GW - 317

REPORTS

YEAR(S):

1999

Jack Ford

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Farmington Field Office
1235 La Plata Highway, Suite A
Farmington, New Mexico 87401

IN REPLY REFER TO:
NMNM101813
NMNM101815
2800 (07200-ko)

September 30, 1999

Dear Reader:

Enclosed for your review is a second proposed environmental assessment (EA) for El Paso Field Service's Rattlesnake Plant and Pipeline Project. The EA was prepared to identify and analyze the impacts from the construction and operation of an alternate plant location to the resources in a second area.. The processing of this application is consistent with the guidance mandated by Section 28 of the Mineral Leasing Act of 1920, as amended (30 U.S.C. 185). Comment letters received on the previous proposed EA are on file in the Farmington Office.

You are encouraged to review this EA and provide comments to Farmington Office staff. There will be a 30 day review and comment period. The comment period begins on October 4 and ends November 3, 1999. Comment letters need to be sent to the following address:

BLM Farmington Field Office
Attn: Kathy Ollom
1235 La Plata Highway, Suite A
Farmington, NM 87401

Comments received by the November 3 date will be considered in determining the need for changes or revisions to the EA and the decision making process. A decision will then be made on the proposed action and a Decision Record issued. You will receive a copy of the Decision Record after it is issued.

Sincerely,

Joel E. Farrell
Asst. Field Manager for Resources

Enclosure

Jack Ford

EL PASO FIELD SERVICES
RATTLESNAKE PLANT AND PIPELINE PROJECT
(ROW NM 101813 - Rattlesnake Plant)
(ROW NM 101815 -Gathering Pipelines)

ENVIRONMENTAL ASSESSMENT

BLM EA NM 070-99-3208

Department of the Interior
Bureau of Land Management
Farmington Field Office
Farmington, New Mexico

September 28, 1999

LIST OF ACRONYMS

ACOE -	-	U.S. Army Corps of Engineers
BLM	-	U.S. Bureau of Land Management
CFR	-	Code of Federal Regulations
CO	-	Carbon Monoxide
CO2	-	Carbon Dioxide
dBA	-	Decibels A-weighted
DOT	-	Department of Transportation
EA	-	Environmental Assessment
EPFS	-	El Paso Field Services
ID	-	Inner Diameter
LA	-	Laboratory of Anthropology
MMCFD	-	Million cubic feet per day
MOU	-	Memorandum of Understanding
MLA	-	Minerals Leasing Act of 1920
NEPA	-	National Environmental Policy Act
NMDGF	-	New Mexico Department of Game and Fish
NMED-		New Mexico Environment Department
NRCS	-	Natural Resources Conservation Service
OD	-	Outside diameter
POD	-	Plan of Development
PPP		Pollution Prevention Plan
PSIG	-	Pounds per square inch, gauge
RMP	-	Resource Management Plan
QA	-	Quality Assurance Inspector
RCHMP		Rattlesnake Canyon Habitat Management Plan
ROW	-	Right-of-way
TCP	-	Traditional cultural property
TSP	-	Total suspended particulate
TUA	-	Temporary Use Area
USC	-	United States Code
USEPA	-	U.S. Environmental Protection Agency
USFWS	-	U.S. Fish and Wildlife Service
USGS	-	U.S. Geological Survey
VRM	-	Visual Resource Management

ENVIRONMENTAL ASSESSMENT
EL PASO FIELD SERVICES
RATTLESNAKE PLANT AND PIPELINE PROJECT
BLM ENVIRONMENTAL ASSESSMENT NO. NM 070-99-3208

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

List of Appendices

ENVIRONMENTAL ASSESSMENT
EL PASO FIELD SERVICES
RATTLESNAKE PLANT AND PIPELINE PROJECT
BLM ENVIRONMENTAL ASSESSMENT NO. NM 070-99-3208

CHAPTER 1
PROPOSED ACTION AND ALTERNATIVES

INTRODUCTION

This environmental assessment (EA) has been prepared to address the expected environmental impacts of El Paso Field Service's (EPFS) proposed Rattlesnake Plant and Pipeline Project in San Juan County, NM. The proposed project will allow El Paso to fulfill contractual obligations for gathering, treating and transporting conventional and coal seam natural gas in the T32N-R9W area. Phillips Petroleum Company (Phillips) and Burlington Resources (Burlington) existing and proposed gas wells gathered by El Paso's pipeline system would be serviced by the proposed facilities.

The proposed system is designed to treat and compress approximately 24 million cubic feet of blended conventional and coal seam natural gas per day (MMCFD). The proposed project will maintain system wellhead pressures averaging 150 Pounds per Square Inch Gauge (PSIG) in the existing and proposed gathering area. The project consists of three new looping line segments (Lateral 14A-3 6", Lateral 14A 8", and Gardner No. 1 Loop 4"), Rattlesnake Plant 6" discharge line segment, and the Rattlesnake Treating Plant treatment / compression plant. The project component locations are illustrated in Figure 1 (page 1-2) and Appendix A Plan of Development (POD), Exhibit 1A and 1B. An alternate site location on State Lands and slight piping differences (Alternate 1) is also considered in this EA. Right of Way (ROW) applications are being filed concurrently with the Bureau of Land Management (BLM), the Fee landowner, and the State of New Mexico.

El Paso's Trunk N and Colorado Dry Gas gathering systems presently service the T32N-R9W area. The Trunk N pipeline system gathers conventional production and transports it via Potter Canyon station's dehydration and compression to the Chaco Cryogenic Plant for final processing and delivery into El Paso's interstate transport system. The Colorado Dry gas system gathers coal seam production and transports gas via the Blanco A plant dehydration and compression into El Paso's interstate transport system. Both of these systems are presently at or near capacity.

Currently EPFS is blending this high CO_2 gas stream on a strictly interruptible basis. Additional loads directed into the at capacity Trunk N system from five 1998 drilled Phillips coal seam wells increased existing wellhead pressures from 150 to 300 (PSIG) average. This wellhead pressure increase creates a "downstream back-off" condition, interrupting Burlington Resources' existing conventional wells presently tied-in to the at capacity Trunk N system.

This short-term agreement allowed Phillips to prove its production to EPFS while allowing EPFS to determine the economic viability of constructing a CO_2 removal facility. If the Rattlesnake plant were not constructed, EPFS would have to curtail the substantial majority of current and expected flows. The following issues would necessitate this volume curtailment: 1) the sensitivity of cryogenic processing facilities to CO_2 in the inlet gas stream, and 2) EPFS' existing pressure and service obligations on its conventional system. Although EPFS agreed to blend the gas on a short-term basis, maintaining this arrangement was not intended, nor is it viewed by either EPFS or Phillips, as a feasible long-term solution. Without the plant, the current production along with the 8.0 MMCFD of potential new gas and its associated revenues would be lost since Phillips would not drill the additional wells without the appropriate infrastructure. All involved parties would suffer substantial losses in revenue.

Natural gas entering the transportation system must be treated to meet certain CO_2 content requirements determined by the facilities at downstream processing plants. The CO_2 content of the coal seam gas varies from 12% to 15%; the blended conventional and coal gas stream is projected to contain 10% CO_2 before treatment. The Blanco A Plant processes the Colorado Dry Gas system for interstate transport. Interstate pipeline standards require a 3% CO_2 content for the exiting gas stream. The remaining approximate 7% CO_2, a non-regulated emission, will be released into the atmosphere. The Trunk N system ultimately runs through the El Paso Chaco Cryogenic Plant. This plant requires a 3% CO_2 content to avoid freezing-in the plant and shutting down 600 MMCFD delivery into interstate gas lines (Kent Leidy and David Bays, EPFS, personal communication 1999).

The five wells currently connected to existing EPFS facilities that will become a part of the Rattlesnake system produce 16.5 MMCFD of gas with a blended CO_2 content of 7.5%. Phillips plans to drill five additional wells during 1999, resulting in a volume of 24 MMCFD being delivered to the Rattlesnake CO_2 removal plant. Should volumes delivered from the total ten well package fail to meet the 24 MMCFD needed to fully load the EPFS plant, Phillips will drill up to four more wells.

PURPOSE AND NEED FOR THE PROPOSED ACTION

The purpose of the Rattlesnake Plant and Pipeline Project is to fulfill El Paso contractual obligations to gather, treat, and transport natural gas in the T32N R9W San Juan County, NM area. The proposed facilities will process up to 24 MMCFD. The current system produces 16.5 MMCFD of gas with a blended CO_2 content of 7.5%. Phillips plans to drill five additional wells during 1999 to fulfill their contractual obligations. The looping pipelines and compressors will maintain a 150 PSIG average wellhead pressure in the gathering field as up to 35 more wells are potentially added over the next five years assuming production and economic conditions allow. Also, the proposed facilities will treat the 10% CO_2 content projected from the blended conventional and coal gas stream and remove free liquids from the blended gas stream to the standard 3% required by subsequent transport. The excess 7% CO_2, a non-regulated emission, will be released into the atmosphere. The new facilities are needed because no existing treatment plants or compression stations servicing the system are economically accessible by existing infrastructure or contain the treatment facilities to process

the gas stream. The existing plants and stations are Potter Canyon in Section 9, T30N-R10W and Blanco A Plant in Section 14, T29N-R11W. The expansion of production through looping pipelines will result in increased productivity thus lessening the necessity of future pipeline installation.

CONFORMANCE WITH LAND USE PLANS

The proposed action is in conformance with the BLM Farmington Field Office Resource Management Plan (Elizabeth Allison, BLM Personal Communication, 1999). According to the Farmington Field Office (at the time of RMP publication referred to as the Farmington Resource Area or FRA) RMP, "The FRA grants rights-of-way, leases, and permits to qualified individuals, businesses, and governmental entities for the use of the public lands. Protection of natural and cultural resources is considered in the granting process. Rights-of-way are also issued to promote the maximum utilization of existing rights-of-way, including joint use whenever possible. All right-of-way actions are coordinated, to the fullest extent possible, with federal, state and local government agencies, adjacent landowners, and interested individuals and groups. All right-of-way applications are analyzed on a case-by-case basis" USDI BLM 1988, 2-6).

AUTHORIZING ACTIONS AND RELATIONSHIP TO STATUTES / REGULATIONS

Table 1 below describes the federal, state, and local permits and approvals necessary for the construction, operation, maintenance, and abandonment of the proposed action.

Table 1: Federal, State, and Local Permits required. EPFS Rattlesnake Plant and Pipeline Project 1999.

ISSUING AGENCY	NATURE OF ACTION	COMMENTS
FEDERAL		
BLM	ROW grant and Temporary Use Permit	For all proposed action and alternative components on BLM lands.
BLM	Antiquities or archaeological permits	Evaluation, removal, or excavation of archaeological resources on BLM lands
U.S. Army Corps of Engineers (ACOE)	Section 404 Nationwide 12	Wash crossings
U.S. EPA (USEPA)	Section 402 Storm-water Discharge Permit	Discharge of Storm-water from project area

Table 1: Federal, State, and Local Permits required. EPFS Rattlesnake Plant and Pipeline Project 1999, cont.

STATE		
New Mexico State Lands Department	ROW grant	For all proposed action and alternative components on state-owned lands
New Mexico Environment Department (NMED)	Air Quality Permits	CO_2 Plant Station Emissions
New Mexico Oil Conservation Division	Hydrostatic Test Discharge; Facility Discharge permits	Hydrostatic test water discharge; CO_2 Plant station discharge permits
Motor Transportation Division of the New Mexico Taxation and Revenue Department	Oversized Vehicle Permits	Construction vehicles and equipment trucks

The proposed action is authorized by the Minerals Leasing Act of 1920, as amended (MLA; 30 USC 181 *et seq.*) in that it will provide for production of natural gas resources within the project area.

ROW grants issued by the BLM and the State of New Mexico will authorize El Paso to construct, operate, maintain, and abandon the proposed action on public and state lands. The MLA authorizes the issuance of such ROW grants. El Paso will be granted certain rights subject to terms and conditions having to do with the ROW. These terms and conditions are included in ROW authorizations to protect natural resources and the rights of others. ROW applications are being filed concurrently with the BLM, Fee landowners, and the State of New Mexico.

Permits for Temporary Use Areas (TUAs) are required on public lands and are also issued under the authority granted the BLM under the MLA. TUAs include extra workspace outside of the permanent ROW and are often required at pipeline, drainage crossings, at road crossings, in rough terrain, and at staging areas. This extra workspace is required for the safe operation of construction equipment.

INTERELATIONSHIP WITH OTHER PROJECTS

Phillips and Burlington production operations in the T32N-R9W area under contract to El Paso will benefit from the added gathering lines and treatment / compression facilities. The project will service proposed and existing production operations by the reduction of system pressures and the additional volume of production. Mid-America Pipeline Company recently built their Rocky Mountain Loop Pipeline along the Arkansas Loop Corridor, but there is no direct relationship between projects. The entire length of the proposed Trunk 14-A offsets the MAPCO construction at approximately 60 yards and the Arkansas Loop Road at approximately 100 feet.

PROPOSED ACTION

Project Description

El Paso proposes to construct the Rattlesnake Plant and Pipeline Project in San Juan County, New Mexico. The project consists of the construction of approximately seven and one half miles of three pipelines and one new Treatment / Compression Plant. Approximately 98% of all construction will be adjacent to existing natural gas gathering systems or roadways. The Proposed Plant site is located adjacent to the Arkansas Corridor pipeline and road system.

The Rattlesnake Plant equipment and piping are designed to meet National Electrical Code, OSHA and ASME/ANSI B31.3, B31.8 requirements and standards. The legal location and land status for the Proposed Site is as follows:

Proposed Site: N/2NE Section 33, T32N-R9W

Horsepower	BLM Status	Fee Status	State Status
2,370 hp (total)	3.057 acres	N/A	N/A

A Phillips tank battery (three 500-gallon barrel tanks) presently occupies a portion of the Proposed Site. Approximately 3.057 acres total will be needed for the Proposed Site construction and operation. Table 2 (Page 1-7) below, contains a summary of equipment components for the site. Plot plans, plats, and USGS 7.5' maps showing the site location or configurations are provided in Appendix A, POD, Exhibits 1 and 2.

The Rattlesnake Treating Plant will remove CO_2 and free liquids from a blended gas stream (i.e. conventional and coal seam gas. The Proposed Site is located on BLM lands adjacent to the Arkansas Loop Corridor pipelines and road. The site will contain two conventional natural gas fired 1185 hp engines.

Table 2: Rattlesnake Plant Components, EPFS Rattlesnake Treating Plant and Pipeline Project, 1999.

QUANTITY	EQUIPMENT ITEM	OVERALL DIMENSIONS L x w x h	APPROXIMATE POUNDS (#)
2	1185HP NATURAL GAS DRIVEN RECIPROCATING ENGINES	40' x 15' x 16' Stack Height 242" Stack O.D. 14.25"	2 @ 80,500 # approx.
2	4,700,000 BTU/HR NATURAL GAS FIRED REBOILERS	43' x 5' x 12' Stack Height 37' Stack O.D. 28"	2 @ 25,500
1	TREATED GAS COOLER	13' x 7'	9,000 #
1	TREATED GAS SCRUBBER	4' X 10'	10,300 #
1	CONTACTOR	5' x 80'(Stack Height)	41,000 #
1	REGEN SKID	40' x 14'	122,052
1	REFLUX CONDENSER	15' X 40' X 5'	40,000 #
3	100 BBL STORAGE TANK	10' OD x 16' H. (VERT)	TBD #
3	STORAGE TANKS	10' O.D. X 16'	20,000#
1	LAB AND CONTROL BUILDING	25' x 10' x XX	

M-41 residential grade muffler commonly used in inhabited areas will be installed on both engines. Please refer to Sound Survey and Model completed by HFP Acoustical in Appendix A POD Exhibit 7. Noise emissions based on equipment manufacturer's specifications for each facility component are provided in Table 3 page 1-8.

Table 3: Rattlesnake Treating Plant Noise Specifications. EPFS Rattlesnake Treating Plant and Pipeline Project, 1999.

	Equipment	Noise dba @ 3 feet edge	Comments
1	treated gas scrubber	65	
2	treated gas cooler	80	
3	contactor	70	dump valve & general
4	inlet filter	65	
5	Compressors (each)	100	by compressor vendor
6	Compressor discharge coolers (each)	111	by compressor vendor
7	Storage tank	not significant	not significant
8	Reboiler A	90	
9	Reboiler B	90	
10	Reflux condenser/ solution cooler	89	
11	Regen Skid	80	general noise at skid limits due to control valves, piping, &pumps
12	Air compressor	75	noise outside of building (enclosed)

The proposed above ground storage tanks will range from 10 to 15 feet in height above grade. Each tank will rest on a gravel support ring lined with a high-density polyethylene liner to aid in leak detection. An unlined earthen berm designed to hold one and one-third (1 1/3) the capacity of the largest interconnected tanks will be constructed around the perimeter of the tanks to contain their contents in the event of a tank rupture.

Due to safety concerns, the condensate storage tank batteries are located 200 feet away from the other facility components. The intervening areas will be left in their natural state to the greatest degree possible.

Rattlesnake Treating Plant air pollutant emissions are listed in Table 4.

Table 4: Rattlesnake Treating Plant Emissions. (Projected by Pam Kirschner EPFS, personal communication, 1999) EPFS Rattlesnake Plant and Pipeline Project, 1999.

REGULATED AIR POLLUTANT TOTAL EMISSIONS in TONS PER YEAR (TPY)*			
	NOx	CO	VOC
Rattlesnake Plant	38.8	46.8	10.6

* Based on equipment manufacturers specifications at 100% operating capacity

The New Mexico Environmental Department (NMED) has issued the Air Quality Permit Number 2232 for this site (See Exhibit 6 in the POD Appendix A). The specific and general conditions of this permit are imposed pursuant to the Air Quality Control Act (1978 NMSA Section 74-2-1 et seq.) and regulations adopted pursuant to the Act including Title 20, New Mexico Administrative Code (NMAC), Chapter 2, Part 72, (20 NMAC 2.72), Construction Permits, Subpart II and Subpart III and all provisions of this regulation are applicable to this facility. NMED has reviewed the permit application and determined that the application has qualified for a streamline permit. Table 5 below states the equipment that is authorized for operation at this site under jurisdiction of the NMED's streamline permit # 2232.

Table 5: Rattlesnake Treating Plant Authorized Equipment List (NMED Air Quality Streamline Permit #2232), EPFS Rattlesnake Plant and Pipeline Project, 1999

Name of Unit	Model No.	Serial No.	Name Plate Capacity	Control Equipment Description
1 - Caterpillar	G3516	N/A	1265 HP	None
2 - Caterpillar	G3516	N/A	1265 HP	None
3 - Emron Inc.	N/A	N/A	5.2 MMBTU/hr	None
4 - Emron Inc.	N/A	N/A	5.2 MMBTU/hr	None

The above equipment will be maintained as per the manufacturer specifications to ensure emissions remain at or below the permitted levels. The station is authorized to operate 24 hours per day, 7 days a week, and 52 weeks per year. Due to the fact there are no measurable amounts of CO_2 in the treated gas there won't be a VOC emission. CO_2 is a non-regulated air pollutant. Table 6 below provides maximum emission rates for the site equipment.

Table 6: Maximum Emission Rates for Rattlesnake Treating Plant Site Equipment, (NMED Air Quality Streamline Permit #2232), EPFS Rattlesnake Plant and Pipeline Project, 1999

Unit No.	Site Hp	Site RPM	Air Control Required	Catalytic Converter Required	Maximum Emission Rate Pounds per Hour / Tons per Year NOx	CO	VOC
1	1166	1400	No	No	3.9/16.9	4.9/21.3	1.2/5.2
2	1166	1400	No	No	3.9/16.9	4.9/21.3	1.2/5.2

Unit No.	Site rating	Site Rating Units	Maximum Emission Rate Pounds per Hour / Tons per Year NOX	CO	VOC
3	5.2	MM Btu/hr	0.57 / 2.5	0.47 / 2.1	0.03 / 0.1
4	5.2	MM Btu/hr	0.57 / 2.5	0.47 / 2.1	0.03 / 0.1

General Condition Categories for Streamline Permit (Categories 1 and 2) are compliance tests, control equipment record keeping and reporting, fuel requirements, revisions and modifications, equipment ownership, right to access property and review record, reporting

requirements, revocation and appeal procedures. Each of these is discussed in detail on the permit for this site as attached in the Appendix A, Exhibit 6.

One to two light poles approximately 20 feet in height will be placed on the site as needed to provide the facility with lighting and electricity. Electrical lights at each station will be used as needed by facility personnel and not left on for 24 hours. Directional shields will be placed on the lights to direct them into the fenced perimeter. Electrical service is available at the site for this proposed equipment layout.

The paintable above ground components of the Rattlesnake Plant will be painted Juniper Green to blend in with the surrounding piñon-juniper vegetation community.

Pipelines

The Rattlesnake Plant and pipelines will be designed to ASME B31.3 and B31.8 standards. Applications for 40' wide ROWs will be made for all pipelines on BLM and private lands, and 30' ROWs on State of New Mexico. Land ownership for the approximately 7-1/2 miles of proposed ROW is as follows: approximately 5.82 miles (80.37%) on BLM land, approximately 0.90 miles (12.45%) on State of New Mexico land, and approximately 0.52 miles (7.18%) on private land. The line lengths and land status for each pipeline segment are summarized in Table 7 below.

Table 7: Proposed Pipeline Legal Descriptions, ROW widths, & Land Status Summary. EPFS Rattlesnake Plant and Pipeline Project, 1999

Name/Size	Legal	Length/Width	BLM Status 40' wide ROW	Fee Status 40' wide ROW	State Status 30' wide ROW
Rattlesnake Discharge Pipeline (6")	T32N-R9W: S33	0.02 mi / 40' 120.30' feet	120.30' 100%	0.0' 0%	0.0' 0%
Gardner No. 1 Loop (4" and 6")	T32N-R9W: S33, 34	1.18 mi / 40' 6,234.28 feet	6,234.28' 100%	0.0' 0%	0.0' 0%
Lateral 14A-3 (6")	T32N-R9W: S15, 16, 9, 8, 7	3.09 mi / 40' / 30' 16,345.84' feet	11,591.00' 71% (40' width)	0 ' 0%	4,754.84' 29% (30' width)
Trunk 14A Pipeline (8" and 6")	T32N-R9W: S33, 28, 27, 22, 15	2.94 mi / 40' 15,518.58' feet	12,773.16' 72%	2,745.42' 18%	0 ' 0%

The proposed pipelines include the Rattlesnake Plant (6") Discharge pipeline, Gardner No. 1 (4" and 6") Loop, Trunk 14A (8" and 6"), and the Lateral 14A-3 (6"). The 6" Rattlesnake

Discharge pipeline is located within and will parallel and cross the existing Arkansas Loop pipeline and road system and tie to EPFS Blanco Plant to NM - Colo. State Line (3205) Pipeline for 120.30'. The 4" Gardner No. 1 Loop will loop the existing Gardner Pipeline and Sandstone pipeline for 1.181 miles down an unnamed valley to its tie-in point on the Mc Elvain Oil and Gas Properties - Sandstone Com #1A well. The 8" and 6" Trunk 14A pipeline will parallel the existing Trunk N for 2.94 miles to its tie-in point with the proposed Trunk 14A-3 Pipeline. The 6" Trunk 14A-3 pipeline will start at an end point of Trunk 14A riser and parallel the Lateral N-6 pipeline for 3.09 miles just south of the Colorado - New Mexico border to the end of line. Pipeline routes and locations are shown in Figure 2 Pipeline Project map page 1-12.

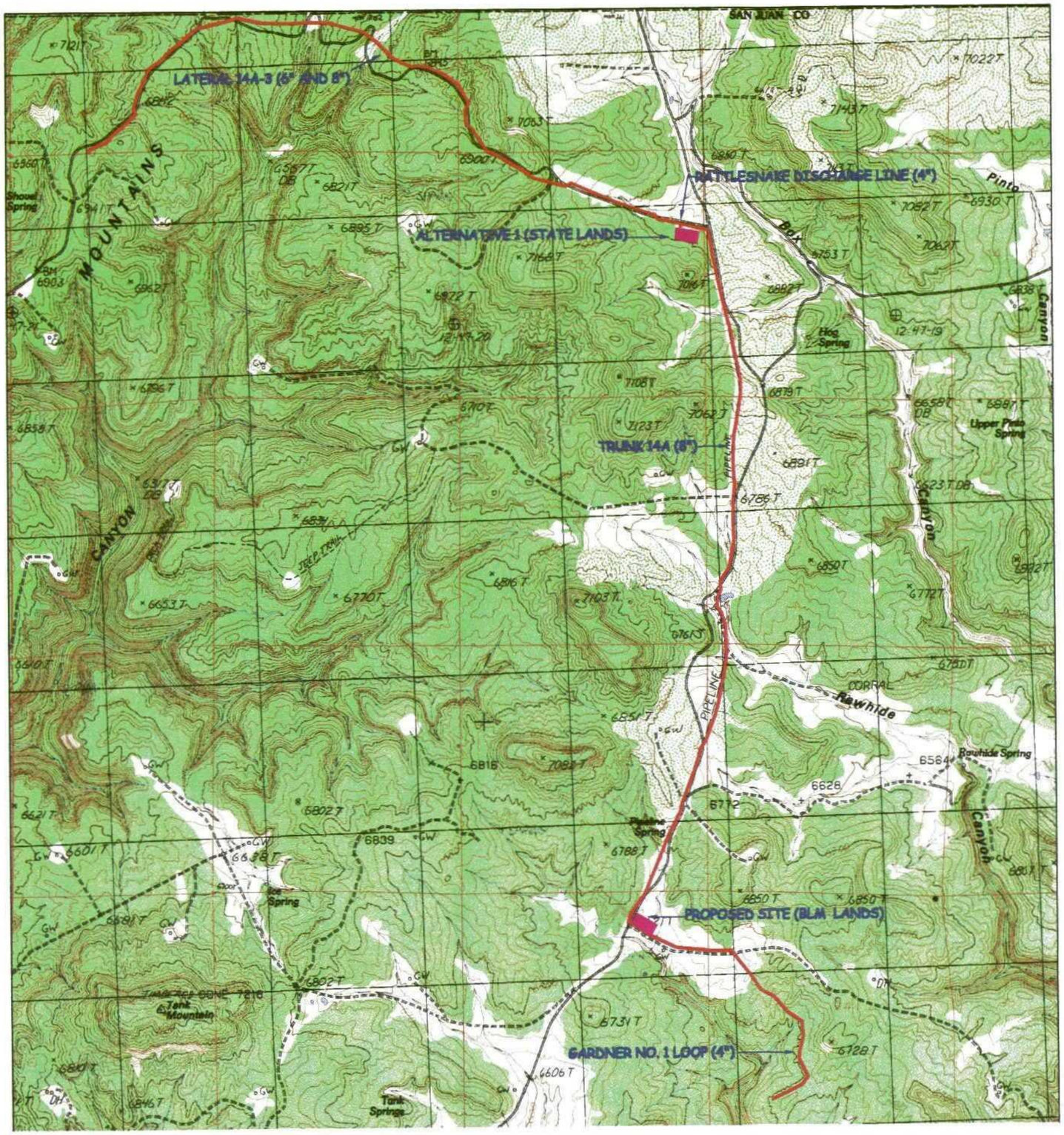
The expected operational lifetime of the pipelines is anticipated to be approximately 50 years. For impact assessment purposes, it will be assumed that clearing for the pipeline ROW during construction will be the complete width of the granted ROW. Due to oil and gas road crossings, pipeline crossings, potential difficult points of intersection and wash crossings, additional variably sized TUA acres will also be required during construction. Approximately 1 acre of total TUA will be needed in Trunk 14A and approximately 6 acres of total TUA will be needed in Lateral 14-A3. (See Appendix A, POD, Exhibit 3 - TUA).

For impact assessment purposes, it will be assumed that the entirety of the requested TUA will be used during construction. Prior to the actual construction of the proposed pipeline, the sizes of these TUAs may be adjusted downward and discussed in the authorizing documents.

Because the pipeline segments parallel existing El Paso Natural Gas (EPNG) multi-pipeline ROWs and/or private or oil and gas roadways, currently existing in the Arkansas Loop Corridor and road, approximately 98% of the construction of the permanent ROW will take place on areas impacted by prior pipeline or roadway construction and maintenance. The proposed pipeline project lays approximately 60 yards East of Mapco's existing Rocky Mountain Loop Pipeline and approximately 100 feet East of the Arkansas Loop Corridor Roadway.

Trunk 14A will be constructed in accordance with EPNG regulations allowing 15 feet (+/-) between pipelines. In T32N R9W from Engineering Station (ES) 0+00 + 0+86.26 to E.S. 7+90.00, this pipeline will be laid 15 feet (+/-), south of Koch Exploration Co.'s waterline. From ES 7+90.00, to ES 17+39.70, this pipeline will be laid 15 feet south of EPNG 1218 line. From ES 17+39.70 to ES 30+92.50, this pipeline will be laid 15 feet (+/-) south of Koch Expl. Co. water line. From ES 30+92.50 to ES 71+67.17, this pipeline will be laid 15 feet south of EPNG 1218 line. From ES 71+97.00 to ES 74+99.30, this pipeline will be laid 10 feet (+/-) north of EPNG 1218 line. From ES 74+99.30 to E.O.L., this pipeline will be laid 15 feet (+/-) south of EPNG 1218 line.

Trunk 14A-3 will also be constructed in T32N, R9W and will commence from ES 4+16.21 to ES 77+47.50. This line to be laid 15 feet (+/-) north of Burlington Resources D&G Co. water line. From ES 77+47.50 to ES 127+19.10, this line to be laid 10 feet (+/-) north of EPFS Lateral N-6. From ES 127+19.10 to ES 134+25.80, this line to be laid 15 feet (+/-)



EL PASO FIELD SERVICES

RATTLESNAKE PLANT AND PIPELINE PROJECT

Township 32 North, Range 9 West
San Juan County, New Mexico
Adapted from Mount Nebo (USGS)
7.5' Quadrangle Series
Provisional Edition 1985
Revised Edition 1999
Approximate Scale 1" = 2400'

LEGEND

- Proposed Pipeline
- Proposed Site(s)

FIGURE 2 PROJECT AREA AND AFFECTED COMPONENTS

south of EPFS Lateral N-6. From ES 134+53.50 to ES 148+73.30, this line to be laid 25 feet (+/-) north of Burlington Res. O&G Co. - water line. From ES 159+99.83 to EOL this line to be laid 15 feet (+/-) south of EPFS Lateral N-6.

The potential maximum disturbance associated with the proposed action is presented in Table 8 on page 1-13. These acreages are presented for impact assessment purposes only. It is expected that actual acreage's disturbed will be less than the acreage presented in this table.

Table 8: Temporary Use Areas (Provided by Emmet L. Roberds, EPFS). EPFS Rattlesnake Plant and Pipeline Project, 1999.

Trunk 14A

Engineering Station	Existing	Need	Additional Each Side of Centerline	Total Acres
007+ 53 - 008 + 53	40x100	80x100	20'	0.09
071 + 00 - 75 + 50	40x450	80x450	20'	0.41
097 + 54 - 99 +04	40x150	80x150	20'	0.14
133 + 03 - 134 + 0	40x100	100x100	25'	0.12
135 + 75 - 137 + 7	40x200	100x200	25'	0.23

Lateral 14-A3

000 + 00 - 004 + 16	40x416	200x416	60'	2
017 + 00 - 019+00	40x20	70x200	30'	0.32
030 + 00 - 036 + 50	40x650	70x650	30'	1.05
059 + 00 - 061 + 00	40x200	70x200	30'	0.32
063 + 00 - 064 + 00	40x200	70x200	30'	0.32
070 + 50 - 075 + 075	40x725	70x725	30'	1.17
087 + 50 - 103 + 00	40x155	100x155	30'	0.36
148 + 50 - 150 + 5	40x200	100x200	30'	0.46
162 + 00 - 163 + 5	40 x 150	100x 150	30'	0.35

In situations where pipeline is constructed within 15 feet (+/-) of pipelines other than EPNG ownership, an encroachment agreement will be obtained from affected companies. TUA's on the working side of the proposed ROW's average 25' will also occur on previously disturbed lands 98% of the time (See Table 9, Page 1-14).

Project Construction

This section presents information on construction activities and standard operating procedures El Paso will employ during construction of the proposed action. El Paso will fulfill the requirements of the BLM ROW grant, and the other permits obtained in order to construct the proposed action.

A three-month construction period is anticipated; beginning in late summer, and ending in late fall, 1999. Construction contractors will be involved and will be selected by competitive bid.

Table 9: Proposed Pipelines and Rattlesnake Plant Surface Disturbance Acreage.
EPFS Rattlesnake Plant and Pipeline Project, 1999

	TOTAL	BLM LANDS	BOR LANDS	STATE OF NEW MEXICO LANDS	PRIVATE LANDS	PREVIOUSLY IMPACTED* (APPROXIMATE PERCENTAGE	PREVIOUSLY UNIMPACTED** (APPROXIMATE PERCENTAGE)
PERMANENT ROW (acres)	37.05	31.26	0	3.27	2.52	98%	2%
ADDITIONAL TUAS (Acres)	7	3	0	3.5	.50	98%	2%
TOTAL	44.05	34.26	0	6.77	3.02	98%	2%

* "Impacted areas" include those portions of the construction ROW/TUA within previous pipeline ROW construction zones, roadways, etc.
** "Un-impacted areas" include those portions of the construction ROW/TUA outside of previous pipeline ROW construction ones, roadways, etc.

The contractor will work during daylight hours six or seven days per week and employ approximately 75-100 workers. Approximately 50 of these workers will be from the San Juan Basin area and the others will reside temporarily in the City of Farmington. If blasting is necessary, approval will be obtained from the appropriate agency, and local residents will be informed prior to the blasting event. El Paso will also employ a third party Quality Assurance (QA) inspector to maintain compliance with BLM, and other agency stipulations. The QA inspector will oversee the proper implementation of erosion control and other measures to minimize environmental impacts during project construction. See the Compliance Plan in Exhibit 9 of the POD included in Appendix A.

Construction equipment will include trucks, loaders, various sized dozers, shovels and backhoes, boring machines, cranes, side booms, generators, concrete trucks, and bending machines. All construction equipment shall be weed free. Waste materials, including solid waste (i.e., human waste, trash, and refuse) that is generated during construction will be disposed of promptly at an appropriate waste disposal site.

Rattlesnake Plant components, pipe, and construction equipment will be hauled according to New Mexico State requirements. The Arkansas Loop Corridor Road will be used as access. No new roads will be constructed as part of the proposed action. An existing private road located in Trunk 14A (see Appendix A POD, Exhibit 1 Trunk 14A preliminary map) at ES 61+3100 will be crossed to construct the proposed action and will be restored to original or better condition. Traffic through the area will be routed on permitted ROW or TUA areas only and appropriate signage will be posted at construction sites. No traffic stoppage will occur. Construction will be performed during normal daylight working hours. The construction ROW, permitted TUA, or Rattlesnake Plant site area will serve as storage space for soil and for construction vehicle maneuvering

Rattlesnake Plant Construction

Clearing of the Rattlesnake Plant Station site will be limited to the 3.0578 acres surveyed. (See site layout, Appendix A, POD, Exhibit 1.) Portions of the site area will be graded and filled to a relatively level surface (less than 2% slope). Material under foundation areas will be excavated and compacted to provide support. Up to 27 cubic yards of engineered fill will be required for foundation support for certain facility components (i.e. engines). Engineered fill will be imported from a permitted source (i.e local sand and gravel pit).

Construction sequence at the Rattlesnake Plant station will likely proceed with the following basic steps:

Site grading and re-contouring, including culverts and drainage ditches;

Site excavation and grading, and re-compaction of site soil with engineered fill for specific foundation requirements;

Installation of subsurface piping, foundations, and concrete pads;

Facility compressor motor or engine installation and control building construction;

Facility component (i.e. tank battery, re-gen skids, etc.) installation; and

Installation of facility lighting, gates, and perimeter fencing (8 foot tall chain link).
Power poles currently exist within 100 yards of Proposed Plan Site. One to two new poles will be installed at site pending permit completion.

Site layout showing facility components for the proposed Rattlesnake Plant is also provided in Appendix A, POD, Exhibit 1.

General Pipeline Construction

In general, the construction of the proposed action will be completed in the following sequence:

ROW Clearing and grading: Brush, rocks, tree branches and other woody material will be cleared from the ROW and stored in permitted TUA for use in reclamation. The pipeline ROW and TUA will be cleared to the minimum extent needed for safe construction. Certain areas may have clearing width restrictions to protect existing resources.

Trenching: Backhoes or ditching machines will be used to dig the pipeline trenches. Typical trench dimensions will be approximately 4 feet deep by 2 feet wide for 4" - 8" pipe. Soil cover over all size pipes will normally be 36" from the top of pipe to the final surface grade. In rocky areas, the cover will be at least 2" deep. The trench dimensions could be wider and deeper at crossings under existing pipelines, roads, or other obstacles. The trench could remain open for several days until the pipe is lowered and backfilling is complete. Care will be taken to keep roads passable during this stage of construction. Care will also be taken to protect livestock, wildlife, and the public from open trenches by using temporary fencing, soft plugs to allow exiting the trench, and other techniques as appropriate.

Pipe Laying: Trenching will be followed by pipe stringing, bending, lining up, welding, radiographic examination, wrapping, coating, laying, and burying. Fill material and padding dirt is typically obtained from soil excavated from the ditch, however, if fill material is required from outside sources, proper permits will be obtained.

Clean Up: After the pipeline is buried, a small berm of no more than 12 inches will be left over the pipe to compensate for some settling of soil (except at road crossings, in drainage's, and in heavy use areas). The disturbed surface will be restored as closely as possible to its original contour. Water diversions will be installed as per specifications included in Appendix A POD and Exhibit 10 to limit the potential for erosion. Tree branches and other woody material removed from the ROW during clearing will be chipped and randomly scattered over the surface of the ROW and TUAs. Rocks removed during construction will also be randomly placed over the ROW.

Disturbed areas will be reseeded with the appropriate seed mixture in Exhibit 11 of the POD included in Appendix A. The BLM Woodlands seed mixture will be used on BLM lands. Per BLM standards, reseeding will occur between July 1, and September 15. Seeding will be performed during the next possible seeding season following construction. The seed to be used will be tested in accordance with applicable laws and will not contain primary or secondary invasive weeds. Appropriate seeding techniques will be employed during reseeding. El Paso will adhere to an EPA Clean Water Act SWPPP revegetation standard of 70% cover as compared with surrounding areas after two growing seasons. If revegetation is not successful after the second growing season, the disturbed areas will be reseeded.

During reclamation, above ground structures will be painted to an earth tone or green color with the intent to blend with the natural surroundings. Reflective materials may be used to reduce the potential for accidents when such structures are placed near roads (according to Occupational Safety and Health Act, OSHA, regulations). Otherwise, the paint used will be of a non-glare, non-reflective, non-chalking color (i.e. Juniper green).

Topsoil material will be saved (double ditched) in areas where it can be saved without "wasting" it into washes and ground irregularities. This will be done with the minimum sized equipment necessary to complete the operation in a safe and economical manner. Double ditching entails the upper six to twelve inches of soil material to be removed and stockpiled separately from the other excavated material. The topsoil and subsoil (ditch spoil) will be placed in separate windrows on one side of the ROW.

Additional Construction Measures

Bladed Road Crossings: The proposed pipelines (Rattlesnake Plant Discharge pipeline, Gardner No. 1 Loop, Trunk 14A, and the Lateral 14A-3) will cross-bladed roads that are not within the county maintained road system. There are numerous crossings occurring on Federal regulated lands (see map Figure 6 Allotment Maps, Page 2-22) and one privately owned 15 foot wide road at ES 61+31.00 located in the SWSW of Sec. 27 T32N R9W, NMPM, San Juan County NM. The pipelines will be installed to minimize the potential for damage from pressure caused by road traffic. Adequate safety precautions and traffic control will be provided for traffic safety in accordance with federal, state, and local requirements. Unpaved roads will be ditched and traffic control and detours provided. Crossings of unpaved roads will usually be completed within one day to minimize traffic impacts. EPFS will use water or a BLM-approved chemical binder to limit the erosion of un-surfaced roads used or crossed during construction within one quarter of a mile of dwellings.

Pipeline Crossings: Prior to construction, buried facilities will be located with metal detectors so that they can be avoided during construction. During construction, a backhoe and hand labor will be used to excavate the proposed pipeline ditch under existing pipelines. Where practical, the proposed pipeline will be installed two feet below existing pipelines.

Fence Crossings: When fences and natural barrier crossings used for livestock control are opened during construction of the proposed action, gaps will be temporarily closed as often as possible during construction to prevent the escape of livestock. Fences will be braced and

secured to prevent slacking of the wire before it is cut to allow for pipeline construction. Fence crossings will occur in Gardener #1, 14A and in 14A-3. (See Allotment maps pages 2-12and 2-13). Upon the completion of construction, fences and other range improvement projects will be re-established to original or better condition. Pipelines for livestock water will be avoided during construction. If construction damage occurs, fences and water pipelines will be restored according to BLM or landowner specifications.

Rattlesnake Canyon Habitat Management Plan Area (RCHMP): The RCHMP management objectives of confining all construction and maintenance activities taking to pre-existing disturbed areas will be adhered to as near as possible.

If possible, a minimum of ten feet of undisturbed surface will be maintained between existing fence lines and the proposed pipeline. EPFS will repair any damage to the private dirt tank located in Section 22, T32N, R9W NMPM, San Juan County, NM as a result of construction to its original or better condition. Please see Figure 5 on page 2-12.

Pressure/Hydrostatic Testing: Pipeline and Rattlesnake Plant piping will be tested using gas. The pipeline will be filled with gas and brought up to 1.25 times the operating pressure for 2 hours.

Wash Crossings: The extent of construction within washes will be minimized. Cutting the banks and slopes of washes will be minimized and as much vegetation consisting largely of Existing vegetation (pinyon/juniper, sagebrush, or oak brush) will be preserved to the greatest extent feasible along the banks in the TUA. Soil will be stockpiled at the tops of banks and the pipeline trench will be plugged at each bank whenever possible until the pipe is installed to prevent runoff and siltation of the wash. Where necessary, straw bales, or other temporary erosion control measures will be used during construction. Stormwater Pollution Prevention Plan for the project is included in Exhibit 5 of the POD included in Appendix A. Waterbar diagrams are included Exhibit 10 of the Appendix A POD.

After the pipe is installed, the 22 minor (i.e. less than 15 feet wide) wash crossings affected by the proposed project will be restored to a stable configuration (the slopes will be reduced), including the use of riprap, as necessary. Wash crossings will require additional TUAs. (See Appendix A POD, Exhibit 3). The storage of chemicals, fuels, and lubricating oils and the refueling of vehicles within 100 feet of washes will be prohibited.

Safety Measures: El Paso will comply with all of the safety standards required by the ASME B31.8. The pipeline will be designed, constructed, and operated in compliance with OSHA regulations pertaining to pipeline construction and operation. Several of the safety features to be incorporated into the proposed action include burying the pipeline at a minimum depth of 36 inches in normal soil and 24 inches in rock to avoid impacts from agricultural or other equipment. Heavier pipe will be used for road, irrigation canal, and major wash crossings; and cathodically protecting the entire pipeline to prevent corrosion. Spare lengths of pipe and repair equipment will be maintained near the project area by EPFS in case emergency repair work is necessary during construction. EPFS will also provide for the safety of the public entering the ROW, including barricades for open trenches, flagmen/women along single-lane

roads, and attended gates for blasting operations. Traffic control will be provided as needed when road boring takes place and in congested areas.

In addition, EPFS has developed an emergency plan, which identifies personnel to be contacted, equipment to be mobilized, and procedures to be performed if an emergency occurs. This plan was developed to comply with Department of Transportation (DOT) Office of Pipeline Safety requirements. Reflective materials may be used to reduce the potential for accidents when above ground structures are placed near roads (according to Occupational, Safety and Health Act regulations). A Spill Prevention and Containment Plan is included in Exhibit 4 of the POD in Appendix A.

More detailed information on proposed construction activities is included in the POD in Appendix A.

Project Operation, Maintenance, and Abandonment

During operation and maintenance, EPFS will maintain the ROW according to the stipulations provided in the BLM and State of New Mexico ROW grants. The proposed action will be operated according to natural gas industry standards. Supervisors and field personnel driving along the ROW will physically monitor the pipeline periodically. No new operational personnel will be required for the proposed action.

EPFS will control weeds on disturbed areas within the ROW. An Invasive Weed Management Plan has been prepared and is included in the Exhibit 12 of the POD in Appendix A. Use of pesticides and herbicides will comply with applicable federal and state laws.

Three months prior to the termination of the ROW grants, El Paso will contact the BLM to arrange a joint inspection of the ROW. The purpose of this inspection will be to agree to a termination and rehabilitation plan. This plan could include, among other actions, the removal of facilities, recontouring, and reseeding. The pipelines will be abandoned in place, and will be purged, cleaned, sealed, and secured. Rattlesnake Plant Station facilities will be dismantled and removed. To the extent possible, all areas will be rehabilitated to pre-construction conditions. Abandonment will result in the reversion of the ROW back to controlling agencies or private landowners.

ALTERNATIVES

"No Action" Alternative

The "No Action" Alternative will consist of not building the Rattlesnake Plant and Pipeline Project. If this alternative were selected, current land and resource uses will continue within the project area. Existing gas production systems in the area would continue to produce at present levels. Failure to approve the proposed action will result in EPFS, Phillips and Burlington being unable to fulfill their contractual obligations for gathering, treating and transporting conventional and coal seam natural gas in the T32N, R9W area. In order to fulfill their contractual obligations, Phillips is planning to drill additional 35 wells in the next five

years within the Trunk N area. The five wells currently connected to existing EPFS facilities, which will become a part of the Rattlesnake system produce 16.5 MMCFD of gas with a blended CO 2 content of 7.5%. Phillips plans to drill five additional wells during 1999, resulting in a volume of 24 MMCFD being delivered to the Rattlesnake CO_2 removal plant. Should volumes delivered from the total ten well package fail to meet the 24 MMCFD needed to fully load the EPFS plant, Phillips will drill up to four more wells. Without the approval of the Proposed Action these wells would not be drilled, as they could not be put into production.

Alternative 1

The Alternate Rattlesnake Plant Site 1 is a 3.01 acre site located on State Lands in T32N, R9W, Section 16 (Figure 1, page 1-2). The site was applied for on July 26th, 1999 and verbally granted from the State Lands Office the week of September 13th, 1999. The site is covered with sagebrush and scattered young pinon-juniper trees. This plant will also accommodate existing purpose and need for the project and accommodate reasonably foreseeable future expansion as drilling plans develop. The site area is sized to accommodate reasonably foreseeable equipment expansion needs based on current Phillips drilling program (Kent Leidy, personal communication, 1999). The plant equipment content, air and noise emissions, function, processing capacity, and construction method are the same as for the Proposed Site discussed above. The plant site layout is provided in Appendix A POD Exhibit 1B.

Looping pipelines connecting this plant site to the serviced wells and pipeline transportation systems are essentially identical in route location, length, function, and construction method. The Gardner Loop is exactly as the Proposed Action discussed above. The Trunk 14A pipeline will be 8" for its entire length. The Lateral 14A-3 pipeline will consist of 8" and 6" pipe. Suction and discharge lines are located in different positions based on the plant site location. The land status, site size, TUA, and pipeline lengths are summarized below in Tables 10 (1-21) and 11 (page 1-22). Plats detailing the looping pipelines are included in Appendix A Exhibit 1B.

Table 10: Alternative Pipeline Legal Descriptions, ROW widths, & Land Status Summary. EPFS Rattlesnake Plant and Pipeline Project, 1999.

Name/Size	Legal	Length/Width	BLM Status	Fee Status	State Status
Rattlesnake Suction Pipeline (8")	T32N-R9W: S 16	0.005 mi / 30' 28.79'	0.0' 0%	0.0' 0%	28.79' 100%
Rattlesnake Discharge Pipeline (6")	T32N-R9W: S 16	0.16 mi / 40'/30' 865.05'	116.84' 14% 40'	0.0' 0%	748.21 86% 30'
Gardner No. 1 Loop (4" and 6")	T32N-R9W: S33, 34	1.18 mi / 40' 6,234.28'	6,234.28' 100%	0.0' 0%	0.0' 0%
Lateral 14A-3 (6" and 8")	T32N-R9W: S15, 16, 9, 8, 7	3.09 mi / 40' / 30' 16,345.84'	11,591.00' 71% (40' width)	0 ' 0%	4,754.84' 29% (30' width)
Trunk 14A Pipeline (8")	T32N-R9W: S33, 28, 27, 22, 15	2.95 mi / 40' 15,581.58'	12,836.16' 82%	2,745.42' 18%	0 ' 0%

Table 11: Alternative Pipelines and Rattlesnake Plant Surface Disturbance Acreage, Alternate 1.
EPFS Rattlesnake Plant and Pipeline Project, 1999.

	TOTAL	BLM LANDS	BOR LANDS	STATE OF NEW MEXICO LANDS	PRIVATE LANDS	PREVIOUSLY IMPACTED* (APPROXIMATE PERCENTAGE	PREVIOUSLY UNIMPACTED** (APPROXIMATE PERCENTAGE)
SITE SIZE	3.01	0	0	3.01	0	2%	98%
PERMANENT ROW (acres)	34.52	28.21	0	3.79	2.52	98%	2%
ADDITIONAL TUAS (Acres)	7	3	0	3.5	0.5	98%	2%
TOTAL	44.53	31.21	0	10.3	3.02	98%	2%

* "Impacted areas" include those portions of the construction ROW/TUA within previous pipeline ROW construction zones, roadways, etc.

** "Un-impacted areas" include those portions of the construction ROW/TUA outside of previous pipeline ROW construction zones, roadways, etc.

CHAPTER 2
AFFECTED ENVIRONMENT

INTRODUCTION

The proposed Rattlesnake Plant and Pipeline Project will occur in the New Mexico portion of the San Juan Basin in San Juan County (See Figure 1 chapter 1 page 1-3). The San Juan Basin is a previously developed oil and gas field that supplies a substantial amount of natural gas for the domestic energy market. Existing oil and gas gathering, production, and processing facilities are numerous throughout the project area.

Resource elements that are not present or are not affected by the proposed action alternative are farmlands (prime and unique), floodplains, Native American religious concerns, paleontological resources, recreation, off-road vehicle use, wetlands or riparian zones, wild and scenic rivers, ground water, fisheries, locatable and saleable minerals, hazardous wastes, threatened and endangered species, wilderness, special management areas, areas of critical environmental concern, transportation, utility corridors, encumbrances, public health and safety, and environmental justice. The information presented in the following sections describes the (1) physical environment and (2) resource elements that will be affected by project construction, operation and maintenance and (3) current development and management of resources occurring in the project area. Results of Class III surveys for cultural resources, survey for noxious (invasive) weeds, and survey for Threatened and Endangered Species have been submitted separately and will be summarized in this EA.

The existing conditions of the following resources are addressed in this chapter as part of the impact analysis are climate, air quality, sound quality, geology, topography, cultural resources soils, vegetation, water quality and quantity leasable minerals, wildlife, wildlife habitat, visual resources, socioeconomic, waste, forestry, livestock grazing, and oil and gas development.

CURRENT SITUATION - AFFECTED ENVIRONMENT

General Description

The project area is located 15.7 miles northeast of Aztec, New Mexico in San Juan County, Township 32 North, Range 9 West. The northern edge of the project area is the Colorado - New Mexico state line. Box Canyon and Pinto Canyon are approximately 1.7 to 2 miles east of the area. A well-known topographical feature in the area is Mount Nebo, which is approximately 4 miles due west of the plant site. Please refer to the Project Area Map located in Chapter 1 Page 1-3 for additional landscape detail. The unincorporated community of Cedar Hill and dispersed housing along the Animas River Valley and Highway 550 are approximately 6 miles to the west-southwest.

Surface flows that originate in this project would flow to Ditch Canyon (west side) and Sandstone, Box and Pinto Canyon into Pump Canyon (east and south side). Several undeveloped and unnamed springs are in the area of this project identified on the Mount Nebo

USGS topographical map (1985). These springs are located in the NENENE of Section 33, T32N-R9W, and SWSWSW of Section 28, T32N-R9W. There are several other undeveloped named springs that are also located in the project area. Pipeline Spring is located in SWNESE of Section 28, T32N-R9W. Hog Spring is located in NESESW of Section 15, T32N-R9W. The unnamed spring located in Section 33 just south of the plant site has been impacted by an existing borrow pit adjacent to the oil and gas lease road and when inspected in June of 1999 was dry. There are no riparian areas identified within the areas proposed for project construction.

A primary (collector) road known as Arkansas Loop Road runs is located adjacent the project. The Arkansas Loop Road runs basically southwest - northeast with numerous narrower, shorter dirt roads to oil and gas facilities and grazing allotments in the area.

Climate

The project area is located in the San Juan Basin, which has a semi-arid continental climate Data taken from Western Regional Climate Center web page states an average annual total snowfall at Navajo Dam (6/1/1963 through 12/31/98) of 13.4" of snowfall. The average annual precipitation level for Navajo Dam is 12.7". Aztec Ruins National Monument data shows an average annual total snowfall of 16.0". The average annual total precipitation at Aztec Ruins National Monument is 9.92". Please see Table 10 and Table 11 page 2-3 for further information.

Winters in the Basin are cold, with snow between November and April accounting for slightly less than half of the annual precipitation (48% for Navajo Dam and 45% for Aztec Ruins). Snow will frequently drift over brush along the north faces of canyons. The melting of accumulated ice and snow in the spring produces runoff, which may reach flash flood levels. There are approximately 135 frost-free days annually.

Summers are warm, with the remainder of the annual precipitation coming from thunderstorms occurring from April through October. These storms are generally localized, variable in intensity, and may result in flash floods (SCS November1980).

Air Quality

Air quality in the San Juan Basin is affected both by nearby industry and by the natural terrain, because the San Juan Basin is a natural depression which frequently experiences air stagnation and a resultant decrease in air quality. The BLM Field Office lies within the Four Corners Interstate Air Quality Control Region. No areas within this region are reported to exceed Ambient Air Quality Standards as defined in the Clean Air Act of 1972, as amended (USDI, USDI BLM 1990). Existing ambient pollutant levels within a five-mile radius are listed below in Table 12 below.

Table 12: Navajo Dam, New Mexico (Period of Record 6/1/1963 through 12/31/1998 - Western Regional Climate Center 6/17/99), EPFS Rattlesnake Treatment Plant and Pipeline Project, 1999.

	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Average Maximum Temperature (° F)	39.3	46.1	55.0	63.8	74.1	84.5	90.5	87.6	79.2	67.6	51.5	40.4
Average Minimum Temperature (° F)	18.0	22.6	28.8	34.8	43.8	52.8	60.2	58.7	50.7	39.4	28.6	20.4
Average Total Precipitation (inches)	1.0	0.9	1.2	0.9	0.8	0.5	1.2	1.7	1.1	1.2	1.1	1.1
Average Total Snowfall (inches)	5.5	3.0	0.8	0.1	0.0	0.0	0.0	0.0	0.0	0.3	0.7	3.2
Average Snow Depth (inches)	1	0	0	0	0	0	0	0	0	0	0	1

Table 13: Aztec Ruins National Monument, New Mexico (Period of Record 1/1/1914 through 12/31/1998 - Western Regional Climate Center 6/17/99), EPFS Rattlesnake Treatment Plant and Pipeline Project, 1999.

	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Average Maximum Temperature (° F)	42.9	49.6	58.0	67.7	77.7	86.7	91.3	88.6	81.8	70.3	55.0	44.1
Average Minimum Temperature (° F)	14.9	20.6	25.3	31.9	40.3	48.4	56.8	55.5	47.1	35.9	24.0	16.6
Average Total Precipitation (inches)	0.8	0.9	0.7	0.8	0.6	0.6	0.4	0.9	1.2	1.0	0.7	0.8
Average Total Snowfall (inches)	5.6	2.9	1.2	0.1	0.0	0.0	0.0	0.0	0.0	0.2	1.1	4.9
Average Snow Depth (inches)	1	0	0	0	0	0	0	0	0	0	0	1

Table 14: Existing Emission Sources (Provided by May Uhl, NMED, via E-mail 7/12/99). EPFS Rattlesnake Plant and Pipeline Project, 1999.

DISTANCE	FACILITY	NO_X (tons / year)	CO (tons / year)	VOC (tons / year)
3.28 Miles	Amoco Production Isabel a #1 CS (Permit # 1972)	39.1	21.8	8.54
4.22 Miles	EPFS – Hart Canyon (Permit #1681R1)	31.43	15.72	10.5
4.63 Miles	Williams Field Services Lateral N-30 (Permit #1848M1)	71.6	126.49	59.5
4.95 Miles	Conoco / State Com #12 (Permit # 1902)	14.3	2.9	4.6

Prevailing winds in this area flow up and down major canyons. Sandstone Canyon has northwesterly winds blowing southeasterly during the day and changing directions in the evening to southeasterly blowing northwesterly.

Sound Quality

Existing noise levels in the project area vary considerably, depending on proximity to existing gas processing facilities, major roadways, etc. A survey of existing sound levels was conducted at the Proposed Plant Site on March 1, 1999. Sound level surveys were taken within the proposed yard at various locations. These tests were taken between 12:30 p.m. and 1:30 p.m. The results of the surveys are as follows:

Proposed Plant Site --- 42dBA to 45 dBA

The ambient temperature was approximately 60 degrees Fahrenheit and the winds were variable from the west at approximately five to 15 miles per hour. Road noise varied at the site with the traffic from 56 dBA to 58dBA. Testing within a one-mile radius of the proposed site for all receptors was not necessary because an investigation showed the nearest inhabited site is approximately 1-1/2 miles or more from either of the proposed Rattlesnake Plant sites.

Readings at the Alternate Site mirrored the testing results at the Proposed Plant Site. A calibrated Quest model 215 sound level meter was used for each survey. (David Kniffen, EPFS, personal communication, 1999).

Noise sensitive areas such as hospitals, residences, school, or churches, are not located in the project area. A cabin, built on private lands is located approximately 1-1/2 miles east-

northeast (S/2NWNE of Section 27, T32N-R09W) of the Proposed Site and 1-3/4 miles south-southeast of the Alternate 1 site. Several topographic features (hills and ridges) are between and at higher elevations than the plant sites or cabin site.

Geology

Sandstone and shale of the San Jose formation are the major geological resources in the proposed project areas (Ecosphere 1999). Directly west of the Proposed Plant Site across the Arkansas Loop Road and corridor are several sandstone escarpments. Along the pipeline routes there are sandstone and shale formations resulting from glacial outwash. Sandstone is the parent material in the area. Dakota sandstone underlies the area and is noted for being rich reservoir for oil and natural gas.

Topography

Elevation in the proposed project area ranges from about 7,120 feet on the tops of the Mesa Mountains and 6,620 feet at Pipeline Springs. The Proposed Plant Site is located on a southerly gently sloping terrace situated at the head of Sandstone Canyon. The approximately 3.057 acre Proposed Plant Site includes an existing tank battery site. The site is 25% previously disturbed by this battery site. The area terrain is dotted with sandstone rock outcrops, sandy washes and massive boulders. The Alternate Plant Site 1 is approximately 3.01 acres and is on a northerly gently sloping terrace. The site is approximately 75% undisturbed and has similar terrain as the Proposed Plant Site. The pipelines traverse varied terrain from slightly sloping to severe slopes (approximately 17 - 80 degrees).

NATURAL RESOURCES

Cultural Resources

Class III cultural resource surveys for the pipeline ROW's, Rattlesnake Plant sites and proposed TUA's were conducted by Division of Conservation Archaeology (Cultural Resources Survey of EPFS's Rattlesnake Gathering System - DCA Report # 99-DCA-017 and Cultural Resources Survey of EPFS's Phillips Production Company CO_2 Removal Plant – DCA Report #99-DCA-011, San Juan County Museum Association, Division of Conservation Archaeology 1999). Both of these reports are on file at the Farmington Field Office. Two sites and 9 isolated occurrences were recorded during the surveys. The two sites are attributed to the Navajo Dinetah or Gobernador phase.

Soils

Project area soils are derived from sandstone and shale from the San Jose Formation. Table 13 below lists the major soil units affected by the project components. Soil in the plant area consists of Travessilla -Rock outcrop-Weska type. Surface and underlying material are brown sandy loam with sandstone at a depth of twelve inches. Extent of surface erosion due to wind is considered low to moderate (SCS1980).

Table 15: Major Soil Units for All Project Components (SCS 1980). EPFS Rattlesnake Plant and Pipeline Project, 1999.

MAPPING UNIT AND ATTRIBUTES			HAZARDS	
Mapping Unit % of Project	**Slope (%)**	**Depth to Parent Rock (Inches)**	**Water Erosion Potential**	**Wind Erosion Potential**
Travessilla- Weska Rock Outcrop-TA Plant Site // 65% pipeline	0 to 100	1-20	Moderate to high	Moderate to severe
Twick Silver-TW 25% of pipeline	0 to 25	0-17	Moderate	Slight
Buckle Silt Loam - BU 10% pipeline	0 to 5	0-42	Moderate	Moderate

Vegetation

Project area vegetation communities have been thoroughly documented in the biological report (Ecosphere 1999). Primary vegetation in the project area consists of piñon, juniper, grass, and shrubs (i.e. Gambel's oak, sagebrush, rabbitbrush, or antelope bitterbrush). The Proposed Plant Site has fifteen to twenty mature piñon and juniper trees on the southwest corner. The discharge line has little to no vegetation on the proposed alignment due to crossing the Arkansas Loop road and pipeline corridor. The Gardener Loop and Lateral 14A-3 both have areas of heavy piñon and juniper mixed with Gambel oak. The Alternative Site 1 vegetation consists of sagebrush, piñon and juniper that are less than 5" in diameter. The Tank Mountain grazing allotment has sections of little under-story forage due to heavy concentrations of old growth piñon juniper. Once the pipelines have been reseeded the availability of forage will increase.

Surface Water

The Animas and the San Juan Rivers are the ultimate receiving waters for the Mesa Mountains watershed. The distance to the Animas varies from approximately 3+/- miles from the closest project component (Lateral 14A-3) to approximately 5.25+/- miles for the rest of the project components.

Surface water within the project area occurs primarily as runoff from snow melt and thunderstorms. This intermittent runoff flows into the drainage channels formed by Hart, Ditch, Sandstone and Box Canyons, among others. Seeps and springs are found within the canyons and are important sources of water for wildlife and livestock in the area.

According to the Allotment map provided by USDI BLM and direct contact with Linn Blancett, several springs are located within the project area that are being used by the grazing allottees. Pipeline Spring is the only spring within reasonable distance of the project, located just west of

the Arkansas Loop corridor in SESE of Section 28, T32N-R09W NMPM. Pipeline Spring is approximately 200' +\- west of the intended alignment of the Trunk 14A.

Water Quality and Quantity

Within the project areas, intense localized storms are common and result in large stream flows that create flash floods. Soil type and the amount and type of vegetative cover determine the amount of surface runoff. Key features that adversely influence the surface water quality, including perennial and ephemeral sources, are sparse vegetative cover, highly erosive and saline soils, and rapid runoff. Generally, erosion conditions promoting the formation of canyons, arroyos and gullies contribute to poor water quality of ephemeral runoff.

Surface runoff frequently contains greater than 10,000 milligrams per liter (mg/L) of suspended sediment and more than 1,000-mg/L total dissolved solids (TDS). Limited data is available on the contribution of salinity from the BLM Field Office Area; however, there are indications that the surface waters within the BLM Field Office Area are moderately saline, with concentrations of 1,000 to 2,000 mg/L TDS (USDI BLM 1988). This equals or exceeds the New Mexico standard for drinking water of 1,000 mg/L TDS.

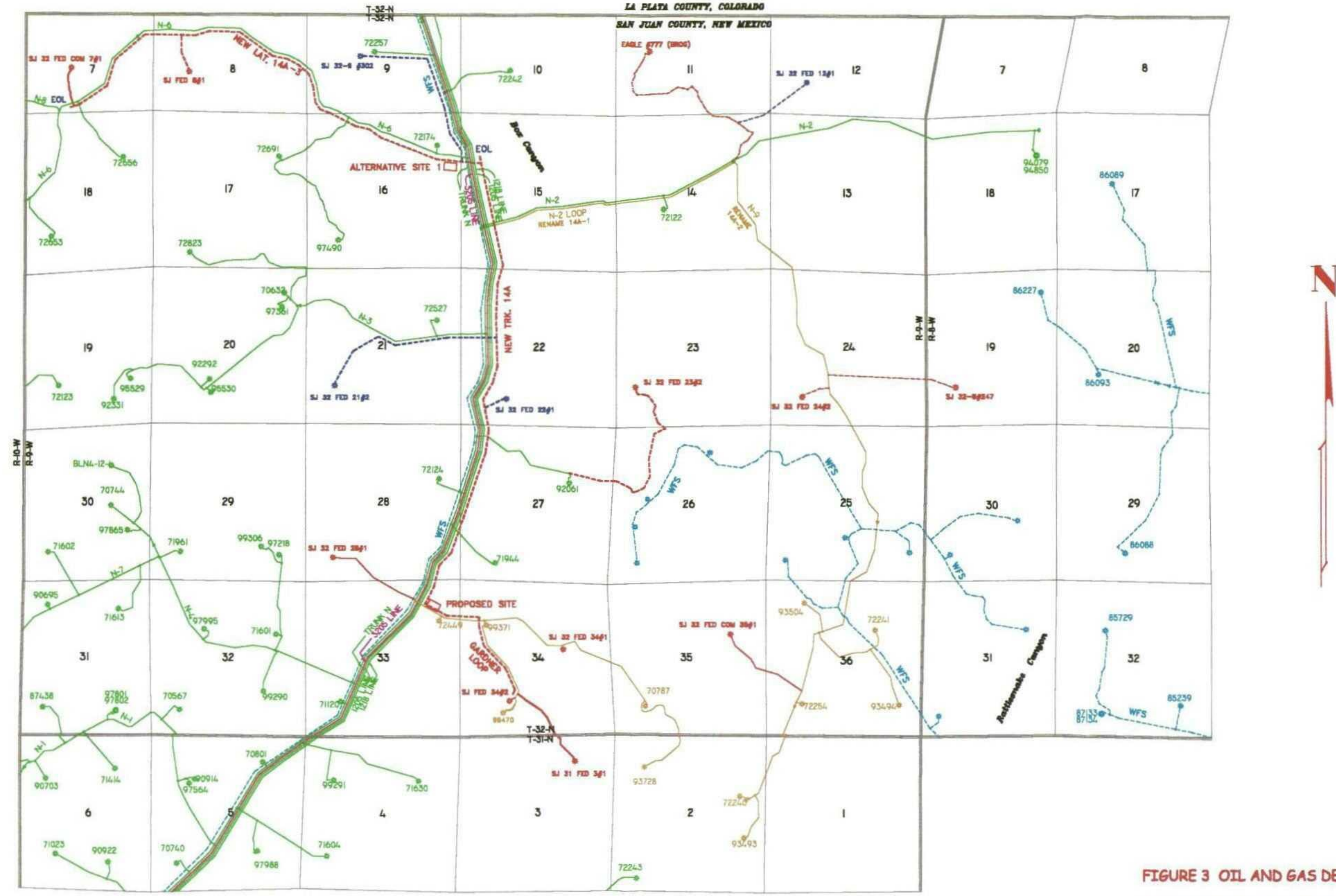
Control of salinity runoff into the Colorado River Basin was mandated by Public Law 93-320. A 1984 amendment to the Colorado River Salinity Control Act of 1974 "...specifically requires the Director of the BLM to develop a comprehensive program for minimizing salt contributions to the Colorado River from Bureau-administered lands" (USDI BLM 1988a).

No specific hydrological information is available for the proposed Rattlesnake Plant or pipeline ROW's. A monitoring station is present on the Animas River at Cedar Hill, approximately 4 - 5 miles west-southwest of the project area. This station collects water quality and flow from intermittent drainages.

Oil and Gas Development

Existing oil and gas development is heavy throughout the project area. Well pads, gathering lines, transmission lines, roadways, and power lines have been established for natural gas production. Please refer to Figure 3 page 2-8 for a depiction of the oil and gas development in the area as plotted by EPFS of EPFS and Phillips systems. There are approximately 66 wells drilled in the direct project area (within one mile of any one component). The Arkansas Loop corridor is the main artery.

An existing tank battery site (approximately) 100' x 200' (0.46 acres) in size is presently at the Proposed Plant site. The tank battery site would be included within the new site. There are currently three 500-barrel tanks at the site with a pull through road for access. There are several pipelines and cable right of ways that also cross the proposed site. The Lateral 14A-3 runs adjacent to the north boundary of Alternate Site 1, but the plant site is not occupied with any oil and gas structures.


LA PLATA COUNTY, COLORADO
SAN JUAN COUNTY, NEW MEXICO
T-32-N
T-32-N
R-10-W
R-9-W
R-9-W
R-8-W
T-32-N
T-31-N
NEW LAT. 14A-3
NEW TRK. 14A
N-2 LOOP
RENAME 14A-1
ALTERNATIVE SITE 1
PROPOSED SITE
GARDNER LOOP
TRUNK N
3206 LINE
Box Canyon
Rattlesnake Canyon
EOL
N-6
N-2
N-3
N-4
N-7
WFS
SJM
SJ 32 FED COM 7#1
SJ FED 8#1
SJ 32-6 #302
EAGLE 6777 (GROS)
SJ 32 FED 13#1
SJ 32 FED 21#2
SJ 32 FED 23#1
SJ 32 FED 23#2
SJ 32 FED 24#2
SJ 32 FED 33#1
SJ 32 FED 34#1
SJ 32 FED COM 35#1
SJ FED 34#2
SJ 31 FED 3#1
N

LEGEND

- 1998 RATTLESNAKE CONSTRUCTION
- 1999 RATTLESNAKE NEW CONSTRUCTION
- 1999 RATTLESNAKE EXTRA WELLS
- RATTLESNAKE GATHERING EXISTING PIPE
- EXISTING EPFS CONVENTIONAL GAS GATHERING
- WILLIAMS FIELD SERVICES

FIGURE 3 OIL AND GAS DEVLOPMENT MAP

EL PASO FIELD SERVICES

RATTLESNAKE GATHERING SYSTEM MAP

The proposed action will parallel EPFS Trunk N line, which is approximately 25 years old. Please refer to Figure 3 page 2- 8 provided by EPFS of existing and proposed oil and gas development in the project area.

Wildlife

Common wildlife occurring within the vicinity of the project area include the sagebrush lizard (*Sceloporus graciosus*), Prairie Rattlesnake (*Crotalus viridus*), Bull Snake (*Pitulopis melanoleucus*), Pinon Jay (*Gymnorhinus cyanoceplaus*), Brewer's Sparrow (*Spizella breweri*), Turkey Vulture (*Cathartos aura*), Horned Lark (*Eremophila alpestris*), Scrub Jay (*Amphelocoma ultramarina*), Common Raven (*Corvus corax*), Northern Flicker (*Colaptes auratus*), Red-Tailed Hawk (*Buteo jamaicensis*), Western Bluebird (*Sialia mexicana*), Bannertail Kangaroo Rat (*Dipodomys spectobilis*), Desert Cottontail (*Sylvilagus audoubonii*), Black-Tail Jackrabbit (*Lepus californicus*), and Coyote (*Canis latrans*) (USDI, USDI BLM 1992, USDI BLM 1994, Ecosphere 1999). The RCHMP encompasses 108,384 acres of potentially good habitat for mule deer, elk, and wild turkey. According to the RCHMP deer use is minimal. It is estimated that deer densities do not exceed 0.60 deer per section. Helicopter surveys completed January 1997 for the RCHMP indicated 29 deer and 34 elk wintering in the area.

Wildlife Habitat

Approximately one mile of pipeline is inside of the critical big game winter range area established by the USDI BLM (USDI, USDI BLM 1988). This area is protected from construction during the big game winter closure period of December 1 through March 31 each year. "This constraint would allow the continued development of oil and gas resources and optimize the BLM's ability to manage the habitat for these species" (USDI, BLM 1991). Threatened, endangered, or sensitive species will not be affected by this project, because (1) there isn't any critical habitat identified in the RCHMP; (2) project placement (location, topography and distance) won't create off-site impacts to threatened, endangered or sensitive species. The Alternative 1 site location is outside of BLM designated big game winter range. The proposed project is located in the NW corner of the RCHMP (See figure 4 page 2-10). The RCHMP was written in 1997 by John Hansen to protect potential wildlife habitat in the area and is used as a plan for BLM staff to improve wildlife habitat.

"The objectives of the HMP are to: (1) increase mule deer numbers to a minimum of two deer per section on a yearlong basis; (2) provide forage for approximately fifty elk on a yearlong basis; (3) populate all the suitable habitat within the HMP area with turkeys and provide for their continued welfare; (4) contribute to the restoration of the Pump Canyon riparian system to a proper functioning condition; and (5) maintain the current ecological diversity.

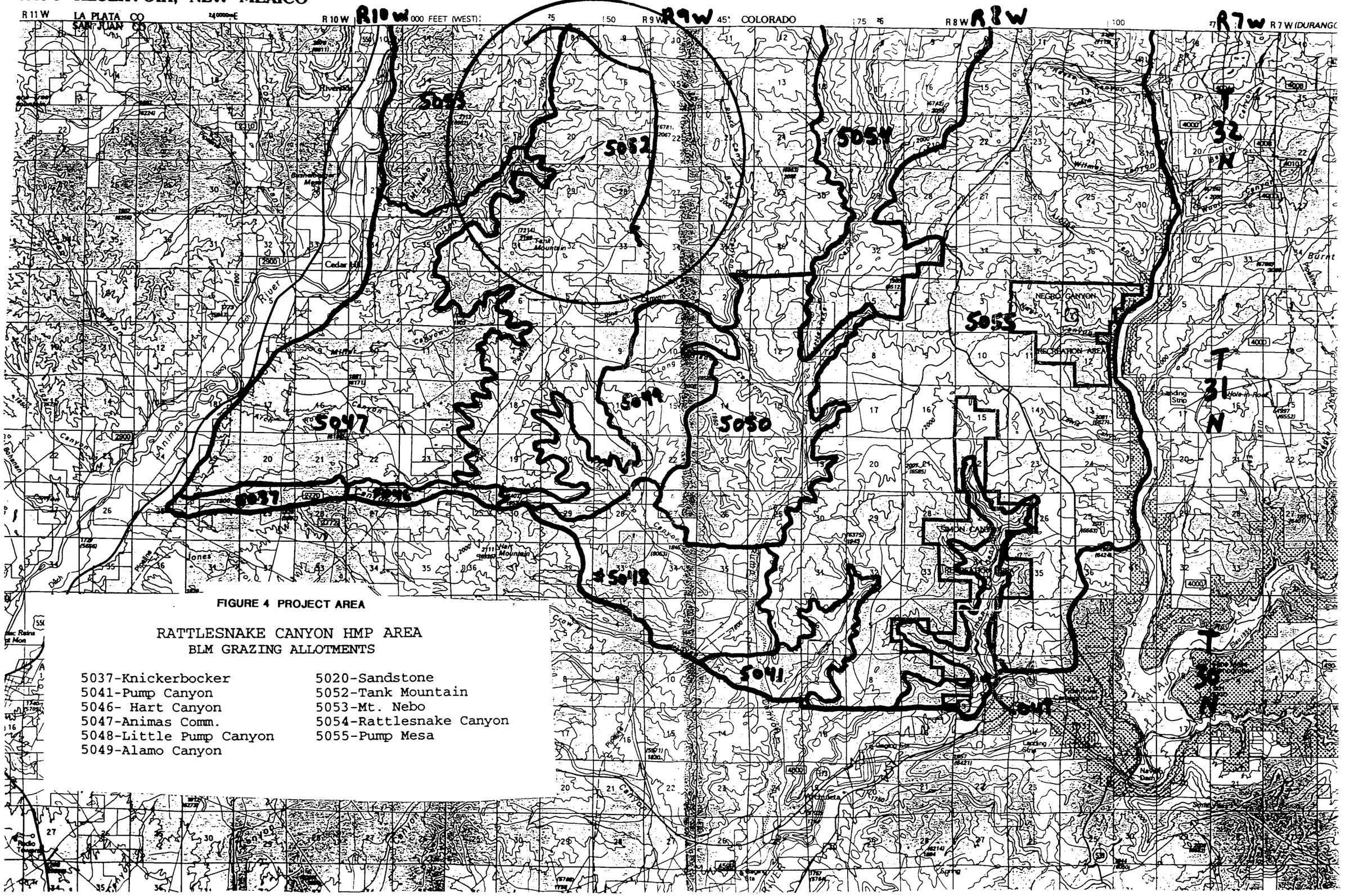


FIGURE 4 PROJECT AREA

RATTLESNAKE CANYON HMP AREA
BLM GRAZING ALLOTMENTS

5037-Knickerbocker
5041-Pump Canyon
5046- Hart Canyon
5047-Animas Comm.
5048-Little Pump Canyon
5049-Alamo Canyon
5020-Sandstone
5052-Tank Mountain
5053-Mt. Nebo
5054-Rattlesnake Canyon
5055-Pump Mesa

Actions planned for the HMP area are focused primarily on improving the habitat for the deer and wild turkey. These actions will consist generally of the following: (1) development of food plots through patch cuts in pinyon/juniper stands; (2) treating small (1-5 acres) sagebrush parks with the herbicide tebuthiuron; (3) construction of water guzzlers, dirt tanks and spring development; (4) implement an intensive browse monitoring program; and (5) identify roads for closure to provide for the security of wildlife (USDI, BLM 1997)."

HUMAN ENVIRONMENT

Socioeconomic

The Proposed Action would result in fulfillment of contractual obligation and economic growth. The five wells currently connected to existing EPFS facilities that will become part of the Rattlesnake system produce 16.5 MMCFD of gas with a blended CO2 content of 7.5%. Phillips plans to drill five additional wells during 1999, resulting in a volume of 24 MMCFD being delivered to the Rattlesnake CO_2 removal plant. Should volumes delivered from the total ten well package fail to meet the 24 MMCFD needed to fully load the EPFS plant, Phillips will drill up to four more wells.

Properties in the area are appraised as agricultural at a value of $350.00 per acre. No plans for rezoning the area are anticipated (Ruby Clow, San Juan County Assessors Office, Personal Communication, 1999).

LAND USES

Forestry

Pinon and juniper woodland represent the primary forestry resources in the project area. These woodlands are managed on a sustained yield basis (USDI BLM 1988). Firewood cutting from dead and down trees is the primary forest product within the Farmington Field Office. There are several areas of heavily forested concentrations of piñon and juniper woodland mixed with Gambel oak. This type of vegetation occurs usually at 6,600' or higher in elevation. The understory typically consists of antelope bitterbrush, true mountain mahogany, serviceberry, gambel oak, western wheatgrass, and buckwheat.

Livestock Grazing

Two grazing leases will be crossed by the proposed pipelines or occupied by the proposed Rattlesnake Plant station. Figures 5 (Tank Mountain #5052 page 2-12 and 6 (Mount Nebo #5053 page 2-13) show the BLM Range Allotment maps for each allotment showing boundaries, range improvements, and fence crossings. Table 14 below summarizes the grazing leases encountered by the proposed action. In these allotments, 10 acres are needed for each AUM (Ray Sanchez, USDI BLM, personal communication 1999).

Table 16: Grazing Leases. EPFS Rattlesnake Plant and Pipeline Project 1999.

ALLOTMENT #	ALLOTMENT NAME	LIVESTOCK TYPE	GRAZING SEASON
5052	Tank Mountain	1286 AUM	5/1 - 10/31
5053	Mount Nebo	180 AUM	11/01 - 12/31

R9W

R8W

T32N

T31N

TANK PASTURE

PINTO PASTURE

DEVILS POCKET PASTURE

PINE PASTURE

CABIN

PRIVATE FENCE CROSSING

SCALE 1: 48000

1.0 0 MILE 1.0

1.0 0 1.0 KILOMETER

N

TANK MOUNTAIN – 5052

NAME	NUMBER
John Hansen	12-31-91
ISSUED BY	DATE

BLM
STATE
PRIVATE
P.J. CHAINING & SEEDING
SAGE CHAINING
HERBICIDE TREATMENT
BARBED WIRE FENCE
EXTERIOR NATURAL BOUNDARY
ROADS
RETENTION DAM
CORRAL
SPRING
SLICKROCK CATCHMENT
WATER WELL
BASE WATER
CATTLEGUARD
GATE

FIGURE 5: USDI BLM Allotment Map #5052 Tank Mountain,
EPFS Rattlesnake Plant and Pipeline Project, 1999

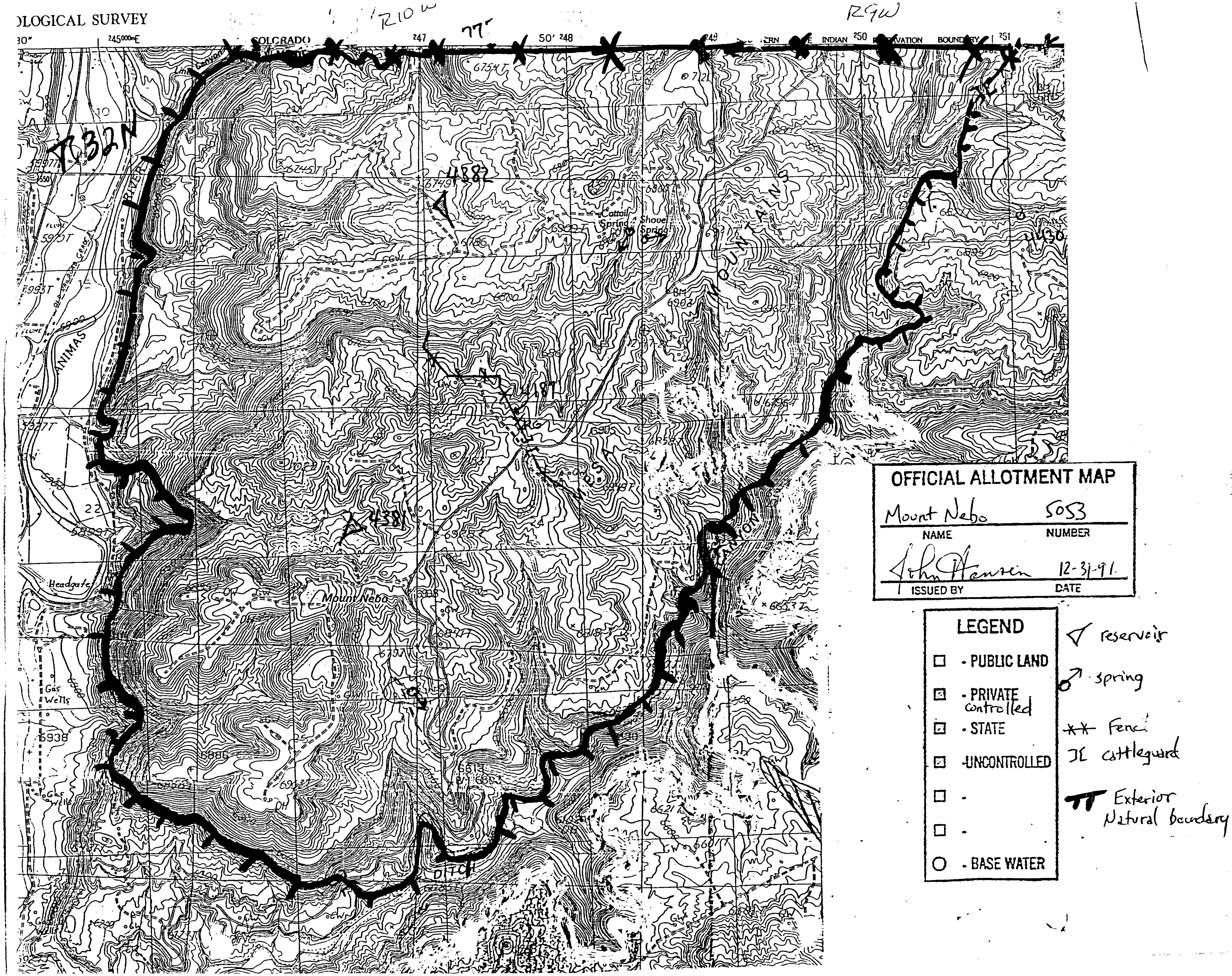


FIGURE 6: USDI BLM Allotment Map #5053 Mount Nebo, EPFS Rattlesnake Plant and Pipeline Project, 1999

CHAPTER 3
ENVIRONMENTAL CONSEQUENCES

In this chapter, the expected environmental impacts for the Proposed Action and the "No Action" alternatives are discussed. Impacts are defined as a change or alteration in the baseline condition of the environment. Impacts can be adverse or beneficial, direct or indirect, or short- or long-term. Where necessary, mitigation measures have been proposed below to reduce the expected project impacts. Resource elements that are not present or are not affected by the proposed action alternative are farmlands (prime and unique), floodplains, Native American religious concerns, paleontological resources, recreation, off-road vehicle use, wetlands or riparian zones, wild and scenic rivers, ground water, fisheries, locatable and saleable minerals, hazardous wastes, threatened and endangered species, wilderness, special management areas, areas of critical environmental concern, transportation, utility corridors, encumbrances, public health and safety, and environmental justice.

Adverse environmental impacts resulting from the proposed action and alternate are anticipated to be minimal as approximately 44.05 and 44.53 acres respectively are being directly affected and the proposed ROW's parallel and overlap previously disturbed utility corridors. The Proposed Action and Alternate 1 were developed to avoid direct impacts to existing resources to the greatest extent possible and have been designed to minimize facility size requirements. Thus, additive new disturbance and modifications to existing land uses will be minimal.

The "No Action" Alternative will not result in significant impacts to the environment. Current land use patterns will continue in the project area and up to approximately 44.53 acres of short-term and to include approximately 3.057 acres of long-term land disturbance will not occur.

The "No Action Alternative" will not meet the purpose and need for the action and enhance natural gas production. Contractual obligations among EPFS, Phillips, and Burlington will not be fulfilled. Loss of available production and revenue would occur. The projected thirty-five wells proposed in the next five years would not be drilled.

ENVIRONMENT

Air Quality

IMPACT:	Increased pollutant emissions from the proposed Rattlesnake Plant operation. Increased dust during construction.
MITIGATION MEASURE:	Control fugitive dust during construction. Operate plant equipment as per NMED permit requirements.

Short-term fugitive dust will occur during pipeline construction and for some time afterward until reseeding reclamation can stabilize the ROW.

Long term emissions in the project area will increase from Rattlesnake Plant station operation. These increased emissions fall within NMED-regulated state guidelines under the streamlined permit process for sources emitting under 40 TPY of any regulated air pollutant. Emissions will not cause violation of state standards. See NMED Streamline Permit No. 2232 Appendix A, Exhibit 6.

The "No Action" alternative will result in continuing present air pollutant and dust emissions levels in the project area.

Sound Quality

IMPACT:	Sound quality deterioration to the environment in the project area during construction and from Rattlesnake Plant operation
MITIGATION MEASURE:	Distance from noise sensitive areas (NSAs) and use of M-41 residential grade muffler on engines

The Proposed Action or Alternative 1 will result in short-term increases in noise levels during active construction. These short-term noise levels will vary in intensity depending on the amount and type of equipment in the area.

The Proposed Plant Site or the Alternative Site 1 will utilize gas-fired engines that will account for more than 95 percent of the total sound energy produced by the plant. Existing noise levels are assumed to generally reflect those of the surrounding areas. Noise levels will drop exponentially at increased distance from the station. The noise impact from either plant will be extremely small at the nearest NSA. With engine exhaust silencers, the plant contribution at the NSA will be less than 11 dBA, and with no silencers it will be less than 21 dBA. For reference, this is well below the 48.6 dBA equivalent FERC limits for compressor station noise. See Table 3 page 1-8 for Facility component noise information and Appendix A, Exhibit 7 for further details regarding noise analysis and impacts.

Some long-term deterioration to the environment in overall sound quality will occur in the project area from the Rattlesnake Plant operation. This effect will be greatest in the remote area surrounding the Proposed Plant Site or the Alternative Site 1. No noise sensitive receptors are known in the immediate vicinity of these locations. No definitive data has been established concerning levels that effect birds and wildlife.

Utilizing the "No Action" Alternative will result in no change of present noise levels in the project area.

Topography

IMPACT:	Impacts to topographic contours and character
MITIGATION MEASURE:	No special mitigation; Standard reclamation recontouring.

The Proposed Action and Alternate 1 Plant Site construction will move up to 1276 cubic yards of material to install facility components. Site reclamation plans including recontouring work will be formulated for these sites between BLM and EPFS prior to their abandonment. Approximately 25% of the site and 98% of the pipeline right of ways will be contoured.

Short-term impacts to topography will occur during pipeline construction. Using standard construction reclamation techniques, the pipeline ROW's will be contoured to approximate preconstruction conditions. Long-term impacts to topography will occur at the proposed CO_2 Plant.

Under the "No Action" alternative, no changes will occur to the existing topography.

NATURAL RESOURCES

Cultural Resources

IMPACT:	Direct and Indirect impacts to undiscovered cultural resources during construction.
MITIGATION MEASURE:	Follow standard archaeological stipulations including but not limited to: avoid sites by narrowing construction zone and fencing; report cultural remains discovered during construction.

The Proposed Action and Alternate 1 have minimal impact on the sites found during the survey. Cultural resources will be protected during construction, operation, and maintenance through the implementation of the following levels of practice:

- ***Damage to cultural resources*:** If, in its operations, EPFS's contractor damages any cultural resources, EPFS agrees to prepare and execute a BLM-approved data recovery plan. EPFS is aware that damage to cultural resources may result in civil or criminal penalties in accordance with the Archeological Resources Protection Act of 1979 (as amended).

Site protection and employee education: All employees for the project will be informed that cultural sites are to be avoided by all personnel, personal vehicles, and company equipment. They will also be notified that it is illegal to collect, damage, or disturb cultural resources.

One site (LA126248) has recommended management measures. The site is within the Cultural Buffer Zone and it is recommended that protective fencing and monitoring be implemented for protection of this site.

In the event human remains are encountered, construction will cease immediately within 100 feet of the discovery and the BLM will be notified. Human remains on federal jurisdictional lands will be the subject of consultation between BLM and appropriate Native American Tribes. BLM will allow the resumption of construction activities to proceed at their direction. In the event of cultural resource or human remains discovery on State or private lands, The State Historic Preservation Officer (SHPO) will be notified and treatment will proceed under New Mexico State burial law. The ROW Grantee will be responsible for providing security for any human remains encountered pending approval to proceed with construction from the BLM.

The No Action Alternative will result in no direct impacts to existing cultural resources in the area of potential affect. Additional information acquired from data recovery efforts will not be obtained.

Soils

IMPACT:	Loss of soil productivity through mixing, compaction, and/or erosion.
MITIGATION MEASURES:	Reduced ROW clearing during construction adjacent to pipelines or roadways; implement reclamation and erosion control practices (POD Exhibits 5, 6, 8, and 9).

Construction of the Proposed Action and Alternate 1 will directly and indirectly impact soils in several ways. During pipeline construction, grading and trenching will increase the short-term wind and water erosion potential on up to approximately 44.05 acres for the Proposed Action and 44.53 acres for the Alternate 1 including Temporary Use Areas (TUA calculated per EPFS Emmet L. Roberds, personal communication).

Mixing topsoil and subsoil could result in lower soil fertility, and a change in the soil structure that could reduce the revegetation potential of the area. Approximately 11,324 cubic yards of soil will be excavated and replaced during pipeline trenching and burying operations, including bell holes. The use of heavy equipment could result in soil compaction and loss of productivity. Approximately 11,324 cubic yards could be compacted during pipeline construction due to heavy equipment. In areas requiring foundation (compressors) approximately 27 cubic yards of engineered fill may be used.

Mitigation practices are discussed in the body of Appendix A POD, and Exhibit 5 Storm Water Pollution Prevention Plans, Exhibit 8 ROW Clearing Diagrams, Exhibit 10 Waterbar and Trench Breaker Diagrams, and Exhibit 11 Farmington Area Seed Mix. Potential long-term

impacts such as increased sheet erosion will be present until reclamation reseeding can establish preconstruction conditions. Proposed fence construction in the Pinto Canyon area by BLM and the grazing allottee's would reduce grazing during reseeding. (Personal communication Brian Watts, BLM 1999). Please refer to Allotment Maps in Chapter 2, Figures 5 and 6 pages 2-12 and 2-13.

Long-term impacts to soils will occur at the Rattlesnake Plant site. Up to approximately 3.057 acres will be cleared and used for the Proposed Plant Site and 3.01 acres for the Alternative Site 1. Depending upon the selected Approximately 1276 cubic yards will be graded for the Proposed Plant Site or Alternative Site 1 to create flat areas for facility components. Erosion due to water will be controlled with stabilization practices described in Appendix A POD, Exhibit 5, Stormwater Pollution Prevention Plan. Specific reclamation plans for the site will be determined following the stations useful life.

Under the No Action Alternative, existing rates of soil loss will continue. No additional soil impacts will occur beyond present levels.

Vegetation

IMPACT:	Loss of surface vegetation; expand weed populations after ROW disturbance
MITIGATION MEASURE:	Reseed Row's using BLM seed mix until 70% cover as compared to surrounding area is achieved; weed control POD Exhibit 10.

The Proposed Action will result in up to approximately 44.05 acres of cleared vegetation during pipeline construction. Impacted areas will include Temporary Use Areas and Plant Site and will result in approximately 2% new disturbance overall as 98% of the project will be constructed on previously disturbed property. The area actually cleared is anticipated to be less due to construction off of adjacent existing roadways and pipeline corridors. The impacts to vegetation are anticipated to be short-term until reseeding measures re-establish plant cover for the pipeline ROW. The Alternate 1 will clear approximately 44.53 acres of vegetation.

Long-term vegetation losses will occur at the proposed Rattlesnake Plant site. Up to approximately 3.057 acres will be cleared for the Proposed Plant Site or 3.01 acres for Alternative Site 1 construction. Approximately 25% of either site will be short-term impact.

The No Action Alternative will result in no additional impacts to project area vegetation.

Surface Water/ Water Quality and Quantity

IMPACT:	Increased sedimentation load in surface runoff resulting in turbidity; spilled contaminant runoff

MITIGATION MEASURE: Implement reclamation, reseeding and runoff and spill control practices detailed in POD Exhibits 4 and 5

The construction activities for the proposed action could indirectly impact surface water quality within the project area by increasing the potential for sedimentation through runoff over disturbed soils. Trenching across the 22 wash crossings will create short term impacts. The springs located approximately 200 yards south of the Proposed Site are currently dry and have been impacted by the borrow pit located adjacent to the lease road. EPFS will implement the spill prevention and containment and reclamation and erosion control practices detailed in Appendix A POD, Exhibits 4 and 5.

Potential long term impacts from the Alternative Site to surface water and water quality include spills, used lube oil, and produced water tanks at the Rattlesnake Plant stations. Each tank will be placed on gravel support rings and equipped with a polyethylene liner between the gravel and tank to aid in leak detection. The entire tank battery will be surrounded by an unlined berm sized 1 1/3 times the capacity of the largest interconnected tank to prevent runoff in the event of a tank rupture. Produced water and used lube oil will be periodically removed from the sites via tanker truck and disposed of in a permitted injection well or by an oil recycling company. A processed concrete curb will be installed around the regen skid and will drain into a containment tank.

The "No Action" alternative will result in continuing levels of sediment runoff into receiving waters.

Oil and Gas Development

IMPACT: 24 MMCFD increased natural gas production

MITIGATION MEASURE: Proposed Action

Up to nine more wells will be drilled with a result of up to 24MMCFD of production will occur. Under the Proposed Action, an additional 7.238 miles of pipeline would be constructed. Under the Alternate 1 action, an additional 7.385 miles of pipeline will be constructed. A CO2 treatment and compression plant would be constructed to treat and transport this production under either alternative.

The No Action Alternative will result in continued levels of natural gas production from the existing gas production system. Existing rates of production would continue to be impacted by lack of infrastructure and interrupted service.

Wildlife

IMPACT: Mortality, stress during calving or winter periods

MITIGATION MEASURE: Project subject to season closure

Other short-term impacts during construction will include disturbance to and displacement of wildlife, and the direct mortality of small, less mobile animals, such as rodents and reptiles. The amount of trench left open for any length of time will be minimized, and ramps will be constructed every ¼ mile to allow wildlife and other animals that might fall into the trench to escape.

Long-term disturbance to some wildlife species within the project area may occur around either plant site due to increased noise and activity. No known raptor nests are in the vicinity of either plant site.

The No Action Alternative will continue existing impacts to wildlife in the project area.

Wildlife Habitat

IMPACT: Loss of habitat

MITIGATION MEASURE: Mitigation measures will be taken as listed below.

Temporary loss of wildlife habitat will occur at the Proposed Site and Alternative Site 1 during construction and until revegetation occurs. Revegetation is anticipated to restore or improve the quality of wildlife habitat within the project area. The Management objectives as listed in the RCHMP will be addressed and followed for wildlife habitat improvement. BLM staff will implement management objectives on the ground to achieve the objectives listed below. These actions as listed in the RCHMP are as follows.

a. *Establish the overall suitability of the HMP area in terms of food, water, and secure cover for deer, elk, and turkey*
   The removal of vegetation and the additional development and noise will have a negative impact on the food and secure cover for deer, elk and turkey. Revegetation and the reduction of noise levels would help to minimize the impacts (Roger Moore, USDI BLM, personal communication, 1999).
b. *Establish a viable, self-sustaining population of wild turkeys in the HMP area. The goal is 100 birds*
   See comment above.
c. *Provide habitat for approximately 338 resident deer (2 per section).*
   See comment above.
   d. Provide habitat for at least 50 elk on a yearlong basis
   See comment above.
e. *Re-establish, and provide for their protection, desirable plant species in Pump Canyon.*
   The proposed project has no impact on this measure.
f. *Maintain adequate stands of woodland for big game, primarily deer.*

The proposed project will have minimal change to woodland areas which provide for big game. The pipelines are routed to use existing corridors and previously disturbed areas 98% of the time and the edge of woodland areas would be raised approximately 10 to 15 feet.

g. *Manage for an open road density in the area designated as Wild Turkey Habitat that does not exceed 1 mile of open road per square mile and within the rest of the HMP area 1.75 miles per square mile of land.*

The proposed project has no impact on this measure. New roads are not planned for this project.

h. *Manage potential and occupied bat habitat so as to not jeopardize the welfare of existing or future bat populations.*

The proposed project has no impact on this measure.

The No Action Alternative will result in no additional changes in wildlife habitat.

HUMAN ENVIRONMENT

Socioeconomic

IMPACT: Impacts to local and regional economy.

MITIGATION MEASURE: No special mitigation measures

Production revenues would decrease for EPFS, Phillips, and Burlington. Lease requirements by the BLM and contractual obligations among EPFS, Phillips and Burlington would not be fulfilled.

If the Rattlesnake plant were not constructed, EPFS would have to curtail the substantial majority of current and expected flows. The following issues would necessitate this volume curtailment: 1) the sensitivity of cryogenic processing facilities to CO_2 in the inlet gas stream, and 2) EPFS' existing pressure and service obligations on its conventional system. Although EPFS agreed to blend the gas on a short-term basis, this is not an acceptable arrangement beyond the short-term. Without the plant, the current production along with the 8.0 MMCFD of potential new gas and its associated revenues would be lost since Phillips would not drill the additional wells absent the appropriate infrastructure. All involved parties would suffer substantial losses in revenue.

EPFS' confidentiality terms with Phillips prohibit EPFS from disclosing numbers detailing the revenue and economic advantages of this project. However, it can safely be assumed that, at an average gas price of $2.00/MMBtu, the 24 MMCFD expected at the outlet of the Rattlesnake plant would generate $17.5 MM/year in gross revenues. These revenues benefit EPFS, Phillips, State of New Mexico and Federal Government.

If the Proposed Action or Alternative Site 1 is approved, delay in construction due to wildlife winter closure may result in a loss of approximately $5.33 MM/year for the companies.

Approval of the proposed action would result in little or no socioeconomic impact on privately owned lands in T32N, R9W, S14, S33, S34, S35, S36, and T31N, R10W, S4, S5, S6, NMPM, San Juan Co, NM.

The No Action alternative would result in present production levels.

LAND USES

Forestry

IMPACT: Removal of trees; loss of firewood

MITIGATION MEASURE: Cut trees prior to clearing and stack for public firewood collection

Approximately 5 acres of mature piñon-juniper woodland will be cleared during construction of the Proposed Action and Alternative 1 primarily from Lateral 14A-3 ROW and the Gardner No. 1 Loop. Trees will be preserved wherever possible. Tree removal represents a long-term impact. The trees will be cut prior to other clearing and trunks suitable for firewood use will be stacked at accessible locations as designated by the BLM for public firewood gathering. The contractor will notify the BLM when the firewood is accessible to the public. The contractor personnel will not remove the firewood unless proper firewood permits had been obtained.

On Lateral 14A-3 piñon juniper and oak mix border the existing pipeline right of way. Where needed the trees will be removed along the right of way edge. Approximately ten to fifteen feet in most areas of removal is all that will be cleared for construction. Approximately two thirds of the Lateral 14A-3 will require this removal or 3.7 acres. The Gardner No. 1 Loop will require approximately two thirds of the same type of removal or 1.4 acres. The total acres of tree removal are approximately 5.1 acres. There are no TUA's requested on the Gardner line and TUA's requested on the Lateral 14-A will attempt to retain as much woodlands as possible without creating a hazardous or dangerous situation during construction.

The No Action alternative will not result in any tree removal from the project area.

Livestock Grazing

IMPACT: Disruption of livestock operation; short and long-term AUM loss; and damage to range improvements during construction and maintenance.

MITIGATION MEASURE: No special mitigation

The Proposed Action and Alternate 1 pipelines will impact approximately 1-3 AUM, assuming 82% BLM jurisdiction of the 44 acres that could be cleared. After reseeding the pipeline ROW's, up to 5 new AUM could be created (4.4 AUM in Tank Mountain Allotment; and 1.3 AUM for Mount Nebo). It is anticipated the cleared ROW areas will be re-vegetated within two years (Brian Watts, BLM, personal communication 1999). Short-term impacts to livestock grazing could result during construction of the pipeline portion of the proposed action.

Impacts to livestock grazing are expected to be minimal and short-term (four months for construction-related impacts, approximately two years for revegetation), therefore, are not considered significant, and no mitigation is required.

Open trench could pose some danger for grazing animals. EPFS will contact livestock owners before fences are cut and will keep the amount of open trench to a minimum and will provide escape ramps every ¼ mile along the trench to allow trapped animals to escape. EPFS will revegetate the ROW, using BLM Woodlands Mix (see plan of development) and will discourage the introduction of weeds on the ROW. The grazing permittee will be contacted by a representative of the right of way holder and/or contractor prior to commencing construction and reclamation on their respective allotment.

Four BLM fences and three private fences will be cut and re-established by EPFS to the same or better condition than they were originally if they are damaged as a result of construction or operation of the proposed action. The three private fence crossings will occur at engineering stations 54 +21.70, 71+36.00 and 74+25.50. (See Appendix A POD Exhibit 1) The entrance to a private dirt tank will also be disturbed and returned to as good or better condition. (See Allotment Map Figure 5 page 2-12).

The No Action Alternative will not change existing conditions in grazing allotments.

CUMULATIVE IMPACTS

Cumulative impacts can result when a project is placed within an area where other projects are proposed. Even though the impacts associated with each project may be less than significant, taken together, their cumulative impact may be significant.

The total land disturbance from the oil and gas development within the San Juan Basin is projected to be approximately 40,000 acres (USDI, BLM 1990 and 1991). The Rattlesnake Plant and Pipeline Project will result in an additional 44 acres of short-term surface disturbance, approximately 98% of which will be in areas that have been previously disturbed. The Proposed Action Site will impact approximately 3.057 acres of surface area and the Alternative 1 Site will impact 3.01 acres for the long term. By paralleling existing pipeline and roadway corridors and by implementing the standard operating procedures discussed in Chapter 1 (included in the POD in Appendix A), and other required mitigation, EPFS will avoid the creation of significant cumulative impacts to the project area during the construction, operation, maintenance, and abandonment of the proposed action.

CHAPTER 4

CONSULTATION AND COORDINATION

NOTE: The first proposed EA was sent out for review and comment on July 19, 1999. The comment period ended for this EA on August 24th, 1999. Due to an alternative site being added to the EA, it has been revised for review and comment. Comment letters from the first proposed EA are on file at the Farmington BLM office.

DOCUMENT PREPARERS

Debra Sittner
Trigon-Sheehan L.L.C.
126 Rockpoint Drive, Suite B
Durango, CO. 81301

Richard Coleman
Trigon - Sheehan L.L.C.
126 Rockpoint Drive, Suite B
Durango, CO 81301

Peggy J. Betzer
Trigon-Sheehan L.L.C.
126 Rockpoint Drive, Suite B
Durango, CO 81301

Tankard Floyd
Trigon-Sheehan L.L.C.
126 Rockpoint Drive, Suite B
Durango, CO 81301

PRINCIPAL REVIEWERS

Jerry Crockford
Bureau of Land Management
Farmington Field Office
1235 La Plata Highway, Ste. A
Farmington, NM 87401

Kathy Ollom
Bureau of Land Management
Farmington Field Office
1235 La Plata Highway, Ste. A
Farmington, NM 87401

Elizabeth Allison
Bureau of Land Management
Farmington Field Office
1235 La Plata Highway, Ste. A
Farmington, NM 87401

CONTRIBUTORS:

Bureau of Land Management
Farmington Field Office
1235 La Plata Highway, Ste. A
Farmington, NM 87401
Personal Communications with:
Kathy Ollom
Jerry Crockford
Dave Simons
Chris Barns
Barney Wegener
Ray Sanchez
John Hansen/Roger Moore
Brian Watts
Elizabeth Allison
Sterling White
Ruben Sanchez
Dale Wirth

Bureau of Land Management
National Human Resources Mgmnt. Center
P.O. Box 25057, Building 50
Denver, CO 80225-0047
Personal Communications with:
Bruce Prater

Division of Conservation Archaeology
P.O. Box 125
Bloomfield, NM 87413
Lynn Wharton
Larry Baker

Ecosphere Environmental Services, Inc.
108 North Behrend, Ste. A
Farmington, NM 87401
Biological Survey/April 1999
Personal Communications with:
Mike Eisenfeld
Robin Deal

EPFS
614 Reilly Ave.
Farmington, NM 87401
Personal Communications with:
Mr. Kent Leidy
Mr. David Bays
Mr. David Kniffen
Ms. Pamela Kirshner
Mr. Emmet L. Roberds

HFP Acoustical
6001 Savoy, Suite 115
Houston, TX 77036
Personal Communications with:
Ron Spillman

NM Environmental Department
Air Quality Bureau
P.O. Box 26110
Santa Fe, NM 87502
Personal Communications with:
Mary Uhl

New Mexico Dept. Of Game & Fish
Villagra Bldg.
P.O. Box 25112
Santa Fe, NM 87504
Personal Communications with:
Todd Stevenson

Private Land Owner
Personal Communications with:
Linn Blancett

San Juan County NM, Assessors Office
Personal Communications with:
Ruby Clow

State of New Mexico Lands Office
Personal Communications with:
Joseph Lopez
310 Old Santa Fe Trail/PO Box 1148
Santa Fe, NM 87504-1148

USFWS
Personal Communications with:
Jennifer Fowler-Propst
NM Ecological Services Field Office
2105 Osuna NE
Albuquerque, NM 87113

NOTIFICATIONS AND LETTERS OF INTEREST

Copies of Letters to Interested parties and a list of notified individuals are enclosed.

CHAPTER 5

LITERATURE CITED

Baker, Larry L. 1999. Cultural Resources Survey of EPFS's Rattlesnake Gathering System, San Juan County, NM. DCA rpt # 99-DCA-017. Report on file at BLM - Farmington Field Office.

Baker, Larry L. 1999. Cultural Resources Survey of EPFS's Phillips Production Company CO2 Removal Plant, San Juan County, NM. DCA rpt # 99-DCA-011. Report on file at BLM - Farmington Field Office.

Ecosphere. 1999. Biological survey report for the Rattlesnake Plant and Pipeline Project. December 1999. Report on file at BLM - Farmington Field Office.

Hansen, John 1997 Rattlesnake Canyon Habitat Management Plan, Report on File at BLM Farmington Field Office

Spillman, Ron 1999 Rattlesnake Canyon Sound Report
HFP Acoustical Houston, TX

U.S. Bureau of Land Management. 1986. BLM Manual H-8431-1 - Visual Resource Contrast Rating. Farmington District Office, Farmington, NM.

U.S. Bureau of Land Management. 1988. Farmington Resource Management Plan. Farmington Resource Area. Albuquerque District Office, Albuquerque, NM.

U.S. Bureau of Land Management. 1990. Blackwood & Nichols Company, Ltd. Northeast Blanco Unit Coal-Bed Methane Project and Meridian Gathering MB-12 and MB-15 Pipelines Environmental Assessment. Farmington Resource Area. Albuquerque District Office, Albuquerque, NM

U.S. Bureau of Land Management. 1991. Albuquerque District Resource Management Plan for Oil & Gas Leasing Development. Albuquerque District Office, Albuquerque, NM.

U.S. Bureau of Land Management. 1998. The Mid America Rocky Mountain Loop Project. Utah State Office, Salt Lake City, Utah

U.S. Bureau of Land Management. 1998. El Paso Field Services Global Compression Environmental Assessment. Farmington Resource Area. Albuquerque District Office, Albuquerque, New Mexico.

U.S. Soil Conservation Service. 1980. *Soil Survey of San Juan County, New Mexico--Eastern Part.*

Welder, G. 1986. Plan of Study for the Regional Aquifer System Analysis of the San Juan Structural Basin, New Mexico, Colorado, Arizona, and Utah. Water Resources Investigation Report 85-4294, U.S. Geological Survey.

Western Regional Climate Center 6-1-93 through 12-31-98 Web Page
Readings taken at Navajo Dam.

EL PASO FIELD SERVICES COMPANY

PLAN OF DEVELOPMENT

for

RATTLESNAKE PLANT
And
PIPELINE PROJECT

BLM APPLICATIONS
Plant (ROW NM-101815)
Pipelines (ROW NM-101813)

BLM ENVIRONMENTAL ASSESSMENT
NO. NM 070-99-3208

September 29, 1999
El Paso Field Services Rattlesnake Project
Plan Of Development

Table of Contents

LIST OF EXHIBITS

BLM PLAN OF DEVELOPMENT
For the
EL PASO FIELD SERVICES RATTLESNAKE PROJECT

RATTLESNAKE PLANT / COMPRESSION PLANT AND PIPELINE PROJECT

INTRODUCTION

El Paso Field Services (EPFS) proposes to build the Rattlesnake Project which will consist of the construction of one new CO_2 Treatment/ Compression Plant and 4 variable size and length pipelines with ancillary facilities, such as valves, pig launchers, pig receivers, etc. These projects will be constructed within the existing natural gas gathering system in the San Juan Basin. Right-of-way applications are being filed concurrently with the Bureau of Land Management (BLM), a single Fee landowner, and the State of New Mexico. The project component locations are shown on the maps provided in Exhibit 1. Summary information for each pipeline segment and the treatment plant is provided in Exhibit 2.

This Plan of Development (POD) addresses the treatment plant and variably sized pipelines with variably sized permanent right-of way and temporary use areas on each side of the right-of-way, located in San Juan County, New Mexico. Additional temporary use areas are specified in Exhibit 3, Temporary Use Areas. The Plan was prepared at the request of and in coordination with the Bureau of Land Management (BLM) and will become an integral part of the land use permits issued by BLM, and includes as many of the BLM standard stipulations as possible.

The proposed pipeline projects follow existing roads and pipeline corridors for their entire length. The treatment plant is adjacent to the Arkansas Loop pipeline corridor. Exhibit 2 summarizes pipeline length, ROW width or site size and land status information for the pipeline and treatment plant. Plats and legal descriptions for the lands crossed by the pipeline or used by the treatment plant are listed in ROW or site applications for the project, on file at the Farmington Field BLM Office and State of New Mexico Land Office

The proposed treatment plant and pipeline rights-of-way follow existing pipeline corridors and roadways. The land use along the approximate 7.5 miles of right-of-way is natural gas transmission and production, general recreation, livestock grazing, and wildlife habitat. The same land uses exist for the proposed compressor station sites.

EPFS will conduct all activities associated with the pipelines and treatment plant within the authorized limits of the right-of-way or site grant and temporary use permits. Inspectors, supervisors, and persons directing equipment will possess a copy of this Plan. EPFS will obtain prior written approval from the Authorized Officer for any relocation, construction, or use not in accord with this Plan. A copy of the complete project site and right-of way grants will be made available during construction.

PRE-CONSTRUCTION ACTIVITIES

Permits to be Obtained

Right-of-way grants and temporary use permits must be obtained from the BLM and the State of New Mexico. The Environmental Protection Agency (EPA) will issue the Clean Water Act 402 permit for stormwater discharge. For Clean Water Act 404 compliance, the Army Corps of Engineers (COE) will issue a Nationwide Permit 12 for any jurisdictional drainage. The New Mexico Department of Transportation will issue the State and Federal Highway Crossing Permits.

Pre-Construction Meeting

EPFS and its construction contractor(s) and subcontractor(s) will attend pre-construction meetings, if BLM requests, to review the right-of-way grant including this Plan. At least five (5) days prior to this preconstruction meeting(s), EPFS will provide maps or survey plat of this project to operators of all pipelines crossed or paralleled on public/Federal lands by this project and contact and invite such operators to attend any pre-construction meetings that are held. Determining the names and contact points of these operators is the responsibility of EPFS. If requested by the Authorized Officer, EPFS will certify these contacts were made and that the required information was given.

EPFS will not initiate any construction of other surface disturbing activities on the right-of-way without the prior written authorization of the Authorized Officer. BLM authorization will be a written Notice to Proceed (Form 2800-15) issued by the Authorized Officer. Any BLM Notice to Proceed will authorize construction or use only as expressly stated and only for the particular location or use therein described.

Workforce

The work force is anticipated to include an estimated 75-100 people. The pipeline construction crews will include laborers, equipment operators and welders. EPFS anticipates that approximately 70 percent of the total work force will include people from the San Juan Basin area. The remaining work force will include people from various parts of the country. No camping will be allowed along the construction with the exception of the night watchmen. It is expected that the majority of the workers will have their overnight accommodations in the Farmington area. Only work vehicles will be allowed on the right-of-way during construction. Equipment operators will each drive a pick-up truck to the construction site. Parking will be on the right-of-way or along roads. Adjacent pipeline rights-of-way will not be used for parking. Existing roads may be used for parking.

EPFS will comply with Title VI of the Civil Rights Act of 1964 (42 U.S.C. 2000d, et.seq.) and the regulations of the Secretary of the Interior issued pursuant thereto.

Engineering Surveys

Surveying and station staking and construction control staking will take place using the preliminary staking/flagging and preliminary acceptance of the route alignment as staked/flagged. The specified exterior boundaries of the authorized area (right-of-way and temporary use areas) will be marked prior to construction at approximately 100-foot intervals with painted laths or flags of a distinctive color. The right-of-way staking for the contractor will consist of a centerline, right-of-way and temporary use area boundaries, and cultural sites and environmentally sensitive areas. Reference stakes for all angle stations (PIs) will be set on both sides of the right-of-way prior to construction activities. The survey station numbers will be marked on the boundary stakes and/or laths at the entrance and exit of public lands. Boundary stakes and reference stakes will be maintained until final cleanup and reclamation are complete. They will then be removed.

Archaeology Surveys

Archaeological surveys for eligible or potentially cultural resources were conducted for the proposed pipeline routes and treatment plant. Results of these surveys are contained in the associated Environmental Assessment. Cultural resources impacted by this project will be handled as described in the BLM stipulations attached to the Grant and/or Notice(s) to Proceed. Cultural resources data recovery and documentation per the stipulations will be completed on all identified sites (including excavation and monitoring the trench in the designated areas. A barrier will be erected where required between the cultural resource sites and construction activity prior to the start of construction. The barrier will be upright wooden survey laths spaced no more than ten (10) feet apart and marked with blue flagging, blue paint, or other distinctive markings.

Surveys for Threatened and Endangered Species and Species of Concern

No threatened and endangered or sensitive species populations were found by surveys of the proposed pipeline ROW or compressor station sites prior to construction. Several raptor nests were located as a result of the survey; mitigation to these nests will be performed according to grant stipulations. The report has been submitted under separate cover. The results are summarized in the associate Environmental Assessment.

Noxious Weed Protection

A pre-construction inventory of noxious weeds has been provided. Treatment will follow

stipulation guidelines. This treatment may include chemical treatment prior to construction and removal. Treatment may include washing the parts of the construction equipment that are in contact with the soil (blades, buckets, crawler tracks, tires, etc.) The wash will clean all soil and visible weed seeds after completing construction in an area with noxious weeds and prior to the movement of equipment into an area free of noxious weeds. After reclamation, monitoring of the infested areas and right-of-way will be conducted and weed re-occurrences will be treated as outlined in the Weed Control Plan, Exhibit 10.

Industrial Wastes and Toxic Substances

EPFS as the Holder of this right-of-way agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et. seq. or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, et. seq.) on this right-of-way (unless the release or threatened release is wholly unrelated to EPFS's activity in this right-of-way). This agreement applies without regard to whether a release is caused by EPFS, it's agent, or unrelated third parties

EPFS will comply with all applicable laws and regulations existing or hereafter enacted or promulgated, including the Toxic Substances Control Act of 1976, as amended, 15 U.S.C. 2601, et seq.(1982). EPFS will comply with regards to any toxic substances that are used, generated by, or stored on this right-of-way or on any facilities authorized under this right-of-way by EPFS. Any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantities established by 40 CFR 117 will be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, Section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reported release or spill of any toxic substance will be furnished to the Authorized Officer concurrent with the filing of the reports to the agencies involved.

Hydraulic fluids, gasoline, diesel fuel, and lubricating oils will be used on the right-of-way during construction. A Spill Prevention and Containment Plan is contained in Exhibit 4.

The construction project will be maintained in a sanitary condition at all times and waste materials on the project will be disposed of promptly at an appropriate waste disposal site. "Waste" means all discarded matter including, but not limited to, human waste, trash, garbage, refuse, ashes, equipment, oil, petroleum products, filters, welding rods, etc. Portable toilets will be available. Liquid and solid waste produced during the construction and inspection of the right-of-way will be disposed in an approved manner at a State approved facility so wastes will not impact the air, soil, water, vegetation, or animals.

Engineering Design

The State of New Mexico has not adopted any design codes applicable to the pipeline portion of the project. EPFS will design and build the pipelines and treatment plant according to the National Electrical Code (NEC) and ASME B31.3 AND B31.8 standards. Additionally, the facilities will be designed, constructed, and operated in compliance with the Occupational Safety and Health Act (OSHA) regulations pertaining to pipeline construction and operation.

Design Pressures and Flow Rates

The pipeline design maximum allowable operating pressure (MAOP) is 500 pounds per square inch gauge (psig) with a resulting design flow rate of 24 MMCFD

Pipe Quality

Pipe specifications for the various line segments are as follows:

Rattlesnake Discharge Pipeline (8 or 6")	6.625" O.D., 0.188" w.t., Grade X-42
	8.625" O.D., 0.188" w.t., Grade X-42
Rattlesnake Suction Line (8")	8.625" O.D., 0.188" w.t., Grade X-42
Gardner No. 1 Loop (4")	4.500" O.D., 0.188" w.t., Grade X-42
Lateral 14A-3 (6")	6.625" O.D., 0.188" w.t., Grade X-42
Trunk 14A Pipeline (8 and 6")	6.625" O.D., 0.188" w.t., Grade X-42,
	8.625" O.D., 0.188" w.t., Grade X-42

CONSTRUCTION ACTIVITIES

EPFS will not start construction without written authorization from the BLM Authorized Officer in the form of a Notice to Proceed (Form 2800-15). All activities (construction, operation, maintenance, and termination) will be performed inside the authorized limits of the right-of-way and temporary use areas.

Rattlesnake Plant

El Paso proposes to construct the Rattlesnake Plant and Pipeline Project in San Juan County, New Mexico. The project consists of the construction of approximately seven and one half miles of three pipelines and one new Treatment / Compression Plant. Approximately 98% of all construction will be adjacent to existing natural gas gathering systems or roadways. The Proposed Plant site is located adjacent to the Arkansas Corridor pipeline and road system.

The Rattlesnake Plant equipment and piping are designed to meet National Electrical Code, OSHA and ASME/ANSI B31.3, B31.8 requirements and standards. The legal location and land status for the Proposed Site is as follows:

Proposed Site: N/2NE Section 33, T32N-R9W

Horsepower	BLM Status	Fee Status	State Status
2,370 hp (total)	3.057 acres	N/A	N/A

A Phillips tank battery (three 500-gallon barrel tanks) presently occupies a portion of the Proposed Site. Approximately 3.057 acres total will be needed for the Proposed Site construction and operation. Table 2 (Page 1-7) below, contains a summary of equipment components for the site. Plot plans, plats, and USGS 7.5' maps showing the site location or configurations are provided in Appendix A, POD, Exhibits 1 and 2.

The Rattlesnake Treating Plant will remove CO_2 and free liquids from a blended gas stream (i.e. conventional and coal seam gas. The Proposed Site is located on BLM lands adjacent to the Arkansas Loop Corridor pipelines and road. The site will contain two conventional natural gas fired 1185 hp engines.

Table 2: Rattlesnake Plant Components, EPFS Rattlesnake Treating Plant and Pipeline Project, 1999.

QUANTITY	EQUIPMENT ITEM	OVERALL DIMENSIONS L x w x h	APPROXIMATE POUNDS (#)
2	1185HP NATURAL GAS DRIVEN RECIPROCATING ENGINES	40' x 15' x 16' Stack Height 242" Stack O.D. 14.25"	2 @ 80,500 # approx.
2	4,700,000 BTU/HR NATURAL GAS FIRED REBOILERS	43' x 5' x 12' Stack Height 37' Stack O.D. 28"	2 @ 25,500
1	TREATED GAS COOLER	13' x 7'	9,000 #
1	TREATED GAS SCRUBBER	4' X 10'	10,300 #
1	CONTACTOR	5' x 80'(Stack Height)	41,000 #
1	REGEN SKID	40' x 14'	122,052

1	REFLUX CONDENSER	15' X 40' X 5'	40,000 #
3	100 BBL STORAGE TANK	10' OD x 16' H. (VERT)	TBD #
3	STORAGE TANKS	10' O.D. X 16'	20,000#
1	LAB AND CONTROL BUILDING	25' x 10' x XX	

M-41 residential grade muffler commonly used in inhabited areas will be installed on both engines. Please refer to Sound Survey and Model completed by HFP Acoustical in Appendix A POD Exhibit 7. Noise emissions based on equipment manufacturer's specifications for each facility component are provided in Table 3 page 1-7.

Table 3: Rattlesnake Treating Plant Noise Specifications. EPFS Rattlesnake Treating Plant and Pipeline Project, 1999.

	Equipment	**Noise dba @ 3 feet edge**	**Comments**
1	treated gas scrubber	65	
2	treated gas cooler	80	
3	contactor	70	dump valve & general
4	inlet filter	65	
5	Compressors (each)	100	by compressor vendor
6	Compressor discharge coolers (each)	111	by compressor vendor
7	Storage tank	not significant	not significant
8	Reboiler A	90	
9	Reboiler B	90	
10	Reflux condenser/ solution cooler	89	
11	Regen Skid	80	general noise at skid limits due to control valves, piping, &pumps
12	Air compressor	75	noise outside of building (enclosed)

The proposed above ground storage tanks will range from 10 to 15 feet in height above grade. Each tank will rest on a gravel support ring lined with a high-density polyethylene liner to aid in leak detection. An unlined earthen berm designed to hold one and one-third (1 1/3) the capacity of the largest interconnected tanks will be constructed around the perimeter of the tanks to contain their contents in the event of a tank rupture.

Due to safety concerns, the condensate storage tank batteries are located 200 feet away from the other facility components. The intervening areas will be left in their natural state to the greatest degree possible.

Rattlesnake Treating Plant air pollutant emissions are listed in Table 4.

Table 4: Rattlesnake Treating Plant Emissions. (Projected by Pam Kirschner EPFS, personal communication, 1999) EPFS Rattlesnake Plant and Pipeline Project, 1999.

REGULATED AIR POLLUTANT TOTAL EMISSIONS in TONS PER YEAR (TPY)*			
	NOx	**CO**	**VOC**
Rattlesnake Plant	38.8	46.8	10.6

* Based on equipment manufacturers specifications at 100% operating capacity

The New Mexico Environmental Department (NMED) has issued the Air Quality Permit Number 2232 for this site (See Exhibit 6 in the POD Appendix A). The specific and general conditions of this permit are imposed pursuant to the Air Quality Control Act (1978 NMSA Section 74-2-1 et seq.) and regulations adopted pursuant to the Act including Title 20, New Mexico Administrative Code (NMAC), Chapter 2, Part 72, (20 NMAC 2.72), Construction Permits, Subpart II and Subpart III and all provisions of this regulation are applicable to this facility. NMED has reviewed the permit application and determined that the application has qualified for a streamline permit. Table 5 below states the equipment that is authorized for operation at this site under jurisdiction of the NMED's streamline permit # 2232.

Table 5: Rattlesnake Treating Plant Authorized Equipment List (NMED Air Quality Streamline Permit #2232), EPFS Rattlesnake Plant and Pipeline Project, 1999

Name of Unit	Model No.	Serial No.	Name Plate Capacity	Control Equipment Description
1 - Caterpillar	G3516	N/A	1265 HP	None
2 - Caterpillar	G3516	N/A	1265 HP	None
3 - Emron Inc.	N/A	N/A	5.2 MMBTU/hr	None
4 - Emron Inc.	N/A	N/A	5.2 MMBTU/hr	None

The above equipment will be maintained as per the manufacturer specifications to ensure emissions remain at or below the permitted levels. The station is authorized to operate 24 hours per day, 7 days a week, and 52 weeks per year. Due to the fact there are no measurable amounts of CO_2 in the treated gas there won't be a VOC emission. CO_2 is a non-regulated air pollutant. Table 6 below provides maximum emission rates for the site equipment.

Table 6: Maximum Emission Rates for Rattlesnake Treating Plant Site Equipment, (NMED Air Quality Streamline Permit #2232), EPFS Rattlesnake Plant and Pipeline Project, 1999

Unit No.	Site Hp	Site RPM	Air Control Required	Catalytic Converter Required	Maximum Emission Rate Pounds per Hour / Tons per Year NOx	CO	VOC
1	1166	1400	No	No	3.9/16.9	4.9/21.3	1.2/5.2
2	1166	1400	No	No	3.9/16.9	4.9/21.3	1.2/5.2

Unit No.	Site rating	Site Rating Units	Maximum Emission Rate Pounds per Hour / Tons per Year NOX	CO	VOC
3	5.2	MM Btu/hr	0.57 / 2.5	0.47 / 2.1	0.03 / 0.1
4	5.2	MM Btu/hr	0.57 / 2.5	0.47 / 2.1	0.03 / 0.1

General Condition Categories for Streamline Permit (Categories 1 and 2) are compliance tests, control equipment record keeping and reporting, fuel requirements, revisions and modifications, equipment ownership, right to access property and review record, reporting requirements, revocation and appeal procedures. Each of these is discussed in detail on the permit for this site as attached in the Appendix A, Exhibit 6.

One to two light poles approximately 20 feet in height will be placed on the site as needed to provide the facility with lighting and electricity. Electrical lights at each station will be used as needed by facility personnel and not left on for 24 hours. Directional shields will be placed on the lights to direct them into the fenced perimeter. Electrical service is available at the site for this proposed equipment layout.

The paintable above ground components of the Rattlesnake Plant will be painted Juniper Green to blend in with the surrounding piñon-juniper vegetation community.

Pipelines

The Rattlesnake Plant and pipelines will be designed to ASME B31.3 and B31.8 standards. Applications for 40' wide ROWs will be made for all pipelines on BLM and private lands, and 30' ROWs on State of New Mexico. Land ownership for the approximately 7-1/2 miles of proposed ROW is as follows: approximately 5.82 miles (80.37%) on BLM land, approximately 0.90 miles (12.45%) on State of New Mexico land, and approximately 0.52 miles (7.18%) on private land. The line lengths and land status for each pipeline segment are summarized in Table 7 on page 1-10.

Table 7: Proposed Pipeline Legal Descriptions, ROW widths, & Land Status Summary. EPFS Rattlesnake Plant and Pipeline Project, 1999

Name/Size	Legal	Length/Width	BLM Status 40' wide ROW	Fee Status 40' wide ROW	State Status 30' wide ROW
Rattlesnake Discharge Pipeline (6")	T32N-R9W: S33	0.02 mi / 40' 120.30' feet	120.30' 100%	0.0' 0%	0.0' 0%
Gardner No. 1 Loop (4" and 6")	T32N-R9W: S33, 34	1.18 mi / 40' 6,234.28 feet	6,234.28' 100%	0.0' 0%	0.0' 0%
Lateral 14A-3 (6")	T32N-R9W: S15, 16, 9, 8, 7	3.09 mi / 40' / 30' 16,345.84' feet	11,591.00' 71% (40' width)	0 ' 0%	4,754.84' 29% (30' width)
Trunk 14A Pipeline (8" and 6")	T32N-R9W: S33, 28, 27, 22, 15	2.94 mi / 40' 15,518.58' feet	12,773.16' 72%	2,745.42' 18%	0 ' 0%

The treatment plant will be constructed for the Rattlesnake Project. Exhibit 2 provides plats, facility layout for the proposed treatment plant. The following is a sequence of major construction activities:

- Site clearing and grading to produce a level area where needed;
- Site excavation and finish grading, including excavation and recompaction of certain areas with specific foundation requirements;
- Installation of subsurface piping, foundations, and concrete pads;
- Compressor motor or engine installation;
- Station component (i.e. 1 regen skid, tank battery, etc.) installation; and
- Perimeter lighting, electrical control, perimeter fencing installation.

The treatment plant will have graveled roadways for operations and maintenance access. The tank batteries will be placed 200 feet from the other facility components for safety considerations. Site layout plans are included in Exhibit 2.

Pipelines

The pipelines will be built in association with treatment plant and existing pipeline systems to reduce system pressure and thereby increase natural gas production. Typically, several pipelines

are located in the corridor that will be used. The lines will be constructed typically within five (5) to twenty-five (25) feet of the pipeline located on the outside edge of the corridor. The following is a sequence of major construction activities:

- Right-of-way clearing and grading
- Trenching
- Stringing, bending, lineup, welding and radiographic examination
- Coating and wrapping
- Pipe lowering
- Trench backfilling
- Testing and tie-ins

Clearing

Clearing, grading and other disturbance of soil and vegetation will be limited to the minimum area required for construction, and will address the following, as applicable:

1. Clearing of the right-of-way will be limited to a specified number of feet in some areas, which may be less than the right-of-way width, to mitigate potential impacts to existing resources. Trees, brush, and other woody material and rocks cleared from the right-of-way will be windrowed or piled to one side and inside the right-of-way or temporary use areas for later use in reclamation or hauled off site to a pre-approved disposal site. Exhibit 6 contains typical ROW clearing diagrams showing widths, working areas, soil stockpiling areas, etc. for various sized lines and ROW.

2. Trees, in piñon – juniper type vegetation, cleared from the ROW would be left for wood gathering activities by the general public. The trees shall be moved aside prior to any soil disturbing activities. Soils will not be mixed with trees during ROW clearing... Trees will be delimbed and the trunks removed and placed either side of the ROW, if it parallels a road, or moved to the end of the ROW for easy access and to prevent vehicular travel of the ROW. After reseeding,, the branches shall be placed back on the ROW and "walked down" or chipped. Any rocks removed from the construction area during clearing and/or ditching operations shall be scattered back in the ROW arrangement. Redistributing these materials on the ROW during reclamation shall be accomplished using rubber-tired equipment.

3. Clearing the right-of-way of vegetative types other than the piñon-juniper (i.e., sagebrush flats) will consist of knocking (scalping) off the tops of brush with a motor-grader or dozer or using a brush hog wherever possible to preserve plant root systems. Grass cover or low growth will not be removed except immediately over the ditch line, as required to prevent a fire hazard from welding operations or in rough and broken terrain.

4. Clearing for the pipeline right-of-way width requirement during the construction phase will be as authorized by the BLM. Areas such as slopes, road or stream crossings or areas with difficult access will require additional temporary working room during construction. Clearing of these areas is done in the same manner as that described in the previous paragraph.

Temporary Use Permits on BLM lands will be obtained before any clearing has begun in temporary use areas. The permanent right-of-way width will vary according to actual line size.

Survey Monuments

EPFS will protect all survey monuments found within the right-of-way. Survey monuments include, but are not limited to, General Land Office and Bureau of Land Management Cadastral Survey Corners, reference corners, witness points, U.S. Coastal and Geodetic benchmarks and triangulation stations, military control monuments, and recognizable civil (both public and private) survey monuments. In the event of obliteration or disturbance of any of the above, the holder will immediately report the incident, in writing, to the Authorized Officer and the respective installing authority, if known. Where General Land Office or Bureau of Land Management right-of-way monuments or references are obliterated during operations, EPFS will secure the services of a registered land surveyor or a Bureau cadastral surveyor to restore the disturbed monuments and references using surveying procedures found in the "Manual of Surveying Instructions for the Survey of the Public Lands in the United States," latest edition. EPFS will record such survey in the appropriate county and send a copy to the Authorized Officer. If the Bureau cadastral surveyors or other Federal surveyors are used to restore the disturbed survey monument, EPFS will be responsible for the survey cost.

All private survey markers will be protected and established if encountered.

Equipment and Materials Handling

Construction of the proposed pipelines and other facilities will begin once necessary authorizations are obtained. One construction company will be involved and will work 6 or 7 days a week. Pipeline construction will cease by sunset. Nighttime construction will not be permitted. It is anticipated the company will construct approximately 4000 feet of pipeline per day, with the project being completed within 5 months.

The contractor for the construction of the pipelines will be selected by competitive bid from a group of qualified contractors.

Materials and equipment may be hauled over existing oil and gas lease roads in the project area or over the following numbered highways and roads:

U.S. Highway 550
U.S. Highway 44
U.S. Highway 64
County Road 4900

Hauling equipment and materials will be done in accordance with New Mexico State requirements. During pipe stringing operations, pipe will be hauled in accordance with New Mexico State requirements.

During construction, existing roads and the right-of-way will be used as access. No new roads will be constructed. Existing roads that are used in conjunction with the right-of-way will be periodically maintained during construction.

The total project will utilize an estimated 30,000 feet of 8-inch OD pipe; 2,292 feet of 6-inch OD pipe; 6,234 feet of 4 inch OD pipe plus appropriately sized valves, fittings, and other appurtenances. This will require an estimated 200 truckloads of equipment and materials to be transported to the job site. Construction equipment will include trucks, loaders, various sized dozers, shovels and backhoes, boring machines, cranes, side booms, generators, and bending machines. Most of the equipment to be used during right-of-way restoration will consist of dozers, blades, and backhoes.

Equipment, pipe, and other construction materials will be hauled from various parts of the country, brought to an approved site or stored in various authorized locations until needed. Use of these areas will be within authorized boundaries. The pipe will be delivered by truck to the job site.

Equipment Storage Areas

The pipelines will be constructed in a single spread for each segment consisting of equipment and crews handling various phases of construction activities along the routes. Existing EPFS storage yards will be used to store pipe and stage equipment. These yards are located in Aztec, Farmington, and Blanco at EPFS offices. Permitted ROW, TUA and Treatment plant will be used in the field to stage equipment. Existing roads will be used for parking; vehicles will be parked in such a manner to not impede traffic.

Trenching

After the working area is prepared, ditching operations will begin with a backhoe and/or ditching machine. Backhoes are equipped with a bucket to excavate a ditch suitable to accommodate the pipe. The width of the ditch will be no larger than is needed to accommodate the pipe. The exact width will vary along the project depending on soil type, soil conditions, and line size. The ditch width and depths are typically.5 feet by 4 feet for 8-inch pipe, and 1 foot by 3.5 feet for 6 and 4-inch pipe. The ditch could be open several days until the pipe is placed and backfilling

complete. However, care will be taken to keep roads and obvious livestock trails passable by adding "soft plugs" during this phase of construction, if possible. The amount of ditch left open for any length of time (5 days) would be minimized and ramps will be constructed every 1/4-mile to allow wildlife or other animals that might fall into the ditch to escape.

The depth of the ditch will vary with the conditions encountered. The cover from the top of the pipe to ground level will generally be at least 36 inches, except in rocky areas, where the cover will be at least 24 inches. The minimum burial depth for the pipe will be 24". Burial depths will increase to five feet or more in dry wash crossings. In some cases, the pipeline ditch will be five to ten feet deep, e.g., where the proposed pipeline passes under existing pipelines, roads, and other obstacles. Additional temporary use areas will be required at the deeper excavated sections of the pipeline to comply with OSHA regulations for excavations.

Trench breakers will be constructed at the same spacing as permanent water bars. Trench breakers will be constructed immediately down slope of any location where groundwater could enter and migrate along the trench at any time of the year.

Excavations will meet OSHA requirements as defined in 29 CFR Part 1926, Subpart P-Excavation, with Appendices. A copy of the OSHA regulations for excavation will be available on the project and followed by construction personnel.

Spoil Removal, Storage, and Reapplication

The ditch spoil will be placed in separate windrows on one side of the right-of-way. The space that is generally needed for the windrows of soil will be from 10 to 25 feet in width depending on ditch width and depth. The ditch spoil will be next to the ditch. In areas where the amount of soil is too great to be contained within the normal construction right-of-way, spoil will be place on the previously disturbed adjacent pipeline right-of-way in an authorized TUA, disturbing as little of that right-of-way as possible. EPFS will notify the adjacent pipelines when this is necessary.

In rocky terrain, unconsolidated rock will be ripped or blasted as needed to make the ditch. In preparation for blasting, loose material will be removed from the surface and air-powered drills will drill a series of holes into the rock. The drills will generally be suspended from a side-boom tractor, which will also tow the compressor supplying the air. Self-propelled drills may also be used. Areas to be blasted may be matted or controlled blasting techniques used to constrain rock fragments. Local residents will be notified before blasting. Any blasting near the power transmission line right-of-way shall include blasting mats or bergs so that flyrock or debris will not damage the transmission facilities. Utilities shall be notified prior to all blasting in the right-of-way. EPFS will comply with all applicable Federal, State, and local laws and regulations concerning the use, storage, and handling of explosive material. EPFS will obtain approval from the Authorized Officer prior to any blasting. Explosive will not be stored on public lands.

On sidehill slopes a level-working pad will be cut from the hillside with a dozer. Excavating for this sidehill cut will generally begin at the uphill end of the cut and continue downward until required working width is obtained. Spoil from the cut (uphill) will be graded to fill the opposite (downhill) side of the bench, where it forms the working pad. The slope of the cut, as well as the fill on the opposite side, will depend on the steepness of the natural slope and the looseness of the soil material. The steeper the slope and the looser the soil, the larger the cut will be for a given working pad width. The ditch will not be cut in fill material.

Washes and Intermittent Streams

Crossings of dry washes and intermittent streams will be ditched using backhoe-type equipment, where practical. Additional temporary use areas will be required up to 100 feet wide on each side of the right-of-way and averaging 150 feet in length. A Temporary Use Permit will be obtained from the BLM for these areas that are on public lands, if not otherwise granted. The banks of washes will be excavated to create a slope gentle enough to allow equipment to progress to the floor of the wash. Soil will be stockpiled at the top of the banks of the wash and located to prevent siltation of the wash by surface runoff. After the pipe is installed, the soil will be used to restore the banks of the wash to a stable configuration. This approach may be modified to fit specific situations. Any additional requirements of the Army Corps of Engineers (COE) Section 404 of the Clean Water Act (33 CFC 1344) permit will be followed.

Construction will be done to minimize the amount of soil, rocks and vegetation entering the wash. Cutting banks and slopes of washes will be minimized. As much vegetation as possible will be preserved on the banks. Spoil from the banks will not be placed into the active water channel. Straw bales, filter fabric, or other temporary measures will be used where necessary to filter sediments contained in runoff from the soil piles. When it is necessary to place soil and rocks in the stream channel, only material of sufficient size to resist movement by the stream will be placed in the stream channel. The Stormwater Pollution Prevention Plan in Exhibit 5 will be implemented.

In narrow and deep channels with a flat bottom and little likelihood of further incision, 4-foot depth of pipe burial will be extended laterally from the channel center line a total distance of 3 times the channel width. The sidewalls of the cut in the channel bank will be laid back at an angle of 5:1 (horizontal/vertical). In deeply incised channels (V-notched cross-section) pipe will be buried 6 feet below channel bed. The depth of burial will be extended laterally from the channel center line a total distance of 3 time existing channel depth. The sidewalls of the cut in the channel bank will be laid back to a slope of 1.5:1.

The pipeline trench will be kept plugged with soil or sandbags at each bank whenever possible, until the pipe is installed. This will prevent water from the wash migrating up the ditch, saturating the soil and causing stability problems and possible siltation.

Pipelines and Other Facilities

Crossings of unsurfaced, rural roads will be made with a ditching machine or backhoe as described above. Installations, including restoration of the surface will usually be completed in one day. Provisions will be made to detour and control passage of traffic while construction takes place. TUAs for these crossings are detailed in Exhibit 3 "TUAs".

Prior to the centerline survey operation, crews locate buried facilities with metal detectors to avoid damaging them during the construction process. The pipeline addressed in this Plan crosses beneath other pipelines and/or other facilities. A backhoe and hand labor is used to excavate the pipeline ditch and passage necessary to place the proposed pipeline under the existing pipelines. Where practical, the pipeline will be installed two feet below existing pipelines.

Laying Pipe

The ditching operation will be followed by pipe stringing, bending, lining up, welding, radiographic examination, wrapping and coating. The pipeline will then be placed in the trench and buried, as indicated below.

Before the pipe is placed in the ditch, selected fill material will be used to pad the pipe in areas where there are rocks in the ditch bottom or in the fill material. The pipe will be lowered into the ditch by side-boom tractors. After the pipe is placed in the ditch, more of the selected fill material will be used to pad the pipe before the ditch is backfilled. Usually padding material is obtained from soil excavated from the ditch, but sand or other rock-free material is occasionally obtained from other sources. Because the amount of rock-free material that will be encountered in excavation is not known, the amount of "outside" materials needed is not known at this time. Proper permits will be obtained if padding material will be acquired from other areas of public land. Sales contracts or permits will be obtained from the affected surface managing agency or landowner prior to obtaining padding material. Fill will then be placed over the pipe to protect the pipe and coating material from damage during right-of-way restoration.

Pressure/Hydrostatic Testing

After the pipes are buried in the ditch, they will be pressure tested using air to ensure structural integrity prior to being placed in service. In certain cases, water obtained from a private source will be used. After the test, this water will be discharged in accordance with the EPFS General Discharge Permit and in accordance with State of New Mexico requirements. The pipe will be tested at 1.25 times the MAOP for 2 hours.

Pipeline Protection

The pipelines will be protected from external corrosion (pitting) by a protective coating on the pipe, and by cathodic protection located, whenever possible, within the authorized right-of-way; authorization will be obtained for any located outside of the ROW. The external pipe coating is the primary corrosion protection method. Cathodic protection applies an electrical current to the pipeline from an external direct current power source (rectifier) to prevent corrosion at any point where the coating is not 100% effective. Rectifiers will be located near existing power distribution lines and mounted on a pole on or adjacent to the right-of-way; and connected to the associated carbon anode ground bed. The cathodic protection current flows from the ground bed, through the soil to the pipeline.

The exact locations of these cathodic protection rectifiers and ground beds cannot be determined until the pipeline is installed and the proper tests conducted. Test leads will be attached to the line at mile posts, roads, pipeline crossings and highways to monitor the cathodic protection system. Each set of test leads will be brought to a junction box installed on the ground surface along the right of way. The junction boxes will be positioned so as not to interfere with existing land uses.

Resource Issues

Cultural Resources

Cultural resources will be protected during construction, operation and maintenance procedures. There are three levels of practice that will apply to the construction spreads:

1. *Construction in areas where monitoring for cultural resources is not being performed:* If an operator discovers any previously unidentified historic or prehistoric cultural resources during operation, then work in the vicinity of the discovery will be suspended and the discovery will be promptly reported to the BLM Authorized Officer. BLM will specify what action is to be taken. The approved "discovery plan" in place for the project will then be executed. BLM or a permitted cultural resources consultant may perform minor recordation, stabilization, or data recovery. If warranted, BLM may require EPFS to conduct a more extensive treatment by a permitted cultural resources consultant before the project is allowed to resume. Further damage to significant cultural resources will be prohibited until any required treatment is completed. Failure to notify the BLM about a discovery may result in civil or criminal penalties in accordance with the Archeological Resources Protection Act of 1979 (as amended).
2. *Construction in areas where monitoring for cultural resources is being performed:* If monitoring confirms the presence of previously unidentified cultural resources, then work in the vicinity of the discovery will be suspended and the monitor will promptly report the

discovery to the BLM Authorized Officer. BLM will specify what action is to be taken. The approved "discovery plan" in place for the project will then be executed. BLM or a permitted cultural resources consultant may perform minor recordation, stabilization, or data recovery. If warranted, more extensive treatment by a permitted cultural resources consultant may be required of EPFS before the project is allowed to resume. Further damage to significant cultural resources will be prohibited until any required treatment is completed.

3. *Damage to a previously identified site:* If, in its operations, EPFS's contractor damages, or is found to have damaged any previously documented or undocumented historic or prehistoric cultural resources, excluding "discoveries" as noted above, EPFS agrees to have a permitted cultural resources consultant prepare and have executed a BLM approved data recovery plan. Damage to cultural resources may result in civil or criminal penalties in accordance with the Archeological Resources Protection Act of 1979 (as amended).

If cultural monitoring is required, a copy of these stipulations will be supplied to the Archaeological monitor at least two working days prior to the start of construction activities. No construction activities, including vegetation removal, may begin before the arrival of the monitor. The monitor will ensure that the placement of the site protection barrier agrees with map(s) attached to the cultural clearances. The monitor will submit a report of the monitoring activities within 30 days of completion of monitoring unless other arrangements are made with the BLM.

A temporary site protection barrier(s) will be erected prior to the start of construction. The barrier will consist of upright wooden survey laths spaced no more than 10 feet apart and marked with blue flagging.

Fences and Range Improvement Projects

EPFS is responsible for contacting the grazing lessees prior to crossing any fence on public lands, or any fence between public and private land, and for offering the lessees an opportunity to be present when the fence cut(s) is made so the lessees can be satisfied that the fence is adequately braced and secured. The grazing permittee will be contacted by a representative of the right of way holder and/or contractor prior to commencing construction and reclamation on their respective allotment. Each fence crossed by this right-of-way will be braced and secured to prevent slacking of the wire, before cutting the wire for pipeline construction. The opening thus created will be temporarily closed including nightly when the construction crews leave the project as often as possible during construction to prevent passage of livestock. Any gaps in natural barriers used for livestock control created by construction activity will be fenced according to BLM, or other owner's instructions.

Several fences and water pipelines may be crossed or paralleled by the proposed right-of-way. A minimum of ten feet of undisturbed surface will be maintained between fence lines and the parallel pipeline, if possible and as applicable. Pipelines for livestock and/or wildlife water will be avoided during construction. If construction damage occurs, these fences or water pipelines will be repaired to the BLM, or other owner's specifications. If needed, an emergency source of potable water will be provided by EPFS. All existing improvements, such as fences, gates,

irrigation ditches, cattle guards and reservoir will be maintained during construction and repaired to at least pre-construction condition to minimize disturbances.

Noise

Noise from construction will be distributed over the segments of the project being constructed. Noise caused by engines and earth removal equipment or blasting will be more concentrated where excavation and ditching is taking place.

Air Quality

At the request of residents or BLM, unsurfaced roads in the construction area of influence that pass within one quarter mile of dwellings will either be watered with fresh water or other means satisfactory to BLM will be applied to control dust. These dust abatement procedures shall also be used at all times when working within 500 feet of the power transmission line right-of-way, unless waived by the owner/operator of the power line. Proper permits will be obtained prior to drawing the water used for this. Federal, State, and local air quality standards will be met. Construction and operation equipment will be properly maintained to reduce emissions.

Public Safety

EPFS will provide for the safety of the public entering the right-of-way. This includes, but is not limited to, barricades for open trenches, flagmen/women with communication systems for single-lane roads without inter-visible turnouts, and attended gates for blasting operations. Traffic control will be provided as needed when road boring takes place and in congested areas.

Erosion Control

No construction activities will be performed when soil is too wet to support construction equipment as evidenced by creation of ruts on access roads in excess of six (6) inches deep. EPFS will implement a Stormwater Pollution Prevention Plan in compliance with EPA National Pollutant Discharge Elimination System (NPDES) regulations during construction of the pipelines and compressor station. A Notification of Intent will be filed with EPA prior to start of construction. The Stormwater Pollution Prevention Plans and Notices of Intent are attached as Exhibit 5.

Pipeline and Compressor Station Quality Control and Compliance Monitoring

All facilities will be designed and constructed in accordance with ASME B31.3 and B31.8. The pipeline will be designed, constructed, and operated in compliance with the OSHA regulations

pertaining to pipeline construction and operation. EPFS will x-ray as a minimum 10% of all welds in Class I locations, 15% of all welds in Class II locations and 90% of all welds in Class III location. Quality control of the physical pipeline and its integrity will be provided by EPFS as dictated by EPFS's Manual of Engineering Standards. A Chief Inspector will oversee the entire Quality Control (QC)/Quality Assurance (QA) process during all phases of construction.

Block valves will be installed at various locations above ground on the right-of-way. Valves will be ANSI Class 300 ball valves with full openings, through-conduit type for passage of inspection and cleaning pigs. These installations require a very small amount of space and will not require additional right-of-way width. Also, most such areas will be constructed on existing disturbed areas. Such sites have not yet been identified.

Environmental Compliance Monitoring

EPFS will employ a third party contractor as a BLM Quality Assurance Inspector (QA) to maintain compliance with BLM, and other agency environmental stipulations. The QA will have in his/her possession at all times, a copy of the right-of-way grant, stipulations, and a copy of this Plan. The QA will be responsible for enforcing compliance with environmental requirements contained in grant stipulations and this Plan. The QA will complete reports which will be submitted to the BLM on a weekly basis.

The QA will be on the job constantly during construction and clean up operations to detect any environmental non-compliance. In the case of non-compliance, the QA will cause the individuals involved to cease the action immediately and will report the incident to the BLM Authorized Officer and EPFS Project Management. BLM will say when work can resume. All incidences of non-compliance will be documented with a copy sent to the BLM. A compliance and monitoring plan has been developed by EPFS and approved by the involved agencies prior to construction and is included as Exhibit 7, Compliance Plan.

POST CONSTRUCTION ACTIVITIES

Restoration/Reclamation

Following the backfilling operation, cleanup and reclamation of the right-of-way will be accomplished. The backfilling will be completed using the spoil previously excavated from the ditch. The ditch will be compacted as much as possible over the pipe during backfilling. A small berm no more than twelve (12) inches in height will be formed over the ditch (except at road crossings, in drainages and heavy use areas) to compensate for some soil settling. The disturbed surface will be restored to the original contour of the land. This includes moving all the fill material back into the sidehill cuts that were made in constructing the pipeline.

Grading and compacting (or replacing asphalt if needed) will repair any disturbed local roadways or replaced to maintain transportation networks. All public and private roadway crossings and access points will be restored to safe and acceptable conditions.

Water diversions will be constructed as needed to control surface water and erosion. To accomplish this, waterbars or "kicker dikes" will be constructed on the contour across disturbed areas. All such structures will be constructed according to the specifications in Exhibit 8, Waterbar Diagram to: 1) simulate the imaginary contour lines of the slope and 2) drain away from the disturbed area and continue across the right-of-way so that water is carried onto vegetation or rocks. Waterbars will be constructed at the following general spacing intervals:

Percent Slope	Spacing Intervals
Less than 2%	120'
2 - 5%	100'
5 - 10%	75'
10 - 20%	50'
20% or greater	30'

Exceptions to this will be as follows: If the right-of-way has a side slope one-third or more of the slope along the length of the right-of-way, water bars will not be constructed. For example, if the right-of-way slopes six percent along its length and less than two percent across the width, water bars are not necessary. However, if the side slope is two percent or more, the pipe ditch berm will be cut to ground level at 50 yard intervals and at each drainage crossing.

Trees, vegetation and rocks will not be permanently windrowed along the edge of the right-of-way. Trees, brush and other woody material cleared from the right-of-way will be randomly scattered over the right-of-way and temporary use areas. Tree limbs may be chipped and spread on the right-of-way or limbs put on the right-of-way after cleanup and seeding is done and walked down flat with a tractor. Rocks that were cleared from the right-of-way will be randomly placed on the right-of-way with a "wheeled" front-end loader or other equipment capable of carrying the material. The tree stumps and rocks will be strategically placed where possible to dissipate the energy of surface runoff water. Rocks removed from the excavation will either be buried on the right-of-way, used to reform sandstone cliffs, strategically placed as barricades across the right-of-way to deter use as a road, or randomly scattered across the right-of-way as stated above. The density of surface rocks will be comparable with the adjacent undisturbed land. Placement of the trees, brush, woody material and rocks will not interfere with operation of water diversions. Rimrocks that are disturbed, broken, or disassembled will be reconstructed as nearly as possible to the original configuration. Rock waterways may be constructed for bank stabilization where high seasonal flows are expected.

Restoration operations at washes will entail removing all debris from the stream bed and restoring the banks to the original contour. Surplus soil will be spread on the right-of-way areas adjacent to the crossing. Bank reconstruction will provide slopes equal to the angle of the

adjacent bank (where soil stabilization can be accomplished). Where banks cannot be stabilized at the original angle, they will be stabilized as close to the original contour as possible. Slope protection such as thatching, fiber blankets, gravel, or riprap will be designed for the particular application required.

Where construction opens a natural barrier used for livestock control, gaps thus opened will be restored or fenced to prevent passage (drift) of livestock. The fence will be constructed to agency/landowner specifications. Upon completion of construction and reclamation, all fences and other range improvement projects will be reestablished to the same or better condition than original. Any improvement, which is damaged or destroyed during any phase of this project, will be replaced, restored, or repaired with the total cost paid by EPFS.

Earthen berms will be constructed to prevent the right-of-way from becoming a roadway and in some cases to close existing undesirable trails that have developed. Specific areas where these are to be constructed are designated below. In some cases large rocks may be used in lieu of the berms. This is also designated below.

The earthen berms will be constructed using one (1) foot lifts of soil and compacted to a minimum height of four (4) feet and accompanied with a ditch that has a two (2) foot high vertical face along its base on the side next to the traffic that is to be stopped. These berms will effect the closure of the right-of-way to use by creating a barrier in areas where traffic could access the right-of-way from a road. When possible, the berms will be "tied" to trees or rocks along the edge of the right-of-way to prevent traffic from circumventing the berms. When rocks of at least three (3) feet in diameter are available, they may be used in place of the earthen berms to fulfill the same purpose. The spacing between the rocks will be no more than three (3) feet.

The following criteria are used for selection of paint colors:

- Juniper Green - The structures and/or appurtenances are located in an area that is predominantly vegetated with trees, i.e. piñon or juniper

Seed will be planted (refer to Exhibit 10) following pipeline completion at EPFS's risk. Approved mulch application will be used in sensitive areas (dry, sandy, steep slopes) as directed by the Authorized Officer/QA.

If revegetation is not successful after the second growing season, the disturbed areas will be reseeded. This will be guided by the goal of having a ground cover on the disturbed areas that is at least seventy (70) percent compared to the surrounding areas.

After complying with all the restoration stipulations on public land, EPFS will submit a "proof of restoration" letter to the BLM, Farmington Field Office, 1235 La Plata Highway Ste. A, Farmington, NM 87401.

Maintenance, Operation and Abandonment

EPFS will maintain the area covered in this authorization as required by the stipulations in the right-of-way grants. Maintenance of the right-of-way includes, but is not limited to, soil stabilization and reseeding. High purity seed mixes will be used for reseeding to ensure that noxious weeds are not introduced (See Weed Control Plan in Exhibit 10). All existing improvements affected by construction and maintenance of this authorization will be kept in a serviceable (as good as or better than original) condition. The existing access roads will be used along the right-of-way for inspections and access to valves. EPFS will participate in the maintenance of roads used to access the right-of-way and ancillary facilities in conjunction with other facilities.

The project will be operated according to natural gas industry standards. Supervisors and field personnel will monitor and control the system by driving throughout the project area inspecting facilities on a periodic basis. Disposal of any liquid and solid waste generated during maintenance and operation of the pipeline will be done at a State and/or Federal approved facility in an environmentally sound and approved manner.

EPFS will control weeds (including such noxious weeds as leafy spurge, musk thistle, Canada thistle, spotted knap weed, hembane, hologeton, and whorled milk weeds) on disturbed areas within the limits of the right-of-way. EPFS will consult with the Authorized Officer and/or local authorities for acceptable weed control methods.

Within three (3) months prior to termination of the right-of-way, the holder will contact the appropriate agency to arrange a joint inspection of the right-of-way. This inspection will be held to determine an acceptable termination (and rehabilitation) plan. This plan will include, but is not limited to, removal of facilities, drainage structures, or surface material, re-contouring, adding topsoil, or seeding. For BLM lands the Authorized Officer must approve the plan in writing prior to the holder's commencement of any termination activities.

EXHIBIT 1A

PROPOSED PROJECT SURVEY MAPS

San Juan County, New Mexico:

EL PASO FIELD SERVICES

RATTLESNAKE GATHERING SYSTEM

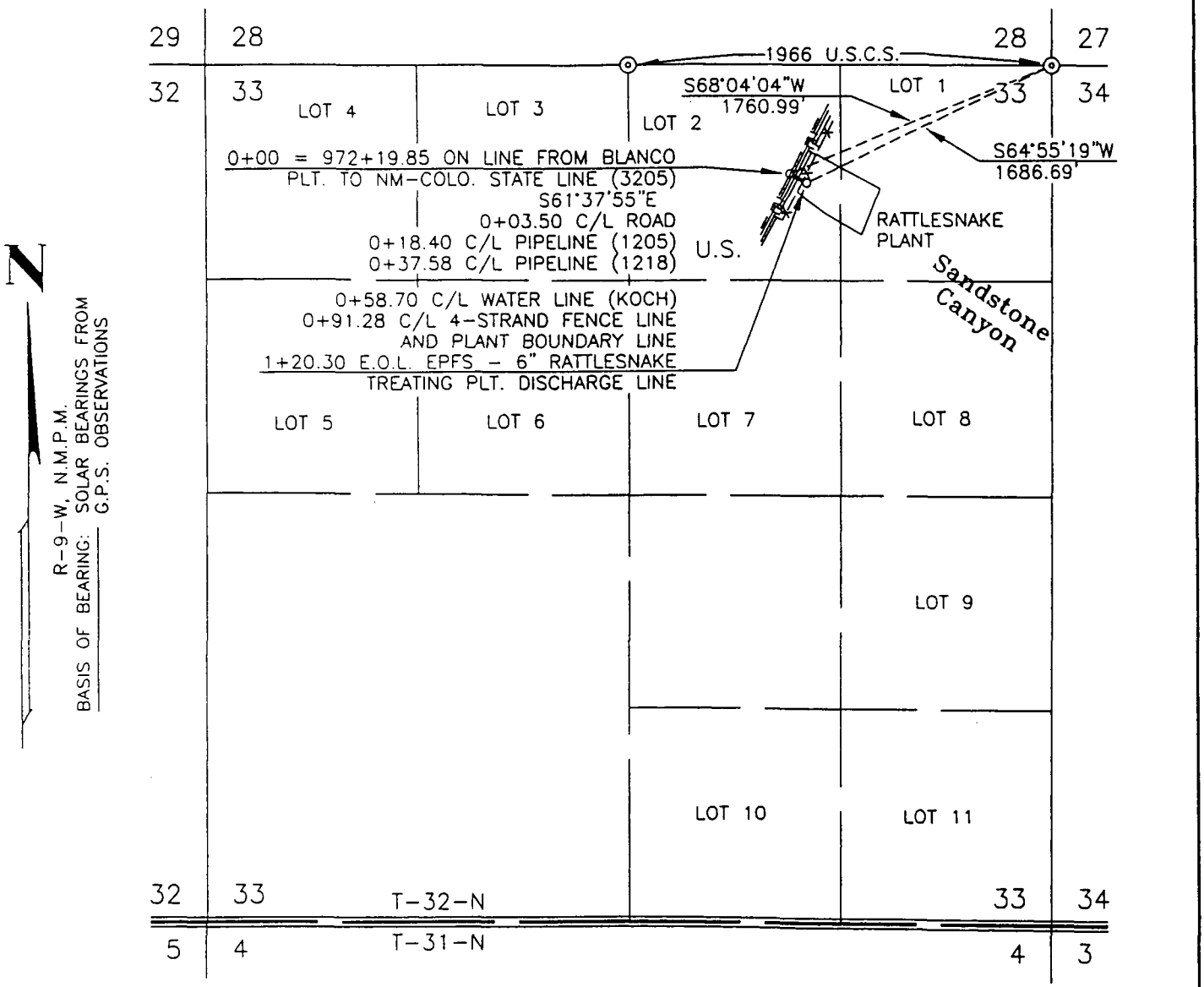
LINE EPFS – RATTLESNAKE PLANT 6" DISCHARGE LINE

FROM 0+00 = 972+19.85 ON LINE FROM BLANCO PLT. TO NM–COLO. STATE LINE (3205)

(3205.0–4, R/W No.)

DWG. NO. 879.0–3–1
WO NO. 12360
RW NO. 9970028
DATE 3/05/99
SCALE 1" = 1000'
SURVEYED 2/23/99

COUNTY SAN JUAN STATE NEW MEXICO SECTION 33 TOWNSHIP 32–N RANGE 9–W, N.M.P.M



DWN. BY MD CONSTR. COMMENCED APPL. DWG. SLACK CHAIN

CKD. BY CONSTR. COMPLETED DATE PIPE SIZE 6.625" O.D.

PRINT RECORD			PIPE DATA	METER STA. NO.
8	SJ DIST.	PRELIM 3/9/99		
1	EP–R/W			

NOTE: 6" DISCHARGE LINE
AT 0+00 = 972+19.85: LAT. 36°56'48"
LONG. 107°46'54"

PRELIMINARY

FM24 (Rev. 1/99)

OWNERSHIP	SUBDIVISION	OWNER	LESSEE	METER(S)	RODS	ACRE(S)
	NE/4, SEC. 33	UNITED STATES	LINN & RICHARD BLANCETT		7.291	0.111

REV.	

8/9031

EL PASO FIELD SERVICES

RATTLESNAKE GATHERING SYSTEM

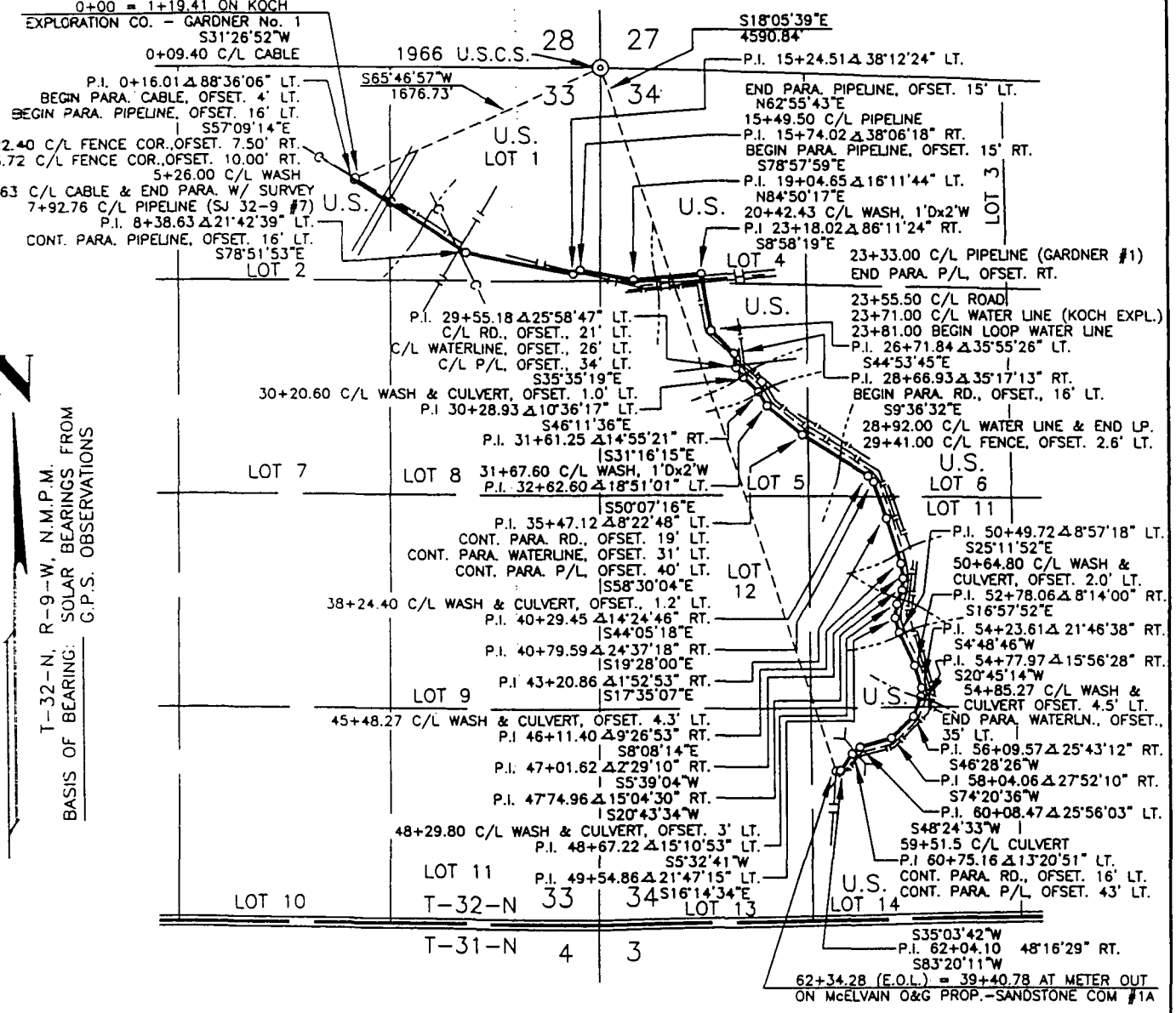
DWG. NO. 879.0-1-1
WO NO. 12585
RW NO. 9970061
DATE 2/25/99
SCALE 1" = 1000'
SURVEYED 2/19/99

LINE EL PASO FIELD SERVICES – GARDNER NO. 1 LOOP LINE

FROM 0+00 = 1+19.41 ON KOCH EXPLORATION CO. – GARDNER No. 1

(BTN-11-1, R/W NO. 540636)(MC #70787)

COUNTY SAN JUAN STATE NEW MEXICO SECTION 33 TOWNSHIP 32-N RANGE 9-W, N.M.P.M.



DWN. BY MD CONSTR. COMMENCED APPL. DWG. SLACK CHAIN

CKD. BY CONSTR. COMPLETED DATE PIPE SIZE 4.50" O.D.

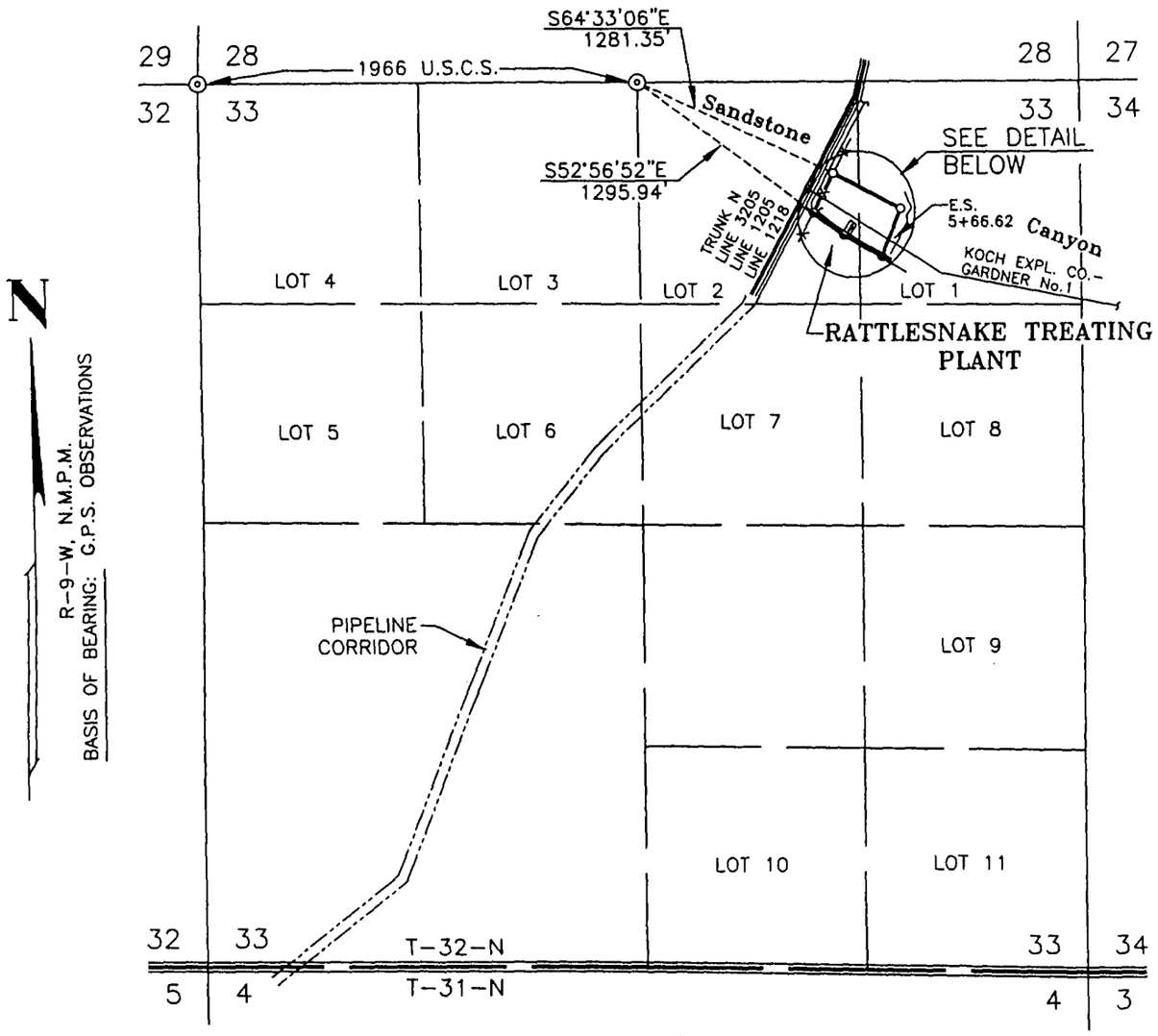
PRINT RECORD			PIPE DATA	METER STA. NO.	6.625" O.D.
8	SJ DIST.	3/9/99	NOTE: 4" LOOP LINE FORMERLY DWG. No. BTN-79-1 (NOW VOID)		
1	EP/CAD				

FM24 (Rev. 1/99)

OWNERSHIP	SUBDIVISION	OWNER	LESSEE	METER(S)	RODS	ACRE(S)
	NE/4, SEC. 33	UNITED STATES	LINN & RICHARD BLANCETT		102.901	1.559
	ALL SECTION 34	UNITED STATES	LINN & RICHARD BLANCETT		274.934	4.166

REV.	

8/9011

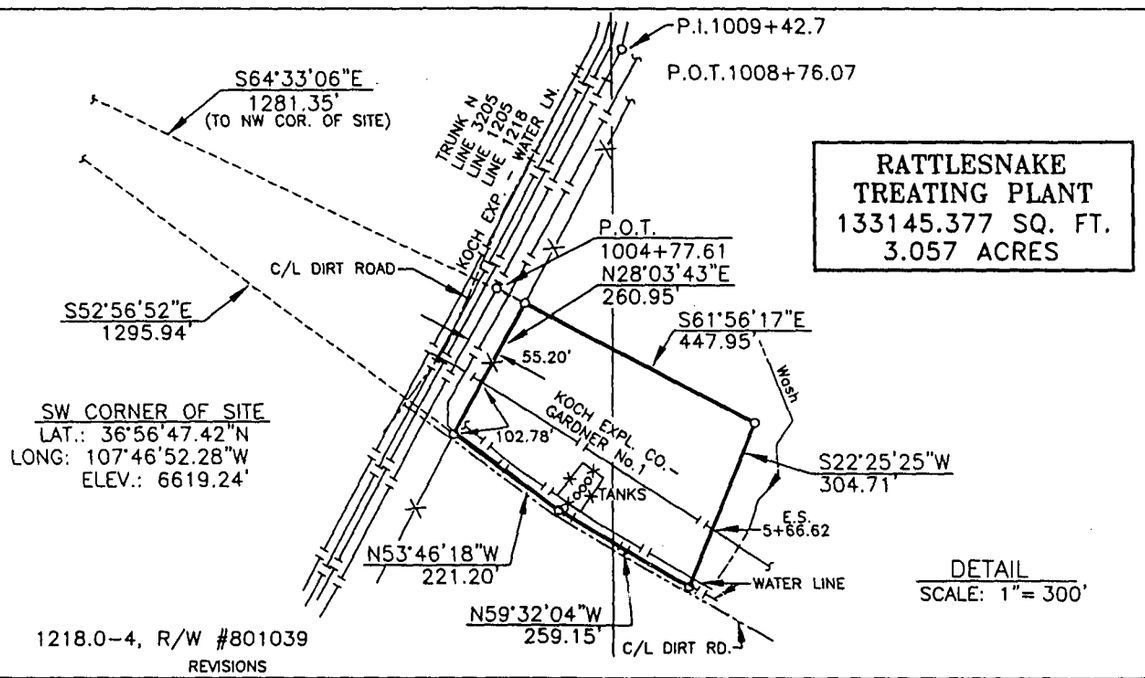


PLAN

SCALE: 1"=1000'

OWNERSHIP

SUBDIVISION	OWNER	LESSEE	METER(S)	ACRE(S)
NE/4, SEC. 33	UNITED STATES	LINN & RICHARD BLANCETT		3.057



DETAIL

SCALE: 1"= 300'

REF. DWG.: 1218.0-4, R/W #801039

REVISIONS

NO.	DATE	TO	W.O.
1		REVISED DRAWING NUMBER, FORMERLY 731.12-X-27 (3/8/99/MD)	
8	3/9/99	S.J. DISTRIBUTIONS	
1		EP - CAD	
PRINT RECORD			

ENG. REC.		DATE
DRAWN	MD	12/4/98
CHECKED		
CHECKED		
PROJ. APP.		
SURVEYED		11/13/98
CAD NO.	87912X1	
R/W NO.	9970028	
W.O.	12360	

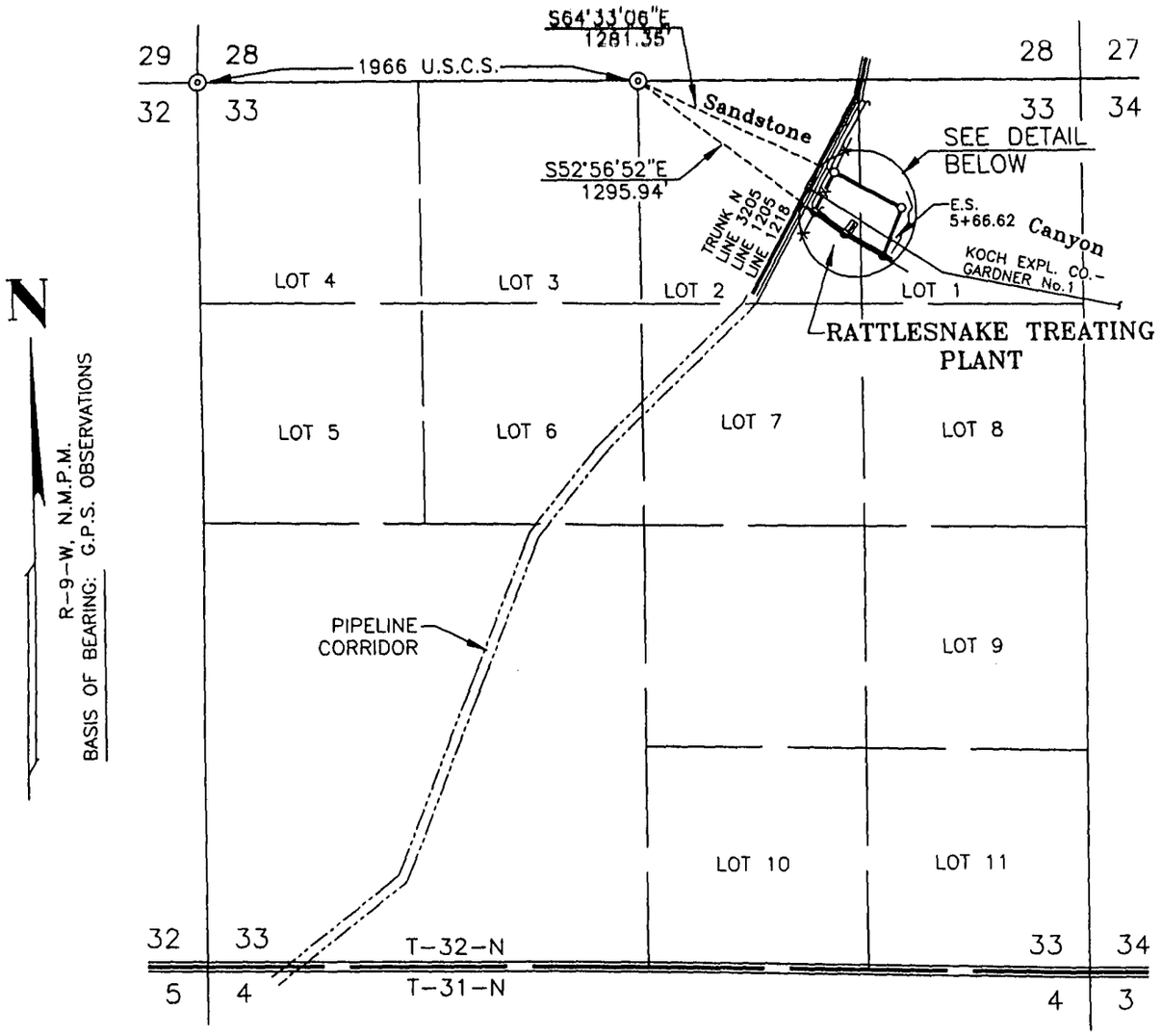
EL PASO FIELD SERVICES

RATTLESNAKE TREATING PLANT

NE/4, SECTION 33, T-32-N, R-09-W, N.M.P.M.
SAN JUAN COUNTY, NEW MEXICO

SCALE SHOWN | DWG. NO. 879.12-X-1 | REV. 1

FM92 (Rev. 3/93)

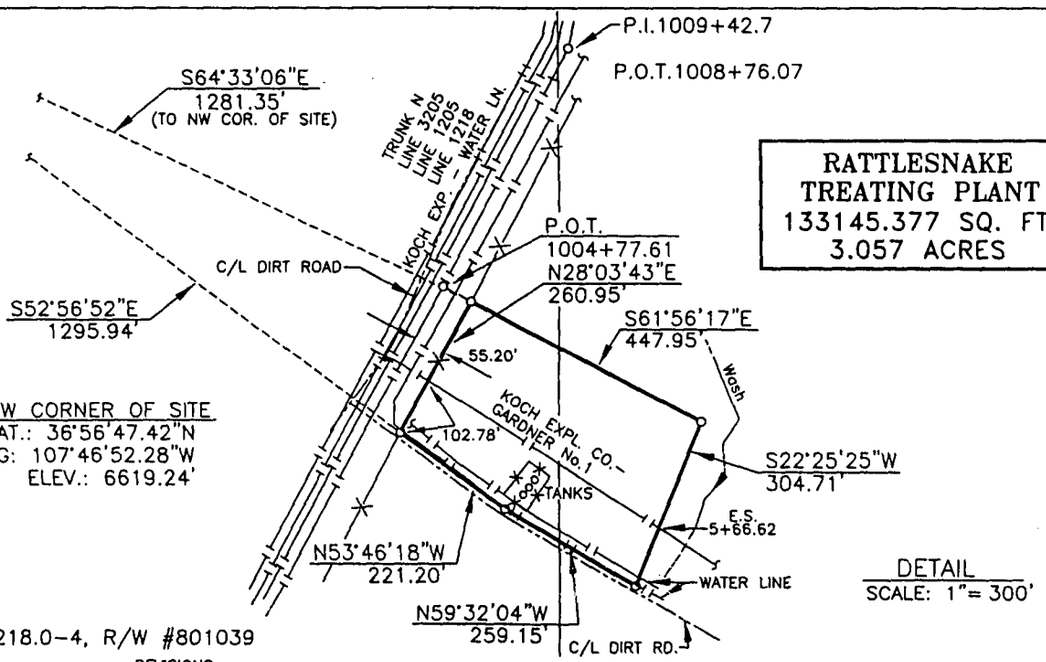


PLAN

SCALE: 1"=1000'

OWNERSHIP

SUBDIVISION	OWNER	LESSEE	METER(S)	ACRE(S)
NE/4, SEC. 33	UNITED STATES	LINN & RICHARD BLANCETT		3.057



DETAIL

SCALE: 1"= 300'

REF. DWG.: 1218.0-4, R/W #801039

REVISIONS

NO.	DATE	TO	W.O.
1		REVISED DRAWING NUMBER, FORMERLY 731.12-X-27 (3/8/99/MD)	
8	3/9/99	S.J. DISTRIBUTIONS	
1		EP - CAD	
PRINT RECORD			

ENG. REC.		DATE
DRAWN	MD	12/4/98
CHECKED		
CHECKED		
PROJ. APP.		
SURVEYED		11/13/98
CAD NO.	87912X1	
R/W NO.	9970028	
W.O.	12360	

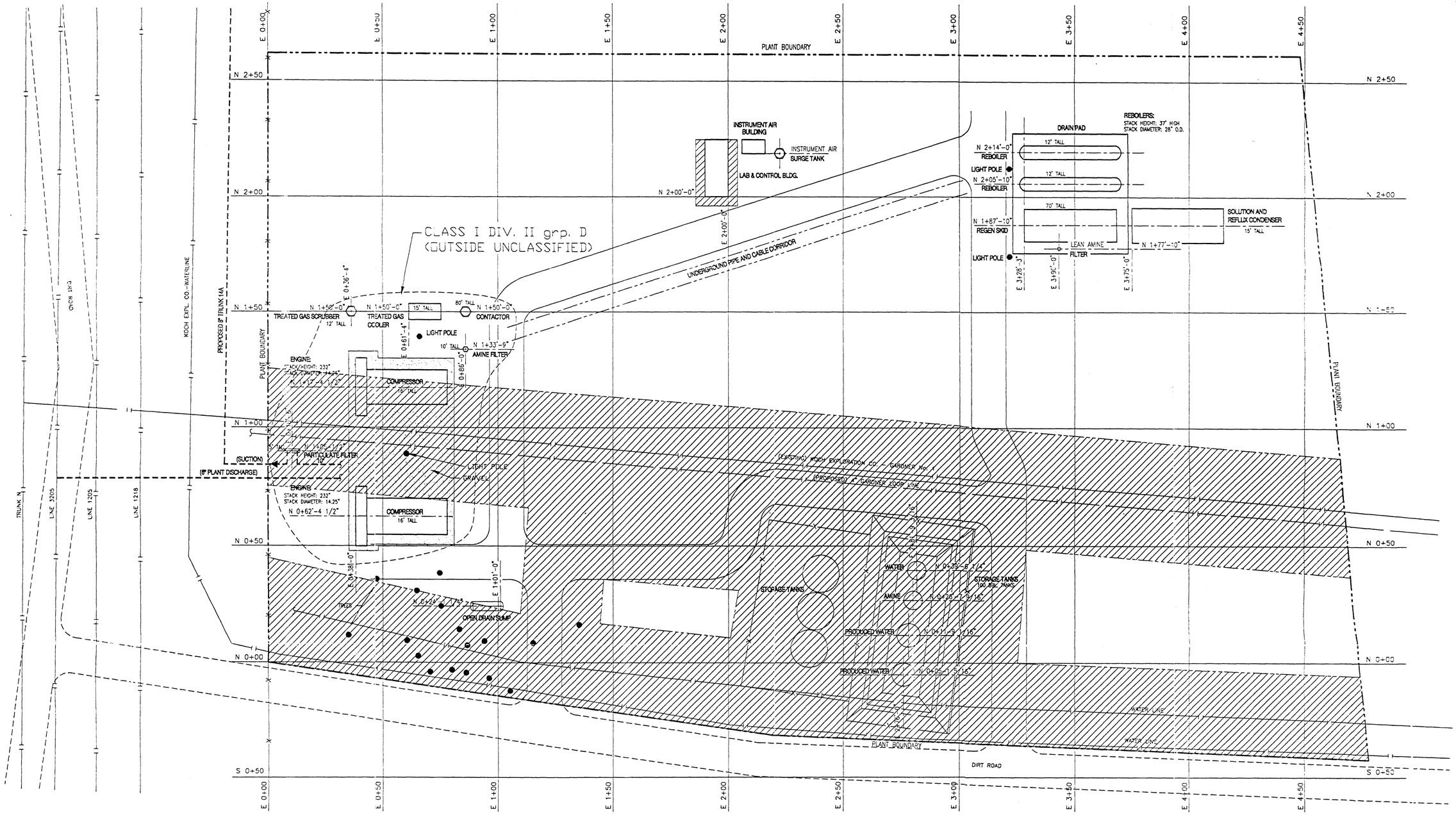
EL PASO FIELD SERVICES

RATTLESNAKE TREATING PLANT

NE/4, SECTION 33, T-32-N, R-09-W, N.M.P.M.
SAN JUAN COUNTY, NEW MEXICO

SCALE SHOWN	DWG. NO. 879.12-X-1	REV. 1

FM92 (Rev. 3/93)



▨ PRE-DISTURBED AREA

REFERENCE DRAWINGS		REVISIONS						PRINT RECORD				
DWG. NO.	TITLE	NO.	DATE	BY	DESCRIPTION	W.O.	APP.	PRT.	SEP.	DATE	TO	W.O.
								1			BRAD WIDENER/HOUSTON	12360
		4	7/01/99	MD	ADDED PRE-DISTURBED AREA	12360		1			PAM KIRSCHNER/EPFS	
		3	3/11/99	MD	MISC. REVISIONS			1		3/5/99	L. KENT LEIDY/EPFS	
731.1-29	RATTLESNAKE TREATING PLANT , TOPO MAP	2	3/4/99	MD	ADDED ADDITIONAL EQUIPMENT INFORMATION	12360		1			SJ R/W/EPNG	
731.12-X-27	RATTLESNAKE TREATING PLANT SURVEY PLAT	1	1/29/99	MD	REVISED EQUIPMENT LAYOUT, REDUCED SITE	12360		1			RICHARD COLEMAN/TRIGON	

FMS (Rev. 12/84)

LEGEND

ENG. RECORD		DATE
DRAFTING DESIGN	LKL	1/29/99
CAD DRAFTING	MD	1/29/99
CHECKED		
PROJECT APPROVAL		
SURVEY DATE	11/13/98	
R/W NUMBER	9970028	
COMPUTER SAVE NAME	RS1P1	

EL PASO FIELD SERVICES

RATTLESNAKE PLANT
EQUIPMENT LAYOUT PLAN
NE/4,SECTION 33, T-32-N, R-09-W, N.M.P.M.
SAN JUAN COUNTY, NEW MEXICO

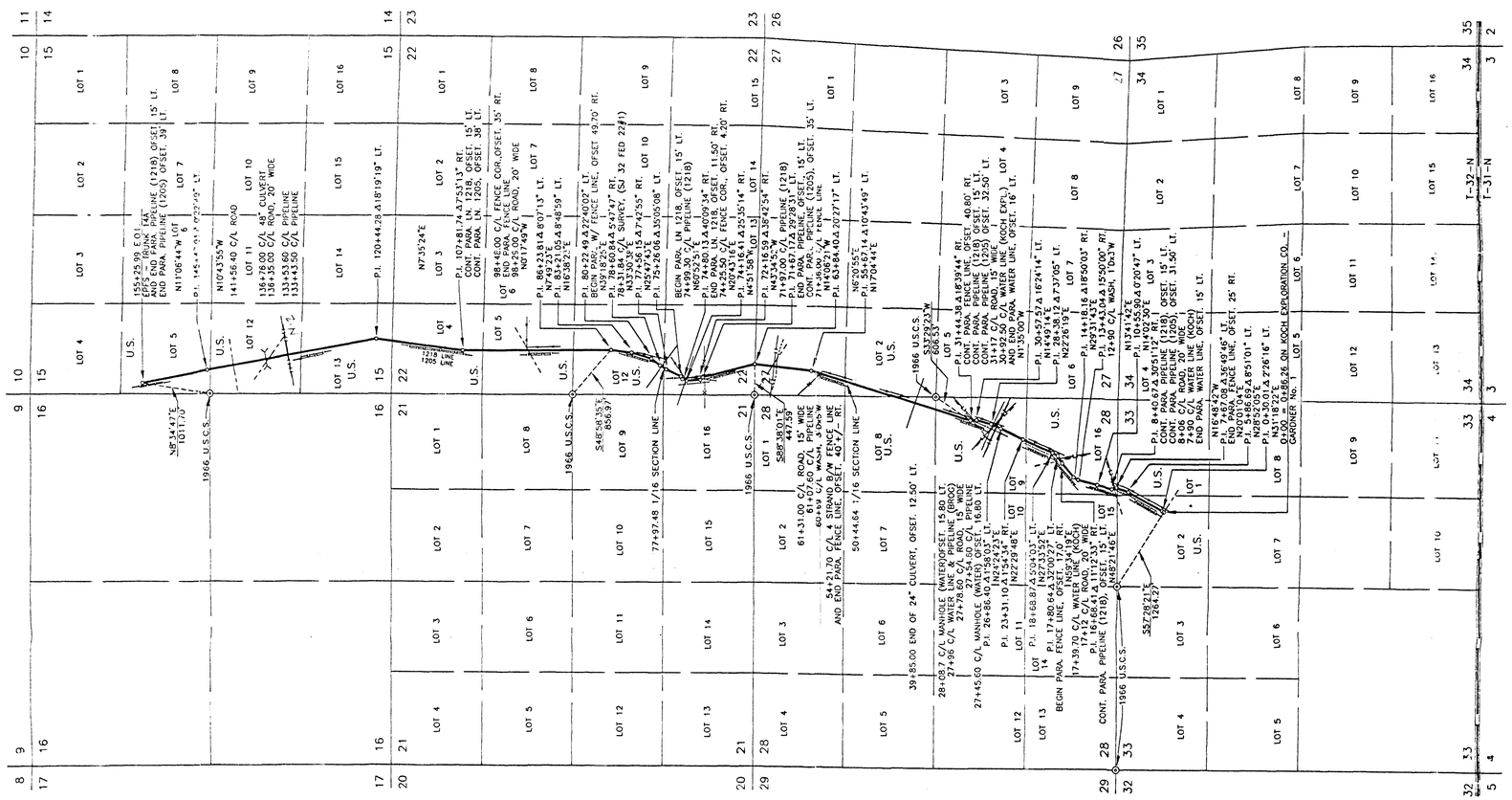
SCALE: 1"=20'
W.O.: 12360
DWG. NO. RS-1-P1

UNITED STATES
LESSEE: LINN & RICHARD BLANCETT
468.395 RODS
7.097 ACRES

RICHARD M. BLANCETT
166.839 RODS

UNITED STATES
LESSEE: LINN & RICHARD BLANCETT
305.736 RODS
4.632 ACRES

155+25.99 | 77+97.48 | 50+44.64 | 0+00



Z
R-9-W, N.M.P.M.
BASIS OF BEARING: SOLAR BEARINGS FROM G.P.S. OBSERVATIONS

NOTE:
FROM E.S. 0+00 = 0+86.26 TO E.S. 7+90.00, THIS PIPELINE WILL BE LAID 15 FEET(+/-), SOUTH OF KOCH EXPL. CO. WATER LINE. FROM E.S. 7+90.00 TO E.S. 17+39.70, THIS PIPELINE WILL BE LAID 15 FEET SOUTH OF EPNG 1218 LINE. FROM E.S. 17+39.70 TO E.S. 30+92.50, THIS PIPELINE WIL BE LAID 15 FEET (+/-), SOUTH OF KOCH EXPL. CO. WATER LINE. FROM E.S. 30+92.50 TO E.S. 71+67.17, THIS PIPELINE WILL BE LAID 15' FEET SOUTH OF EPNG 1218 LINE. FROM E.S. 71+97.00 TO E.S. 74+99.30, THIS PIPELINE WILL BE LAID 10 FEET(+/-) NORTH OF EPNG 1218 LINE. FROM E.S. 74+99.30 TO E.O.L., THIS PIPELINE WILL BE LAID 15 FEET(+/-) SOUTH OF EPNG 1218 LINE.

PRELIMINARY

8.625" O.D. PIPE

LEGEND

DWG. NO.	TITLE
REFERENCE DRAWINGS	

NO.	DATE	BY	DESCRIPTION	W.O.	APP.
REVISIONS					

PRT.	SEP.	DATE	TO	W.O.
8		3/8/99	SJ DIST.	
1			EP R/W	
PRINT RECORD				

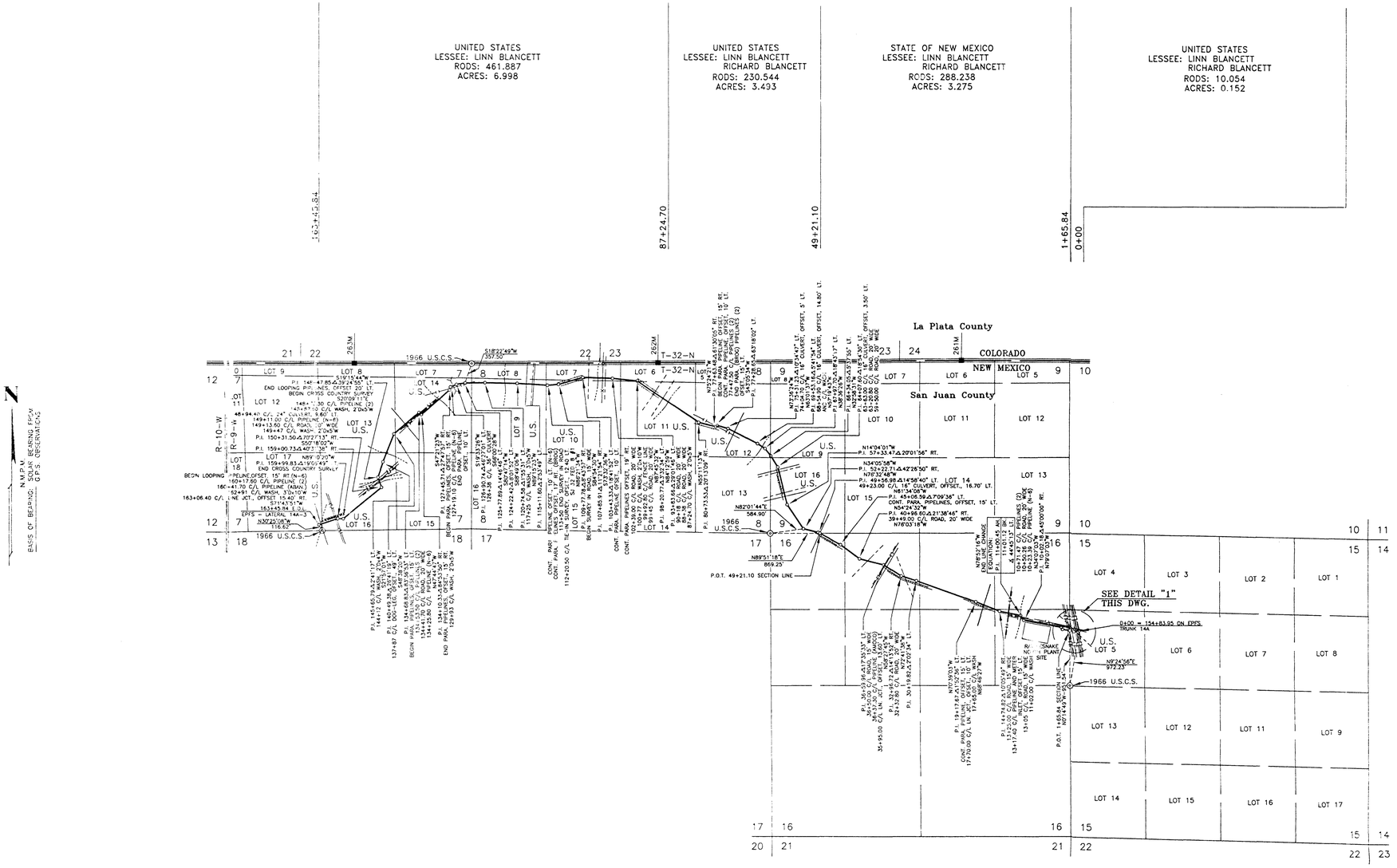
ENG. RECORD		DATE
DRAFTING DESIGN	MD	3/2/99
CAD DRAFTING	MD	3/3/99
CHECKED		
PROJECT APPROVAL		
SURVEY DATE		2/17/99
R/W NUMBER		9970059
COMPUTER SAVE NAME		A87901

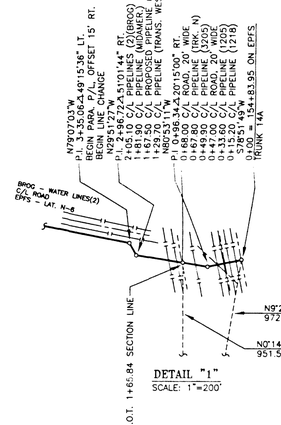
EL PASO FIELD SERVICES

RATTLESNAKE GATHERING SYSTEM

TRUNK 14A
TOWNSHIP 32-N, RANGE 9-W, N.M.P.M.
SAN JUAN COUNTY, NEW MEXICO

SCALE: 1"=1000'	DWG. NO. A879.0-1	REV.
W.O.: 11677		





NOTE:
FROM E.S. 3+35.06 TO E.S. 10+02.18, THIS LINE TO BE LAID 15 FEET (+/-) SOUTH OF EPFS – LATERAL N-6 PIPELINE. FROM E.S. 11+00.45 AH. TO E.S. 77+28.65, THIS LINE TO BE LAID 15 FEET (+/-) NORTH OF BURLINGTON RES. O&G CO. WATER LINE. FROM E.S. 77+63.48 TO E.S. 126+90.74, THIS LINE TO BE LAID 10 FEET (+/1) NORTH OF EPFS LATERAL N-6. FROM E.S. 127+45.71 TO E.S. 134+10.33, THIS LINE TO BE LAID 15 FEET (+/-) SOUTH OF EPFS LATERAL N-6. FROM E.S. 134+68.83 TO E.S. 148+47.85, THIS LINE TO BE LAID 25 FEET (+/-) NORTH OF BURLINGTON RES. O&G CO. – WATER LINE. FROM E.S. 159+99.83 TO E.O.L. THIS LINE TO BE LAID 15 FEET (+/-) SOUTH OF EPFS LATERAL N-6.

NOTE:
FROM E.S. 0+00 TO E.S. 8+94.33, PIPE SIZE IS 8.625" O.D.
FROM 8+94.33 TO E.O.L., PIPE SIZE IS 6.625" O.D.

N.M.P.M.
BASIS OF BEARING: SOLAR BEARING FROM G.P.S. OBSERVATIONS

LEGEND

TMS (Rev 12/94)

REFERENCE DRAWINGS

DWG. NO.	TITLE
A879.12-X-2	RATTLESNAKE NORTH PLANT SITE
A879.1-X-1	CENTERLINE FOR LATERAL 14A-3

REVISIONS

NO.	DATE	BY	DESCRIPTION	W.O.	APP.
1	8/31/99	MD	LINE CHANGED PER SURVEY DATED 9/3/99		

PRINT RECORD

PRT. SEP.	DATE	TO	W.O.
8	9/10/99	SJ DISTRIBUTIONS	
2		EP DRAFT/ROW	
8	5/14/99	SJ DISTRIBUTIONS	
1		EP DRAFTING	
A	5/12/99	PRELIM *SJ DISTRIBUTIONS	
1		EP R/W	

ENG. RECORD		DATE
DRAFTING DESIGN	MD	3/11/99
CAD DRAFTING	MD	3/11/99
CHECKED		
PROJECT APPROVAL		
SURVEY DATE		2/19/99
R/W NUMBER		9970060
COMPUTER SAVE NAME		3A87901

EL PASO FIELD SERVICES

RATTLESNAKE GATHERING SYSTEM

LATERAL 14A-3
TOWNSHIP 32-N, RANGE 9-W, N.M.P.M.
SAN JUAN COUNTY, NEW MEXICO

SCALE: 1"=1000'	DWG. NO. 3A879.0-1	REV. 1
W.O.: 12584		

EXHIBIT 1B

ALTERNATIVE PROJECT SURVEY MAPS

San Juan County, New Mexico:

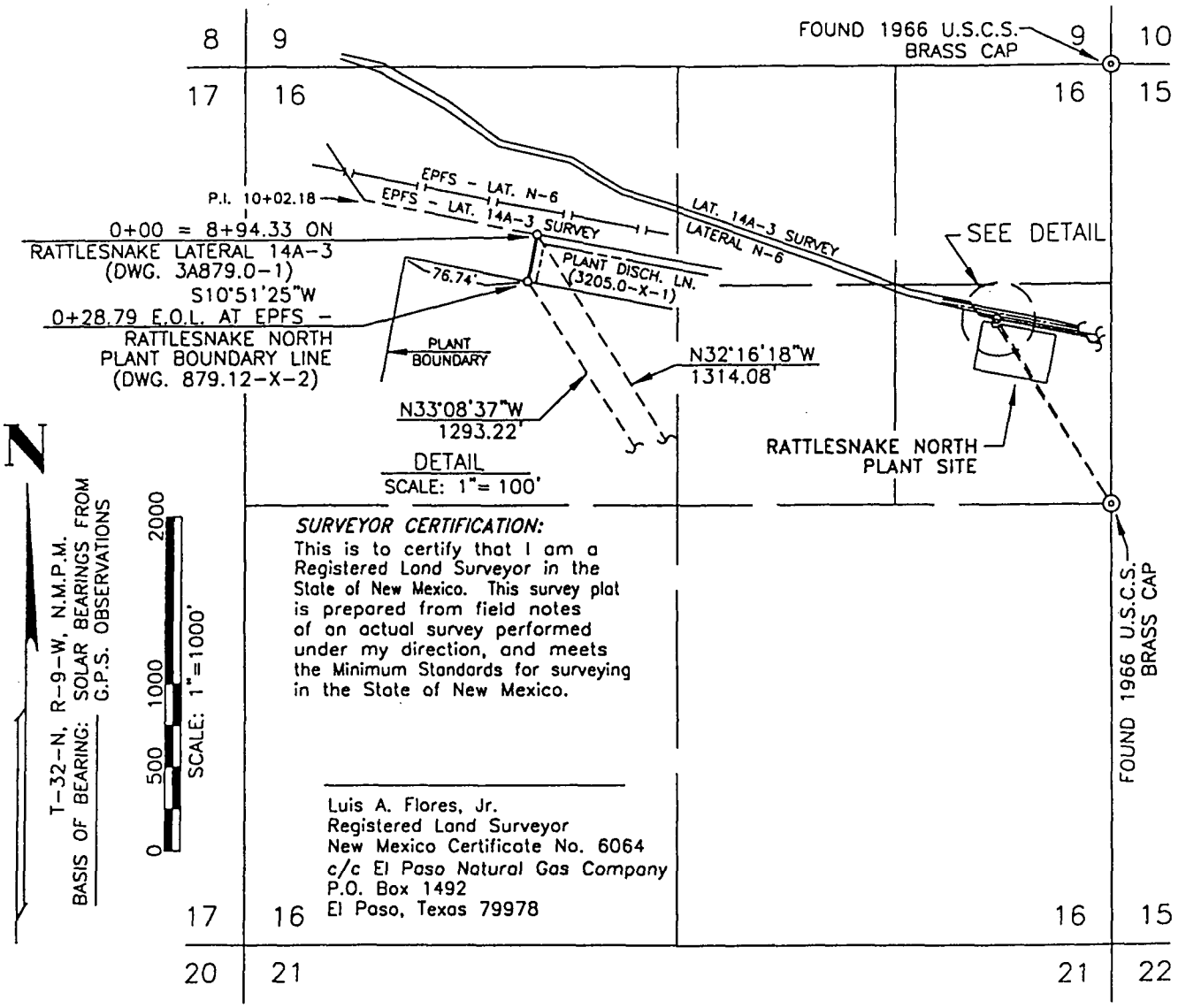
EL PASO FIELD SERVICES

RATTLESNAKE GATHERING SYSTEM

DWG. NO. 3A879.0-3-1
WO NO. 12584
RW NO. 9970028
DATE 8/25/99
SCALE 1" = 1000'
SURVEYED 8/25/99

LINE EPFS – RATTLESNAKE NORTH PLANT 8" SUCTION LINE
FROM 0+00 = 8+94.33 ON RATTLESNAKE LATERAL 14A-3
(3A879.0-1, R/W NO. 9970060)

COUNTY SAN JUAN STATE NEW MEXICO SECTION 16 TOWNSHIP 32-N RANGE 9-W, N.M.P.M.



SURVEYOR CERTIFICATION:
This is to certify that I am a Registered Land Surveyor in the State of New Mexico. This survey plat is prepared from field notes of an actual survey performed under my direction, and meets the Minimum Standards for surveying in the State of New Mexico.

Luis A. Flores, Jr.
Registered Land Surveyor
New Mexico Certificate No. 6064
c/c El Paso Natural Gas Company
P.O. Box 1492
El Paso, Texas 79978

DWN. BY MD CONSTR. COMMENCED APPL. DWG. SLACK CHAIN
CKD. BY CONSTR. COMPLETED DATE PIPE SIZE 8.625" O.D.

PRINT RECORD			PIPE DATA	METER STA. NO.
8	SJ DIST.	9/02/99	NOTE: SUCTION LINE	
2	EP DIST.			

FM24 (Rev. 1/99)

OWNERSHIP

SUBDIVISION	OWNER	LESSEE	METER(S)	RODS	ACRE(S)
SE/4NE/4, SEC. 16	STATE OF NEW MEXICO	LINN & RICHARD BLANCETT		1.745	0.020

REV.

3A879031

EL PASO FIELD SERVICES

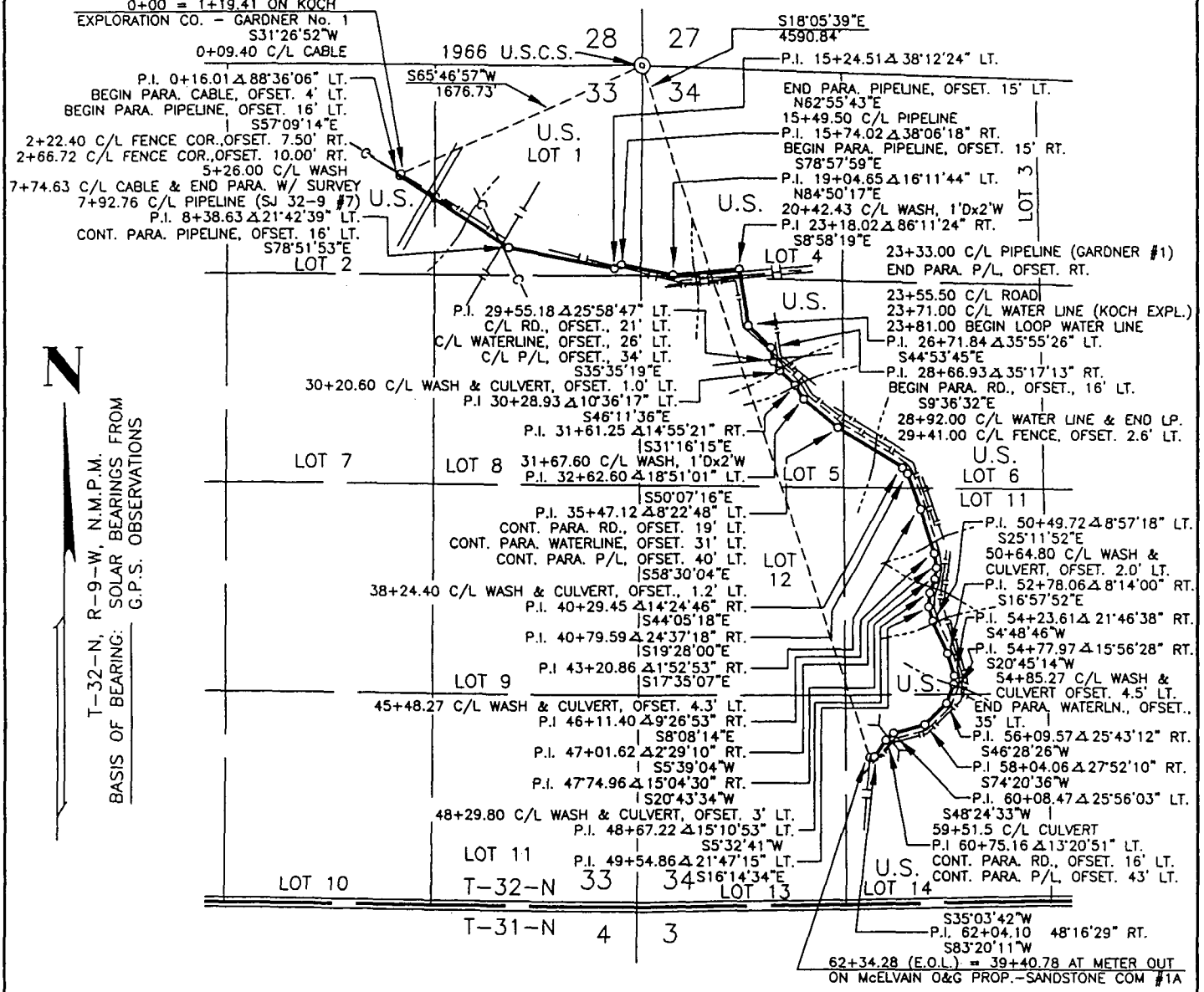
RATTLESNAKE GATHERING SYSTEM

DWG. NO. 879.0-1-1
WO NO. 12585
RW NO. 9970061
DATE 2/25/99
SCALE 1" = 1000'
SURVEYED 2/19/99

LINE EL PASO FIELD SERVICES - GARDNER NO. 1 LOOP LINE

FROM 0+00 = 1+19.41 ON KOCH EXPLORATION CO. - GARDNER No. 1
(BTN-11-1, R/W NO. 540636)(MC #70787)

COUNTY SAN JUAN STATE NEW MEXICO SECTION 33 TOWNSHIP 32-N RANGE 9-W, N.M.P.M.



DWN. BY MD CONSTR. COMMENCED APPL. DWG. SLACK CHAIN

CKD. BY CONSTR. COMPLETED DATE PIPE SIZE 4.50" O.D.

PRINT RECORD

8	SJ DIST.	
1	EP/CAD	3/9/99

PIPE DATA , METER STA. NO. 6.625" O.D.

NOTE: 4" LOOP LINE
FORMERLY DWG. No. BTN-79-1 (NOW VOID)

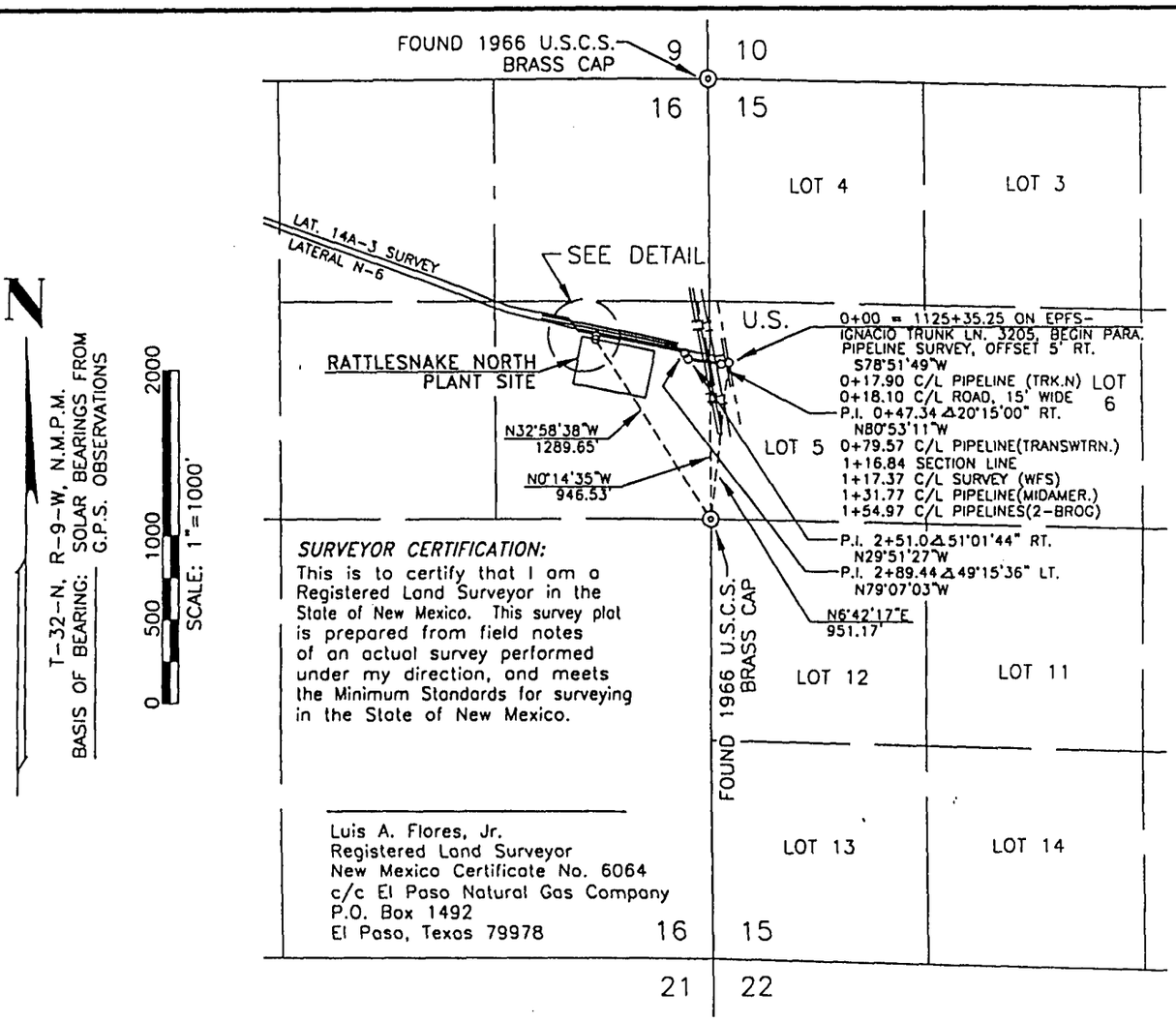
FM24 (Rev. 1/99)

OWNERSHIP

SUBDIVISION	OWNER	LESSEE	METER(S)	RODS	ACRE(S)
NE/4, SEC. 33	UNITED STATES	LINN & RICHARD BLANCETT		102.901	1.559
ALL SECTION 34	UNITED STATES	LINN & RICHARD BLANCETT		274.934	4.166

REV.

879011

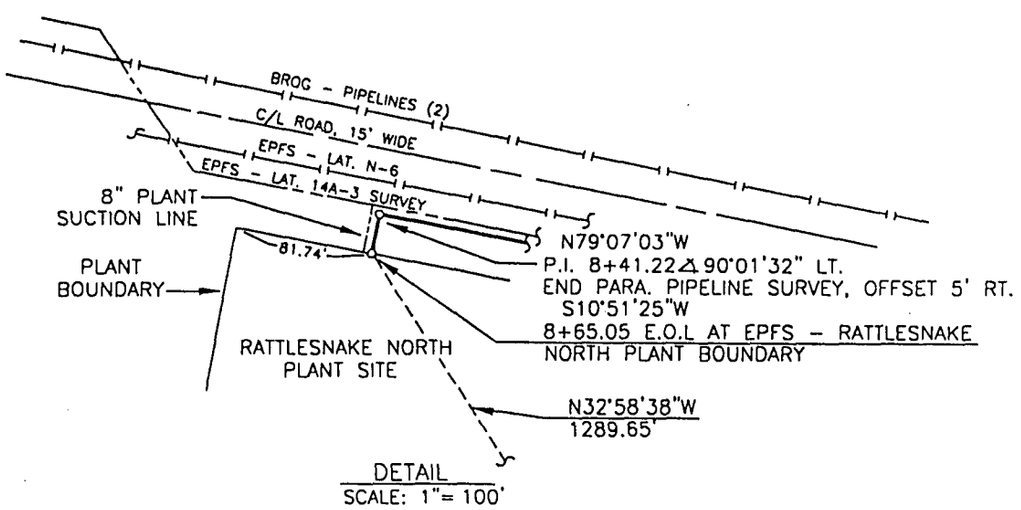


PLAN

SCALE: 1"=1000'

OWNERSHIP

SUBDIVISION	OWNER	LESSEE	RODS	ACRE(S)
SW/4NW/4, SEC. 15	UNITED STATES	LINN & RICHARD BLANCETT	7.081	0.107
SE/4NE/4, SEC. 16	STATE OF NEW MEXICO	LINN & RICHARD BLANCETT	45.346	0.515



DETAIL

SCALE: 1"= 100'

REF. DWG.: 3A879.0-1, 3A879.0-3-1, 879.12-X-2

REVISIONS

NO.	DATE	TO	W.O.
1	9/8/99	A. FLORES	
2	9/9/99	EP DISTRIBUTIONS	
7		SJ DISTRIBUTIONS	

PRINT RECORD

ENG. REC.		DATE
DRAWN	MD	9/3/99
CHECKED		
CHECKED		
PROJ. APP.		
SURVEYED		9/3/99
CAD NO.	32050X1	
R/W NO.	9970028	
W.O.	12583	

EL PASO FIELD SERVICES

IGNACIO GATHERING SYSTEM

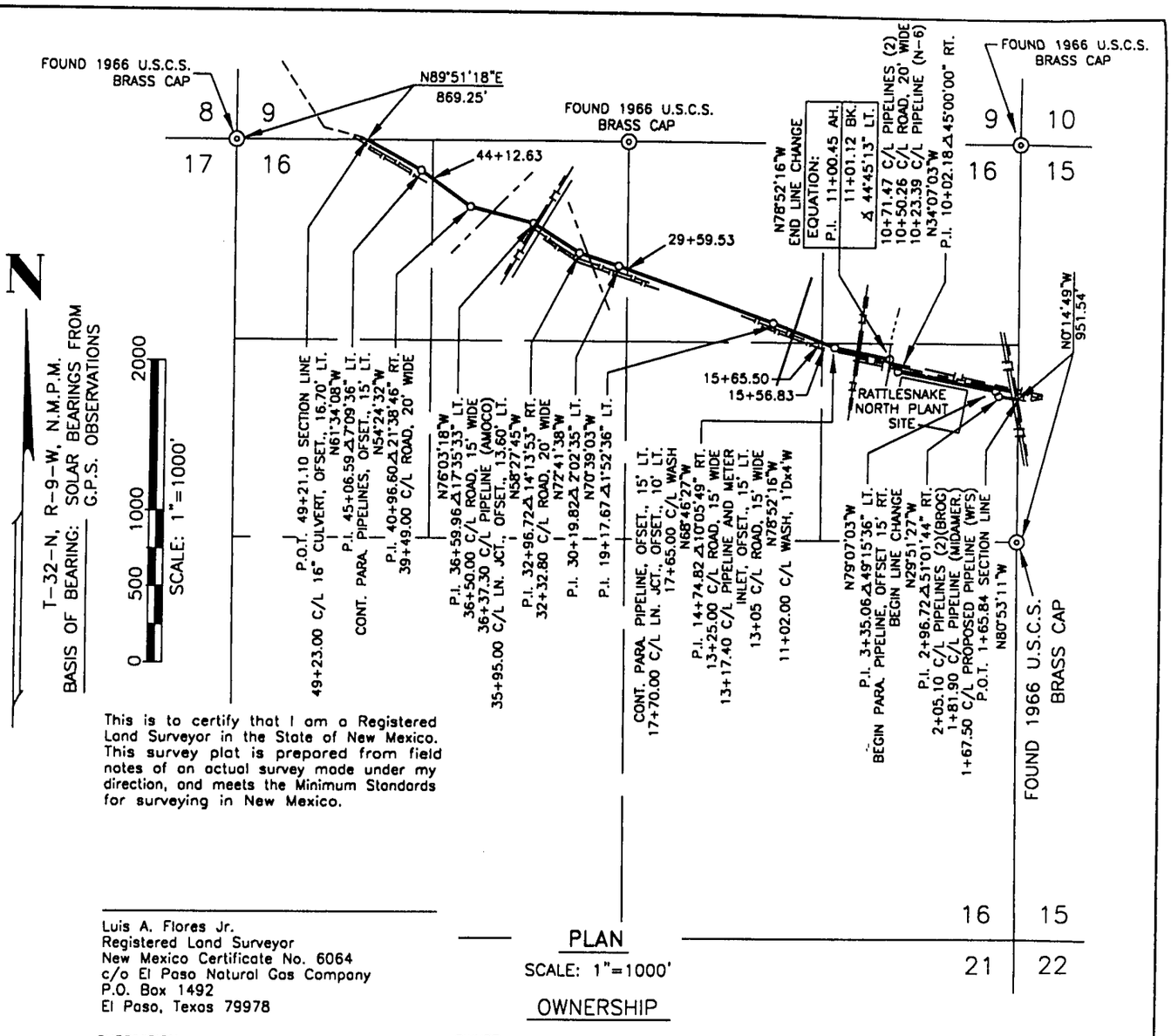
EPFS - RATTLESNAKE NORTH PLANT 6" DISCHARGE LINE

SECTION 15,16, TWS-32-N, RANGE 9-W, N.M.P.M.

SAN JUAN COUNTY, NEW MEXICO

SCALE SHOWN | DWG. NO. 3205.0-X-1 | REV.

M92 (Rev. 3/93)



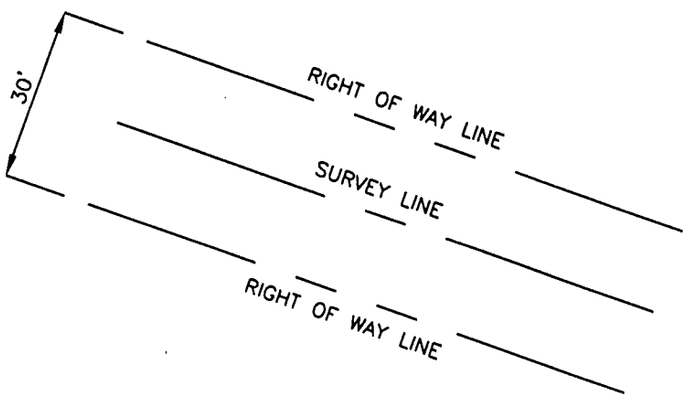
This is to certify that I am a Registered Land Surveyor in the State of New Mexico. This survey plat is prepared from field notes of an actual survey made under my direction, and meets the Minimum Standards for surveying in New Mexico.

Luis A. Flores Jr.
Registered Land Surveyor
New Mexico Certificate No. 6064
c/o El Paso Natural Gas Company
P.O. Box 1492
El Paso, Texas 79978

PLAN
SCALE: 1"=1000'

OWNERSHIP

SUBDIVISION	OWNER	LESSEE	RODS
N 1/2 SEC. 16	STATE OF NEW MEXICO	LINN BANCETT & RICHARD BLANCETT	288.238 3.275 AC.(S)



NOTE : REDRAWN, PREVIOULSY DRAWING NO. 3A879.0-2-1, NOW VOID. (9/1/99/LM)

REF. DWG.: 3A879.0-1

DETAIL
SCALE: 1"=30'

REVISIONS

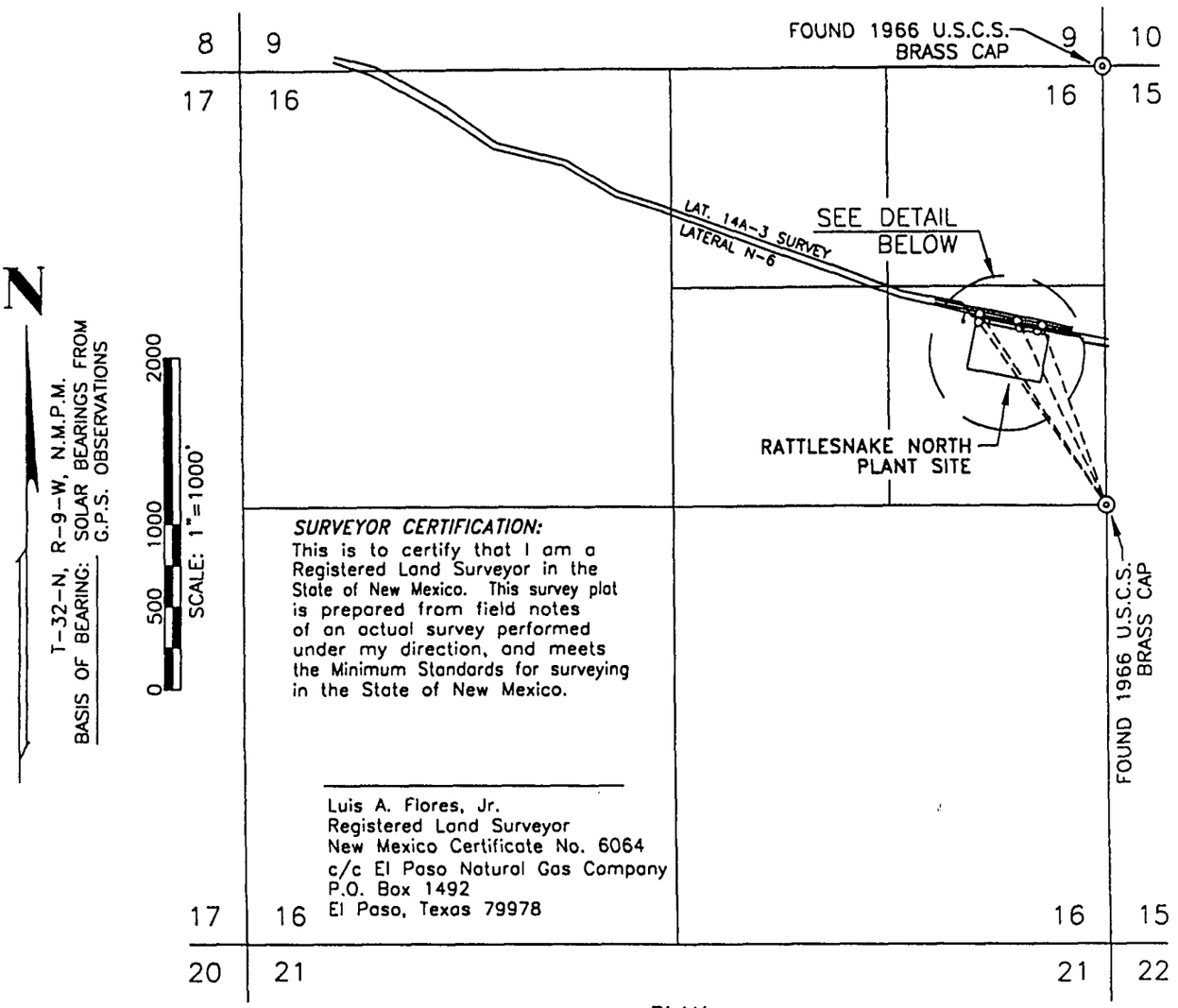
NO.	DATE	TO	W.O.
1	LINE CHANGED PER SURVEY DATED 9/3/99 (9/9/99/MD)		
1	9/9/99	A. FLORES	
1	9/1/99	R/W	
PRINT RECORD			

ENG. RECORD		DATE
DRAWN	LM	5/19/99
CHECKED		
CHECKED		
PROJ. APP.		
SURVEYED		2/19/99
CAD NO.	8791X1	
R/W NO.	9970060	
W.O.	12584	

EL PASO NATURAL GAS

RATTLESNAKE GATHERING SYSTEM
CENTERLINE FOR LATERAL 14A-3 ACROSS
N 1/2, SEC. 16, T-32-N, R-9-W, N.M.P.M.
SAN JUAN COUNTY, NEW MEXICO

SCALE	AS SHOWN	DWG. NO.	879.1-X-1	REV.	1

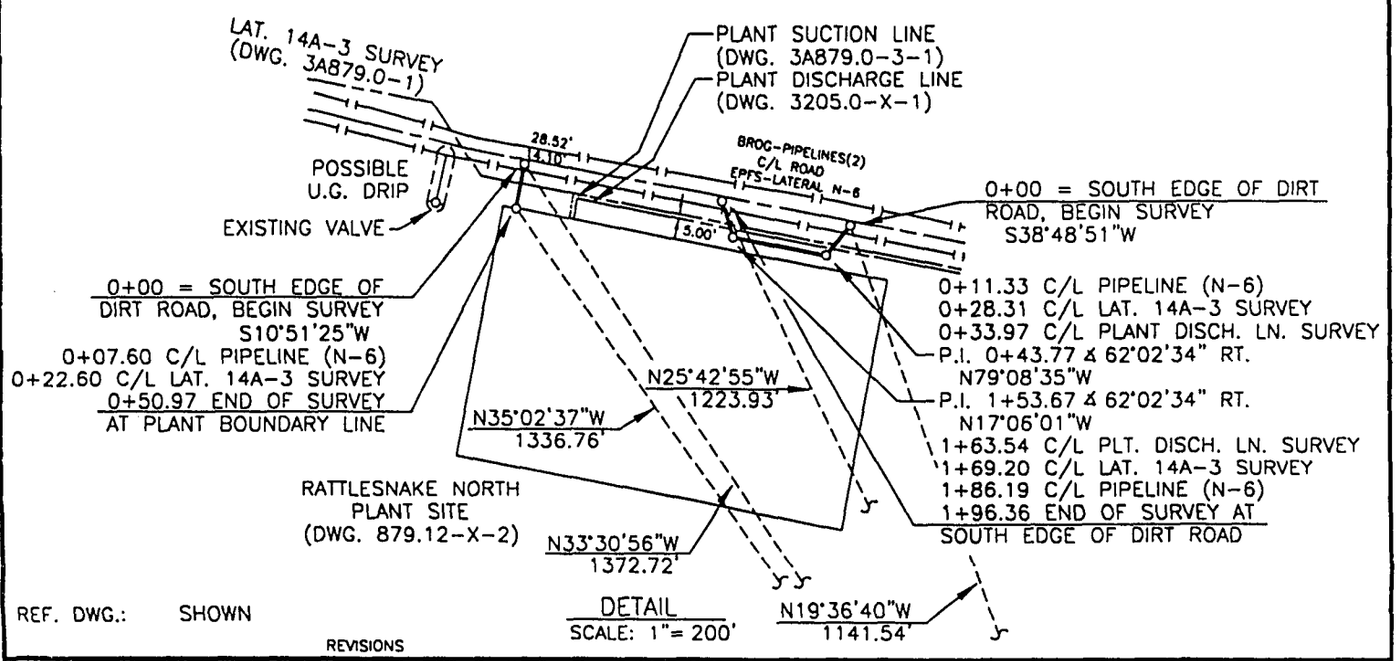


PLAN

SCALE: 1"=1000'

OWNERSHIP

SUBDIVISION	OWNER	LESSEE	RODS	ACRE(S)
SE1/4 NE1/4, SECTION 16	STATE OF NEW MEXICO	BLANCETT TRUST		0.170



DETAIL

SCALE: 1"= 200'

REF. DWG.: SHOWN

REVISIONS

NO.	DATE	TO	W.O.
7		SJ DISTRIBUTIONS	
2	9/3/99	EP DISTRIBUTIONS	
PRINT RECORD			

ENG. REC.		DATE
DRAWN	MD	9/3/99
CHECKED		
CHECKED		
PROJ. APP.		
SURVEYED		9/3/99
CAD NO.	8796X1	
R/W NO.	9970028	
W.O.	12360	

EL PASO FIELD SERVICES

RATTLESNAKE NORTH PLANT

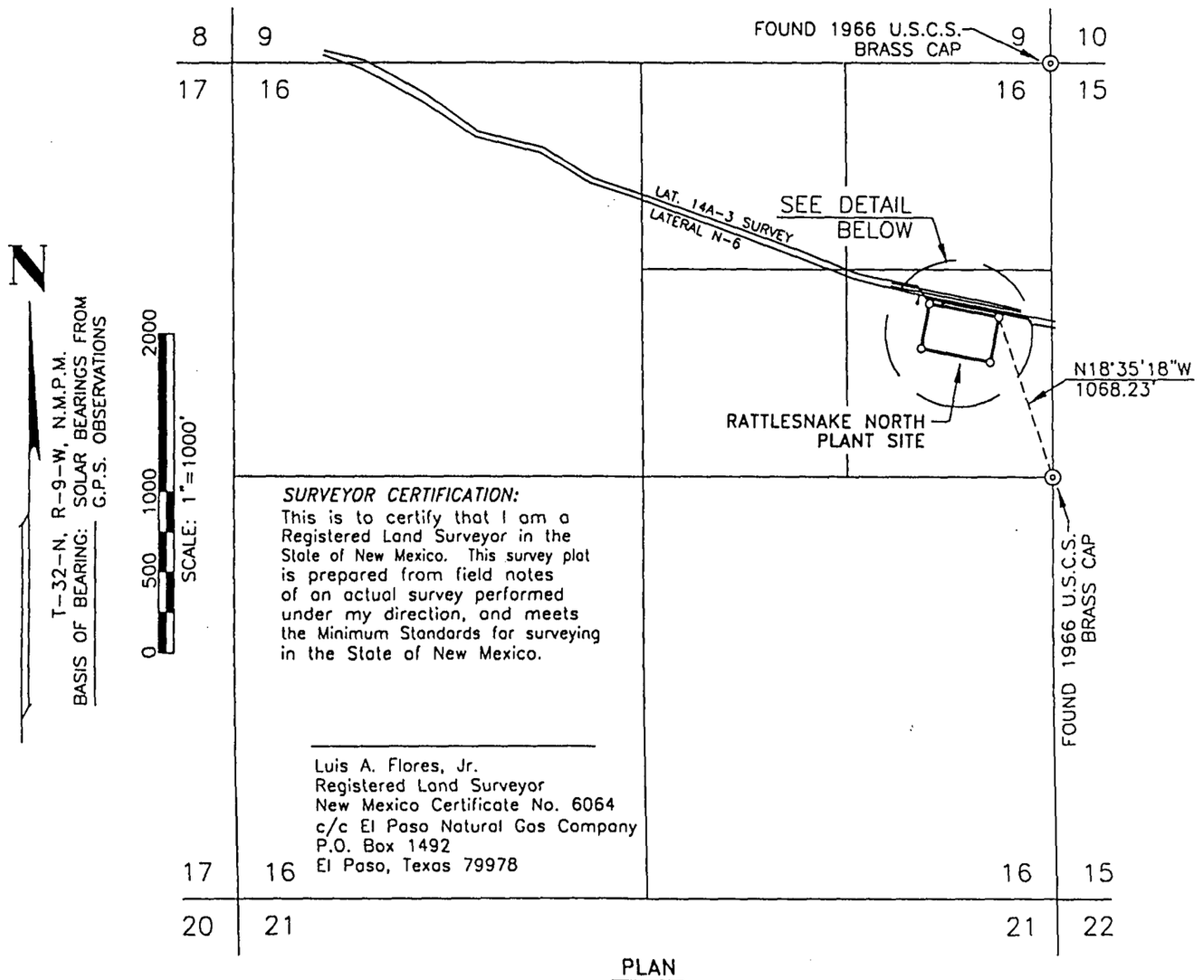
ACCESS ROADS

SE1/4 NE1/4, SEC. 16, T-32-N, R-9-W, N.M.P.M.

SAN JUAN COUNTY, NEW MEXICO

SCALE SHOWN | DWG. NO. 879.6-X-1 | REV.

FM92 (Rev. 3/93)



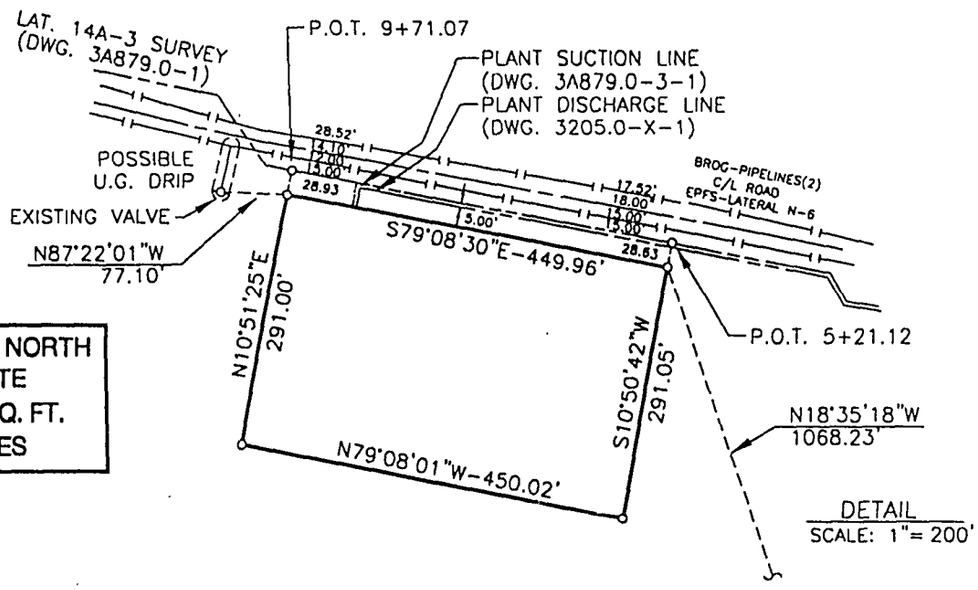
SURVEYOR CERTIFICATION:
This is to certify that I am a Registered Land Surveyor in the State of New Mexico. This survey plat is prepared from field notes of an actual survey performed under my direction, and meets the Minimum Standards for surveying in the State of New Mexico.

Luis A. Flores, Jr.
Registered Land Surveyor
New Mexico Certificate No. 6064
c/c El Paso Natural Gas Company
P.O. Box 1492
El Paso, Texas 79978

PLAN
SCALE: 1"=1000'

OWNERSHIP

SUBDIVISION	OWNER	LESSEE	RODS	ACRE(S)
SE1/4 NE1/4, SECTION 16	STATE OF NEW MEXICO	BLANCETT TRUST		3.01



DETAIL
SCALE: 1"= 200'

RATTLESNAKE NORTH PLANT SITE
130,956.22 SQ. FT.
3.01 ACRES

SET 5/8" REBAR WITH TAG 'NMRLS 6064' AT ALL CORNERS OF TRACT

REF. DWG.: 3A879.0-1

REVISIONS

2	REVISED SURVEY DATA 7/21/99/SRS						
3	ADDED SUC., DISCH. LINES, & REVISED LAT. 14A3 SUR.(9/2/99/MD)						
1		SJ R/W		ENG. REC.		DATE	
2	7/19/99	EP DIST.		DRAWN	MD	7/16/99	
1		SJ EH & S		CHECKED			
7	7/20/99	SJ DIST.		CHECKED			
3		EP DIST.		PROJ. APP.			
				SURVEYED		7/16/99	
				CAD NO.	87912X2		
NO.	DATE	TO	W.O.	R/W NO.	9970028		
PRINT RECORD				W.O.	12360		

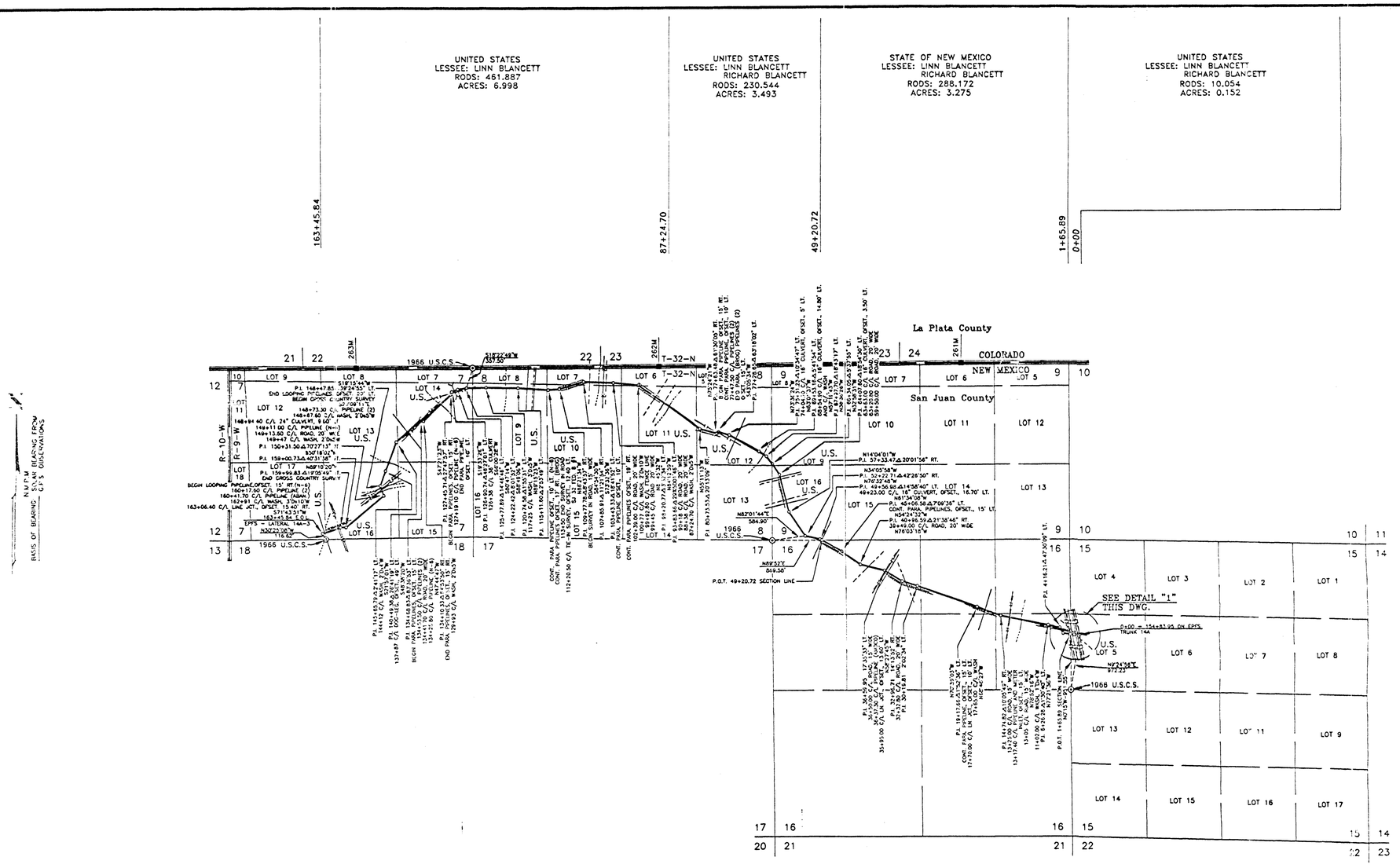
EL PASO FIELD SERVICES

RATTLESNAKE NORTH PLANT SITE

SE1/4 NE1/4, SEC. 16, T-32-N, R-9-W, N.M.P.M.
SAN JUAN COUNTY, NEW MEXICO

SCALE SHOWN | DWG. NO. 879.12-X-2 | REV. 3

rm92 (Rev. 3/93)



NOTE:
FROM E.S. 4+16.21 TO E.S. 77+47.50, THIS LINE TO BE LAID 15 FEET (+/-) NORTH OF BURLINGTON RES. O&G CO. WATER LINE. FROM E.S. 77+47.50 TO E.S. 127+19.10, THIS LINE TO BE LAID 10 FEET (+/1) NORTH OF EPFS LATERAL N-6. FROM E.S. 127+19.10 TO E.S. 134+25.80, THIS LINE TO BE LAID 15 FEET (+/-) SOUTH OF EPFS LATERAL N-6. FROM E.S. 134+53.50 TO E.S. 148+73.30, THIS LINE TO BE LAID 25 FEET (+/-) NORTH OF BURLINGTON RES. O&G CO. – WATER LINE. FROM E.S. 159+99.83 TO E.O.L. THIS LINE TO BE LAID 15 FEET (+/-) SOUTH OF EPFS LATERAL N-6.

PRELIMINARY

DWG. NO.	TITLE
LEGEND	
REFERENCE DRAWINGS	

NO.	DATE	BY	DESCRIPTION	W.O.	APP.
8			PRCUM / SJ DISTRIBUTIONS		
7			1/2/99 EP R/W		

REVISIONS

PRT. SEP. DATE	TO	W.O.

PRINT RECORD

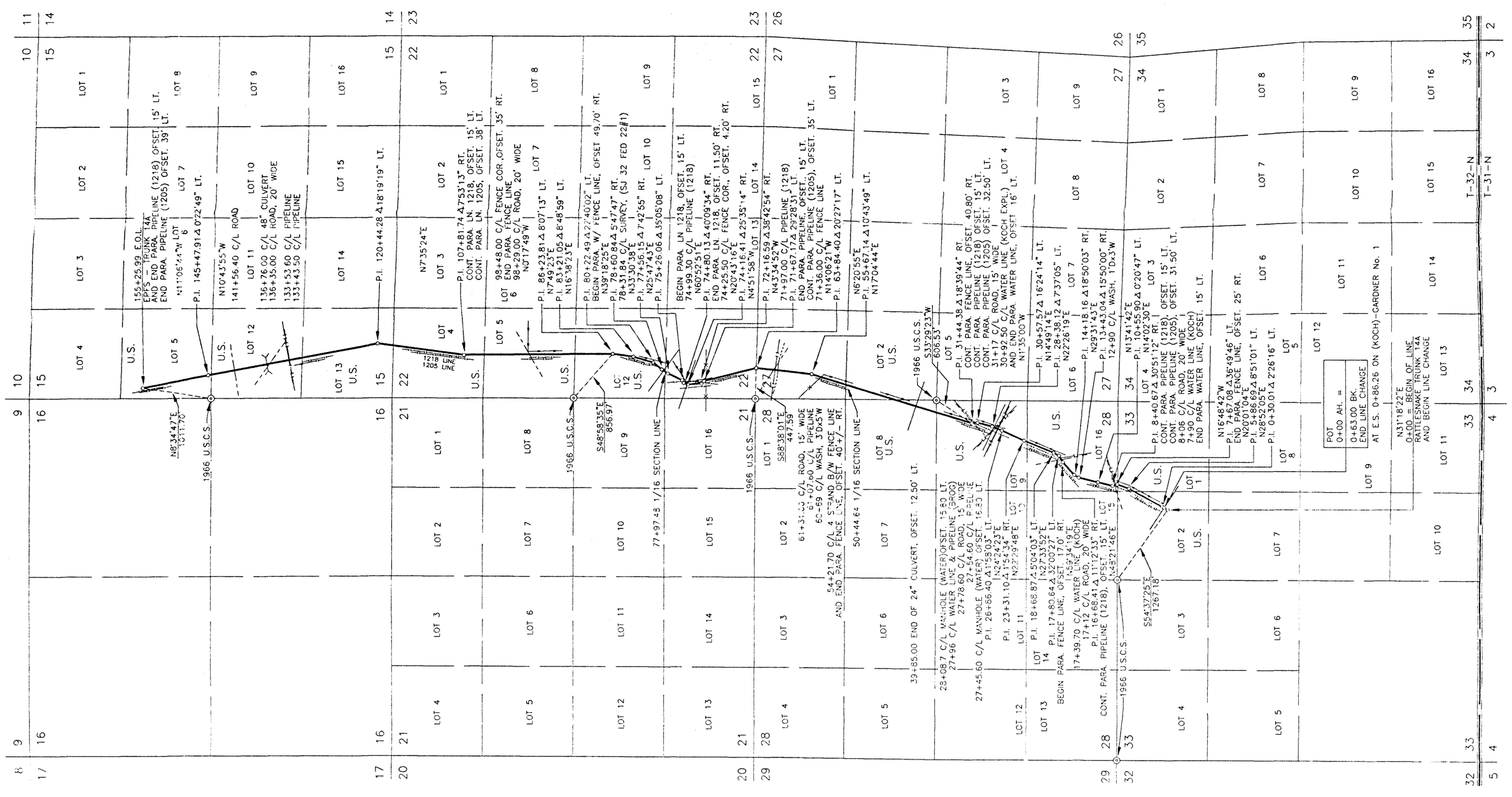
ENG. RECOR:		DATE
DRAFTING DESIGN	WD	3/11/99
CAD DRAFTING	WD	3/11/99
CHECKED		
PROJECT APPROVAL		
SURVEY DATE		2/19/99
R/W NUMBER		9970060
COMPUTER FILE NO.		3A879001

EL PASO FIELD SERVICES

RATTLESNAKE GATHERING SYSTEM
LATERAL 14A-3
TOWNSHIP 32-N, RANGE 9-W, N.M.P.M.
SAN JUAN COUNTY, NEW MEXICO

SCALE: 1"=1000' | DWG. NO. 3A879.0-1 | REV.

Pub (Rev 12/94)



FM9 (Rev 12/94)

LEGEND

REFERENCE DRAWINGS

DWG. NO.	TITLE

REVISIONS

NO.	DATE	BY	DESCRIPTION	W.O.	APP.
1	9/21/99	GV	LINE CHANGE		

PRINT RECORD

PRT.	SEP.	DATE	TO	W.O.
8		9/21/99	SJ DIST.	
1			EP DIST.	
8		5/18/99	SJ DIST.	
1			EP DIST.	
8		PRELIM 5/8/99	SJ DIST.	
1			EP R/W	

ENG. RECORD		DATE
DRAFTING DESIGN	JD	3/2/99
CAD DRAFTING	MD	3/3/99
CHECKED		
PROJECT APPROVAL		
SURVEY DATE		2/17/99
R/W NUMBER		9970059
COMPUTER		A87901

8.625" O.D. PIPE

EL PASO FIELD SERVICES

RATTLESNAKE GATHERING SYSTEM
TRUNK 14A
TOWNSHIP 32-N, RANGE 9-W, N.M.P.M.
SAN JUAN COUNTY, NEW MEXICO

SCALE: 1"=1000'
W.O. 11677
DWG NO. A879.0-1
REV. 1

R-9-W, N.M.P.M.
BASIS OF BEARING: SOLAR BEARINGS FROM G.P.S. OBSERVATIONS

NOTE:
FROM E.S. 0+00 = BEGIN OF LINE RATTLESNAKE TRUNK 14A TO E.S. 7+90.00, THIS PIPELINE WILL BE LAID 15 FEET(+/-), SOUTH OF KOCH EXPL. CO. WATER LINE. FROM E.S. 7+90.00 TO E.S. 17+39.70, THIS PIPELINE WILL BE LAID 15 FEET SOUTH OF EPNG 1218 LINE. FROM E.S. 17+39.70 TO E.S. 30+92.50, THIS PIPELINE WIL BE LAID 15 FEET (+/-), SOUTH OF KOCH EXPL. CO. WATER LINE. FROM E.S. 30+92.50 TO E.S. 71+67.17, THIS PIPELINE WILL BE LAID 15 FEET SOUTH OF EPNG 1218 LINE. FROM E.S. 71+97.00 TO E.S. 74+99.30, THIS PIPELINE WILL BE LAID 10 FEET(+/-) NORTH OF EPNG 1218 LINE. FROM E.S. 74+99.30 TO E.O.L., THIS PIPELINE WILL BE LAID 15 FEET(+/-) SOUTH OF EPNG 1218 LINE

B.R.O.G. CO. - WATER LINES (2)
EPFS - LATERAL N-6
P.O.T. 9+71.07
P.O.T. 5+21.12
PROPOSED EPFS - LATERAL 14A-3
PROPOSED 6" PLANT DISCHARGE LINE
PROPOSED 8" SUCTION LINE
E 0+76'-11 1/4"
E 0+81'-11 1/4"
POSSIBLE DRIP TANK
EXISTING VALVE
PLANT BOUNDARY
STORAGE TANKS
100 BBL TANKS
WATER
AMINE
PRODUCED WATER
PRODUCED WATER
2+90'-11 13/16"
N 2+68'-11 13/16"
N 2+47'-1 13/16
SWITCH RACK
TREATED WATER PUMP
INLET
E 0+73'-0"
INLET FILTER
N 2+64'-0"
OPEN DRAIN SUMP
N 2+45'-0"
COMPR. PANEL
C-1000
C-2000
N 2+28'-5 3/4"
N 1+85'-5 3/4"
FUEL GAS SCRUBBER
N 2+13'-0"
TREATED GAS SCRUBBER
N 2+03'-6"
COOLER TREATED GAS
N 1+93'-6"
CONTACTOR
N 1+82'-0"
PIPE PIERS
E 0+91'-0"
FILTER
E 1+03'-0"
E 1+13'-0"
SWITCH RACK
FUTURE COMPRESSOR
FUTURE COMPRESSOR
PIPE AND CABLE CORRIDOR
N 0+60'-10"
E 2+00'-0"
LAB & CONTROL BLDG.
INSTRUMENT AIR BUILDING
N 0+41'-10"
AIR TANK
METER ENCLOSURE
TRANSFORMER
STACK DIAMETER: 28" O.D.
STACK HEIGHT: 37' HIGH
REBOILERS:
REBOILER
N 0+55'-0"
REBOILER
N 0+41'-0"
12" TALL
SWITCH RACK
REGEN SKID
N 0+73'-0"
70' TALL
15' TALL
REFLUX CONDENSER
E 2+78'-3"
E 3+25'-0"
10°51'25"
TRUE NORTH
PLANT NORTH
N 3+00
N 2+50
N 2+00
N 1+50
N 1+00
N 0+50
N 0+00
E 0+00
E 0+50
E 1+00
E 1+50
E 2+00
E 2+50
E 3+00
E 3+50
E 4+00
E 4+50
6885
6890
6895
6900
6905

NO.	DATE	BY	DESCRIPTION	W.O.	APP.
1	9/1/99	MD	ADDED SUCTION/DISCHARGE LINE, RELOC. LAT. 14A-3	12360	

REVISIONS

PRT.	SEP.	DATE	TO	W.O.

PRINT RECORD

DWG. NO.	TITLE

REFERENCE DRAWINGS

LEGEND

ENG. RECORD		DATE
DRAFTING DESIGN	LKL	8/2/99
CAD DRAFTING	MD	8/3/99
CHECKED		
PROJECT APPROVAL		
SURVEY DATE	7/16/99	
R/W NUMBER	9970028	
COMPUTER SAVE NAME	RSN1P1	

EL PASO FIELD SERVICES

RATTLESNAKE NORTH PLANT

EQUIPMENT LAYOUT PLAN

NE/4, SEC. 16, T-32-N, R-9-W, N.M.P.M.

SAN JUAN COUNTY, NEW MEXICO

SCALE: 1"=20' W.O.: 12360 DWG. NO. RSN-1-P1 REV. 1

FMR (Rev. 12/94)

EXHIBIT 2A

PIPELINE and TREATMENT PLANT SUMMARY INFORMATION

LEGAL DESCRIPTIONS, LENGTH/SIZE, AND OWNERSHIP/LAND MANAGER

PROPOSED SITE AND PIPELINES

Name/Size	Legal	Length/Width	BLM Status 40' wide ROW	Fee Status 40' wide ROW	State Status 30' wide ROW
Rattlesnake Discharge Pipeline (6")	T32N-R9W Sec. 33	0.02 mi/40' 120.30'	120.30' 100%	0.0' 0%	0.0' 0%
Gardner No. 1 Loop (4")	T32N-R9W Sec. 33 and 34	1.18 mi./40' 6,234.28'	6234.28' 100%	0.0' 0%	0.0' 0%
Lateral 14A-3 (6")	T32N-R9W Sec. 15, 16, 9,8, and 7	3.09 mi. / 40'/30' 16,345.84'	11,591.00' 71%	0.0' 0%	4,754.84' 29%
Trunk 14A Pipeline (6 and 8")	T32N-R9W Sec. 33, 28, 27, 22, and 15	2.94 mi. / 40' 15,518.58'	12,773.16' 72%	2,745.42' 18%	0.0' 0%
Rattlesnake Plant	T32N-R9W Sec. 33	N/A	3.057 acres 100%	0.0' 0%	0.0' 0%
TOTALS		**7.23 mi** **38,219.0'** **3.057 ac site** **Various widths** **37.05 ac total**	30718.74' 40' width 28.21 ac 3.057 ac site 31.26 ac total	2,745.42' 40' width 2.52 ac	4,754.84' 30' width 3.27 ac

EXHIBIT 2B

PIPELINE and TREATMENT PLANT SUMMARY INFORMATION

LEGAL DESCRIPTIONS, LENGTH/SIZE, AND OWNERSHIP/LAND MANAGER

ALTERNATIVE SITE AND PIPELINES

Name/Size	Legal	Length/Width	BLM Status 40' wide ROW	Fee Status 40' wide ROW	State Status 30' wide ROW
Rattlesnake Discharge Pipeline (6")	T32N-R9W Sec. 15,16	0.17 mi / 40' / 30' 865.05'	116.84' 14%	0.0' 0%	748.21' 86%
Rattlesnake Suction Line (8")	T32N-R9W Sec. 16	0.005 mi. / 30' 28.79'	0.0' 0%	0.0' 0%	28.79' 100%
Gardner No. 1 Loop (4")	T32N-R9W Sec. 33 and 34	1.18 mi./40' 6,234.28'	6234.28' 100%	0.0' 0%	0.0' 0%
Lateral 14A-3 (6" and 8")	T32N-R9W Sec. 15, 16, 9,8, and 7	3.09 mi. / 40'/30' 16,345.84'	11,591.00' 71%	0.0' 0%	4,754.84' 29%
Trunk 14A Pipeline (8")	T32N-R9W Sec. 33, 28, 27, 22, and 15	2.95 mi. / 40' 15,581.58'	12,836.16' 82%	2,745.42' 18%	0.0' 0%
Rattlesnake Plant	T32N-R9W Sec. 33	N/A	0.0' 0%	0.0' 0%	3.01 acres 100%
TOTALS		**7.385 mi.** **38278.54'** **3.01 ac site** **Various widths** **37.58 total acres**	30,778.28' 40' width 28.26 ac	2,745.42' 40' width 2.52 ac	5,503.05' 30' width 3.79 ac 3.01 ac site 6.8 ac total

EXHIBIT 3

TEMPORARY USE AREAS

Temporary Use Areas (Provided by Emmet L. Roberds, EPFS). EPFS Rattlesnake Plant and Pipeline Project, 1999.

Trunk 14A

Engineering Station	Existing	Need	Additional Each Side of Centerline	Total Acres
007+ 53 - 008 + 53	40x100	80x100	20'	0.09
071 + 00 - 75 + 50	40x450	80x450	20'	0.41
097 + 54 - 99 +04	40x150	80x150	20'	0.14
133 + 03 - 134 + 0	40x100	100x100	25'	0.12
135 + 75 - 137 + 7	40x200	100x200	25'	0.23

Lateral 14-A3

000 + 00 - 004 + 16	40x416	200x416	60'	2
017 + 00 - 019+00	40x20	70x200	30'	0.32
030 + 00 - 036 + 50	40x650	70x650	30'	1.05
059 + 00 - 061 + 00	40x200	70x200	30'	0.32
063 + 00 - 064 + 00	40x200	70x200	30'	0.32
070 + 50 - 075 + 075	40x725	70x725	30'	1.17
087 + 50 - 103 + 00	40x155	100x155	30'	0.36
148 + 50 - 150 + 5	40x200	100x200	30'	0.23
162 + 00 - 163 + 5	40 x 150	100x 150	30'	0.35

EXHBIT 4

SPILL PREVENTION AND CONTAINMENT PLAN

EXHIBIT 4

SPILL PREVENTION AND CONTAINMENT PLAN
Rattlesnake Plant and Pipelines Project

This spill prevention and containment plan prescribes guidelines to prevent and control spills and is intended to be used for construction, maintenance and storage areas along the pipeline right-of-way from which spills of fuels may occur. The sequence outlined provides the minimum requirements necessary to protect the environment.

I. Potential Spills

Diking and/or earthen berms should be installed around fuel storage areas as appropriate. These are necessary to prevent the fuel, if spilled, from reaching the waters of the United States. Areas which may require containment structures include: (i) drum storage areas, (ii) bulk storage tanks, (iii) tanker trucks if parked at one location for more than two days. All equipment staging areas will be located at least 100 feet away from all water sources and wetland areas. No fuel storage areas will be located within 100 feet of a perennial stream and no construction equipment will be refueled within 100 feet of stream banks. If vehicles/equipment require on-site maintenance, the contractor will install drip pans or other suitable containment devices to collect all vehicle fluids. All waste fluids will be removed from the site and disposed of properly at an approved site.

II. Emergency Equipment

The construction or maintenance site should have adequate manpower and equipment necessary to divert any spill from reaching the waters of the United States. Emergency equipment may be but is not limited to shovels, backhoes, dozers, front end loader, etc.

III. Inspections

All loading and unloading operations of fuels will be closely monitored to ensure proper response to prevent spills. All hose connections should be inspected for leaks and if leakage should occur, the operation should cease until the leak is repaired or a containment pan is placed under the leaking connection.

IV. Spill Response

All spills occurring on land, regardless of quantity, will be immediately reported to the company's inspector and will be cleaned up within 24 hours. All spills occurring in

watercourses, including intermittent and ephemeral streams, will also be reported to the company's inspector immediately, and cleaned up promptly.

Any release of hazardous substances or extremely hazardous substances (leaks, spills, etc.) in excess of the reportable quantities established by 40 CFR Part 117 or 40 CFR Part 355 will be reported as required by the Comprehensive Environmental Response, Compensation and Liability Act or the Superfund Amendments and Reauthorization Act. Any release of a petroleum substance into the water of the United States will be reported as required by the Clean Water Act. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any hazardous or petroleum substances will be furnished to the BLM Authorized Officer concurrent with the filing of the reports to the involved Federal agency or State government.

If a spill occurs, operations will be stopped immediately, all valves involved in the spill will be closed, and immediate measures will be implemented to control the spill. The area affected by the spill will be cleaned by removing the soil and placing it into DOT Spec 1A1 or 1A2 drums (older drums labeled DOT Spec 17C may be used if new or reconditioned prior to use). The area will be excavated to remove all visible signs of the spilled material. All waste materials, including contaminated soil, will be properly disposed of in accordance with Federal, State, and local regulations, with the appropriate identification and hazard markings, as required by the Hazard Communication program and DOT Hazardous Materials regulations. No wastes or unused materials will be buried, dumped, or discharged at the site. If the spilled material reaches waters of the United States, then the El Paso Environmental, Health and Safety Department must be called immediately.

Should a spill occur which requires reporting to the local emergency management authority, or State or Federal response authorities, El Paso Environmental, Health and Safety Department will be responsible for making the necessary notifications to the appropriate agencies. Telephone numbers of applicable agencies and personnel are contained under Section VIII of this plan.

EPFS's spill control team will consist of:

a. Coordinator
b. On Site Supervisor
c. Contractors - EPFS will utilize the appropriate number of contract crews required to handle the spill and the clean up

Predesignated Coordinator - El Paso Field Services Company's office in Farmington, NM will serve as the Operations Center, phone 1-800-203-1347 to provide 24-hour coverage. This office has a radio room, for contact with EPFS's radio equipped vehicles and district operations personnel.

V. Documentation of Spills

All spills will be documented and recorded. Copies should be sent to the appropriate departments as specified by EPFS.

VI. Personnel Training

All personnel involved in the construction and maintenance area will be aware of this spill prevention and containment plan. The Chief Environmental Inspector will conduct training briefings on the plan.

VII. Safety

Temporary fencing will be installed around fuel storage areas to prevent tampering by unauthorized personnel during non-operational hours.

VIII. Emergency Notification Telephone Numbers On BLM Lands

El Paso Field Services Company
Farmington, NM (24 hour)
1-800-203-1347

National Response Center
Washington, D.C.
1-800-424-8802

EPA Region VI
Dallas, Texas
1-214-665-6548

EPA Region VIII
Denver, Colorado
1-303-293-1807

Bureau of Land Management
Farmington, New Mexico
1-505-599-6300

New Mexico Department of Public Safety
(If transportation related)
1-505-325-7547

New Mexico Environment Department
Santa Fe, New Mexico
1-505-327-9851

San Juan County Emergency Planning Committee
Farmington, New Mexico
1-505-334-6622

EXHIBIT 5

STORMWATER POLLUTION PREVENTION PLANS

Prepared by David Bays, EPFS

STORM WATER POLLUTION PREVENTION PLAN

Project Title: **Rattlesnake CO_2 Plant**

Date of Preparation: April 6, 1999

1. SITE DESCRIPTION

A. Describe the nature of the construction activity (What will be constructed and for what purpose?)

El Paso Field Services Co. (EPFS) is constructing a CO_2 removal plant and related gathering system pipelines in northeastern San Juan County, New Mexico.

B. List the major activities that will occur during construction which disturb soils for major portions of the site and the intended sequence of those activities.

All construction activities will be conducted within property owned by EPFS or within Rights-of-Way granted to EPFS by the land owner and/or land managing agency. Major activities are: (1) clear a staging area, (2) Excavate and install foundations, (3) excavate trenches for pipelines, (4) install plant equipment and fencing, (5) install gathering system pipe, (6) backfill pipeline trenches, and (7) re-contour and re-vegetate plant and pipeline rights-of-way as needed.

C. Give an estimate of (1) the total area of the site and (2) total area of the site that is expected to be disturbed by excavation, grading, or other activities.

Site area: approximately 1,714,700 square feet
TOTAL = 1,714,700square feet (approximately 39.5 acres)
Site area = disturbed area

D. Give an example of the runoff coefficient of the site after construction activities are completed. Provide any existing data describing the soil or the quality of any discharge from the site.

The estimated runoff coefficient of the site after construction activities are completed is 0.35. Soils of the project area belong to Soils of the project area belong to the Travessila-Rock outcrop-Weska formation. These soils range from shallow to deep with widely varying slopes. They are well drained alluvium and eolian material with some rock outcropping.

E. A site map indicating the following information is attached.

1. drainage patterns and approximate slopes anticipated after major grading activities
2. areas of soil disturbance
3. outline of areas which will not be disturbed
4. location of major structural and non-structural controls identified in the plan - see section 2)
5. location of areas where stabilization practices are expected to occur
6. surface waters (including wetlands)
7. locations where storm water is discharged to a surface water, including existing drainage channels

F. Give the name of the receiving waters and the surface area extent of wetland acreage at the site.

2. CONTROLS

A. Erosion and sediment controls

1. Stabilization practices - List which of the following measures that will be employed, and indicate on the attached map where each type of measure will be used: interim and permanent stabilization practices, including temporary seeding, permanent seeding, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, preservation of mature vegetation, etc. Identify contractor responsible for implementing measure.

[Insert Contractor's Name] will be responsible for any surface preparation, revegetation, and/or surface re-contouring required for this project.

2. Structural practices - List which of the following measures that will be employed and indicate on map in Tab A where each type of measure will be used: practices to divert flows from exposed soils, store flows or limit runoff an discharge of pollutants from exposed areas of the site to the degree attainable, including silt fences, earth dikes, drainage swales, sediment traps, check dams, subsurface drains, pipe slope or economic achievability. Identify contractor responsible for implementing measure.

[Insert Contractor's Name] will utilize staked hay bales (or silt fences) at all drainage locations as indicated on the map. In addition to the hay bales, sediment dams, frack tanks, galvanized pipe, and a water pump will be used for any live stream crossings.

B. Storm Water Management - Identify measures in each of the following categories that will be installed during the construction process to control pollutants in storm

water discharges that will occur after construction operations have been completed.

1. Storm water detention structures, flow attenuation by use of open vegetated swales and natural depressions, infiltration of runoff onsite and sequential systems. Include explanation of the technical basis used to select the practices to control pollution including known and expected sources of pollutants, pollutant removal efficiency, costs, site-specific factors or economic achievability. Identify contractor responsible for implementing measure.

Straw bales or silt fences and sediment dams will be the only storm water detention devices utilized.

The contractor will remove any debris or foreign materials brought onto the site that would pollute the storm water.

All refueling will be done in a designated containment area away from any drainage systems (Trucks, tractors, equipment and pumps).

Contractor: [Insert Contractor's Name]

2. Velocity dissipation devices at discharge locations and along the length of any outfall channel. Identify contractor responsible for implementing measure.

There are no slopes exceeding 5% in any portion of the run-off area. No velocity dissipation will be required, other than the straw bales or silt fences used for erosion control.

C. Other Controls

1. Waste Disposal - (Describe what waste materials will be generated and how these will be disposed of.) Identify contractor responsible for implementing measure.

The contractor will be responsible for cleaning up and disposing of garbage, welding rods, miscellaneous debris, and all other non-hazardous wastes. If any hazardous wastes (e.g. - spent solvent) are generated during the course of the construction, those wastes will be managed by El Paso Field Services Co.

Hydrostatic test water will be disposed of by on-site surface discharge or in disposal wells which operate under a state permit.

Contractor: [Insert Contractor's Name]

2. Off-site vehicle tracking of sediments and generation of dust. - (Describe how these sources of contamination will be controlled, or what conditions will preclude need for control.) Identify contractor responsible for implementing measure.

The contractor will provide a water truck for dust control on all roads and construction areas, as needed.

Contractor: [Insert Contractor's Name]

3. Compliance with applicable State and/or local waste disposal, sanitary sewer or septic system regulations - (Identify any applicable regulations (state, city, county) and how these will be implemented).

Existing sanitary facilities at the site will be used when available. If no on-site sanitary facilities are available, portable sanitary facilities will be provided and serviced periodically. All other waste materials will be hauled to an approved landfill.

Contractor: [Insert Contractor's Name]

D. Approved State or Local plans (Identify any applicable state, county, or city construction plan documents and attach copy.)

No applicable documents.

3. MAINTENANCE

Describe procedures that will be used to ensure the timely maintenance of vegetation, erosion and sediment control measures and other protective measures identified in the site plan in good and effective operating condition during the project. Identify contractor responsible for implementing measure.

The contractor will be responsible to reseed and/or restore vegetation as needed in accordance with the specifications of the land owner or land managing agency.

Contractor: [Insert Contractor's Name]

4. INSPECTIONS

The following are measures specified by the permit; review and indicate any measures that are not applicable to this project. Any measures that are identified as not applicable will be excluded from the PPP; all others will be incorporated into the PPP.

- Because the regulations allow monthly inspection in seasonally arid areas, inspections for this project will occur:
  - within two days of project kick-off,
  - within one day following initial disturbance at drainage locations, and thereafter once monthly until project is completed, including once within three days before final clean-up is completed,
  - within 24 hours following any rainfall event of 0.5 inches or greater, and

- once during the first growing season following project completion to verify 70% revegetation compared to the undisturbed, surrounding area.

- inspectors shall be provided with a copy of the PPP for the project and shall make observations of those measures specified in the PPP.

- disturbed areas and areas used for storage of materials that are exposed to precipitation shall be inspected for evidence of, or potential for, pollutants entering the drainage system, including erosion sediments.

- erosion and sediment control measures shall be observed to ensure that they are operating correctly. Discharge locations shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters.

- locations where vehicles enter or exit the site shall be inspected for evidence of offsite sediment tracking.

- a report (see attachment "Inspection Report Form") summarizing (a) the scope of the inspection, (b) names and qualifications of personnel making the inspection, (c) dates of the inspection, (d) major observations relating to the implementation of the storm water pollution prevention plan, (e) actions taken to modify the PPP and implement modifications within 7 days of an inspection, (f) incidents of non-compliance with PPP, and (g) if not incidents of non-compliance are noted, certification that the facility is in compliance with PPP and this permit. The report shall be signed in accordance with Permit requirements.

- any alterations in implementation of the PPP must be reported to EAD within 7 days to allow modification to the PPP.

5. NON-STORM WATER DISCHARGES

The following discharges may be authorized by this permit; indicate any of these non-storm water discharges that will occur during the project: water used to wash vehicles or to control dust, potable water, uncontaminated ground water (de-watering of trench?)

Water will be used for dust control. Discharge of hydrostatic test water, if required, will occur under a state discharge permit.

6. STATE SPECIFIC CONDITIONS

Not applicable.

Signature: _____
Name:
Title: Project Manager

The following signature line is for a responsible corporate officer or duly authorized representative of that person (see "Required Signatures" in General information). After the project engineer has supplied the required information, the NOI and final Pollution Prevention Plan will be submitted to the project engineer and corporate officer for signatures, and retained on file in the Environmental Affairs Department for three years following project completion and submission of the Notice of Termination. The PPP file is subject to inspection by EPA upon request.

Signature: _____
Name:
Title:

CERTIFICATION FORM FOR CONTRACTORS AND SUBCONTRACTORS

All contractors and subcontractors shall sign a copy of the following certification statement before conducting any professional service identified in the storm water pollution prevention plan:

I certify under penalty of law that I understand the terms and conditions of the general National Pollution Discharge Elimination System (NPDES) permit that authorizes the storm water discharges associated with industrial activity from the construction site identified as part of this certification.

Signature: _____
Title:

Name:
Company Name:
Company Address:
Company Telephone:
Date of Certification:

Address (or identifying legal description) of project site:

REPORT FORM FOR STORM WATER CONTROL INSPECTIONS

Facility Name: _____ Work Order No. _____

Date of inspection: _____

For each measure described in the PPP, describe the observed status of implementation of the measure, including those measures completed, in progress or not begun, and the degree of compliance with the PPP.

Describe actions taken to remedy any measures that were not in compliance with the PPP.

Signature: _____

Name of Inspector:

Qualifications of Inspector:

If no incidents of non-compliance were noted, indicate by signing below that the facility is in compliance with the Storm Water Prevention Plan and the General Permit.

Signature: _____

EXHIBIT 6A

PROPOSED PROJECT

AIR QUALITY PERMIT APPLICATION
AND APPROVED STREAMLINE PERMIT #2232

File: Rattlesnake Canyon Plant (reg)

Application for Streamlined Air Quality Permit

Rattlesnake Canyon Compressor Station

Prepared for

El Paso Field Services
614 Reily
Farmington, NM 87401

EP 031

March 1999

4665 INDIAN SCHOOL NE
SUITE 106
ALBUQUERQUE
NEW MEXICO
87110

March 30, 1999

Mr. Richard Goodyear
New Mexico Environment Department
Air Quality Bureau
2048 Galisteo Street
Santa Fe, NM 87505

Subject: Streamlined permit application for Rattlesnake Canyon Compressor Station

Dear Mr. Goodyear

On behalf of El Paso Field Services (EPFS), we are submitting the attached application for a streamlined permit for a natural gas compressor station in accordance with 20 NMAC 2.72 Part III. This submittal includes-

- A signed set of application forms and the permit application checklist
- A map showing the location of the site
- Emission calculations and supporting documentation
- A check for $100 for the required filing fee

The facility is a natural gas compressor station which will consist of two compressor engines and two natural gas-fired reboilers. The engines will both be Caterpillar G3516 lean-burns. The facility will emit less than 40 tons per year of NOx and is therefore eligible for a streamlined permit. The facility meets all the location requirements for a streamlined permit as well.

Thank you for your help. As always, you and your staff have been most cooperative. Please contact me at (505) 266-6611 or Pamela Kirschner at EPFS at (505) 599-2107 if you need additional information.

Sincerely

Cale E. Swanson

Cale E. Swanson
Environmental Scientist

xc Pamela Kirschner, EPFS

environmental services inc.
4665 INDIAN SCHOOL NE
SUITE 106
ALBUQUERQUE
NEW MEXICO
87110
PHO 505 266 6611
FAX 505 266 7738

Contents

Introduction and Summary

1

Introduction

This document and the accompanying material is an application for a streamlined air quality permit for Rattlesnake Canyon Compressor Station, owned and operated by El Paso Field Services (EPFS). Included in this application are the permit application forms (Appendix 1), emission calculations (Appendix 2), and other relevant information.

The facility is a new natural gas compressor station to be located in San Juan County, New Mexico. The location of the facility is illustrated in Figure 1-1. A site layout is given in Figure 1-2. A process flow diagram has not been included due to the simple nature of the facility.

Emission units at the facility will consist of two natural gas-fired engines and two natural gas-fired reboilers. These units will be sources of NOx, CO, and VOC. Due to the nature of the fuel (sweet natural gas), SO_2 emissions will be negligible and have not been quantified. The proposed emission limits are summarized in Table 1-1 on the next page. Since the facility will emit less than 40 tons per year of NOx, the facility qualifies for a streamlined permit in accordance with 20 NMAC 2.72 Subpart III.

Description of Facility

The facility will consist of two natural gas compressors powered by Caterpillar G3516 lean-burn, turbocharged, natural gas-fired engines. Auxiliary emitting equipment includes two natural gas-fired reboilers. The proposed emission limits are summarized in Table 1-1 below.

Table 1-1
Summary of Emissions

		Emissions in tons per year		
Stack	Description	NOx	CO	VOC
1	Caterpillar G3516	16.9	21.3	5.2
2	Caterpillar G3516	16.9	21.3	5.2
3	Reboiler	2.5	2.1	0.1
4	Reboiler	2.5	2.1	0.1
Total emissions		38.8	46.8	10.6

The facility consists of the engines described in Table 1-1, as well as small auxiliary equipment such as is normally associated with a compressor station. The following table identifies the auxiliary equipment at the facility for informational purposes only. None of this auxiliary equipment is a source of emissions other than very small fugitive VOC emissions.

Table 1-2
Auxiliary Equipment
Contactor
Scrubbers

The facility also includes four storage tanks which may be a small source of VOC emissions. These tanks are listed below for informational purposes only.

Table 1-3
Tanks
Water
Amine
Hydrocarbons
Hydrocarbons/water

The natural gas compressed at this facility contains negligible quantities of VOC, as demonstrated in the analyses included in Appendix 1. Therefore, VOC emissions from the storage tanks were not calculated for this application.

The three large tanks in the site drawing (Figure 1-2) belong to Phillips and are used to store produced water with negligible hydrocarbons.

Regulatory Applicability

Since the facility has the potential to emit greater than 25 tons/yr of regulated pollutants, a permit is required in accordance with 20 NMAC 2.72. The facility is a minor source for Title V and PSD purposes.

No New Source Performance Standards (NSPS) or National Emissions Standards for Hazardous Air Pollutants (NESHAP) apply to this facility.

Emission Calculations

Natural Gas Engines

Units 1-2 are natural gas compressors driven by Caterpillar G3516 lean-burn, turbocharged, natural gas reciprocating engines. Manufacturer's data indicates that the maximum sea level hp for these units is 1265 hp. This was derated according to the AQB's mandated derate formula for turbocharged engines (3% per 1000 ft above 4000 ft MSL) to 1185 hp. Note that the Caterpillar data indicates that the Caterpillar data mentions limiting the engine horsepower by adjusting the wastegate on the turbocharger. It is important to note that these engines will be limited to 1400 rpm by computer controls and will use a "kill switch" to ensure the horsepower is not exceeded.

Uncontrolled NOx, CO, and VOC emissions have been calculated based on manufacturer's emission factors and multiplied by the derated horsepower of 1185. Annual emissions have been calculated based on 8760 hours of operation per year. Appendix 2 contains a calculation sheet for these units, as well as a copy of the manufacturer's specifications.

Reboilers

Units 3 and 4 are natural-gas fired reboilers, each rated at 4.7 MMBtu/hr. A 10% safety factor has been added to the heat rate as a conservative measure.

Uncontrolled NOx, CO, and VOC emissions have been calculated based on AP-42 emission factors. Annual emissions have been calculated based on 8760 hours of operation per year.

Stack flow and velocity have been calculated based on the stoichiometric combustion of methane. That is,

$$CH_4 + 2\,O_2 \rightarrow CO_2 + 2\,H_2O$$

The air in the atmosphere contains approximately 20.95% O_2 and 79.05% N_2 and other gases. The ratio of other gases to oxygen is therefore 79.05:20.95, or 3.77:1. Therefore,

1 scf CH_4 + 2 scf O_2 + (2*3.77) scf other gases
→ 3 scf combustion gases + 7.54 scf other gases = 10.54 scf total exhaust

In other words, 1 standard cubic ft (scf) of fuel yields 10.54 scf exhaust gases. Actual exhaust cubic ft per minute (acfm) is calculated based on the ideal gas law. Calculations are included in Appendix 2.

Other emission units

Other sources of emissions at this site include storage tanks and process fugitive emissions. These emissions are not included in this application.

Start-up, Shutdown, and Maintenance

Startup and shutdown conditions are expected to have a minor effect on emissions as startup and shutdown will be uncommon and startup and shutdown conditions are not expected to persist for more than a few minutes. Operating conditions will not depart greatly from normal operating conditions. During startup the engines will be cold and will operate with a rich mixture until they warm to operating temperature, so it is anticipated that NOx emissions will be reduced and CO and VOC emissions will be increased briefly during startup.

Small quantities of natural gas may be vented in connection with maintenance; this is expected to be infrequent and of no consequence.

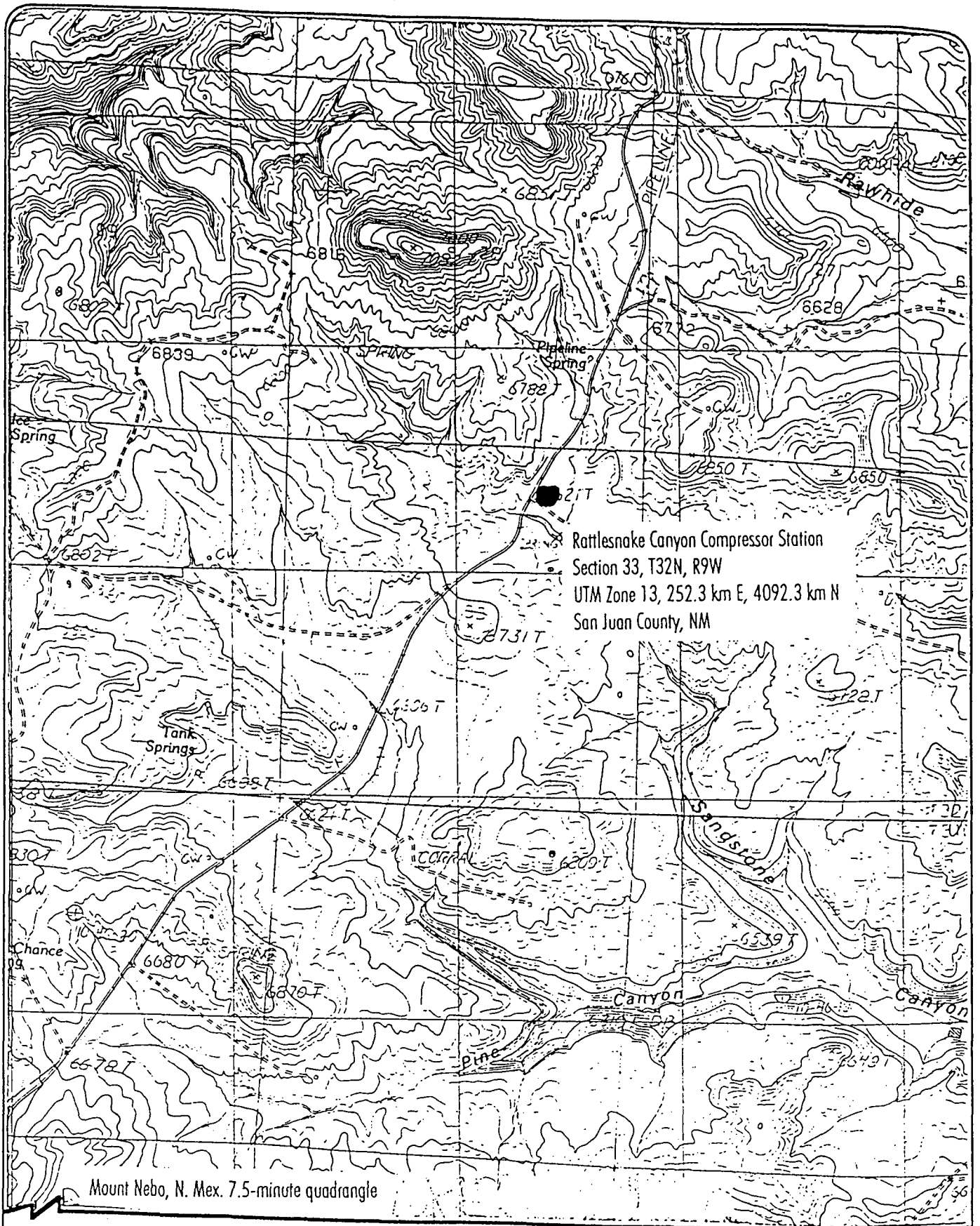


Figure 1-1
Location of Facility
EPFS—Rattlesnake Canyon Compressor Station

Revised: September 25, 1992

NMED - Air Quality Bureau
P.O. Box 26110
Santa Fe, NM 87502
Telephone: 505-827-0070

STREAMLINE AND GENERAL COMPRESSOR PERMIT APPLICATION AND NOTICE OF INTENT FOR THE STATE OF NEW MEXICO

Refer to the attached instructions for footnotes and directions on how to fill out this application form.

Section 1: General Information:

1. Name of Company: El Paso Field Services 2. Date Submitted: March 24, 1999

   Name of the Facility: Rattlesnake Canyon Compressor Station

   Purpose of facility: Natural gas compression, SIC Code 1311

3. Main Office Address: 614 Reilly, Farmington, NM 87401

   _____ 4. Phone No.: (505) 599-2219

5. Person to contact: Joe Velasquez 6. Title: North Complex Manager, El Paso Field Services

7. Location of the plant:

   Section: 33 Range: 9W Township: 32N County: San Juan

   UTM Zone: 13 UTMH: 252.3 km UTMV: 4092.3 km

   Plant Elevation: 6621 ft. above mean sea level.

   Approximate location from nearest town (direction and distance) 9 km east

   Name of nearest town and Zip Code: Cedar Hill, NM 87410

8. Is this site permanent? X Yes__ No If not how long is it expected to be occupied? _____

9. Is this a new plant? x Yes _____ No
   Date of anticipated start of construction: Mo 5 Day 12 Yr 99

10. Date of anticipated startup: Mo 6 Day 12 Yr 99

11. Was this plant constructed prior to Aug. 31, 1972? ___Yes X No

12. Is the plant currently operating in New Mexico? ___Yes x No

13. Has the plant been modified or the capacity increased since Aug. 31, 1972? _Yes x No
    If yes, briefly describe _____

14. Normal operating hours: 24 hrs/day 7 days/wk
    4.3 wk/mo 12 mos/yr

15. Specify maximum operating periods, if any: none

16. Estimated percent annual production by quarters: 25 Dec. - Feb., 25 Mar. - May, 25 June - Aug., 25 Sep. - Nov.

17. Class of land at plant site (private, State, Federal, Indian, etc.) Federal.

Section 2: Streamline Applicability

A. Facility Criteria

Facility Criteria	Answer (yes/no)
Do maximum controlled facility emissions exceed 200 tpy of any one regulated air pollutant (CO, NOx, SO2, VOC)?	no
Is the facility a "major stationary source" as defined in NMAQCR 707?	no
Is there an NSPS applicable to this source other than for turbines (40 CFR Part 60 Subpart GG)?	no
Is there a NESHAP applicable to this source, except asbestos demolition renovation?	no
Is this a source of potential air toxic emissions (NMAQCR 702, Part III)?	no
Are the compressor engines and ancillary equipment located at a natural gas processing plant, chemical manufacturing plant, bulk gasoline terminal or refinery or at a facility for which a 702 permit would be required in the absence of the compressors?	no

B. Air Quality Location Restrictions

Air Quality Restirction Areas	Answer (yes/no)
Will the proposed facility be located within any of the exclusion areas specified in **TABLE 2**?	no
Will the proposed facility's impact radius intersect any of the areas specified in **TABLE 2**? (This only applies to facilities with air impacts greater than the significance level).	no

C. General Location Restrictions

Location Restriction	Distance (km)	Name or Identify
The distance to the nearest school, residence, office building or occupied structure, excluding the immediate facility complex must be > 1 km.	9 km	Cedar Hill, NM
The distance to the nearest state park, Class II wilderness or wildlife refuge, historic park, state recreation area identified in **TABLE 1** must be > 3 km.	15 km	Navajo Lake
The distance to the nearest community with a population of more than 20,000 people (SEE **TABLE 1**) must be > 3 km.	47 km	Farmington, NM
The distance to the nearest community with a population of more than 40,000 people (SEE **TABLE 1**) must be > 10 km.	210 km	Santa Fe, NM
The distance to the nearest Class I area (SEE **TABLE 1** and **FIGURE 1**) must be > 30 km.	50 km	Mesa Verde
The distance to Bernalillo County must be > 15 km.	195 km	Bernalillo County

Section 3: Equipment Information

Unit No. (1)	Type of Unit Serial No. (2)	Manufacturer and Model No.	Size of Unit	Date of Installation(4)	Type and Sulfur Content of Fuel (5)	Amount of Fuel Per Year (6)	Turbo Charged? yes/no
1	Natural gas engine	Caterpillar G3516	1166 hp (3a) 1265 hp (3b)	5/99	sweet natural gas	86.7 MMscf	yes
2	Natural gas engine	Waukesha 5790 GL	1166 hp (3a) 1265 hp (3b)	5/99	sweet natural gas	86.7 MMscf	yes
3	Reboiler	Emron, Inc.	5.2 MMBtu/hr (3a) 5.2 MMBtu/hr (3b)	5/99	sweet natural gas	49.5 MMscf	no
4	Reboiler	Emron, Inc.	5.2 MMBtu/hr (3a) 5.2 MMBtu/hr (3b)	5/99	sweet natural gas	49.5 MMscf	no
			(3a) (3b)				
			(3a) (3b)				
			(3a) (3b)				
			(3a) (3b)				
			(3a) (3b)				
			(3a) (3b)				
			(3a) (3b)				
			(3a) (3b)				

Section 4: Emissions Information:

Unit No.	Max. Hours of Operation (7) (daily / year)	Pollutant Emissions (1), (2), (5) (lb/hr / ton/yr) Uncontrolled (3)			Controlled (4)				Basis for Emission (5)	Type of Control Equipment(6)	Control Equipment Manufacturer and Model No.	Control Equipment Efficiency	
		NO_x	CO	NMHC	NO_x	CO	NMHC	SO_2				% By Weight	Basis
1	24	3.9	4.9	1.2	3.9	4.9	1.2		Mfg. data	none	N/A	N/A	N/A
	8760	16.9	21.3	5.2	16.9	21.3	5.2						
2	24	3.9	4.9	1.2	3.9	4.9	1.2		Mfg. data	none	N/A	N/A	N/A
	8760	16.9	21.3	5.2	16.9	21.3	5.2						
3	24	0.57	0.47	0.03	0.57	0.47	0.03		AP-42	none	N/A	N/A	N/A
	8760	2.5	2.1	0.1	2.5	2.1	0.1						
4	24	0.57	0.47	0.03	0.57	0.47	0.03		AP-42	none	N/A	N/A	N/A
	8760	2.5	2.1	0.1	2.5	2.1	0.1						

Section 5: Stack Data

Unit No.	Stack Height, Above Ground Ft.	Stack Inside Exit Diameter Ft.(1)	STACK EXIT GAS CONDITIONS (2)			EXCESS AIR OR ORSAT ANALYSIS PER CENT OF EXHAUST GAS				
			Temperature °F	Velocity ft/sec	Direction of Exit (3)	EA	O_2	CO	CO_2	H_2O
1	20.2	1.20	888	114.3	Up					
2	20.2	1.20	888	114.3	Up					
3	37	2.33	400	8.2	Up					
4	37	2.33	400	8.2	Up					

COMPANY NAME El Paso Field Services

SECTION 6: CERTIFICATION:

I, Joe Velasquez, hereby certify that the information and data submitted in this application are completely true and as accurate as possible, to the best of my personal knowledge and professional expertise and experience.

Signed this 29th day of March, 1999, upon my oath or affirmation, before a notary of the State of New Mexico.

Joe Velasquez — 3-29-99
SIGNATURE **DATE**

Joe Velasquez — North Complex Maganer, El Paso Field Services
PRINTED NAME **TITLE**

Subscribed and sworn to before me on this 29th day of March, 1999.

My authorization as a Notary of the State of New Mexico expires on the 01 day of October, ~~19~~ 2001.

Barry B. McDaniel — 3/29/99
NOTARY'S SIGNATURE **DATE**

Barry B McDaniel
NOTARY'S PRINTED NAME

BARRY B. McDANIEL NOTARY PUBLIC STATE OF NEW MEXICO

Air Quality Notice of Intent and Permit Application Checklist

This checklist is designed to help applicants to include the required elements under AQCR 703.1, Notice of Intent, AQCR 702, Permits and AQCR 707, PSD. Each application submitted shall contain the required items listed below, depending on the regulation under which the application is being submitted, before the Air Quality Bureau will rule the application complete under AQCR 702 or make a determination that no permit is required under AQCR 703.1. If each item on the appropriate checklist can not be checked prior to submitting the application, the application will be ruled incomplete. Applications which are ruled incomplete because of missing information will delay any determination or the issuance of the permit. The Department reserves the right to request additional relevant information prior to ruling the application complete in accordance with AQCR 702, Part Two D.1.i.

If an application is being submitted for a determination that no permit is required, complete SECTION A. If an application is being submitted for a permit, complete SECTION A and B. If any application is being submitted for a PSD permit under AQCR 707, complete SECTION A, B and C.

A copy of this checklist shall accompany the application.

SECTION A: AQCR 702, Permits, 703.1, Notice of Intent, and 707, PSD

Applications under this section shall:

1. [X] be made on a form provided by the Department. Additional text, tables, calculations or clarifying information may also be attached to the form.

2. [X] contain the applicant's name, address, and the names and addresses of all other owners or operators of the emission sources.

3. [X] contain the name, address, and phone number of a person to contact regarding questions about the facility.

4. [X] contain the date of application.

5. [X] contain the company name which identifies this particular site.

6. [X] contain a written description of the facility and/or modification including all operations affecting air emissions.

7. [X] contain the maximum and standard operating schedules for the source after completion of construction or modification in terms of hours per day, days per week, and weeks per year.

8. [X] contain a map, such as a 7.5 minute USGS topographic quadrangle, showing the exact location of the source.

9. [X] contain the Section, Range, Township.

10. [X] contain the UTM zone and UTM coordinates.

11. [X] include the four digit Standard Industrialized Code (SIC).

12. [X] contain the types and <u>potential uncontrolled</u> amounts of any regulated air contaminants the new source or modification will emit. Complete appropriate sections of the application; attachments can be used to supplement the application, but not replace it.

    if the "potential emission rate" for any one criteria pollutant from a new facility is greater than 10 pounds per hour or 25 tons per year a permit is required - complete Section A and B. If as a result of a modification an existing facility's potential emission rate for any one pollutant is greater than 10 pounds per hour or 25 tons per year a permit is required - complete Section A and B. If the emission rate for a toxic pollutant exceeds the thresholds in AQCR 702 Part Three a permit is required - complete Section A and B.

    "Potential emission rate" under AQCR 702 means the uncontrolled emission rate at maximum capacity, prior to or in the absence of pollution control equipment, for one hour or one full year (8760 hours per year).

13. [X] contain the types and <u>controlled</u> amounts of any regulated air contaminants the new source or modification will emit. Complete appropriate sections of the application; attachments can be used to supplement the application, but not replace it.

if the "potential to emit" for any one criteria pollutant from a new facility exceeds 100 tons per year (major source) for one of the 28 sources listed in Table 1 of AQCR 707, or 250 tons per year (major source) for all other sources, a PSD permit is required - complete Section A, B, and C. If the source is an existing major source and a modification occurs which results in an actual increase above the threshold in Table 2 of AQCR 707 a PSD permit is required - complete Section A, B, and C.

"potential to emit" under AQCR 707 means the controlled emission rate at maximum capacity, after pollution control equipment, for one full year (8760 hours). "Actual increase" means the emission rate to the atmosphere after all offsets or reductions elsewhere at the plant have been considered.

14. [X] contain the basis or source for each emission rate (include the manufacturer's specification sheets when used as the source)

15. [X] contain all calculations used to estimate **potential uncontrolled** and **controlled** emissions.

16. [X] contain a description of any air pollution control device or control method to be utilized.

17. [X] contain the basis for the estimated control efficiencies and sufficient engineering data for verification of the control equipment operation, including if necessary, design drawings, test reports, and factors which affect the normal operation (e.g. limits to normal operation).

18. [X] contain fuel data for each existing and/or proposed piece of fuel burning equipment.

19. [X] contain the anticipated maximum production capacity of the entire facility after construction and/or modification or of the applicable emission or process unit. Identify any process bottlenecks that limit production.

20. [X] contain the stack and exhaust gas parameters for all existing and proposed emission stacks.

21. [X] be signed under oath or affirmation by the operator, the owner, or an authorized representative, certifying to the best of his or her knowledge the truth of all information submitted,

SECTION B: AQCR 702, Permits and 707, PSD

Applications under this section shall:

22. [X] contain all the elements in SECTION A of this checklist.

23. [X] consist of ~~five~~ one copies of this entire application package, ~~including five copies of the dispersion modelling summary report in each application. Only one complete copy of the dispersion modelling study, including computer disks with all input/output files, should be submitted.~~

24. [X] contain a regulatory compliance discussion demonstrating compliance with each applicable regulation (state & federal) and ambient air quality standard, PSD increments (if baseline triggered), and provisions of air toxics, if applicable.

25. [na] contain the required air quality modeling analysis.

26. [na] the "Air Quality Modeling Checklist for Permit Applications" has been reviewed and the required information has been submitted with the application.

27. [X] contain a preliminary operational plan defining the measures to be taken to mitigate source emissions during malfunction, startup, or shutdown.

28. [na] contain a process flow sheet, including a material balance, of all components of the facility which would be involved in routine operations and emissions.

29. [X] contain a full description, including all calculations and the basis for all control efficiencies presented, of the equipment to be used for air pollution control. This shall include a process flow sheet or, if the Department so requires, layout and assembly drawings, design plans, test reports and factors which affect the normal equipment operation, including control and/or process equipment operating bounds.

30. [X] contain a description of the equipment or methods proposed by the applicant to be used for emission measurement.

contain the following public notice announcement documentation in accordance with AQCR 702, Part Two D.2;

31. [na] adjacent land owners have been notified of the proposed application,

32. [na] municipalities and counties have been notified,

33. [na] one classified or legal advertisement has been published in a local newspaper,

34. [na] one other advertisement has been published in a local newspaper,

35. [na] notice of the application has been posted in at least four publicly accessible and conspicuous places, including the proposed or existing facility entrance. (ie: post office, library, grocery store, etc.)

36. [na] a public service announcement has been made on at least one radio or television station which serves the municipality or county in which the source proposes to locate.

The public notice shall contain the following;

37. [na] the applicant's name, address and the names and addresses of all other owners or operators of the emission sources,

38. [na] the date of application submittal,

39. [na] a description of the plant or equipment process for which a permit is sought,

40. [na] an estimate of the maximum controlled emission rate for the entire facility in pounds per hour and tons per year for each pollutant, or in the case of a modification to an existing facility, the maximum controlled emission rates for both the modification and the entire facility after the modification,

41. [na] the maximum and standard operating schedules expected at the facility after completion of construction (hrs/day, days/wk, wks/yr),

42. [na] the current address of the Department to which comments and inquiries may be directed,

New Mexico Environment Department
Air Quality Bureau - Technical Analysis & Permits Section
1190 St. Francis Dr., P.O. Box 26110
Santa Fe, New Mexico 87502
(505) 827-0070

43. [X] include the $100.00 filing fee in accordance with AQCR 700.

SECTION C: AQCR 707, PSD

An **applicant** for a PSD permit shall:

44. [na] arrange a pretest meeting to be held in Santa Fe, which includes the federal land managers, to discuss BACT, modeling, and items of particular interest.

45. [na] submit the BACT analysis for review prior to submittal of the application (no application will be ruled complete until the final determination regarding BACT is made and this determination can ultimately affect information provided in the application),

46. [na] submit a modeling protocol prior to submitting the permit application.

47. [na] submit the monitoring exemption analysis prior to submittal of the application.

An **application** for a PSD permit shall:

48. [na] contain all the elements in SECTION A and B of this checklist.

49. [na] contain an analysis on the impact on visibility.

50. [na] contain an analysis on the impact on soils.

51. [na] contain an analysis on the impact on vegetation, including state and federal threatened and endangered species.

52. [na] contain documentation that the federal land manager of a Class I area within 100 km of the site has been notified and provided a copy of the application, including the BACT analysis and modeling results.

53. [na] contain a completed EPA PSD checklist.

Engine Emissions

Caterpillar G3516

Horsepower Calculations

6621 ft MSL	Elevation	
1400 rpm	Maximum engine speed	Mfg data
1265 hp	Sea level hp	Mfg data
7.9%	Derate %	3% per 1000 ft above 4000 ft MSL
1166 hp	Site hp	Sea level hp * (100-derate %) ÷ 100

Emission Rates

NOx	CO	VOC	Units	
1.5	1.89	0.5	g/hp-hr	Mfg data
3.9	4.9	1.2	lb/hr	g/hp-hr * site hp ÷ 453.6 g/lb
16.9	21.3	5.2	tpy	8760 hrs/yr operation

Fuel Consumption

7768 Btu/hp-hr	Brake-specific fuel consumption	Mfg data
9.1 MMBtu/hr	Heat rate	BSFC * hp ÷ 10e6
915 Btu/scf	Fuel heat value	Fuel gas analysis
9.9 Mscf/hr	Hourly fuel consumption	Heat rate ÷ fuel heat value
86.7 MMscf/yr	Annual fuel usage	Assume 8760 hrs/yr operation

Exhaust Parameters

888 °F	Exhaust temp	Mfg data
7,755 acfm	Exhaust flow	Exhaust lb/hr * (Exhaust temp. + 460) ÷ 2275
1.20 ft	Stack diameter	
114.3 ft/sec	Exhaust velocity	Exhaust flow ÷ stack area
20.2 ft	Stack height	

Reboiler Emissions

Emron, Inc.

Fuel Data

4.7 MMBtu/hr	Heat Rate	Mfg data
5.2 MMBtu/hr	Heat Rate	10% safety factor
915 Btu/scf	Fuel heat value	Fuel gas analysis
5.7 Mscf/hr	Hourly fuel usage	Heat rate ÷ fuel heat value ÷ 1000
49.5 MMscf/yr	Annual fuel usage	Assumes 8760 hrs/yr operation

Uncontrolled Emission Rates

NOx	CO	VOC	Units	
100	84	5.5	lb/MMscf	AP-42 Table 1.4-1 and 1.4-2 factors for small boilers
0.57	0.47	0.03	lb/hr	lb/MMscf * Mscf/hr ÷ 1000
2.5	2.1	0.1	tpy	Assumes 8760 hrs/yr

Stack Parameters

400 °F	Exhaust temp (T_{stk})	Estimated
23.38 in. Hg	Ambient pressure (P_{stk})	Calculated based on elevation
992.6 scfm	Exhaust flow	Calculated based on stoichiometric combustion (10.54*fuel scfm)
2100.7 acfm	Exhaust flow	scfm * (P_{std}/P_{stk})*(T_{stk}/T_{std}), P_{std} = 29.92 "Hg, T_{std} = 520 °R
2.33 ft	Stack diameter	Measured
8.2 ft/sec	Exhaust velocity	Exhaust flow ÷ stack area
37 ft	Stack height	Measured

CATERPILLAR®

Caterpillar Inc.
3701 State Road 26 East
Lafayette, IN 47905-4854

1 March 1999

Gas Engine Emissions Letter

PROJECT:	EPFS - Rattlesnake Draw#5		
model:	G3516	**fuel pressure:**	35 psi
compression ratio:	8:1	**fuel LHV:**	884 btu/ft3
A/C inlet temp:	130 ° F	**fuel MN:**	103
J/W outlet temp:	210 ° F	**site altitude:**	6600 ft
rating:	1185 bhp @ 1400 rpm	**max. ambient**	85 ° F

		100%	
Engine Power	bhp	1265	at sea level
NOx (as NO2)	g/bhp-hr	1.50	
	tons/year	16.32	
CO	g/bhp-hr	1.89	
	tons/year	23.09	
total HC	g/bhp-hr	3.05	
	tons/year	37.26	
non-methane HC	g/bhp-hr	0.46	
	tons/year	5.62	

Emission levels are based on engine operation under steady state conditions, adjusted to the specified NOx level at 100% load. The CO, total HC, and non-methane HC values listed are 20% higher than nominal levels to allow for instrumentation, measurement, and engine-to-engine variations; these values indicate "not to exceed" levels. Tons per year values are based on 8,760 hours of operation per year.

This information is valid for engine orders placed within six months of the above date. Please contact the factory if an extension of this period is required.

Appl'd. Performance Engineer:

Technical Manager:

Sincerely,

Jeffery A. Elijah
Gas Engine Applications
Lafayette Large Engine Center

ref: (none)

West Texas Equipment, L.P.
3809A So. FM 1788
P.O. Box 61247
Midland, Texas 79711
(915) 563-1863

March 2, 1999

Compressor Systems, Inc.
Mr. Matt Griswold
Four Kingwood Place
900 Rockmead Drive, Suite 141
Kingwood, Texas 77339

Re: El Paso Field Services – (2) G3516 LEs for Rattlesnake Draw

Dear Matt:

I have spoken to Caterpillar concerning limiting the horsepower on these engines. We can limit horsepower by adjusting the wastegate on the turbocharger.

The air/fuel ratio control works off of an oxygen sensor that reads oxygen in the exhaust. This controls both the valve at the fuel inlet and the EG3P actuator at the front of the engine that controls the throttle.

Please call me if you have any questions.

Sincerely,

Stacey Petrich
West Texas Caterpillar

8:1 Compression Ratio Low Em[illegible]			
Aspiration	LE	LE	LE
Speed ... rpm	1400	1400	1400
JW Temperature ... °F	210	210	210
A/C Temperature ... °F	130	130	130
Engine Power ... bhp	1265	948	633
NO_x (as NO_2) ... g/bhp-hr	2.0	3.7	4.5
CO ... g/bhp-hr	1.6	1.9	2.1
HC (Total) ... g/bhp-hr	2.6	2.1	2.3
HC (Non-Methane) ... g/bhp-hr	0.4	0.3	0.3
Exhaust Oxygen ... % (dry)	7.9	7.0	6.5
BSFC ... Btu/bhp-hr	7768	7895	8368
Compressor Out Pressure ... In Hg (abs)	73.4	67.0	49.8
Compressor Out Temp ... °F	304	260	212
Intake Manifold Pressure ... In Hg (abs)	66.3	50.3	35.6
Intake Manifold Temp ... °F	142	137	133
Air-Fuel Ratio (Dry) ... vol/vol	15.0	14.3	13.6
Timing ... °BTDC	33.0	33.0	33.0
Input Energy (LHV) ... Btu/min	163954	124998	88318
Work ... Btu/min	53684	40263	26842
Exhaust (LHV) ... Btu/min	44813	33041	21838
Exhaust (to 350°F) ... Btu/min	31051	22350	15127
Aftercooler ... Btu/min	8132	4948	2218
Radiation ... Btu/min	10521	6266	4086
Jacket Water/Oil Cooler ... Btu/min	46803	40494	33382
Air Flow (Dry) ... lb/hr	12446	9029	6076
Air Flow (Dry) ... (dscfm-77°F, 14.7 psia)	2806	2035	1370
Exhaust Flow (Wet) ... lb/hr	13043	9490	6396
Exh Flow (Wet) ... (cfm-stack temp, 14.5 psia)	7765	5622	3796
Exhaust Stack Temp ... °F	888	883	885
Fuel Flow ... (scfh-60°F, 14.7 psia)	10663	8281	5848

Sound Data @ 100% Load	Overall Sound Level db(A)	Sound Level in Linear Decibels (db) "Octave Band Center Frequency"							
		63 Hz	125 Hz	250 Hz	500 Hz	1kHz	2 kHz	4 kHz	8 kHz
Mechanical Sound @ 3.2 ft	100	95	97	83	82	85	84	90	86
Exhaust Sound @ 4.9 ft	110	98	102	106	102	103	103	104	100

Table 1.4-1. EMISSION FACTORS FOR NITROGEN OXIDES (NO_x) AND CARBON MONOXIDE (CO) FROM NATURAL GAS COMBUSTION[a]

Combustor Type (MMBtu/hr Heat Input) [SCC]	NO_x[b]		CO	
	Emission Factor ($lb/10^6$ scf)	Emission Factor Rating	Emission Factor ($lb/10^6$ scf)	Emission Factor Rating
Large Wall-Fired Boilers (>100) [1-01-006-01, 1-02-006-01, 1-03-006-01]				
Uncontrolled (Pre-NSPS)[c]	280	A	84	B
Uncontrolled (Post-NSPS)[c]	190	A	84	B
Controlled - Low NO_x burners	140	A	84	B
Controlled - Flue gas recirculation	100	D	84	B
Small Boilers (<100) [1-01-006-02, 1-02-006-02, 1-03-006-02, 1-03-006-03]				
Uncontrolled	100	B	84	B
Controlled - Low NO_x burners	50	D	84	B
Controlled - Low NO_x burners/Flue gas recirculation	32	C	84	B
Tangential-Fired Boilers (All Sizes) [1-01-006-04]				
Uncontrolled	170	A	24	C
Controlled - Flue gas recirculation	76	D	98	D
Residential Furnaces (<0.3) [No SCC]				
Uncontrolled	94	B	40	B

[a] Reference 13. Units are in pounds of pollutant per million standard cubic feet of natural gas fired. To convert from $lb/10^6$ scf to $kg/10^6$ m^3, multiply by 16. Emission factors are based on an average natural gas higher heating value of 1,020 Btu/scf. To convert from $lb/10^6$ scf to lb/MMBtu, divide by 1,020. The emission factors in this table may be converted to other natural gas heating values by multiplying the given emission factor by the ratio of the specified heating value to this average heating value. SCC = Source Classification Code. ND = no data. NA = not applicable.

[b] Expressed as NO_2. For large and small wall fired boilers with SNCR control, apply a 24 percent reduction to the appropriate NO_x emission factor. For tangential-fired boilers with SNCR control, apply a 13 percent reduction to the appropriate NO_x emission factor.

[c] NSPS=New Source Performance Standard as defined in 40 CFR 60 Subparts D and Db. Post-NSPS units are boilers with greater than 250 MMBtu/hr of heat input that commenced construction modification, or reconstruction after August 17, 1971, and units with heat input capacities between 100 and 250 MMBtu/hr that commenced construction modification, or reconstruction after June 19, 1984.

TABLE 1.4-2. EMISSION FACTORS FOR CRITERIA POLLUTANTS AND GREENHOUSE GASES FROM NATURAL GAS COMBUSTION[a]

Pollutant	Emission Factor ($lb/10^6$ scf)	Emission Factor Rating
CO_2[b]	120,000	A
Lead	0.0005	D
N_2O (Uncontrolled)	2.2	E
N_2O (Controlled-low-NO_X burner)	0.64	E
PM (Total)[c]	7.6	D
PM (Condensable)[c]	5.7	D
PM (Filterable)[c]	1.9	B
SO_2[d]	0.6	A
TOC	11	B
Methane	2.3	B
VOC	5.5	C

[a] Reference 13. Units are in pounds of pollutant per million standard cubic feet of natural gas fired. Data are for all natural gas combustion sources. To convert from $lb/10^6$ scf to $kg/10^6$ m^3, multiply by 16. To convert from $lb/10^6$ scf to lb/MMBtu, divide by 1,020. The emission factors in this table may be converted to other natural gas heating values by multiplying the given emission factor by the ratio of the specified heating value to this average heating value. TOC = Total Organic Compounds. VOC = Volatile Organic Compounds.

[b] Based on approximately 100% conversion of fuel carbon to CO_2. $CO_2[lb/10^6 scf] = (3.67)(CON)(C)(D)$, where CON = fractional conversion of fuel carbon to CO_2, C = carbon content of fuel by weight (0.76), and D = density of fuel, 4.2×10^4 $lb/10^6$ scf.

[c] All PM (total, condensible, and filterable) is assumed to be less than 1.0 micrometer in diameter. Therefore, the PM emission factors presented here may be used to estimate PM_{10}, $PM_{2.5}$ or PM_1 emissions. Total PM is the sum of the filterable PM and condensible PM. Condensible PM is the particulate matter collected using EPA Method 202 (or equivalent). Filterable PM is the particulate matter collected on, or prior to, the filter of an EPA Method 5 (or equivalent) sampling train.

[d] Based on 100% conversion of fuel sulfur to SO_2. Assumes sulfur content is natural gas of 2,000 grains/10^6 scf. The SO_2 emission factor in this table can be converted to other natural gas sulfur contents by multiplying the SO_2 emission factor by the ratio of the site-specific sulfur content (grains/10^6 scf) to 2,000 grains/10^6 scf.

State of New Mexico
ENVIRONMENT DEPARTMENT
AIR QUALITY BUREAU
2048 Galisteo
Santa Fe, New Mexico 87505
Telephone (505) 827-1494
Fax (505) 827-1523

GARY E. JOHNSON
GOVERNOR

PETER MAGGIORE
SECRETARY

April 28, 1999

CERTIFIED MAIL NO. P Z 434 831 323
RETURN RECEIPT REQUESTED

Joe Velasquez
North Complex Manager
El Paso Field Services
614 Reilly
Farmington, NM 87401

Streamline Permit No. 2232
Rattlesnake Canyon
Compressor Station
AIRS No. 35-045-00904

Dear Mr. Velasquez:

Air Quality Permit No. 2232 is issued by the Air Quality Bureau of the New Mexico Environment Department (Department) to El Paso Field Services. This permit authorizes the construction and operation of the **Rattlesnake Canyon** natural gas compressor station. The function of the facility is to compress natural gas through underground natural gas pipelines using reciprocating, natural gas fired compressor engines. The facility will be located in Township 32N, Range 9W, Section 33, approximately 9 kilometers east of Cedar Hill, New Mexico in San Juan County.

Legal Authority

The specific and general conditions of this permit are being imposed pursuant to the Air Quality Control Act (1978 NMSA, Section 74-2-1 et seq.) and regulations adopted pursuant to the Act including Title 20, New Mexico Administrative Code (NMAC), Chapter 2, Part 72, (20 NMAC 2.72), Construction Permits, Subpart II and Subpart III, and all provisions of this regulation are applicable to this facility. This permit is enforceable pursuant to the Act and the air quality control regulations applicable to this source. This permit does not limit the requirements of the federal new source performance standards in the Code of Federal Regulations (CFR) Title 40, Part 60, Subpart A and Subpart GG to those facilities where these requirements apply. 20 NMAC 2.72, Section 210.D, states that any term or condition imposed by the Department on a permit or permit revision is enforceable to the same extent as a regulation of the Board.

Permit Compliance

Compliance with this permit will be determined by adherence of the company to the permit conditions as determined by Department inspections, the completion and submission of all compliance tests, reports, notifications and record keeping required in this permit within the time frames specified in the permit unless the Department specifically modifies the conditions of this permit in writing.

Department Conclusions

The Department has reviewed the permit application for the proposed compressor station and based on the application and the conditions of this permit, the Department has determined that the provisions of the Act, 20 NMAC 2.72, and ambient air quality standards will be met. This facility qualified for a streamline permit under 20 NMAC 2.72, Section 301 D.1. No new source performance standards (NSPS) or national emission standards for hazardous air pollutants (NESHAP) apply to this facility. During any asbestos demolition or renovation work CFR Title 40, Part 61, Subpart M (NESHAP) would apply. Conditions have been imposed in this permit to assure continued compliance.

Pursuant to 20 NMAC 2.72, the facility is subject to the following specific and general conditions in addition to the representations contained in the permit application upon which the Department has acted.

Specific Conditions

1. Construction and Operation

   The compressor station shall be constructed and operated in accordance with all representations in the permit application dated March 24, 1999 and received March 31, 1999 and the additional information dated April 1, 1999 and received on April 2, 1999, and in accordance with the legal authority specified above and the conditions of this permit.

   The air emission sources at this compressor station shall consist only of the following pieces of equipment.

Unit No.	Name of Unit Manufacturer	Model No.	Serial No.	Name Plate Capacity	Control Equipment Description
1	Caterpillar	G3516	---	1265 HP	None
2	Caterpillar	G3516	---	1265 HP	None
3	Emron, Inc.	-----	---	5.2 MMBtu/hr	None
4	Emron, Inc.	-----	---	5.2 MMBtu/hr	None

This equipment shall be maintained as per manufacturer specifications to ensure the emissions remain at or below the permitted levels in this permit.

This station is authorized to operate 24 hours per day, 7 days per week, and 52 weeks per year.

2. Emission Rates, Control Technology and Compliance Requirements

The emission rate and the applicable control technology shall apply to the equipment listed below on a continuous basis. Compliance shall be determined by the test methods and conditions in this permit:

Unit No.	Site HP	Site RPM	Air Control Required	Catalytic Converter Required	Maximum Emission Rate Pounds Per Hour/Tons Per Year NOx	CO	VOC
1	1166	1400	No	No	3.9/16.9	4.9/21.3	1.2/5.2
2	1166	1400	No	No	3.9/16.9	4.9/21.3	1.2/5.2

Unit No.	Site Rating	Site Rating Units	Maximum Emission Rate Pounds Per Hour/Tons Per Year NOx	CO	VOC
3	5.2	MM Btu/hr	0.57/2.5	0.47/2.1	0.03/0.1
4	5.2	MM Btu/hr	0.57/2.5	0.47/2.1	0.03/0.1

Initial compliance tests shall be conducted on the first engine installed at the site in accordance with the general conditions. Any engine equipped with a catalytic converter shall also have an air fuel ratio (AFR) controlling device.

3. Permit Expiration

This permit shall expire on April 30, 2001, unless physical on-site construction has begun by the date above or binding agreements or contractual obligations to undertake a program of construction of the source are entered into by the date above or, if during construction, work is suspended for a total of one (1) year. The applicant may request an extension

to the expiration. Cancellation of the permit may be appealed in accordance with the provisions of 20 NMAC 2.72, Section 211. This permit shall automatically expire if the facility or equipment ceases operation for five (5) years or more, or permanently. Reactivation of any source after the five year period shall require a new permit.

4. Posting of Permit

A copy of this permit shall be posted and in view at the local office at all times. The permit shall be made available to Department personnel for inspection upon request.

5. Units No. 1 and 2 shall be equipped with kill switch that shut the engine off if the engine speed exceeds 1,400 RPM.

General Conditions for Permit

Streamline Categories 1 and 2

1. Compliance Tests

Engines identified in the specific permit conditions shall be tested in accordance with the procedures in this condition for nitrogen oxides (NO/NO_2) and carbon monoxide (CO). Compliance test requirements from previous permits are still in effect, unless the tests have been satisfactorily completed. Compliance tests may be reimposed if Department inspections indicate possible noncompliance with permit conditions subject to such testing, or noncompliance during the initial compliance or subsequent compliance tests, including the quarterly verification tests, or if the tests were technically unsatisfactory. Engines equipped with catalytic converters shall be tested to determine converter control efficiency at the time of initial compliance test.

The tests shall be conducted in accordance with EPA Reference Methods 1 through 4, Method 7E for reciprocating engines or Method 20 for stationary gas turbines, and Method 10 contained in CFR Title 40, Part 60, Appendix A. Unless specified otherwise by the Department, the test shall also follow the procedures in Subpart A, General Provisions in CFR Title 40, Part 60.8 (f). For stationary turbines, Subpart GG, Section 60.335 test methods and procedures shall be used to determine compliance with the Section 60.332(a)(2) emission standard for nitrogen oxides (NO_x). The results of the tests for NO_x shall be expressed as nitrogen dioxide (NO_2) using a molecular weight of 46 lb/lb mole in all calculations (each ppm of NO/NO_2 is equivalent to 1.194×10^{-7} pounds per standard cubic foot). No correction for fuel bound nitrogen will be allowed.

The tests shall be conducted within sixty (60) days after achieving the maximum production rate at which the engine will normally be operated. If the maximum production rate does not occur within thirty (30) days of engine startup, then the tests must be conducted no later than ninety (90) days after initial startup of each engine.

The owner or operator shall notify the Department at least thirty (30) days prior to the date and time of testing, and provide the Department an opportunity to have an observer present during the testing. The permittee shall arrange a pre-test meeting with the Department at least fourteen (14) days prior to the anticipated test date and shall observe the following pre-testing and testing procedures:

a) The permittee shall provide for the Department's approval a written test protocol at least one (1) week prior to the anticipated pre-test meeting date. The protocol shall describe the test methods to be used (including sampling methods and calibration procedures), shall list the equipment or devices to be tested (including sampling locations), and shall describe data reduction procedures. Any variation from established sampling and analytical procedures or from compressor station operating conditions shall be presented for Department approval.

b) The test protocol and compliance test report shall conform to the standard format specified by the Department. The most current version of the format may be obtained from the Enforcement Section of the Air Quality Bureau.

c) The permittee shall provide (a) sampling ports adequate for the test methods applicable to the facility, (b) safe sampling platforms, (c) safe access to sampling platforms and (d) utilities for sampling and testing equipment. Sample ports of a size compatible with the test methods shall be located on the stack of each engine/turbine in accordance with the provisions of EPA Method 1 in CFR Title 40, Part 60, Appendix A. The stack shall be of sufficient height and diameter so that a representative test of the emissions can be performed in accordance with EPA Method 1.

d) The permittee shall also provide a one-quarter (1/4) inch stainless steel sampling line adjacent to the sampling ports and extending down to within four (4) feet above ground level to provide access for future audits. The

line shall extend into the stack a distance of 1/4 the stack diameter, but not less than one inch from the stack wall. The sampling line shall be maintained clear of blockage at all times. This line shall be in place at the time of any required compliance tests. For any source for which compliance tests are not required or for previously existing sources this line shall be installed no later than one hundred and eighty (180) days from the date of this permit.

The owner or operator may provide a portable sampling line that is readily available which allows the Department to safely obtain representative stack gas samples at the time of compliance audits or site inspections.

e) During the compliance tests, the engine RPM, reciprocating engine ignition timing, engine compressor suction and discharge pressures, suction volume, horsepower output, and fuel consumption shall be monitored and recorded. Engines used to drive electric generators shall record the generator electrical output instead of compressor suction and discharge parameters. This information shall be included with the test report that is required to be furnished to the Department and shall be listed in tabular form or as part of the summary page of the test report.

The tests shall be conducted at ninety (90%) or greater of the full normal load as stated in this permit, or in the application if not in the permit, and at additional loads when requested by the Department. The permittee may request exceptions to this loading (such as loading necessitated by operating condition) from the Enforcement Section of the Air Quality Bureau. The load and the parameters used to calculate it shall be recorded to document operating conditions and shall be included with the test report to the Department.

f) Where necessary to prevent cyclonic flow in the stack, flow straighteners shall be installed.

g) Two copies of the compliance test reports shall be submitted to the Department within thirty (30) days after completion of testing at the address in Condition 8 below.

2. Control Equipment Recordkeeping and Reporting

For engines or turbines equipped with catalytic converters and/or air fuel ratio (AFR) type controllers, quarterly reports shall be submitted to the Department within thirty (30) days of the end of each calendar quarter which include: the results of the catalyst performance verification, and repair or replacement of the catalytic converter or AFR controlling system.

Records shall be made and maintained by the owner or operator for a period of at least two (2) years from the date of generation, and a summary of the quarterly reports shall be submitted to the Department annually, which:

(a) For each air fuel ratio type controller, demonstrate that the manufacturer's or supplier's recommended maintenance is performed, including replacement of oxygen sensor as necessary for oxygen-based controllers. Verification of proper operation of the controller shall be demonstrated at least quarterly by measuring and recording exhaust oxygen or NO_x concentrations with a properly calibrated portable analyzer as specified in the most current version of the SOP for "Use of Portable Analyzers in Performance Tests".

(b) For any engine equipped with a catalytic converter, demonstrate the maintenance of the NO_x and CO reduction efficiency across the catalyst bed. This test shall be performed within ninety (90) days following initial startup and on a quarterly basis thereafter, unless an alternative testing schedule is specified by the Department. Properly calibrated portable analyzers are acceptable for this demonstration. The test shall be conducted at 90% or greater of full load and shall include the exhaust volume flow rate (dscf) and the NOx and CO emission rate (lb/hr).

3. Fuel Requirements

For any engine, gas fuel shall be produced natural gas, sweet natural gas, liquid petroleum gas or fuel gas containing no more than 0.1 grain of total sulfur per dry standard cubic foot. Liquid fuel shall be first run refinery grade diesel or No. 2 fuel oil that is not a blend containing waste oils or solvents and contains less than 0.3% sulfur by weight. Records shall be made semi-annually and maintained for a period of two (2) years showing the fuel gas sulfur content.

4. Revisions and Modifications

Changes in plans, specifications, and other representations made in the application documents shall not be made if they cause a change in the method of control of emissions or in the character of emissions, or will increase the discharge of emissions. Any future physical changes or changes in the method of operation may constitute a modification as defined by 20 NMAC 2.72, Construction Permits, and shall be preceded by the submittal of a permit application for review by the Department. No modification shall begin prior to issuance of a permit except as noted in 20 NMAC 2.72, Section 301.

5. Equipment Ownership

The permit and conditions apply in the event of any change in control or ownership of the facility. No permit modification is required in such case. However, in the event of any such change in control or ownership, the permittee shall notify the succeeding owner of the permit and conditions and shall notify the Department of the change in ownership within fifteen (15) days of the change of ownership.

6. Right to Access Property and Review Records

The Department shall be given the right to enter the facility at all reasonable times to verify the terms and conditions of this permit. The company, upon either a verbal or written request from an authorized representative of the Department, shall produce any records or information necessary to establish that the terms and conditions of this permit are being met.

7. Reporting

The following information shall be submitted to the Enforcement Section, Air Quality Bureau in writing:

a. the anticipated date of initial startup of each new or modified source not less than thirty (30) days prior to the date;

b. the actual date of initial startup of each new or modified source within fifteen (15) days after the startup date;

c. the date when each new or modified source reaches the maximum production rate at which it will operate within fifteen (15) days after that date;

d. any change of operators within fifteen (15) days of such change;

e. any necessary update or correction to the permit no more than sixty (60) days after the operator knows or should have known of the condition necessitating the update or correction of the permit.

8. Additional Requirements

Compliance test results and applications for permit revisions and modifications shall be submitted to:

Program Manager, Permits Section
New Mexico Environment Department
Air Quality Bureau
2048 Galisteo
Santa Fe, New Mexico 87505

Compliance test protocols, test notifications, the second copy of the test results, and excess emission reports, shall be submitted to:

Program Manager, Enforcement Section
New Mexico Environment Department
Air Quality Bureau
2048 Galisteo
Santa Fe, New Mexico 87505

Regularly scheduled reports (annual, semiannual, quarterly, or monthly) shall be submitted to:

Program Manager, Compliance Section
New Mexico Environment Department
Air Quality Bureau
2048 Galisteo
Santa Fe, New Mexico 87505

9. Revocation

The Department may revoke this permit if the applicant or permittee has knowingly and willfully misrepresented a material fact in the application for the permit. Revocation will be made in writing, and an administrative appeal may be taken to the Secretary of the Department within thirty (30) days. Appeals will be handled in accordance with the Department's Rules Governing Appeals From Compliance Orders.

10. Appeal Procedures

20 NMAC 2.72, Section 207, provides that any person who participated in a permitting action before the Department and who is adversely affected by such permitting action, may file a petition for hearing before the Environmental Improvement Board. The petition shall be made in writing to the Environmental Improvement Board within thirty (30) days from the date notice is given of the Department's action and shall specify the portions of the permitting action to which the petitioner objects, certify that a copy of the petition has been mailed or hand-delivered and attach a copy of the permitting action for which review is sought. Unless a timely request for hearing is made, the decision of the Department shall be final. The petition shall be copied simultaneously to the Department upon receipt of the appeal notice. If the petitioner is not the applicant or permittee, the petitioner shall mail or hand-deliver a copy of the petition to the applicant or permittee. The Department shall certify the administrative record to the board. Petitions for a hearing shall be sent to:

Environmental Improvement Board
1190 St. Francis Drive, Runnels Bldg.
P.O. Box 26110
Santa Fe, New Mexico 87502

If you have questions about this permit please call Sam Speaker of the New Source Review Unit in Santa Fe at (505) 827-1494, extension 1498.

Sincerely,

Cecilia Williams
Bureau Chief
Air Quality Bureau

cc: Roger Polisar, Environmental Engineer, Farmington field office
Vincent Vigil, Program Manager, Enforcement Section

State of New Mexico
ENVIRONMENT DEPARTMENT
2048 Galisteo
Santa Fe, New Mexico 87505
Telephone: (505) 827-1494
Fax: (505) 827-1523

GARY E. JOHNSON
GOVERNOR

PETER MAGGIORE
SECRETARY

June 11, 1999

CERTIFIED MAIL NO. Z 434 830 957
RETURN RECEIPT REQUESTED

Pamela K. Kerschner
Senior Environmental Engineer
El Paso Energy Corporation
614 Reilly
Farmington, NM 87401

Administrative Permit Revision
20 NMAC 2.72.219.A.1
Air Quality Permit 2232-Rev-2
Rattlesnake Canyon
Compressor Station
AIRS No. 35-045-00904

Dear Ms. Kerschner:

This letter is to acknowledge your letter of May 21, 1999 to revise El Paso Energy Corporation's Air Quality Permit Number 2232, per Title 20 of the New Mexico Administrative Code Chapter 2 Part 72 (20 NMAC 2.72) Construction Permits Section 219.A.1. The Facility is located 6 miles east of Cedar Hill, New Mexico in San Juan County. The request was received by the New Mexico Environment Department's Air Quality Bureau (Department) on May 24, 1999.

This revision consists of replacing specific condition 5 with the following condition.

> "Units No. 1 and 2 shall be equipped with a kill switch that will shut the engine off if the engine speed exceeds 1,345 RPM."

A review of the information you submitted confirms that the requirements specified in 20 NMAC 2.72, Construction Permits, Subpart II Permit Processing and Requirements, Section 219.A are met. 20 NMAC 2.72 Section 219.A.3 specifies that administrative permit revisions become effective upon receipt of the notification by the Department.

This letter shall be attached to Air Quality Permit No. 2232 issued by the Department on June 11, 1999 to serve as acknowledgment by the Department that this administrative permit revision is authorized.

If you have any questions, please do not hesitate to contact me in Santa Fe at (505)827-1494 extension 1498.

Sincerely,

Sam R. Speaker

Sam R. Speaker
Environmental Specialist
New Source Review Unit
Permitting Section

cc: Vince Vigil, Program Manager, Enforcement Section
Roger Polisar, Environmental Engineer, Farmington Field Office

EXHIBIT 6B

ALTERNATE PROJECT

AIR QUALITY PERMIT APPLICATION
AND APPROVED STREAMLINE PERMIT #2232

State of New Mexico
ENVIRONMENT DEPARTMENT
AIR QUALITY BUREAU
2048 Galisteo
Santa Fe, New Mexico 87505
Telephone (505) 827-1494
Fax (505) 827-1523

GARY E. JOHNSON
GOVERNOR

PETER MAGGIORE
SECRETARY

CERTIFIED MAIL NO. P Z 434 831 456
RETURN RECEIPT REQUESTED

Permittee:

El Paso Field Services
614 Reilly
Farmington, NM 87401

Streamline Permit No. 2232-M1
Rattlesnake Canyon
Compressor Station
AIRS No. 35-045-00904

Company Official:

Joe Velasquez
North Complex Manager

Sandra Ely
Acting Chief
Air Quality Bureau

SEP 7 1999

Date of Issuance

Air Quality Permit No. 2232 is issued by the Air Quality Bureau of the New Mexico Environment Department (Department) to El Paso Field Services. This permit authorizes the construction and operation of the **Rattlesnake Canyon** natural gas compressor station. The function of the facility is to compress natural gas through underground natural gas pipelines using reciprocating, natural gas fired compressor engines. The facility will be located in Township 32N, Range 9W, Section 16, approximately 9 kilometers northeast of Cedar Hill, New Mexico in San Juan County.

Legal Authority

The specific and general conditions of this permit are being imposed pursuant to the Air Quality Control Act (1978 NMSA, Section 74-2-1 et seq.) and regulations adopted pursuant to the Act including Title 20, New Mexico Administrative Code (NMAC), Chapter 2, Part 72, (20 NMAC 2.72), Construction Permits, Subpart II and Subpart III, and all provisions of this regulation are

applicable to this facility. This permit is enforceable pursuant to the Act and the air quality control regulations applicable to this source. This permit does not limit the requirements of the federal new source performance standards in the Code of Federal Regulations (CFR) Title 40, Part 60, Subpart A and Subpart GG to those facilities where these requirements apply. 20 NMAC 2.72, Section 210.D, states that any term or condition imposed by the Department on a permit or permit revision is enforceable to the same extent as a regulation of the Board.

Permit Compliance

Compliance with this permit will be determined by adherence of the company to the permit conditions as determined by Department inspections, the completion and submission of all compliance tests, reports, notifications and record keeping required in this permit within the time frames specified in the permit unless the Department specifically modifies the conditions of this permit in writing.

Department Conclusions

The Department has reviewed the permit application for the proposed compressor station and based on the application and the conditions of this permit, the Department has determined that the provisions of the Act, 20 NMAC 2.72, and ambient air quality standards will be met. This facility qualified for a streamline permit under 20 NMAC 2.72, Section 301 D.1. No new source performance standards (NSPS) or national emission standards for hazardous air pollutants (NESHAP) apply to this facility. During any asbestos demolition or renovation work CFR Title 40, Part 61, Subpart M (NESHAP) would apply. Conditions have been imposed in this permit to assure continued compliance.

Pursuant to 20 NMAC 2.72, the facility is subject to the following specific and general conditions in addition to the representations contained in the permit application upon which the Department has acted.

Specific Conditions

1. Construction and Operation

The compressor station shall be constructed and operated in accordance with all representations in the permit application dated August 20, 1999 and received August 23, 1999 and the additional information dated August 27, 1999 and received by FAX on August 27, 1999, and in accordance with the legal authority specified above and the conditions of this permit.

The air emission sources at this compressor station shall consist only of the following pieces of equipment.

Unit No.	Name of Unit Manufacturer	Model No.	Serial No.	NamePlate Capacity	Control Equipment Description
1	Caterpillar	G3516	-----	1265 HP	None
2	Caterpillar	G3516	-----	1265 HP	None
3	Emron, Inc	-----	-----	5.2 MMBtu/hr	None
4	Emron, Inc	-----	-----	5.2 MMBtu/hr	None

This equipment shall be maintained as per manufacturer specifications to ensure the emissions remain at or below the permitted levels in this permit.

This station is authorized to operate 24 hours per day, 7 days per week, and 52 weeks per year.

2. Emission Rates, Control Technology and Compliance Requirements

The emission rate and the applicable control technology shall apply to the equipment listed below on a continuous basis. Compliance shall be determined by the test methods and conditions in this permit:

Maximum Emission Rate

Unit No.	Site HP	Site RPM	Air Control Required	Catalytic Converter Required	Pounds Per Hour/Tons Per Year		
					NOx	CO	VOC
1	1166	1300	No	No	3.9/16.9	4.9/21.3	1.2/5.2
2	1166	1300	No	No	3.9/16.9	4.9/21.3	1.2/5.2

Maximum Emission Rate

Unit No.	Site Rating	Site Rating Units	Pounds Per Hour/Tons Per Year		
			NOx	CO	VOC
3	5.2	MM Btu/hr	0.57/2.5	0.47/2.1	0.03/0.1
4	5.2	MM Btu/hr	0.57/2.5	0.47/2.1	0.03/0.1

Initial compliance tests shall be conducted on the first engine installed at the site in accordance with the general conditions. Any engine equipped with a catalytic converter shall also have an air fuel ratio (AFR) controlling device.

3. Permit Expiration

This permit shall expire on April 30, 2001, unless physical on-site construction has begun by the date above or binding agreements or contractual obligations to undertake a program of construction of the source are entered into by the date above or, if during construction, work is suspended for a total of one (1) year. The applicant may request an extension to the expiration. Cancellation of the permit may be appealed in accordance with the provisions of 20 NMAC 2.72, Section 211. This permit shall automatically expire if the facility or equipment ceases operation for five (5) years or more, or permanently. Reactivation of any source after the five year period shall require a new permit.

4. Posting of Permit

A copy of this permit shall be posted and in view at the local office at all times. The permit shall be made available to Department personnel for inspection upon request.

5. Units No. 1 and 2 shall be equipped with kill switch that will shut the engine off if the engine speed exceeds 1,345 RPM. The site RPM will be set to 1300 RPM.

General Conditions for Permit

Streamline Categories 1 and 2

1. Compliance Tests

Engines identified in the specific permit conditions shall be tested in accordance with the procedures in this condition for nitrogen oxides (NO/NO_2) and carbon monoxide (CO). Compliance test requirements from previous permits are still in effect, unless the tests have been satisfactorily completed. Compliance tests may be reimposed if Department inspections indicate possible noncompliance with permit conditions subject to such testing, or noncompliance during the initial compliance or subsequent compliance tests, including the quarterly verification tests, or if the tests were technically unsatisfactory. Engines equipped with catalytic converters shall be tested to determine converter control efficiency at the time of initial compliance test.

The tests shall be conducted in accordance with EPA Reference Methods 1 through 4, Method 7E for reciprocating engines or Method 20 for stationary gas turbines, and Method 10 contained in CFR Title 40, Part 60, Appendix A. Unless specified otherwise by the Department, the test shall also follow the procedures in Subpart A, General Provisions in CFR Title 40, Part 60.8 (f). For stationary turbines, Subpart GG, Section 60.335 test methods and

procedures shall be used to determine compliance with the Section 60.332(a)(2) emission standard for nitrogen oxides (NO_x). The results of the tests for NO_x shall be expressed as nitrogen dioxide (NO_2) using a molecular weight of 46 lb/lb mole in all calculations (each ppm of NO/NO_2 is equivalent to 1.194×10^{-7} pounds per standard cubic foot). No correction for fuel bound nitrogen will be allowed.

The tests shall be conducted within sixty (60) days after achieving the maximum production rate at which the engine will normally be operated. If the maximum production rate does not occur within thirty (30) days of engine startup, then the tests must be conducted no later than ninety (90) days after initial startup of each engine.

The owner or operator shall notify the Department at least thirty (30) days prior to the date and time of testing, and provide the Department an opportunity to have an observer present during the testing. The permittee shall arrange a pre-test meeting with the Department at least fourteen (14) days prior to the anticipated test date and shall observe the following pre-testing and testing procedures:

a) The permittee shall provide for the Department's approval a written test protocol at least one (1) week prior to the anticipated pre-test meeting date. The protocol shall describe the test methods to be used (including sampling methods and calibration procedures), shall list the equipment or devices to be tested (including sampling locations), and shall describe data reduction procedures. Any variation from established sampling and analytical procedures or from compressor station operating conditions shall be presented for Department approval.

b) The test protocol and compliance test report shall conform to the standard format specified by the Department. The most current version of the format may be obtained from the Enforcement Section of the Air Quality Bureau.

c) The permittee shall provide (a) sampling ports adequate for the test methods applicable to the facility, (b) safe sampling platforms, (c) safe access to sampling platforms and (d) utilities for sampling and testing equipment. Sample ports of a size compatible with the test methods shall be located on the stack of each engine/turbine in accordance with the provisions of EPA Method 1 in CFR Title 40, Part 60, Appendix A. The stack shall be of sufficient height and diameter so that a representative test of the emissions can be performed in accordance with EPA Method 1.

d) The permittee shall also provide a one-quarter (1/4) inch stainless steel sampling line adjacent to the sampling ports and extending down to within four (4) feet above ground level to provide access for future audits. The line shall extend into the stack a distance of 1/4 the stack diameter, but not less than one inch from the stack wall. The sampling line shall be maintained clear of blockage at all times. This line shall be

in place at the time of any required compliance tests. For any source for which compliance tests are not required or for previously existing sources this line shall be installed no later than one hundred and eighty (180) days from the date of this permit.

The owner or operator may provide a portable sampling line that is readily available which allows the Department to safely obtain representative stack gas samples at the time of compliance audits or site inspections.

e) During the compliance tests, the engine RPM, reciprocating engine ignition timing, engine compressor suction and discharge pressures, suction volume, horsepower output, and fuel consumption shall be monitored and recorded. Engines used to drive electric generators shall record the generator electrical output instead of compressor suction and discharge parameters. This information shall be included with the test report that is required to be furnished to the Department and shall be listed in tabular form or as part of the summary page of the test report.

The tests shall be conducted at ninety (90%) or greater of the full normal load as stated in this permit, or in the application if not in the permit, and at additional loads when requested by the Department. The permittee may request exceptions to this loading (such as loading necessitated by operating condition) from the Enforcement Section of the Air Quality Bureau. The load and the parameters used to calculate it shall be recorded to document operating conditions and shall be included with the test report to the Department.

f) Where necessary to prevent cyclonic flow in the stack, flow straighteners shall be installed.

g) Two copies of the compliance test reports shall be submitted to the Department within thirty (30) days after completion of testing at the address in Condition 8 below.

2. Control Equipment Recordkeeping and Reporting

For engines or turbines equipped with catalytic converters and/or air fuel ratio (AFR) type controllers, quarterly reports shall be submitted to the Department within thirty (30) days of the end of each calendar quarter which include: the results of the catalyst performance verification, and repair or replacement of the catalytic converter or AFR controlling system.

Records shall be made and maintained by the owner or operator for a period of at least two (2) years from the date of generation, and a summary of the quarterly reports shall be submitted to the Department annually, which:

(a) For each air fuel ratio type controller, demonstrate that the manufacturer's or supplier's recommended maintenance is performed, including replacement of oxygen

sensor as necessary for oxygen-based controllers. Verification of proper operation of the controller shall be demonstrated at least quarterly by measuring and recording exhaust oxygen or NO_x concentrations with a properly calibrated portable analyzer as specified in the most current version of the SOP for "Use of Portable Analyzers in Performance Tests".

(b) For any engine equipped with a catalytic converter, demonstrate the maintenance of the NO_x and CO reduction efficiency across the catalyst bed. This test shall be performed within ninety (90) days following initial startup and on a quarterly basis thereafter, unless an alternative testing schedule is specified by the Department. Properly calibrated portable analyzers are acceptable for this demonstration. The test shall be conducted at 90% or greater of full load and shall include the exhaust volume flow rate (dscf) and the NOx and CO emission rate (lb/hr).

3. Fuel Requirements

For any engine, gas fuel shall be produced natural gas, sweet natural gas, liquid petroleum gas or fuel gas containing no more than 0.1 grain of total sulfur per dry standard cubic foot. Liquid fuel shall be first run refinery grade diesel or No. 2 fuel oil that is not a blend containing waste oils or solvents and contains less than 0.3% sulfur by weight. Records shall be made semi-annually and maintained for a period of two (2) years showing the fuel gas sulfur content.

4. Revisions and Modifications

Changes in plans, specifications, and other representations made in the application documents shall not be made if they cause a change in the method of control of emissions or in the character of emissions, or will increase the discharge of emissions. Any future physical changes or changes in the method of operation may constitute a modification as defined by 20 NMAC 2.72, Construction Permits, and shall be preceded by the submittal of a permit application for review by the Department. Unless the source or activity is exempt under 20 NMAC 2.72, Section 202, no modification shall begin prior to issuance of a permit except as noted in 20 NMAC 2.72, Section 301.

5. Equipment Ownership

The permit and conditions apply in the event of any change in control or ownership of the facility. No permit modification is required in such case. However, in the event of any such change in control or ownership, the permittee shall notify the succeeding owner of the permit and conditions and shall notify the Department of the change in ownership within fifteen (15) days of the change of ownership.

6. Right to Access Property and Review Records

The Department shall be given the right to enter the facility at all reasonable times to verify the terms and conditions of this permit. The company, upon either a verbal or written request from an authorized representative of the Department, shall produce any records or information necessary to establish that the terms and conditions of this permit are being met.

7. Reporting

The following information shall be submitted to the Enforcement Section, Air Quality Bureau in writing:

a. the anticipated date of initial startup of each new or modified source not less than thirty (30) days prior to the date;

b. the actual date of initial startup of each new or modified source within fifteen (15) days after the startup date;

c. the date when each new or modified source reaches the maximum production rate at which it will operate within fifteen (15) days after that date;

d. any change of operators within fifteen (15) days of such change;

e. any necessary update or correction to the permit no more than sixty (60) days after the operator knows or should have known of the condition necessitating the update or correction of the permit.

8. Additional Requirements

Compliance test results and applications for permit revisions and modifications shall be submitted to:

Program Manager, Permits Section
New Mexico Environment Department
Air Quality Bureau
2048 Galisteo
Santa Fe, New Mexico 87505

Compliance test protocols, test notifications, the second copy of the test results, and excess emission reports, shall be submitted to:

Program Manager, Enforcement Section
New Mexico Environment Department
Air Quality Bureau
2048 Galisteo
Santa Fe, New Mexico 87505

Regularly scheduled reports (annual, semiannual, quarterly, or monthly) shall be submitted to:

Program Manager, Compliance Section
New Mexico Environment Department
Air Quality Bureau
2048 Galisteo
Santa Fe, New Mexico 87505

9. Revocation

The Department may revoke this permit if the applicant or permittee has knowingly and willfully misrepresented a material fact in the application for the permit. Revocation will be made in writing, and an administrative appeal may be taken to the Secretary of the Department within thirty (30) days. Appeals will be handled in accordance with the Department's Rules Governing Appeals From Compliance Orders.

10. Appeal Procedures

20 NMAC 2.72, Section 207, provides that any person who participated in a permitting action before the Department and who is adversely affected by such permitting action, may file a petition for hearing before the Environmental Improvement Board. The petition shall be made in writing to the Environmental Improvement Board within thirty (30) days from the date notice is given of the Department's action and shall specify the portions of the permitting action to which the petitioner objects, certify that a copy of the petition has been mailed or hand-delivered and attach a copy of the permitting action for which review is sought. Unless a timely request for hearing is made, the decision of the Department shall be final. The petition shall be copied simultaneously to the Department upon receipt of the appeal notice. If the petitioner is not the applicant or permittee, the petitioner shall mail or hand-deliver a copy of the petition to the applicant or permittee. The Department shall certify the administrative record to the board. Petitions for a hearing shall be sent to:

Environmental Improvement Board
1190 St. Francis Drive, Runnels Bldg.
P.O. Box 26110
Santa Fe, New Mexico 87502

If you have questions about this permit please call Sam Speaker of the New Source Review Unit in Santa Fe at (505) 827-1494, extension 1498.

cc: Roger Polisar, Environmental Engineer, Farmington field office
Vincent Vigil, Program Manager, Enforcement Section

EXHIBIT 7

SOUND SURVEY AND MODELING RESULTS

HFP ACOUSTICAL, INC.

HOUSTON, TEXAS

El Paso Field Services
Proposed Rattlesnake Canyon Plant
Potential Noise Impact Modeling

Potential noise contributions from El Paso Field Services' proposed plant in Rattlesnake Canyon have been calculated for the nearest Noise Sensitive Area, a hunting cabin located approximately 1.3 miles to the northeast of the plant site. Sound level contours have also been developed, showing the potential noise influence of the plant contributions in surrounding areas.

Computer Noise Model

The sound propagation calculations were made using SoundPLAN 4.2, a highly-respected and accurate noise model produced by Braunstein+Berndt. The CONCAWE protocol was employed, including ANSI 1.26 air absorption calculations. The model takes into account several factors which affect sound propagation, including individual equipment noise source sound power levels (point, line, area, and building sources), source directivity, geometric spreading, air absorption, ground absorption, barriers, reflective surfaces, ground topography, and meteorological conditions. An electronic version of a USGS map was imported into the noise model, to provide elevation details for the propagation calculations. The model propagates the sound level values on an octave band basis for each source-receiver pair. By utilizing thousands of receiver calculation points, the program can create colored noise contour maps which show the extent of noise propagation from all input sources.

Sound Level Input Data and Model Assumptions

The Rattlesnake Canyon plant will have several processing components, including two reboilers, a contactor, reflux condenser, regen skid, gas cooler, and gas scrubber. There will also be two Ariel JGE-4/2 compressors, each driven by a Caterpillar 3516TA engine. These engines will be the only significant noise sources at the plant. The sound power level rating of even one of the engine casings will be at least 10 dBA greater than the combined rating for the plant processing equipment noted above. The compressors are also insignificant noise sources compared with the engines. In fact, the engines will account for more than 95 percent of the total sound energy produced by the plant. Consequently, an accurate model of the environmental noise impacts was developed using the noise contributions from the two engine casings, engine exhausts, and jacket-water/aftercoolers. The following sound power level ratings were used in the model, based on equipment manufacturer data.

Table 1: Summary of Sound Power Level Ratings								
	Octave Band Center Frequencies, Hz							
	63	125	250	500	1000	2000	4000	8000
Components	**Linear Sound *Power* Levels, dB**							
Caterpillar 3516TA engine **casing** (mechanical noise)	113	114	110	109	112	112	108	102
Caterpillar 3516TA engine **exhaust** (unsilenced)	116	121	123	119	122	121	122	117
Air-X 156EH jacket-water/gas cooler (shaft-driven)	104	103	100	95	89	87	83	73

It must be noted that the values above are sound *power* levels, not sound pressure levels. Sound *power* levels are a measure of intrinsic sound energy generation, similar in concept to the wattage rating of light bulbs. Sound *power* levels cannot be directly measured with a meter. By contrast, sound pressure levels can be measured, and are the commonly used parameters for quantifying environmental sound. Although sound *power* levels and sound pressure levels are logarithmic quantities and are therefore expressed in terms of decibels, they describe very different physical quantities and cannot be directly compared.

Sound Level Model Results

The noise model was used to calculate the sound pressure levels expected at the nearest NSA. The results are shown in **Table 2** for two conditions: with and without Maxim M41 exhaust silencers on both engines. The M41 is a so-called "residential" grade muffler, commonly used when this type of engine is installed in inhabited areas.

Table 2: Summary of Sound Pressure Levels at Nearest NSA									
	Octave Band Center Frequencies, Hz								
	63	125	250	500	1000	2000	4000	8000	
NSA	**Linear Sound Pressure Levels, dB**								**dBA**
Hunting Cabin with M41 engine silencers	24.7	18.4	5.5	5.6	7.7	--	--	--	**10.6**
Hunting Cabin with no engine silencers	27.4	24.3	17.3	17.1	18.3	8.0	--	--	**20.6**

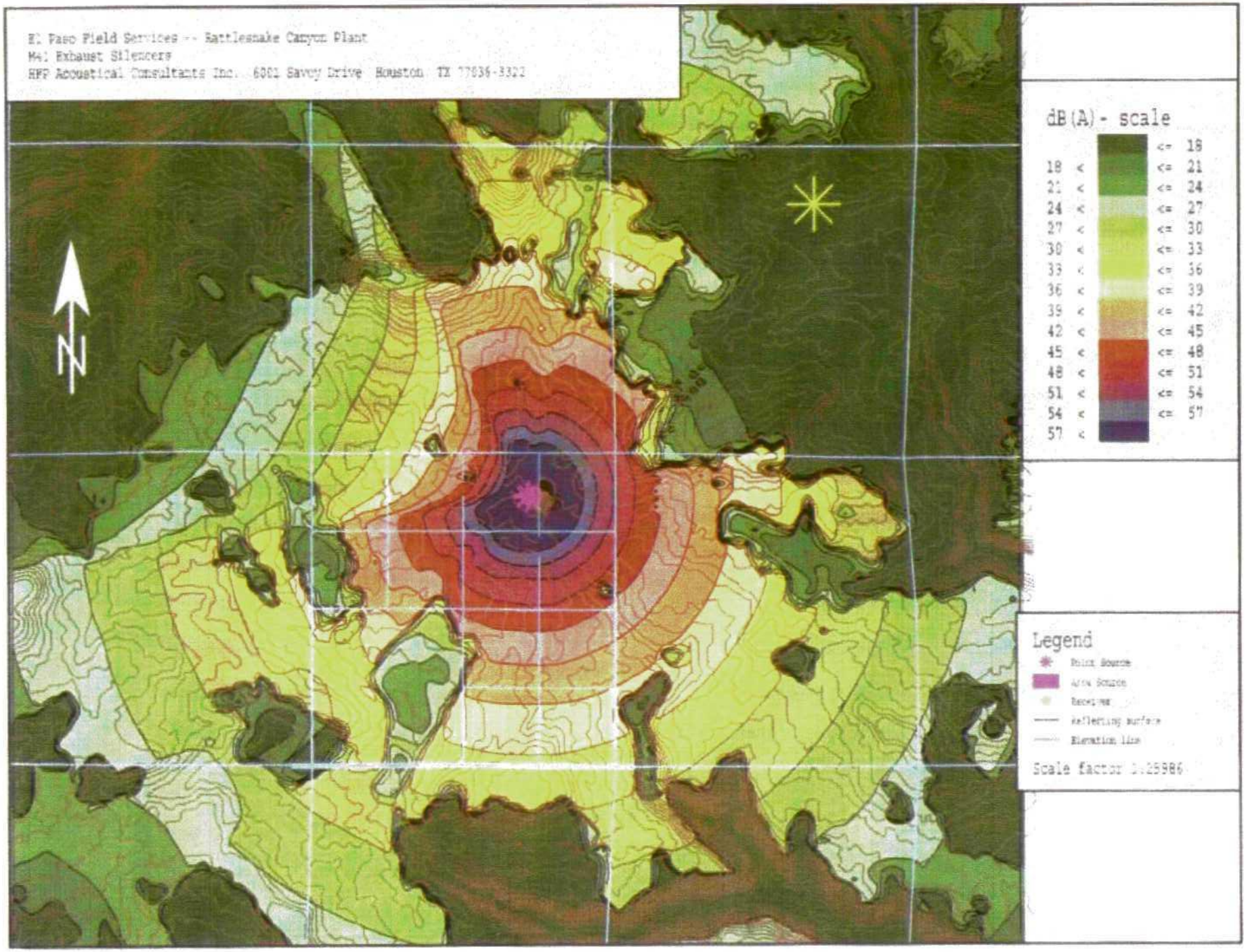
As **Table 2** indicates, the anticipated sound levels at the NSA are extremely low for either condition. The results are shown in terms of the continuous average values for full-load operation of both compressor units. The Ldn value can be computed for a continuous source by adding 6.4 dBA to the A-weighted value of the source. **Thus, for this case, the Ldn values for the cabin would be 17 dBA with M41 silencers, and 27 dBA with no silencers.** This is well below the 55 dBA Ldn limit (equivalent to continuous 48.6 dBA contribution) of the Federal Energy Regulatory Commission for compressor station contributions.

Color Noise Contours

The color noise contours included with this document show a visual representation of the predicted sound contributions from the proposed Rattlesnake Canyon plant. The first contour, with the label "M41 Exhaust Silencers," shows the anticipated levels in the areas around the plant with those mufflers installed. The overlapping magenta stars near the center of the figure show the source locations at the plant. The yellow star shows the hunting cabin location. The large blue grids are one-mile section limits from the USGS map. The second contour, "No Engine Exhaust Silencers," shows the results expected with that condition.

Summary

The noise impact from the proposed plant will be extremely small at the nearest Noise Sensitive Area. With engine exhaust silencers, the plant contribution at the NSA will be less than 11 dBA, and with no silencers it will be less than 21 dBA. For reference, this is well below the 48.6 dBA equivalent FERC limits for compressor station noise.


El Paso Field Services -- Rattlesnake Canyon Plant
M41 Exhaust Silencers
HFP Acoustical Consultants Inc. 6001 Savoy Drive Houston TX 77036-3312
dB(A) - scale
<= 18
18 < <= 21
21 < <= 24
24 < <= 27
27 < <= 30
30 < <= 33
33 < <= 36
36 < <= 39
39 < <= 42
42 < <= 45
45 < <= 48
48 < <= 51
51 < <= 54
54 < <= 57
57 <
N
Legend
Point Source
Area Source
Receiver
Reflecting surface
Elevation line
Scale factor 1.259986

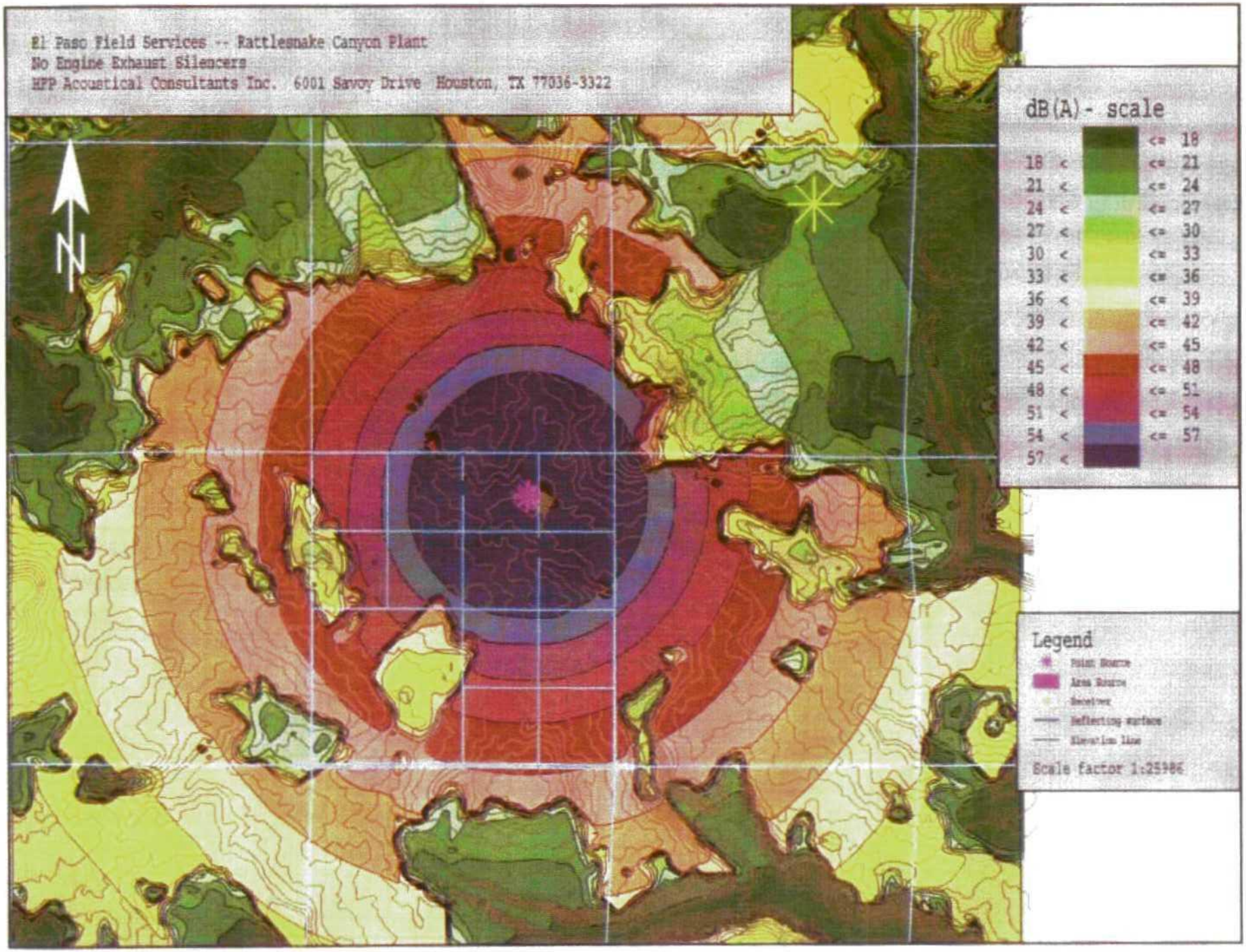
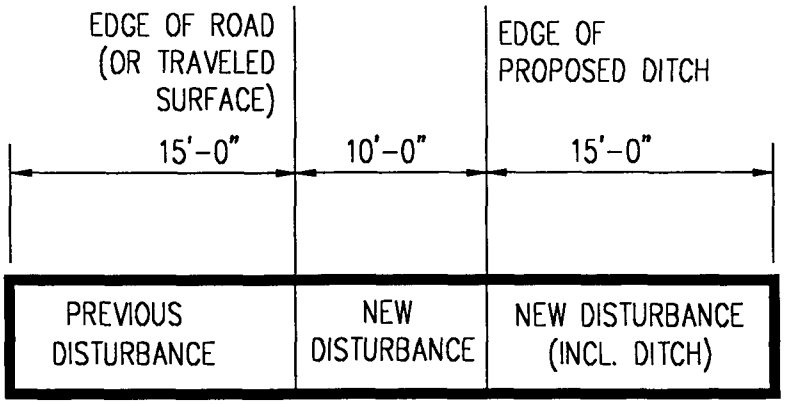
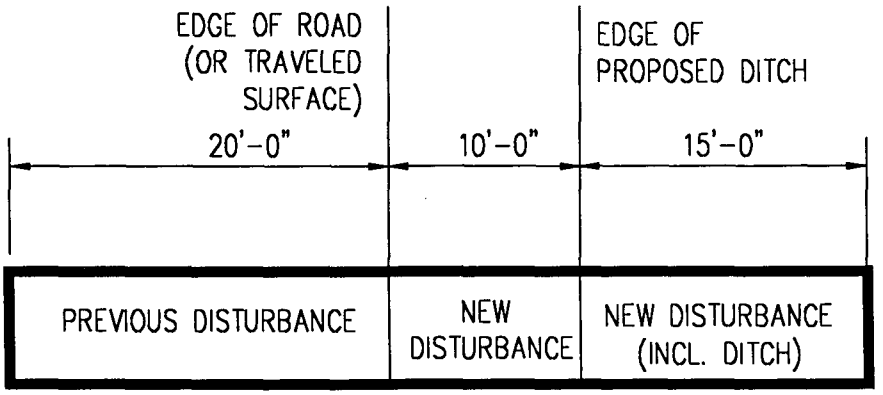

El Paso Field Services -- Rattlesnake Canyon Plant
No Engine Exhaust Silencers
HFP Acoustical Consultants Inc. 6001 Savoy Drive Houston, TX 77036-3322
N
dB(A) - scale
<= 18
18 < <= 21
21 < <= 24
24 < <= 27
27 < <= 30
30 < <= 33
33 < <= 36
36 < <= 39
39 < <= 42
42 < <= 45
45 < <= 48
48 < <= 51
51 < <= 54
54 < <= 57
57 <
Legend
Scale factor 1:25986

EXHIBIT 8

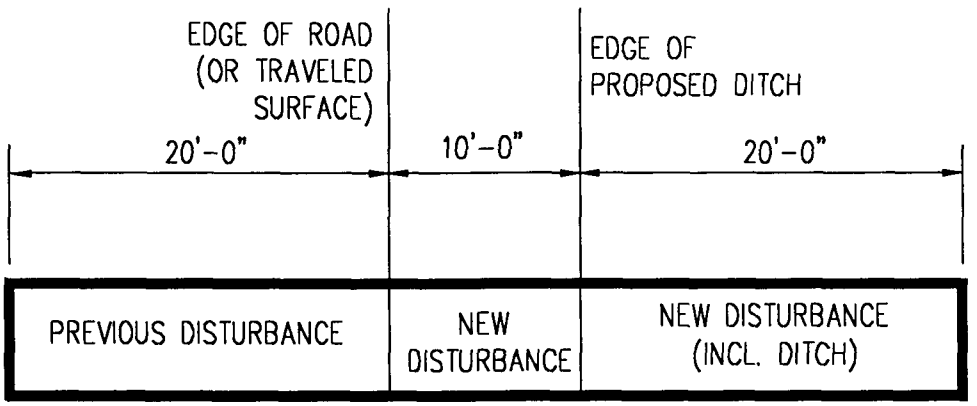
ROW CLEARING DIAGRAMS



40' PIPELINE ROW



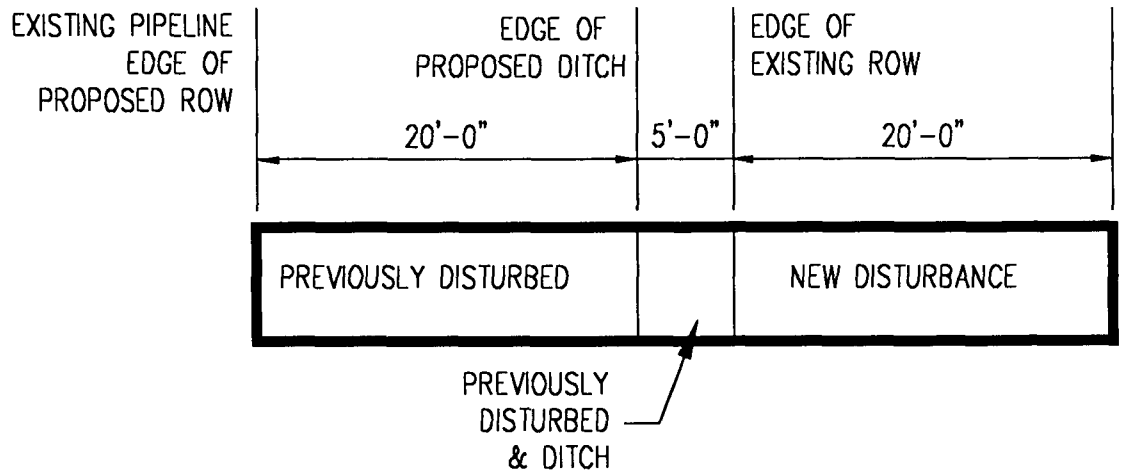
45' PIPELINE ROW



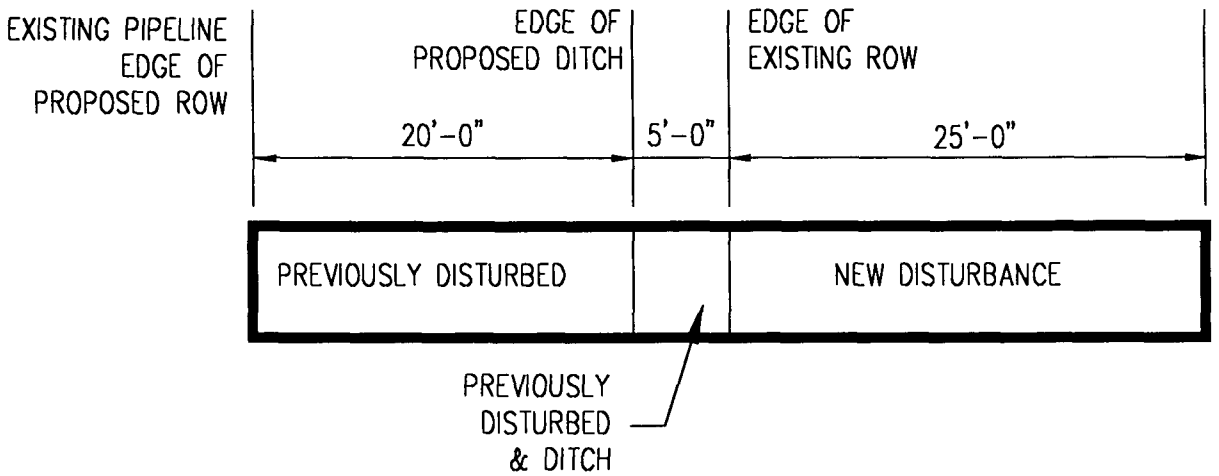
50' PIPELINE ROW

DISTURBANCE ON ROUTES BESIDE ROADS

FILE NAME:	DATE DRAWN: 3/31/99	PREPARED BY
ROADPL	DRAWN BY: JKR	TRIGON SHEEHAN ENGINEERS & CONSTRUCTORS



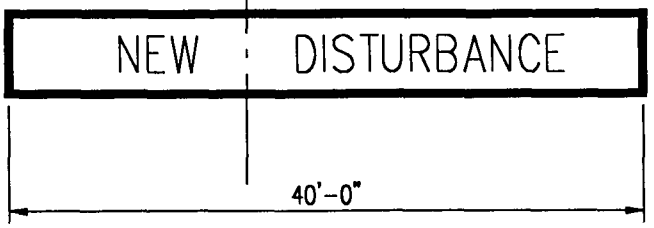
45' PIPELINE ROW



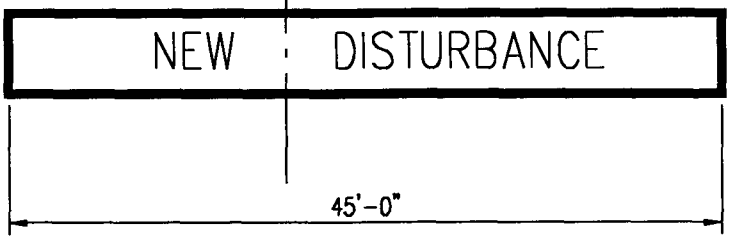
50' PIPELINE ROW

DISTURBANCE ON ROUTES BESIDE EXISTING PIPELINES

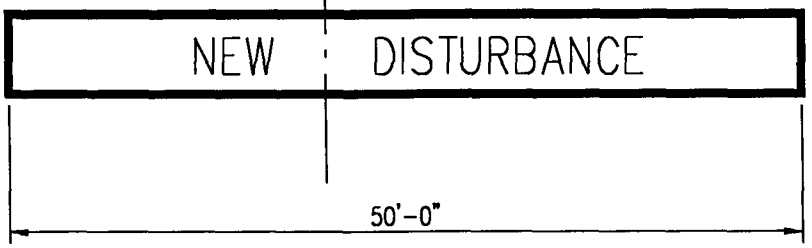
FILE NAME:	DATE DRAWN: 3/31/99	PREPARED BY
EXISTPL	DRAWN BY: JKR	TRIGON SHEEHAN ENGINEERS & CONSTRUCTORS



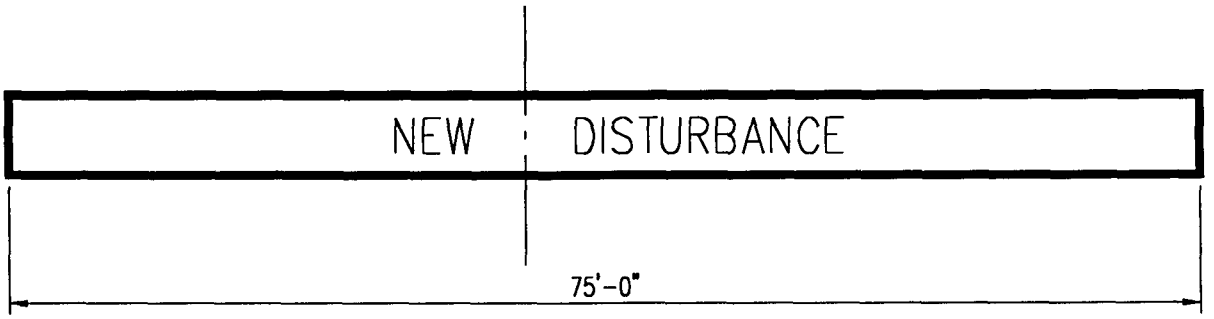
PERMANENT ROW FOR 4" ø PIPE



PERMANENT ROW FOR 6" TO 8" ø PIPE



PERMANENT ROW FOR 10" TO 12" ø PIPE



TEMPORARY AND PERMANENT ROW FOR 16" TO 30" ø PIPE

NOTE: THE 25' TEMPORARY USE AREA WOULD NOT BE USED IN ALL CASES, SOMETIMES NONE WOULD BE USED AND SOMETIMES ONLY A PORTION.

DISTURBANCE ON CROSS COUNTRY ROUTES
SINGLE PIPES 4"-30" DIAMETER

FILE NAME:	DATE DRAWN: 3/31/99	PREPARED BY
CRSCNTRY	DRAWN BY: JKR	TRIGON SHEEHAN ENGINEERS & CONSTRUCTORS

EXHIBIT 9

COMPLIANCE AND MONITORING PLAN

EXHIBIT 9

COMPLIANCE AND MONITORING PLAN

Rattlesnake Canyon Project

This Compliance and Monitoring Plan (Plan) describes how El Paso Field Services (EPFS) and its contractors will implement the mitigation measures required by the Bureau of Land Management's Grant of Right-of-way for the Rattlesnake Canyon Project.

I. Preconstruction Activities

A. EPFS has implemented a program of preconstruction planning with its contractors that has resulted in the communication and mutual understanding of all environmental requirements that pertain to this project. The identification of problem areas and the development of practicable solutions, the development of construction specifications, and the preparation and review of detailed construction drawings have all been completed prior to construction.

B. EPFS has helped the contractors to understand exactly what EPFS is expecting in the implementation of required environmental mitigation procedures. EPFS has also evaluated the methods that the contractor is proposing to use and determined the appropriateness of each method relative to environmental compliance. This has allowed the contractor to develop a realistic construction cost estimate that helps to ensure the implementation of the necessary environmental mitigation protection measures.

C. All construction and inspection personnel must be aware of the environmental requirements and how and where they pertain. EPFS has incorporated detailed environmental information into the various documents that its construction contractors use to become familiar with the project, prepare cost proposals and provide site-specific information during construction. By providing the contractor with detailed site-specific environmental information in the bid specifications and construction drawings, the contractor is also made aware that EPFS is placing the same level of emphasis on compliance with the environmental specifications as on the construction and engineering specifications.

D. EPFS will convey its environmental and landowner commitments to the contractor and its inspectors through the use of **Construction Handbooks**. These handbooks are designed to combine EPFS's standard design and construction specifications with the environmental requirements of the Bureau of Land Management Grant of Right-of-way; Corp of Engineers, Environmental Protection Agency, and U.S. Fish and Wildlife

Service; State Historic Preservation Office and other State of New Mexico permits. The Handbooks and Drawing Package will become part of the Contract Documents. The Construction Handbooks have site-specific obligations listed.

E. The Alignment Sheets include site-specific information such as, but not limited to: intermittent stream locations; and right-of-way configurations through sensitive environmental areas.

F. To ensure that the contractors are aware of all environmental requirements during the preparation of their bid documents and final cost estimates, EPFS provided each contractor with a copy of the Construction Handbook and associated drawings. These documents become part of the contract and will be legally binding. This information, together with the time spent in the field reviewing the project prior to construction, will help ensure that the contractor is completely aware of not only the environmental requirements, but also the site-specific location for placement and quantity of material required to comply with all permit obligations and commitments.

G. To ensure that contractors are fully aware of EPFS's corporate commitment to environmental compliance, EPFS requires all contractors to sign a contract that states the contractor will comply with all environmental laws and requirements and provides penalties for willful negligence of such laws and requirements.

II. Environmental Inspection: Quality Assurance (QA), Quality Control (QC) Program

A. EPFS's QA/QC personnel for the project will be:

1. A Chief Inspector (Construction) will oversee the entire inspection process and will be either an EPFS employee or a third-party contractor. The Chief Inspector (CI) may have a team of people (craft inspectors), both EPFS employees and/or third-party contractors, reporting to him.

2. A third-party contract Quality Assurance Inspector (QA) will be assigned to the project to oversee the environmental inspection process. The QA will have a team of people (environmental inspectors), both EPFS employees and/or third-party contractors (BLM's Quality Control Inspectors), reporting to him/her.

3. With regard to environmental compliance, QA has the same level of authority as the Chief Inspector. EPFS will require both environmental and craft inspectors to be responsible for compliance with the appropriate environmental requirements.

B. Assignments and Responsibilities

1. The QA will be the primary Bureau of Land Management (BLM) contact for the project. The primary role of the QA is to ensure environmental compliance on the project and to coordinate the day-to-day activities of the other environmental inspectors during construction. As many environmental monitors (BLM's Quality Control Inspectors) as needed to adequately monitor the construction will assist the QA. There will be two to six construction workers trained to work under the direction of the QA and dedicated to maintaining erosion control devises and other environmental duties. Other responsibilities of the QA will include coordinating monitoring activities and reporting to the El Paso Field Services Environmental, Health and Safety Department.

2. The CI will be responsible for enforcing the contract terms, all requirements in the Plan of Development, and the various right-of-way grant stipulations. The role of the CI is to ensure that the work on the project is completed to specifications in a timely manner, in compliance, and within budget while coordinating the activities of the craft inspectors during construction.

3. The QA will report to Ms. Kathy Ollom (505-599-8914), the BLM Authorized Officer's Designated Representative and primary BLM contact for the project.

4. The CI and the QA will also report to Mr. Jim Evanoff (505-599-2173), Project Manager, EPFS, Farmington, NM or his designated representative.

C. Process and Duties

1. Sufficient project inspectors (Construction) and environmental inspectors will be assigned to the project to oversee the construction process (including right-of-way clearing, ditching, backfilling, and reclamation) and maintain compliance with all required stipulations. Some operations may require more inspectors due to special construction situations. In these cases, EPFS will work with BLM to determine the necessary numbers.

2. EPFS will provide all project inspectors a copy of the Construction Handbook and a copy of the Plan of Development for this project, which will be kept in their possession at all, times during construction.

3. The QA will submit daily environmental compliance reports, using forms developed by EPFS and approved by BLM, to the CI. Report summaries will be taken by QA to the BLM weekly at an agreed upon time (i.e. every Monday morning). Time will be allocated for a short visit with the BLM Authorized Officer's Designated Representative for the project. The QA will provide a summary at the end of the project incorporating on-the -ground construction and

reclamation, any archeological discoveries, etc. to the BLM, and the El Paso Field Services Environmental, Health and Safety Department.

4. EPFS or its contracted firm will provide the CI, the QA, and the environmental inspectors with adequate equipment to perform compliance, e.g., measuring tapes, slope measuring instruments, mobile communications, etc.

5. The QA will be on the job constantly during construction and reclamation operations.

6. The QA will enforce all environmental compliance on the project.

7. The QA and environmental inspectors will patrol and keep vehicles (trucks, employee vehicles, etc.) on the project right-of-way, temporary use areas, and existing roads.

D. Non-Compliance

1. The CI and QA will be on the job constantly during construction and clean up operations to detect any non-compliance.

2. In the event of non-compliance with any of the state or federal environmental regulations or requirements occurs, the cause of the noncompliance will be determined and corrective action will be requested immediately from the contractor. If the situation either results in significant environmental impact or cannot be immediately corrected, the QA and the CI will be notified immediately. The QA and the CI will keep the project Manager (Mr. Kent Leidy, 505-299-2177) appraised of the situation as information becomes available. The BLM Authorized Officer's Representative (Ms. Kathy Ollom 505-599-8914) will immediately be notified by EPFS Project Management El Paso Field Services Environmental, Health and Safety Department. If EPFS Project Management or El Paso Field Services Environmental, Health and Safety Department is not available, the CI or the QA will report directly to BLM. Work will not resume in that area of the project until BLM authorizes work to resume.

3. All instances of noncompliance will be documented on specific noncompliance report forms (see Figure 1) for review by the BLM, the Project Manager, the Construction Superintendent, and the Project Environmental Supervisor. The report forms will include the location, date, time, and description of the noncompliance action, the individual who identified the noncompliance and the requested corrective action, and a description and inspector sign-off of the follow-up inspection. A copy of all noncompliance

reports will be forwarded to the Project Environmental Supervisor for filing and for reference when preparing the updated weekly reports to be sent to the BLM.

4. In the event of noncompliance actions, EPFS reserves the right to remove the responsible individual(s) from the project. If there is continued noncompliance or lack of response by the Contractor, EPFS will shut down some or all construction activity, at the Contractor's expense, until the issue is resolved. The Project Manager, the Construction Superintendent, the CI, and all environmental inspectors can issue a Stop Work Order. Under specific conditions, special resource monitors will have authority to stop work at a site-specific location.

5. BLM Actions

(a) BLM will cause EPFS to remove the QA or environmental inspectors from this right-of-way if spot inspection by BLM personnel (occurring on a random, unannounced schedule) reveals more than three (3) cases of unreported non-compliance in the QA's or environmental inspector's area of responsibility.

(b) A "Work Stoppage Order" to temporarily suspend construction activities pursuant to 43 CFR 2883.5 will be issued by BLM to EPFS if a construction company or sub-contractor does not take action to remove an employee (including supervisors) that are causing/ordering the non-compliance mentioned above.

(c) BLM will cause EPFS to remove individual truck drivers or equipment operators that are involved directly in more than three (3) cases of non-compliance. The supervisor that may be causing/ordering the non-compliance will be removed from the right-of-way.

(d) Excessive and/or continuous non-compliance that demonstrates that this Compliance Plan is not ensuring compliance with the mitigation included in the Environmental Assessment, Plan of Development, or right-of-way grant (as determined by BLM) will cause issuance of a "Work Stoppage Order" by BLM to EPFS to temporarily suspend activities pursuant to 43 CFR 2883.5. This will affect all areas of construction on this right-of-way that BLM does not have sufficient personnel to monitor.

(e) Excessive and/or continuous non-compliance that would demonstrate a disregard for stipulations or the resources that the stipulations are written to protect will result in suspension or termination of the BLM right-of-way grant pursuant to 43 CFR 2883.6-1. This will include the

opportunity for a hearing before an Administrative Law Judge pursuant to 43 CFR Part 4.

C. The CI will conduct periodic on-site inspections of the construction project. The QA will periodically review areas being inspected by the environmental inspectors. Additionally the CI will review records and keep track of the project's overall efficiency and compliance with BLM and project standards.

D. BLM will inspect the project with and without the CI or QA on a random schedule.

III. Archaeological Discovery Program

Archaeological monitoring will be performed as needed based on the project stipulations. Construction discoveries will be handled in the following manner.

Upon discovery of an archaeological site during construction, EPFS will immediately suspend activities in the vicinity of the site and report the discovery to the QA. The QA will notify the BLM Farmington Field Authorized Officer's Designated Representative and the BLM Farmington Field Archaeologist, Dave Simons (505-599-6336) of the discovery. Construction will remain suspended until authorization to proceed is issued by the BLM Authorized Officer's Designated Representative in consultation with the Farmington Field Archaeologist.

All questions concerning proper archaeological procedures will be directed to the Farmington Field Archaeologist.

The Farmington Field Archaeologist will inspect the project without prior notification to EPFS or its contractors and subcontractors.

IV. Project Summary

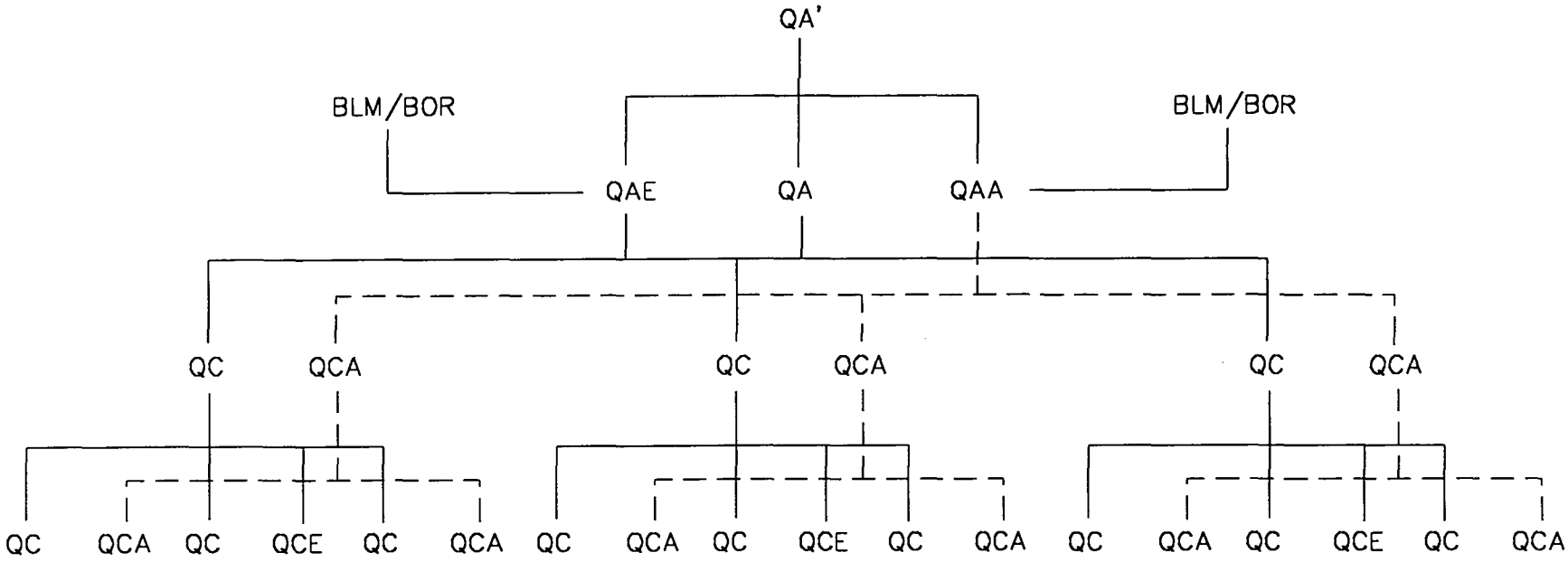
At the end of the project, a summary report will be completed by EPFS in conjunction with the QA regarding the environmental compliance program and the overall compliance effort.

V. Communication Chart

See Figure 1, following.

Telephone Numbers of Key Personnel:

1. Bob Yungert - EPFS Overall Project Manager	713-757-6211
2. Jim Evanoff - EPFS Pipeline Project Manager	505-599-2173
3. Kent Leidy – EPFS Project Integration	505-599-2177
4. David Bays – EPFS Environmental	505-599-2256
5. Kathy Ollom - Farmington BLM Authorized Officer' Representative	505-599-8914
6. Dave Simons – Farmington BLM Archeologist	505-599-6336



QC – QUALITY CONTROL – CONSTRUCTION

QA – QUALITY ASSURANCE – CONSTRUCTION

QCA – QUALITY CONTROL – ARCHAEOLOGY

QAA – QUALITY ASSURANCE – ARCHAEOLOGY

QA' – QUALITY ASSURANCE – SUPERVISOR

QCE – QUALITY CONTROL – ENVIRONMENTAL

QAE – QUALITY ASSURANCE – ENVIRONMENTAL

EPFS RATTLESNAKE PLANT PROJECT 1999

COMPLIANCE PLAN
ORGANIZATIONAL CHART

FILE NAME: COMPLIANCE	DATE DRAWN: 7/16/99 DRAWN BY: D. Sittner	PREPARED BY TRIGON ENGINEERING INC DENVER COLORADO FARMINGTON NEW MEXICO

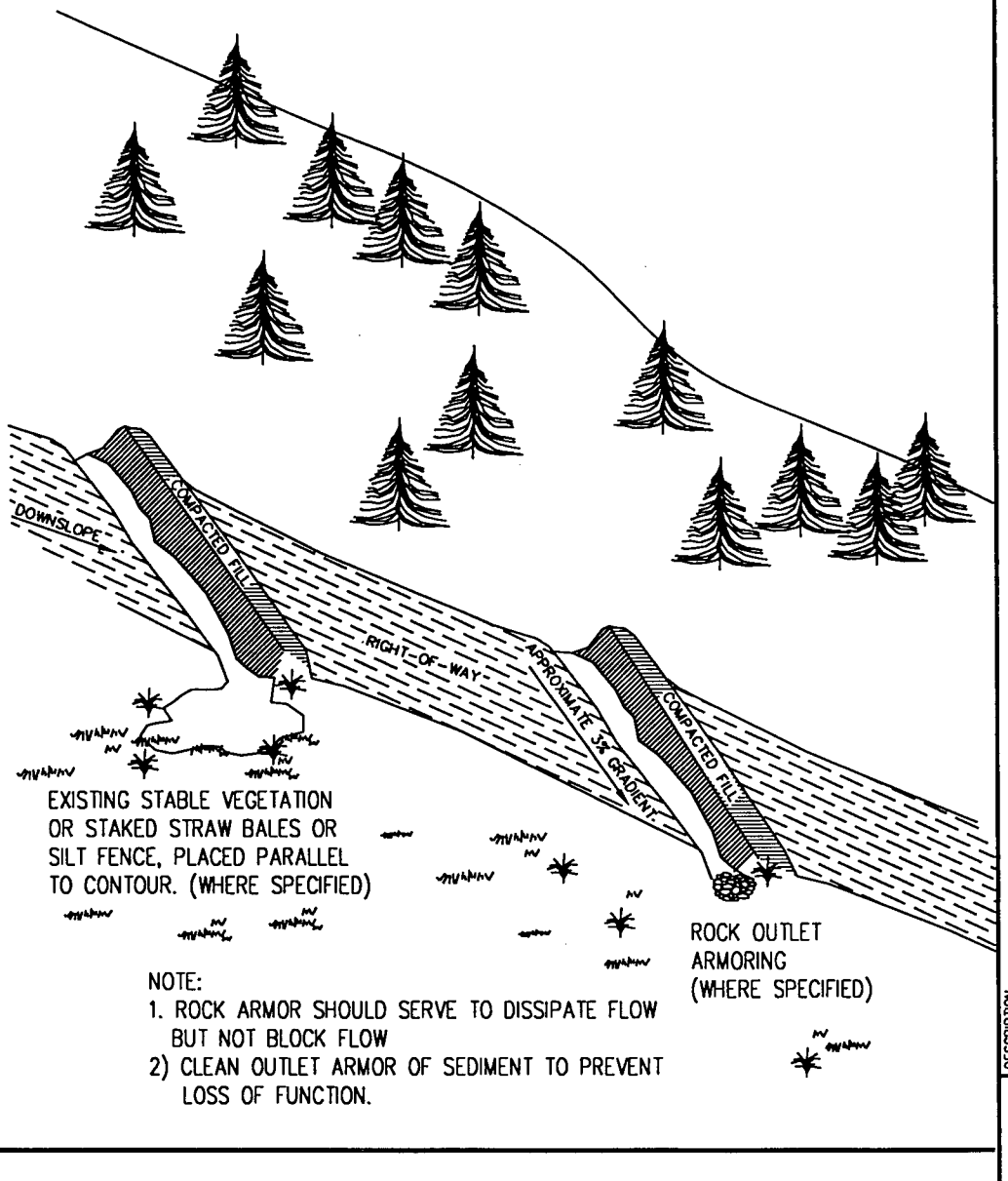
EXHIBIT 10

WATERBAR

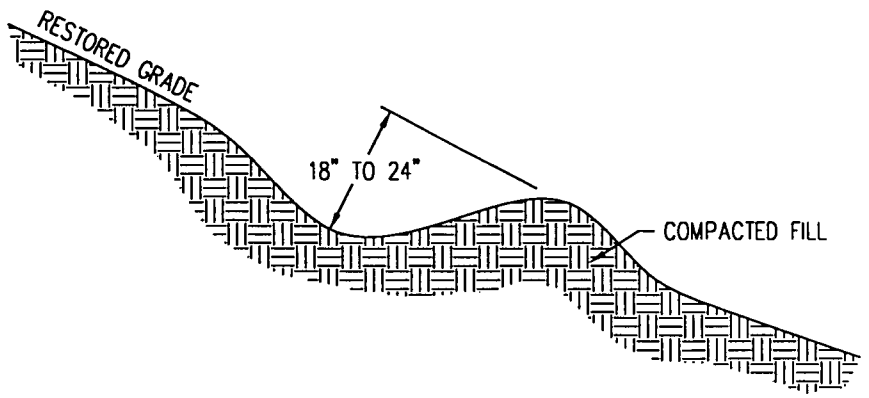
and

TRENCH BREAKER

DIAGRAMS



NOTE:
1. ROCK ARMOR SHOULD SERVE TO DISSIPATE FLOW BUT NOT BLOCK FLOW
2) CLEAN OUTLET ARMOR OF SEDIMENT TO PREVENT LOSS OF FUNCTION.



CROSS-SECTION

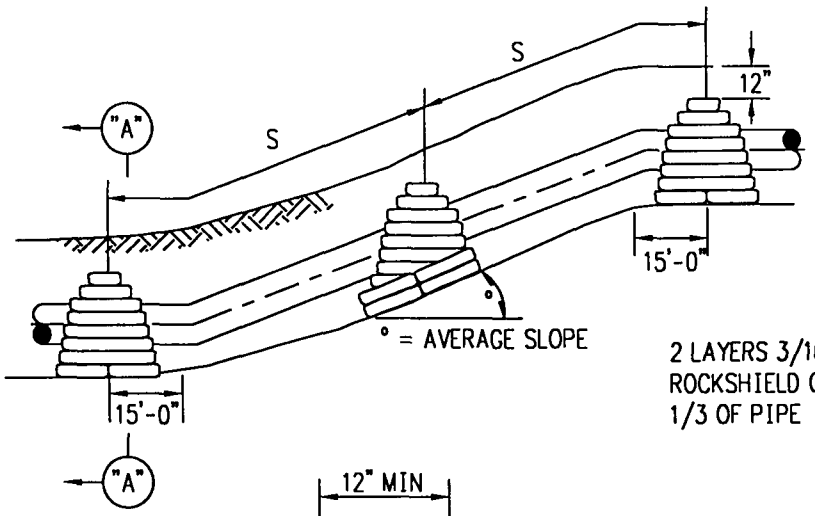
PERMANENT INTERCEPTOR CHANNELS (WATERBARS)

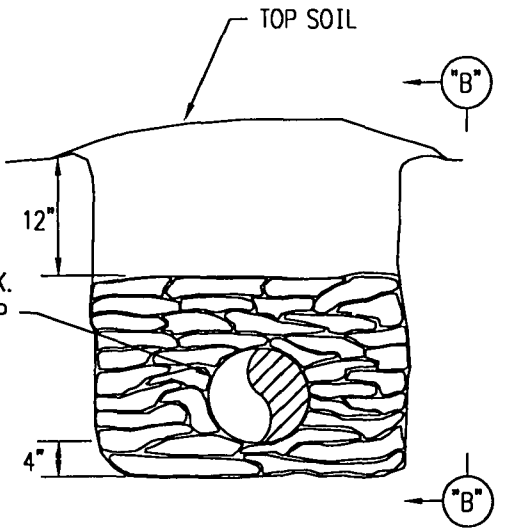
DESCRIPTION

CLIENT

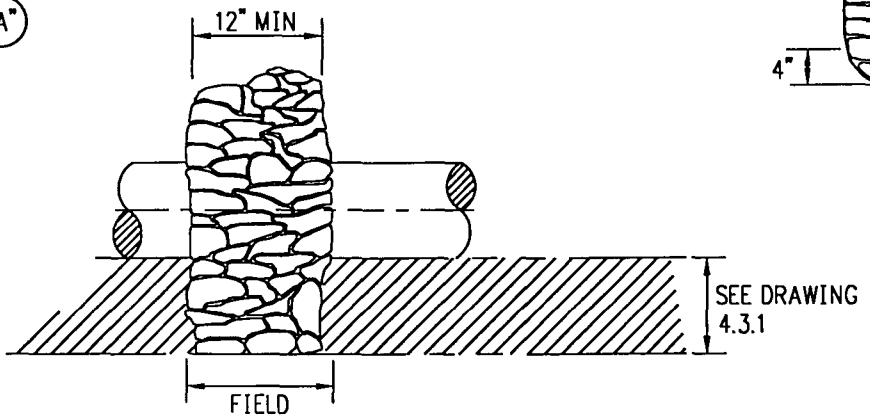
SCALE: NONE | REVISION DATE: | DRAWN BY: JKR | DATE DRAWN: 3/31/99 | FILE NAME: AWTRBRS | REV: 0

PREPARED BY TRIGON SHEEHAN ENGINEERS & CONSTRUCTORS





SECTION "A-A"



SECTION "B-B"

AVG. SLOPE (°)	SPACING (S)
LESS THAN 10°	NONE
10° - 15°	500'
15° - 20°	300'
20° - 30°	150'
GREATER THAN 30°	NOTE #1

NOTES:

1. FOR SLOPES GREATER THAN 30°, USE SPACING SHOWN ON ALIGNMENT SHEETS OR INDIVIDUAL DESIGN DRAWINGS.
2. BREAKERS SHALL BE INSTALLED AT SHARP CHANGES OF SLOPE (±5°) ALONG TRENCHLINE AND AT LOCATIONS WHERE THE NATURAL DRAINAGE PATTERNS, PROFILE OR BACKFILL MATERIAL WILL CAUSE THE TRENCH TO ACT AS A DRAIN.
3. BREAKER SPACING TO BE MEASURED ALONG TRENCH BOTTOM AND RECALCULATED FOR DISTINCT CHANGES IN AVERAGE SLOPE (±5°).
4. BREAKER SHALL BE FORMED USING ONE CUBIC FOOT, ONCE USED BURLAP SACKS HALF FILLED WITH ROCK FREE EARTH.
5. TRENCH AND BACKFILL REQUIREMENTS SHALL BE PER DRAWING DG 4.3.7.
6. PAYMENT FOR BREAKERS IN TRENCH (OTHER THAN AT CANAL CREEK OR RIVER CROSSINGS) SHALL BE BY UNIT BREAKER PRICE.
7. OWNER MAY SPECIFY POLYURETHANE FOAM BREAKERS IN LIEU OF EARTH FILL SACK BREAKERS. PAYMENT SHALL BE IN ACCORDANCE WITH CONTRACT UNIT PRICE PER BREAKER.

TRENCH BREAKER

FILE NAME:	DATE DRAWN: 3/31/99	PREPARED BY
TRCHBKR	DRAWN BY: JKR	TRIGON SHEEHAN ENGINEERS & CONSTRUCTORS

EXHIBIT 11

BUREAU OF LAND MANAGEMENT

FARMINGTON AREA OFFICE

WOODLAND SEED MIX

BLM Farmington Field Office -- Woodland Seed Mix

Seed	lbs/acre
Western wheatgrass *(Agropyron smithii)* native	2.0
Galleta *(Hilaria jamesii)* (native warm sod)	1.0
Bottlebrush Squirreltail *(Sitanion hystrix)* (native cool bunchgrass)	0.50
Bitterbrush *(Pushia tridentia)* native	0.50
Big Sagebrush *(Artemisia tridentata)* native	0.10
Common Sunflower *(Helianthus annus)* native	1.00
Small burnett *(Sanguisorba minor)* introduced	1.00
Fourwing saltbush *(Atriplex canescens)* native	1.00

Compacted areas shall be ripped to a depth of twelve inches and disked to a depth of six inches before seeding. Seed with a disk-type drill with two boxes for various seed sizes. The drill rows shall be eight to ten inches apart. The seed shall be planted at not less than one-half inch deep or more than one inch deep. The seeder shall be followed with a drag packer or roller to ensure uniform coverage of the seed and adequate compaction. Drilling shall be done on the contour where possible, not up and down the slope.

Where slopes are too steep for contour drilling a "cyclone" hand seeder or similar broadcast seeder shall be used. Seed shall then be covered to the depth described above by whatever means is practical, i.e., hand raked. If the seed is not covered, the prescribed seed mixture amount (pounds/acre/PLS) will be doubled.

Seeding shall be repeated if a satisfactory stand is not obtained as determined by the Authorized Officer upon evaluation after the second growing season.

EXHIBIT 12

WEED CONTROL PLAN

EXHIBIT 12

El Paso Field Services
Rattlesnake Plant and Pipeline Project
San Juan County, New Mexico
Invasive Weed Management Plan

1.0 Definitions

The term "invasive weed" refers to weeds requiring management or control because of legislative action, or to weeds that are extremely prolific, invasive, competitive, harmful or difficult to control.[1] The weed species which are considered "invasive" in the San Juan County area of El Paso Field Service's (EPFS) proposed Rattlesnake Project by the Bureau of Land Management Farmington District (BLM FDO) and, are part of this compliance requirement, are listed below.

Common Name	Scientific Name	Life Cycle
African Rue	Peganum harmala	P
Camelthorn	Alhagi pseudalhagi	P
Canada Thistle	Cirsuim arvense	P
Dalmation Toadflax	Linaria genistifolia ssp. dalmatica	P
Diffuse Knapweed	Centaurea diffusa	P
Halogeton	Halogeton glomeratus	P
Leafy Spurge	Euphorbia esula	P
Musk Thistle	Carduus nutans or Carduus theormeri	B
Perennial Pepperweed	Lepidium latifolium	P
Purple Loosestrife	Lythrum salicaria	P
Russian Knapweed	Acroptilon repens	P
Scotch Thistle	Onopordum acanthium	B
Spotted Knapweed	Centaurea maculosa	P
Whitetop or Hary Cress	Cardaria draba	P
Yellow Toadflax	Linaria vulgaris	P

"B" - Biennial, "P" - Perennial

2.0 Purpose and Need

Invasive weed management has recently become a concern to New Mexico land management agencies, including the Bureau of Land Management (BLM), and the Natural Resources Conservation Service (NRCS), formerly the Soil Conservation Service, and the New Mexico State Land Office. The 1990 Farm Bill included an amended Section 15 of the Federal Invasive Weed Act (1974) which stated that Federal agencies will work at managing weeds in an integrated systems approach.

Compliance with this requirement is provided by Rattlesnake Project as follows:

1) Pre-construction weed mapping by a consulting plant ecologist (Ecosphere, Farmington, New Mexico) is complete.

2) This document provides a plan for management of invasive weeds, listed in Section 1.0, to be carried out for five growing seasons following completion of construction. Large pre-existing infestations of invasive weeds will not be treated under this management plan.

3.0 Weed Mapping

3.1 Pre-construction

Pre-construction weed population mapping is complete at this time. The locations of invasive weed infestations located to date are attached to this plan. Upon completion of mapping, a report will be submitted to the Authorized Officer of the land jurisdiction involved. The report will contain the following information:

1) Weed identifications and
2) Size and location of population

3.2 Post-construction

Post-construction weed mapping will occur as part of the monitoring program, and will follow the guidelines presented above. New populations may be found within the ROW, which may or may not be connected to spread from construction equipment. Mapping of populations, which include part of the ROW and continue off the ROW, will also be mapped.

3.3 Specimen Collection

Any invasive weed identified shall be collected and the identification verified at the Herbarium at the University of New Mexico, Albuquerque, New Mexico. These specimens shall remain at the Herbarium as part of the permanent collection.

4.0 Weed Management

4.1 Personnel

A weed management specialist with the following qualifications shall carry out the weed management plan presented below:

1) Training and experience in native plant taxonomy/identification.
2) Training and experience in field ecology and plant community mapping.
3) Possession of a Commercial Applicator's license for herbicides from the New Mexico Department of Agriculture.

4) Training in invasive weed management, or Integrated Pest Management (IPM) with an emphasis in weeds.
5) Experience in coordination with agency and private landowners

4.2 Equipment

The weed management plan shall require the following equipment for execution:

1) Backpack sprayer
2) Four wheel-drive truck and trailer
3) All-terrain transport
4) Chemical or biological supplies
5) Tractor and disc, or dozer equipped with ripper

4.3 Coordination

The weed management specialist will coordinate with the Authorized Officer for the jurisdiction involved for approval of recommended treatment methods. In the event of private land, the weed management specialist will contact the landowner to inform him/her of any invasive weed found on the private land in question. If treatment is requested by the landowner, the weed management specialist will treat and monitor the weed population, as allowable by the landowner. In addition, the weed management specialist shall submit annual reports on weed treatment areas and methods to the Authorized Officer of the land jurisdiction involved, and in the case of private land, to the landowner.

4.4 Methods

This section provides a description of acceptable weed control methods within limits imposed in the grant stipulations. Any weed population that occurs on the Rattlesnake Project ROW will be treated using a single or combined treatment method. EPFS will also treat infestations of weeds that occur on the ROW and spread off the ROW for an area of less than ten (10) acres.

4.4.1 Prevention

The most effective invasive weed management strategy is prevention. EPFS has implemented the first part of a preventative program through the pre-construction mapping of all invasive weeds. The second part of this program is the removal or spraying of weed colonies before construction disturbance. While it is recognized that seed is residual in the soil surrounding the weed population, it is felt that a portion of the spread potential is removed by the removal of the seed produced in the growing season preceding construction.

4.4.2 Mechanical Treatment

Contracted equipment may be utilized to rip or disc weed populations as necessary for control or eradication. If this action is used, reseeding grass to the specifications and mixture provided in the Plan of Development and grant stipulations will be done. In some cases, covering and compacting soil on the weed infested area may be appropriate.

4.4.3 Chemical Treatment

The recommended method of chemical control for this project is hand application from a back sprayer. This will allow for "spot spraying" and will reduce the impacts to surrounding desirable vegetation. The applicable land managing agency or private landowner for range use shall clear spray chemicals. Application shall be carried out by a licensed applicator tested through the New Mexico Department of Agriculture. Coordination with public land management agencies and with private landowners is required.

4.4 Biological Control

Biological controls are available for several species listed above. Some biological agents may attack plant species that are either sensitive or endangered, therefore, before considering this as a management option, approval shall be secured from the New Mexico Department of Agriculture (NMDA).

4.4.5 Burning

Although burning weed populations is sometimes an effective treatment, pipeline safety requirements preclude the use of this method.

4.5 Timing of Management

4.5.1 Pre-construction

Pre-construction treatment of invasive weed populations shall consist of weed removal or spraying (with land management agency or private landowner approval) prior to construction. All construction equipment shall be washed with a high-pressure steam, air or water, i.e., fire engine (although high-pressure steam is the preferred method) before importation into New Mexico.

4.5.2 During Construction

During construction, weed management will consist of the removal of the top six (6) to twelve (12) inches of soil over infested areas identified by pre-construction weed mapping, using a single machine (suggested). This soil will be stockpiled adjacent to the work area, and will be replaced in the trench approximately in the same location where it was removed.

The parts of the equipment that are in contact with this soil (blades, buckets, crawler tracks, tire, etc.) will be washed with water, or cleaned in some other manner of all soil and visible seeds after having been used for removing this soil. No washing of other construction equipment shall be required. Wash water will be confined to the ROW.

No spraying of equipment with pre-emergent chemicals shall be done. Use of pre-emergent chemicals may affect the success of the re-vegetation groups (grasses, sub-shrubs and forbs).

4.5.3 Post-construction

Post-construction management will consist of treatment by methods outlined above (Section 4.4). A weed management specialist as described in Section 4.1, above will carry out this management. Post-construction management will be carried out for three years after final project acceptance.

5.0 Monitoring and Record Keeping

5.1 Monitoring

The weed management specialist shall monitor the Rattlesnake Project ROW in San Juan County, New Mexico and any associated temporary use areas. Monitoring shall be conducted at the end of each growing season for five years after final project acceptance. The growing season shall be defined by the life spans of the invasive weeds listed in Section 1.0, above. In addition, the weed management specialist shall monitor invasive weed populations, which extend off the Rattlesnake Project ROW. Extra monitoring areas off ROW shall not exceed ten (10) acres.

A visual inspection of the identified infested areas will be made each June and July (for three years) depending on the moisture conditions. Coordination will be made with the Farmington District BLM office to determine if there has been enough precipitation for the target weeds to be in the correct stage of development. Treatment by a commercial licensed applicator will take place if the target weeds are present.

5.2 Report Submittal

5.2.1 Annual Report

The weed management specialist shall submit an annual report to the BLM FDO Authorized Officer, to the appropriate office of the New Mexico State Land Office, and to EPFS. In the event of treatment of invasive weeds on private land, the weed management specialist shall submit a report to the landowner. Reports shall include the following:

1) weed mapping information as described in Section 3.1, above,
2) methods of treatment applied and cost of treatment,
3) herbicide that was used, the rate, approximate acreage treated and the target species,
4) evaluation of the effectiveness of treatments from previous years and
5) summary of any coordination with Federal and State land management agencies, and with private landowners.

5.2.2 New Mexico Cooperative Extension Service/State Invasive Weed Database

Reporting of invasive weeds will be made using the Southwest Exotic Mapping Project (SWEMP) forms (see attached pages) in conducting and documenting the inventory. Call Sterling White at 505-599-6327 for what to include and how to handle the reporting methods and procedures.

[1]Dewey, S.A., Torell, J.M. 1991 "What is a Invasive Weed?" pp.1.4. In James, L.F., J.O. Evans, M.H. Ralphs, and R.D. Child (eds.) Invasive Range Weeds. West view Press, Boulder, CO.

Noxious Weed Survey

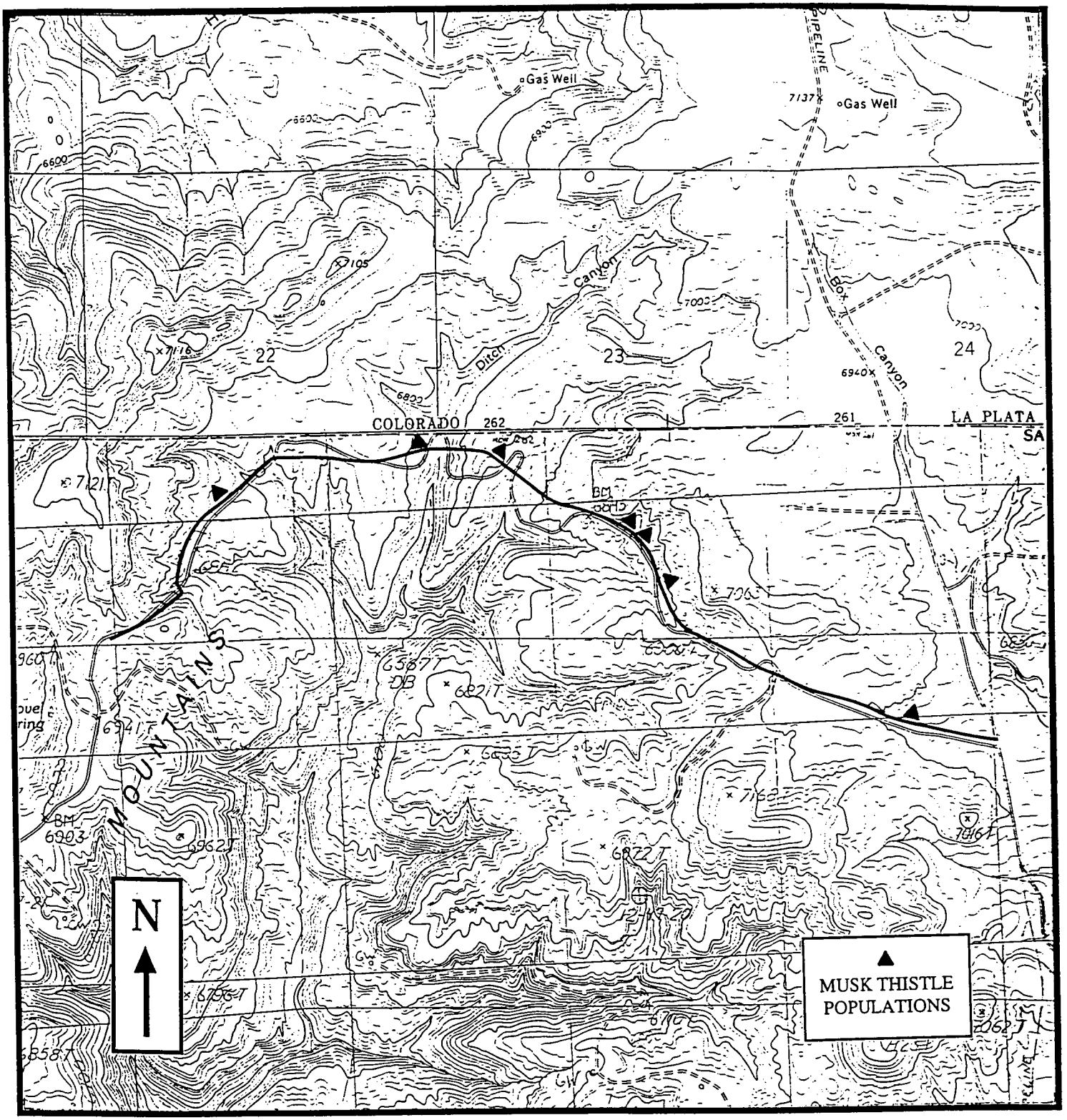
Noxious weed species being monitored by the BLM/FFO were found at 17 generalized locations along the proposed pipeline segment ROWs and TUAs. Topographic maps showing the infestations are provided in Attachment F. One species, musk thistle (*Carduus nutans*), was found in the project area. No noxious weeds were found on the proposed Rattlesnake Treating Plant Site and the proposed Rattlesnake Plant 6" Discharge Line. Listed in Table 2 are the individual weed populations recorded in the project area.

Table 2: Musk Thistle Populations. Rattlesnake Treating Plant and Associated Pipelines Project. El Paso Energy Services, 1999.

SEGMENT	STATION	# OF PLANTS
Gardner No.1 Loop Line		
	47+00	**1-5**
Trunk 14A		
	13+43	**50-100 (roadside)**
	52+00	**1-5 (roadside)**
	60+75	**1-5 (roadside)**
	64+00	**<5**
	66+50	**<5**
	72+00-74+00	**>100 (stock pond)**
	92+00	**<5**
	102+00	**<5**
	136+00	**10-20**
Lateral A14-3		
	12+00-14+00	**50-100**
	58+00	**10**
	65+00	**100-200**
	67+80	**<5**
	88+00	**<5**
	100+00	**>20**
	131+00	**<50**

USGS 7.5 MINUTE
TOPOGRAPHIC
SURVEY MAP

MOUNT NEBO QUADRANGLE
SAN JUAN COUNTY, NEW MEXICO



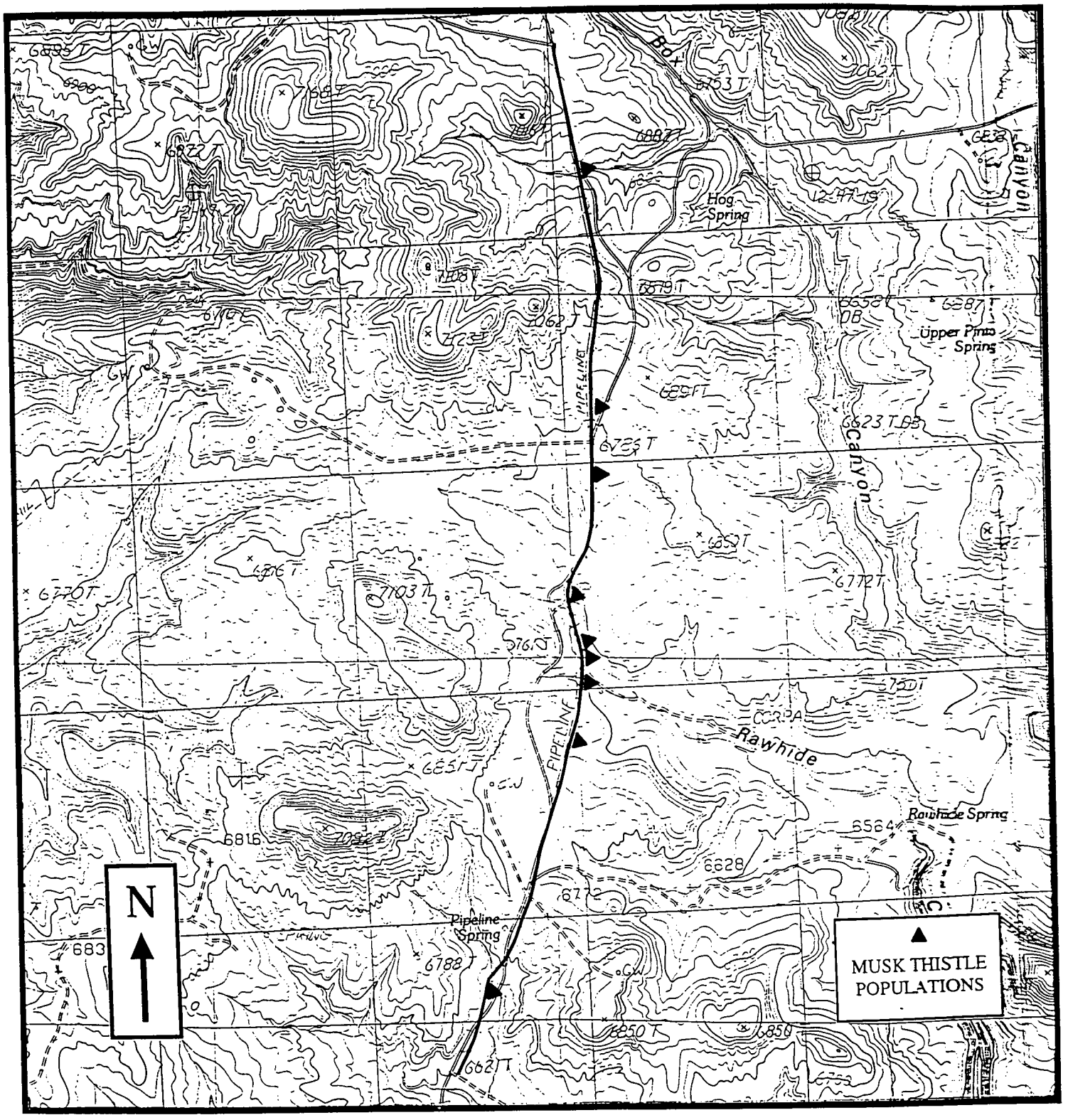
QUAD LOCATION
NEW MEXICO

EL PASO FIELD SERVICES
RATTLESNAKE TREATING PLANT &
ASSOCIATED PIPELINES PROJECT
LATERAL 14A-3
T32N, R9W, S7, 8, 9, 16 & 15

FIGURE 1
NOXIOUS WEED
POPULATIONS

USGS 7.5 MINUTE
TOPOGRAPHIC
SURVEY MAP

MOUNT NEBO QUADRANGLE
SAN JUAN COUNTY, NEW MEXICO



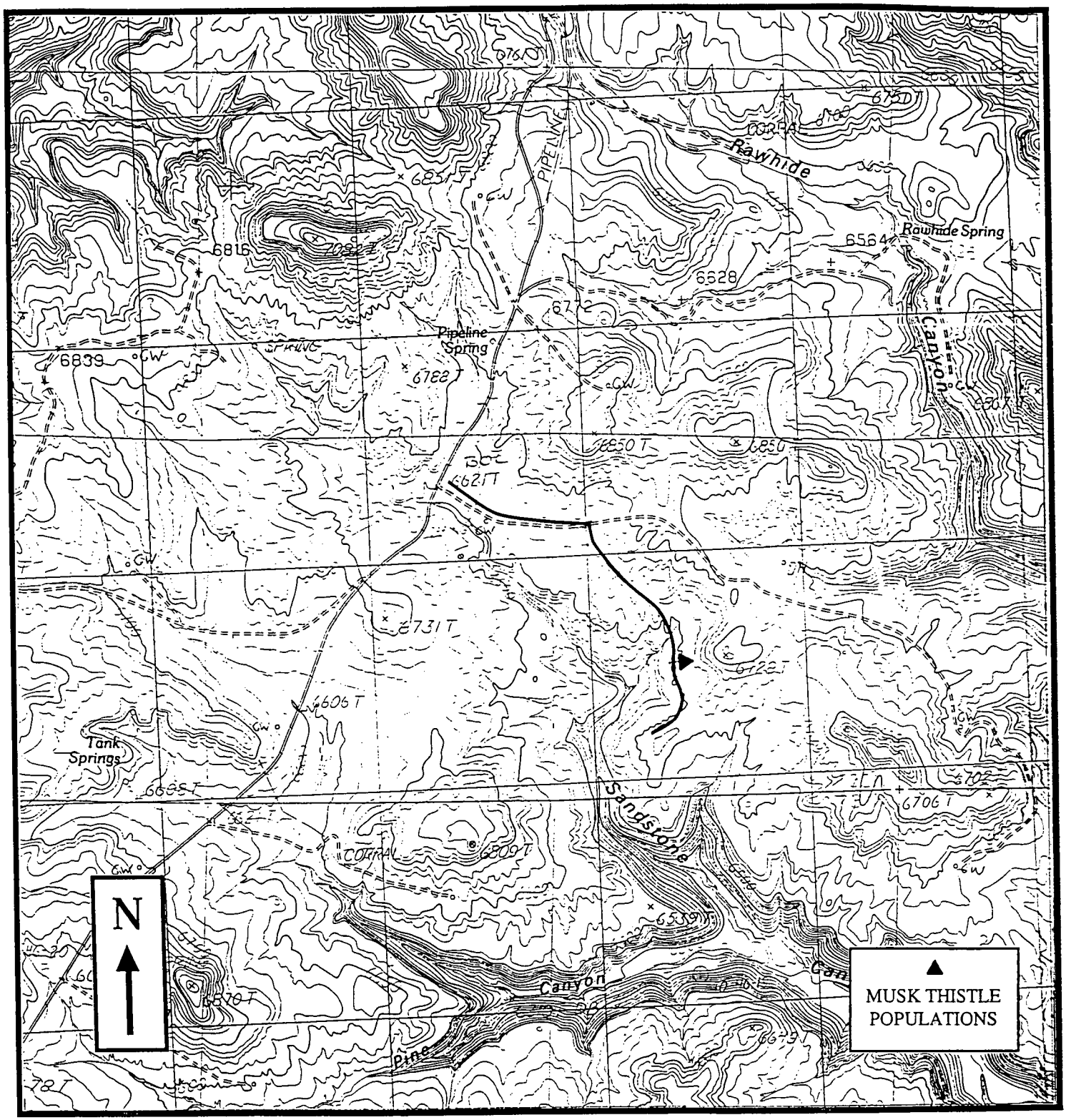
QUAD LOCATION
NEW MEXICO

EL PASO FIELD SERVICES
RATTLESNAKE TREATING PLANT &
ASSOCIATED PIPELINES PROJECT
LATERAL 14A
T32N, R9W, S15, 22, 27, 28 & 33

FIGURE 2
NOXIOUS WEED
POPULATIONS

USGS 7.5 MINUTE
TOPOGRAPHIC
SURVEY MAP

MOUNT NEBO QUADRANGLE
SAN JUAN COUNTY, NEW MEXICO



QUAD LOCATION
NEW MEXICO

EL PASO FIELD SERVICES
RATTLESNAKE TREATING PLANT &
ASSOCIATED PIPELINES PROJECT
GARDNER #1 LOOP LINE
T32N, R9W, S33 & 34

FIGURE 3
NOXIOUS WEED
POPULATIONS

1999 Southwest Exotic Plant Mapping Program Field Data Sheet

Survey Date: ___/___/_____ **Recorder(s):** _____

A. SITE INFORMATION

Site Code: _____ (Use assigned code) **Data Type** (circle one): POINT or LINE

Is this Site a revisit? (circle one) NO or YES
If NO, complete Sections A and B. If YES, make sure Site Code is the same as the original visit and proceed to Section B.

B. GEOREFERENCING INFORMATION

UTMs:_____ (easting) _____ (northing)

UTM Method (circle one): 1 - GPS w/differential 2 - GPS w/o differential 3 - Map

Datum (circle One): NAD 27 NAD 83 WGS 84 **Zone** (circle one): 11 12 13

State (circle one):
1 - Arizona
2 - New Mexico
3 - Utah
4 - Colorado

Ownership (circle all that apply):
1 - Bureau of Land Management
2 - Bureau of Reclamation
3 - Forest Service
4 - National Park Service
5 - National Wildlife Refuge
6 - Tribal
7 - State
8 - Private
9 - Multiple Owners
10 - Other

C. SURVEY INFORMATION

Exotic Plant Species Code	% Cover (use codes)	Area Coverage (use codes)	Plant Density (optional)	Estimate Area (optional)

%Cover Codes: A=absent, T=<1%, L=1-5%, M=6-25%, H=26-100% Area Codes (acres): A=<0.1, B=0.1-1, C=2-5, D=>5

D. CONTROL METHODS

Control Action (circle all that apply): A. No Action B. Biological C. Cultural D. Herbicide E. Mechanical

Specify actions taken for each control noted above (attach additional page if necessary):

USGS-Biological Resources Division Forest and Rangeland Ecosystem Science Center Colorado Plateau Field Station
Northern Arizona University PO Box 5614 Flagstaff, AZ 86011-5614 (520) 556-7466

1999 Southwest Exotic Plant Mapping Program Field Data Sheet

Survey Date: ____/____/_____ (mm dd yy) **Recorder(s):** _____

A. SITE INFORMATION

Site Code: _____ (Use assigned code) **Data Type** (circle one): POINT or LINE

Is this Site a revisit? (circle one) NO or YES
If NO, complete Sections A and B. If YES, make sure Site Code is the same as the original visit and proceed to Section B.

B. GEOREFERENCING INFORMATION

UTMs: _____ (easting) _____ (northing)

UTM Method (circle one): 1 - GPS w/differential 2 - GPS w/o differential 3 - Map

Datum (circle one): NAD 27 NAD 83 WGS 84 **Zone** (circle one): 11 12 13

State (circle one):
1- Arizona
2- New Mexico
3- Utah
4- Colorado

Ownership (circle all that apply):
1- Bureau of Land Management
2- Bureau of Reclamation
3- Forest Service
4- National Park Service
5- National Wildlife Refuge
6- Tribal
7- State
8- Private
9- Multiple owners
10- Other

C. SURVEY INFORMATION

Exotic Plant Species Code	% Cover (use codes)	Area Coverage (use codes)	Plant Density (optional)	Estimate Area (optional)

% Cover Codes: A= absent, T= <1%, L= 1-5%, M= 6-25%, H= 26-100%

Area Codes (acres): A= <0.1, B= 0.1-1, C= 2-5, D= >5

D. CONTROL METHODS

Control Action (circle all that apply): A. No Action B. Biological C. Cultural D. Herbicide E. Mechanical

Specify actions taken for each control noted above (attach additional page if necessary):

USGS- Biological Resources Division Forest and Rangeland Ecosystem Science Center Colorado Plateau Field Station
Northern Arizona University, PO Box 5614 Flagstaff, AZ 86011-5614 (520) 556-7466

III. SWEMP Exotic Plant Species and Codes

The following is a list of exotic plant species which either appear on the state noxious weed lists for Arizona, New Mexico, Utah or Colorado or have been noted as 'special concern' species by land managers within the study area. The 'special concern' species list is far from complete; it only incorporates species listed by the Northern Arizona Weed Council (NAWC). If you know of additional concern species that do not occur on this list, please let us know and we'll up-date the list.

Noxious Weeds of Arizona, Colorado, New Mexico and Utah.

ABTH	Abutilon theophrasti	Velvetleaf
ACRE	Acroptilon repens	Russian knapweed
AECY	Aegilops cylindrica	Jointed goatgrass
AIAL	Ailanthus altisima	Tree of heaven
ALMA	Alhagi maurorum	Camelthorn
ALPH	Alternanthera philoxeroides	Alligatorweed
BRTO	Brassica tournefortii	African mustard
CACH	Cardaria chalapensis	Lens-podded whitetop
CADR	Cardaria draba	Whitetop
CAPU	Cardaria pubescens	Hairy whitetop
CAAC	Carduus acanthoides	Plumeless thistle
CANU	Carduus nutans	Musk thistle
CATA	Caulerpa taxifolia	Mediterranean clone of caulerpa
CEEC	Cenchrus echinatus	Southern sandbur
CEIN	Cenchrus incertus	Field sandbur
CEBI	Centaurea biebersteinii	Spotted knapweed
CECA	Centaurea calcitrapa	Purple starthistle
CEDI	Centaurea diffusa	Diffuse knapweed
CEIB	Centaurea iberica	Iberian starthistle
CEME	Centaurea melitensis	Malta starthistle
CESO	Centaurea solstitialis	Yellow starthistle
CESU	Centaurea sulphurea	Sicilian starthistle
CETR	Centaurea triumfettii	Squarrose knapweed
CHJU	Chondrilla juncea	Rush skeletonweed
CIDO	Cicuta douglasii	Western water hemlock
CIAR	Cirsium arvense	Canada thistle
CIVU	Cirsium vulgare	Bull thistle
COMA	Conium maculatum	Poison-hemlock
COAR	Convolulus arvensis	Field bindweed
COSQ	Coronopus squamatus	Greater swinecress
CUME	Cucumis melo	Cantaloupe
CYDA	Cynodon dactylon	Bermudagrass
CYOF	Cynoglossum officinale	Houndstongue
CYES	Cyperus esculentus	Yellow nutsedge
CIFU	Dipsacus fullonum	Common teasel
DRAR	Drymaria arenarioides	Alfombrilla
EIAZ	Eichhornia azurea	Anchored waterhyacinth
EICR	Eichhornia crassipes	Common waterhyacinth
ELAN	Elaeagnus angustifolia	Russian olive
ELRE	Elytrigia repens	Quackgrass
ERLE	Eragrostis lehmanniana	Lehmann lovegrass
EUES	Euphorbia esula	Leafy Spurge
EUSU	Eurypos subcarnosus	Sweet resinbush
GAOF	Galega officinalis	Goatrue
HAGL	Halogeton glomeratus	Halogeton
HECI	Helianthus ciliaris	Texas blueweed
HYVE	Hydrilla verticillata	Hydrilla
HYNI	Hyoscyamus niger	Black henbane
HYFO	Hypericum formosum	Common St. Johnswort
IPTR	Ipomoea triloba	Three lobe morningglory
ISTI	Isatis tinctoria	Dyer's woad
LELA	Lepidium latifolium	Broadleaf peppergrass
LIDA	Linaria dalmatica	Dalmation toadflax
LIVU	Linaria vulgaris	Common toadflax
LYSA	Lythrum salicaria	Purple loostrife
MAVU	Marrubium vulgare	Horehound
MEPO	Medicago polymorpha	California burclover
NATR	Nassella trichotoma	Serrated tussock
ONAC	Onopordum acanthium	Scotch thistle
ORRA	Orobanche ramosa	Branched broomrape
PAMI	Panicum miliaceum	Wild-proso millet
PARE	Panicum repens	Torpedograss
PEHA	Peganum harmala	African rue
PECI	Pennisetum ciliare	Bufflegrass
PECL	Pennisetum clandestinum	Kikuyugrass
POOL	Portulaca oleracea	Common purslane
ROAU	Rorippa austriaca	Austrian fieldcress
SARA	Saccharum ravennae	Ravenna grass
SAKA	Salsola kali	Russian thistle
SAAE	Salvia aethiopis	Mediterranean sage
SEJA	Senecio jacobaea	Tansy ragwort
SOCA	Solanum carolinense	Horsenettle
SOEL	Solanum elaeagnifolium	Silverleaf nightshade
SOVI	Solanum viarum	Tropical soda-apple
SOAR	Sonchus arvensis	Perennial sowthistle
SOAL	Sorghum almum	Columbus grass
SOHA	Sorghum halepense	Johnsongrass
STBR	Stipa brachychaeta	Puna grass
STAS	Striga asiatica	Witchweed
TACA	Taeniatherum caput medusae	Medusahead
TASP	Tamarix spp.	Salt cedar
TRPA	Trapa natans	Water chestnut
TRTE	Tribulus terrestris	Puncturevine

Special Concern Species of Northern Arizona (Northern Arizona Weed Council, 1998).

ARMI	Arctium minus	Burdock
ERCU	Eragrostis curvula	Weeping love grass
RUPR	Rubus procerus	Himaayan blackberry

V. Field Data Sheet Instructions

This form should accompany field personnel when conducting field surveys and should be referred to when filling out the field data sheet. It describes each item and the information requested.

SURVEY DATE: This is the day/ month/ year of the site survey.

RECORDER(S): The first and last name of all surveyors involved in data collection.

A. Site Information

SITE CODE: A site code is assigned to each individual geographic locality containing an exotic plant infestations. However, if multiple species infestations occur within the same geographical location, the same site code can be used. Please note, if there are two infestations greater than 100 meters apart within a given geographic locale, USE A SEPARATE SITE CODE (and FIELD DATA SHEET).

SWEMP will assign the first four letters of the site code (which is an abbreviation of the collaborating entity). A two-digit year prefix and a hyphen follow this abbreviation. The second half of the code is the record code, containing four characters and beginning with 0001. For example, TEST99-0001. The first half of the code (TEST99) will remain the same for all of 1999. However, each field data sheet will have a new site code, which is assigned sequentially (i.e., - 0002, - 0003, etc.).

DATA TYPE: SWEMP accepts two types of field data- point data and line data. In this section, it is important to specify the data type on the field data sheet. Because of the large scale of GIS-based exotic distribution maps, most polygon data will be depicted on the digital maps as a single point. However, if a collaborator wishes to document the actual size of an area (which is particularly relevant for infestations larger than 5 acres), this information will be cataloged in the database and served on the IMS with the site record information. Furthermore, when collecting point data, the georeferencing coordinate data should be collected as near to the center as possible.

When recording line data on a linear distribution of an invasive species (such as along a road, wash or river corridor), a more detailed georeferencing method is required. This may entail taking numerous georeferencing points along the linear infestation (either with a GPS unit or manually plotting the points on a topographic map) and/ or plotting this distribution on a USGS 7.5 minute topographic map. Thereafter, the collaborator is responsible for taking these maps and digitizing the linear distribution with a map digitizing program (e.g. AUTO-CAD, ARC-VIEW, etc.).

REVISIT: Is the site a revisit? It is VERY important to note if the site is a revisit. Revisit data will be processed separately. If the site is a revisit, DO NOT fill out Section A (SITE INFORMATION) on the SWEMP field data sheet; however, DO enter the original site code, which was assigned to the site upon discovery. If a new site code is allocated for a site revisit, the data will not be displayed as a revisit. Subsequently, this information would be improperly collated.

B. Georeferencing

Proper georeferencing is required to illustrate field data spatially on the IMS. Currently, we not require high accuracy georeferencing; therefore, sites can be georeferenced using either a hand-held global positioning system (GPS) unit with no less than 100 meter accuracy (the preferred method) or estimated via orienteering techniques and topographic maps. With the former method, a GPS estimates a given site's geographic location on the earth's surface in relation to a constellation of orbiting satellites. If higher accuracy is desired, higher grade GPS units usually have a differential correction function, which provides more precise determination of location. Unless "GPS with differential" is indicated on the field data sheet, the database will assume an error of up to 100 meters from the actual position of the site. CPFS hosts a Trimble base station, which collects data (300 mile radius) and can be used in the correction process. These GPS files are available via FTP (file transfer protocol) from the CPIN/ CPFS homepages (http://www.usgs.nau.edu/GPS/). Non-differentially corrected data will also be accepted into the SWEMP database.

UTM: Enter the Universal Transverse Mercator (UTM) Easting and Northing coordinates at the approximate center of the invasive plant infestation. Circle the method used to derive the UTM easting and northern coordinates.

UTM METHOD: There are three primary methods used for collecting georeferencing information: 1) Global Positioning System (GPS) with differential correction; 2) GPS without differential correction; and, 3) estimating coordinates using a topographic map. With GPS coordinate estimations, the GPS unit can determine coordinates with or without differential correction; some GPS units simply do not have this capability. So, please specify whether or not differential correction was employed. Estimating coordinates using a topographic map is accomplished by reading the surrounding topography, comparing this to the topographic map and then estimating the position of the site on the topographic map. If this method is employed, we recommend USGS 1:24,000 scale 7.5 minute quadrangles maps for recordation. We are not collecting maps of infestations, so we rely on the collaborator to convert the map plots UTM coordinates and enter these coordinates on the field data sheet prior to data submittal.

DATUM: A datum is a control point or set of control points that has a known geographic relationship. Datums used within the Colorado Plateau region are North American Datum (NAD) 27 Conus, NAD 83, and WGS 84. This information occurs at the bottom of USGS

topographic maps. When using GPS, the unit should be set to this parameter before collecting data (please contact SWEMP if using a different method).

ZONE: A UTM zone is a section (or cell) within a grid system, which is overlaid on a given geographical location established using the UTM projection system. There are three UTM zones (zone 12, 13 and a portion of 11) within the SWEMP project boundary. Zone 12 occurs between 114 W and 108 W degrees longitude and includes the most of Arizona, all of Utah, and the western part of Colorado and New Mexico. Zone 13 occurs east of 108 degrees west to 102 W degrees, which includes the rest of New Mexico and Colorado. Zone 11 occurs in western Arizona, west of 114 W degrees longitude. When using GPS, the unit should be set to this parameter before collecting data (please contact SWEMP if using a different method).

STATE: Identifies the state where the exotic species site is located.

OWNERSHIP: Identify the entity that owns the land where the plant infestation is located. If the land where the infestation exists is owned and/ or managed by more than one entity, circle all that apply.

UTM locations of data collected on private land will not be displayed in the database unless permission is granted by the landowner. Instead, the UTM coordinate values will be reduced to less accuracy to mask their location. However, the occurrence of the infestation, as well as other site characteristics will be displayed within the database. General locations of the infestations will be shown on the maps, but specific coordinates will be masked.

C. Survey Information

EXOTIC PLANT SPECIES CODE: From the list of Arizona, New Mexico, Colorado, and Utah noxious plant species (as well as exotic species identified as 'special concern' by land managers within the study area) provided, enter the appropriate exotic plant species' abbreviation.

PERCENT PLANT COVER CODE: Enter the appropriate Percent Cover Codes, which appear below the Exotic Plant Data box on the SWEMP field data sheet. This code should reflect the estimated percentage of coverage for the identified exotic species. If a survey searches for a given species, but that species was not discovered, enter the code 'A' (absent). Please completely fill out this section for EACH SPECIES present at each site.

AREA COVERAGE CODE: Enter the appropriate Area Coverage Code, which appear below the Exotic Plant Data box on the SWEMP field data sheet. This code should reflect the approximate size of the infestation in acres. If a plant is searched for but is absent, put an 'A' in the "Percent Plant Cover" cell and leave the "Area" cell blank. Please completely fill out this section for EACH SPECIES present at a site.

PLANT DENSITY (Optional): Enter the approximate density of the exotic plant infestation. For example, 50 plants/acre.

ESTIMATED AREA (Optional): Enter the approximate area (in acres) of the exotic plant infestation.

D. Control Methods

CONTROL ACTION: Circle the appropriate action taken: No Action, Biological, Cultural, herbicide or Mechanical. Please be sure to specify the exotic plant and specific control actions taken for each species.

NOTES/ COMMENTS: This section is provided so that recorders can make additional comments if control is used. Some pertinent information to include would be when a site needs to be revisited and whether a past control action was effective. Additionally, the recorder may also include notes on photographs taken, plant voucher specimens collected, or general site characteristics observed.