

District I
1625 N French Dr., Hobbs, NM 88240
District II
1301 W Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S St Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources
Department
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-144
July 21, 2008

For temporary pits, closed-loop systems, and below-grade tanks, submit to the appropriate NMOCD District Office
For permanent pits and exceptions submit to the Santa Fe Environmental Bureau office and provide a copy to the appropriate NMOCD District Office

3593

**Pit, Closed-Loop System, Below-Grade Tank, or
Proposed Alternative Method Permit or Closure Plan Application**

- Type of action: ☐ Permit of a pit, closed-loop system, below-grade tank, or proposed alternative method
☐ Closure of a pit, closed-loop system, below-grade tank, or proposed alternative method
☐ Modification to an existing permit
☐ Closure plan only submitted for an existing permitted or non-permitted pit, closed-loop system, below-grade tank, or proposed alternative method

Instructions: Please submit one application (Form C-144) per individual pit, closed-loop system, below-grade tank or alternative request

Please be advised that approval of this request does not relieve the operator of liability should operations result in pollution of surface water, ground water or the environment. Nor does approval relieve the operator of its responsibility to comply with any other applicable governmental authority's rules, regulations or ordinances.

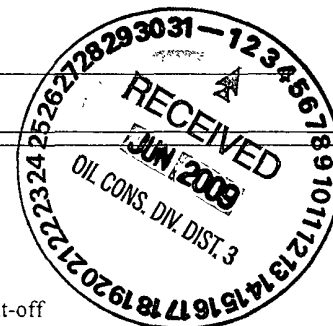
1
Operator Manana Gas Company OGRID #: 13931
Address c/o Walsh Engineering, 7415 E. Main St., Farmington, NM 87402
Facility or well name: Barbara K. #1
API Number: 30-045-34934 OCD Permit Number: _____
U/L or Qtr/Qtr I Section 5 Township 30N Range 11W County: San Juan
Center of Proposed Design: Latitude 36.84089N Longitude 108.00465W NAD: ☐ 1927 ☒ 1983
Surface Owner ☐ Federal ☐ State ☒ Private ☐ Tribal Trust or Indian Allotment

2
☒ **Pit:** Subsection F or G of 19.15.17.11 NMAC
Temporary ☒ Drilling ☐ Workover
☐ Permanent ☐ Emergency ☐ Cavitation ☐ P&A
☒ Lined ☐ Unlined Liner type: Thickness 20 mil ☒ LLDPE ☐ HDPE ☐ PVC ☐ Other _____
☐ String-Reinforced
Liner Seams: ☒ Welded ☒ Factory ☐ Other _____ Volume: 8400 bbl Dimensions: L 95 x W 50 x D 10

3
☐ **Closed-loop System:** Subsection H of 19.15.17.11 NMAC
Type of Operation: ☐ P&A ☐ Drilling a new well ☐ Workover or Drilling (Applies to activities which require prior approval of a permit or notice of intent)
☐ Drying Pad ☐ Above Ground Steel Tanks ☐ Haul-off Bins ☐ Other _____
☐ Lined ☐ Unlined Liner type: Thickness _____ mil ☐ LLDPE ☐ HDPE ☐ PVC ☐ Other _____
Liner Seams: ☐ Welded ☐ Factory ☐ Other _____

4
☐ **Below-grade tank:** Subsection I of 19.15.17.11 NMAC
Volume: _____ bbl Type of fluid: _____
Tank Construction material: _____
☐ Secondary containment with leak detection ☐ Visible sidewalls, liner, 6-inch lift and automatic overflow shut-off
☐ Visible sidewalls and liner ☐ Visible sidewalls only ☐ Other _____
Liner type: Thickness _____ mil ☐ HDPE ☐ PVC ☐ Other _____

5
☐ **Alternative Method:**
Submittal of an exception request is required. Exceptions must be submitted to the Santa Fe Environmental Bureau office for consideration of approval



6

Fencing: Subsection D of 19.15.17.11 NMAC (*Applies to permanent pits, temporary pits, and below-grade tanks*)

- ☒ Chain link, six feet in height, two strands of barbed wire at top (*Required if located within 1000 feet of a permanent residence, school, hospital, institution or church*)
- ☐ Four foot height, four strands of barbed wire evenly spaced between one and four feet
- ☐ Alternate. Please specify 4' Hog Wire w/ one strand of barbed wire on top

7

Netting: Subsection E of 19.15.17.11 NMAC (*Applies to permanent pits and permanent open top tanks*)

- ☐ Screen ☐ Netting ☐ Other _____
- ☐ Monthly inspections (If netting or screening is not physically feasible)

8

Signs: Subsection C of 19.15.17.11 NMAC

- ☐ 12"x 24", 2" lettering, providing Operator's name, site location, and emergency telephone numbers
- ☒ Signed in compliance with 19.15.3.103 NMAC

9

Administrative Approvals and Exceptions:

Justifications and/or demonstrations of equivalency are required. Please refer to 19.15.17 NMAC for guidance.

Please check a box if one or more of the following is requested, if not leave blank:

- ☐ Administrative approval(s): Requests must be submitted to the appropriate division district or the Santa Fe Environmental Bureau office for consideration of approval.
- ☐ Exception(s): Requests must be submitted to the Santa Fe Environmental Bureau office for consideration of approval.

10

Siting Criteria (regarding permitting): 19.15.17.10 NMAC

Instructions: The applicant must demonstrate compliance for each siting criteria below in the application. Recommendations of acceptable source material are provided below. Requests regarding changes to certain siting criteria may require administrative approval from the appropriate district office or may be considered an exception which must be submitted to the Santa Fe Environmental Bureau office for consideration of approval. Applicant must attach justification for request. Please refer to 19.15.17.10 NMAC for guidance. Siting criteria does not apply to drying pads or above-grade tanks associated with a closed-loop system.

Ground water is less than 50 feet below the bottom of the temporary pit, permanent pit, or below-grade tank. - NM Office of the State Engineer - iWATERS database search; USGS, Data obtained from nearby wells	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within 300 feet of a continuously flowing watercourse, or 200 feet of any other significant watercourse or lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark). - Topographic map; Visual inspection (certification) of the proposed site	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. (Applies to temporary, emergency, or cavitation pits and below-grade tanks) - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA
Within 1000 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. (Applies to permanent pits) - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA
Within 500 horizontal feet of a private, domestic fresh water well or spring that less than five households use for domestic or stock watering purposes, or within 1000 horizontal feet of any other fresh water well or spring, in existence at the time of initial application - NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance adopted pursuant to NMSA 1978, Section 3-27-3, as amended. - Written confirmation or verification from the municipality; Written approval obtained from the municipality	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within 500 feet of a wetland. - US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within the area overlying a subsurface mine - Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within an unstable area. - Engineering measures incorporated into the design, NM Bureau of Geology & Mineral Resources, USGS, NM Geological Society, Topographic map	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within a 100-year floodplain - FEMA map	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

11.

Temporary Pits, Emergency Pits, and Below-grade Tanks Permit Application Attachment Check. Subsection B of 19.15.17.9 NMAC**Instructions:** Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.

- ☐ Hydrogeologic Report (Below-grade Tanks) - based upon the requirements of Paragraph (4) of Subsection B of 19.15.17.9 NMAC
- ☒ Hydrogeologic Data (Temporary and Emergency Pits) - based upon the requirements of Paragraph (2) of Subsection B of 19.15.17.9 NMAC
- ☒ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC
- ☒ Design Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☒ Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
- ☒ Closure Plan (Please complete Boxes 14 through 18, if applicable) - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC

☐ Previously Approved Design (attach copy of design) API Number: _____ or Permit Number _____

12.

Closed-loop Systems Permit Application Attachment Checklist: Subsection B of 19.15.17.9 NMAC**Instructions:** Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.

- ☐ Geologic and Hydrogeologic Data (only for on-site closure) - based upon the requirements of Paragraph (3) of Subsection B of 19.15.17.9 NMAC
- ☐ Siting Criteria Compliance Demonstrations (only for on-site closure) - based upon the appropriate requirements of 19.15.17.10 NMAC
- ☐ Design Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
- ☐ Closure Plan (Please complete Boxes 14 through 18, if applicable) - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC

☐ Previously Approved Design (attach copy of design) API Number: _____

☐ Previously Approved Operating and Maintenance Plan API Number: _____ (Applies only to closed-loop system that use above ground steel tanks or haul-off bins and propose to implement waste removal for closure)

13.

Permanent Pits Permit Application Checklist: Subsection B of 19.15.17.9 NMAC**Instructions:** Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.

- ☐ Hydrogeologic Report - based upon the requirements of Paragraph (1) of Subsection B of 19.15.17.9 NMAC
- ☐ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC
- ☐ Climatological Factors Assessment
- ☐ Certified Engineering Design Plans - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Dike Protection and Structural Integrity Design - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Leak Detection Design - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Liner Specifications and Compatibility Assessment - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Quality Control/Quality Assurance Construction and Installation Plan
- ☐ Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
- ☐ Freeboard and Overtopping Prevention Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Nuisance or Hazardous Odors, including H₂S, Prevention Plan
- ☐ Emergency Response Plan
- ☐ Oil Field Waste Stream Characterization
- ☐ Monitoring and Inspection Plan
- ☐ Erosion Control Plan
- ☐ Closure Plan - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC

14.

Proposed Closure: 19.15.17.13 NMAC**Instructions:** Please complete the applicable boxes, Boxes 14 through 18, in regards to the proposed closure plan.

Type ☒ Drilling ☐ Workover ☐ Emergency ☐ Cavitation ☐ P&A ☐ Permanent Pit ☐ Below-grade Tank ☐ Closed-loop System

☐ Alternative

Proposed Closure Method ☐ Waste Excavation and Removal

☐ Waste Removal (Closed-loop systems only)

☒ On-site Closure Method (Only for temporary pits and closed-loop systems)

☒ In-place Burial ☐ On-site Trench Burial

☐ Alternative Closure Method (Exceptions must be submitted to the Santa Fe Environmental Bureau for consideration)

15.

Waste Excavation and Removal Closure Plan Checklist: (19.15.17.13 NMAC) **Instructions:** Each of the following items must be attached to the closure plan. Please indicate, by a check mark in the box, that the documents are attached.

- ☐ Protocols and Procedures - based upon the appropriate requirements of 19.15.17.13 NMAC
- ☐ Confirmation Sampling Plan (if applicable) - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC
- ☐ Disposal Facility Name and Permit Number (for liquids, drilling fluids and drill cuttings)
- ☐ Soil Backfill and Cover Design Specifications - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
- ☐ Re-vegetation Plan - based upon the appropriate requirements of Subsection I of 19.15.17.13 NMAC
- ☐ Site Reclamation Plan - based upon the appropriate requirements of Subsection G of 19.15.17.13 NMAC

Waste Removal Closure For Closed-loop Sys. s That Utilize Above Ground Steel Tanks or Hau. off Bins Only: (19.15.17.13 D NMAC)

Instructions: Please identify the facility or facilities for the disposal of liquids, drilling fluids and drill cuttings. Use attachment if more than two facilities are required.

Disposal Facility Name _____ Disposal Facility Permit Number _____

Disposal Facility Name _____ Disposal Facility Permit Number: _____

Will any of the proposed closed-loop system operations and associated activities occur on or in areas that *will not* be used for future service and operations?

☐ Yes (If yes, please provide the information below) ☐ No

Required for impacted areas which will not be used for future service and operations

☐ Soil Backfill and Cover Design Specifications - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC

☐ Re-vegetation Plan - based upon the appropriate requirements of Subsection I of 19.15.17.13 NMAC

☐ Site Reclamation Plan - based upon the appropriate requirements of Subsection G of 19.15.17.13 NMAC

Siting Criteria (regarding on-site closure methods only): 19.15.17.10 NMAC

Instructions: Each siting criteria requires a demonstration of compliance in the closure plan. Recommendations of acceptable source material are provided below. Requests regarding changes to certain siting criteria may require administrative approval from the appropriate district office or may be considered an exception which must be submitted to the Santa Fe Environmental Bureau office for consideration of approval. Justifications and/or demonstrations of equivalency are required. Please refer to 19.15.17.10 NMAC for guidance.

Ground water is less than 50 feet below the bottom of the buried waste.

- NM Office of the State Engineer - iWATERS database search, USGS, Data obtained from nearby wells

☐ Yes ☒ No

☐ NA

Ground water is between 50 and 100 feet below the bottom of the buried waste

- NM Office of the State Engineer - iWATERS database search; USGS, Data obtained from nearby wells

☐ Yes ☒ No

☐ NA

Ground water is more than 100 feet below the bottom of the buried waste.

- NM Office of the State Engineer - iWATERS database search; USGS, Data obtained from nearby wells

☒ Yes ☐ No

☐ NA

Within 300 feet of a continuously flowing watercourse, or 200 feet of any other significant watercourse or lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark).

- Topographic map; Visual inspection (certification) of the proposed site

☐ Yes ☒ No

Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application.

- Visual inspection (certification) of the proposed site; Aerial photo; Satellite image

☐ Yes ☒ No

Within 500 horizontal feet of a private, domestic fresh water well or spring that less than five households use for domestic or stock

watering purposes, or within 1000 horizontal feet of any other fresh water well or spring, in existence at the time of initial application.

- NM Office of the State Engineer - iWATERS database, Visual inspection (certification) of the proposed site

☐ Yes ☒ No

Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance adopted pursuant to NMSA 1978, Section 3-27-3, as amended.

- Written confirmation or verification from the municipality; Written approval obtained from the municipality

☐ Yes ☒ No

Within 500 feet of a wetland

- US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site

☐ Yes ☒ No

Within the area overlying a subsurface mine.

- Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division

☐ Yes ☒ No

Within an unstable area.

- Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS, NM Geological Society; Topographic map

☐ Yes ☒ No

Within a 100-year floodplain.

- FEMA map

☐ Yes ☒ No

On-Site Closure Plan Checklist: (19.15.17.13 NMAC) **Instructions:** Each of the following items must be attached to the closure plan. Please indicate, by a check mark in the box, that the documents are attached.

☒ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC

☒ Proof of Surface Owner Notice - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC

☐ Construction/Design Plan of Burial Trench (if applicable) based upon the appropriate requirements of 19.15.17.11 NMAC

☒ Construction/Design Plan of Temporary Pit (for in-place burial of a drying pad) - based upon the appropriate requirements of 19.15.17.11 NMAC

☒ Protocols and Procedures - based upon the appropriate requirements of 19.15.17.13 NMAC

☒ Confirmation Sampling Plan (if applicable) - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC

☒ Waste Material Sampling Plan - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC

☒ Disposal Facility Name and Permit Number (for liquids, drilling fluids and drill cuttings or in case on-site closure standards cannot be achieved)

☒ Soil Cover Design - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC

☒ Re-vegetation Plan - based upon the appropriate requirements of Subsection I of 19.15.17.13 NMAC

☒ Site Reclamation Plan - based upon the appropriate requirements of Subsection G of 19.15.17.13 NMAC

Operator Application Certification:

I hereby certify that the information submitted with this application is true, accurate and complete to the best of my knowledge and belief

Name (Print) Paul C. Thompson, P.E. Title Agent / Engineer

Signature Paul C. Thompson Date 5/26/09

e-mail address paul@walsheng.net Telephone 505.327.4892

OCD Approval: ☒ Permit Application (including closure plan) ☐ Closure Plan (only) ☐ OCD Conditions (see attachment)

OCD Representative Signature: Bruna Bell Approval Date: 6-4-09

Title: Enviro Spec OCD Permit Number: _____

21
Closure Report (required within 60 days of closure completion): Subsection K of 19.15 17 13 NMAC

Instructions: Operators are required to obtain an approved closure plan prior to implementing any closure activities and submitting the closure report. The closure report is required to be submitted to the division within 60 days of the completion of the closure activities. Please do not complete this section of the form until an approved closure plan has been obtained and the closure activities have been completed.

☐ Closure Completion Date: _____

Closure Method:

☐ Waste Excavation and Removal ☐ On-Site Closure Method ☐ Alternative Closure Method ☐ Waste Removal (Closed-loop systems only)
☐ If different from approved plan, please explain.

Closure Report Regarding Waste Removal Closure For Closed-loop Systems That Utilize Above Ground Steel Tanks or Haul-off Bins Only:

Instructions: Please identify the facility or facilities for where the liquids, drilling fluids and drill cuttings were disposed. Use attachment if more than two facilities were utilized.

Disposal Facility Name: _____ Disposal Facility Permit Number: _____

Disposal Facility Name: _____ Disposal Facility Permit Number: _____

Were the closed-loop system operations and associated activities performed on or in areas that *will not* be used for future service and operations?

☐ Yes (If yes, please demonstrate compliance to the items below) ☐ No

Required for impacted areas which will not be used for future service and operations

- ☐ Site Reclamation (Photo Documentation)
☐ Soil Backfilling and Cover Installation
☐ Re-vegetation Application Rates and Seeding Technique

Closure Report Attachment Checklist: *Instructions: Each of the following items must be attached to the closure report. Please indicate, by a check mark in the box, that the documents are attached.*

- ☐ Proof of Closure Notice (surface owner and division)
☐ Proof of Deed Notice (required for on-site closure)
☐ Plot Plan (for on-site closures and temporary pits)
☐ Confirmation Sampling Analytical Results (if applicable)
☐ Waste Material Sampling Analytical Results (required for on-site closure)
☐ Disposal Facility Name and Permit Number
☐ Soil Backfilling and Cover Installation
☐ Re-vegetation Application Rates and Seeding Technique
☐ Site Reclamation (Photo Documentation)

On-site Closure Location: Latitude _____ Longitude _____ NAD: ☐ 1927 ☐ 1983

Operator Closure Certification:

I hereby certify that the information and attachments submitted with this closure report is true, accurate and complete to the best of my knowledge and belief. I also certify that the closure complies with all applicable closure requirements and conditions specified in the approved closure plan.

Name (Print) _____ Title: _____

Signature _____ Date: _____

e-mail address _____ Telephone: _____

DISTRICT II
1301 W. Grand Avenue , Artesia, NM 88210

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

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

DISTRICT III
1000 Rio Brazos Rd., Aztec, N.M. 87410

DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

*API Number 30045-34934		*Pool Code 71629	*Pool Name BASIN FRONTLAND COAL
*Property Code 37651	*Property Name BARBARA K		*Well Number #1
*OGRID No. 13931	*Operator Name MANANA GAS COMPANY		*Elevation 5771'

¹⁰ Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
1	5	30-N	11-W		2081'	SOUTH	128'	EAST	SAN JUAN

¹¹ Bottom Hole Location If Different From Surface

UL or lot no. L	Section 4	Township 30-N	Range 11-W	Lot Idn	Feet from the 1980'	North/South line SOUTH	Feet from the 660'	East/West line WEST	County SAN JUAN
²² Dedicated Acres ²³ Joint or Infill ²⁴ Consolidation Code ²⁵ Order No.									
<div style="display: flex; justify-content: space-between;"> <div> ²² 319.65 w/2 220 </div> <div> ²³ Y </div> <div> ²⁴ </div> <div> ²⁵ </div> </div>									

No allowable will be assigned to this completion until all interest have been consolidated or a non-standard unit has been approved by the division.

16

FD BLM 31/4
BRASS CAP 1985

FD BLM 31/4
BRASS CAP 1989

17

OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Signature: Paul C. Thompson Date: _____

Printed Name: PAUL C. THOMPSON

18

SURVEYOR CERTIFICATION

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

Date of Survey: 3/03/09

Signature and Seal of Professional Surveyor: _____

SW 1/4 SEC 5
FD 2 1/2\"/>

MANANA GAS COMPANY
BARBARA K #1
LAT. 36.84089 N
LONG. 108.00465 W
NAD 83

MANANA GAS COMPANY
BARBARA K #1
BOTTOM HOLE

MANANA GAS COMPANY
BARBARA K #1

XTO
FEE #4A

128'

660'

2081'

N0°28'47\"/>

N89°39'W 40.03
Chains (R)

S88°40'W 38.78
Chains (R)

N88°52'W 39.72
Chains (R)

N88°53'W 39.49
Chains (R)

1980'

N0°28'47\"/>

N0°33'E 39.90 Chains (R)

N89°11'13\"/>

2640.76'(M)

1/4 COR
SINGLE
PROPORTION

S89°07'47\"/>

2558.29'(M)

FD BLM 31/4
BRASS CAP
1989

S88°54'52\"/>

5222.04'(M)

SE 1/4 SEC 5
FD 1 1/4\"/>

8456

Certificate Number

ANANA GAS COMPANY

BARBARA K #1

2081" FSL & 128' FEL

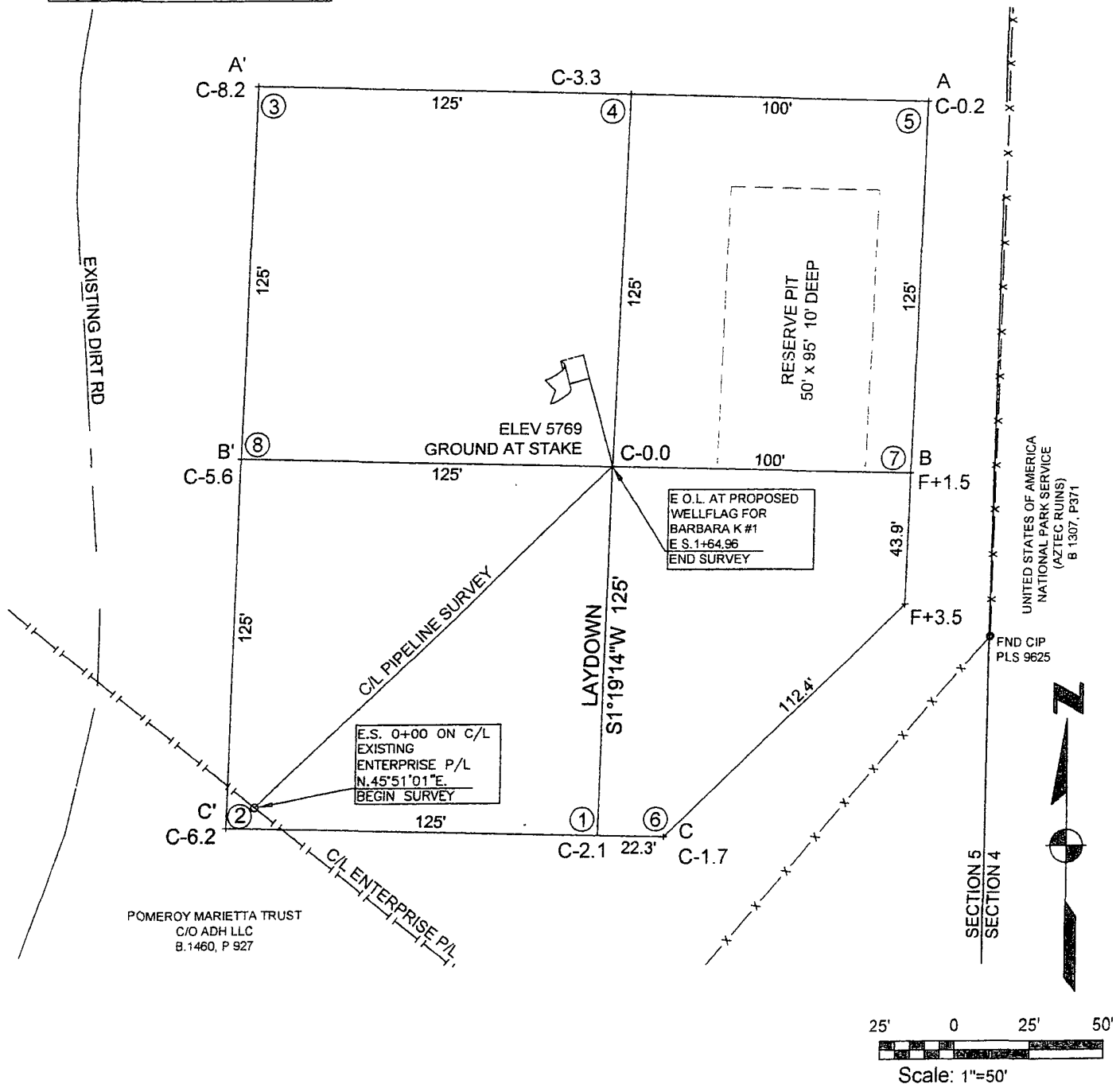
LOCATED IN THE NW/4 SE/4 OF SECTION 5, T30N, R11W, N.M.P.M.,

BOTTOM HOLE: 1980' FSL & 660' FWL

LOCATED IN THE NW/4 SW/4 SEC 4, T30N, R11W, NMPM

SAN JUAN COUNTY, NEW MEXICO

LATITUDE: 36.83983 N
LONGITUDE: 108.00551 W
DATUM: NAD 83



25' 0 25' 50'

Scale: 1"=50'

Red Skies Surveying & Mapping, Inc.

A Native American Owned Company

101 Fauver Lane, Bloomfield, New Mexico 87413

Phone/Fax: (505) 632-8906 Cell No: (505) 793-5325

ANA GAS COMPANY

BARBARA K #1

2081' FSL & 128' FEL

LOCATED IN THE NE/4 SE/4 OF SECTION 5,

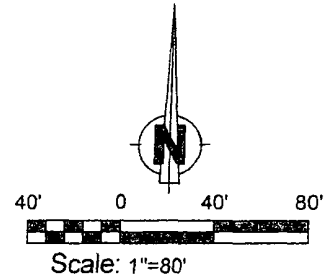
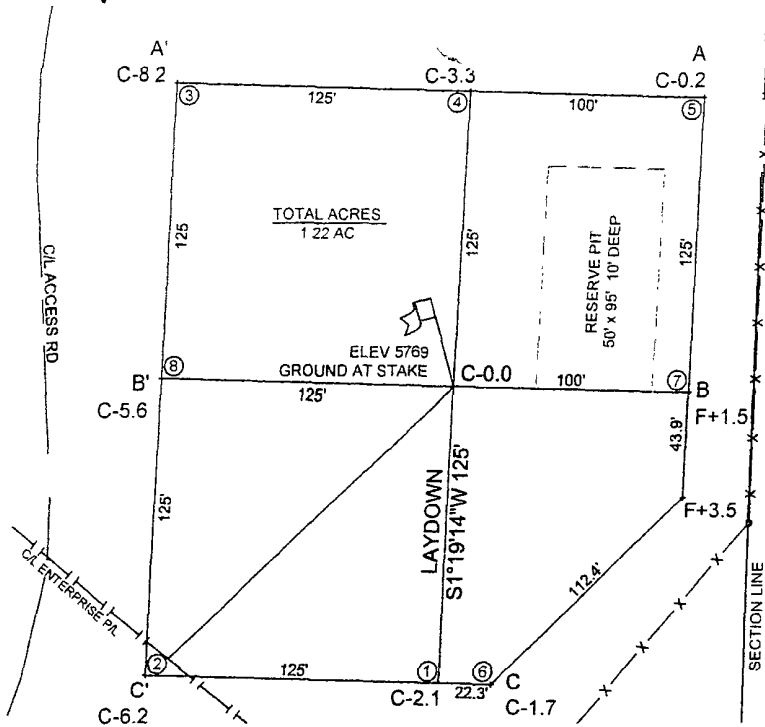
BOTTOM HOLE: 1980' FSL & 660' FWL

LOCATED IN THE NW/4 SW/4 SECTION 4,

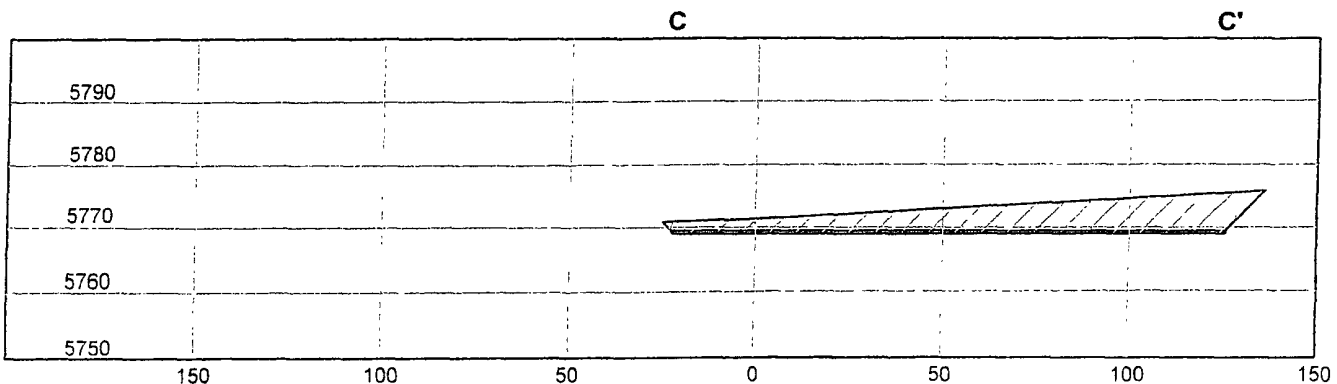
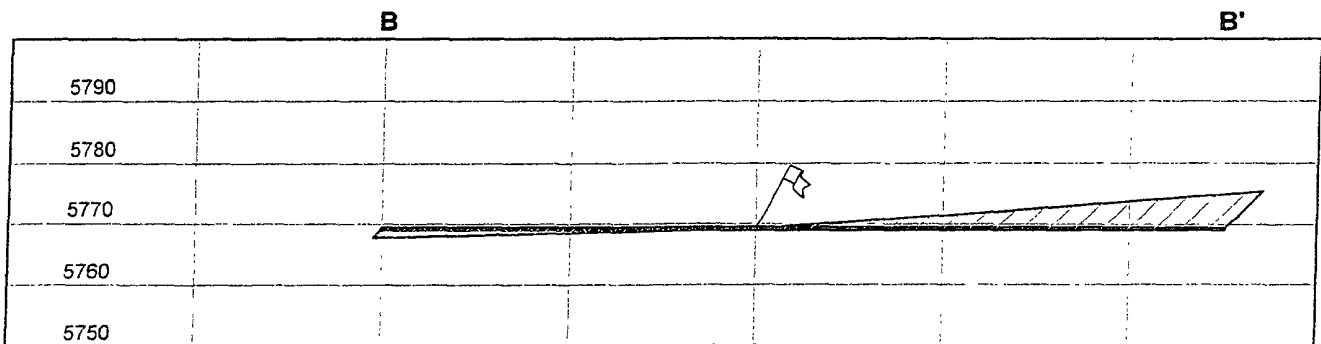
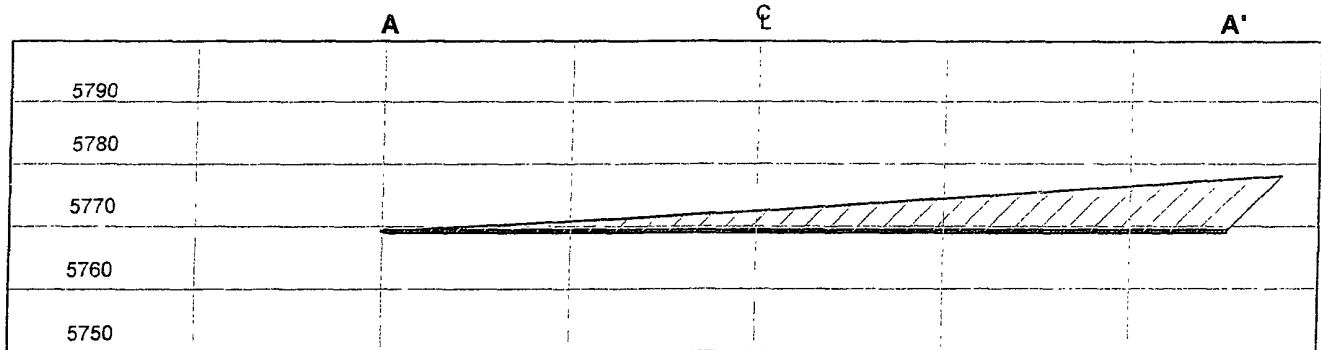
T30N, R11W, N M P.M.,

SAN JUAN COUNTY, NEW MEXICO

ELEVATION: 5769', NAVD 88



LATITUDE: 36.83983 N
LONGITUDE: 108.00551 W
DATUM: NAD 83



HORIZ SCALE: 1"=50'
VERT. SCALE: 1"=30'

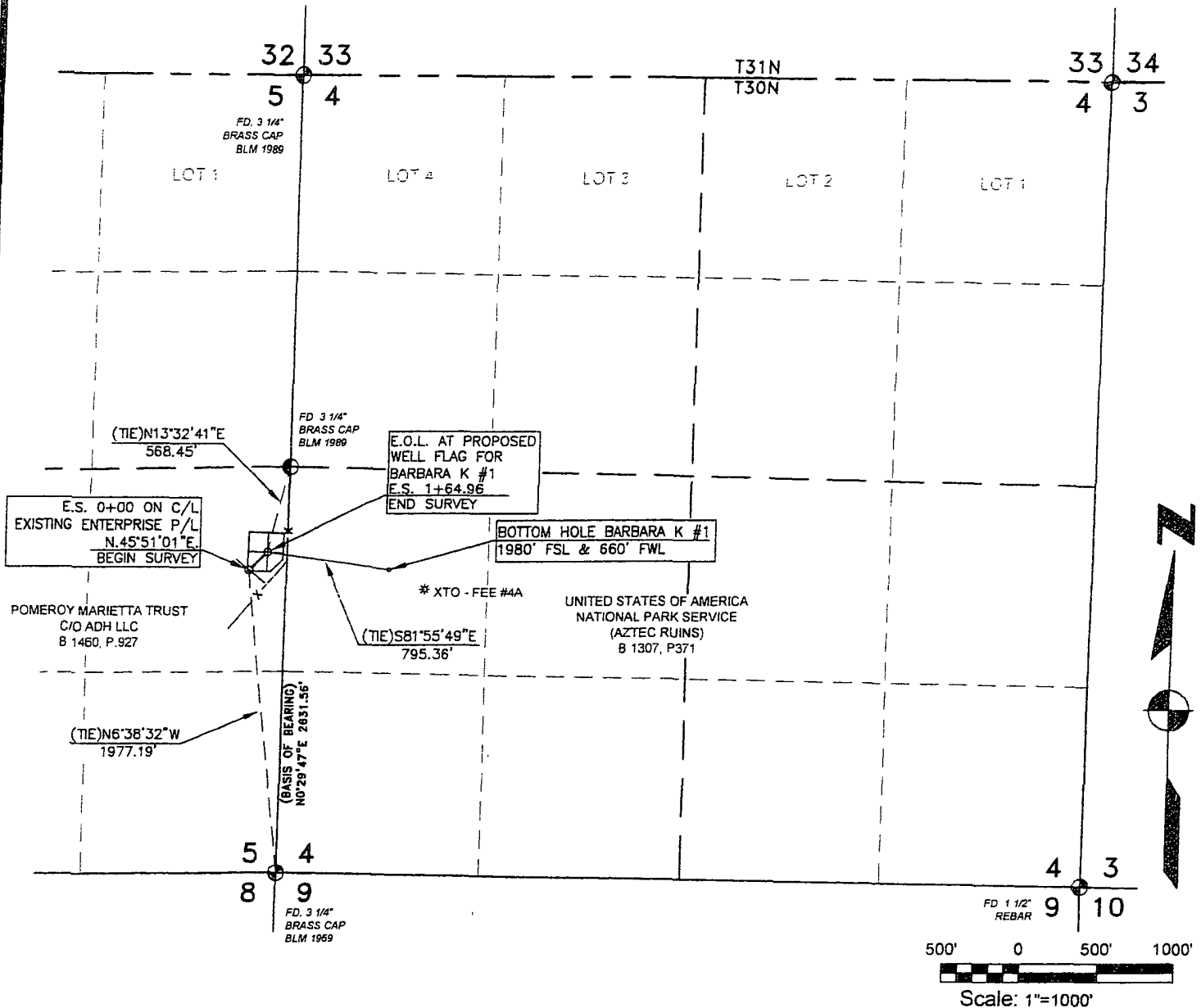
Red Skies Surveying & Mapping, Inc.

A Native American Owned Company

101 Fauver Lane, Bloomfield, New Mexico 87413

Phone/Fax: (505) 632-8906 Cell No: (505) 793-5325

MANANA GAS COMPANY
CENTERLINE SURVEY OF PIPELINE EASEMENT - RIGHT OF WAY 40' IN WIDTH
BARBARA K #1
LOCATED IN THE SE/4 SEC. 5 T30N, R11W, N.M.P.M.,
SAN JUAN COUNTY, NEW MEXICO



OWNERSHIP

LOCATION	ENGINEERING STATION	OWNER	FEET / RODS
SE/4 SEC. 5	0+00 TO 164.96	FEE	164.96 / 0.151

DATE OF SURVEY: 3/03/09
 1.

BASIS OF BEARING:
 AS MEASURED BY GPS BETWEEN FOUND MONUMENTS AT THE
 SOUTHWEST CORNER AND THE WEST QUATER CORNER OF SECTION 4,
 T30N, R11W, N.M.P.M., SAN JUAN COUNTY, NEW MEXICO. LINE BEARS
 N0°29'47\"E, A DISTANCE OF 2631.56'

WILLIAM E. MAHNKE II, A PROFESSIONAL SURVEYOR IN THE
 STATE OF NEW MEXICO HEREBY CERTIFY THAT THIS SURVEY
 WAS CHECKED BY ME AND THAT IT MEETS THE MINIMUM
 REQUIREMENTS FOR SURVEYING IN THE STATE OF NEW MEXICO.

SRVYD BY: AG/KWJr
DWN. BY: KWSR
CHKD. BY: BM
JOB #: MGC001
DATE: 3/16/09
SCALE: 1"=1000'
DWG. NO. MGC001_CF

REVISIONS			
NO.	DATE	BY	DESCRIPTION

Red Skies Surveying & Mapping, Inc.
 A Native American Owned Company
 101 Fauver Lane Bloomfield, NM 87413
 Telephone: (505) 632-3863
 Fax: (505) 632-6823 Cell: 793-5325

WILLIAM E. MAHNKE II, P.S. 8466-
 STATE OF NEW MEXICO

Hydro geological report for Barbara K. #1

Regional Hydro geological context:

The Barbara K. #1 is located on Fee land just west of the Aztec Ruins National Monument's western boundary in San Juan County New Mexico. The area of the well pad gradually slopes eastward towards the Animas River which is approximately $\frac{3}{4}$ of a mile east of the proposed location. The sage brush covered slope is primarily dry, sandy soil with occasional small rocks.

A records search of the NM Office of the State Engineer – iWATERS database indicated that there are 86 water wells within 2,000 meters of the proposed well. All but two of the wells are located in the valley floor next to the Animas River. Two wells are located in Section 33, T31N, R11W (just to the north of the Barbara K. #1) and at about the same elevation above the river as the Barbara K. #1. These wells have an average depth of 290 feet and an average water column of 180', leaving the depth to ground water at approximately 110'.

Geologic maps of the area indicate that the surface formation at the proposed well site is the San Jose formation. The San Jose Formation of Eocene age occurs in New Mexico and Colorado and its outcrop forms the land surface over much of the eastern half of the central basin. It overlies the Nacimiento Formation in the area generally south of the Colorado – New Mexico State line and overlies the Animas Formation in the area generally north of the State line.

The San Jose Formation was deposited in various fluvial-type environments. In general, the unit consists of an interbedded sequence of sandstone, siltstone and variegated shale. Thickness of the San Jose Formation generally increases from west to east (200 feet in the west and south to almost 2,700 feet in the center of the structural basin).

Ground water is associated with alluvial and fluvial sandstone aquifers. Thus, the occurrence of ground water is mainly controlled by the distribution of sandstone in the formation. The distribution of such sandstone is the result of original depositional extent plus any post-depositional modification, namely erosion and structural deformation. Transmissivity data for San Jose Formation are minimal. Values of 40 and 120 feet squared or measured discharge from 46 water wells completed in San Jose Formation ranges from 0.15 to 61 gallons per minute and the median is 5 gallons per minute. Most of the wells provide water for livestock and domestic use.

The San Jose Formation is a very suitable unit for recharge from precipitation because soils that form on the unit are sandy and highly permeable and therefore readily absorb precipitation. However, low annual precipitation, relatively high transpiration and evaporation rates, and deep dissection of the San Jose Formation by the San Juan River and its tributaries all tend to reduce the effective recharge of the unit

Stone et al, 1983, Hydrogeology and Water Resources of the San Juan Basin, New Mexico Socorro, New Mexico Bureau of Mines and Mineral Resources Hydrologic Report 6, 70p

Site specific information:

<i>Surface hydrology:</i>	The site is located in the Animas River drainage and is drained by a number of small intermittent drainages
<i>1st water-bearing formation:</i>	San Jose, tertiary
<i>Formation thickness:</i>	200 - 700 feet
<i>Underlying formation:</i>	Nacimiento, Tertiary
<i>Depth to groundwater:</i>	The closest water wells drilled on the same bench above the valley floor have a depth to groundwater of 110'.

FEMA Map – 100 year floodplain

The attached FEMA Map indicates that the proposed location is outside 100 year floodplain.

Sitting Criteria Compliance Demonstrations

The Barbara K. #1 is not located in an unstable area. The location is not over a mine and is not on the side of a steep hill. The location of the excavated pit material will not be located within 300' of any continuously flowing watercourse or 200' from any other watercourse.

Manana Gas Company
Barbara K. #1
Temporary Reserve Pit Application
Sitting Criteria

1. According to the iWaters Database from the State Engineers Office, there are two water wells that are located at approximately the same structural elevation above the Animas River as the Barbara K. #1 location. These wells are just to the north of the Barbara K. #1 in Section 33, T31N, R11W. The average depth to ground water listed is 110'. See attached printout.
2. As shown on the attached topographic map and aerial photos, there are no continuously flowing watercourses within 300' of the well, or any significant watercourses, lakebeds, sinkholes, or playa lakes within 200' of the well.
3. There are no permanent residences, schools, hospitals, institutions, churches within 300' of the well.
4. There are no domestic water wells or springs within 500' of the well. See iWaters Database printout.
5. The well is not located within any municipal boundaries.
6. The well is not within 500' of any wetlands. See attached topographic map and aerial photos.
7. There are no subsurface mines in Section 5, T30N, R11W. See attached map from the NM EMNRD Mining and Mineral Division.
8. The Barbara K. #1 is not located in an "unstable" area. The location is not over a mine and is not on the side of a steep hill. The location of the excavated pit material will not be located within 300' of a continuously flowing watercourse or 200' from any other watercourse.
9. The well is not located in a 100-year floodplain as visible on the topographic map and the FEMA Flood Insurance Rate Map.
10. In the event that the composite pit sample that is mixed 3:1 with native soils does not meet the requirements for onsite burial, the pit contents will be removed and disposed of at the Envirotech Landfarm #2 (NMOCD Permit #11).



New Mexico Office of the State Engineer

Water Column/Average Depth to Water

(quarters are 1=NW 2=NE 3=SW 4=SE)

(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	Sub basin	Use	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
SJ 03098	DOM	SJ		2	2	2	08	30N	11W	231895	4080592*	802	63	23	40
SJ 03210	DOM	SJ		2	2	2	08	30N	11W	231895	4080592*	802	60	30	30
SJ 03240	DOM	SJ		2	2	2	08	30N	11W	231895	4080592*	802	50		
SJ 03381	DOM	SJ		2	2	2	08	30N	11W	231895	4080592*	802	50		
SJ 03267	DOM	SJ		3	1	2	05	30N	11W	231359	4081993*	824	83	60	23
SJ 02236	DOM	SJ		1	1	1	09	30N	11W	232087	4080581*	828	35	17	18
SJ 03499	DOM	SJ		1	1	1	09	30N	11W	232087	4080581*	828	53	12	41
SJ 03398	DOM	SJ		1	2	2	08	30N	11W	231695	4080592*	834	80	20	60
SJ 03304	DOM	SJ		2	1	1	09	30N	11W	232287	4080581*	889	55	30	25
SJ 00332	DOM	SJ			2	2	08	30N	11W	231796	4080493*	910	52	34	18
SJ 01451	DOM	SJ			2	2	08	30N	11W	231796	4080493*	910	64	34	30
SJ 01814	DOM	SJ			2	2	08	30N	11W	231796	4080493*	910	52	10	42
SJ 01968	DOM	SJ			2	2	08	30N	11W	231796	4080493*	910	40	25	15
SJ 01999	DOM	SJ			2	2	08	30N	11W	231796	4080493*	910	61	45	16
SJ 01560	DOM	SJ			1	1	09	30N	11W	232188	4080482*	949	36	26	10
SJ 01585	DOM	SJ			1	1	09	30N	11W	232188	4080482*	949	40	28	12
SJ 00228	DOM	SJ		4	2	2	08	30N	11W	231895	4080392*	1002	67	38	29
SJ 01115	DOM	SJ		4	2	2	08	30N	11W	231895	4080392*	1002	35	26	9
SJ 03639	DOM	SJ		4	2	2	08	30N	11W	231895	4080392*	1002	60	24	36
SJ 03646	DOM	SJ		4	2	2	08	30N	11W	231895	4080392*	1002	61	24	37
SJ 03653	DOM	SJ		4	2	2	08	30N	11W	231895	4080392*	1002	62	26	36
SJ 03209	DOM	SJ		3	1	1	09	30N	11W	232087	4080381*	1025	49	32	17
SJ 03342	DOM	SJ		3	1	1	09	30N	11W	232087	4080381*	1025	50	31	19
SJ 03726 POD1	DOM	SJ		3	1	1	09	30N	11W	232087	4080381*	1025	47	30	17
SJ 00220	DOM	SJ		3	2	2	08	30N	11W	231695	4080392*	1028	60	36	24
SJ 03225	DOM	SJ		4	1	1	09	30N	11W	232287	4080381*	1075	50		
SJ 03229	DOM	SJ		4	1	1	09	30N	11W	232287	4080381*	1075	50		
SJ 00924	DOM	SJ		2	2	1	09	30N	11W	232686	4080562*	1127	46	16	30
SJ 00438	DOM	SJ		3	2	1	09	30N	11W	232486	4080362*	1174	29	19	10

*UTM location was derived from PLSS - see Help

(quarters are 1=NW 2=NE 3=SW 4=SE)

(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	Sub		Q Q Q Q				Sec	Tws	Rng	X	Y Distance	Depth Depth Water		
	basin	Use	County	64	16	4						Well	Water	Column
SJ 03039	DOM	SJ	2	1	4	04	30N	11W	233112	4081344*	1188	53	40	13
SJ 02241	DOM	SJ			1	09	30N	11W	232375	4080279*	1202	39	27	12
SJ 01450	DOM	SJ		3	4	04	30N	11W	232999	4080846*	1205	45	20	25
SJ 00249	DOM	SJ	2	4	2	08	30N	11W	231879	4080189*	1205	46	30	16
SJ 02293	DOM	SJ	2	4	2	08	30N	11W	231879	4080189*	1205	50	35	15
SJ 02331	DOM	SJ	2	4	2	08	30N	11W	231879	4080189*	1205	53	35	18
SJ 03030	DOM	SJ	2	4	2	08	30N	11W	231879	4080189*	1205	56	40	16
SJ 03202	DOM	SJ	2	4	2	08	30N	11W	231879	4080189*	1205	45		
SJ 03303	DOM	SJ	2	4	2	08	30N	11W	231879	4080189*	1205	55	30	25
SJ 03305	DOM	SJ	2	4	2	08	30N	11W	231879	4080189*	1205	50		
SJ 03378	DOM	SJ	2	4	2	08	30N	11W	231879	4080189*	1205	50		
SJ 02237	DOM	SJ	1	3	1	09	30N	11W	232073	4080177*	1225	48	28	20
SJ 02493	DOM	SJ	1	3	1	09	30N	11W	232073	4080177*	1225	49	26	23
SJ 03019	DOM	SJ	1	3	1	09	30N	11W	232073	4080177*	1225	50	30	20
SJ 03031	DOM	SJ	1	3	1	09	30N	11W	232073	4080177*	1225	55	35	20
SJ 03724 POD1	DOM	SJ	1	3	1	09	30N	11W	232073	4080177*	1225	47	36	11
SJ 02903	DOM	SJ	2	3	2	04	30N	11W	233127	4081744*	1251	49	31	18
SJ 02941	DOM	SJ	2	3	4	04	30N	11W	233098	4080945*	1255	58	37	21
SJ 01465	DOM	SJ	2	3	1	09	30N	11W	232273	4080177*	1265	47		
SJ 02336	DOM	SJ	2	3	1	09	30N	11W	232273	4080177*	1265	46	11	35
SJ 03482	DOM	SJ	2	3	1	09	30N	11W	232273	4080177*	1265	50		
SJ 03407	EXP	SJ	4	4	4	04	30N	11W	233168	4081010	1300	30	5	25
SJ 00268	DOM								232320	4080146	1309	43	16	27
SJ 03790 POD1	DOM								231986	4080081	1313	49	35	14
SJ 01169	DOM	SJ		3	1	09	30N	11W	232174	4080078*	1339	56	33	23
SJ 01574	DOM	SJ		3	1	09	30N	11W	232174	4080078*	1339	46	27	19
SJ 01364	DOM	SJ			2	04	30N	11W	233229	4081846*	1380	115	86	29
SJ 03423	DOM	SJ	3	3	1	09	30N	11W	232073	4079977*	1424	50	20	30
SJ 01367	DOM	SJ	1	4	4	04	30N	11W	233294	4080925*	1447	48	20	28
SJ 00750	DOM	SJ		4	1	09	30N	11W	232573	4080059*	1483	26	6	20
SJ 03076	DOM	SJ	3	2	2	04	30N	11W	233339	4081916*	1507	44	10	34
SJ 03154	DOM	SJ	4	1	1	08	30N	11W	230700	4080431*	1558	40		

*UTM location was derived from PLSS - see Help

(quarters are 1=NW 2=NE 3=SW 4=SE)

(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	Sub basin	Use	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
SJ 02975		DOM	SJ	4	1	2	09	30N	11W	233084	4080342*	1565	37	12	25
SJ 00183		DOM	SJ		1	1	08	30N	11W	230601	4080532*	1579	360	300	60
SJ 03431		DOM	SJ		4	1	08	30N	11W	230985	4080115*	1587	50		
SJ 00925		DOM	SJ	2	1	4	08	30N	11W	231467	4079798*	1660	32	20	12
SJ 01520		DOM	SJ	2	1	4	08	30N	11W	231467	4079798*	1660	58	18	40
SJ 03642		DOM	SJ	2	1	4	08	30N	11W	231467	4079798*	1660	58	32	26
* SJ 02993		DOM	SJ	<u>2</u>	<u>3</u>	<u>4</u>	<u>33</u>	<u>31N</u>	<u>11W</u>	233155	4082527*	1672	<u>280</u>	<u>160</u>	120 *
* SJ 02994		STK	SJ	<u>2</u>	<u>3</u>	<u>4</u>	<u>33</u>	<u>31N</u>	<u>11W</u>	233155	4082527*	1672	<u>300</u>	<u>200</u>	100 *
SJ 00364		DOM	SJ	2	3	2	09	30N	11W	233071	4080140*	1698	50	20	30
SJ 03128		DOM	SJ	2	3	2	09	30N	11W	233071	4080140*	1698	50		
SJ 03245		DOM	SJ	4	4	4	06	30N	11W	230318	4080843*	1698	80	65	15
SJ 03862 POD2		EXP	SJ	2	3	2	09	30N	11W	233126	4080190	1700	18	4	14
SJ 03862 POD3		EXP	SJ	2	3	2	09	30N	11W	233129	4080168	1717	18	4	14
SJ 03268		DOM	SJ	2	2	2	09	30N	11W	233482	4080523*	1784	61	10	51
SJ 01570		DOM	SJ		1	4	08	30N	11W	231368	4079699*	1784	59	37	22
SJ 01339		MUL	SJ	1	3	1	03	30N	11W	233721	4081700*	1821	40	15	25
SJ 03242		DOM	SJ	1	3	3	03	30N	11W	233691	4080906*	1832	23	9	14
SJ 03732 POD1		DOM	SJ	1	3	3	03	30N	11W	233691	4080906*	1832	38	9	29
SJ 02485		DOM	SJ	4	1	4	08	30N	11W	231467	4079598*	1853	49	30	19
SJ 03313		DOM	SJ	4	1	4	08	30N	11W	231467	4079598*	1853	58	20	38
SJ 01137		DOM	SJ	4	4	4	33	31N	11W	233553	4082312*	1868	37	19	18
SJ 03239		DOM	SJ	3	3	3	03	30N	11W	233691	4080706*	1895	33	12	21
SJ 03471		DOM	SJ	1	1	4	09	30N	11W	232857	4079737*	1901	20	5	15
SJ 02049		DOM	SJ		3	1	03	30N	11W	233822	4081601*	1908	26	8	18
SJ 01368		DOM	SJ		2	3	08	30N	11W	230968	4079711*	1936	59	39	20
SJ 01020		DOM	SJ		3	3	03	30N	11W	233792	4080807*	1957	27	5	22
SJ 03089		DOM	SJ	4	2	3	08	30N	11W	231067	4079610*	1979	48	36	12
SJ 03480		DOM	SJ	4	2	3	08	30N	11W	231067	4079610*	1979	50		
SJ 01955		DOM	SJ		4	2	09	30N	11W	233370	4080022*	1992	40	11	29
SJ 02528		DOM	SJ		4	2	09	30N	11W	233370	4080022*	1992	60	28	32

*UTM location was derived from PLSS - see Help

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data

Average Depth to Water: **32 feet**

Minimum Depth: **4 feet**

Maximum Depth: **300 feet**

Record Count: 91

UTMNAD83 Radius Search (in meters):

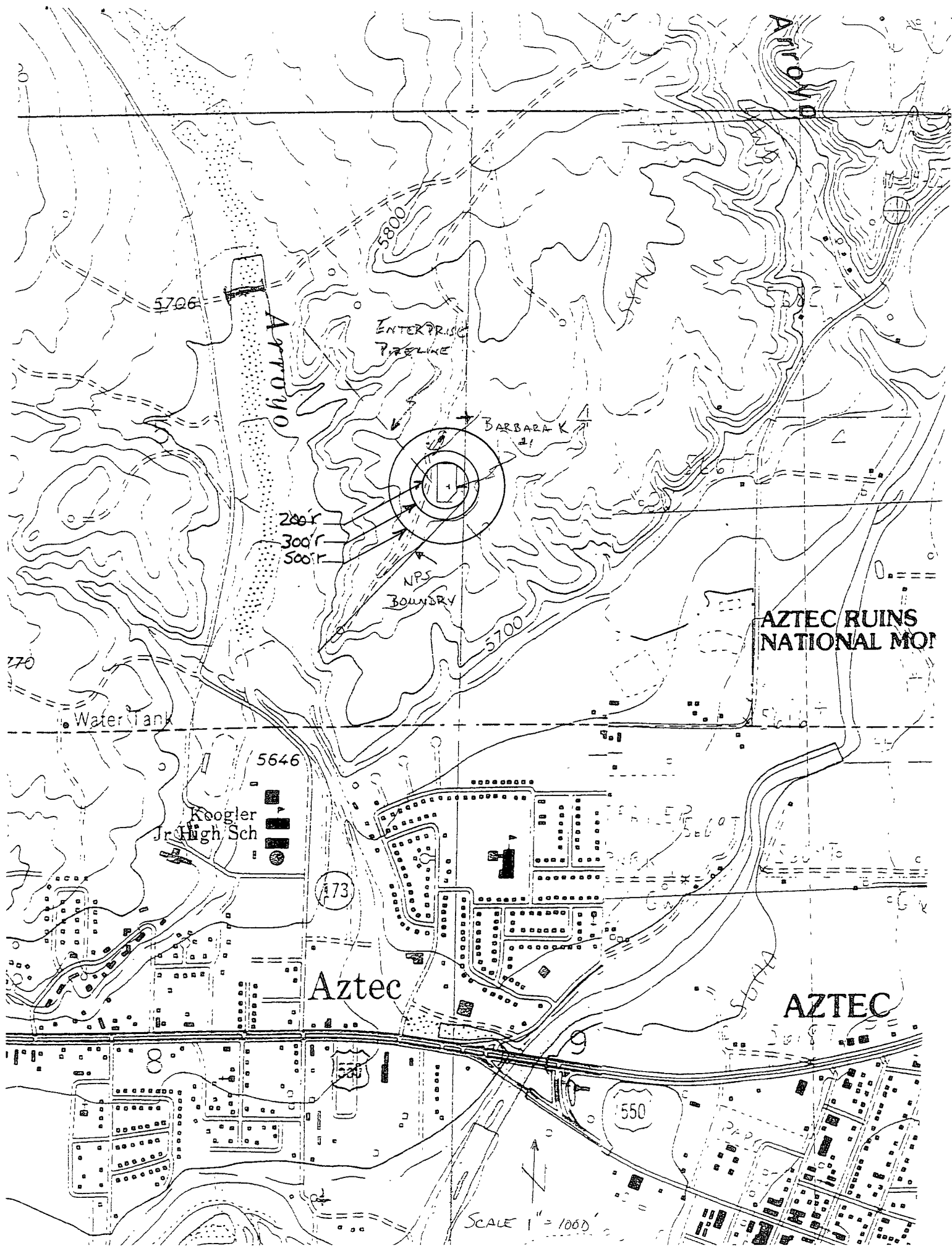
Easting (X): 231925

Northing (Y): 4081394

Radius: 2000



BARBARA K #1



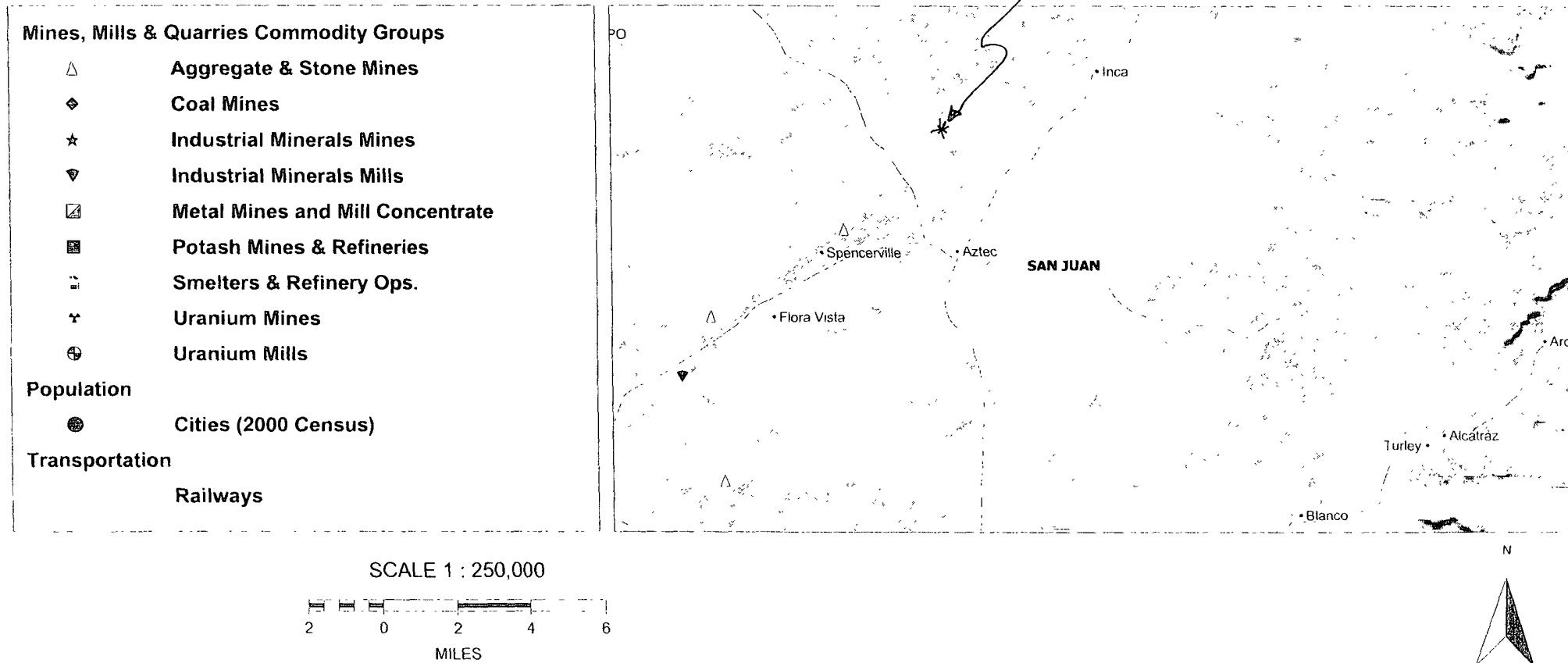
AZTEC RUINS
NATIONAL MONUMENT

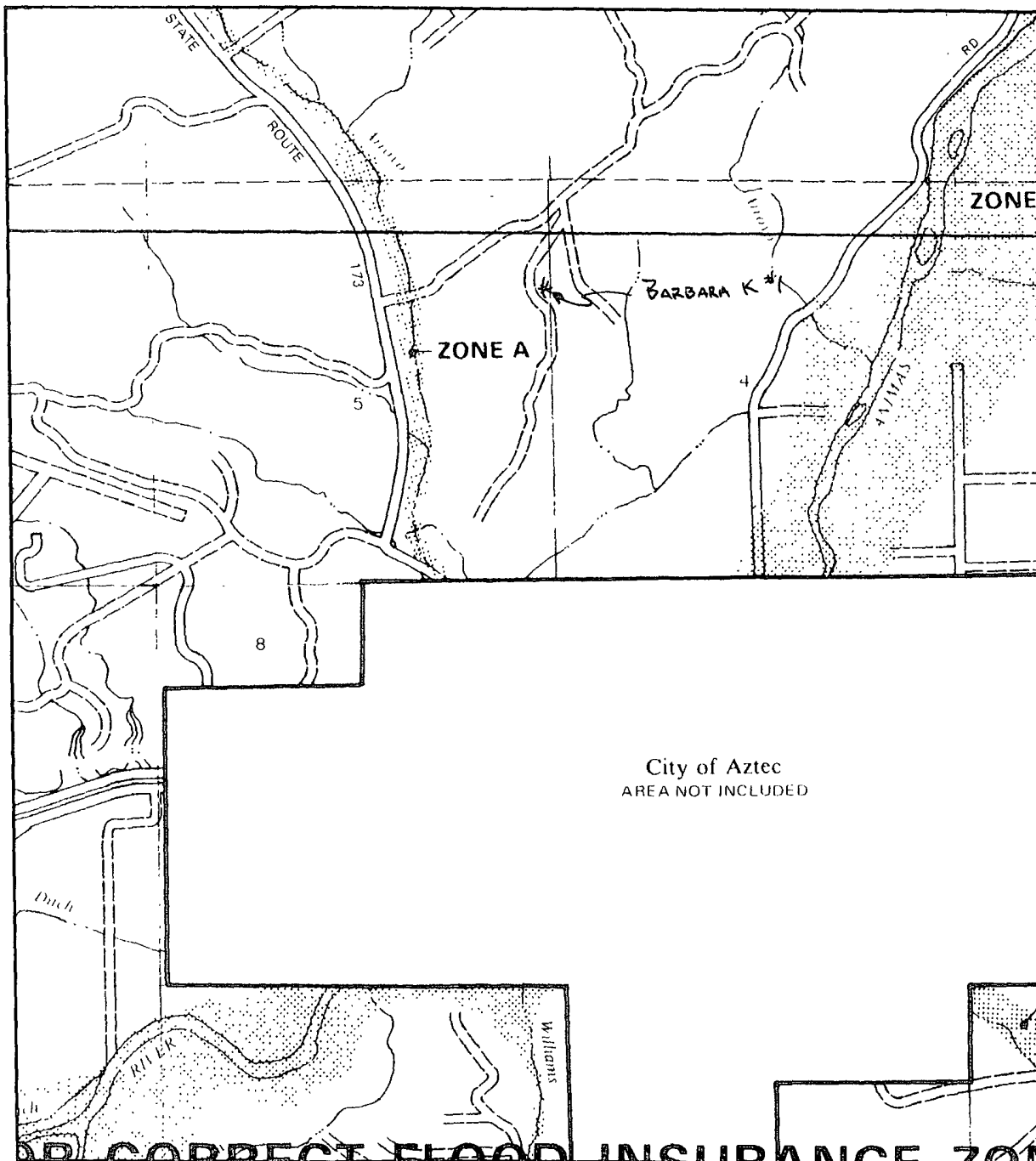
Aztec

AZTEC

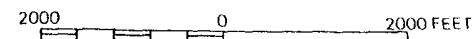
SCALE 1" = 1000'

MMQonline Public Version





APPROXIMATE SCALE

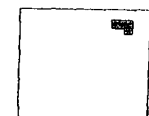


NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

**SAN JUAN COUNTY,
NEW MEXICO
UNINCORPORATED AREAS**

PANEL 350 OF 1450
(SEE MAP INDEX FOR PANELS NOT PRINTED)



PANEL LOCATION

COMMUNITY-PANEL NUMBER
350064 0350 B

EFFECTIVE DATE:
AUGUST 4, 1988



Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

**Manana Gas Company
San Juan Basin
Pit Design and Construction Plan**

In accordance with Rule 19 15 17 the following information describes the design and construction for temporary pits on Manana Gas Company's locations; this is Manana Gas Company's standard procedure for all temporary pits. A separate plan will be submitted for any temporary pit which does not conform to this plan.

General Plan

- 1 Manana Gas Company will design and construct a temporary pit to contain liquids and solids and prevent contamination of fresh water and protect public health and environment
- 2 Prior to constructing the pit, topsoil will be stockpiled in the construction zone for later use in restoration
- 3 Manana Gas Company will post a well sign, not less than 12' by 14', on the well site prior to construction of the temporary pit. The sign will list the operator on record as the operator, the location of the well by unit letter, section, township rang, and emergency telephone numbers
- 4 Manana Gas Company shall construct all new fences unitizing 48' steel mesh field-fence (hogwire) on the bottom with a single strand of barbed wire on top. T-posts shall be installed every 12 feet and corners shall be anchored utilizing a secondary T-post. Temporary pits will be fenced at all times excluding drilling or overwork operations, when the front side of the fence will be temporarily removed for operational purposes
- 5 Manana Gas Company shall construct the temporary pit so that the foundation and interior slopes are firm and free of rocks, debris, sharp edges or irregularities to prevent liner failure
- 6 Manana Gas Company shall construct the pit so that the slopes are no steeper than two horizontal feet to 1 vertical foot
- 7 Pit walls will be walked down by a crawler type tractor following construction
- 8 All temporary pits will be lined with a 20-mil, string reinforced, LLDPE liner, complying with EPA SW-846 method 9090A requirements
- 9 Geotextile will be installed beneath the liner when rocks, debris, sharp edges or irregularities cannot be avoided
- 10 All liners will be anchored in the bottom of a compacted earth-filled trench at least 18 inches deep
- 11 Manana Gas Company will minimize liner seams and orient them up and down, not across a slope. Factory seams will be used whenever possible. Manana Gas Company will ensure all field seams are welded by qualified personnel. Field seams will be overlapped four to six inches and will be oriented parallel to the line of maximum slope. Manana Gas Company will minimize the number of field seams in corners and irregularly shaped areas
- 12 The liner shall be protected from any fluid force or mechanical damage through the use of mud pit slides, or a manifold system
- 13 The pit shall be protected from run-off by constructing and maintaining diversion ditched around the location or around the perimeter of the pit in some cases
- 14 The volume of the pit shall not exceed 10 acre-feet, including freeboard
- 15 Temporary blow pits will be constructed to allow gravity flow to discharge into lined drill pit
- 16 The lower half of the blow pit (nearest lined pit) will be lined with the same 20 mil liner. The upper half of the blow pit will remain unlined as allowed in Rule 19 15 17 11 F 11
- 17 Manana Gas Company will not allow freestanding liquids to remain on the unlined portion of temporary blow pit

**Manana Gas Company Resources Operating LP
San Juan Basin
Maintenance and Operating Plan**

In accordance with Rule 19 15 17 the following information described the operation and maintenance of temporary pits on Manana Gas Company locations. This is Manana Gas Company's standard procedure for all temporary pits. A separate plan will be submitted for any temporary pit which does not conform to this plan.

General Plan

- 1 Manana Gas Company will operate and maintain a temporary pit to contain liquids and solids and prevent contamination of fresh water and protect public health and environment
- 2 Manana Gas Company will conserve drilling fluids by transferring liquids to pits ahead of the rigs whenever possible. All other drilling fluids will be disposed at Basin Disposal, Inc. Permit # NM-01-005
- 3 Manana Gas Company will not discharge or store any hazardous waste in any temporary pit
- 4 If any pit liner's integrity is compromised or if any penetration of the liner occurs above the liquid's surface, then Manana Gas Company shall notify the Aztec Division office by phone or email within 48 hours of the discovery and repair the damage or replace the liner
- 5 If a leak develops below the liquid's level, Manana Gas Company shall remove all liquids above the damaged liner within 48 hours and repair the damage or replace the liner. Manana Gas Company shall notify the Aztec Division office by phone or email within 48 hours of the discovery for leaks less than 25 barrels. Manana Gas Company shall notify the Aztec division office as required pursuant to Subsection B of 19 15 3 116 NMAC shall be reported within twenty-four (24) hours of discovery of leaks greater than 25 barrels. In addition, immediate verbal notification pursuant to Subsection B, Paragraph (1) and Subparagraph (d) of 19 15 3 116 NMAC shall be reported to the division's Environmental Bureau Chief
- 6 The liner shall be protected from any fluid force or mechanical damage through the use of mud pit slides, or manifold system
- 7 The pit shall be protected from run-off by constructing and maintaining diversion ditches around the location or around the perimeter of the pit in some cases
- 8 Manana Gas Company shall immediately remove any visible layer or oil from the surface of temporary pit after cessation of a drilling or workover operation. Oil absorbent booms will be utilized to contain and remove oil from the pit's surface. An oil absorbent boom will be stored on-site until closure of pit
- 9 Only fluids generated during the drilling or workover process may be discharged into a temporary pit
- 10 Manana Gas Company will maintain the temporary pit free of miscellaneous solid waste or debris
- 11 During drilling or workover operations, Manana Gas Company will inspect the temporary pit at least once daily to ensure compliance with this plan. Inspections will be logged in the IADC reports. Manana Gas Company will file this log with the Aztec Division office upon closure of the pit
- 12 After drilling or workover operations, Manana Gas Company will inspect the temporary pit weekly so long as liquids remain in the temporary pit. A log of the inspections will be stored at Manana Gas Company's office electronically and will be filed with the Aztec Division office upon closure of the pit
- 13 Manana Gas Company shall maintain at least two feet of freeboard for a temporary pit
- 14 Manana Gas Company shall remove all free liquids from a temporary pit within 30 days from the date the operator releases the drilling or workover rig
- 15 Manana Gas Company shall remove all free liquids from a cavitations put within 48 hours after completing cavitations. Manana Gas Company may request additional time to remove liquids from Aztec Division office if it is not feasible to remove liquids within 48 hours

Manana Gas Company San Juan Basin Closure Plan

In accordance with Rule 19.15.17.12 NMAC the following information describes the closure requirements of temporary pits on Manana Gas Company's locations. This is Manana Gas Company's standard procedure for all temporary pits. A Separate plan will be submitted for any temporary pit which does not conform to this plan.

All closure activities will include proper documentation and be available for review upon request and will be submitted to OCD within 60 days of the pit closure. Closure report will be filed on C-144 and incorporated the following:

- Detail on Capping and Covering, where applicable
- Plot Plan (Pit diagram)
- Inspection reports
- Sampling Results
- C-105
- Copy of Deed Notice will be filed with County Clerk

General Plan

- 1 All free standing liquids will be removed at the start of the pit closure process from the pit and disposed of in a division-approved facility or recycle, reuse or reclaim the liquids in a manner that the appropriate division district office approves
- 2 The preferred method of closure for all temporary pits will be on-site burial, assuming that all criteria listed in sub-section (B) of 19.15.17.13 are met
- 3 The surface owner shall be notified of Manana Gas Company's proposed closure plan using a means that provides proof of notice i.e., certified mail, return receipt requested
- 4 Within 6 months of the Rig Off status occurring Manana Gas Company will ensure that temporary pits are closed, re-contoured, and reseeded
- 5 Notice of Closure will be given to the Aztec Division office between 72 hours and one week of closure via email, or verbally, The notification of closure will include the following:
 - i. Operator's name
 - ii. Location by Unit Letter, Section, Township, and Range. Well name and API Number
- 6 Liner of temporary pit shall be removed above "mud level" after stabilization Removal of liner will consist of manually or mechanically cutting liner at mud level and removing all remaining liner. Care will be taken to remove "All" of the liner i.e., edges of liner entrenched or buried. All excessive liner will be disposed of at a licensed disposal facility
- 7 Pit contents shall be mixed with non-waste containing, earthen material in order to achieve the solidification process. The solidification process will be accomplished using a combination of natural drying and mechanically mixing. Pit contents will be mixed with non-waste, earthen material to a consistency that is deemed a safe and stable. The mixing ratio shall not exceed 3 parts clean soil to 1 part pit contents
- 8 A five point composite sample will be taken of the pit using sampling tools and all samples tested per Subsection B of 19.15.17.13(B)(1)(b). In the event that the criteria are not met, all contents will be handled per Subparagraph (a) of Paragraph (1) of Subsection B of 19.15.17.13 i.e., Dig and haul to the Envirotech, Inc. Landfarm (NMOCD Permit #11).

Components	Tests Method	Limit (mg/Kg)
Benzene	EPA SW-846 8021B or 8260B	0.2
BTEX	EPA SW-846 8021B or 8260B	50
TPH	EPA SW-846 418.1	2500
GRO/DRO	EPA SW-846 8015M	500
Chlorides	EPA 300.1	1000

- 9 Upon completion of solidification and testing, the pit area will be backfilled with compacted, non-waste containing, earthen material. A minimum of four feet of cover shall be achieved and the cover shall include one foot of suitable material to establish vegetation at the site, or the background thickness of topsoil, whichever is greater
- 10 Re-contouring of location will match fit, shape, line, form and texture of the surrounding area. Re-shaping will include drainage control, prevent ponding, and prevent erosion. Natural drainages will be unimpeded and water bars and/or silt traps will be placed in areas where needed to prevent erosion on a large scale. Final re-contour shall have a uniform appearance with smooth surface, fitting the natural landscape
- 11 Notification will be sent to OCD when the reclaimed area is seeded
- 12 Manana Gas Company shall seed the distributed areas the first growing season after the operator closes the pit. Seeding will be accomplished via drilling on the contour whenever practical or by other division-approved methods. BLM or Forest Service stipulated seed mix will be used on federal lands. Vegetative cover will equal 70% of the native perennial vegetative cover (un-impacted) consisting of at least three native plant species, including at least one grass, but not including noxious weeds, and maintain that cover thorough two successive growing seasons. Repeat seeding or planting will be continued until successful vegetative growth occurs
- 13 The temporary pit will be located with a steel marker, no less than four inches in diameter, cemented in a hole three feet deep in the center of the onsite burial upon the abandonment of all the wells on the pad. The marker will be a four foot tall riser with the operator's information at the time of all wells on the pad are abandoned. The operator's information will include the following: Operator Name, Lease Name, Well Name and Number, unit Number, Section, Township, Range and an indicator that the marker is an onsite burial location

**WALSH**

ENGINEERING & PRODUCTION CORP.

Petroleum Engineering Consulting
Lease Management
Contract Pumping7415 East Main
Farmington, New Mexico 87402
(505) 327-4892 • Fax (505) 327-9834

CERTIFIED MAIL

May 29, 2009

Mr. John Gardenhire
c/o ADH, LLC
P.O. Box 219
Aztec, NM 87410Re: Manana Gas Co.
Barbara K. #1

Dear Mr. Gardenhire,

According to NMOCD rules, Manana Gas is notifying you that they intend to bury the drill cuttings in the reserve pit assuming that they qualify as per Subsection B of 19.15.17.13 (B)(1)(b) NMAC. No action is required on your part. If you have any questions, please don't hesitate to call me.

Sincerely,

Paul C. Thompson, P.E.
Agent for Manana Gas

SENDER: COMPLETE THIS SECTION

- ☒ Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- ☒ Print your name and address on the reverse so that we can return the card to you.
- ☒ Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mr. John Gardenhire
c/o ADH, LLC
P.O. Box 219
Aztec, NM 87410

2. Article Number

(Transfer from service label)

7006 2150 0004 0531 4857

PS Form 3811, February 2004

Domestic Return Receipt

102595-02-M-1540

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X

☐ Agent☐ Addressee

B. Received by (Printed Name)

C. Date of Delivery

D. Is delivery address different from item 1? ☐ YesIf YES, enter delivery address below: ☐ No

3. Service Type

☒ Certified Mail☐ Express Mail☐ Registered☒ Return Receipt for Merchandise☐ Insured Mail☐ C.O.D.

4. Restricted Delivery? (Extra Fee)

☐ Yes