NEW MEXICO ENERGY, MINERALS
& NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

April 9, 1998

CERTIFIED MAIL
RETURN RECEIPT NO. P-326-936-416

Jolene Dicks
PRONM Energy, Inc.
460 St. Michaels' Drive,
Suite 402
Santa Fe, NM 87505

RE: Produced Water Disposal Pit
Garcia Federal 26 #1
1710' FSL, 940' FWL, Sec. 26, T25N, R11W

Ms. Jolene Dicks:

The New Mexico Oil Conservation Division has received PRONM Energy, Inc letter to Mr Bill Leiss DOI-BLM dated April 2, 1998 and Sundry Notice. As stated in PRONM's letter the proposed produced water disposal pit will serve one well, Garcia Federal 26 #1, 1710' FSL, 940' FWL, Sec. 26, T25N, R11W., which is not in the Vulnerable Area.

According to OCD Rule 711.A.3.a, centralized facilities that receive wastes form a single well are exempt from permitting requirements. In addition, the proposed pit is not located in the Vulnerable Area and thus is not required by OCD to be lined.

However, pursuant to the OCD Order R-8952, all tanks exceeding 16 feet in diameter and all exposed pits and ponds shall be screened, netted or covered. Upon written application by the operator, an exception to screening, netting or covering of a facility may be granted by the district supervisor upon a showing that an alternative method will protect migratory birds or that the facility is not hazardous to migratory birds. In addition, OCD Rule 310 prohibits the storage or retention of oil in earthen reservoirs, or in open receptacles.

Please be advised that OCD approval does not relieve PRONM Energy Inc. of liability should their operation result in pollution of the ground water, surface water or the environment. In addition, OCD approval does not relieve PRONM Energy Inc. of the responsibility for compliance with other federal, state and/or local regulations.

If you have any questions please do not hesitate to contact me at (505) 827-7153.

Sincerely,

Martyne J. Kieling
Environmental Geologist

xc: OCD Aztec Office

PRO NM ENERGY INC.
OIL AND GAS PRODUCTION AND PROPERTIES

April 2, 1998

Mr. Bill Leiss
Department of Interior - Bureau of Land Management
1235 LaPlata Highway
Farmington, NM 87401

Re: Sundry Notice dated March 16, 1998 (produced water disposal pit)
Gracia Federal 26 #1
1710' FSL, 940' FWL, Sec. 26, T25N, R11W
San Juan County, New Mexico

Dear Mr. Leiss:

In accordance with your field inspection and discussions with our representative Bud Guffey and me regarding the above-referenced Sundry Notice, enclosed please find a revised Figure 2 which illustrates the redesign for the pit for produced water for the Gracia Federal 26 No. 1 well.

Pro would build the new pit, using the old reserve pit as a starting point. The pit will be 35' x 123' x 10' deep. The perimeter will be fenced and, if required, lined with 8 mil. plastic, or other material as specified by the Bureau of Land Management.

As you suggested, I spoke with Martyne J. Kieling, Environmental Geologist at the New Mexico Oil Conservation Division. Ms. Kieling informed me that the pit for this one well is exempt from Rule 711 requirements, and that because it is not in the Vulnerable Area, the OCD does not require any lining. With a copy of this letter, I am sending Ms. Kieling a copy of our original Sundry Notice and revised Figure 2. She has advised that she will send a letter authorizing the pit. When I receive that authorization I will forward a copy to you.

If you need any additional information, please do not hesitate to call. Thank you for your assistance in this matter.

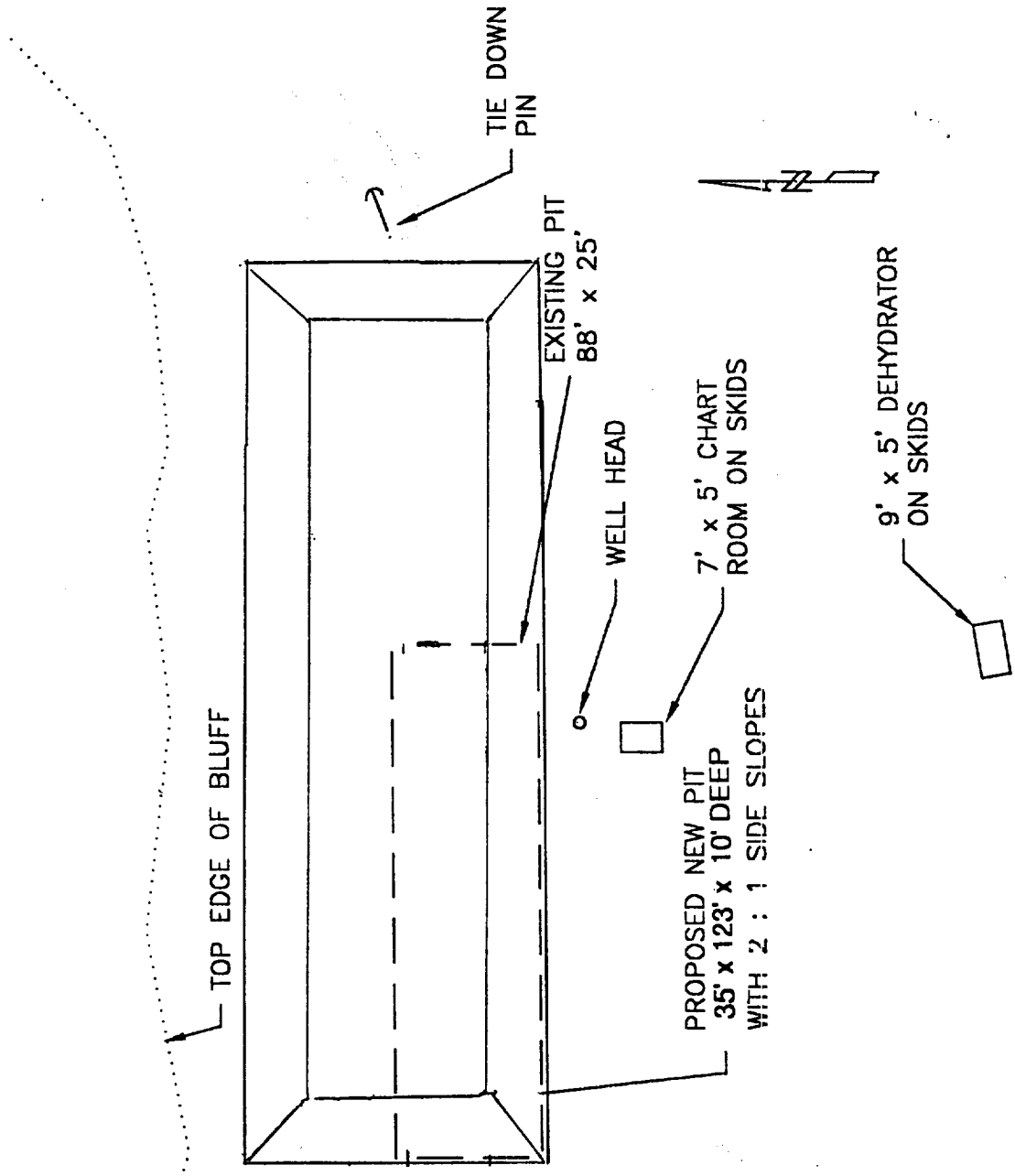
Sincerely,

Pro NM Energy, Inc.

By Jolene Dicks
Jolene Dicks
Director of Operations

cc: Martyne Kieling, NMOCD
Bud Guffey
AZTEC

460 St. Michael's Drive, Suite 402 • Santa Fe, New Mexico 87505 • 505 988-4171 Fax 505 988-4548



Revised 4/2/98

Pro New Mexico Energy, Inc.
Garcia Federal 26 No. 1
Site Location Map

Figure 2

Scale: N.T.S.

Original M. Holden
Revision
Revision

Sundale Associates, Inc.
648 College Drive, Durango, Colorado 81301
(970) 259-4192

File No. 97133

Form 3160-5
(June 1990)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

RECEIVED BLM

FORM APPROVED
Budget Bureau No. 1004-0135
Expires: March 31, 1993

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to deepen or reentry to a different reservoir.
Use "APPLICATION FOR PERMIT—" for such proposals

98 MAR 17 PM 12:25
070 FARMINGTON, NM

SUBMIT IN TRIPLICATE

5. Lease Designation and Serial No.
NMNM036252

6. If Indian, Allottee or Tribe Name

7. If Unit or CA, Agreement Designation

1. Type of Well
☐ Oil Well ☒ Gas Well ☐ Other

8. Well Name and No.
Gracia Federal 26 #1

2. Name of Operator
Pro NM Energy, Inc.

9. API Well No.
30-045-29489

3. Address and Telephone No.
460 St. Michael's Dr., #402 Santa Fe, NM 87505 (505) 988-4171

10. Field and Pool, or Exploratory Area
Basin Fruitland Coal

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
1710' FSL & 940' FWL
Section 26, T25N, R11W

11. County or Parish, State
San Juan, NM

12. CHECK APPROPRIATE BOX(s) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION	
☒ Notice of Intent	☐ Abandonment	☐ Change of Plans
☐ Subsequent Report	☐ Recompletion	☐ New Construction
☐ Final Abandonment Notice	☐ Plugging Back	☐ Non-Routine Fracturing
	☐ Casing Repair	☐ Water Shut-Off
	☐ Altering Casing	☐ Conversion to Injection
	☐ Other _____	☒ Dispose Water

(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

Pro NM Energy intends to remediate its 88' x 25' reserve pit and use it as a basis for a 14' x 132' x 5' deep open earth disposal pit for produced water. The proposed pit is more particularly described and its design set forth in the Environmental Data Report submitted herewith. No liquid hydrocarbons are present in the produced water.

RECEIVED
MAY 12 1998
OIL CON. DIV.
DIST. 3

14. I hereby certify that the foregoing is true and correct
Signed Jolene Dicks Title Director of Operations Date 3/16/98

APPROVED

(This space for Federal or State office use)

Approved by _____ Title _____ Date APR 28 1998
Conditions of approval, if any:

DISTRICT MANAGER

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

*See Instruction on Reverse Side

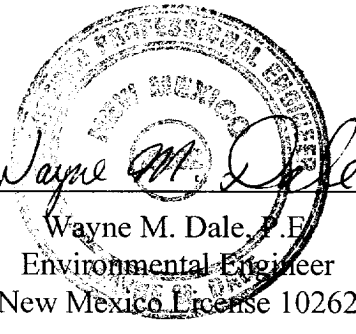
NMOCD

ENVIRONMENTAL DATA COLLECTION REPORT FOR THE DEVELOPMENT OF AN UNLINED PRODUCTION WATER DISPOSAL PIT

Natural Gas Production Site
1710 Feet From the South Line, 940 Feet from the West Line
Section 26, Township 25 North, Range 11 West
New Mexico Principal Meridian, San Juan County, New Mexico

Prepared for:
Pro NM Energy, Inc.
460 St. Michael's Drive, Suite 402
Santa Fe, New Mexico 87505

Prepared by:
Sundale Associates, Inc.
605 East 7th avenue
Durango, Colorado 81301



Wayne M. Dale 3/6/98

Wayne M. Dale, P.E.
Environmental Engineer
New Mexico License 10262

TABLE OF CONTENTS

PROJECT OBJECTIVES AND SCOPE

The purpose of this project was to collect the data required as part of an application for the development of an unlined production water disposal pit at a gas production site. The requirement for this data collection can be found in Volume 58, Number 172 on Page 47364 of the September 8, 1993 Federal Register.

1) A map of the site and scaled site drawings which show the pit dimensions, cross sections, side slopes, size and location relative to other site facilities.

2) The daily quantity of water to be disposed and a water analysis which includes the following parameters: total dissolved solids (TDS) in ppm, pH, oil and grease content, chlorides and sulfates.

3) The average monthly precipitation and evaporation for the general vicinity of the pit.

4) A percolation test performed in the planned pit location and a calculation of the estimated percolation rate of the pit.

5) Delineation of the estimated depth and extent of the shallowest aquifer, and the depth and extent of mineral deposits in the Facility area from State of New Mexico Oil Conservation Commission hydrologic and geologic data.

Sundale Associates' scope of services does not include any actual or implied evaluation of the environmental impact of the disposal of production water into an unlined pit.

GENERAL FACILITY LOCATION

This gas production facility, hereinafter referred to as the Facility, is located in the NW 1/4, SW 1/4 of Section 26, Township 25 North, Range 11 West, New Mexico Principal Meridian, San Juan County, New Mexico. The coordinates of the Facility are 1710 feet from the south line and 940 feet from the west line of Section 26. This information was obtained from a Pro New Mexico.

PIT DESIGN AND LOCATION

Figure 1 is a vicinity map for the Facility. A scaled facility site map is included as figure 2. This site map includes a scaled drawing of the proposed pit relative to site facilities and a scaled cross section of the pit which shows the interior slopes of the pit and exterior slopes of the protective berm around the pit. The design flow calculations and disposal pit design can be found in Figure 3 and 4.

The disposal pit has been designed such that a volume equal to the expected daily volume of 8,400 gallons could be contained. A permeability rate based on the existing pit absorption performance has been used to size the pit. No factor of safety has been applied to the expected daily flow since the permeability rate was a based on actual field results of an existing pit in the same location. The required absorption area based on this design flow is 3,750 square feet. To mitigate erosion and sloughing of the pit's side- walls, the sidewall slope has been reduced to 2:1 (two horizontal feet for each one vertical foot). This sidewall slope reduction enables the use of the sidewall area as absorptive area, which effectively adds to the absorptive capacity of the pit. The absorption capacity of the soil will lessen over time as finer silts and clays settling out of the water fill void spaces within the sand matrix. The pit should be monitored on a regular basis and maintained to assure proper working order. This may include the removal of the finer silts and clays in the surface soils.

DESIGN FLOW AND WATER ANALYSIS

The design flow into the disposal pit, according to Ms. Dicks of Pro New Mexico, Inc., is 200 barrels per day. Based on 42 gallons per barrel, a volume of 8,400 gallons per day is expected. The design flow is anticipated to be reduce as gas production of the well increases.

Water samples were collected by Pro New Mexico, Inc. personnel and were analyzed by CDS Laboratories located at 75 Suttle Street, Durango, Colorado. The samples were analyzed for the following parameters: sodium, potassium, calcium, magnesium, iron, total dissolved solids (TDS), pH, chloride, sulfate, hydroxide, carbonate, bicarbonate, conductivity, hardness, specific gravity, and oil and grease content. The laboratory data sheets have been included in the Appendix B.

EVAPORATION AND PRECIPITATION DATA

Average monthly precipitation and evaporation data were obtained from the New Mexico State University, Agricultural Science Center (ASC) at Farmington. The ASC evaporation and precipitation gaging station is approximately 20 miles northwest of the Facility, located south of the San Juan River Valley. Both the ASC gaging station and the Facility are situated on a high plateau, unprotected from sun or wind. It is likely that these two facilities have similar evaporation and precipitation rates based on their proximity and site similarity.

The ASC evaporation data was collected from 1972 through 1995 during the months of April through October. The average ASC monthly evaporation based on the average of the yearly evaporation rates for this period is 5.81 inches. The ASC precipitation data was collected monthly from 1969 through 1995. The average ASC monthly precipitation is .67 inches; however, the monthly high average of 1.02 inches for August and September was used for design purposes. Please refer to Figure 3 for a calculation of the Net Daily Average Water Design.

PERCOLATION RATE

A percolation test was performed on three (3) - five (5) foot deep percolation test holes. The soil in each test hole was similar and consisted of tan sand with less than thirty (30) percent fines from zero (0) to four (4) feet and tan sand with possible caliche or other mineral deposits from four (4) to five (5) feet. Each test hole was pre-soaked for a minimum of 24 hours before performance of the test. The percolation test was performed over a two (2) hour period. A permeability rate of 32 minutes per inch, or 28.0 gallons per day per square foot was obtained.

From field experience at the Facility, we have determined a more realistic permeability rate based on the performance of an existing pit in the same location as the pit described herein. The permeability rate of 3.6 inches per day per square foot or 2.2 gallons per day per square foot has been determined. The design based on permeability rather than a percolation rate gives a more conservative design. See Figure 3 for the percolation test data and net design water application rate.

HYDROLOGIC AND GEOLOGIC DATA

The State of New Mexico Oil Conservation Commission office in Aztec, New Mexico was accessed for hydrologic and geologic data.

Well boring data from two (2) wells located in the vicinity of the Facility were used to estimate formation depths. This information was obtained from a study entitled Hydrogeology and Water Resources of San Juan County Basin, New Mexico (W.J. Stone et. al.). The well data are presented below.

TABLE 1

WELL NUMBER	ELEVATION (FT)	FORMATION	DEPTH RANGE
122	5562	NACIMIENTO 6OJO ALAMO KIRTLAND SHALE	0-450 450-650 650-1400
372	6768	NACIMIENTO	0-850
		OJO ALAMO	850-1050
		KIRTLAND SHALE	1050-1550
		FRUITLAND COAL	1550-1620

According to the USGS Huefano Trading Post SW Quadrangle topographic map, the surface elevation at the site is approximately 6722 feet.

The Department of Interior USGS, Hydrologic Investigation Atlas series was consulted for comparison to the Stone et. al. study and to obtain hydrologic data. All data presented below are given relative to the Facility location.

The Atlas HA-720-A, Hydrology of the San Jose, Nacimiento and Animas Formations (Levin and others) was consulted for information on the Nacimiento Formation (see Exhibit A). According to this atlas, the elevation relative to sea level of the bottom of the Nacimiento Formation is approximately 5600 feet, or approximately 560 feet below the ground elevation. The elevation of ground water in this area is approximately 150 to 165 feet below the ground surface. The potentiometric surface is approximately 6035 feet or 125 feet below the ground surface (see Exhibit B).

The Atlas HA-720-B, Hydrology of the Ojo Alamo Sandstone in the San Juan Structural Basin (Thorne and others) was consulted for information on the Ojo Alamo Formation (see Exhibit C). The elevation relative to sea level of the top of the Ojo Alamo Formation is approximately 5600 feet, or approximately 560 feet below the ground elevation.

Atlas HA-720-C provided data for the Kirtland Shale and Fruitland Coal formations (see Exhibits D and E). According to this atlas, the depth the top of the Kirtland Shale is approximately 750 feet. The approximate thickness of the Kirtland Shale and Fruitland Formation is approximately 950 feet.

Below is a table of estimated formation depths based on the USGS Atlas Series data presented above.

TABLE 2

ESTIMATE FORMATION DEPTH AT THE FACILITY

ELEVATION	FORMATION	DEPTH RANGE (FT)
6720	NACIMIENTO OJO ALAMO KIRTLAND SHALE FRUITLAND COAL	0-560 560-750 750-? ?-1700

The Nacimiento Formation is alluvial/fluvial sandstone and mudstone and the Ojo Alamo Formation is alluvial sandstone with minor mudstone deposits. The Nacimiento Formation is a potential aquifer but is not stipulated because only local sandstone bodies produce significantly (Stone et. al.).

The extent of the Nacimiento, Ojo Alamo, Kirtland Shale and Fruitland Coal Formations is presented in Exhibits A through E in the Appendix.

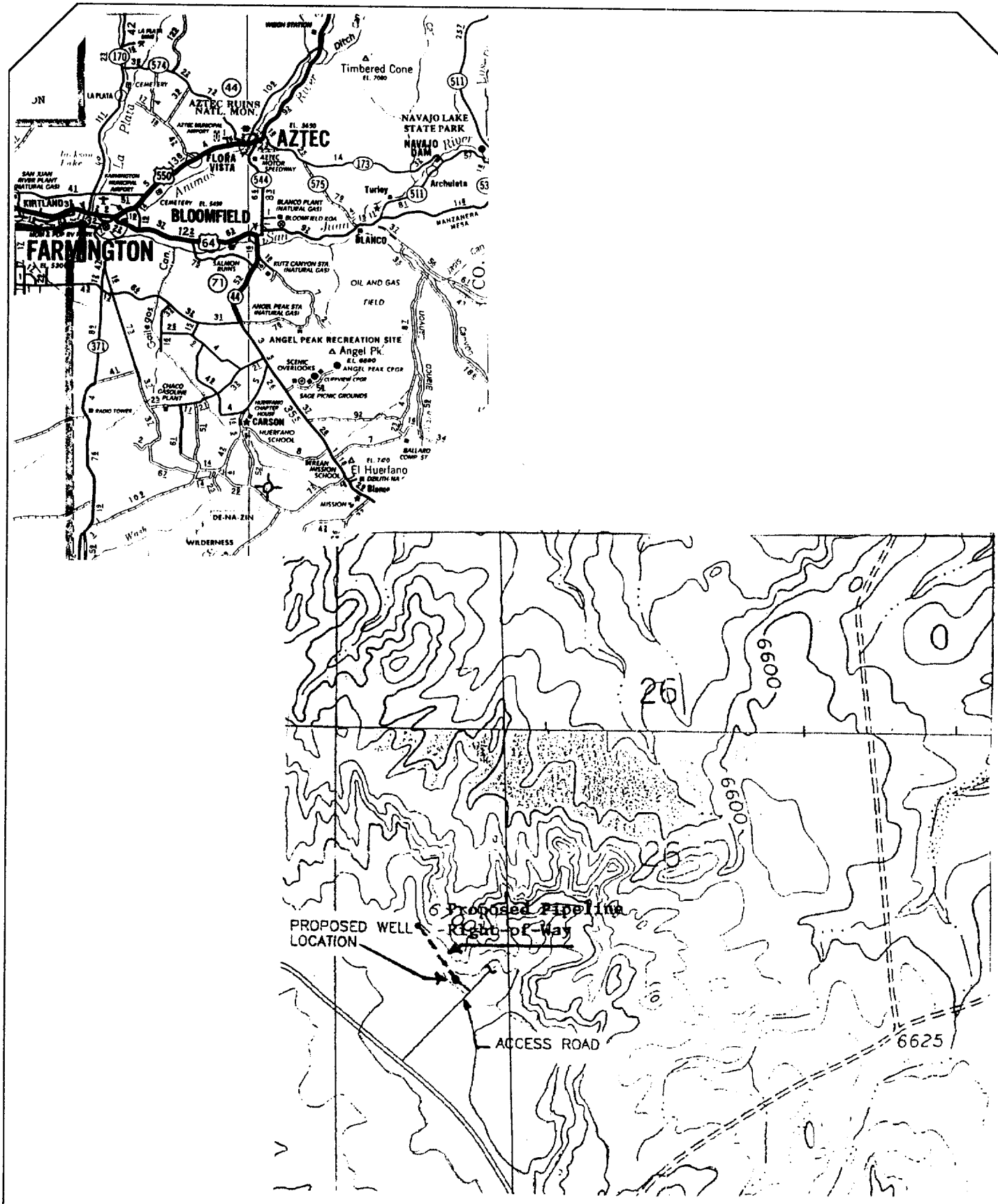
Both USGS and Oil and Gas Conservation Commission maps were consulted for information on mineral deposits. No mineral maps could be located which described mineral deposits, other than oil, gas and coal deposits, in the vicinity of the Facility.

SUMMARY

A scaled drawing of the Facility, and plan and profile views of the production water disposal pit, have been included. The maximum daily quantity of water per day is 8,400 gallons. Water analysis results of the production water have been included in Page 1, Appendix B.

The average monthly precipitation in the vicinity of the Facility is 0.67 inches; however a value of 1.02 inches has been used for design purposes. A permeability rate as determined an existing pits performance at the Facility of 2.2 gallons per day per square foot, was obtained.

The New Mexico Oil Conservation Commission hydrogeologic data was accessed for information on aquifers and mineral deposits in the vicinity of the Facility. Ground water is expected within the unconfined Nacimiento Formation at approximate depths of between 150 and 165 feet. Geologic maps for the area did not describe any mineral deposits in the vicinity of the Facility other than the Fruitland Coal Formation. Based on information provided by Pro New Mexico Energy, Inc. it is estimated that this formation is located at an approximate depth of 1200 feet below the Facility. The extent of the Nacimiento, Ojo Alamo, Kirtland Shale and Fruitland Coal Formations is presented in Exhibits A through E in the Appendix.



Pro New Mexico Energy, Inc.
Garcia Federal 26 No. 1
Site Vicinity Map

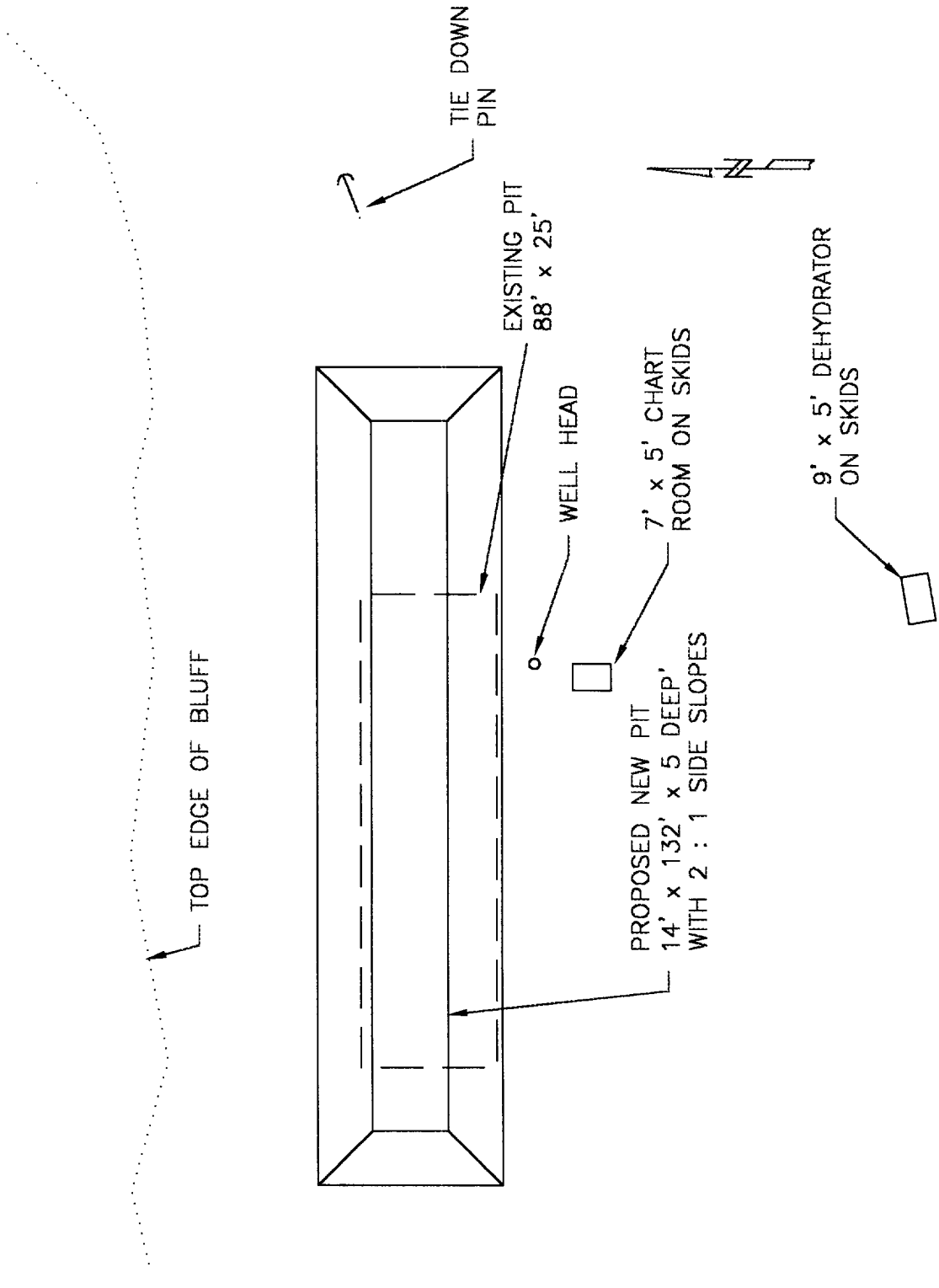
Figure 1

Scale: N.T.S.

Original MJH
Revision
Revision

Sundale Associates, Inc.
649 College Drive, Durango, Colorado 81301
(970) 259-4192

File No. 97133



Pro New Mexico Energy, Inc.
Garcia Federal 26 No. 1
Site Location Map

Figure 2

Scale: N.T.S.

Original
Revision
Revision

M. Holder

Sundale Associates, Inc.
649 College Drive, Durango, Colorado 81301
(970) 259-4192

File No. 97133

SUNDALE ASSOCIATES, INC.
ENGINEERING AND TESTING
(303) 259-4192 (505) 325-0769

PROJECT NAME	PRO NM ENERGY / GARCIA FEDERAL 26 No 1		
CALCULATED BY	MJH	**DATE**	3-4-'98
REVIEWED BY	WMD	**DATE**	3-4-'98
REVISED			

DESIGN FLOW:

Measured Rate	200	Barrels / Day
Barrel Size	42	Gallons / Barrel
Calculated Rate	8400	Gallons / Day
Maximim Flow Factor of Safety	1.0	
Design Flow (Q)	8400	Gallons / Day

EVAPORATION / PERCOLATION (E/P) RATES:

Permeability Rate =	3.6	INCH / DAY
=	2.2	GPD/SQ.FT
Lake Evaporation Rate: 70 Inches per Year =	0.12	GPD/SQ.FT
Monthly Rainfall (Maximum)	0.02	GPD/SQ.FT
Evaporation / Permeability Rate	2.34	GPD/SQ.FT

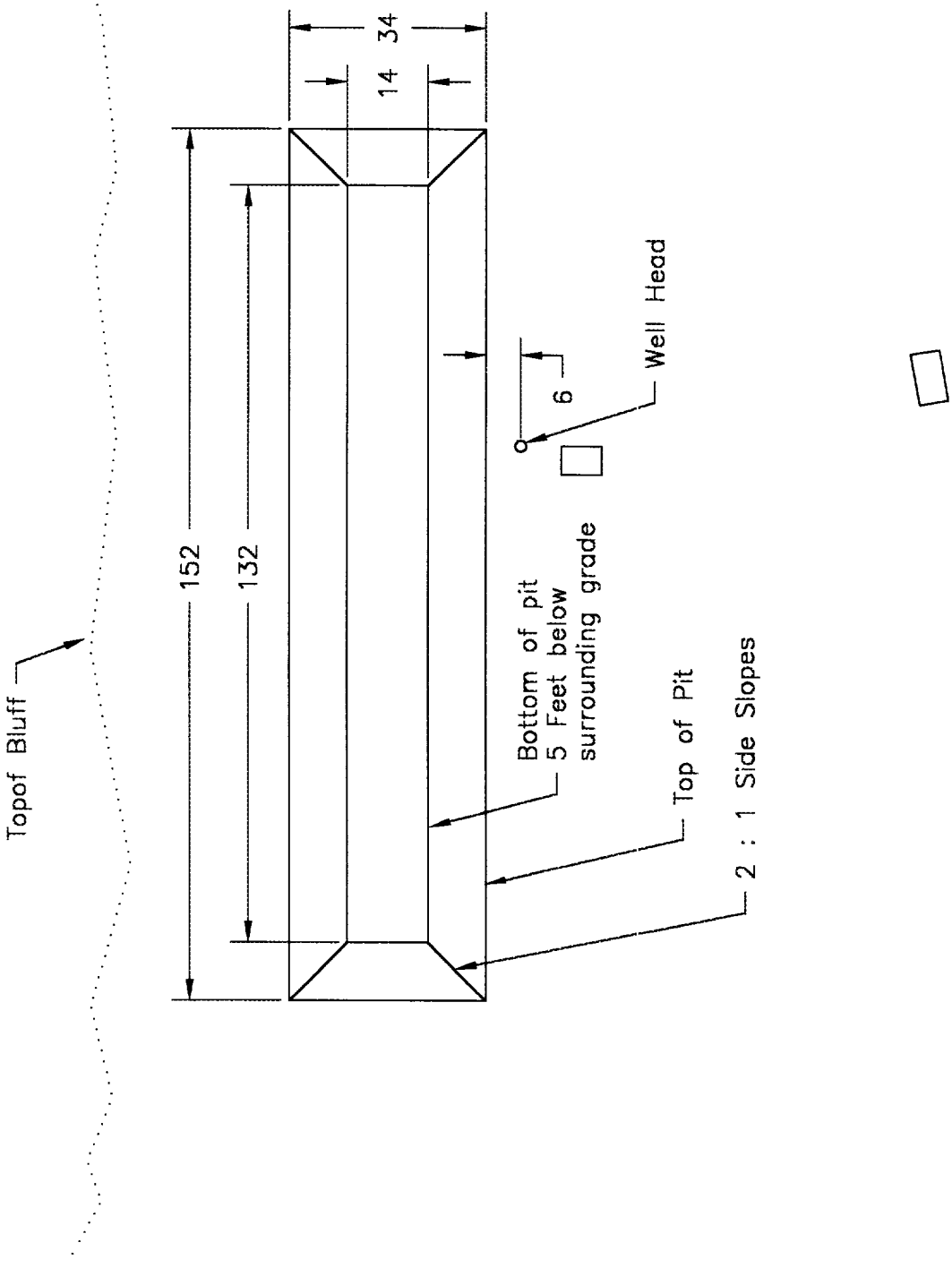
LAGOON SIZE:

Bed Area Size (Min) = Design Flow / E/P Rate
= 3583.618 SQ.FT

Bed Area	25' x 150'
Alternate Bed Area	35' x 110'
Alternate Bed Area	45' x 85'

GENERAL BED DESIGN See Figure 4

Figure 3



Pro New Mexico Energy, Inc.
Garcia Federal 26 No. 1
Pit Design

Figure 4

Scale: N.T.S.

Original
Revision
Revision

M. Holder

Sundale Associates, Inc.
649 College Drive, Durango, Colorado 81301
(970) 259-4192

File No. 97133

SUNDALE ASSOCIATES, INC.
Engineering and Testing

Sieve Analysis Results

Job No:	97133	**Date Sampled:**	12/4/97
Project:	Pro New Mexico - CR 7150	**Date Tested:**	12/17/97
Sample No:	TH-1-1	**Depth, ft:**	2.0

U.S. Sieve No.	- No.4 Weight Retained	+ No.4 Weight Retained	Cumulative Wt. Retained	% Passing, by Weight	U.S. Sieve No.
3"	0.0	0.0	0.0	100.0	3"
2 1/2"	0.0	0.0	0.0	100.0	2 1/2"
2"	0.0	0.0	0.0	100.0	2"
1 1/2"	0.0	0.0	0.0	100.0	1 1/2"
1"	0.0	0.0	0.0	100.0	1"
3/4"	0.0	0.0	0.0	100.0	3/4"
1/2"	0.0	0.0	0.0	100.0	1/2"
3/8 in	0.0	0.0	0.0	100.0	3/8 in
4	0.0	0.0	0.0	100.0	4
8	0.0	0.0	0.0	100.0	8
10	0.0	0.0	0.0	100.0	10
16	2.6	0.0	2.6	99.6	16
30	27.3	0.0	29.9	95.4	30
40	38.5	0.0	68.4	89.5	40
50	63.5	0.0	131.9	79.7	50
80	276.1	0.0	408.0	37.1	80
100	21.4	0.0	429.4	33.8	100
200	54.6	0.0	484.0	25.4	200
Pan	4.3	0.0	488.3	24.7	Pan
Wash	**160.2**	**0.0**	648.5		
Total	**648.5**	**0.0**			

USCS Classification	Liquid Limit	Plasticity Index
SP	17	2

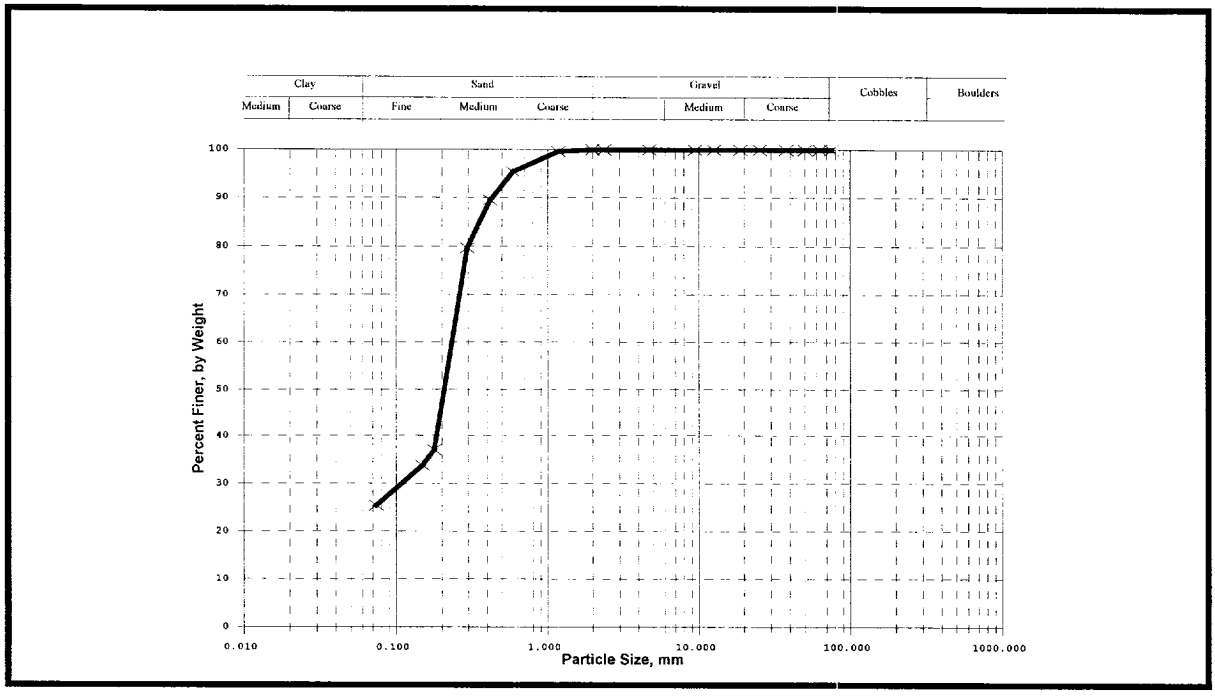


Figure 5

APPENDIX A

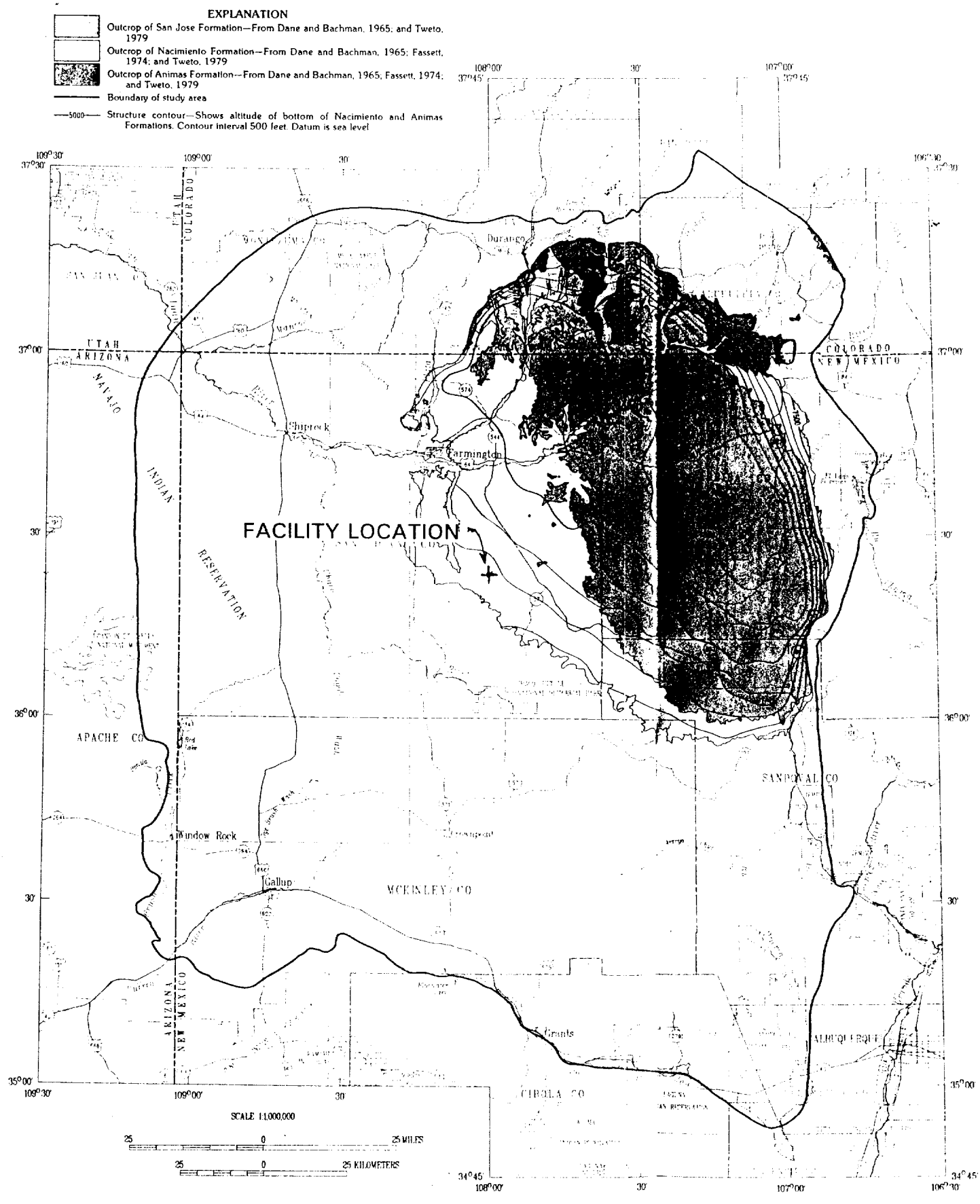


Figure 6. Approximate altitude and configuration of the bottom of the Nacimiento and Animas Formations.

EXHIBIT A

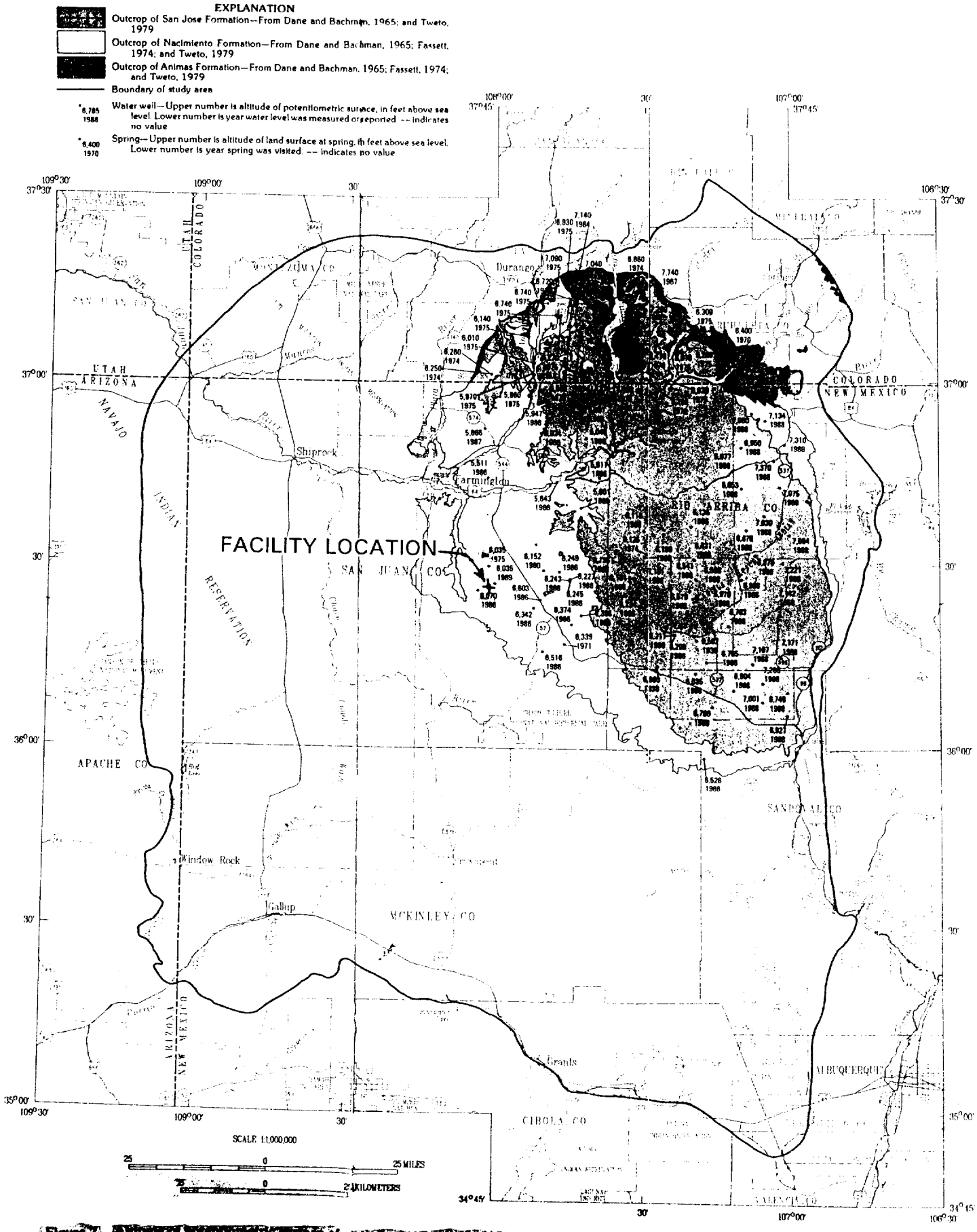


Figure 7. Altitude of potentiometric surface of water in the San Jose, Nacimiento, and Animas Formations at selected water wells and springs.

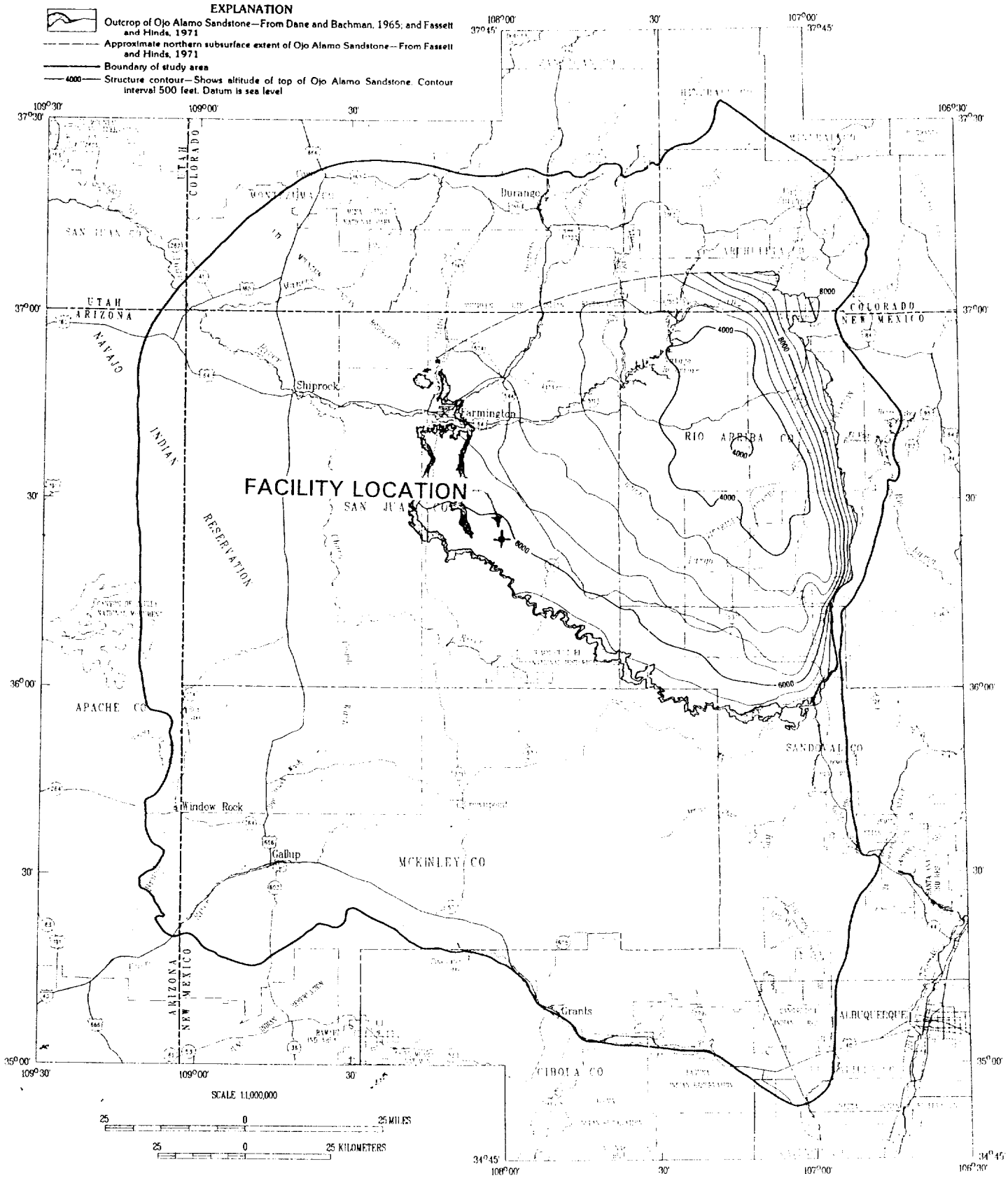


Figure 6. Approximate altitude and configuration of the top of the Ojo Alamo Sandstone.

EXHIBIT C

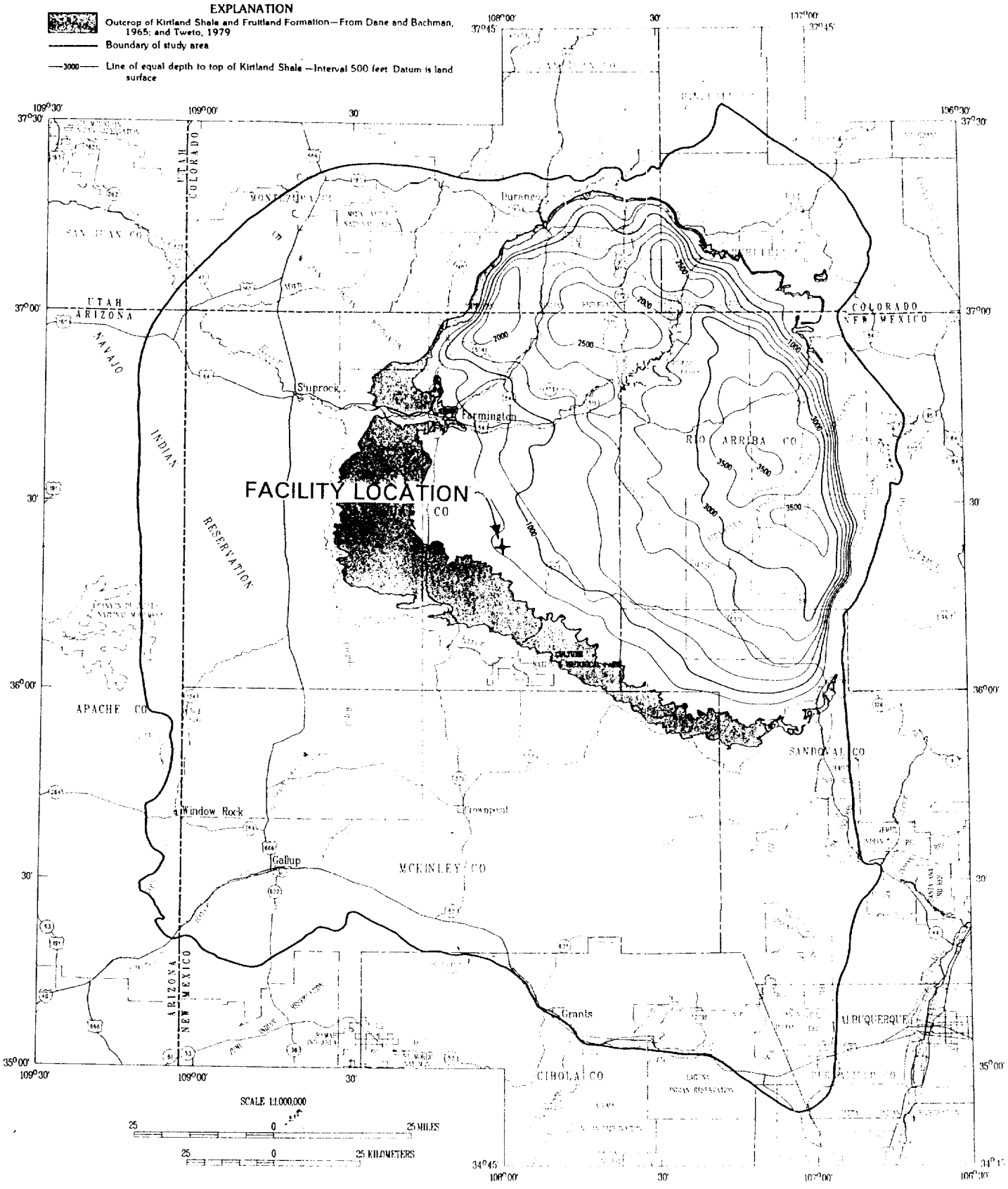


Figure 6. Approximate depth to the top of the Kirtland Shale.

EXHIBIT D

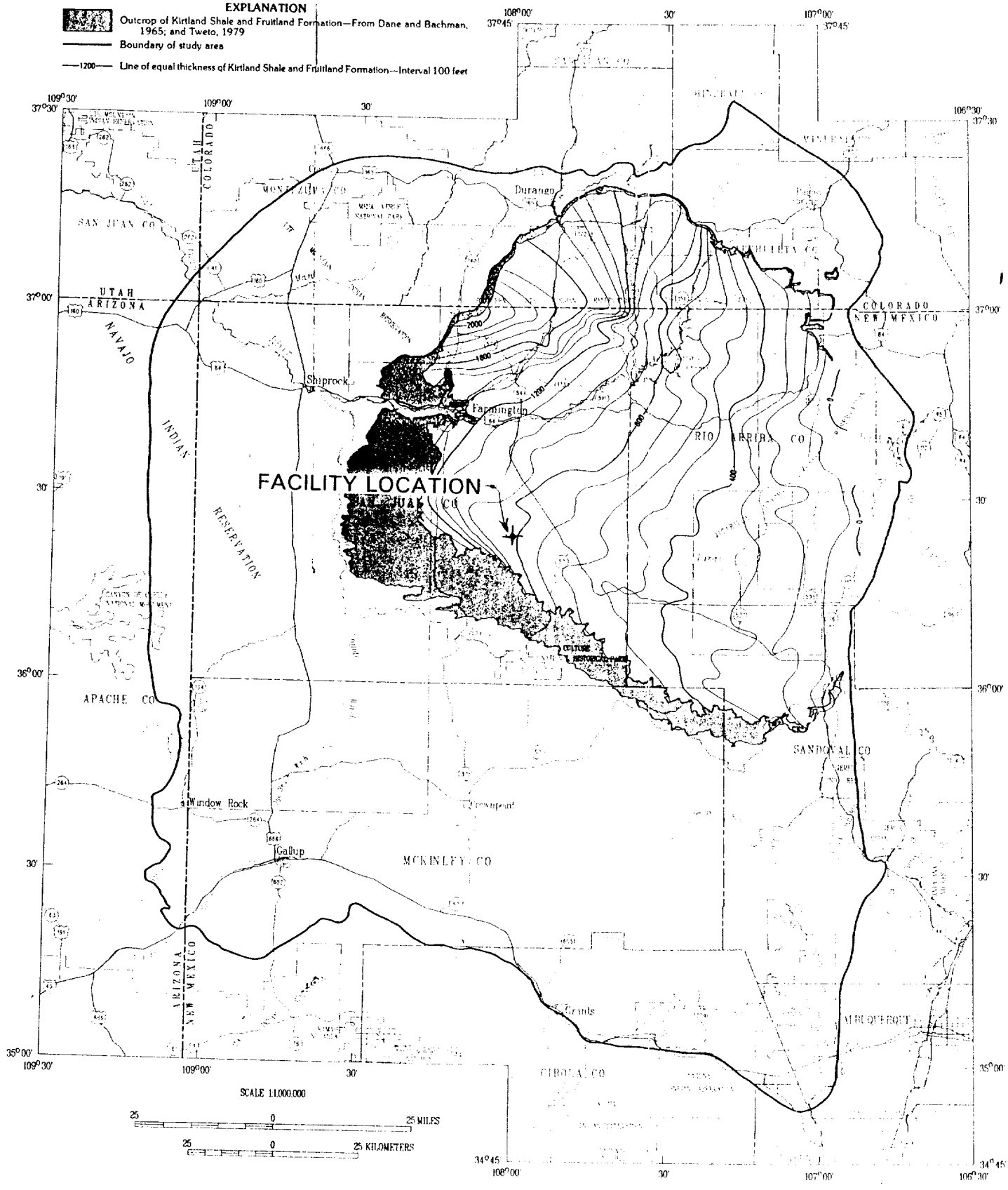


Figure 4. Approximate thickness of the Kirtland Shale and Fruitland Formation (modified from Fassett and Hinds, 1971, fig. 11).

EXHIBIT F

APPENDIX B

CHAIN OF CUSTODY RECORD

CDS LABORATORIES Durango, CO 81302

Client:	Project Identification Produced Water	ANALYSES REQUESTED	Sampling Notes
Pro Energy (New Mexico)	Description of Seal		
Report Address	Billing Address		
460 St Michael Dr Suite 402			
Santa Fe NM 87505			
Phone (888) 988-4171	Fax ( )		

Sample Number Identification	Date	Time	Lab Number	Matrix	0&G	Remarks
Gracie Fed. 26 #1	12-5-97	10:00AM	134173			

Sampled by: (Signature) Kenneth E. Guffey Jr. (Printed)	Date / Time	Sealed Y/N	Received by: (Signature) (Printed)	Date / Time	Sealed Y/N
Relinquished by: (Signature) (Printed)	Date / Time	Sealed Y/N	Received by: (Signature) (Printed)	Date / Time	Sealed Y/N
Relinquished by: (Signature) (Printed)	Date / Time	Sealed Y/N	Received by CDS Laboratories (Signature) (Printed)	Date / Time	Sealed Y/N

CDS LABORATORIES
75 Suttle Street
P.O. Box 2605
Durango, CO 81302-2605
(970) 247-4220
FAX (970) 247-4227

№ 16521

PURCHASE ORDER # or CONTRACT # _____

I authorize the requested laboratory Services to be performed and billed to the reference contract or purchase order, or to be billed to:

Pro Energy Santa Fe NM

Signed: _____ Dated _____

cds
LABORATORIES
an affiliate of aqualab inc.
75 Suttle Street Durango CO 81301
970-247-4220 Fax 247-4227

Attn:KENNETH GUFFEY JR

PRO ENERGY (NEW MEXICO)
460 ST MICHEAL DRIVE
SANTA FE NM 87505

Our Lab #: B97-134173
Sample ID: GRACIA FED 26 #1
Date Login: 12/09/97
Date Rec'd: 12/09/97

COLLECTION INFORMATION
Date/Time/By: 12/05/97 1000 GUFFERY
Location:

ANALYTICAL REPORT Report Date 01/13/98

Lab#	Testname	Result	Units
B97-134173	Oil & Grease	< 2.0	mg/L

Approved By: C B-Fisenden Checked By: JH

CHAIN OF CUSTODY RECORD

CDS LABORATORIES Durango, CO 81302

Client: Pro Energy

Report Address 460 St Michael Drive
Suite 402
Santa Fe NM 87505
Jolene Orcks
Phone (888) 988 4171

Project Identification Gracia Federal 26-1 #1

Description of Seal

Billing Address

Fax ( )

ANALYSES REQUESTED

Sampling Notes

Sample Number Identification	Date	Time	Lab Number	Matrix	Cat/An Suite	TDS at	OilField	PMCAT	TPSCal		Remarks
Produced water - Kirtland gas well	11-17-97	8:00 AM	134063				X	X	X		

Sampled by: (Signature) Kenneth E Guffey (Printed) Kenneth E. Guffey Jr.	Date 11/18/97 Time 2:00pm Sealed Y/N (N circled)	Received by: (Signature) (Printed)	Date Time Sealed Y/N
Relinquished by: (Signature) (Printed)	Date Time Sealed Y/N	Received by: (Signature) (Printed)	Date Time Sealed Y/N
Relinquished by: (Signature) (Printed)	Date Time Sealed Y/N	Received by CDS Laboratories (Signature) Traci Balz (Printed) TRACI BALZ	Date 11-18-97 Time 2:00pm Sealed Y/N (N circled)

CDS LABORATORIES
75 Suttle Street
P.O. Box 2605
Durango, CO 81302-2605
(970) 247-4220
FAX (970) 247-4227
Nº 16266

PURCHASE ORDER # or CONTRACT #
I authorize the requested laboratory Services to be performed and billed to the reference contract or purchase order, or to be billed to:

Signed: Dated

CDS Laboratories
75 Suttle Street
PO Box 2605
Durango, CO 81302

Phone:(970)-247-4220
Fax :(970)-247-4227

Report Date: 12/08/97

ANALYSIS REPORT

Attn: KENNETH GUFFEY JR

PRO ENERGY
460 ST MICHAEL DRIVE
SUITE 402
SANTA FE NM 87505

Our Lab #: B97-134063
Sample ID: GAS WELL - KIRTLAND
Date Login: 11/18/97
Date Rec'd: 11/18/97

COLLECTION INFORMATION

Date/Time/By: 11/17/97 0800 K GUFFEY
Location: GRACIA FEDERAL 26-#1

Lab#	Testname	Result	Units
B97-134063	Total Alkalinity as CaCO3	630	mg/L
	Bicarbonate from Alkalinity	769	mg/L
	Carbonate	0	mg/L
	Calcium, dissolved	109	mg/L
	Chloride	8500	mg/L
	Conductivity	21200	µS/cm
	Iron, dissolved	< 0.2	mg/L
	Hardness as CaCO3	397	mg/L
	Hydroxide	0	mg/L
	Potassium, dissolved	166	mg/L
	Magnesium, dissolved	28.1	mg/L
	Sodium, dissolved	6370	mg/L
	pH	7.44	Units
	Cation/Anion balance	6.84	
	Specific Gravity	1.006	
	Sulfate	< 10	mg/L
	Total Dissolved Solids	13800	mg/L
	TDS calculated	15800	mg/L

Approved By: Cynthia Pace-Fenendick Checked By: DZ