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
June 24, 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.

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

RCVD JUL 21 '08
OIL CONS. DIV.
DIST. 3

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

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.

Operator: **Black Hills Gas Resources** OGRID #: **013925**

Address: **P.O. Box 249 / 3200 North First Street Bloomfield, NM 87413**

Facility or well name. **Many Canyon 29-04-28 #121**

API Number: **30-039-30231** OCD Permit Number:

U/L or Qtr/Qtr **Unit E / SW/NW** Section **28** Township **29 North** Range **4 West** County: **Rio Arriba**

Center of Proposed Design: Latitude **36° 41' 54.204" N** Longitude **107° 17' 11.4216" W** NAD: ☐1927 ☒ 1983

Surface Owner: ☐ Federal ☐ State ☐ Private ☒ Tribal Trust or Indian Allotment

☒ **Pit:** Subsection F or G of 19.15.17.11 NMAC
Temporary: ☒ Drilling ☐ Workover
☐ Permanent ☐ Emergency ☐ Cavitation ☐ Steel Pit
☒ Lined ☐ Unlined
Liner type: Thickness **20** mil ☒ LLDPE ☐ HDPE ☐ PVC
☐ Other ☐ String-Reinforced
Seams: ☐ Welded ☒ Factory ☐ Other
Volume: **15,000** bbl Dimensions: L **90'** x W **40'** x D **10'**

☐ **Closed-loop System:** Subsection H of 19.15.17.11 NMAC
☐ Drying Pad ☐ Tanks ☐ Haul-off Bins ☐ Other
☐ Lined ☐ Unlined
Liner type: Thickness mil ☐ LLDPE ☐ HDPE ☐ PVC
☐ Other
Seams: ☐ Welded ☐ Factory ☐ Other
Volume: bbl yd^3
Dimensions: Length x Width

☐ **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

Fencing: Subsection D of 19.15.17.11 NMAC
☐ Chain link, six feet in height, two strands of barbed wire at top
☐ Four foot height, four strands of barbed wire evenly spaced between one and four feet
Netting: Subsection E of 19.15.17.11 NMAC
☐ Screen ☐ Netting ☐ Other
☐ Monthly inspections
Signs: Subsection C of 19.15.17.11 NMAC
☐ 12'x24', 2' lettering, providing Operator's name, site location, and emergency telephone numbers
☒ Signed in compliance with 19.15.3 103 NMAC

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

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.

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	☐ Yes ☐ 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	☐ Yes ☐ 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	☐ Yes ☐ No ☐ 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	☐ Yes ☐ No ☐ 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	☐ 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

Temporary Pits, Emergency Pits, and Below-grade Tanks 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.

- ☐ 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 - 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: _____

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 (required for on-site closure) - based upon the requirements of Paragraph (3) of Subsection B of 19.15.17.9
- ☐ Siting Criteria Compliance Demonstrations (required 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 - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC

NMAC

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

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 H_2S, 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

Proposed Closure: 19.15.17.13 NMAC

Type: ☒ Drilling ☐ Workover ☐ Emergency ☐ Cavitation ☐ 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)

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

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 Systems That Utilize Haul-off Bins Only: (19.15.17.13.D NMAC) ***Instructions: Please indentify the facility or facilities for the disposal of liquids, drilling fluids and drill cuttings.***

Disposal Facility Name: _____ Disposal Facility Permit Number: _____

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 and Design of Burial Trench (if applicable) 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): **Lynn Benally** Title: **Regulatory Specialist**

Signature: _____ Date: July 18, 2008

e-mail address: **lbenally@bhep.com** Telephone: **(505) 634-1111 ext. 27**

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

OCD Representative Signature: _____ **Approval Date:** 7-28-08

Title: Envirn Spec **OCD Permit Number:** _____

Closure Report (required within 60 days of closure completion): Subsection K of 19.15.17.13 NMAC

☐ **Closure Completion Date:** _____

Closure Method:

☐ Waste Excavation and Removal ☐ On-Site Closure Method ☐ Alternative Closure Method

☐ If different from approved plan, please explain.

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
- ☐ Proof of Deed Notice (if applicable)
- ☐ Plot Plan
- ☐ Confirmation Sampling Analytical Results
- ☐ Waste Material Sampling Analytical Results
- ☐ 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: _____

Black Hills Gas Resources

Many Canyons 29-04-28 #121
Surface Location: 1,895' FNL 670' FWL (SW/NW) Unit E
Bottom Hole: ± 700' FSL ± 700' FEL (SE/SE) Unit P
Sec. 28 T29N R4W
Rio Arriba County, New Mexico
Lease: NM 18327

Pit closure plan for Many Canyons 29-04-28 #121

In accordance with Rule 19.15.17.13 NMAC the pit was constructed prior to June 15, 2008 and will follow Rule 19.15.17.12 NMAC for closure. The drilling pit was constructed and completed on May 2, 2008. The following describes Black Hills Gas Resources (BHGR) standard procedures for temporary pit closures

BHGR closure activities will close temporary pits in place using the following methods;

- The preferred method of closure for all temporary pits will be on-site burial, assuming that all the criteria listed in sub-section (B) of 19.15.17.13 are met.
- BHGR will submit to NMOCD within 60 days of pit closure using C-144 a pit closure report to include;
    - Details on the soil cover and capping, where applicable
    - A plot plan
    - Inspection Reports
    - Sampling Results
    - C-105
    - A copy of Deed Notice, where applicable. Location is on Carson National Forest Lands.
- Any hydrocarbon products floating on top of the pit will be recovered and any free water or other liquids will be removed at the start of the pit closure process 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, the pit must be completely dewatered before stirring or otherwise disturbing the bottom of the pit.
    - Excess water removed from the pit will be filtered and pumped out and taken either to BHGR SWD located approximately 3 miles west of the location, section 18 T30N R3W on the Jicarilla Apache Reservation, or used for the next drilling location.
    - Excess sludge's or other solid materials will not included in the in place burial will be transported to the TNT Evaporation Pond/Land-farm located in sections 5, 7 and 8 T25N R3W, HRC 74 Box 113, Lindrith, NM 87029, NM1-8.
- Where applicable the surface owner shall be notified of BHGR proposed closure plan using a means that provides proof of notice (i.e. certified mail, return receipt requested, approved APD).
- Within 6 months of the Rig Off status occurring BHGR will ensure that temporary pits are closed, re-contoured, and reseeded.
- 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:
    - Operator's name, Location by Unit Letter, Section, Township, and Range. Well name and API number.

- Pit contents will be sampled and analyzed for BTEX, DRO, GRO and Chloride to determine existing concentrations. Closure standards will be dependent upon vertical distance to groundwater from the bottom of the pit. A five point composite sample will be taken of the pit contents, samples will be tested per Subsection B of 19.15.17.13(B)(1)(b).

  - Benzene analyzed using EPA SW-846 method 8021B/8260B, ***with a detection limit of 0.2 mg/kg***
  - BTEX analyzed using EPA SW-846 method 8021B/8260B, ***with a detection limit of 50 mg/kg***
  - TPH analyzed using EPA SW-846 method 418.1, ***with a detection limit of 2500 mg/kg***
  - GRO/DRO analyzed using EPA SW-846 method 8015M, ***with a detection limit of 500 mg/kg***
  - Chlorides analyzed using EPA 300.1, ***with a detection limit of 500 mg/kg or 1000 mg/kg***

  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

- The remaining cuttings will be covered in place using native soils and the temporary berm material, the surface is graded to prevent water accumulation, for pit material with constituent concentrations slightly higher than those allowed for pit burial, the pit material may be blended with clean, local soil to dilute and reduce the high concentrations to acceptable levels before the waste/soil mix is buried. If pit material is above closure standard a secondary test will be taken to determine concentrations after soil blending. The mixing ratio shall not exceed 3 parts clean soil to 1 part pit contents

- The liner will be cut free from its anchor points and rolled into itself on all four sides. Removal of liner will consist of manually or mechanically cutting liner and removing all remaining liner. Care will be taken to remove "All" of the liner ie., edges of liner entrenched or buried. All excessive liner will be disposed of at a licensed disposal facility

- A minimum of four feet of soil cover will be applied over the remaining pit contents and compacted. Stockpiled topsoil shall be applied last. The soil should be mounded and shaped to ensure runoff without erosion and diversion terraces constructed, if necessary. The cover shall include one foot of suitable material to establish vegetation at the site, or to the background thickness of topsoil, whichever is greater. Re-contouring of location will match fit, shape, line, form and texture of the surrounding area.

- The area is re-vegetated with native species to reduce the potential for erosion and promote full recovery of the area's ecosystem. BHGR shall seed the disturbed areas the first growing season after pit closure. Seeding will be accomplished using drilling on the contour whenever practical or by other division-approved methods, BLM/FS stipulated seed mixes will be used. 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 and maintain that cover through two successive growing seasons. Re-seeding or planting will be continued until successful vegetative growth occurs.

- 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. The marker will include welded or stamped, the Operator's Name, Lease Name, Well Name and number, Unit Number, Section, Township, Range and an Indicator that the marker is an onsite burial location.

  - During the production life of the well, a steel plate measuring no less than 12 inches by 12 inches will be used as a surface completion to indicate the pit location. The plate will include welded or stamped the date of closure and indicate an "in place burial" for the former pit.

- Attached is the Siting Criteria information
- Attached is the Black Hills Gas Resources Typical Drilling Pit Design
- Attached is a location map
- Attached is the BHGR pit closure diagram
- Attached is the Surface Owner notification document

Black Hills Gas Resources

Many Canyons (MC) 29-04-28 #121
Surface Location: 1,895' FNL 670' FWL (SW/NW) Unit E
Bottom Hole: ± 700' FSL ± 700' FEL (SE/SE) Unit P
Sec. 28 T29N R4W
Rio Arriba County, New Mexico
Lease: NM 18327

Siting Criteria Compliance Demonstrations

MC 29-04-28 #121
Section 28; Township 29 North; Range 4 West
Depth to nearest ground water over 100 feet below pit bottom.

Depth to nearest groundwater in the following Townships and Ranges:

- Township 29 Range 4 West Section 4, water depth measured at 315 feet below ground surface, POD number SJ 00037
- Township 29 Range 4 West Section 24, water depth measured at ground surface, Canyon Spring, POD number SP 04681

See attached *iwater* data.

- **Distance to water course**
  - The pit is not located within 300 feet of a continuous watercourse, see attached topo map.
  - The pit is located over 2800 feet east of Cedar Spring Canyon, over 2300 feet west of Fire Canyon and over 3600 feet south of La Jara Canyon, see attached one mile topo map provide by Daggett Enterprises, Inc.
- **Distance to permanent residence**
  - The pit is not located within 300 feet of a permanent residence, school, hospital, or institution, see attached aerial image generated from the Natural Resources Conservation Service website, http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx .
- **Distance to water well/Within incorporated municipal boundary**
  - The pit is not located within 500 feet of a private domestic water source or 1000 feet from any other fresh water well or spring. There are no identified water wells or stock water wells within a radius of 500 feet.
  - The pit is not located within any incorporated municipal water boundary; location is on the Carson National Forest with Dulce, NM being the closest city, which is over 26 miles northeast.

- **Distance to wetland**
  - The pit is not within 500 feet of a wetland, see attached map generated from the US Fish and Wildlife website. http://wetlandsfws.er.usgs.gov/wtlnds/launch.html
- **Distance to subsurface mine**
  - The pit does not overlie any subsurface mine, see attached map generated by the Mines, Mills, and Quarries in New Mexico 2001.
- **Within an unstable area**
  - The pit is not located in an unstable area, see attached map generated by Decision-makers Field Guide 2002.

- **FEMA Map (100 Year Floodplain)**
  - The FEMA Map for the MC 29-04-28 #121 is unavailable due to its location on the Carson National Forest. FEMA does not provide information for Indian Reservations, Forest Service Lands, and Military Installations.

1. (quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are biggest to smallest)

POD Number	Tws	Rng	Sec	q	q	q	Zone	X	Y
SJ 00037	29N	04W	04	2					

Driller Licence:
Driller Name: CONLEY COX
Source: Shallow
Drill Start Date: 06/08/1953
Drill Finish Date: 06/13/1953
Log File Date: 11/17/1953
PCW Received Date:
Pump Type:
Pipe Discharge Size:
Casing Size:
Estimated Yield:
Depth Well: 373
Depth Water:

Water Bearing Stratifications:	Top	Bottom	Description
	315	360	
Sandstone/Gravel/Conglomerate			

Casing Perforations:	Top	Bottom
	205	300
	315	372

2. (quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are biggest to smallest)

POD Number	Tws	Rng	Sec	q	q	q	Zone	X	Y
SP 04681	29N	04W	24	2	1				

River Name:
Source: Surface
Ditch Name: CANYON SPRING
Start Date:
Finish Date:

3. (quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are biggest to smallest)

POD Number	Tws	Rng	Sec	q	q	q	Zone	X	Y
SJ 00042	30N	04W	28	1					

Driller Licence:
Driller Name: CONLEY COX
Source: Shallow
Drill Start Date: 06/23/1952
Drill Finish Date: 06/23/1952
Log File Date: 12/03/1953
PCW Received Date:
Pump Type:
Pipe Discharge Size:
Casing Size:
Estimated Yield: 50
Depth Well: 62
Depth Water:

Water Bearing Stratifications:	Top	Bottom	Description
	35	57	
Sandstone/Gravel/Conglomerate			

Casing Perforations:	Top	Bottom
	32	62

4. (quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are biggest to smallest)

POD Number	Tws	Rng	Sec	q q q	Zone	X	Y
SJ 01291	30N	04W	25	1 4			

Driller Licence: 666 GILBERT, JOHN G.
Driller Name: GILBERT, JOHN **Source:** Shallow
Drill Start Date: 09/29/1980 **Drill Finish Date:** 01/20/1981
Log File Date: 01/22/1981 **PCW Received Date:**
Pump Type: **Pipe Discharge Size:**
Casing Size: 10 **Estimated Yield:** 3
Depth Well: 500 **Depth Water:** 250

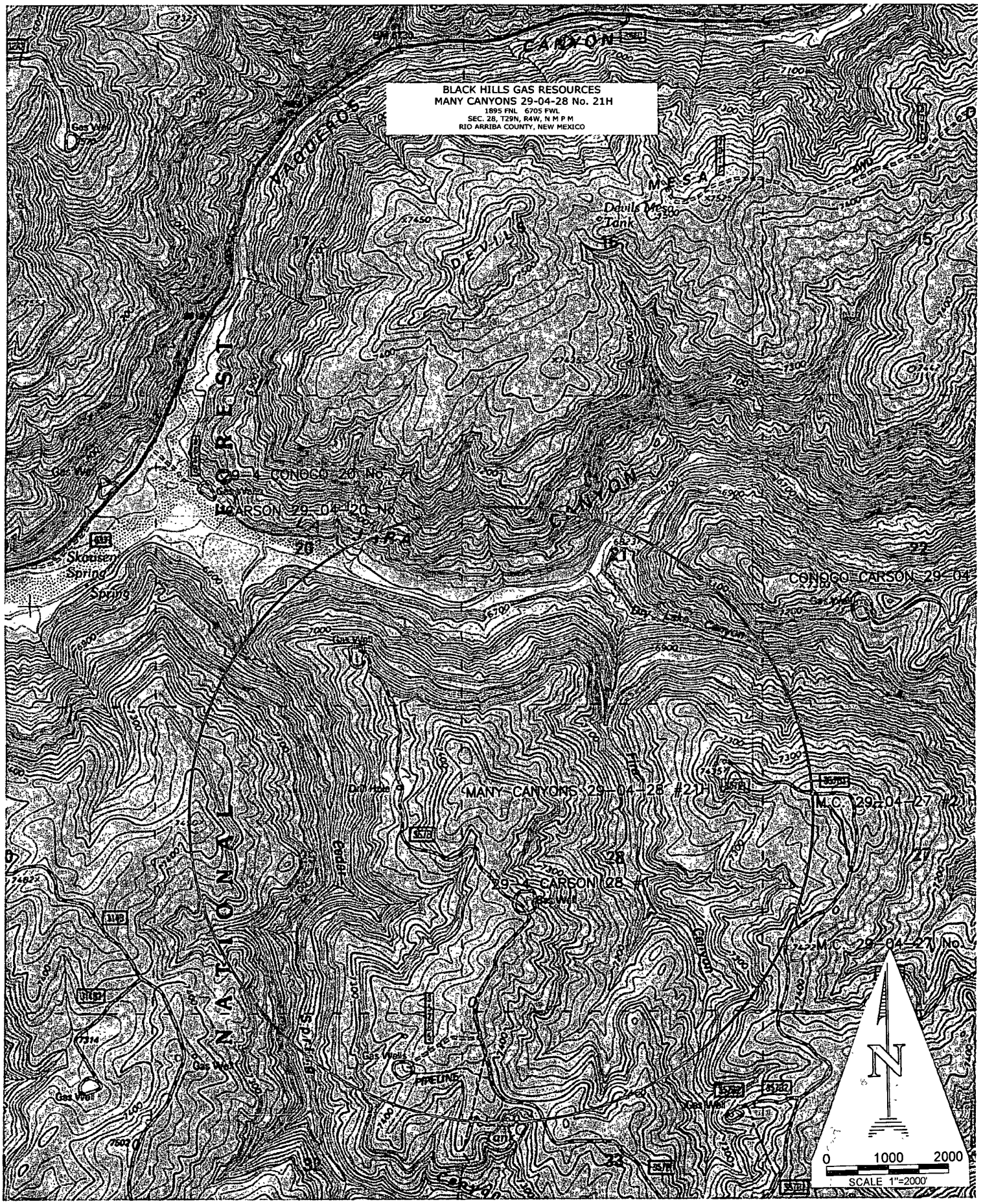
Water Bearing Stratifications:	Top	Bottom	Description
	200	235	Other/Unknown
	380	390	Other/Unknown
Casing Perforations:	**Top**	**Bottom**	
	200	235	
	380	390	

5. (quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are biggest to smallest)

POD Number	Tws	Rng	Sec	q q q	Zone	X	Y
SJ 03742 POD1	30N	04W	26	3 4 4			

Driller Licence: 1508 HARGIS CONSULTING WATER WELL
Driller Name: HARGIS, WILLIAM CALVIN **Source:** Shallow
Drill Start Date: 08/01/2006 **Drill Finish Date:** 12/31/2006
Log File Date: 02/27/2007 **PCW Received Date:**
Pump Type: **Pipe Discharge Size:**
Casing Size: 7 **Estimated Yield:** 13
Depth Well: 480 **Depth Water:** 210

Water Bearing Stratifications:	Top	Bottom	Description
	280	285	Sandstone/Gravel/Conglomerate
	310	313	Sandstone/Gravel/Conglomerate
	360	361	Sandstone/Gravel/Conglomerate
Casing Perforations:	**Top**	**Bottom**	
	200	380	


BLACK HILLS GAS RESOURCES
MANY CANYONS 29-04-28 No. 21H
1895 FNL 6705 FWL
SEC. 28, T29N, R4W, N M P M
RIO ARRIBA COUNTY, NEW MEXICO
CANYON
MESA
Devils Mesa Tank
DEVILS
CANYON
CONOCO 20 No. 2
CARSON 29-04-20 No.
Skousen Spring
Spring
CONOCO CARSON 29-04
MANY CANYONS 29-04-28 #21H
M.C. 29-04-27 #21H
29-4 CARSON 28 #
M.C. 29-04-27 No.
PIPELINE
Gas Well
N
0 1000 2000
SCALE 1"=2000'

USDA United States Department of Agriculture
Natural Resources Conservation Service

Web Soil Survey

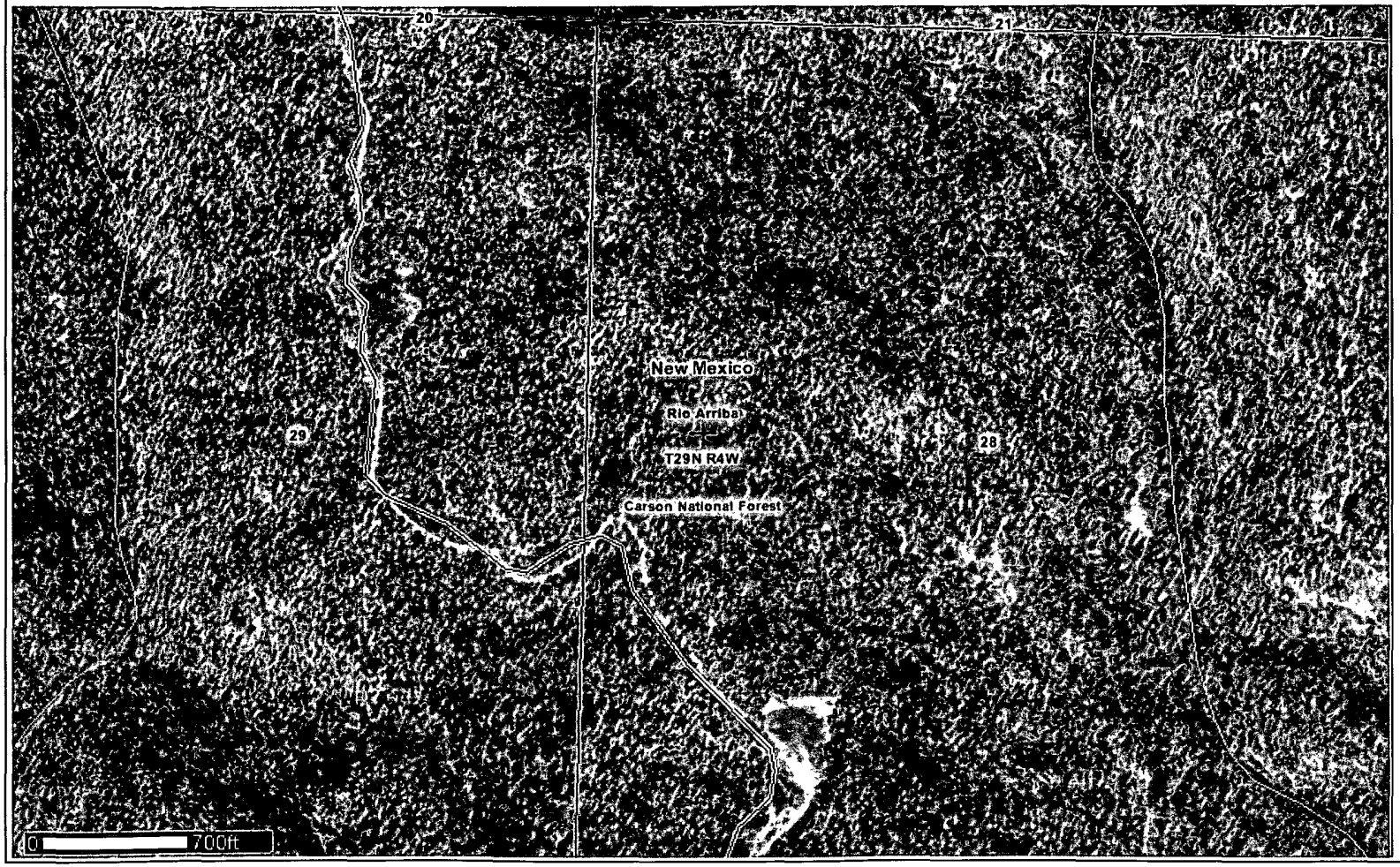
Contact Us | Download Soils Data | Archived Soil Surveys | Preferences | Logout | Help

A | A | A

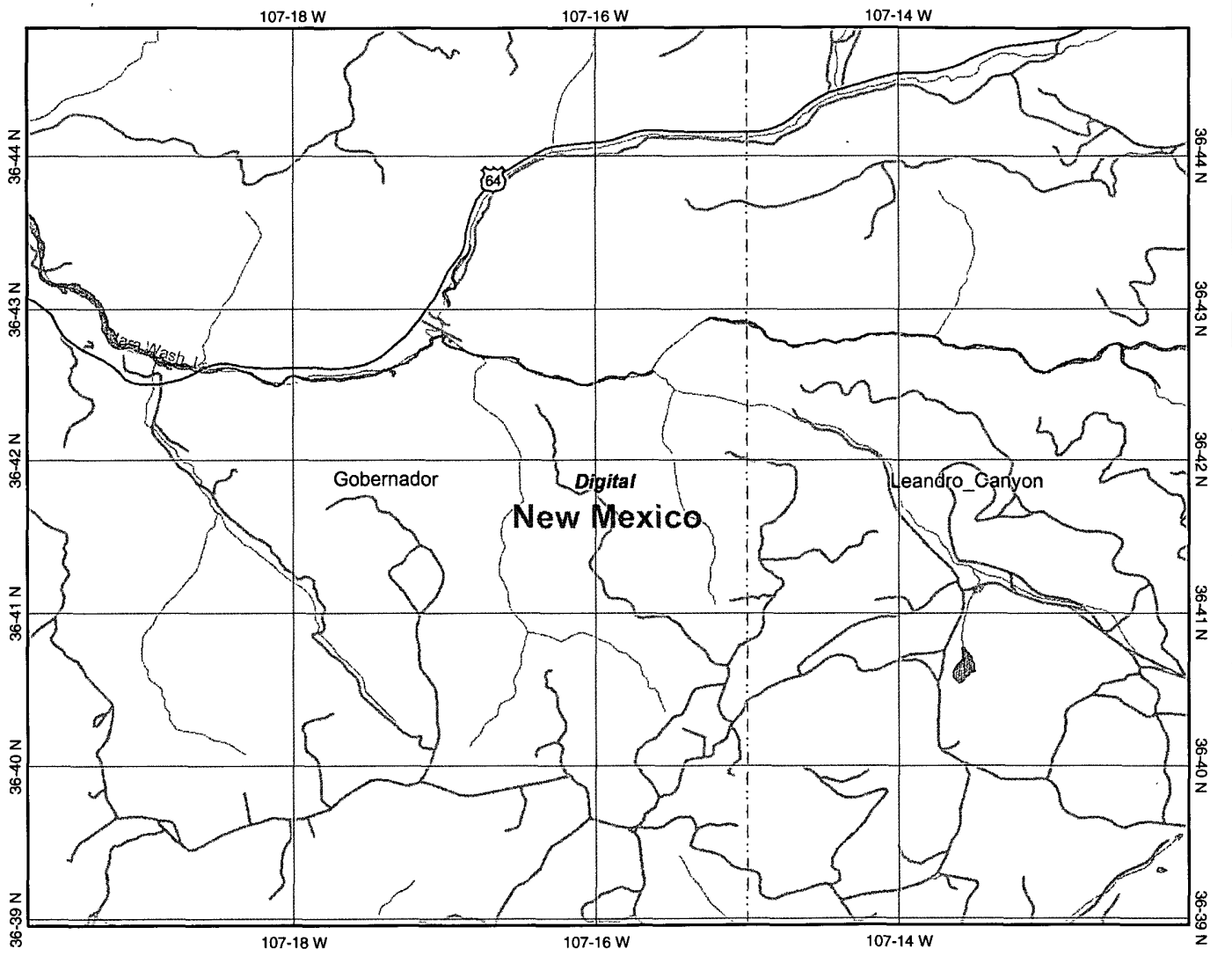
Area of Interest (AOI) | Soil Map | Soil Data Explorer | Shopping Cart

Area of Interest Interactive Map

View Extent: Continental U.S. | Scale: (not to scale)



MC 29-04-28 #121



Map center: 36° 41' 54" N, 107° 15' 55" W

Legend

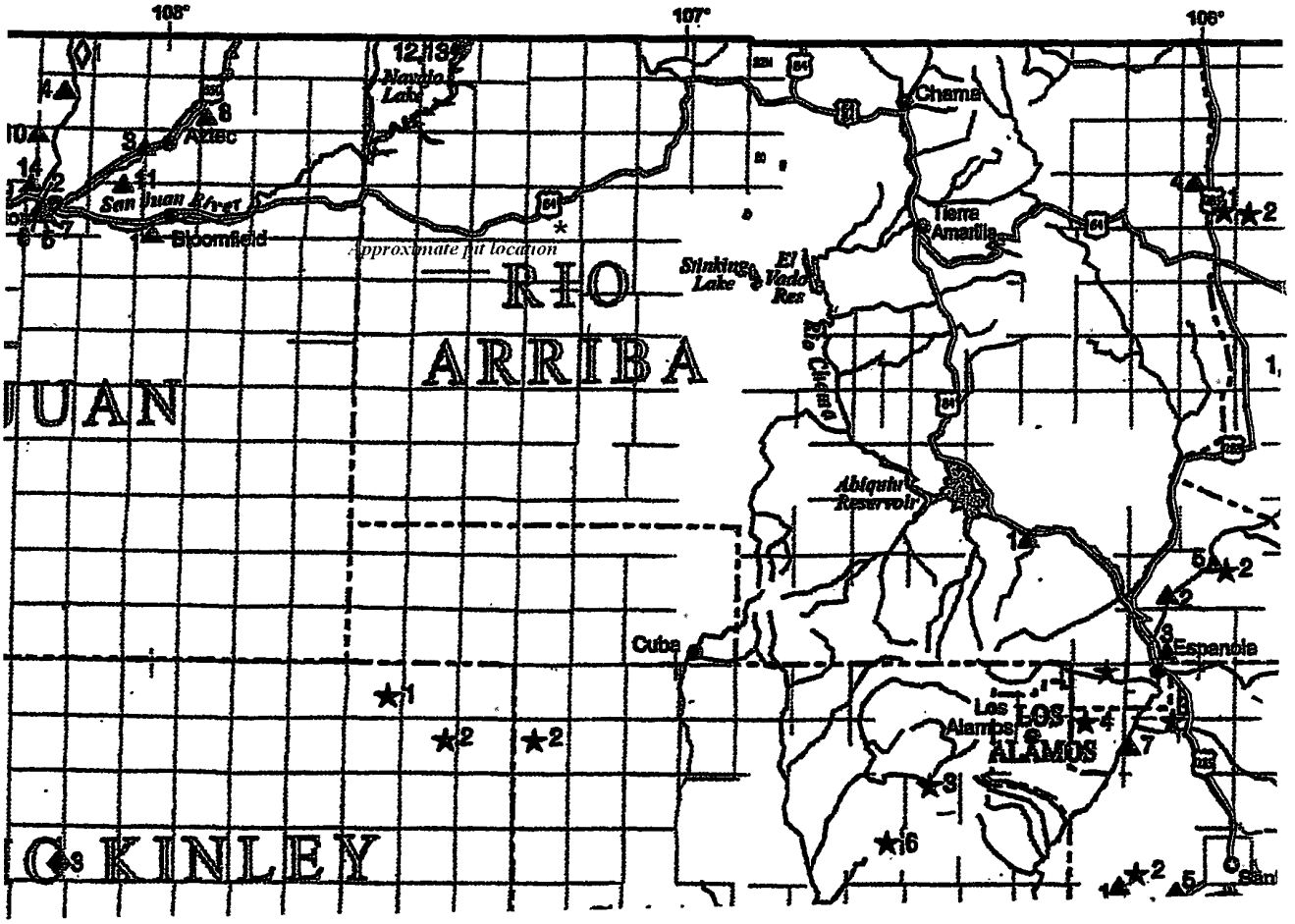
- Interstate
- Major Roads
- Other Road
- Interstate
- State highway
- US highway
- Roads
- Cities
- USGS Quad Index 24K
- Lower 48 Wetland Polygons
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine
- Lower 48 Available Wetland Data
- Non-Digital
- Digital
- No Data
- Scan
- NHD Streams
- Counties 100K
- Urban Areas 300K
- States 100K
- South America
- North America

Scale: 1:76,412

Mines, Mills, and Quarries in New Mexico
Spring 2001

Mining and Minerals Division New Mexico Energy

Many Canyons 29-04-28 #121



PO Box 395, Logan, NM 88426
Surface Estate: Same

RICHARDSON PIT ▲2
Aggregate/Sand & Gravel
Corn Construction Co.
PO Box 92797, Albuquerque, NM 87199
(505) 822-1776
Type of Operation: Surface Mine
Status: Active Mining
Location: Sec 12 T13N R36E
USGS Quad: Martin Draw
Mineral Estate: Private Land; Tom Mitchell c/o Jim Richardson; Rte. 1, Box 26, Bard, NM 88411
Surface Estate: Same

Rio Arriba County

ABIQUIU SAND & GRAVEL PIT ▲1
Sand & Gravel
Abiquiu Sand & Gravel
PO Box 406, Abiquiu, NM 87510
(505) 685-4666
Type of Operation: Surface Mine
Status: Under Development
Location: Sec 19 T23N R6E
USGS Quad: Abiquiu
Mineral Estate: Private Land; Bob A. Trujillo; PO Box 406, Abiquiu, NM 87510
Surface Estate: Same

EL GUIQUE PIT ▲2
Sand & Gravel
Espanola Transit Mix Co.
PO Box 38, Espanola, NM 87532
(505) 753-2176
Type of Operation: Surface Mine
Status: Active Mining
MSHA Number: 2901712
Location: Sec 26 T22N R8E
USGS Quad: San Juan Pueblo
Mineral Estate: Private Land; Piedra Inc.; PO Box 38, Espanola, NM 87532
Surface Estate: Same

LOWDERMILK ▲3
Sand & Gravel
Espanola Transit Mix Co.
PO Box 38, Espanola, NM 87532
(505) 753-2176
Type of Operation: Mill
Status: Active Mining
MSHA Number: 2901990
Location: NW Sec 26 T21N R8E
USGS Quad: San Juan Pueblo
Mineral Estate: Indian Land; San Juan Pueblo
Surface Estate: Espanola Transit Mix; PO Box 38, Espanola, NM 87532

RED HILL MINE (PORTABLE CRUSHER NO. 1)
Scoria ▲4
Mountain West-Colorado Aggregate of NM
2255 Lava Lane, Alamosa, CO 81101
(719) 589-4925
Type of Operation: Surface Mine
Status: Active Mining
MSHA Number: 2902158
Location: SW/SW Sec 5 T29N R9E
USGS Quad: San Antonio Mountain
Mineral Estate: Federal; BLM - Taos Resource Area; 224 Montevideo Plaza, Cruz Alts, Taos, NM 87571
Surface Estate: Joseph Garcia; PO Box 127, El Rito, NM 87530

VELARDE PIT ▲5
Sand & Gravel
Espanola Transit Mix Co.
PO Box 38, Espanola, NM 87532
(505) 753-2176
Type of Operation: Surface Mine
Status: Active Mining
MSHA Number: 2901712
Location: Sec 3 T22N R9E
USGS Quad: Velarde
Mineral Estate: Private Land; Cook Brothers; PO Box 38, Espanola, NM 87532
Surface Estate: Same

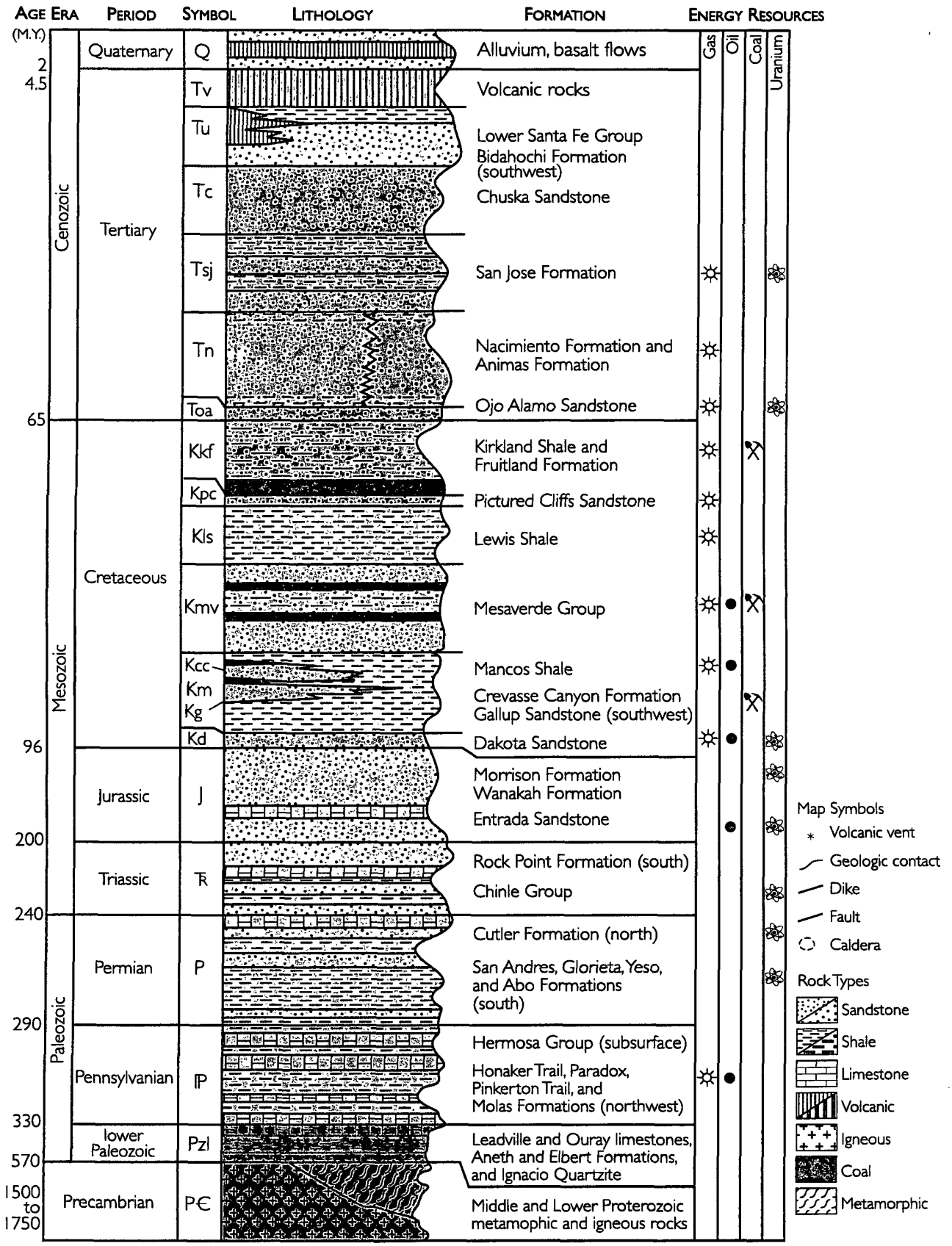
Roosevelt County

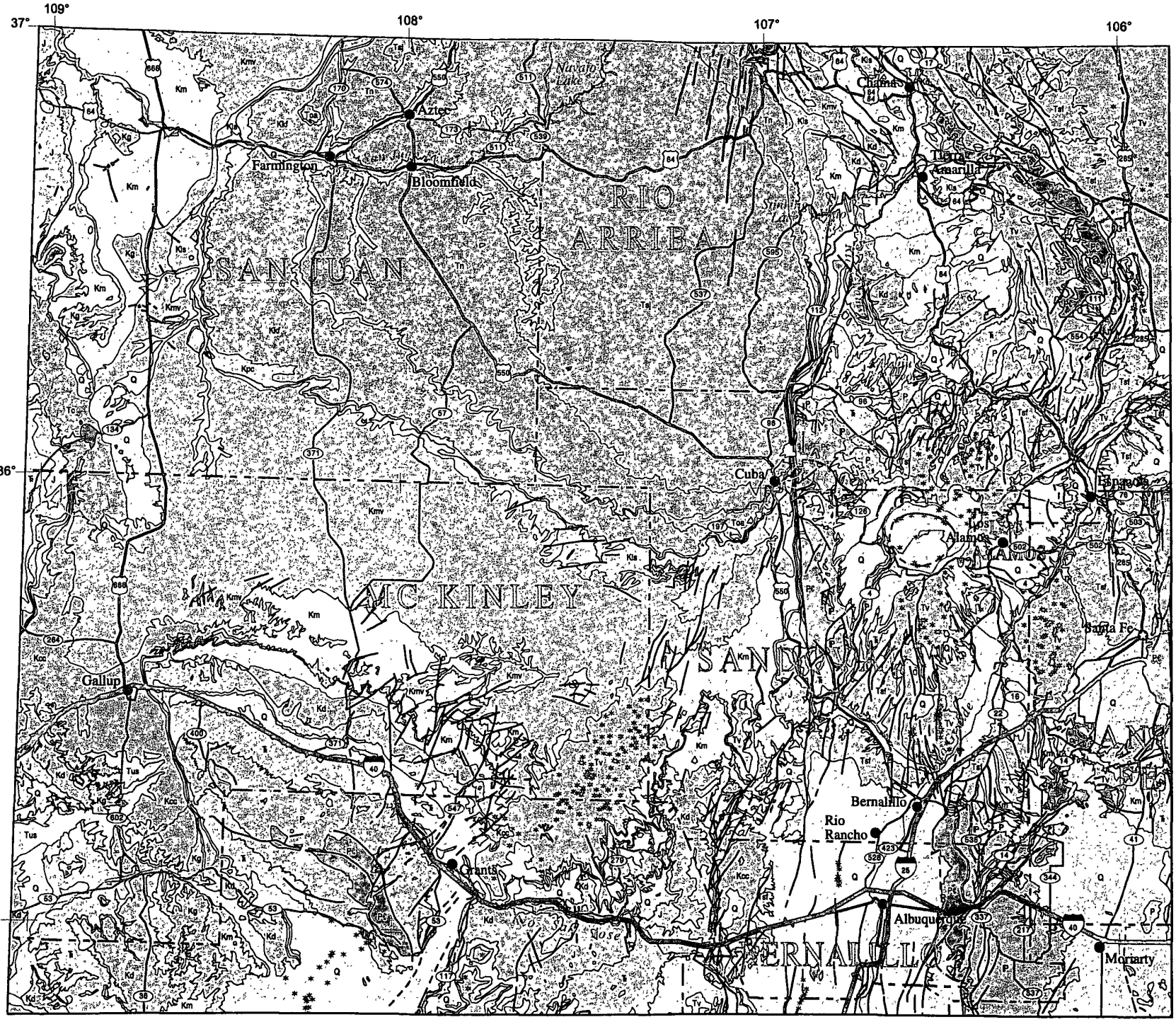
NUNN PIT ▲1
Crushed Rock/Caliche/Base Course
K. Barnett And Sons, Inc.
PO Box 960, Clovis, NM 88102-0960
(505) 762-4407
Type of Operation: Surface Mine
Status: Active Mining
MSHA Number: 2901543
Location: Sec 22 T2S R33E
USGS Quad: Delphos
Mineral Estate: Private Land; Mrs. Mary Lynch; South Floyd Hwy, Portales, NM 88130
Surface Estate: Same

VALLEY TOLAR PIT # 1 ▲2
Base Course/Fill Dirt/Sand & Gravel/Crushed Rock/Other
Valley Inc.
PO Box 344, Portales, NM 88130
(505) 355-7587
Type of Operation: Other
Status: Active Mining
MSHA Number: 2901797
Location: NE Sec 13 T3N R29E
USGS Quad: Krider
Mineral Estate: Private Land; Forrest Atchley; PO Box 272, Clayton, NM 88415
Surface Estate: Same

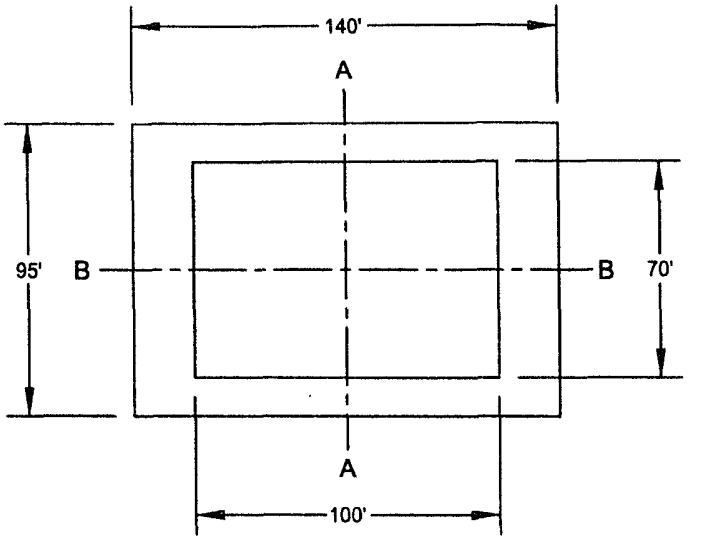
San Juan County

3 HATS ▲1
Sand & Gravel/Aggregate
LaFarge/4 Corners Division
PO Box 160, Aztec, NM 87410
(505) 334-1400

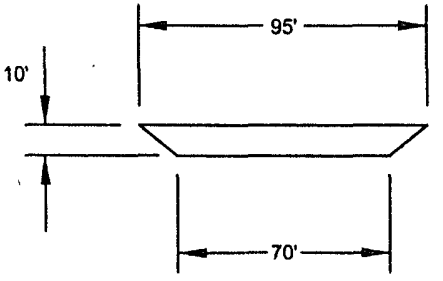

AGE ERA
PERIOD
SYMBOL
LITHOLOGY
FORMATION
ENERGY RESOURCES
(M.Y.)
2
4.5
65
96
200
240
290
330
570
1500 to 1750
Cenozoic
Mesozoic
Paleozoic
Precambrian
Quaternary
Tertiary
Cretaceous
Jurassic
Triassic
Permian
Pennsylvanian
lower Paleozoic
Q
Tv
Tu
Tc
Tsj
Tn
Toa
Kkf
Kpc
Kls
Kmv
Kcc
Km
Kg
Kd
J
TR
P
IP
Pzl
P€
Alluvium, basalt flows
Volcanic rocks
Lower Santa Fe Group
Bidahochi Formation (southwest)
Chuska Sandstone
San Jose Formation
Nacimiento Formation and Animas Formation
Ojo Alamo Sandstone
Kirkland Shale and Fruitland Formation
Pictured Cliffs Sandstone
Lewis Shale
Mesaverde Group
Mancos Shale
Crevasse Canyon Formation
Gallup Sandstone (southwest)
Dakota Sandstone
Morrison Formation
Wanakah Formation
Entrada Sandstone
Rock Point Formation (south)
Chinle Group
Cutler Formation (north)
San Andres, Glorieta, Yeso, and Abo Formations (south)
Hermosa Group (subsurface)
Honaker Trail, Paradox, Pinkerton Trail, and Molas Formations (northwest)
Leadville and Ouray limestones, Aneth and Elbert Formations, and Ignacio Quartzite
Middle and Lower Proterozoic metamophic and igneous rocks
Gas
Oil
Coal
Uranium
Map Symbols
Volcanic vent
Geologic contact
Dike
Fault
Caldera
Rock Types
Sandstone
Shale
Limestone
Volcanic
Igneous
Coal
Metamorphic


109°
108°
107°
106°
37°
36°
35°
Navajo Lake
Aztec
Farmington
Bloomfield
Chama
Tierra Amarilla
RIO ARRIBA
SAN JUAN
MC KINLEY
SANDOVAL
Cuba
Espanola
Alamos
Los Alamos
Santa Fe
Gallup
Grants
Bernalillo
Rio Rancho
Albuquerque
Moriarty
BERNALILLO

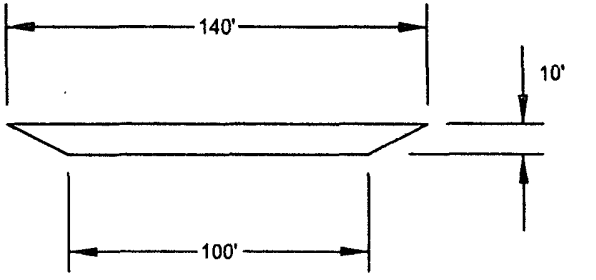
BLACK HILLS GAS RESOURCES
TYPICAL DRILLING PIT



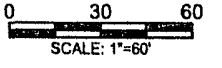
PLAN VIEW



VIEW A-A



VIEW B-B

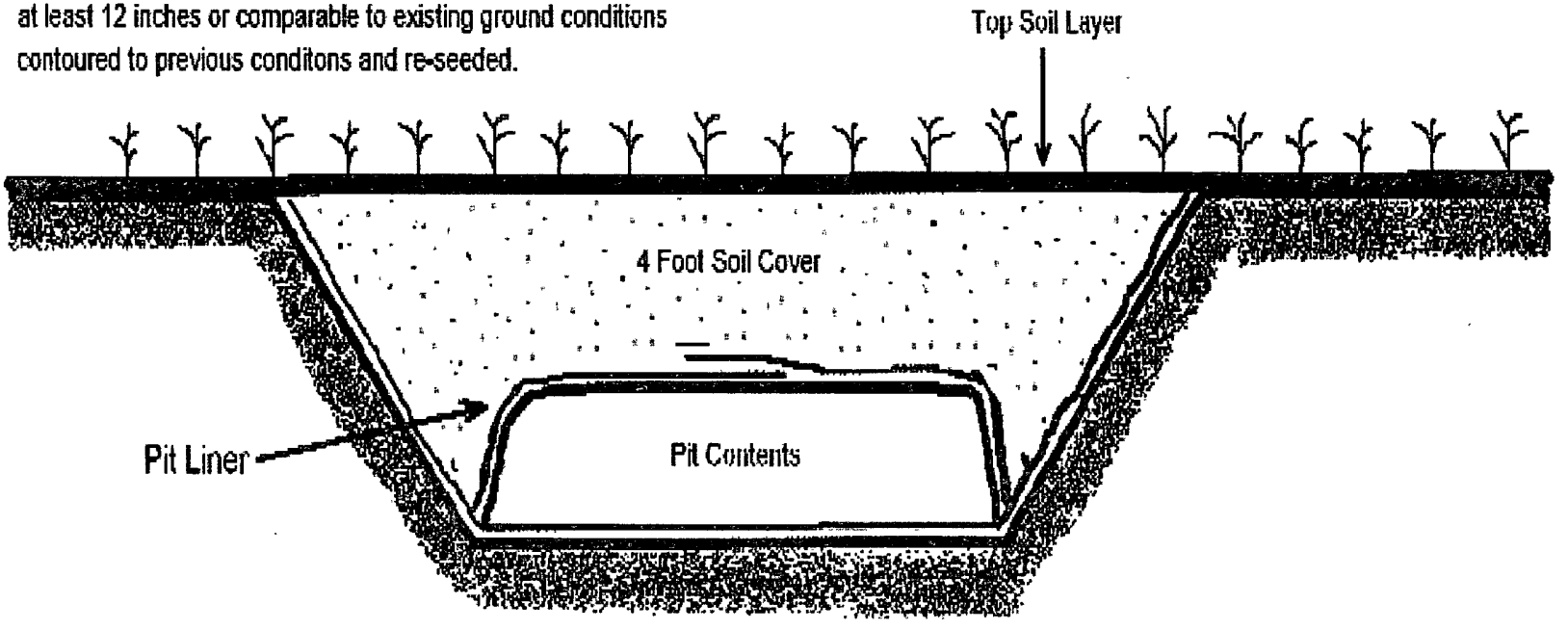


NOTE:

PIT VOLUME APPROXIMATELY 22,000 BARRELS ≈3.3. ACRE FEET OF WATER

Black Hills Gas Resources Pit Closure Diagram

Minimum 4 foot soil cover compacted with a topsoil layer
at least 12 inches or comparable to existing ground conditions
contoured to previous conditons and re-seeded.



Black Hills Exploration and Production

P.O. Box 249, 3200 N 1st St., Bloomfield, New Mexico 87413
PHONE: (505)-634-1111 ext 21 FAX: (505)-634-1116

FACSIMILE COVER PAGE

To:	Mark Catron
Company:	Forest Service
FAX:	505 632-3173
Date:	7/11/08
Pages:	2
Ref:	Pit closure notification

Note:

From: Lynn
Black Hills Gas Resources

Carson National Forest
Jicarilla Ranger District
664 East Broadway
Bloomfield, NM 87413
Phone: (505) 632-2956 FAX: (505) 632-3173

Deliver To: Lynn Benally
Person

Black Hills
Address/Unit

Phone/Fax Number

From: Mark Cotton
Person

Message: Let's see if this works.

Thanks

Mark

Total Number of Pages Sent (including coversheet): 2

☐ Confirmation Receipt Requested

Pit Closure Notification

In ordinance with 19.17.15.13 New Mexico Administrative Code (NMAC)

Operator/Pit Information:

Operator: Black Hills Gas Resources **Telephone:** (505) 634-1111 ext 27 **e-mail address:** dmanus@bhep.com

Address: 3200 N 1st Street PO Box 249 Bloomfield, NM 87413

Facility or well name: Many Canyons 29-04-28 #121 **API #:** 30-039-30231 **Lease Name:** NMNM18327

Footage:

U/L or Qtr/Qtr SW/NW **Sec** 28 **T** 29 N **R** 04 W **County:** Rio Arriba

Pit Coordinates:

Latitude 36° 41' 54.204"N **Longitude** 107° 17' 11.4216"W **NAD:** 1927 ☐ 1983 ☒

Pit

Type: Drilling ☒ Production ☐ Disposal ☐ Workover ☐ Emergency ☐

Lined ☒ Unlined ☐

Liner type: Synthetic ☒ Thickness 20 mil Clay ☐

Pit Volume 15,000 bbl

Black Hills Gas Resources plans to close the drilling Pit after receiving approval from NMOCD

Date: 7/11/2008

Printed Name/Title Lynn Benally / Regulatory Specialist

Signature [signature]

Received by:

Printed Name/Title MARK S. CATRON District Ranger

Signature [signature] **Date:** 7/11/08

Faxed to Lynn 7/11 MSC