firewalls will be constructed around all storage facilities sufficient in size to contain the storage capacity of the tanks, or the combined capacity of tanks if a rupture could drain more than one tank.

L. All roads on public land must be maintained in a good passable condition.

M. A proposed use of pesticide, herbicide or other possible hazardous chemical on Bureau of Land Management land shall be cleared for use prior to application.

CULTURAL RESOURCES (ARCHAEOLOGY)

A. The lessee will not commence construction on the lease until the cultural resource inventory has been approved by BLM (per 36 CFR 800).

B. Surface disturbance activities shall be kept 100' away from any archaeological site(s) located off the well pad, unless approved otherwise by the Area Manager.

C. If, in its operations, the APD grantee discovers any historic or prehistoric ruin, monument or site, or any object of antiquity subject to the Antiquities Act of 1906, The Archaeological Resources Protection Act of 1979, and 43 CFR Part 3, then work will be suspended and the discovery promptly reported to the BLM Area Manager. The BLM will then specify what action is to be taken. The APD grantee will obtain at his expense, a qualified archaeologist to carry out the specific instructions of the BLM.

RESEEDING AND ABANDONMENT

A. All surface areas disturbed during drilling activities and not in use for production activities, will be reseeded the first July - September period after the reserve pit has been filled in and/or location abandoned.

B. Compacted areas of the well pad will be plowed or ripped to a depth of 12" before reseeding. All seeding is recommended to be done between July 1 and September 15. Seeding will be done with a disc-type drill with two boxes for various seed sizes. The drill rows will be eight to ten inches apart. The seed will be planted between one-half inch deep and three quarter inch deep. The seeder will be followed with a drag, packer or roller to insure uniform coverage of the seed, and adequate compaction. Drilling of the seed will be done on the contour where possible. Where slopes are too steep for contour drilling a "cyclone" hand-seeder or similar broadcast seeder will be used, using twice the recommended seed per acre. Seed will then be covered to a depth described above by whatever means is practical.

C. If, in the opinion of the surface management agency, the seeding is unsuccessful, the lessee/operator may be required to make subsequent seedings.

D. If, upon abandonment of wells, the retention of access road is not considered necessary for the management and multiple use of the natural resources, it will be ripped a minimum of 12" in depth. After ripping, water bars will be installed as stated in 23.H. All ripped surfaces are to be protected from vehicular travel by construction of a dead-end ditch and earthen barricade at the entrance to these ripped areas. (Reseeding of the affected areas may be required).

Operator's Representative _____

BLM Representative Don Ellsworth

Note: If the land is privately owned, these requirements may be varied to comply with the operator - landowner agreement.

December 11, 1987

BLM ~~Serial~~ lease Number SF-078767
Company Reference Northwest Pipeline Rosa Unit #241

STANDARD STIPULATIONS FOR ROADS IN THE

ALBUQUERQUE DISTRICT, BLM

Grantee/permittee agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

A. GENERAL

1. The grantee/permittee shall minimize disturbance to existing fences and other improvements on public land. The grantee/permittee is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The grantee/permittee will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting the fence.

B. ROAD GRADE AND WIDTH

1. The road will have a driving surface of 14 feet (all roads shall have a minimum driving surface of 14 feet, unless local conditions dictate a different width). The maximum grade is 10 percent unless the box below is checked. Maximum width of surface disturbance from construction will be 35 feet.

/ / Those segments of road where grade is in excess of 10% for more than 300 feet shall be designed by a professional engineer.

C. CROWNING AND DITCHING

1. Crowning and ditching is required. The road cross section will conform to the cross section diagrams in figure 1. The crown shall have a grade of approximately 2 percent (i.e., 2" crown on a 14' wide road).

D. DRAINAGE

1. Drainage control shall be ensured over the entire road through the use of borrow ditches, drainage dips, outsloping, insloping, natural rolling topography, culverts, and/or turnout (lead-off) ditches. Every drainage dip shall drain water into an adjacent turnout ditch.

a. Unless otherwise approved in writing by the Authorized Officer, drainage dip location for grades over 2 percent shall be determined by the formula:

Spacing Interval = $\frac{400}{\text{road slope \%}}$ + 100'.

Example: For a road with a 4 percent slope.

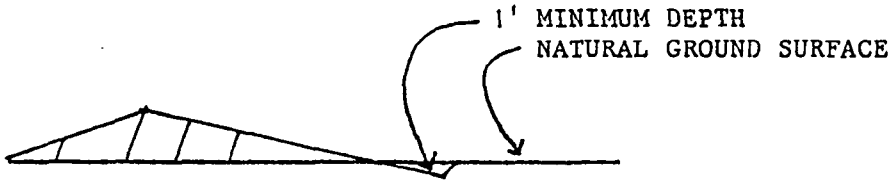
Spacing Interval = $\frac{400}{4\%}$ + 100' = 200 feet.

b. Unless otherwise approved in writing by the Authorized Officer, all turnout ditches shall be graded to drain water with a one percent minimum to 3 percent maximum ditch slope. The spacing interval for turnout ditches shall be determined according to the following table, but may be amended depending upon existing soil types and centerline road slope (in %):

SPACING INTERVAL FOR TURNOUT DITCHES

Percent Slope	Spacing interval
0 - 4%	150' - 350'
4 - 6%	125' - 250'
6 - 8%	100' - 200'
8 - 10%	75' - 150'

TYPICAL TURNOUT DITCH



For this road the spacing interval for turnout ditches shall be:

/__/ At locations staked in the field.

/__/ At locations delineated on the attached map.

2. Culvert pipes shall be used for cross drains where drainage dips or low water crossings are not feasible. The minimum culvert diameter is 18 inches. Any culvert pipe installed shall be of sufficient diameter to pass the anticipated flow of water. Culvert location and required diameter are shown on the attached map. Their location is also flagged on the ground. (Further details can be obtained from the Albuquerque District Office or the appropriate Resource Area Office.)

E. TURNOUTS

1. Unless otherwise approved by the Authorized Officer, vehicle turnouts will be required. Turnouts will be located at 2000 foot intervals, or the turnouts will be intervisible, whichever is less. Turnouts will conform to the diagram in figure 1.

F. SURFACING

/__/ All weather access is desired and surfacing material (_____) is economically available, therefore the road will be surfaced. The surfacing material will be compacted to a minimum thickness of ___ inches. The width of surfacing shall be no less than the driving surface. Prior to using any mineral material from an existing or proposed Federal source, authorization must be obtained from the Authorized Officer.

/X/ Surfacing is not required because all weather access is not desired, or all weather access is desired but surfacing materials are not economically available or the soil has the capacity to bear loads when dry as well as when they are wet. Therefore surfacing is not required. The road shall not be used when it is not easily passable with a two wheel pickup, without tire chains, due to wet/mud/snow conditions.

/__/ A gate capable of being locked and ( ) a four wire fence must be installed at _____

_____

_____.

G. CATTLEGUARDS

1. All cattleguard grid and foundation designs and construction shall meet the American Association of State Highway and Transporatation Officials (AASTHO) load Rating H-20, although AASTHO U-80 rated grids shall be required where heavy loads, (exceeding H-20 loading) are anticipated. (See BLM standard drawings for cattleguards). Cattleguard grid lengths shall not be less than 8 feet and width of not less than 14 feet. A wire gate (16-foot minimum) will be provided on one side of the cattleguard.

/__/ A cattleguard(s) is required at the location(s) shown on the attached map.

H. MAINTENANCE

1. The grantee/permittee shall regularly maintain the road in a safe, usable condition. A regular maintenance program shall include, but not be limited to blading, ditching, culvert installation, culvert cleaning, drainage installation, cattleguard maintenance and surfacing.

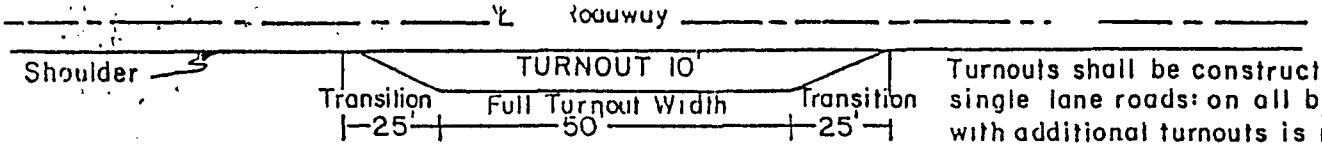
2. Failure of the grantee/permittee to share maintenance costs in dollars, equipment, materials, or manpower proportionate to the grantee/permittee's use with other authorized users may be adequate grounds to terminate the right-of-way grant. The determination as to whether this has occurred and the decision to terminate shall rest with the Authorized Officer. Upon request, the Authorized Officer shall be provided with copies of any maintenance agreement entered into.

I. PUBLIC ACCESS

1. Public access along this road will not be restricted by the grantee/permittee without specific written approval being granted by the Authorized Officer. Gates or cattleguards on public lands will not be locked or closed to public use unless specifically determined by the Authorized Officer.

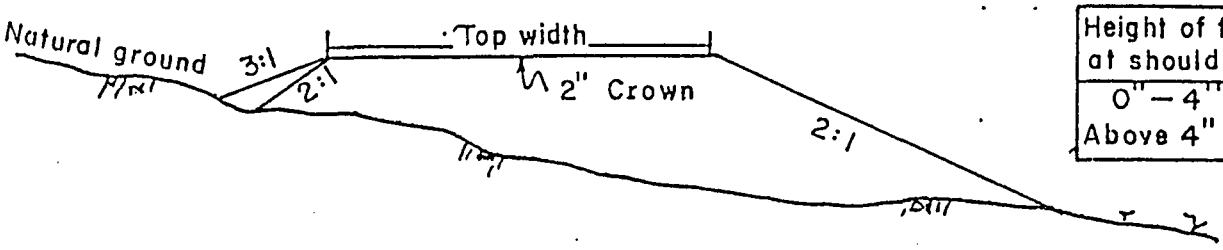
J. SPECIAL STIPULATIONS

By Don Ellsworth Date 10/17/88



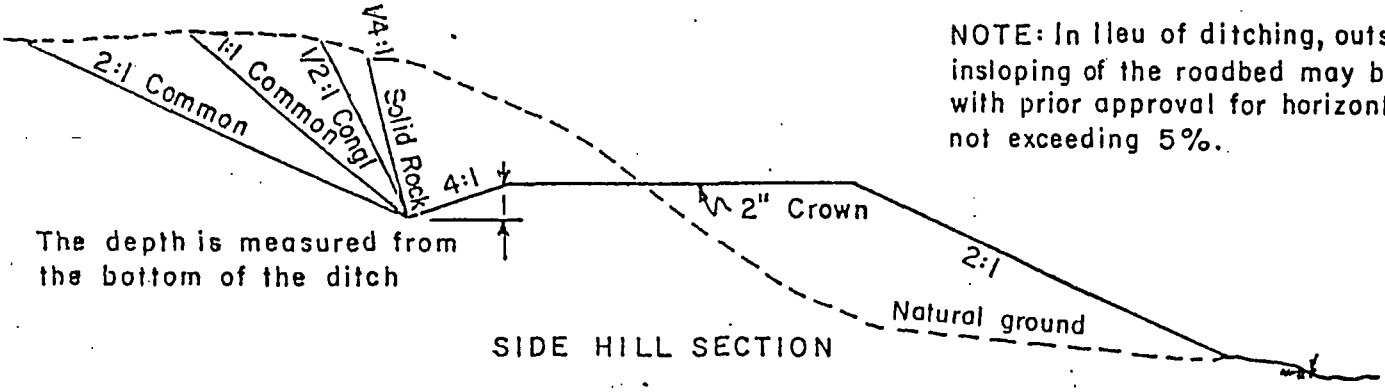
Turnouts shall be constructed on all single lane roads: on all blind curves with additional turnouts is needed to keep spacing below 2000 feet.

TYPICAL TURNOUT PLAN



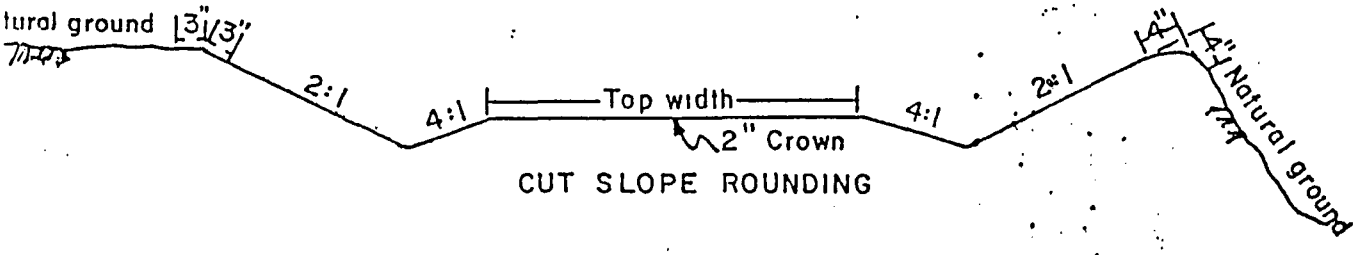
Height of fill at shoulder	Embankment slope
0"—4"	3:1
Above 4"	2:1

EMBANKMENT SECTION

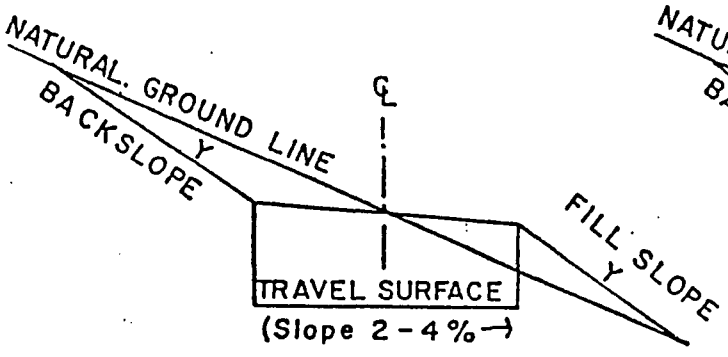


NOTE: In lieu of ditching, outsloping or insloping of the roadbed may be allowed with prior approval for horizontal grade not exceeding 5%.

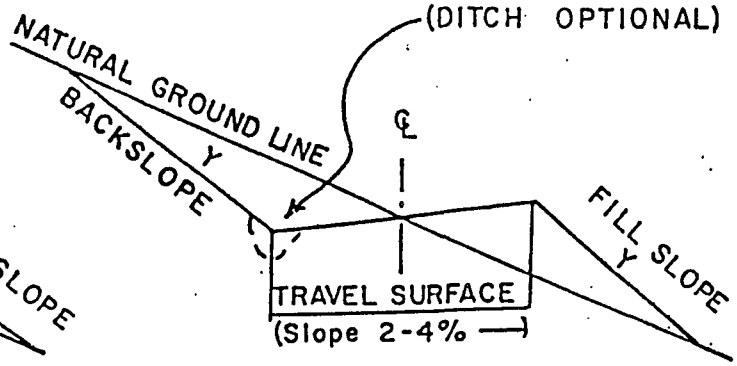
SIDE HILL SECTION



CUT SLOPE ROUNDING



TYPICAL OUTSLOPED SECTION



TYPICAL INSLOPED SECTION

WILDLIFE MITIGATION

Well Name/Number Rosa Unit 241

T. 31N, R. 5W, Sec. 6 SE¼E¼

_X_ Fence, Gate, and Sign

Fence: 100 ft.

Gate: 16 ft.

Sign: See attached.

____ Dirt Tank and Sign

See attached.

_X_ Herbicide Treatment

Size: 20 acres

Chemical: 2 bag/bags

____ Other

LESSEE HAS 90 DAYS TO COMPLETE MITIGATION FOLLOWING WELL COMPLETION.

WILDLIFE MITIGATION

Well Name/Number Rosa Unit 241

T._____, R. _____, Sec. _____ _____

Herbicide Treatment

This type of project is required for one of two reasons. The well and road may impact a BLM wildlife project or a planned project. A herbicide treatment would replace the value of the affected BLM project.

The other reason for a herbicide treatment would be to improve marginal habitat. The area may not be ideal for big game because of man-made factors or because there is a missing habitat component. A herbicide treatment to provide grass and forbs (little flowering plants) would improve the general quality of the area impacted by the well and road.

SIZE: 20
CHEMICAL: SPIKE-20P, Amount: 2 bags, Source: General Supply
Cost: 175- bags

SIGN: "The BLM in cooperation with _____ has treated sagebrush on this site to provide forage for big game."

LOCATION

LESSEE HAS 90 DAYS TO PROVIDE CHEMICALS AND SIGNING FOLLOWING WELL COMPLETION.

WILDLIFE MITIGATION

Well Name/Number Rosa Unit 241

T. 31N, R. 5W, Sec. 6 SENE

Fence, Gate, and Sign Location: to be determined

Marked or Flagged with:

SIGN: "SENSITIVE WILDLIFE AREA BLM and _____ are cooperating to manage wildlife habitat in this area. In order to minimize disturbance this road is closed to unauthorized vehicles. Travel by foot or horseback is permitted. Your cooperation is appreciated."

LESSEE HAS 90 DAYS TO COMPLETE MITIGATION FOLLOWING WELL COMPLETION.

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
AZTEC DISTRICT OFFICE

GARREY CARRUTHERS
GOVERNOR

1000 RIO BRAZOS ROAD
AZTEC, NEW MEXICO 87410
(505) 334-6178

KOSA #241

M-E-M-O-R-A-N-D-U-M (3-88-11)

TO: OPERATORS DRILLING FOR OIL AND GAS IN THE SAN JUAN BASIN OF NEW MEXICO

FROM: Frank T. Chavez, Supervisor District

NORTHWEST PIPELINE CORPORATION

SUBJECT: Drill Cuttings Samples

AUG 7 1989

DATE: May 26, 1988

PRODUCTION AND DRILLING

The attached Application for Permit to Drill has been approved by this office.

As a condition of approval, you are required to submit 4 4" x 6" sample bags of drill cuttings from the Fruitland Coal formation and from the Menefee Coal interval if it is encountered and if drilling conditions permit. If a geolograph is used, a copy of that recording from 50 feet above to 50 feet below the coal intervals will be submitted. Include the following information:

Operator name
Well name and number
Footage location, Section, Township and Range
Date taken
The name and address of the person in your company who is to receive a copy of the analysis.

Submit samples, information, and geolograph to the following address:

Mr. James Fassett
U.S. Geological Survey
P.O. Box 25046, MS 939 DFC
Lakewood, CO 80225

Coal analyses gathered in the San Juan Basin will be added to a data base available from the USGS in periodic reports.

This information will be used to evaluate coals and coal gas potentials in the San Juan Basin.

dj

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SUNDRY NOTICES AND REPORTS ON WELLS

1. TYPE OF WELL GAS	5. LEASE NUMBER SF-078767 6. IF INDIAN,ALL. OR TRIBE NAME
2. OPERATOR MERIDIAN OIL INC.	7. UNIT AGREEMENT NAME ROSA UNIT
3. ADDRESS & PHONE NO. OF OPERATOR P O BOX 4289 FARMINGTON, NM 87499	8. FARM OR LEASE NAME ROSA UNIT 9. WELL NO. 241
4. LOCATION OF WELL 2090'S 790'E	10. FIELD,POOL,OR WILDCAT BASIN FRUITLAND COAL 11. SEC. T. R. M OR BLK. SEC. 6 T31N R05W NMPM

14. PERMIT NO.	15. ELEVATIONS	12. COUNTY	13. STATE
	6333'GL	RIO ARRIBA	NM

16. OTHER: Revision

17. Describe proposed or completed operations

Attached is a revised copy of the C-102 showing the revised location for this well. The location was moved to avoid archeological sites and unorthodox location. Required field inspections have been performed.

NWPL Survey	535'S	685'E
MOI Survey	2090'S	790'E

18. AUTHORIZED BY: _____ REGIONAL DRILLING ENGINEER — DATE 2/9/90

NOTE: THIS FORMAT IS ISSUED IN LIEU OF US BLM FORM 3160-5.

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____
CONDITION OF APPROVAL, IF ANY:

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

DISTRICT I
P.O. Box 1980, Hobbs, NM 88240

DISTRICT II
P.O. Drawer DD, Artesia, NM 88210

DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION
P.O. Box 2088
Santa Fe, New Mexico 87504-2088

Form C-102
Revised 1-1-89

WELL LOCATION AND ACREAGE DEDICATION PLAT
All Distances must be from the outer boundaries of the section

Operator	Lease	Well No.
Meridian Oil Inc.	Rosa Unit (SF-078767)	241

Unit Letter	Section	Township	Range	County
I	6	31 North	5 West NMPM	Rio Arriba

Actual Footage Location of Well:
2090 feet from the South line and 790 feet from the East line

Ground level Elev.	Producing Formation	Pool	Dedicated Acreage:
6333'	Fruitland Coal	Basin	264.56 Acres

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.

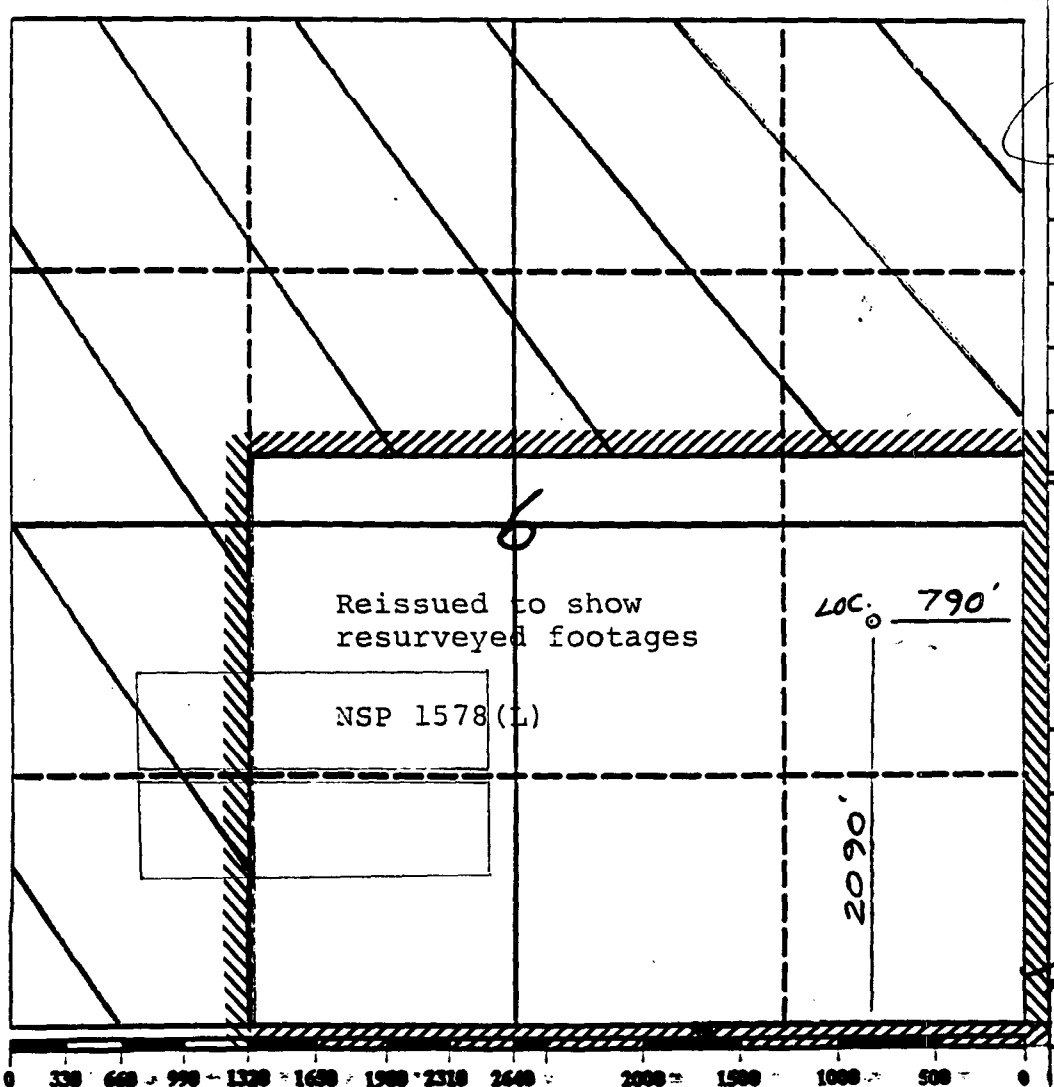
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

3. If more than one lease of different ownership is dedicated to the well, have the interest of all owners been consolidated by communitization, unitization, force-pooling, etc.?

☒ Yes ☐ No If answer is "yes" type of consolidation unitization

If answer is "no" list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary. _____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interest, has been approved by the Division.



OPERATOR CERTIFICATION
I hereby certify that the informa contained herein is true and complete to best of my knowledge and belief.

Signature: Peggy Bradfield

Printed Name: Regulatory Affairs

Position: Meridian Oil Inc.

Company

Date: 2-9-90

SURVEYOR CERTIFICATION
I hereby certify that the well location sho on this plat was plotted from field notes actual surveys made by me or under supervison, and that the same is true a correct to the best of my knowledge a belief.

Date Surveyed: 12-22-89

Signature & Seal of Professional Surveyor: Neale C. Edwards

NEALE C. EDWARDS 6857 REGISTERED LAND SURVEYOR

Certificate No. 6857

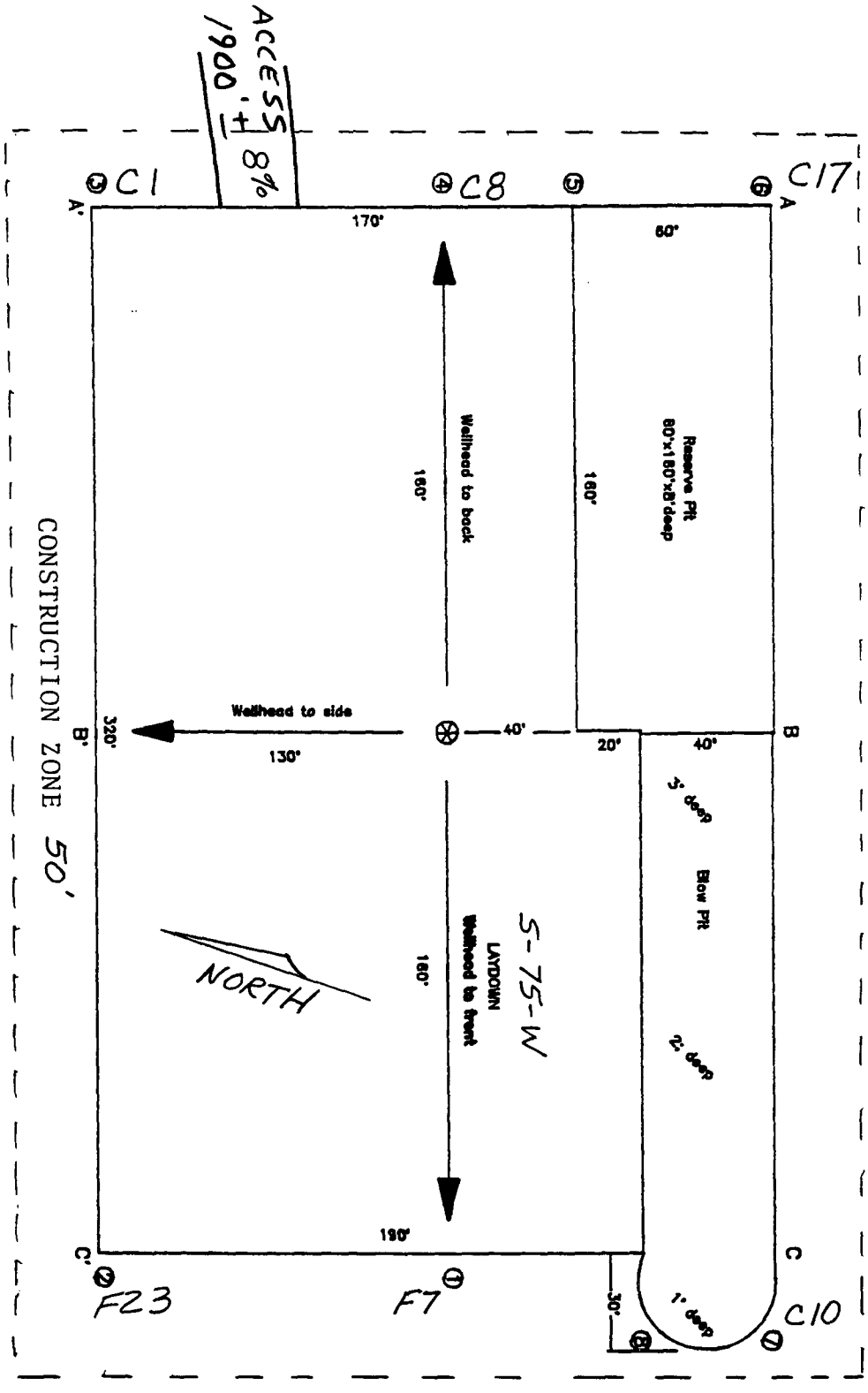


EXHIBIT: _____

Name: MOI ROSA UNIT #241

Footage: 2090' FSL 790' FEL

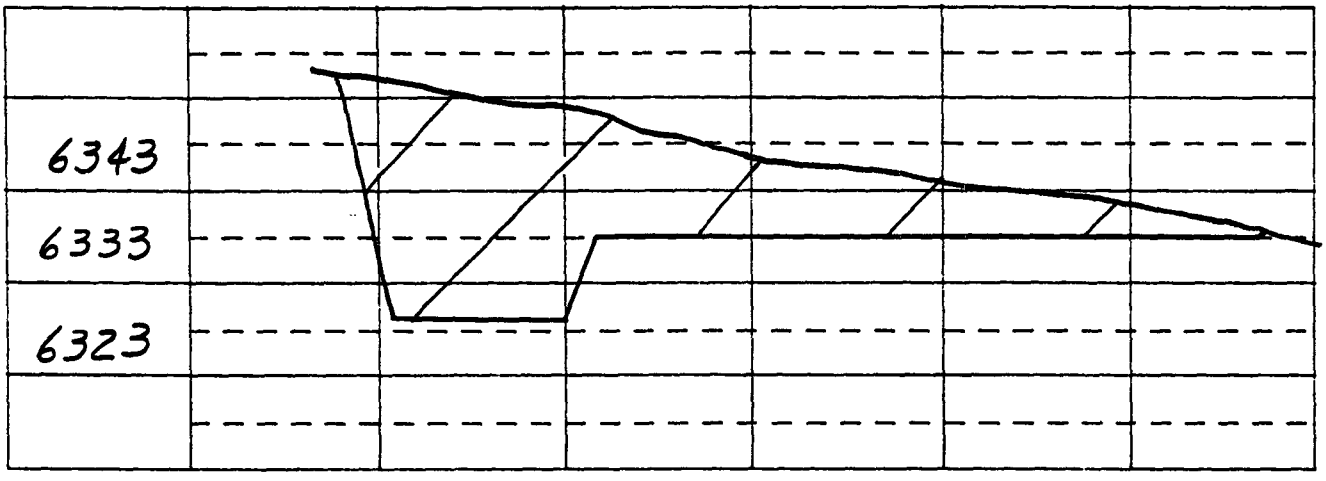
Sec 6, T- 31 -N, R- 5 -W NMPM

Co. RIO ARRIBA St. NM

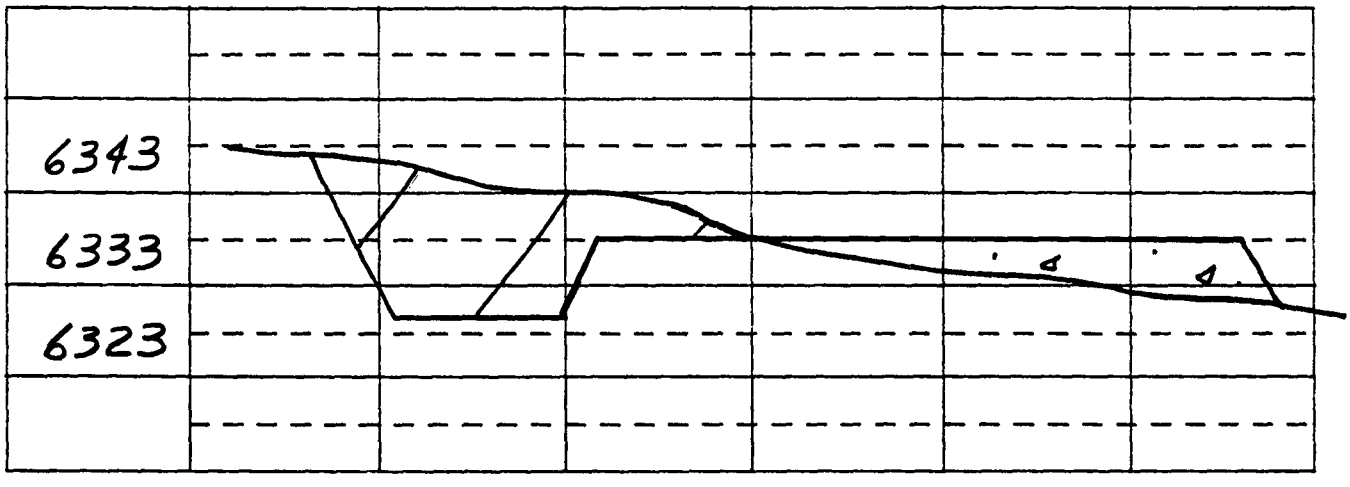
Elevation: 6333' Date: REV. 2-15-90

Plat 3
2/3/90

A – A' Vert.:1" = 20' Horiz.:1" = 50'



B – B'



C – C'

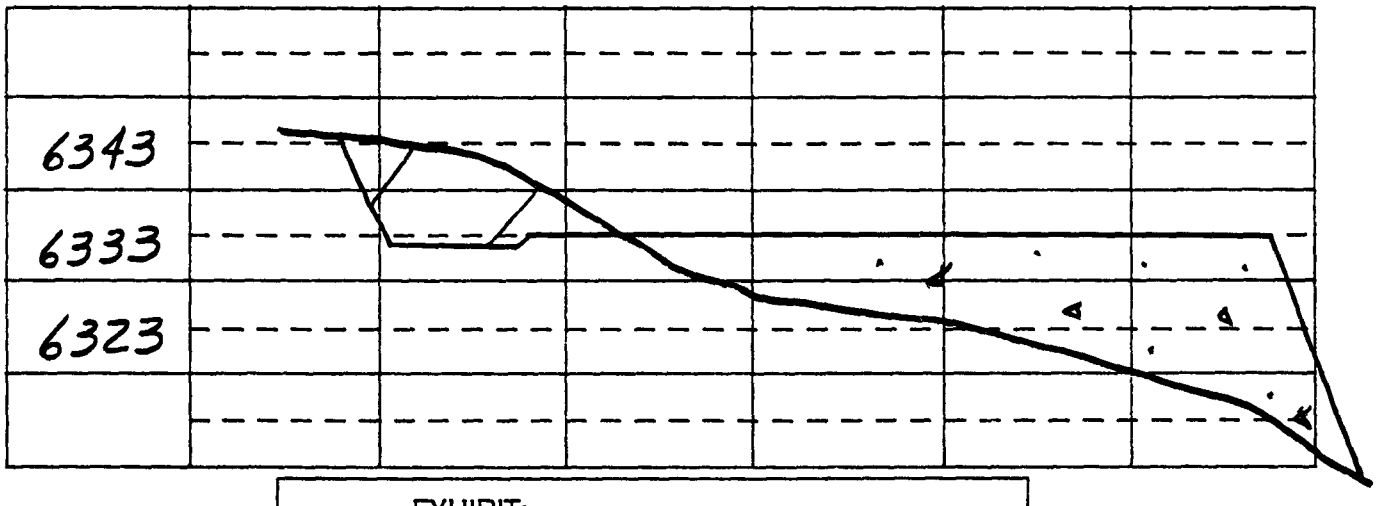


EXHIBIT: _____

Name: MOI ROSA UNIT #241

Footage: 2090' FSL 790' FEL

Sec. 6 ,T- 31 -N,R- 5 -W NMPM

Co. RIO ARRIBA St. NM

Elevation: 6333' Date: REV 2-15-90

Plat XC
2/4/90

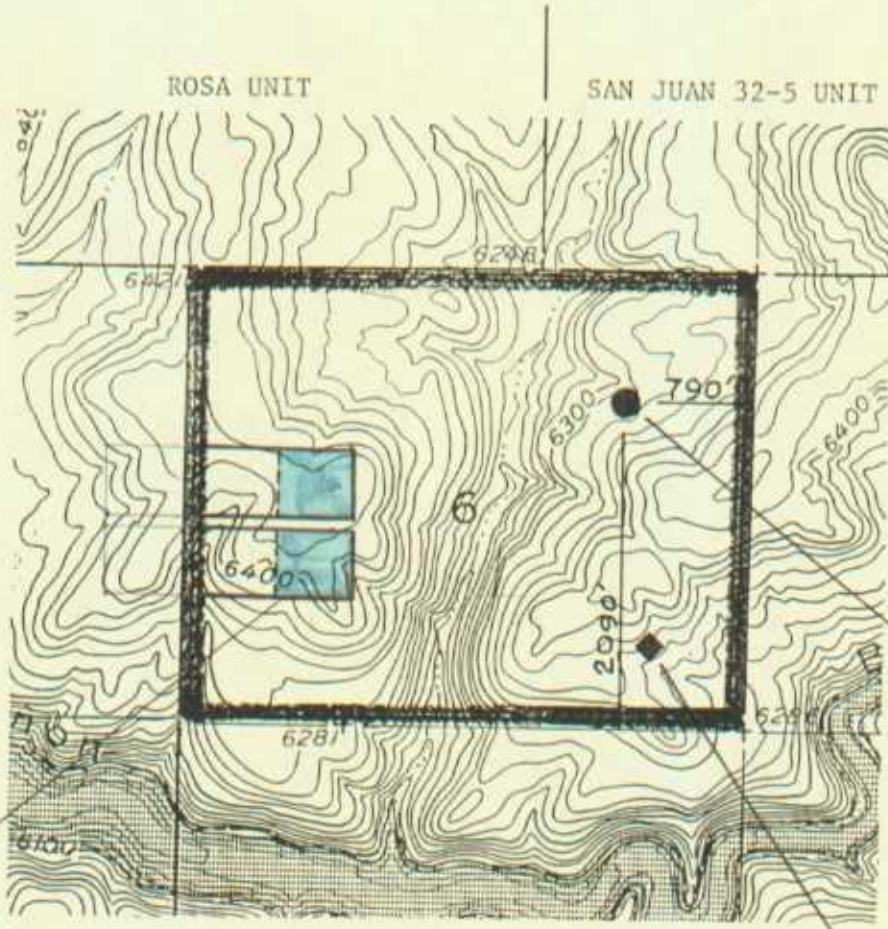
MERIDIAN OIL INC

Well Name Rosa Unit #241

Footage 2090' FSL; 790' FEL

APPLICATION FOR NON-STANDARD LOCATION

County Rio Arriba State New Mexico Section 6 Township 31N Range 5W



Remarks All surrounding lands are either within the Rosa Unit boundry or bounded by the San Juan 32-5 Unit, both operated by Meridian Oil Inc.

MERIDIAN OIL INC

Well Name Rosa Unit #241

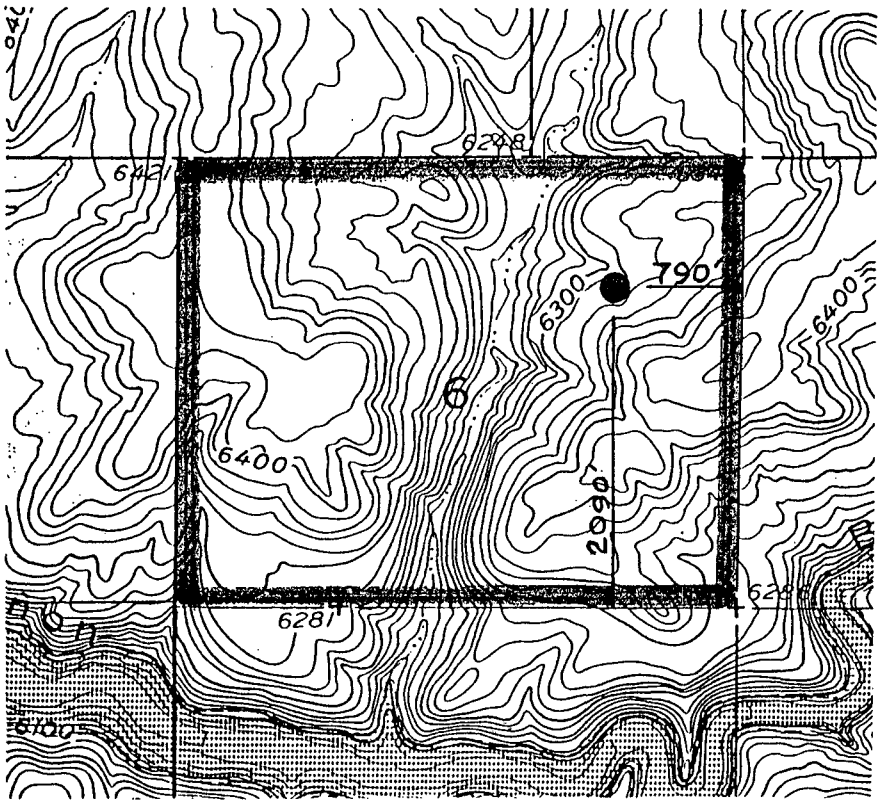
Footage 2090' FSL; 790' FEL

APPLICATION FOR NON-STANDARD LOCATION

County Rio Arriba State New Mexico Section 6 Township 31N Range 5W

ROSA UNIT

SAN JUAN 32-5 UNIT



SAN JUAN 32-5 UNIT

ROSA UNIT

ROSA UNIT

ROSA UNIT

Remarks All surrounding lands are either within the Rosa Unit boundry or bounded by the San Juan 32-5 Unit, both operated by Meridian Oil Inc.

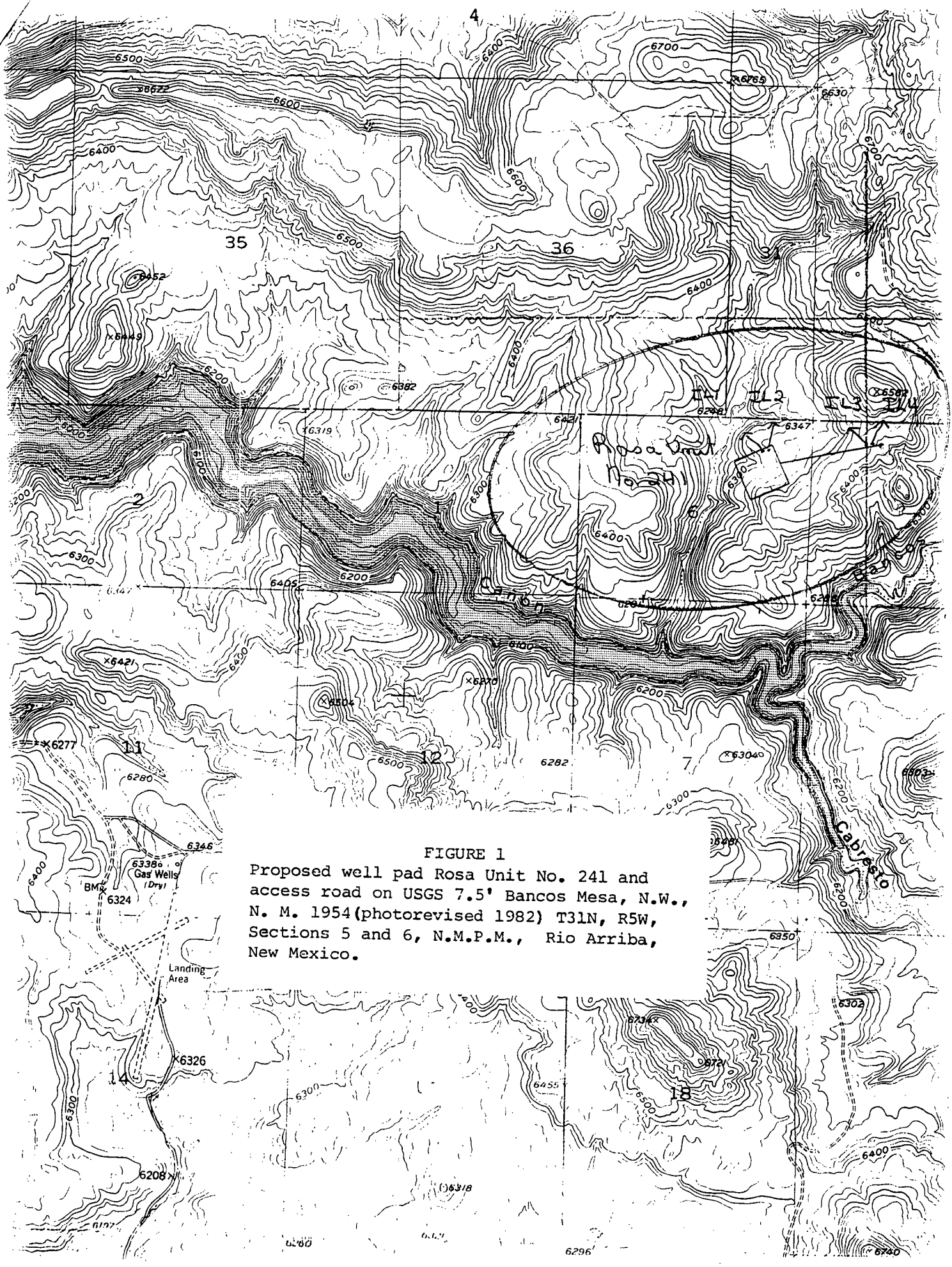


FIGURE 1
Proposed well pad Rosa Unit No. 241 and access road on USGS 7.5' Bancos Mesa, N.W., N. M. 1954(photorevised 1982) T31N, R5W, Sections 5 and 6, N.M.P.M., Rio Arriba, New Mexico.

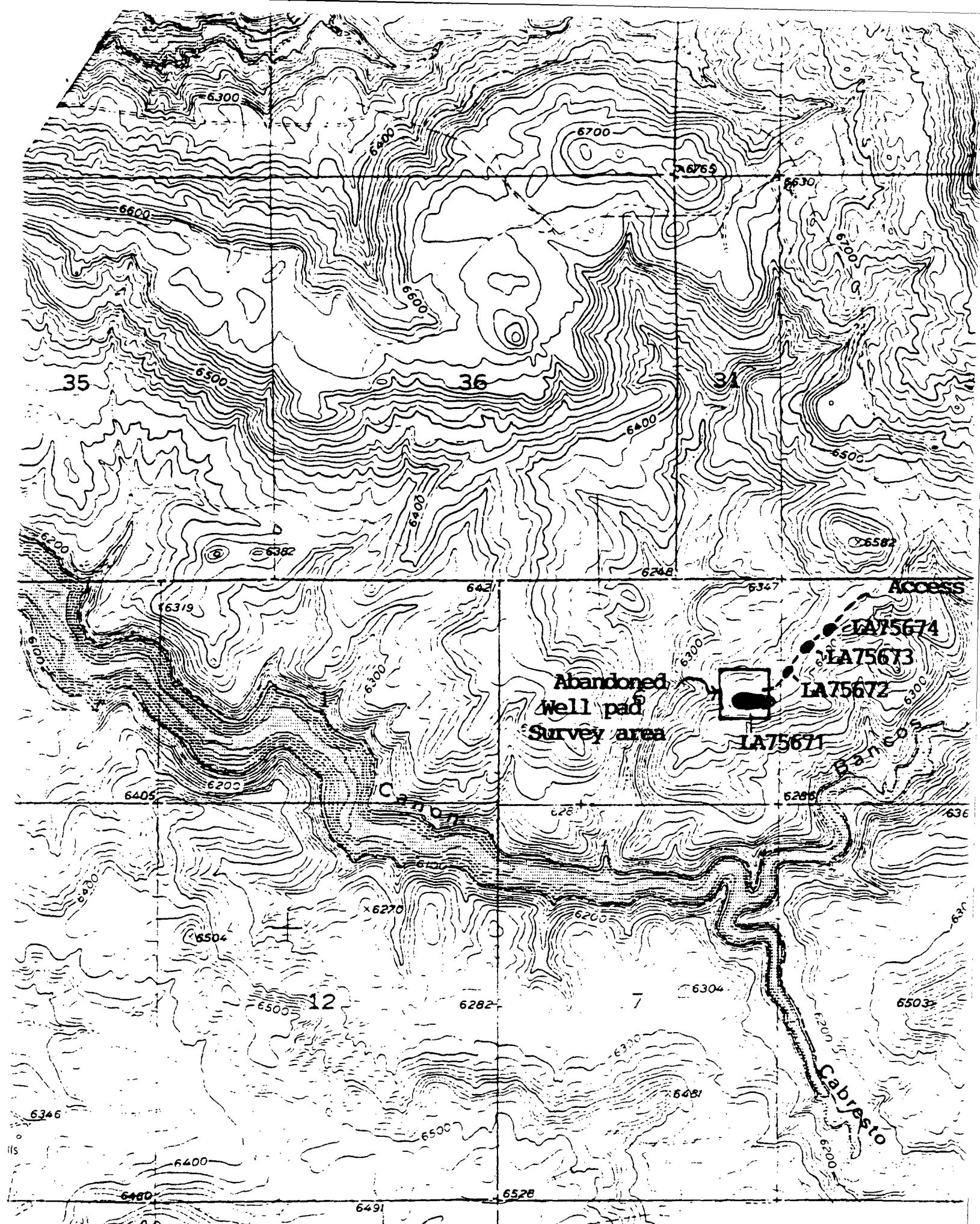


Figure 1. Project ar
USGS Bancos Mesa NW,

La Plata Archaeological Consultants

P.O. Box 783
Dolores, Colorado 81323
(303) 882-4933

Mr. Charles Werner
Meridian Oil Company
P.O. Box 4289
Farmington, New Mexico 87499-4289

January 23, 1990

Mr. Werner:

Please find enclosed two copies of the archaeological survey report for the Rosa 241 well pad and access road. I have submitted all of the required paperwork to the BLM and have not recommended archaeological clearance for this project. As you know, the location was moved and resurveyed by DCA. An invoice is attached.

Thank you,

Steven L. Fuller

Attachments

Rosa Unit #241

535'S, 685'E Section 6, T-31-N, R-5-W, Rio Arriba County, NM

09-21-88 NWP staked.
12-19-88 NWP applied for APD.
2-20-89 NWP applied for NSP & NSL
07-18-89 NWP received NSP-1578 (L)
07-24-89 APD approved by BLM

09-21-89 BLM wrote NWP requesting site be reinventoried for archaeological purposes.

10-20-89 MOI assumed operatorship of Rosa Unit Fruitland Coal formation.

1475'S, 465'E, Section 6, T-31-N, R-5-W, Rio Arriba County, NM

11-27-89 MOI resurveyed site and found at 1475'S, 465'E (stake did not move)

12-01-89 Reinventoried w/BLM archaeologist. BLM requested moving to avoid sites.

2090'S, 790'E, Section 6, T-31-N, R-5-W, Rio Arriba County, NM

12-22-89 MOI resurveyed and restaked to avoid archaeological sites.

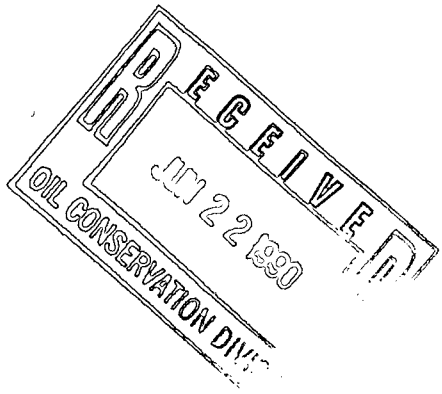
01-02-90 Archaeological inspection by DCA

01-25-90 Archaeological report received from DCA w/clearance

02-09-90 MOI filed sundry notice to BLM for moved location.

03-27-90 BLM approved sundry notice.

04-10-90 MOI filed application for revision to NSP-1578 (L) with NMOCD.



30-039-24311

Form 3160-3
(November 1983)
(formerly 9-331C)

SUBMIT IN TRIPLICATE*
(Other instructions on reverse side)

Form approved.
Budget Bureau No. 1004-0136
Expires August 31, 1985

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

5. LEASE DESIGNATION AND SERIAL NO.: SF-078767

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

7. UNIT AGREEMENT NAME: Rosa Unit

8. FARM OR LEASE NAME: Rosa Unit

9. WELL NO.: #241

10. FIELD AND POOL, OR WILDCAT: Basin Fruitland Pool

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: Sec. 6, T31N, R5W

12. COUNTY OR PARISH: Rio Arriba | 13. STATE: New Mexico

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

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

2. NAME OF OPERATOR: Northwest Pipeline Corporation

3. ADDRESS OF OPERATOR: 3539 E. 30th St. Farmington, New Mexico 87401

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*)
At surface: 535' FSL & 685' FEL SE/4 SE/4
At proposed prod. zone: Same

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*: Approximately 20 miles to Gobernador

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
535'	N/A 2578.04	264.56
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**
+ 2500'	3164'	Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.): 6350' GR

22. APPROX. DATE WORK WILL START*: 3-1-89

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

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

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
12-1/4"	9-5/8"	32.3#	200'	125 cu. ft.
8-3/4"	7"	20#	2992'	150 cu. ft.
6-1/4"	5-1/2"	23#	3164'	Open hole completion

The S/2 of Section 6 is dedicated to this well.

Location is unorthodox due to BLM request.

RECEIVED
JUL 26 1989
OIL CON. DIV.
DIST. 3

RECEIVED
BLM
89 DEC 22 PM 1:07
070 FARMINGTON, NEW MEXICO

NORTHWEST PIPELINE CORPORATION
AUG 7 19
PRODUCTION AND DRILLING

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, 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 Mike Turnbaugh TITLE Senior Engineer DATE 12/19/88

(This space for Federal or State office use)

APPROVED AS AMENDED

PERMIT NO. _____ APPROVAL DATE _____

APPROVED BY _____ TITLE _____ DATE JUL 24 1989

CONDITIONS OF APPROVAL, IF ANY:

ch-1 ~~Hold C-104 for NSL + NSP~~

NSP-1578 (4) (9)

for AREA MANAGER

*See Instructions On Reverse Side

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

OIL CONSERVATION DIVISION

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

P. O. BOX 2088
SANTA FE, NEW MEXICO 8750

Form C-102
Revised 10-1-7

All distances must be from the outer boundaries of the Section.

Operator	Lease	Well No.
Northwest Pipeline Corporation	Rosa Unit	241

Unit Letter	Section	Township	Range	County
P	6	31 North	5 West	Rio Arriba

Actual Footage Location of Well:
535 feet from the South line and 685 feet from the East line

Ground Level Elev.	Producing Formation	Pool	Dedicated Acreage:
6350	Fruitland	Basin Fruitland Pool	264.56 Acre

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.

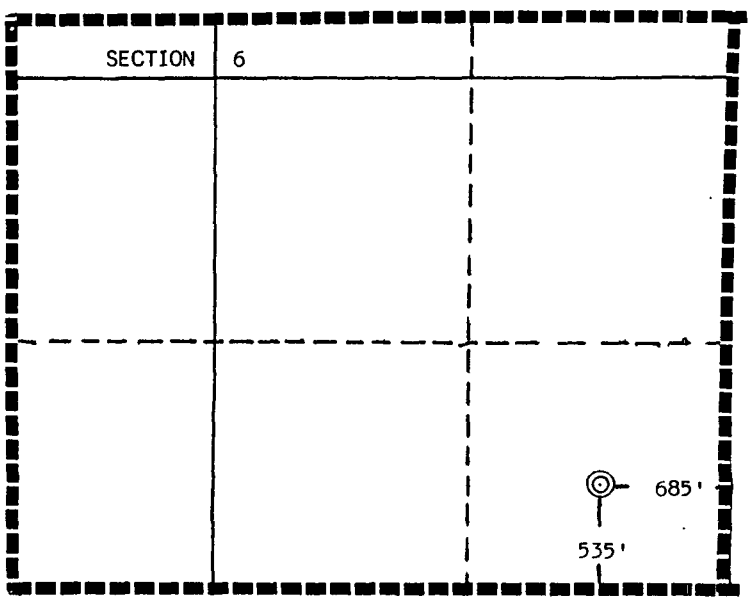
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling. etc?

[X] Yes [ ] No If answer is "yes," type of consolidation unitization

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) _____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Division



0 330 660 90 1320 1650 1980 2310 2640 2000 1500 1000 500 0

CERTIFICATION

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

Mike Turnbaugh

Name: Mike Turnbaugh

Position: Senior Engineer

Company: Northwest Pipeline Corp.

Date: 11-1-88

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 knowledge and belief.

EDGAR L. RISENHOOVER
5979
REGISTERED LAND SURVEYOR

Date Surveyed: September 21, 1988

Registered Professional Engineer and/or Land Surveyor

Edgar L. Risenhoover

Certificate No. 5979

Edgar L. Risenhoover, L.S.

NORTHWEST PIPELINE CORPORATION
OPERATIONS PLAN

Well Name: Rosa Unit #241 Date: December 21, 1988

I. Location: 685' FEL & 535' FSL
Sec. 6, T31N, R5W
Rio Arriba County, NM

Elevation: 6350' GR
6360' KB

Field: Basin Fruitland Pool

Surface: BLM
Minerals: Fed SF-078767

II. Geology: Surface formation - San Jose

A.

Formation Tops	Depth
Ojo Alamo	2405'
Kirtland	2514'
Fruitland Sand	2942'
Fruitland Coal	3007'
Pictured Cliffs	3165'
Intermediate TD	2992'
Final TD	3164'

B. Logging Program: None. Mud loggers will pick tops.

C. Natural Gauges: Gauge any noticeable increases in gas flow. Record all gauges on daily drilling and morning reports.

III. Drilling:

A. Contractor:

B. Mud Program: Mud, water & gas will be furnished by Northwest Pipeline Corporation from surface to total depth.

a) From surface to total casing depth to be drilled with mud.

C. 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. All tests will be reported in the Northwest Pipeline Tour Reports as to time and date.

IV. Materials:

A. Casing Program:

Hole Size	Depth O.H.	Casing Size	Wt. & Grade
12-1/4	200'	9-5/8"	32.3# H-40
8-3/4"	2992'	7"	20# K-55
6-1/4	3164'	5-1/2"	23# P110

B. Float Equipment:

a) Surface Casing: 9-5/8" - B&W Regular Pattern Shoe.

b) Intermediate Casing: 7" - Dowell guide shoe (Code #50101-070) and self fill insert float collar (Code #53003-070). Five (5) centralizers (Code #56011-070) spaced every other joint above the shoe. Place float one joint above shoe.

c) Liner: 5-1/2" - Perforated liner w/ notched collar on bottom. Liner hanger with neopreme pack off.

C. Tubing Program: 3150' of 2-7/8" 6.4#, EUE, J-55 tubing w/ seating nipple on top of bottom joint. Expendable check valve on bottom.

D. Wellhead Equipment: Rector well head drawing 88-0203 or equivalent. Wellhead company representative to set slips and make cut off.

V. Cementing

A. Surface Casing: 9-5/8" - Use 105 sx (125 cu.ft.) of Cl "B" w/ 1/4# gel flake/sx and 3% $CaCl_2$ (Yield=1.19) (100% excess to circulate). WOC 12 hrs. Test surface casing to 600 psi for 30 min.

B. Intermediate Casing: 7" - Cement w/ 80 sx Cl "B" w/ 6% gel and 6-1/4# gils/sx (Yield=1.87) (150 cu.ft.) 70% excess to cover Ojo Alamo. WOC 12 hrs. Test casing to 1200 psi for 30 min. Run temperature survey in 8 hrs.

C. Production Liner: 5-1/2" - Perforated liner will be run without cement (open hole completion).

M.J. Turnbaugh
Sr. Engineer

MJT/ch
Original: Well file
cc: Regular distribution

Multi-Point Surface Use Plan

1. Existing Roads

To reach the proposed location, start from Farmington, New Mexico and go on N.M. 64, approximately 45 miles to Gobernador. Turn north on Sims Highway and travel approximately 5 miles. Turn right on Rosa Road 15 miles to location.

All existing roads used to access the proposed location shall be maintained in the same or better condition than presently found. Access road classified as "Temporary Resource Road".

2. Planned Access Roads

The required new access road is shown on the attached map. The proposed route is flagged and approximately 3000' feet in length. The road surface will not exceed 20 feet in width. Grade of the road will be consistent with the local terrain with a maximum grade of five percent. Upon completion of the project, the access road shall be adequately drained to control soil erosion. Water bars, culverts or turnouts will be used as necessary. Gates will be installed where the access road crosses an existing fence line as per map. Access road to be classified "Temporary Resource Road".

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. The condensate tanks will be enclosed by a dike.

Upon completion of drilling, the location and surrounding area will be cleared of all debris. All trash will be disposed of in the trash pit.

5. Water Supply

Water for drilling and completion operations will be hauled by truck from La Jara water hole. (SW/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 burn pit (Plat 2). This earthen pit will be four to six feet deep with small mesh wire fencing to prevent the scattering of trash. Upon cleanup, any refuse in the burn pit will be buried at least three feet deep.

c. Portable toilets will be provided and maintained during drilling operations. See Plat 2 for location.

8. Ancillary Facilities

No ancillary facilities are planned.

9. Well Site Layout

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

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. A stock pond will be built adjacent to the location as per map.

11. Surface Ownership

a. The surface ownership is Bureau of Reclamation, administered by the Bureau of Reclamation.

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

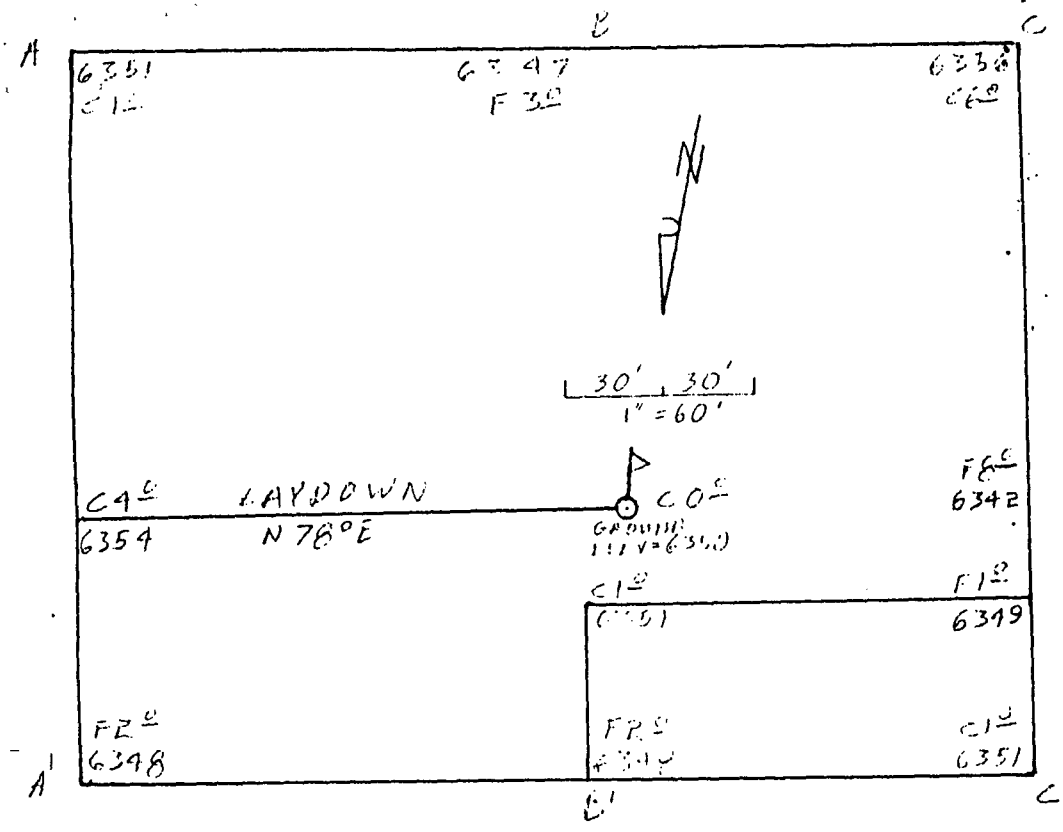
Northwest Pipeline Corporation
Production & Drilling Department
3539 East 30th Street
Farmington, New Mexico 87401
Phone: 505/327-5351

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, ture and correct; and, that the work associated with the operations proposed herein will be performed by Northwest Pipeline Corporation, and its contractors and subcontractors in conformity with this plan and the terms and conditions under which it is approved.

12-21-99
Date

Mike Turnbaugh
Senior Engineer



Northwest Pipeline Corp
OPERATOR

Rosa Unit 241
WELL NAME & NO.

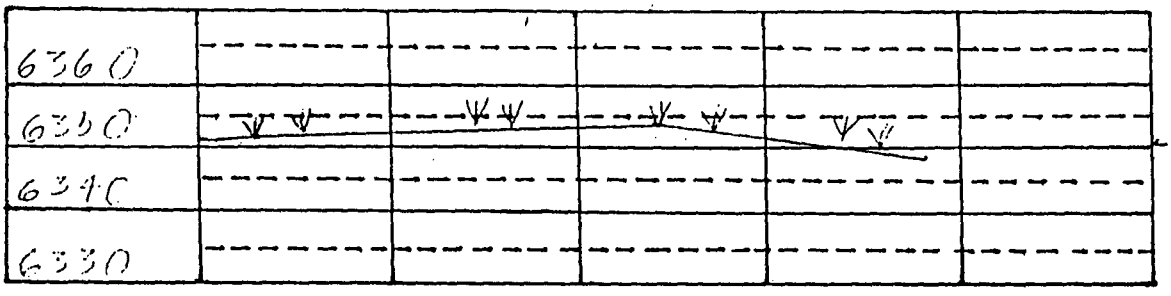
535' F/SL 685' F/EL
FOOTAGES

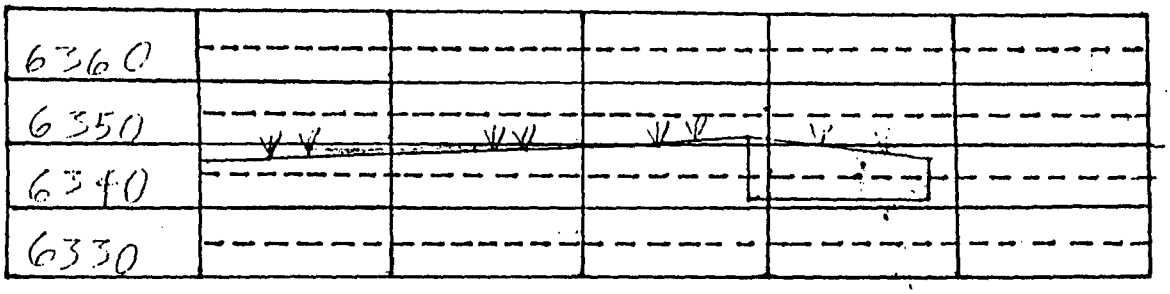
6 31N 5W
SEC. TWP. RGE.

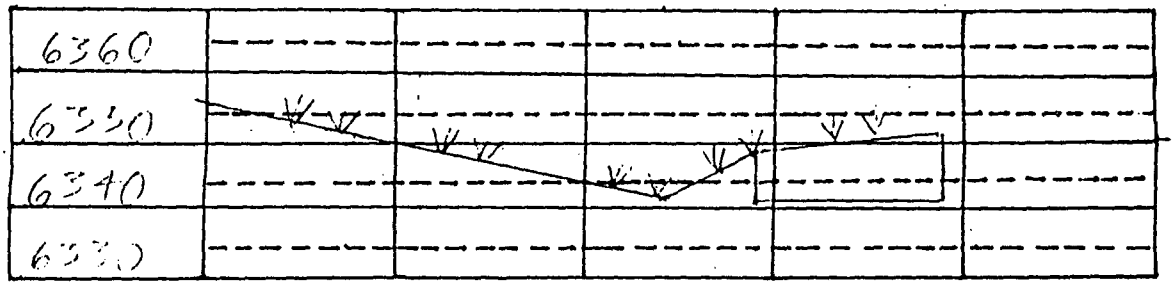
Rio Arriba, New Mexico
COUNTY

September 21, 1988
DATE

SCALES:
HORIZ = 1" = 60'
VERT = 1" = 30'



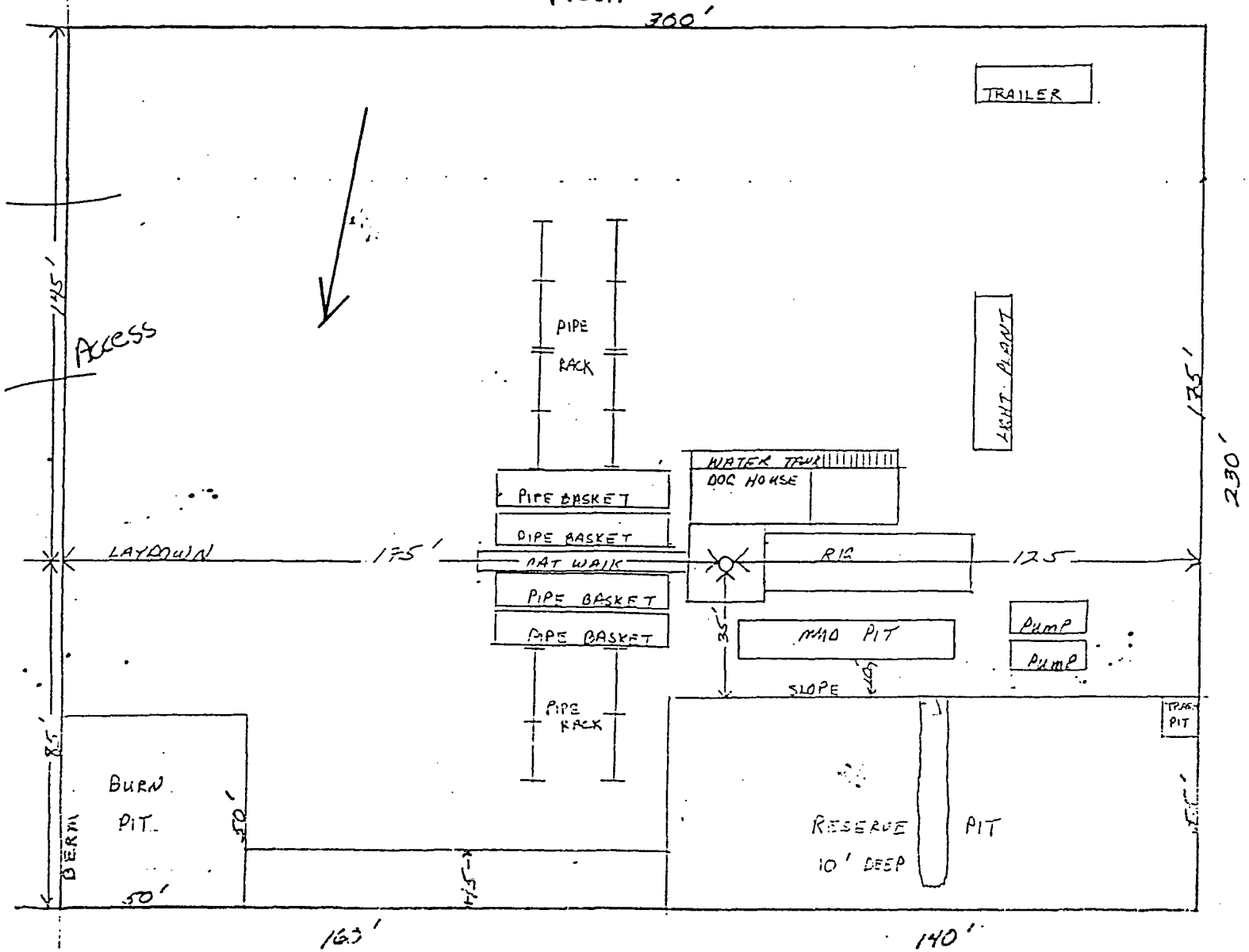


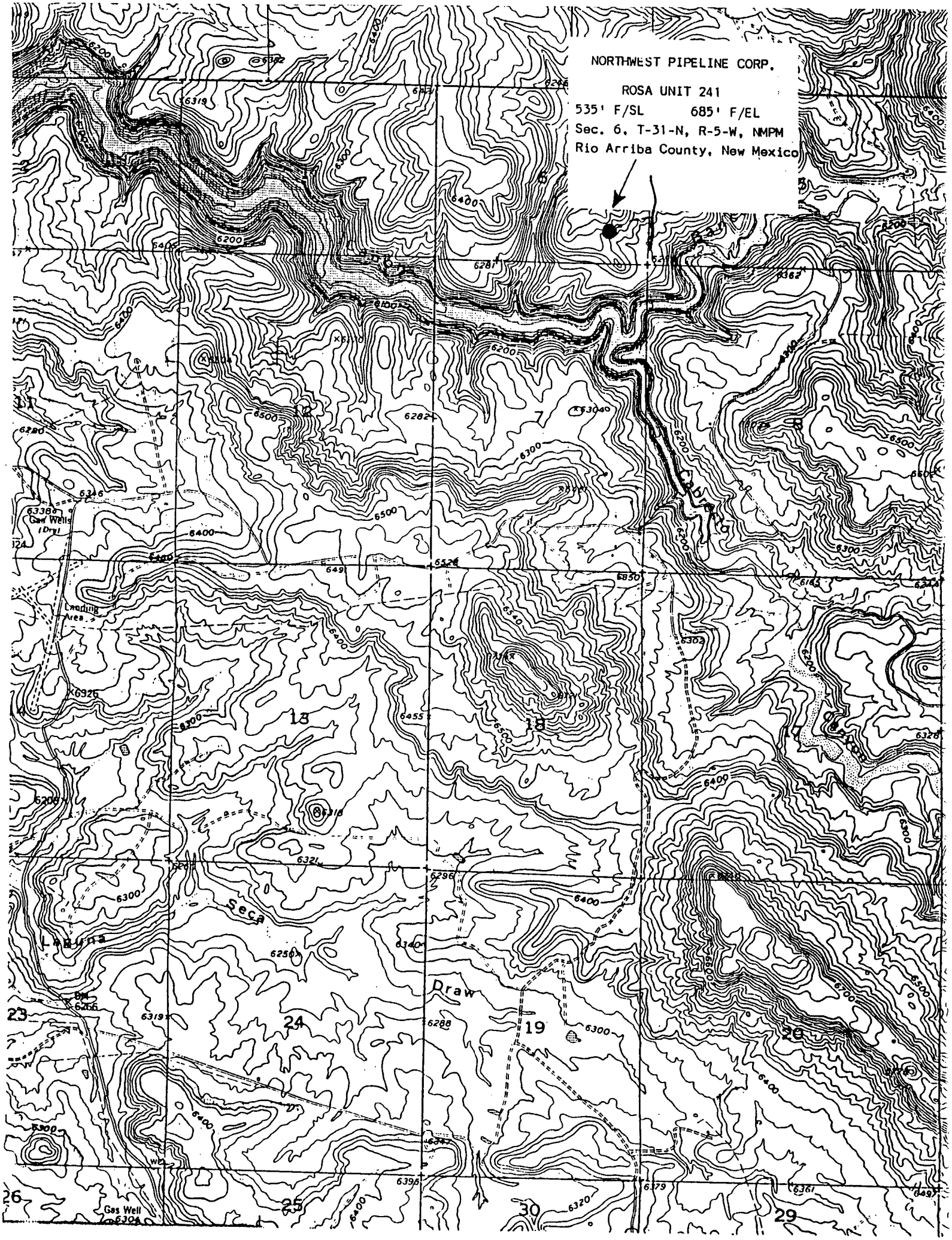


NORTHWEST PIPELINE CORPORATION

LOCATION LAYOUT

ROSA Unit 241




NORTHWEST PIPELINE CORP.
ROSA UNIT 241
535' F/SL 685' F/EL
Sec. 6, T-31-N, R-5-W, NMPM
Rio Arriba County, New Mexico
Laguna Seca
Draw
Gas Well
Landing Area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United States Department of the Interior

BUREAU OF LAND MANAGEMENT
FARMINGTON RESOURCE AREA
1235 LA PLATA HIGHWAY
FARMINGTON, NEW MEXICO 87401

TAKE PRIDE IN AMERICA

IN REPLY REFER TO:
3162.3-1 (019)

Northwest Pipeline Corporation
#241 Rosa Unit
Santa Fe 078767
SE¼SE¼ sec. 6, T. 31 N., R. 5 W.
Rio Arriba County, New Mexico

Above Data Required on Well Sign

GENERAL REQUIREMENTS FOR OIL AND GAS OPERATIONS ON FEDERAL AND INDIAN LEASES

Operations:

In addition to those requirements set forth in Onshore Oil and Gas Order No. 2, these requirements apply generally to all oil and gas operations on Federal and Indian leases. They apply specifically to the above-described well. Special requirements that apply and are effective for this well, if any, are check-marked in Section 12 of these General Requirements. The failure of the operator to comply with these requirements and the filing of required reports will result in strict enforcement of 43 CFR 3163.1 or 3163.2.

1. GENERAL

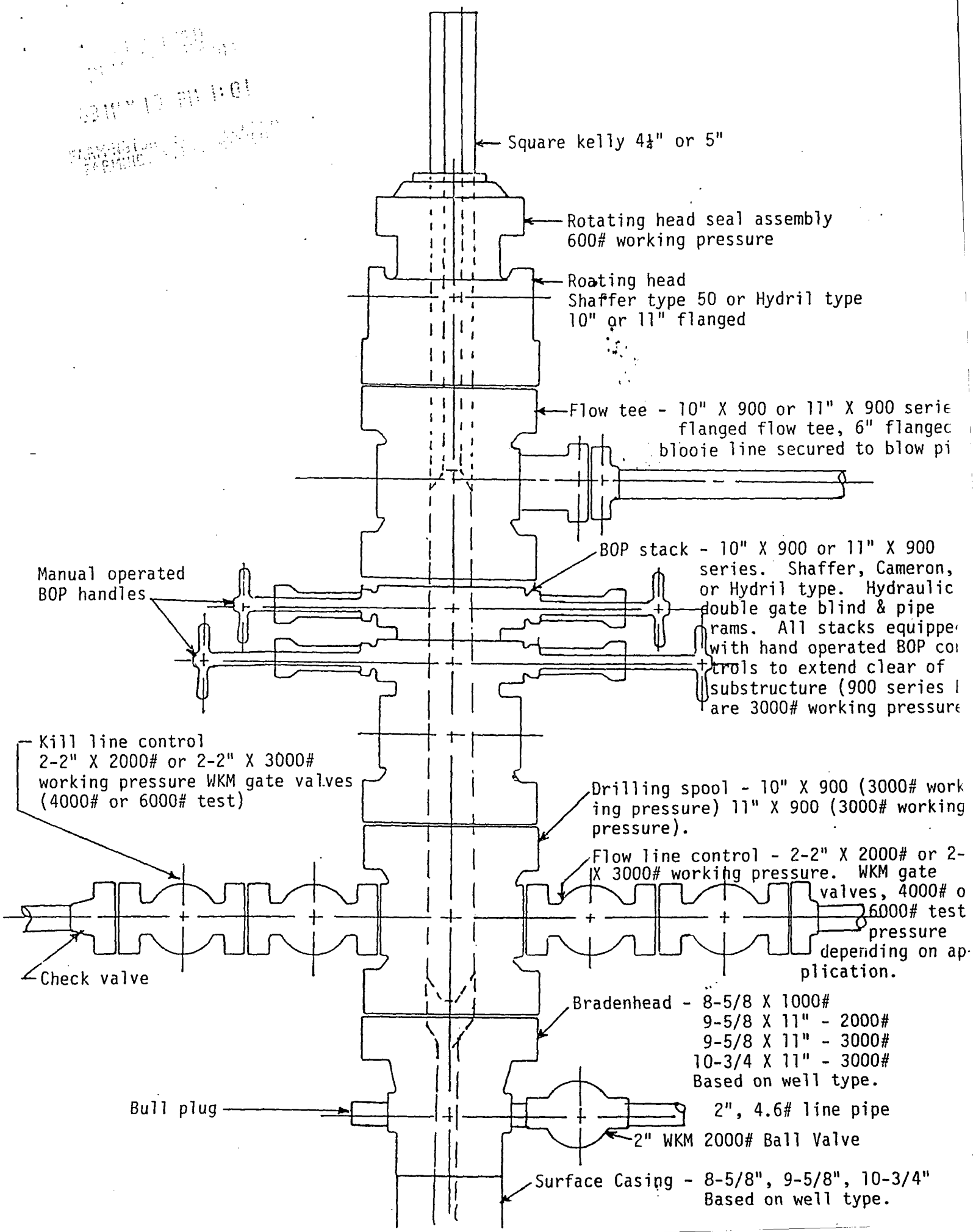
A. Full compliance with all applicable laws and regulations, with the approved Permit to Drill, and with the approved Surface Use and Operations Plan is required. Lessees and/or operators are fully accountable for the actions of their contractors and subcontractors.

B. Each well shall have a well sign in legible condition from spud date to final abandonment. The sign should show the operator's name, lease serial number, or unit name, well number, location of the well, and whether lease is Tribal or allotted, (see 43 CFR 3162.6(b)).

C. A complete copy of the approved Application for Permit to Drill, along with any conditions of approval, shall be available to authorized personnel at the drill site whenever active drilling operations are under way.

D. For Wildcat wells only, a drilling operations progress report is to be submitted weekly from spud date until the well is completed and the Well Completion Report (Form 3160-4) is filed. The report should be on paper not less than 5 x 8 inches in size, and each page should identify the well by operator's name and number, and by well locations.

E. As soon as practical, notice is required of all blowouts, fires and accidents involving life-threatening injuries or loss of life. (See NTL-3A).


Square kelly 4¼" or 5"
Rotating head seal assembly
600# working pressure
Roating head
Shaffer type 50 or Hydril type
10" or 11" flanged
Flow tee - 10" X 900 or 11" X 900 serie
flanged flow tee, 6" flangec
blooie line secured to blow pi
BOP stack - 10" X 900 or 11" X 900
series. Shaffer, Cameron,
or Hydril type. Hydraulic
double gate blind & pipe
rams. All stacks equippe
with hand operated BOP co
trols to extend clear of
substructure (900 series I
are 3000# working pressure
Manual operated
BOP handles
Kill line control
2-2" X 2000# or 2-2" X 3000#
working pressure WKM gate valves
(4000# or 6000# test)
Drilling spool - 10" X 900 (3000# work
ing pressure) 11" X 900 (3000# working
pressure).
Flow line control - 2-2" X 2000# or 2-
X 3000# working pressure. WKM gate
valves, 4000# o
6000# test
pressure
depending on ap
plication.
Check valve
Bradenhead - 8-5/8 X 1000#
9-5/8 X 11" - 2000#
9-5/8 X 11" - 3000#
10-3/4 X 11" - 3000#
Based on well type.
Bull plug
2", 4.6# line pipe
2" WKM 2000# Ball Valve
Surface Casing - 8-5/8", 9-5/8", 10-3/4"
Based on well type.

F. Prior approval by the Area Manager is required for variance from the approved drilling program and before commencing plugging operations, plugback work, casing repair work, corrective cementing operations, or suspending drilling operations indefinitely. Emergency approval may be obtained orally, but such approval is contingent upon filing of a notice of intent (on a Sundry Notice, Form 3160.5, 5 copies) within three business days.

G. All shows of fresh water and minerals will be reported and protected.

H. Section 102(b)(3) of the Federal Oil and Gas Royalty Management Act of 1982, as implemented by the applicable provisions of the operating regulations at Title 43 CFR 3162.4-1(c), requires that "not later than the 5th business day after any well begins production on which royalty is due anywhere on a lease site or allocated to a lease site, or resumes production in the case of a well which has been off production for more than 90 days, the operator shall notify the authorized officer by letter or Sundry Notice, (Form 3160-5), or orally to be followed by a letter or sundry notice, of the date on which such Production has begun or resumed."

The date on which production is commenced or resumed will be construed for oil wells as the date on which liquid hydrocarbons are first sold or shipped from a temporary storage facility, such as a test tank, and for which a run ticket is required to be generated or the date on which liquid hydrocarbons are first produced into a permanent storage facility, whichever first occurs; and, for gas wells as the date on which associated liquid hydrocarbons are first sold or shipped from a temporary storage facility, such as a test tank, and for which a run ticket is required to be generated or, the date on which gas is first measured through permanent metering facilities, whichever first occurs.

Failure to comply with this requirement in the manner and time prescribed may result in civil penalties of up to $10,000 per violation for each day such violation continues, not to exceed a maximum of 20 days. See Section 109(c)(3) of the Federal Oil and Gas Royalty Management Act of 1982 and the implementing regulations at Title 43 CFR 3163.

The following information is required on the production start-up notice:

1. Operator name.

2. Well name and number.

3. Well location (1/4 1/4, sec., T., R., P.M., County and State).

4. Date well was placed on production.

5. The nature of the well's production, i.e., crude oil, or crude oil and casinghead gas, or natural gas and entrained liquid hydrocarbons.

6. The Federal or Indian lease prefix and number on which the well is located. Otherwise the non-Federal or non-Indian land category, i.e., State or Private.

7. As appropriate, the unit agreement name, number and participating area name.

8. As appropriate, the communitization agreement number.

9. For reporting purposes, all leases, communitization agreements or unit agreements are to be referenced by the numbers and prefixes affixed to the respective contract documents by the issuing agency at the time of issue. The numberic prefixes are no longer used or recognized by the BLM in New Mexico.

I. Note Site Security Requirements of 43 CFR 3162.7-4(c).

J. Unless drilling operations are commenced within one year, approval of Application for Permit to Drill will expire. A written request for a six month extension may be granted if submitted prior to expiration.

2. CASING AND CEMENTING REQUIREMENTS

A. Surface casing is to be set at sufficient depth to protect fresh water zones and provide well control, with cement circulated to the surface.

B. Intermediate and production casing strings are to be set and cemented as necessary to effectively isolate and seal off all water, oil, gas, or coalbearing strata encountered, and all potable water zones are to be covered with cement. If cement fails to circulate to surface, a cement evaluation log is required to verify the cement top. Failure of cement to adequately cover critical zones may require remedial cementing procedures.

C. Prior to drilling the plug after cementing, all casing strings shall be pressure tested. Test pressure shall not be less than 600 psi for surface casing, and a minimum of 1,500 psi or 0.2 psi/ft., whichever is greater, for other casing strings. If the pressure declines more than 10 percent in 30 minutes, or if there is other indication of a leak, the casing shall be recemented, repaired, or an additional casing string run, and the casing shall be tested again in the same manner.

D. After cementing but before commencing any tests, the casing string shall stand cemented until the cement has reached a compressive strength of at least 500 psi at the shoe, except that in no case shall tests be initiated until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log.

E. The Area Office (Inspection and Enforcement Section), will be notified at least 24 hours in advance of doing the work so that a representative may witness cementing of all casing strings.

3. BLOWOUT PREVENTION

A. Blowout preventers and related equipment for well control shall be installed, tested, and maintained in such a manner necessary to maintain well control at all times. All wells, as a minimum shall be equipped with one blowout preventer rated to at least the anticipated formation pressure in accordance with API RP 53.

B. Blowout preventers shall be equipped with appropriate pressure control equipment for operations being performed. Appropriate size casing rams are required while running casing.

C. Pipe rams shall be activated to test proper functioning at least once each day. Blind rams shall be activated to test proper functioning once each trip. Annular type preventers shall be activated on the drill pipe no less then once every 7 days.

D. Blowout preventers shall have handwheels installed and operable.

E. A remote kill line shall be properly installed and operable as specified by API recommendations. The kill line is not to be used as a fill up line. A choke line and choke manifold shall be properly installed and operable as specified by API recommendations.

F. The accumulator system shall have a pressure capacity to close all hydraulics on the blowout preventer stack under repeated operations, plus a 200 psi reserve above the recommended precharge pressure.

G. Drill string safety valves to fit all pipe in the drill string shall be maintained on the rig floor, in the open position, while drilling operations are in progress.

H. Blowout prevention drills shall be conducted at least once weekly to ensure that equipment is operational and that each crew is properly trained to carry out emergency duties. All blowout prevention drills and tests shall be recorded in the driller's log.

I. The maximum pressure to be allowed on blowout preventers during well control operations shall be posted for each casing string.

J. The characteristics, use and testing of drilling mud shall be such as are necessary for well control. Quantities of mud materials sufficient to insure well control shall be maintained, readily accessible for use at all times.

K. From the time drilling operations are initiated and until drilling operations are completed, a member of the drilling crew or the toolpusher shall maintain rig surveillance at all times, unless the well is secured with blowout preventers or cement plugs.

4. REPORTS

A. The following reports shall be filed with the Resource Area Manager within 30 days after the work is completed:

1. Original and three copies on Federal and Original and four copies on Indian leases of Sundry Notice (Form 3160-5), giving complete information concerning:

a. Setting of each string of casing. Show size and depth of hole, grade and weight of casing, depth set, depth of any and all cementing tools that are used, amount (in cubic feet) and types of cement used, whether cement circulated to surface and all cement tops in the casing annulus, casing test method and results, and the date work was done. Show spud date on first report submitted.

b. Intervals tested, perforated (include; size, number and location of perforations), acidized, or fractured; and results obtained. Show date work was done (a Sundry Notice is not required if a Completion Report is submitted within 30 days of the operation).

2. Well Completion Report (Form 3160-4) will be submitted within 30 days after well has been completed.

3. Two copies of all electrical and open-hole logs run.

4. A cement evaluation log if cement is not circulated to surface.

5. DRILLER'S LOG

A. The following shall be entered in the daily driller's log:

1. Blowout preventer pressure tests, including test pressures and results.

2. Blowout preventer tests for proper functioning.

3. Blowout prevention drill conducted.

4. Casing run, including size, grade, weight, and depth set.

5. How pipe was cemented, including amount of cement, type, whether cement circulated, location of cementing tools, etc.

6. Waiting on cement time for each casing string.

7. Casing pressure tests after cementing, including test pressure and results.

6. DRILLSTEM TESTS

A. Estimated amounts of oil and gas recovered and/or produced during drillstem tests are to be shown in the driller's log and reported in accordance with NTL-4A.

7. GAS FLARING

A. Gas produced from this well may not be vented or flared beyond an initial, authorized test period of * days or 50 MMcf following its (completion) (recompletion), whichever first occurs, without the prior, written approval of the authorized officer. Should gas be vented or flared without approval beyond the test period authorized above, you may be directed to shut-in the well until the gas can be captured or approval to continue venting or flaring as uneconomic is granted, and you shall be required to compensate the lessor for that portion of the gas vented or flared without approval which is determined to have been avoidably lost.

[illegible] 30 days, unless a longer test period specifically is approved by the authorized officer. The 30-day period begins when the casing is FIRST perforated for cased holes, and when Total Depth (TD) is reached for open hole completion.

8. SAFETY

A. All rig heating stoves are to be of the explosion-proof type.

B. Drilling rig engines should have water-cooled exhausts.

C. Rig safety lines are to be installed.

D. Mud tanks must be [illegible].

9. SUBSEQUENT OR CHANGE OF PLANS

A. Any change of plans required in order to mitigate unanticipated conditions encountered during drilling operations, will require verbal approval of the Bureau of Land Management (Drilling and Production Section) and, within 48 hours of receiving verbal approval, submission of a Sundry Notice (Form 3160-5) five copies.

10. REMOVAL OF DRILLING RIG

A. Unless a well has been properly cased and cemented, or properly plugged, the drilling rig must not be moved from the drillsite without prior approval from the Bureau of Land Management (Drilling and Production Section).

11. ABANDONMENT

A. If the well is dry it is to be plugged in accord with 43 CFR 3162.3-4, and Onshore Oil and Gas Order No. 2. Approval of the proposed plugging program may be obtained orally; however, oral approval must be confirmed in writing within three business days by filing a Notice of Intention to Abandon on Form 3160-5, in quintuplicate with the Area Manager. The report should show the total depth reached, the reason for plugging, and the proposed intervals, by depths, where cement plugs are to be placed, type of plugging mud, etc.

B. Install a permanent regulation well marker in accordance with 43 CFR 3162.6(d).

C. Within 30 days after plugging the well, a Subsequent Report of Abandonment is to be filed on (Form 3160-5), in quintuplicate, showing the manner in which the well was plugged, including depths where casing was cut and pulled, intervals (by depths) where cement plugs were placed, and the date plugging was completed.

12. SPECIAL STIPULATIONS

The following special requirements apply and are effective when checked:

__A. A Communitization Agreement covering the acreage dedicated to the well must be filed for approval with the Bureau of Land Management, Fluids, 1235 La Plata Highway, Farmington, New Mexico 87401. The effective date of the agreement must be prior to any sales.

__B. In addition to the well-control equipment stipulated in Section 5, either an annular blowout preventer or a rotating head must be used while drilling below surface casing to _____.

__C. Note attachments.

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

GARREY CARRUTHERS
GOVERNOR

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

April 25, 1990

Meridian Oil, Inc.
P.O. Box 4289
Farmington, NM 87499-4289

Attention: Peggy Bradfield

RE: Application to Amend Division Administrative Order NSP-1578(L), proposed Rosa Unit Well No. 241

Dear Ms. Bradfield:

Per our telephone conversation today concerning the subject application dated April 10, 1990, I was under the impression that this filing was necessitated because of a "survey error" by Northwest Pipeline Corporation who filed the original APD on this well and not for topographical reasons as you stated.

I have enclosed a copy of our "Guidelines for Administrative Approval of Non-Standard Location Applications." So that I may properly process this filing, please refile following these provisions.

Thank you.

Sincerely,

Michael E. Stogner
Petroleum Engineer

MES/ag

cc: Oil Conservation Division - Aztec
US Bureau of Land Management - Farmington
US Bureau of Reclamation - Durango

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
AZTEC DISTRICT OFFICE

'90 APR 13 AM 9 04

\RREY CARRUTHERS
GOVERNOR

1000 RIO BRAZOS ROAD
AZTEC, NEW MEXICO 87410
(505) 334-6178

Date: 4-12-90

Oil Conservation Division
P.O. Box 2088
Santa Fe, NM 87504-2088

Re: Proposed MC_____
Proposed DHC_____
Proposed NSL X
Proposed SWD_____
Proposed WFX_____
Proposed PMX_____

Gentlemen:

I have examined the application dated 4-11-90
for the Meridian Oil Inc. Rosa Unit #241
Operator Lease & Well No.
I-6-31N-5W and my recommendations are as follows:
Unit, S-T-R

Approve

Yours truly,

Ernie Busch

MERIDIAN OIL

'90 APR 11 AM 8 39

Copy sent to
E. Busch
4/12/90

April 10, 1990

Certified Mail - P 838 256 987

Mr. William LeMay
New Mexico Oil Conservation Division
Post Office Box 2088
Santa Fe, New Mexico 87503

Dear Mr. LeMay:

This is an application for revision to NSP-1578 (L) for the non-standard gas-proration unit and location of the Meridian Oil Inc. Rosa Unit #241. This Basin Fruitland Coal well was surveyed by Northwest Pipeline at 535'from the South line and 685' from the East line of Section 6, T-31-N, R-5-W, Rio Arriba County, New Mexico. Northwest Pipeline received the NSP-1578 (L) Administrative Order for that location.

Attached is a copy of the approved sundry notice and plat from the Bureau of Land Management, showing the Meridian Oil Inc. revised location at 2090' from the South line and 790' from the East line of Section 6, T-31-N, R-5-W, Rio Arriba County. This well is orthodox at this location, but requires revision for the non-standard proration unit.

Sincerely,

Peggy Bradfield

Peggy Bradfield

att.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

90 FEB 12 PM 1:20

SUNDRY NOTICES AND REPORTS ON WELLS

1. TYPE OF WELL GAS	5. LEASE NUMBER SF-078767 6. IF INDIAN,ALL. OR TRIBE NAME
2. OPERATOR MERIDIAN OIL INC.	7. UNIT AGREEMENT NAME ROSA UNIT
3. ADDRESS & PHONE NO. OF OPERATOR P O BOX 4289 FARMINGTON, NM 87499	8. FARM OR LEASE NAME ROSA UNIT 9. WELL NO. 241
4. LOCATION OF WELL 2090'S 790'E	10. FIELD,POOL,OR WILDCAT BASIN FRUITLAND COAL 11. SEC. T. R. M OR BLK. SEC. 6 T31N R05W NMPM

14. PERMIT NO.	15. ELEVATIONS	12. COUNTY	13. STATE
	6333'GL	RIO ARRIBA	NM

16. OTHER: Revision

17. Describe proposed or completed operations

Attached is a revised copy of the C-102 showing the revised location for this well. The location was moved to avoid archeological sites and unorthodox location. Required field inspections have been performed.

NWPL Survey	535'S	685'E
MOI Survey	2090'S	790'E

18. AUTHORIZED BY: _____ REGIONAL DRILLING ENGINEER — 2/9/90 DATE

NOTE: THIS FORMAT IS ISSUED IN LIEU OF US BLM FORM 3160-5.

APPROVED AS AMENDED

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE MAR 27 1990

CONDITION OF APPROVAL, IF ANY:

for AREA MANAGER

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

DISTRICT I
P.O. Box 1980, Hobbs, NM 88240

DISTRICT II
P.O. Drawer DD, Artesia, NM 88210

DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-102
Revised 1-1-89

OIL CONSERVATION DIVISION

P.O. Box 2088
Santa Fe, New Mexico 87504-2088

90 FEB 12 PM 1:20

WELL LOCATION AND ACREAGE DEDICATION PLAT

All Distances must be from the outer boundaries of the section

Operator	Lease	Well No.
Meridian Oil Inc.	Rosa Unit (SF-078767)	241

Unit Letter	Section	Township	Range	County
I	6	31 North	5 West NMPM	Rio Arriba

Actual Footage Location of Well:
2090 feet from the South line and 790 feet from the East line

Ground level Elev.	Producing Formation	Pool	Dedicated Acreage:
6333'	Fruitland Coal	Basin	264.56 Acres

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.

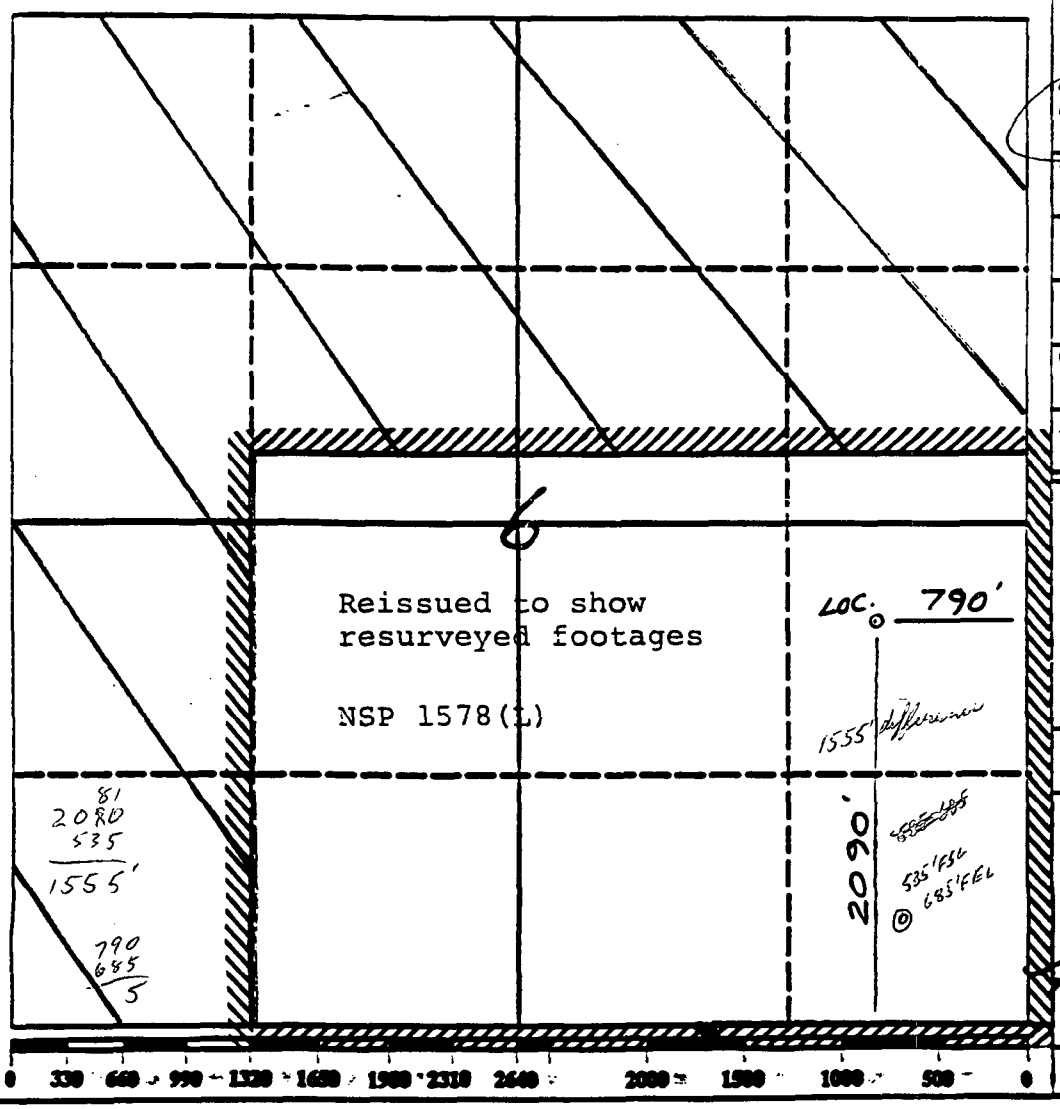
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

3. If more than one lease of different ownership is dedicated to the well, have the interest of all owners been consolidated by communitization, unitization, force-pooling, etc.?

☒ Yes ☐ No If answer is "yes" type of consolidation unitization

If answer is "no" list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary. _____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interest, has been approved by the Division.



OPERATOR CERTIFICATION

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

Signature: Peggy Bradfield

Printed Name: Regulatory Affairs

Position: Meridian Oil Inc.

Company

Date: 2-9-90

SURVEYOR CERTIFICATION

I hereby certify that the well location sho on this plat was plotted from field notes actual surveys made by me or under supervison, and that the same is true correct to the best of my knowledge belief.

Date Surveyed: 12-22-89

Signature & Seal of Professional Surveyor: Neale C. Edwards

NEW MEXICO 6857 REGISTERED LAND SURVEYOR

Certificate No. 6857

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

Rosa #241
TR#14

GARREY CARRUTHERS
GOVERNOR

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

July 18, 1989

Northwest Pipeline Corporation
3539 East 30th Street
Farmington, NM 87401

Attention: Mike Turnbaugh
Senior Engineer

Administrative Order NSP-1578(L)

Dear Mr. Turnbaugh:

Reference is made to your applications of February 20, 1989 for a 264.56-acre non-standard gas proration unit consisting of the following acreage in the Basin-Fruitland Coal (Gas) Pool:

RIO ARRIBA COUNTY, NEW MEXICO
TOWNSHIP 31 NORTH, RANGE 5 WEST, NMPM
Section 6: All

It is my understanding that this unit is to be dedicated to your Rosa Unit Well No. 241 to be drilled at an unorthodox coal gas well location 535 feet from the South line and 685 feet from the East line (Unit P) of said Section 6, hereby approved under provisions of Rule 8 of the Special Rules and Regulations for this pool as promulgated by Division Order No. R-8768.

Also, by authority granted me under the provisions of Rule 6 of said Order No. R-8768, the above non-standard gas proration unit is hereby approved.

Sincerely,

William J. LeMay
Director

WJL/MES/ag

cc: Oil Conservation Division - Aztec
NM Oil and Gas Engineering Committee - Hobbs
US Bureau of Land Management - Farmington